STATIONARY ENGINEER

APPENDIX A

O*NET CODE 51-8021.00

This training outline is a minimum standard for Work Processes and Related Instruction. Changes in technology and regulations may result in the need for additional on-the-job or classroom training.

WORK PROCESSES

	Approximate Hours
A. Electrical Control and Distribution	**800**
B. Refrigeration Systems	**1,250**
1. Commercial	
2. Industrial	
C. Air Conditioning System	**1,250**
1. Repair and maintenance	
2. CFC Training and Cortication	
D. Boilers	**1,250**
1. Low pressure systems	
2. High pressure systems	
3. Repair and maintenance operation	
E. Air Handling Systems	**1,250**
F. Industrial Equipment	**800**
1. Utilization	
2. Repair and maintenance operation	
G. Chemical Treatment of Water Systems	**800**
H. Fuels and Fuel Technology	**600**
1. Environmental considerations	
Approximate Total Hours	**8,000**

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 https://dol.ny.gov/public-work-and-prevailing-wage

STATIONARY ENGINEER

APPENDIX B

RELATED INSTRUCTION

Safety (10 hours minimum-first year)

1. Fundamentals
2. Trade Safety (including hazardous waste safety and all applicable OSHA and EPA Regulations, i.e. New York State Right-To-Know Law)
3. Asbestos Awareness – minimum 4 hours (see attachment)
4. First Aid (6.54 hours minimum every 3 years)
5. Sexual Harassment Prevention Training – must comply with section 201-g of the Labor Law)

Industrial and Labor Relations (20 Hours)

1. History and Background (6 hours-first year)
2. Current Laws and Practices (14 hours-second year)

Blueprint Reading, Sketching and Drawing

1. Elementary Blueprint Reading and Sketching
2. Advanced Blueprint Reading and Sketching
3. Electrical Circuit and Diagrams
4. General Engineering of Machine Installation Specifications

Mathematics

1. Fundamentals
2. Electrical Mathematics, Formulae
3. Shop Mathematics
4. Algebra
5. Geometry
6. Use of Handbook, Tables, Charts

Trade Theory and Science

1. Introduction to Boilers
    a. Boiler Accessories
    b. Boiler Design and Constructions
2. Combustion of Fuel

3. Operation and Maintenance of Steam Boilers
4. Fundamentals of Air Conditioning
    a. Components
    b. Refrigerants
    c. Design and Construction
    d. Accessories
    e. Controls
    f. Physics of Air Conditioning
    g. Refrigerant System Operations
    h. Centrifugal Refrigeration
    i. Absorption Refrigeration
    j. Heat Pumps
    k. Basic Control electricity
    l. CFC Training and Certification
5. Basic Electricity
    a. Sources of Electricity
    b. Conductors and Insulators
    c. Ohm’s Law
    d. AC/DC Current Circuits
    e. Resistors and Capacitors
    f. Electromagnetic Induction
    g. Motors and Motor Circuits
6. Direct Digital Controls and Building Automation Systems
7. Pneumatic Control Systems
8. HVAC Testing and Balancing
    a. HVAC General System Maintenance
    b. HVAC Hair Handing Systems
    c. Instruments
    d. Systems (Volume Supply, Return Air and Toilet Exhaust, Variable Air Volume
    e. Ductwork and Damper Testing
    f. Fan Design and Operation
9. IAQ Training
    a. Troubleshooting

b. General Systems Maintenance

10. Contaminants
    a. Air Sampling and Carbon Dioxide
    b. Air Volume and Air Circulation
    c. Carbon Monoxide, Formaldehyde, Radon and Asbestos and Leads

Other Related Courses as Necessary

144 Hours of Related Instruction Are Required for Each Apprentice for Each Year.

Appendix B topics are approved by New York State Education Department.

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:
    a. Asbestos-related diseases
    b. Risks to families
    c. Cigarette smoking
    d. 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 materials.