CARPENTER INDUSTRY ADVISORY COMMITTEE

2020
Minimum Industry Training Standards

Acoustical
Cabinetmaker
Carpentry
Drywall Applicator
Hardwood Floor Layer
Insulator
Modular Installer
Millwright
Pile Driver
Scaffold Erector
Shingler
Industry Training Criteria for Acoustical Installer

ONET Code: 47-2031-01A
Date: 8/24/2020
Completion rate established at 30%

1. **Length of Training**
   a. Minimum of three years
   b. Minimum of 3600 work hours

2. **Related Supplemental (Classroom) Instruction**
   a. Minimum of 144 hours of Related and Supplemental Instruction per year.
   b. Appendix A: Acoustical Installer related and supplemental instruction

3. **On The Job Training**
   a. Appendix B: Acoustical Installer Work Processes

4. **Competency Evaluation**
   a. All apprentices must pass a competency evaluation prior to the time of their classification advancement to the next higher period. The evaluation shall be based on Related Supplemental Instruction.

5. **Apprenticeship Program Completion Percentages**
   a. Of those apprentices that satisfactorily progressed beyond the first two periods of apprenticeship, program sponsors must have a completion rate of no less than 30%.

6. **Procedures for the Review and Revision of the Training Criteria**
   a. The Carpenters’ Industry Advisory Committee shall meet at the call of the chair or no less than once each three years to review, and revise if necessary, the industry training criteria. Any and all such industry training criteria for Acoustical Installer shall be in accordance with California Code of Regulations, Title 8, Section 212 in its entirety.
Appendix A: Acoustical Installer Related and Supplemental Instruction

1. Safety
   - Safety with hand and power tools
   - Construction site worker safety (OSHA)
   - First aid and CPR certification

2. Basic Skills
   - Trade orientation
   - Construction Mathematics
   - Print reading
   - Layout and leveling instruments
   - Scaffolds

3. Hanger Installation
   - Measuring and layout
   - Cutting and fitting
   - Code requirements

4. Ceiling Suspension Installation
   - Standard grid patterns
   - Special ceilings and security systems

5. Sound Attenuation Systems

6. Green Construction & Supplemental Skills
   - Green awareness: environment and sustainability; jobsite energy conservation and efficiency
   - Green rating systems; personal jobsite “green” responsibilities
   - Green building codes: CalGreen
   - Green products and sustainable building materials
   - Waste management and recycling procedures
   - Site environmental management and protection procedures
   - Construction air quality management
Appendix B: Acoustical Installer Work Processes

Suggested Minimum On The Job Training (OJT) Hours: *
Includes but not limited to:

<table>
<thead>
<tr>
<th>WORK PROCESS</th>
<th>APPROXIMATE HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Scaffolds and Material Handling</td>
<td>700</td>
</tr>
<tr>
<td>B. Suspended Ceiling Systems</td>
<td>1300</td>
</tr>
<tr>
<td>C. Acoustical Tile and Panel</td>
<td>400</td>
</tr>
<tr>
<td>Installation</td>
<td></td>
</tr>
<tr>
<td>D. Layout and Use of Leveling Devices</td>
<td>400</td>
</tr>
<tr>
<td>E. Special Application Techniques</td>
<td>500</td>
</tr>
<tr>
<td>F. Supplemental Skills and Green Site Work</td>
<td>300</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3600</strong></td>
</tr>
</tbody>
</table>

* These are recommended minimums, and individual program sponsors should review and try to meet these minimums. A through F may be combined in different hourly totals to meet the minimum of 3600 hours of on-the-job training.

**The committee has unanimously agreed to submit the Carpenters MITC without revisions.**

Submitted By: Acoustical Installer Minimum Industry Training Criteria Committee

Chair: ____ /s/ Peter O'Farrell __________________________ Date: ___ 8/20/20 _____
Peter O'Farrell, Carpenters Training Committee for Northern California

Co-Chair: ____ /s/ Pete Saucedo __________________________ Date: ____ 9/24/20 _____
Pete Saucedo, San Diego Associated General Contractors J.A.C.
Industry Training Criteria for Cabinet Maker

ONET Code: 51-7011.0
Date: 8/24/2020

1. **Length of Training**
   Minimum of four years
   Minimum of 4800 work hours

2. **Related Supplemental (Classroom) Instruction**
   Minimum of 144 hours of Related and Supplemental Instruction per year.
   Appendix A: Cabinet Maker related and supplemental instruction

3. **On The Job Training**
   Appendix B: Cabinet Maker Work Processes

4. **Competency Evaluation**
   All apprentices must pass a competency evaluation prior to the time of their classification advancement to the next higher period. The evaluation shall be based on Related Supplemental Instruction.

5. **Apprenticeship Program Completion Percentages**
   Of those apprentices that satisfactorily progressed beyond the first two periods of apprenticeship, program sponsors must have a completion rate of no less than 33%.

