PLANT MAINTENANCE - BOILERMAKER
(Time-Based)

APPENDIX A

O*NET CODE 47-2011.00

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. Workplace Basics — 500

1. Following all safety procedures and policies.
2. Properly using all required Personal Protective Equipment (PPE).
3. Properly using, storing, disposing of any trade-related hazardous materials, such as lubricants (if applicable).
4. Safely cleaning/working with lead or asbestos-containing machinery/equipment (if applicable).
5. Reading blueprints and schematics.
6. Using all tools necessary for the trade, including but not limited to: wrenches, screwdrivers, hammers, hammer drills, pipe threaders, pipe cutters, tube rollers, oxyacetylene torches, multimeters, combustion analyzers.

B. Boiler Basics — 500

1. Identifying boiler types: a) firetube; b) water tube; and c) cast iron sectional boilers.
2. Identifying boiler classifications: a) low pressure - primarily HVAC applications; and b) high pressure – primarily used for power generation.
3. Identifying and learning functions of boiler components, including but not limited to: burners, combustion chamber, heat exchanger, exhaust stack, condensate pumps, and controls.

C. Boiler Operation — 2000

1. “Starting up” boilers.

2. Monitoring boiler operations: checking water levels and pressures, testing low water controls, checking overpressure switches and other safety features.
3. Managing heating systems' efficiency to ensure cost-savings and minimizing energy expenditures by utilizing boiler management systems and experience acquired on the job.

D. Boiler Assembly **1500**

1. Rebuilding boilers, including wiring of controls, connections to existing building system(s), boiler supply and return lines, feed waterlines, intake, and exhaust.
2. Rigging where/when appropriate.
3. Welding where/when appropriate.
4. Testing installed boilers to ensure safe operation.

E. Boiler Maintenance, Repair, and Reassembly **3500**

1. Troubleshooting boiler problems; determining whether electrical or mechanical.
2. Running appropriate diagnostics to help locate source of issue.
3. Repairing boiler tubes. Re-tubing: cutting out old tubes, cutting new tubes to length, rolling new tubes.
4. Reassembling and performing hydrostatic testing to ensure no leakage.
5. Splitting cast iron sectional boilers; repairing and replacing components; reassembling and testing to ensure no leakage.
6. Repairing and reassembling high efficiency firetube boilers (such as CleaverBrooks Clearfire, Camus Hydronics, Ltd Advantus).
7. Welding where/when appropriate.
8. Rigging where/when appropriate.
9. Repairing and replacing electrical components of boilers/boiler systems.
10. Following preventive maintenance schedule.

Approximate Total Hours **8000**

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*.

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APPENDIX B

RELATED INSTRUCTION

Safety, Health, and Workplace Orientation

1. General Workplace Safety
2. Right-to-Know/Safety Data Sheets (SDS)
3. Asbestos Awareness (see Attachment to Appendix B)
4. Proper Use of All Trade-Related Personal Protective Equipment (PPE)
5. First Aid & CPR (minimum of 6.5 hours every 3 years)
6. Lock-Out/Tag-Out (LO/TO)
7. Sexual Harassment Prevention Training – must comply with section 201-g of the Labor Law

Trade Theory and Science

1. Blueprint Reading
2. Trade Terminology
3. Trade Math
4. Basic Mechanics
5. Fundamentals of Electricity
6. Fundamentals of Electronics
7. Hydrostatic Testing
8. Introduction to Programmable Logic Controllers (PLCs)
9. Heat Transfer
10. Boilers –standalone firetube and watertube; cast iron sectional; and single unit/multi-unit high efficiency firetube
11. Boiler Management Systems
12. Instrumentation
13. Safety Controls
14. Metallurgy
15. Cutting & Burning
16. Welding/Brazing/Soldering
17. Grinding

Other Courses as Necessary

A Minimum of 144 Hours of Related Instruction is 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 material.