HEATING, VENTILATION, AIR CONDITIONING AND REFRIGERATION

STUDENT GRADE RECORD
Career & Technical Education
WINDHAM SCHOOL DISTRICT

Student Name ________________________________
TDCJ # ________________________________
Social Security Number ________________________________
Certified Craft Instructor ________________________________
Certified Craft Instructor Code ________________________________
Unit ________________________________

WSD Certificate Y/N

If I were hiring for this position, I would: (check one)

[____] 0-No recommendation at this time.
(Cannot be used for Completers.)

[____] 1-Hire this person and look no further.

[____] 2-Interview this person along with other applicants

[____] 3-Not hire this person.

Complete only if student attempted industry certification.

Name of Industry Certificate Code P/F
NCCER, Core 0300
NCCER, HVAC, Level-I 0331
EPA, 608, Type I 0336
EPA, 608, Type II 0337
EPA, 608, Type III 0338
CSSO 0102
GREEN ENVIRONMENT 0105
OSHA 510

I attest that all of the information reported on this form is true.

Certified Craft Instructor Signature

Date of Report – CORE ________________________________
Date of Report – CSSO ________________________________
Date of Report – Level I ________________________________

Course Outline Modules Industry Industry Module Module
Competency

<table>
<thead>
<tr>
<th>Modules</th>
<th>Module Test</th>
<th>Performance</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE</td>
<td></td>
<td></td>
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<tr>
<td>0.</td>
<td>CTE Orientation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Basic Safety- 00101-09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Introduction to Construction Math- 00102-09</td>
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<tr>
<td>3.</td>
<td>Introduction to Hand Tools- 00103-09</td>
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<tr>
<td>4.</td>
<td>Introduction to Power Tools- 00104-09</td>
<td></td>
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<tr>
<td>5.</td>
<td>Introduction to Construction Drawings- 00105-09</td>
<td></td>
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<tr>
<td>6.</td>
<td>Basic Rigging- 00106-09</td>
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<tr>
<td>7.</td>
<td>Basic Communication Skills- 00107-09</td>
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<tr>
<td>8.</td>
<td>Basic Employability Skills- 00108-09</td>
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<tr>
<td>9.</td>
<td>Introduction to Materials Handling- 00109-09</td>
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</table>

HVAC LEVEL-I

10. Introduction to HVAC- 03101-13

11. Trade Mathematics- 03102-13

12. Basic Electricity- 03106-13

13. Introduction to Heating- 03108-13

14. Introduction to Cooling- 03107-13

15. Air Distribution Systems- 03109-13

16. Basic Copper & Plastic Piping Practices- 03103-13

17. Soldering & Brazing- 03104-13

18. Basic Carbon Steel Piping Practices- 03105-13

HVAC LEVEL-II MODULES-Optional

19. Leak Detection, Evacuation, Recovery, and Charging-03205-07

20. Troubleshooting Gas Heat-03209-07

21. Troubleshooting Cooling-03210-07

Windham Module Test Average x .75 a Completer

Windham End of Course Exam x .25 b

Windham Module Score (a + b =) 70+

% Competencies Completed 70+

Module Competency Rating 2.7+

I hereby authorize the NCCER Registry Department to verify information in my craft training records to Sponsor Representatives upon request. I release and hold harmless the National Center for Construction Education and Research for this verification process.

Signature

Date ________________________________

February 2014
STUDENT PROGRESS RECORD

RECORDING DIRECTIONS
SKILL RATING: Post the student’s competency rating for each skill performed.
MODULE TEST SCORE: Enter the student’s test score for the module.
MODULE RATING: Use the following scale to determine module rating:
Note: When evaluating a student’s module rating, skill performance should be given priority.

CORE

0. CTE Orientation
Teacher Student Initial Initial

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1. Identify employment opportunities related to the course.</td>
<td></td>
</tr>
<tr>
<td>2. Identify the number of classroom hours a student must attend to be considered as a completer.</td>
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<tr>
<td>3. Identify the industry-recognized certification.</td>
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<tr>
<td>4. Identify course expectations including:</td>
<td></td>
</tr>
<tr>
<td>• Working conditions</td>
<td></td>
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<tr>
<td>• Attendance expectations</td>
<td></td>
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<tr>
<td>• Instructor’s expectations</td>
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<table>
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<tbody>
<tr>
<td>1. Inspect personal protective equipment (PPE) to determine if it is safe to use (PPE should include safety goggles, hard hat, gloves, safety harness and safety shoes).</td>
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</tr>
<tr>
<td>2. Properly don and remove personal protective equipment (safety goggles, hard hat, and fall protection).</td>
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</tr>
<tr>
<td>3. Demonstrate safe lifting procedures.</td>
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<tr>
<td>4. Set up an extension ladder properly.</td>
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<tr>
<td>5. Demonstrate three-point contact on a ladder.</td>
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</tr>
</tbody>
</table>