6. **Procedures for the Review and Revision of the Training Criteria**
   The Carpenters’ Industry Advisory Committee shall meet at the call of the chair or no less than once each three years to review, and revise if necessary, the industry training criteria. Any and all such industry training criteria for Cabinet Maker shall be in accordance with California Code of Regulations, Title 8, Section 212 in its entirety.
Appendix A: Cabinet Maker Related and Supplemental Instruction

1. Safety
   - Safety with hand and power tools
   - Construction site worker safety (OSHA)/respirators; confined space
   - Material safety data sheets (SDS)
   - First aid and CPR certification

2. Basic Skills
   - Trade orientation
   - Construction mathematics
   - Print reading
   - Layout and leveling instruments
   - Stock bills and estimating

3. Hand and Power Tools
   - Precision measuring and layout
   - Plunge and edge cuts
   - Finishing edges and surfaces

4. Milling and Shaping Equipment
   - Materials and cut lists
   - Quality control and productivity

5. Cabinet Design Construction
   - Computer aided design (CAD); production work
   - Jigs and fixtures
   - Fitting and assembly

6. Installation and Finish Work
   - Layout and alignment
   - Installation sequences and procedures
   - Wood finishes and repairs

7. Green Construction & Supplemental Skills
   - Green awareness: environment and sustainability; jobsite energy conservation and efficiency
   - Green rating systems; personal jobsite “green” responsibilities
   - Green building codes: CalGreen
   - Green products and sustainable building materials
   - Waste management and recycling procedures
   - Site environmental management and protection procedures
   - Construction air quality management
Appendix B: Cabinet Maker Work Processes

Suggested Minimum on The Job Training (OJT) Hours: *
Includes but not limited to:

<table>
<thead>
<tr>
<th>WORK PROCESS</th>
<th>APPROXIMATE HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.  Material Handling and Safety Procedures</td>
<td>300</td>
</tr>
<tr>
<td>B.  Stationary Machine Operations</td>
<td>500</td>
</tr>
<tr>
<td>C.  Bench Work/Assembly</td>
<td>350</td>
</tr>
<tr>
<td>D.  Portable Power Tools</td>
<td>500</td>
</tr>
<tr>
<td>E.  Sharpening &amp; Use of Hand Tools</td>
<td>1000</td>
</tr>
<tr>
<td>F.  Stock Bill and Work Orders</td>
<td>650</td>
</tr>
<tr>
<td>G.  Installation procedures</td>
<td>1200</td>
</tr>
<tr>
<td>H.  Supplemental Skills and Green Site Work</td>
<td>300</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,800</strong></td>
</tr>
</tbody>
</table>

* These are recommended minimums, and individual program sponsors should review and try to meet these minimums. A through H may be combined in different hourly totals to meet the minimum of 4800 hours of on-the-job training.

The committee has unanimously agreed to submit the Cabinet Maker MITC without revisions.

Submitted By: Cabinet Maker Minimum Industry Training Criteria Committee

Chair: /s/ Peter O’Farrell  
Date: 8/20/20  
Peter O’Farrell, Carpenters Training Committee for Northern California

Co-Chair: /s/ Pete Saucedo  
Date: 9/24/20  
Pete Saucedo, San Diego Associated General Contractors J.A.C.
Industry Training Criteria for Carpentry

ONET Code: 47-2031.01
Date: 8/24/2020

1. **Length of Training**
   - Minimum of four years
   - Minimum of 4800 work hours

2. **Related Supplemental (Classroom) Instruction**
   - Minimum of 144 hours of Related and Supplemental Instruction per year.
   - Appendix A: Carpentry related and supplemental instruction

3. **On The Job Training**
   - Appendix B: Carpenter Work Processes

4. **Competency Evaluation**
   - All apprentices must pass a competency evaluation prior to the time of their classification advancement to the next higher period. The evaluation shall be based on Related Supplemental Instruction.

5. **Apprenticeship Program Completion Percentages**
   - Of those apprentices that satisfactorily progressed beyond the first two periods of apprenticeship, program sponsors must have a completion rate of no less than 33%.

6. **Procedures for the Review and Revision of the Training Criteria**
   - The Carpenters’ Industry Advisory Committee shall meet at the call of the chair or no less than once each three years to review, and revise if necessary, the industry training criteria. Any and all such industry training criteria for Carpentry shall be in accordance with California Code of Regulations, Title 8, Section 212 in its entirety.
Appendix A: Carpentry Related and Supplemental Instruction

1. Safety
   • Safety with hand and power tools
   • Construction site worker safety (OSHA)
   • First Aid and CPR Certification

2. Basic Skills
   • Trade orientation
   • Construction mathematics
   • Print reading and code requirements (Cal-Green)
   • Layout and leveling instruments
   • Scaffolds

3. Foundation and Floor Construction Systems
4. Structural Framing
   • Wood
   • Metal
   • Manufactured panels

5. Concrete Form Construction

6. Finish Carpentry
   • Interior
   • Exterior

7. Interior Systems
   • Metal studs; drywall; acoustical
   • Cabinet and casework installation; modular systems
   • Clean room

8. Roof Framing
   • Conventional roof framing
   • Engineered components

9. Stair Building

10. Building Envelope and Weatherization Skills

11. Alternative Energy Systems
   • Residential solar systems installation
   • Commercial photovoltaic; concentrated PV and tracking systems

12. Green Construction & Supplemental Skills
   • Green awareness: environment and sustainability; jobsite energy conservation and efficiency
   • Green rating systems; personal jobsite “green” responsibilities
   • Green building codes: CalGreen
   • Green products and sustainable building materials
   • Waste management and recycling procedures
   • Site environmental management and protection procedures
   • Construction air quality management
Appendix B: Carpenter Work Processes

