APPENDIX A

PLANT MAINTENANCE – PIPEFITTER

D.O.T. CODE 862.281-022
O*NET CODE 47-2152.01

This training outline is the current standard for Work Processes and Related Instruction. Changes in technology, regulations, and safety/health issues may result in the need for additional on-the-job or classroom training.

WORK PROCESSES

		Approximate Hours
A.	Selecting Materials and Equipment	200

1. Reading blueprints and specifications.
2. Understanding written and spoken work orders.
3. Recognizing and selecting appropriate types and sizes of pipe and fittings.
4. Recognizing and selecting appropriate related materials and equipment, such as: valves, supports, fasteners.

B.	Layout	500

1. Inspecting work site to determine presence of obstructions, and to ascertain that holes cut for pipe will not cause structural weakness.
2. Planning installation or repair to avoid obstructions and to avoid interfering with activities of other workers.
3. Planning and marking layout, using computer software if available.

4. Minimizing waste of materials.
5. Coordinating with other trades.

C. Basic Pipefitting 900

1. Measuring and marking metallic and non-metallic pipe.
2. Cutting metallic and non-metallic pipe, using hand and power tools.
3. Threading pipe, using pipe threading machine.
4. Bending metallic and non-metallic pipe, using hand and power tools.
5. Joining metallic and non-metallic pipe, using hand and power tools for threading, soldering, brazing, fusing, welding or other approved processes.

D. Installation of Piping Systems 400

1. Cutting openings as required, using hand and power tools.
2. Hanging and supporting pipe and related materials.
3. Installing related equipment and making piping connections.
4. Increasing pressure in pipe system.
5. Testing of all components of installed systems, using pneumatic or hydrostatic testing procedures.

E. Service Installation – Drainage and Ventilation 500

1. Connecting to main.
2. Laying to underground sewer.
3. Roughing-in drain and ground lines.
4. Roughing-in soil stack.
5. Installing vent system.

F. Fixture Installation (optional*) 500

1. Sink.
2. Toilet.
3. Urinal.
4. Shower.
5. Drinking fountain.

G. Piping for Steam 1,500

1. Installing low-pressure systems.
2. Installing high-pressure systems.
3. Installing/connecting steam traps and other related equipment.
4. Insulating steam lines.

H. Sprinkler System Installation (optional*) 1,000

1. Overhead piping
   a. wet pipe system
   b. dry pipe system
   c. deluge and pre-action systems (spray, CO2 and foam).
2. Underground piping.

I. Piping for High-Pressure Gas and Steam Lines 1,500

1. Installing high-pressure gas and steam lines.
2. Installing high-pressure hydraulic line.
3. Assembling and installing refrigeration systems.
4. Assembling and installing air-conditioning systems.

J. Maintenance and Repair 1,000

1. Using proper start-up and shut-down procedures.
2. Maintaining, repairing, and modifying installed piping systems and components.
3. Repairing and calibrating mechanical meters.

TOTAL HOURS 8,000

* If an optional work process is not selected for completion, the hours should be devoted to further mastery of Work Process "J" (Maintenance and Repair).

Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to http://www.labor.state.ny.us/workerprotection/publicwork/PDFs/Article8FAQS.pdf.

APPENDIX B

PLANT MAINTENANCE – PIPEFITTER

RELATED INSTRUCTION

Safety and Health
- Proper Use of Personal Protective Equipment (PPE)
- Proper Lifting Techniques
- Fall Protection
- Working Safely in Confined Spaces
- Right-to-Know/MSDS
- Asbestos Awareness – minimum 4 hours (see attachment)
- First Aid – minimum 6.5 hours every 3 years

Blueprints and Plans
- Reading Drawings, Diagrams and Trade-Related Symbols
- Reading Specifications
- Blueprint Reading for the Pipe Trades
- Intro to Drawing Skills for the Trade; or, Computer-Aided Drafting (CAD)

Mathematics
- Basic Math
- Trade Math (including pipe measurements, and instruments used for piping systems layout)
- Layout

Trade Theory and Science
- Use and Care of Tools and Equipment
- Materials of the Trade
- Trade-Related Physics and Chemistry
- Local Plumbing Codes and Regulations
- Soldering and Brazing
- Cutting and Welding
- Drainage and Ventilation
- Steam Systems
- Other Industrial/Commercial Piping Systems
- Intro to Hydraulics
- Intro to Pneumatics
- Pumps
- Refrigeration Systems
- Air Conditioning Systems
- Conservation and Safe Handling of Refrigerants (EPA certifications as required)

Basic Electricity
Manual and Automatic Controls
Testing Systems
Valve Repair
Fixture Installation (if Work Process “F” in Appendix A is selected)
Sprinkler System Installation (if Work Process “H” in Appendix A is selected)

Other Workplace Skills
Oral Communication Skills
Sexual Harassment Prevention Training – minimum 3 hours

Other Related Courses as Necessary

A minimum of 144 hours of Related Instruction is required for each apprentice for each year.

ATTACHMENT TO APPENDIX B

Asbestos Awareness

This course must be delivered by one of the following:

1. A provider currently approved by the New York State Department of Health to deliver asbestos safety training.
2. A person holding a current Asbestos Handler certificate from the New York State Department of Labor in the title of: Inspector, Supervisor, Project Monitor, Management Planner, or Project Designer.
3. Anyone otherwise approved by the New York State Education Department.

Minimum course contents must include the following:

1. Definition of asbestos
2. Types and physical characteristics
3. Uses and applications
4. Health effects:
    - Asbestos-related diseases
    - Risks to families
    - Cigarette smoking
    - Lack of safe exposure level
5. Employer-specific procedures to follow in case of potential exposure, including making a supervisor or building owner immediately aware of any suspected incidental asbestos disturbance so that proper containment and abatement procedures can be initiated promptly.

Notwithstanding the above course requirement, employers are advised that they must also be in compliance with New York State Department of Labor Industrial Code Rule 56 at all times.

Employers are further advised, and must advise all apprentices, that completion of the above course requirement does not authorize any person to remove, encapsulate, enclose, repair, disturb, or abate in any manner, any friable or non-friable asbestos, asbestos containing material, presumed asbestos containing material, or suspect miscellaneous asbestos containing material.