MILLWRIGHT

APPENDIX A

O*NET CODE 49-9044.00

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. General Knowledge **325 – 500**

1. Properly using all appropriate Personal Protective Equipment (PPE)
2. Safe use and care of hand tools used in the trade
3. Safe use and care of power tools used in the trade
4. Safe use and care of precision measuring tools used in the trade
5. Accurately reading mechanical blueprints
6. Layout
7. Selecting and using appropriate bolts and fasteners
8. Torquing
9. Thermal expansion
10. Selecting and applying proper lubricants

B. Machine Components **1,000 – 1,700**

1. Unloading, unpacking, inspecting machinery and equipment
2. Selecting appropriate cables, ropes, and chains; operating crane and other hoisting devices
3. Fabricating sole plates, or supervising their fabrication
4. Assembling basic unit
5. Grouting
6. Attaching motor
7. Fitting bearings
8. Installing gaskets and seals
9. Installing drive systems

10. Installing hydraulic and pneumatic systems
11. Connecting industrial belting
12. Installing and aligning gearboxes
13. Attaching subassemblies to basic assembly unit
14. Setting specified clearances between moving and stationary parts

C. Machinery Installation **1,000 – 1,700**

1. Basic machinery installation
2. Fastening machine to foundation
3. Installing conveyor systems
4. Installing monorail systems
5. Installing pumps
6. Installing air compressors
7. Installing fans
8. Installing turbines
9. Installing generators
10. Calibrating
11. Conducting test run; making necessary adjustments

D. Machinery Alignment **1,000 – 1,700**

1. Performing accurate alignments:
    a. rim-face coupling
    b. reverse dial coupling
    c. vertical coupling
    d. optical alignment
    e. electric micrometer wire alignment
    f. gear alignment
    g. sprocket and sheave alignment

E. Supplemental Skills **975 – 1,500**

1. Rigging of cranes and other hoisting devices
2. Metal fabrication
3. Oxygen-acetylene cutting
4. Oxygen-acetylene welding
5. Basic SMAW welding

6. Soldering
7. Safely erecting, using, repairing, dismantling scaffolding
8. Troubleshooting and repairing machinery and equipment
9. Dismantling machinery and equipment

F. Industry-Specific Skills **900**

1. Specialization in certain machines or machine brands, or
2. Specialization in the machines of a specific industry, such as:
   a. aerospace
   b. automotive
   c. food processing
   d. lumber
   e. material handling
   f. mining
   g. nuclear
   h. petrochemical
   i. power production
   j. pulp and paper
   k. steel/alloy/aluminum

Approximate Total Hours **5,200 – 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.

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APPENDIX B

RELATED INSTRUCTION

Safety and Health

1. OSHA 10-Hour Safety Course for Construction
2. Proper Use of Personal Protective Equipment (PPE)
3. Right-to-Know/Material Safety Data Sheets (MSDS)
4. Proper Lifting Techniques
5. Fall Protection
6. Scaffolding Safety
7. Lock Out/Tag Out
8. Confined Space Safety
9. Ergonomics
10. CPR/First Aid – minimum 6.5 hours every 3 years
11. Protecting Skin and Eyes from Sun Damage (if applicable)
12. Asbestos Awareness – minimum 4 hours (see attachment)
13. Sexual Harassment Prevention Training – MUST comply with Section 201-g of the Labor Law

Blueprints

1. Reading Mechanical Blueprints
2. Sketching and Layout
3. CAD (at option of sponsor)

Mathematics

1. Review of Fundamentals as Necessary
2. Trade Math
3. Precision Measurement
4. Use of Handbooks and Reference Tables

Trade Theory and Science

1. Millwright Industry Orientation
2. Tools of the Trade
3. Fundamentals of Mechanics
4. Fundamentals of Hydraulics

5. Fundamentals of Pneumatics
6. Introduction to Electricity
7. Introduction to Electronics
8. Introduction to Computers
9. Lubrication
10. Rigging and Signaling
11. Bolts and Fasteners
12. Metal Fabrication
13. Oxygen-Acetylene Cutting
14. Oxygen-Acetylene Welding
15. Basic SMAW Welding
16. Soldering
17. Basic Vibration Analysis
18. State and Local Codes for Installing Machinery
19. Introduction to Machine Tool Operation (at option of sponsor)
20. Power Industrial Truck Operation (at option of sponsor)

Additional Workplace Skills

1. Oral Communication Skills
2. Team Building Skills (at option of sponsor)
3. Time Management (at option of sponsor)
4. Productivity (at option of sponsor)

Other Related Courses as Required

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.