Suggested Minimum On-The-Job Training (OJT) Hours: *
Includes but not limited to:

<table>
<thead>
<tr>
<th>WORK PROCESS</th>
<th>APPROXIMATE HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Concrete Formwork</td>
<td>1200</td>
</tr>
<tr>
<td>B. Framing</td>
<td>1300</td>
</tr>
<tr>
<td>C. Finish Carpentry</td>
<td>800</td>
</tr>
<tr>
<td>D. Building Envelope and Weatherization</td>
<td>700</td>
</tr>
<tr>
<td>E. Solar Systems, Specialty Installations, and Green</td>
<td>800</td>
</tr>
<tr>
<td>Site Work</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4800</strong></td>
</tr>
</tbody>
</table>

* These are recommended minimums, and individual program sponsors should review and try to meet these minimums. A through E may be combined in different hourly totals to meet the minimum of 4800 hours of on-the-job training.

The committee has unanimously agreed to submit the Carpenters MITC without revisions.

Submitted By: Carpenter Minimum Industry Training Criteria Committee

Chair: __________ /s/ Peter O’Farrell __________________________ Date: ____ 8/20/20____
Peter O’Farrell, Carpenters Training Committee for Northern California

Co-Chair: __________ /s/ Pete Saucedo __________________________ Date: ____ 9/24/20____
Pete Saucedo, San Diego Associated General Contractors J.A.C.
Industry Training Criteria for Drywall Applicator

ONET Code: 47-2031.01D
Date: 8/24/2020

1. **Length of Training**
   Minimum of three years
   Minimum of 4800 work hours

2. **Related Supplemental (Classroom) Instruction**
   Minimum of 144 hours of Related and Supplemental Instruction per year.
   Appendix A: Drywall Applicator related and supplemental instruction

3. **On The Job Training**
   Appendix B: Drywall Applicator Work Processes

4. **Competency Evaluation**
   All apprentices must pass a competency evaluation prior to the time of their classification advancement to the next higher period. The evaluation shall be based on Related Supplemental Instruction.

5. **Apprenticeship Program Completion Percentages**
   Of those apprentices that satisfactorily progressed beyond the first two periods of apprenticeship, program sponsors must have a completion rate of no less than 30%.

6. **Procedures for the Review and Revision of the Training Criteria**
   The Carpenters’ Industry Advisory Committee shall meet at the call of the chair or no less than once each three years to review, and revise if necessary, the industry training criteria. Any and all such industry training criteria for Drywall Applicator shall be in accordance with California Code of Regulations, Title 8, Section 212 in its entirety.
Appendix A: Drywall Applicator Related and Supplemental Instruction

1. Safety
   • Safety with hand and power tools
   • Construction site worker safety (OSHA)
   • First aid and CPR certification

2. Basic Skills
   • Trade orientation
   • Construction mathematics
   • Print reading
   • Layout and leveling instruments
   • Scaffolds

3. Framing Installation
   • Measuring and layout
   • Wood and metal
   • Cutting and fitting
   • Welding AWS

4. Interior and Exterior Systems
   • Gypsum and low VOC; green board
   • Exterior insulation finish system (E.I.F.S.)
   • Drywall repairs and patching
   • Drywall finishing

5. Green Construction & Supplemental Skills
   • Green awareness: environment and sustainability; jobsite energy conservation and efficiency
   • Green rating systems; personal jobsite “green” responsibilities
   • Green building codes: CalGreen
   • Green products and sustainable building materials
   • Waste management and recycling procedures
   • Site environmental management and protection procedures
   • Construction air quality management
Appendix B: Drywall Applicator Work Processes

Suggested Minimum On-The-Job Training (OJT) Hours: *
Includes but not limited to:

<table>
<thead>
<tr>
<th>WORK PROCESS</th>
<th>APPROXIMATE HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Handling and Storage of Materials</td>
<td>350</td>
</tr>
<tr>
<td>B. Metal Framing Systems and Layout</td>
<td>1150</td>
</tr>
<tr>
<td>C. Interior and Exterior Coverings</td>
<td>2200</td>
</tr>
<tr>
<td>D. Special Systems</td>
<td>800</td>
</tr>
<tr>
<td>E. Supplemental Skills and Green Site Work</td>
<td>300</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,800</strong></td>
</tr>
</tbody>
</table>

*These are recommended minimums, and individual program sponsors should review and try to meet these minimums. A through E may be combined in different hourly totals to meet the minimum of 4800 hours of on-the-job training.

The committee has unanimously agreed to submit the Drywall Applicator MITC without revisions.

Submitted By: Drywall Applicator Minimum Industry Training Criteria Committee

Chair: /s/ Peter O’Farrell Date: 8/20/20
Peter O’Farrell, Carpenters Training Committee for Northern California

Co-Chair: /s/ Pete Saucedo Date: 9/24/20
Pete Saucedo, San Diego Associated General Contractors J.A.C.
Industry Training Criteria for Hardwood Floor Layer

ONET Code: 47-2031.01L
Date: 8/24/2020

1. **Length of Training**
   Minimum of three years,
   Minimum of 3600 work hours

2. **Related Supplemental (Classroom) Instruction**
   Minimum of 144 hours of Related and Supplemental Instruction per year.
   Appendix A: Hardwood Floor Layer related and supplemental instruction

3. **On The Job Training**
   Appendix B: Hardwood Floor Layer Work Processes

4. **Competency Evaluation**
   All apprentices must pass a competency evaluation prior to the time of their classification advancement to the next higher period. The evaluation shall be based on Related Supplemental Instruction.

