Appendix A

WORK PROCESS SCHEDULE
ACCESSIBILITY AND PRIVATE RESIDENCE LIFT TECHNICIAN
O*NET-SOC CODE: 47-4021.00 RAPIDS CODE: 2020

This schedule is attached to and a part of these Standards for the above identified occupation.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be two (2) years with an OJL attainment of 4200 hours supplemented by the required hours of related instruction.

2. RATIO OF APPRENTICES TO JOURNEYWORKERS

One (1) apprentice may be employed in each shop department, and/or jobsite employing a qualified journeyworker.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyworker wage rate.

2 Year Term Example:

1st	6 months + hours = ___	2nd	6 months + hours = ___
3rd	6 months + hours = ___	4th	6 months + hours = ___

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

The Sponsor may modify the work processes to meet local needs prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Instruction Outline)

WORK PROCESS SCHEDULE
ACCESSIBILITY AND PRIVATE RESIDENCE LIFT TECHNICIAN
O*NET-SOC CODE: 47-4021.00 RAPIDS CODE: 2020

DESCRIPTION: Assemble, install, repair, or maintain vertical platform lifts, inclined platform lifts, inclined stairway lifts or private residence elevators.

	Hours
Introduction, Code and Safety:	**800**
A. General knowledge of basic safety	
B. Instruction on proper use of tools	
C. General knowledge of National Applicable Codes and Regulations	
D. Introduction to basic electricity	
E. Print reading	
F. Installation basics	
Vertical Platform Lifts (VPL):	**600**
A. Overview of equipment	
B. Safety procedures	
C. Installation procedures	
D. Wiring, power supplies and control circuits	
E. Operation of equipment	
Inclined Platform Lifts (IPL):	**500**
A. Overview of equipment	
B. Safety procedures	
C. Installation procedures	
D. Wiring, power supplies and control circuits	
E. Operation of equipment	
Inclined Stairway Lifts (ISC):	**500**
A. Overview of equipment	
B. Safety procedures	
C. Installation procedures	
D. Wiring, power supplies and control circuits	
E. Operation of equipment	
Private Residence Elevators (PRE):	**1800**
A. Overview of equipment	
B. Safety procedures	
C. Installation procedures	
D. Wiring, power supplies and control circuits	
E. Operation of equipment	
Total Hours	**4200**

RELATED INSTRUCTION OUTLINE
ACCESSIBILITY AND PRIVATE RESIDENCE LIFT TECHNICIAN
O*NET-SOC CODE: 47-4021.00 RAPIDS CODE: 2020

First Year

Introduction, Safety and Code 76

1. Vertical Transportation History
    - History of Elevators
    - History of Private Residence Elevators
    - Excerpts from the ASME A17.1 Safety Standard Code
    - History Referencing Wheelchair lifts and Private Residence Elevators
    - The A18.1 Safety Standard for Platform Lifts and Stairway Chairlifts
2. Organizations Relevant to the Vertical Transportation Industry
    - Industry Organizations/Associations
3. National Applicable Codes and Requirements
    - Applicable Codes and Publications
    - ASME Codes and Standards
    - American National Standards Institute (ANSI)
    - National Fire Protection Association (NFPA)
    - The National Electrical Code (NEC)
    - BOCA National Building Code 1996
    - Uniform Building Code/Standard Building Code
    - Related Publications
4. Accessibility Industry Glossary of Terms
    - Glossary of Terms
5. Types of Accessibility & Residential Equipment
    - Introduction
    - Vertical Platform Lifts
    - Application of Vertical Platform Lifts (VPL)
    - Drive Systems for Vertical Platform Lifts
    - Application of Inclined Platform Lifts
    - Application of Stairway Chairlifts
    - Types of Stairways
    - Drive Types of Stairway Lifts
    - Operation
    - Private Residence Elevator
    - Application of Private Residence Elevators
6. General Safety
    - Introduction
    - Basic Safety
    - Safety During Construction
    - Service Safety
    - Personal Safety Equipment
7. Introduction to Basic Electricity
    - OHM’s Law
    - What is Current?
    - Basic Direct Current Circuits/Service vs. Parallel
    - Understanding and Calculating Parallel Circuits

- Electric Motors
- Electromechanical Systems
- Basic Primer on Electrical Devices

8. Print Reading
    - Print Terminology
    - Drawing to Scale
    - Introduction to Installation Drawings
9. Installation
    - Introduction
    - Planning
    - Environmental Protection
    - Plumb and Square
    - Wiring Methods

Vertical Platform Lifts **40**

1. Overview
    - Applicable Code Sections
    - Notes on Regulations
    - Legal Note
    - Metric and Imperial Conversions
2. Landing Doors and Gates
    - Terminology
    - Types of Doors
    - Application
    - Testing the Door After Installation
    - Handing
    - Americans with Disabilities Act Accessibility Guidelines (ADAAG)
    - Top Door Fastenings
    - Do's and Don'ts for Doors
    - Fire Rated Doors
3. Landing Door and Gate-Locking Devices
    - Code Requirements
    - Types of Locking Devices
    - Interlocks and Lock/Cam-Operated Contacts
    - Electrically Operated Interlocks, Combination Mechanical Locks and Electrical Contacts
    - Comparing Electrically Operated Locking Devices and Cam-Operated Locking Devices
    - Environmental
    - Interlock Installation
4. Machinery Tower/Mast
    - Mast
    - Access Covers
    - Anchors
    - Plumb and Level
    - Shimming
    - Additional Support
    - Enclosure Models