5. **Apprenticeship Program Completion Percentages**
   Of those apprentices that satisfactorily progressed beyond the first two periods of apprenticeship, program sponsors must have a completion rate of no less than 33%.

6. **Procedures for the Review and Revision of the Training Criteria**
   The Carpenters’ Industry Advisory Committee shall meet at the call of the chair or no less than once each three years to review, and revise if necessary, the industry training criteria. Any and all such industry training criteria for Hardwood Floor Layer shall be in accordance with California Code of Regulations, Title 8, Section 212 in its entirety.
Appendix A: Hardwood Floor Layer Related and Supplemental Instruction

1. Safety
   • Safety with hand and power tools
   • Construction site worker safety (OSHA); respirators
   • Safety Data Sheets
   • First aid and CPR certification

2. Basic Skills
   • Trade orientation
   • Construction mathematics
   • Print reading and code requirements (Cal-Green)

3. Tools of the Trade
   • Sanding and finishing equipment
   • Tool maintenance and repair

4. Installation of Wood Flooring
   • Strip flooring
   • Tongue and groove
   • Pre-finished
   • Athletic and specialty floors
   • FSC certified and/or rapidly renewable flooring materials

5. Sanding and Finishing

6. Green Construction & Supplemental Skills
   • Green awareness: environment and sustainability; jobsite energy conservation and efficiency
   • Green rating systems; personal jobsite “green” responsibilities
   • Green building codes: CalGreen
   • Green products and sustainable building materials
   • Waste management and recycling procedures
   • Site environmental management and protection procedures
   • Construction air quality management
Appendix B: Hardwood Floor Layer Work Processes

Suggested Minimum On The Job Training (OJT) Hours: *
Includes but not limited to:

<table>
<thead>
<tr>
<th>WORK PROCESS</th>
<th>APPROXIMATE HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Preparation and Laying</td>
<td>1350</td>
</tr>
<tr>
<td>B. Nailing</td>
<td>450</td>
</tr>
<tr>
<td>C. Sanding and Finishing</td>
<td>1300</td>
</tr>
<tr>
<td>D. Athletic Floors and Systems</td>
<td>400</td>
</tr>
<tr>
<td>E. Supplemental Skills and Green Site Work</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3600</strong></td>
</tr>
</tbody>
</table>

*These are recommended minimums, and individual program sponsors should review and try to meet these minimums. A through E may be combined in different hourly totals to meet the minimum of 3600 hours of on the job training.

The committee has unanimously agreed to submit the Hardwood Floor Layer MITC without revisions.

Submitted By: Hardwood Floor Layer Minimum Industry Training Criteria Committee

Chair: /s/ Peter O’Farrell ___________________________ Date: 8/20/20
Peter O’Farrell, Carpenters Training Committee for Northern California

Co-Chair: /s/ Pete Saucedo __________________________ Date: 9/24/20
Pete Saucedo, San Diego Associated General Contractors J.A.C.
Industry Training Criteria for Insulator

ONET Code: 47-2131.00
Date: 8/24/2020

1. **Length of Training**
   - Minimum of 3 years
   - Minimum of 3600 work hours

2. **Related Supplemental (Classroom) Instruction**
   - Minimum of 144 hours of Related and Supplemental Instruction per year.
   - Appendix A: Insulator related and supplemental instruction

3. **On The Job Training**
   - Appendix B: Insulator Work Processes

4. **Competency Evaluation**
   - All apprentices must pass a competency evaluation prior to the time of their classification advancement to the next higher period. The evaluation shall be based on Related Supplemental Instruction.

5. **Apprenticeship Program Completion Percentages**
   - Of those apprentices that satisfactorily progressed beyond the first two periods of apprenticeship, program sponsors must have a completion rate of no less than 33%.

6. **Procedures for the Review and Revision of the Training Criteria**
   - The Carpenters’ Industry Advisory Committee shall meet at the call of the chair or no less than once each three years to review, and revise if necessary, the industry training criteria. Any and all such industry training criteria for Insulator shall be in accordance with California Code of Regulations, Title 8, Section 212 in its entirety.
Appendix A: Insulator Related and Supplemental Instruction

1. Safety
   • Safety with hand and power tools
   • Construction site worker safety (OSHA)
   • First aid and CPR certification

2. Basic Skills
   • Trade orientation
   • Construction mathematics
   • Print reading and code requirements (Cal-Green)
   • Layout and leveling instruments
   • Scaffolds

3. Job Preparation, Organization and Control
   • Material identification, handling, storage, loading and securing for transport
   • Stocking, record keeping/inventory control; job orders (work sheets), and material quantity control
   • Familiarization with building envelope insulation best practices

4. Blown-In Insulation
   • Access preparation, refitting and close up
   • Blow machine operation and maintenance
   • Application of loose fill in walls and ceilings

5. Batt & Blanket Installation
   • Residential
   • Commercial and industrial building walls, ceiling and floors

6. Foil & Moisture Barrier Installation
   • Applicable to residential, commercial and industrial applications.

7. Spray, Rigid, and Specialty Application
   • Residential, commercial and industrial application of low volatile organic compounds (VOC) (g), cellulose, urethane and light weight plaster
   • Sound board, styrene, and urethane rigid insulation
   • Fire stop systems

8. Green Construction & Supplemental Skill
   • Green awareness: environment and sustainability; jobsite energy conservation and efficiency
   • Green rating systems; personal jobsite “green” responsibilities
   • Green building codes: CalGreen
   • Green products and sustainable building materials
   • Waste management and recycling procedures
   • Site environmental management and protection procedures
   • Construction air quality management
Appendix B: Insulator Work Processes

Suggested Minimum On-The-Job Training (OJT) Hours: *
Includes but not limited to:

<table>
<thead>
<tr>
<th>WORK PROCESS</th>
<th>APPROXIMATE HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Job Preparation, Organization and Control</td>
<td>300</td>
</tr>
<tr>
<td>B. Blown-In Insulation</td>
<td>400</td>
</tr>
<tr>
<td>C. Batt &amp; Blanket Installation</td>
<td>1100</td>
</tr>
<tr>
<td>D. Foil &amp; Moisture Barrier Installation</td>
<td>700</td>
</tr>
<tr>
<td>E. Spray, Rigid, and Specialty Application</td>
<td>1000</td>
</tr>
<tr>
<td>F. Building Envelope, Fire Stop, Supplemental Skills and Green Site Work</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4800</strong></td>
</tr>
</tbody>
</table>

*These are recommended minimums, and individual program sponsors should review and try to meet these minimums. A through E may be combined in different hourly totals to meet the minimum of 4800 hours of on-the-job training.

The committee has unanimously agreed to submit the Insulator Installer MITC without revisions.

Submitted By: Insulator Installer Minimum Industry Training Criteria Committee

Chair: /s/ Peter O’Farrell                     Date: 8/20/20
Peter O’Farrell, Carpenters Training Committee for Northern California

Co-Chair: /s/ Pete Saucedo                   Date: 9/24/20
Pete Saucedo, San Diego Associated General Contractors J.A.C.
Industry Training Criteria for Modular Installer

ONET Code: 51-9199.99M
Date: 8/24/2020

1. Length of Training
   Minimum of two years
   Minimum of 2400 work hours

2. Related Supplemental (Classroom) Instruction
   Minimum of 144 hours of Related and Supplemental Instruction per year.
   Appendix A: Modular Installer related and supplemental instruction

3. On The Job Training
   Appendix B: Modular Installer Work Processes

4. Competency Evaluation
   All apprentices must pass a competency evaluation prior to the time of their classification advancement to the next higher period. The evaluation shall be based on Related Supplemental Instruction.

5. Apprenticeship Program Completion Percentages
   Of those apprentices that satisfactorily progressed beyond the first two periods of apprenticeship, program sponsors must have a completion rate of no less than 33%.

6. Procedures for the Review and Revision of the Training Criteria
   The Carpenters’ Industry Advisory Committee shall meet at the call of the chair or no less than once each three years to review, and revise if necessary the industry training criteria. Any and all such industry training criteria for Modular Installer shall be in accordance with California Code of Regulations, Title 8, Section 212 in its entirety.
Appendix A: Modular Installer Related and Supplemental Instruction

1. Safety
   • Safety with hand and power tools
   • Construction site worker safety (OSHA)/ergonomics
   • First aid and CPR certification

2. Basic Skills
   • Trade orientation
   • Construction mathematics
   • Print reading
   • Stock bills and work orders

3. Hand and Power Tools
   • Measuring, layout and alignment
   • Power supply and cordless tool management
   • Drills, attachments and anchoring

4. Site Considerations
   • Personal appearance, behavior and office etiquette
   • Material delivery, handling and staging
   • Establishing and maintaining clear transit route(s)
   • Housekeeping and health hazards

5. Assembly Construction
   • General assembly procedures
   • Manufacturer’s product-specific instructions and guidelines
   • Custom work and adjustments
   • Quality Control and productivity

6. Installation and Finish Work
   • Layout and alignment
   • Installation sequences and procedures
   • Electrical and component connections
   • Cabinets, shelving and accessories
   • Wood finishes and repairs

7. Green Construction & Supplemental Skills
   • Green awareness: environment and sustainability; jobsite energy conservation and efficiency
   • Green rating systems; personal jobsite “green” responsibilities
   • Green building codes: CalGreen
   • Green products and sustainable building materials
   • Waste management and recycling procedures
   • Site environmental management and protection procedures
   • Construction air quality management
Appendix B: Modular Installer Work Processes

Suggested Minimum On The Job Training (OJT) Hours: *
Includes but not limited to:

<table>
<thead>
<tr>
<th>WORK PROCESS</th>
<th>APPROXIMATE HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Material Storage &amp; Safety Procedures</td>
<td>100</td>
</tr>
<tr>
<td>B. Staging, Uncrating and Pre-Job Preparation</td>
<td>350</td>
</tr>
<tr>
<td>C. Measuring, Layout and Assembly</td>
<td>750</td>
</tr>
<tr>
<td>D. Installation and Quality Controls</td>
<td>1000</td>
</tr>
<tr>
<td>E. Supplemental Skills and Green Site Work</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,400</strong></td>
</tr>
</tbody>
</table>

*These are recommended minimums, and individual program sponsors should review and try to meet these minimums. A through E may be combined in different hourly totals to meet the minimum of 2400 hours of on-the-job training.