- Pit or No Pit
- Terminology
- Mast and Enclosure Stabilizing and Support

5. Platforms
   - General
   - Sizes
   - Clearances
   - Deflection of Platform
   - Barrier Walls
   - Installing Barrier Walls
   - Platform Gates
   - Ramps
   - Under-Platform Obstruction Sensors
   - Final Check
6. Safeties and Governors
   - Safeties
   - Safeties and Applicable Drive Systems
   - Overspeed Governors
   - Friction Drive
   - Scissor Lift
   - Testing Safeties in the Field
7. Hoistway/Runway Enclosure
   - General
   - Installation in a Finished Runway within a Building
   - Installation in an Enclosure Provided by the Manufacturer
   - Installation of a Runway Enclosure
   - Pre-Manufactured Assemblies
   - Partially Enclosed
   - Runway Surfaces
   - Fascia
   - Heat Dissipation
8. Wiring, Power Supplies, Control Circuits and Operations
   - Environmental Protection
   - Wiring
   - Wiring Methods
   - Power Supply
   - Additional Circuits
   - Controls
9. Other Components
   - Audio-Visual Alerts/Alarms
   - Trailing (Traveling) Cables
   - Hydraulics

Inclined Platform Lifts **40**

1. Overview
   - General
   - Application
   - Manufacturers
   - Types of Stairways and Lifts

- Regulations
- Applicable National Code
- Environmental Protection

2. Power Supply and Wiring
   - Power Supply
   - Additional Circuits
   - Wiring
3. Stairways
   - Guide/Support Track (Straight or Curved)
   - General
   - Straight IPLs
   - Mounting Posts
   - Shimming
4. Power Transfer/Landing Calls
   - Traveling Cable
   - Bus Bar
   - Igus Cable (Cable Chain)
   - Sliding Contacts
   - Radio Frequency
   - Modulated Audio Signal
   - Infrared Signal
   - Infrared Controls
5. Battery Operated Models
   - Charger Wiring and Contacts
   - Aligning Charging Contacts
   - Hybrid Drive
   - Battery Types
6. Barrier Arms
   - General
   - Barrier Arms (Passenger Restraining Arms)
   - Training
   - Schematics
   - Clearances
7. Controls and Operation
   - Controls
   - Emergency Signaling
   - Stopping at Landings
   - Sequence of Operations
   - Attendant Operation
8. Platform, Safeties and Governors
   - Platform Retractable Ramps
   - Strength of Ramps
   - Fixed Ramps
   - Under-Platform Obstruction Sensors
   - Final Check
   - Deflection of Platform
   - Platform Sizes
   - Platform Capacity, Speed and Maximum Angle
   - IPL Safeties and Governors
   - Types of Safeties
   - Safeties and Applicable Drive Systems

- Overspeed Governors
- Friction Drive
- Testing Safeties in the Field

Total Hours **156**

Second Year

Inclined Stairway Chairlifts (ISC) **20**

1. Overview
    - ISC and the ADA
    - Manufacturers and Suppliers
    - Applicable National Code
    - Brakes, Governors and Safeties
    - At the Customer's Home
2. Power Supply and Wiring
    - Battery-Operated Stairlift
    - Household Power Supply
    - Environmental Considerations
    - Battery-Charger Wiring and Contacts
    - Wiring
    - Alarm
    - Battery Power
    - Additional Circuits
3. Track Installation
    - Cutting a Straight Track
    - Extending Track
    - Rental Fleets
    - Stair Track Installation
    - Battery Concerns
    - Runway Obstructions
    - Curved Track
    - Measuring a Spiral Curve
    - New Developments in Measuring Stairways
    - Preliminary Review of Manuals/Drawings
    - Carpenter's Level
    - Mounting Posts
    - Customer Turnover/Customer Orientation

Private Residence Elevators (PRE) **124**

1. Overview
    - General
    - PRE's and the ADA
    - Excerpts for ADA
    - Application Notes
    - Manufacturers
    - Code Limitations
    - At the Customer's Home

2. Drives
    - General
    - Arrival of the MRL Traction to the PRE Industry
    - A Primer on Traction Drives and Their Potential Hazard to the Installer During Installation
    - Safeties and Governors
    - Winding Drum Drive
    - Hydraulic Drive
    - Servicing a Hydraulic Elevator Cylinder
    - Procedure for Resealing of Hydraulic Jacks
    - Roped Hydraulic Jack Unit Installation
    - Screw Drives
    - Rack and Pinion
    - Chain Drives
    - Manual Lowering Instructions KVIP and EV100 Control Valves
    - Hydraulic Valve Adjustments for the EV Series Variable Speed Valve
    - Telescopic Hydraulic Jacks
3. Power Supply and Wiring
    - General
    - Hoistway wiring
    - Automatic or Manual In-Car Lighting
    - Telephone & Alarm Requirements
    - Traveling Cables
    - Elevator Traveling Cable – Design Evolution
4. Hoistway
    - Landing doors
    - Vertical Alignment
    - Rail brackets and rail installation
    - Layout drawings
5. Car and Sling
    - Cab Enclosure
    - Car Sling
    - The Platform
    - Car Entrances
    - Control Systems
    - Lighting in the Car
    - Performing a Safety Test
    - Cab Enclosure
6. Landing Door/Gate Interlocks and Lock & Contacts
    - Landing Door/Gate Locking Devices
    - Electrically Operated Interlocks
    - Combination Mechanical Locks and Electrical Contacts
    - Locking-Device Comparisons
    - Interlock Installation
    - Lock Maintenance
7. Before Leaving the Jobsite
    - Final Safety Check
    - Test of Operation

- Review by Owner/User
- Lubrication
- Before You Leave the Home
- Safety with Your Personal Elevator

Total Hours	**144**