**The committee has unanimously agreed to submit the Modular Installer MITC without revisions.**

Submitted By: Modular Installer Minimum Industry Training Criteria Committee

Chair: _____ /s/ Peter O’Farrell __________________________ Date: _____ 8/20/20 _____
Peter O’Farrell, Carpenters Training Committee for Northern California

Co-Chair: _____ /s/ Pete Saucedo __________________________ Date: _____ 9/24/20 _____
Pete Saucedo, San Diego Associated General Contractors J.A.C.
Industry Training Criteria for Millwright

ONET Code: 49-9044.00
Date: 8/24/2020

1. Length of Training
   Minimum of four years
   Minimum of 4800 work hours

2. Related Supplemental (Classroom) Instruction
   Minimum of 144 hours of Related and Supplemental Instruction per year.
   Appendix A: Millwright related and supplemental instruction

3. On The Job Training
   Appendix B: Millwright Work Processes

4. Competency Evaluation
   All apprentices must pass a competency evaluation prior to the time of their classification advancement to the next higher period. The evaluation shall be based on Related Supplemental Instruction.

5. Apprenticeship Program Completion Percentages
   Of those apprentices that satisfactorily progressed beyond the first two periods of apprenticeship, program sponsors must have a completion rate of no less than 36%.

6. Procedures for the Review and Revision of the Training Criteria
   The Carpenters’ Industry Advisory Committee shall meet at the call of the chair or no less than once each three years to review, and revise if necessary the industry training criteria. Any and all such industry training criteria for Millwright shall be in accordance with California Code of Regulations, Title 8, Section 212 in its entirety.
Appendix A: Millwright Related and Supplemental Instruction

1. Safety
   - Safety with hand and power tools
   - Construction site worker safety (OSHA)
   - First aid and CPR certification

2. Basic Skills
   - Trade orientation
   - Construction mathematics
   - Print reading
   - Layout and leveling instruments
   - Human performance

3. Cutting & Welding
   - Oxy-acetylene cutting and welding
   - Plasma-arc cutting
   - Layout, fabrication and fitting
   - AWS structural welding

4. Machinery Installation
   - Layout and machinery bases
   - Precision measuring and alignment
   - Power drives and hydraulic systems
   - Rigging

5. Machinery Maintenance
   - Pumps and motors
   - Compressors
   - Bearings, pulleys and belts
   - Turbines and generators
   - Troubleshooting and repairs

6. Alternative Energy Systems
   - Utility scale concentrated PV and tracking systems
   - Wind turbine installation and maintenance
   - Geo-thermal and cogeneration power production

7. Green Construction & Supplemental Skills
   - Green awareness: environment and sustainability; jobsite energy conservation and efficiency
   - Green rating systems; personal jobsite “green” responsibilities
   - Green building codes: CalGreen
   - Green products and sustainable building materials
   - Waste management and recycling procedures
   - Site environmental management and protection procedures
   - Construction air quality management
Appendix B: Millwright Work Processes

Suggested Minimum On The Job Training (OJT) Hours: *
Includes but not limited to:

<table>
<thead>
<tr>
<th>WORK PROCESS</th>
<th>APPROXIMATE HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Material Handling, Rigging and Safety Procedures</td>
<td>600</td>
</tr>
<tr>
<td>B. Welding, Layout, Fabrication</td>
<td>500</td>
</tr>
<tr>
<td>C. Machinery Leveling &amp; Alignment</td>
<td>600</td>
</tr>
<tr>
<td>D. Power Drives and Hydraulic Systems</td>
<td>1,000</td>
</tr>
<tr>
<td>E. Machinery Installation, Power Generation, Petro1-Chemical, and Maintenance</td>
<td>600</td>
</tr>
<tr>
<td>F. Supplemental Skills, Alternative Energy Installations, and Green Site Work</td>
<td>500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4800</strong></td>
</tr>
</tbody>
</table>

*These are recommended minimums, and individual program sponsors should review and try to meet these minimums. A through F may be combined in different hourly totals to meet the minimum of 4800 hours of on-the-job training.

The committee has unanimously agreed to submit the Millwright MITC without revisions.

Submitted By: Millwright Installer Minimum Industry Training Criteria Committee

Chair: /s/ Peter O’Farrell Date: 8/20/20
Peter O’Farrell, Carpenters Training Committee for Northern California

Co-Chair: /s/ Pete Saucedo Date: 9/24/20
Pete Saucedo, San Diego Associated General Contractors J.A.C.
Industry Training Criteria for Pile Driver

ONET Code: 47-2072.00
Date: 8/24/2020

1. Length of Training
   Minimum of four years
   Minimum of 4800 work hours

2. Related Supplemental (Classroom) Instruction
   Minimum of 144 hours of Related and Supplemental Instruction per year.
   Appendix A: Pile Driver related and supplemental instruction

3. On The Job Training
   Appendix B: Pile Driver Work Processes

4. Competency Evaluation
   All apprentices must pass a competency evaluation prior to the time of their classification advancement to the next higher period. The evaluation shall be based on Related Supplemental Instruction.

5. Apprenticeship Program Completion Percentages
   Of those apprentices that satisfactorily progressed beyond the first two periods of apprenticeship, program sponsors must have a completion rate of no less than 30%.

6. Procedures for the Review and Revision of the Training Criteria
   The Carpenters’ Industry Advisory Committee shall meet at the call of the chair or no less than once each three years to review, and revise if necessary, the industry training criteria. Any and all such industry training criteria for Pile Driver shall be in accordance with California Code of Regulations, Title 8, Section 212 in its entirety.
Appendix A: Pile Driver Related and Supplemental Instruction

1. Safety
   • Safety with hand and power tools
   • Construction site worker safety (OSHA)
   • First aid and CPR certification

2. Basic Skills
   • Trade orientation
   • Construction mathematics
   • Print reading
   • Layout and leveling instruments
   • Scaffolds

3. Pile Driving
   • Measuring and layout
   • Rigging and signaling
   • Structural pile driving
   • Retaining pile systems (cofferdams, etc.)
   • Handling piles and hammers
   • Pile driving equipment

4. Concrete and Formwork
   • Bridge decks and abutments
   • Pile caps and columns

5. Heavy Timber Framing and Falsework
   • Pipe shoring and timber falsework
   • Manufactured falsework

6. Marine and Underwater Work
   • Piers and docks
   • Diving systems and submersibles
   • Underwater welding
   • Wave energy conversion (WEC) devices

7. Cutting and Welding
   • Oxy-acetylene cutting and welding
   • Layout, fabrication and fitting
   • AWS structural welding

8. Green Construction & Supplemental Skills
   • Green awareness: environment and sustainability; jobsite energy conservation and efficiency
   • Green rating systems; personal jobsite “green” responsibilities
   • Green building codes: CalGreen
   • Green products and sustainable building materials
   • Waste management and recycling procedures
   • Site environmental management and protection procedures
   • Construction air quality management
Appendix B: Pile Driver Work Processes

Suggested Minimum On The Job Training (OJT) Hours: *
Includes but not limited to:

<table>
<thead>
<tr>
<th>WORK PROCESS</th>
<th>APPROXIMATE HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pile Driving</td>
<td>1400</td>
</tr>
<tr>
<td>B. Concrete and Formwork</td>
<td>1400</td>
</tr>
<tr>
<td>C. Heavy Timber Framing and Falsework</td>
<td>1000</td>
</tr>
<tr>
<td>D. Marine Construction, and Wave Energy Conversion</td>
<td>400</td>
</tr>
<tr>
<td>E. Hot Work- Burning and Welding</td>
<td>500</td>
</tr>
<tr>
<td>F. Supplemental Skills and Green Site Work</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4800</strong></td>
</tr>
</tbody>
</table>

* These are recommended minimums, and individual program sponsors should review and try to meet these minimums. A through F may be combined in different hourly totals to meet the minimum of 4800 hours of on-the-job training.

The committee has unanimously agreed to submit the Pile Driver MITC without revisions.

Submitted By: Pile Driver Minimum Industry Training Criteria Committee

Chair: /s/ Peter O'Farrell Date: 8/20/20
Peter O'Farrell, Carpenters Training Committee for Northern California

Co-Chair: /s/ Pete Saucedo Date: 9/24/20
Pete Saucedo, San Diego Associated General Contractors J.A.C.
Industry Training Criteria for Scaffold Erector

ONET Code: 47-2031.025
Date: 8/24/2020

1. **Length of Training**
   - Minimum of four years
   - Minimum of 4800 work hours

2. **Related Supplemental (Classroom) Instruction**
   - Minimum of 144 hours of Related and Supplemental Instruction per year.
   - Appendix A: Scaffold Erector related and supplemental instruction

3. **On The Job Training**
   - Appendix B: Scaffold Erector Work Processes

4. **Competency Evaluation**
   - All apprentices must pass a competency evaluation prior to the time of their classification advancement to the next higher period. The evaluation shall be based on Related Supplemental Instruction.

5. **Apprenticeship Program Completion Percentages**
   - Of those apprentices that satisfactorily progressed beyond the first two periods of apprenticeship, program sponsors must have a completion rate of no less than 33%.

6. **Procedures for the Review and Revision of the Training Criteria**
   - The Carpenters’ Industry Advisory Committee shall meet at the call of the chair or no less than once each three years to review, and revise if necessary, the industry training criteria. Any and all such industry training criteria for Scaffold Erector shall be in accordance with California Code of Regulations, Title 8, Section 212 in its entirety.
Appendix A: Scaffold Erector Related and Supplemental Instruction

1. Safety
   - Safety with hand and power tools
   - Construction site worker safety (OSHA)/fall protection
   - First aid and CPR certification
   - Confined space safety training

2. Basic Skills
   - Trade orientation
   - Construction mathematics
   - Print reading
   - Layout and leveling instruments
   - Scaffold regulations

3. Frame Scaffold Installation
   - Measuring and layout
   - Basic installation and attachment methods

4. System Scaffold Installation
   - Measuring and layout
   - Basic installation and attachment methods

5. Tube & Clamp Scaffold Installation
   - Measuring and layout
   - Basic installation and attachment methods
   - Confined space (angles and slopes)

6. Specialty Scaffold Applications

7. Green Construction & Supplemental Skills
   - Green awareness: environment and sustainability; jobsite energy conservation and efficiency
   - Green rating systems; personal jobsite “green” responsibilities
   - Green building codes: CalGreen
   - Green products and sustainable building materials
   - Waste management and recycling procedures
   - Site environmental management and protection procedures
   - Construction air quality management
Appendix B: Scaffold Erector Work Processes

Suggested Minimum On The Job Training (OJT) Hours: *
Includes but not limited to:

<table>
<thead>
<tr>
<th>WORK PROCESS</th>
<th>APPROXIMATE HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Material Handling and Safety Procedures</td>
<td>500</td>
</tr>
<tr>
<td>B. Layout, Leveling, Alignment and Anchoring Procedures</td>
<td>300</td>
</tr>
<tr>
<td>C. Frame, System, Tube &amp; Clamp Scaffold Construction</td>
<td>3000</td>
</tr>
<tr>
<td>D. Specialty Scaffold Installations &amp; Procedures</td>
<td>500</td>
</tr>
<tr>
<td>E. Supplemental Skills and Green Site Work</td>
<td>500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,800</strong></td>
</tr>
</tbody>
</table>

* These are recommended minimums, and individual program sponsors should review and try to meet these minimums. A through E may be combined in different hourly totals to meet the minimum of 4800 hours of on-the-job training.

The committee has unanimously agreed to submit the Scaffold Erector MITC without revisions.

Submitted By: Scaffold Erector Minimum Industry Training Criteria Committee

Chair: /s/ Peter O’Farrell Date: 8/20/20
Peter O’Farrell, Carpenters Training Committee for Northern California

Co-Chair: /s/ Pete Saucedo Date: 9/24/20
Pete Saucedo, San Diego Associated General Contractors J.A.C.
Industry Training Criteria for Shingler

ONET Code: 47-2181.005
Date: 8/24/2020

1. **Length of Training**
   - Minimum of two years
   - Minimum of 2400 work hours

2. **Related Supplemental (Classroom) Instruction**
   - Minimum of 144 hours of Related and Supplemental Instruction per year.
   - Appendix A: Shingler related and supplemental instruction

3. **On The Job Training**
   - Appendix B: Shingler Work Processes

4. **Competency Evaluation**
   - All apprentices must pass a competency evaluation prior to the time of their classification advancement to the next higher period. The evaluation shall be based on Related Supplemental Instruction.

5. **Apprenticeship Program Completion Percentages**
   - Of those apprentices that satisfactorily progressed beyond the first two periods of apprenticeship, program sponsors must have a completion rate of no less than 33%.

6. **Procedures for the Review and Revision of the Training Criteria**
   - The Carpenters’ Industry Advisory Committee shall meet at the call of the chair or no less than once each three years to review, and revise if necessary, the industry training criteria. Any and all such industry training criteria for Shingler shall be in accordance with California Code of Regulations, Title 8, Section 212 in its entirety.
Appendix A: Shingler Related and Supplemental Instruction

1. Safety
   • Safety with hand and power tools
   • Construction site worker safety (OSHA)/fall protection
   • First aid and CPR certification

2. Basic Skills • Trade orientation
   • Construction mathematics
   • Print reading and code requirements (Cal-Green)
   • Rigging

3. Weatherization o Flashing
   o Underlayment applications
   o Exterior weather protection
   o Sealing the building envelope

4. Roofs and Sidewalls
   • Composition
   • Shake
   • Wood shingle
   • Metal
   • Tile
   • Solar system installations

5. Green Construction & Supplemental Skills
   • Green awareness: environment and sustainability; jobsite energy conservation and efficiency
   • Green rating systems; personal jobsite “green” responsibilities
   • Green building codes: CalGreen
   • Green products and sustainable building materials
   • Waste management and recycling procedures
   • Site environmental management and protection procedures
   • Construction air quality management
Appendix B: Shingler Work Processes

Suggested Minimum On The Job Training (OJT) Hours: *
Includes but not limited to:

<table>
<thead>
<tr>
<th>WORK PROCESS</th>
<th>APPROXIMATE HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Flashing and Underlayment Applications</td>
<td>500</td>
</tr>
<tr>
<td>B. Shake and Wood Shingle Roofs and Sidewalls</td>
<td>400</td>
</tr>
<tr>
<td>C. Composition Shingles</td>
<td>900</td>
</tr>
<tr>
<td>D. Tile</td>
<td>300</td>
</tr>
<tr>
<td>E. Metal</td>
<td>200</td>
</tr>
<tr>
<td>F. Solar Installations, Supplemental Skills, and Green</td>
<td>100</td>
</tr>
<tr>
<td>Site Work</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2400</strong></td>
</tr>
</tbody>
</table>

*These are recommended minimums, and individual program sponsors should review and try to meet these minimums. A through F may be combined in different hourly totals to meet the minimum of 2400 hours of on-the-job training.

The committee has unanimously agreed to submit the Shingler MITC without revisions.

Submitted By: Shingler Minimum Industry Training Criteria Committee

Chair: ___ /s/ Peter O’Farrell ___________________________ Date: ___ 8/20/20 _____
Peter O’Farrell, Carpenters Training Committee for Northern California

Co-Chair: ___ /s/ Pete Saucedo ___________________________ Date: ___ 9/24/20 _____
Pete Saucedo, San Diego Associated General Contractors J.A.C.