1. Basic Safety- 00101-09

Module Test Score ______
Minimum 100% Required
Module Rating (4, 3, 2)

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1. Safely and properly use three of the following tools:</td>
</tr>
<tr>
<td>• Hammer</td>
</tr>
<tr>
<td>• Screwdriver</td>
</tr>
<tr>
<td>• Saw</td>
</tr>
</tbody>
</table>

2. Introduction to Construction Math- 00102-09

Module Test Score ______

3. Introduction to Hand Tools- 00103-09

Module Test Score ______
Module Rating (4, 3, 2)

<p>| |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1. Visually inspect the following tools to determine if they are safe to use:</td>
</tr>
</tbody>
</table>

4. Introduction to Power Tools- 00104-09

Module Test Score ______
Module Rating (4, 3, 2)

<p>| |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1. Safely and properly use three of the following tools:</td>
</tr>
<tr>
<td>• Electric drill</td>
</tr>
<tr>
<td>• Circular saw</td>
</tr>
<tr>
<td>• Saw Zall®</td>
</tr>
<tr>
<td>• Pneumatic power nailer</td>
</tr>
</tbody>
</table>

5. Introduction to Construction Drawings- 00105-09

Module Test Score ______
Module Rating (4, 3, 2)

<p>| |</p>
<table>
<thead>
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</thead>
<tbody>
<tr>
<td>1. Using the floor plan supplied with this module:</td>
</tr>
<tr>
<td>• Locate the wall common to both interview rooms.</td>
</tr>
<tr>
<td>• Determine the overall width of the structure studio.</td>
</tr>
<tr>
<td>• Find the distance from the outside east wall to the center of the beam in the structure studio.</td>
</tr>
<tr>
<td>• Find the elevation of the slab.</td>
</tr>
</tbody>
</table>

6. Basic Rigging- 00106-09

Module Test Score ______
Module Rating (4, 3, 2)

<p>| |</p>
<table>
<thead>
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<tbody>
<tr>
<td>1. Select and inspect appropriate slings for a lift.</td>
</tr>
<tr>
<td>2. Given various loads, determine the proper hitch to be used.</td>
</tr>
</tbody>
</table>
HEATING, VENTILATION, AIR CONDITIONING AND REFRIGERATION

7. Basic Communication Skills- 00107-09
   Module Test Score ______
   _____ Module Rating (4, 3, 2)
   _____ 1. Fill out a work-related form supplied by your instructor. (Handouts 4 and 5 are sample forms and are provided in the AIG for this module as an optional resource.)
   _____ 2. Read instructions for how to properly don a safety harness, orally instruct another person to don the apparatus.
   _____ 3. Perform given task after listening to oral instructions.

8. Basic Employability Skills- 00108-09
   Module Test Score ______
   _____ Module Rating (4, 3, 2)
   _____ 1. Demonstrate the ability to access, retrieve, and print from the following basic software programs:
      • Email
      • Databases
      • Internet

9. Introduction to Materials Handling- 00109-09
   Module Test Score ______
   _____ Module Rating (4, 3, 2)
   _____ 1. Demonstrate proper materials-handling techniques.

HVAC LEVEL-I
10. Introduction to HVAC- 03101-13
    Module Test Score ______
    This is a knowledge-based module; there is no performance test.

11. Trade Mathematics- 03102-13
    Module Test Score ______
    This is a knowledge-based module; there is no performance test.

12. Basic Electricity- 03106-13
    Module Test Score ______
    _____ Module Rating (4, 3, 2)
    _____ 1. Use the proper instrument to measure voltage in an energized circuit.
    _____ 2. Use the proper instrument to measure current in an energized circuit.
    _____ 3. Use the proper instrument to measure resistance.
    _____ 4. Use a multimeter to check circuit continuity.
    _____ 5. Assemble and test series and parallel circuits using a transformer or battery, wires, and selected load devices.

13. Introduction to Heating- 03108-13
    Module Test Score ______
    _____ Module Rating (4, 3, 2)
    _____ 1. Identify the components of an induced draft and condensing furnaces and describe their functions.
    _____ 2. Perform common maintenance tasks on a gas furnace, including air filter replacement and temperature measurements.

14. Introduction to Cooling- 03107-13
    Module Test Score ______
    _____ Module Rating (4, 3, 2)
    _____ 1. Measure temperatures in an operating cooling system.
    _____ 2. Calibrate a set of refrigerant gauges and thermometers.
    _____ 3. Connect a refrigerant gauge manifold and properly calculate subcooling and superheat on an operating system using a temperature probe.
    _____ 4. Identify refrigerants using cylinder color codes.
    _____ 5. Identify compressors, condensers, evaporators, metering devices, controls and accessories.

15. Air Distribution Systems- 03109-1 3
    Module test Score ______
    _____ Module Rating (4, 3, 2)
    _____ 1. Use a tachometer to measure blower motor rpm.
    _____ 2. Read and interpret equivalent length charts and required air volume/duct size charts.
3. Use a manometer to measure static pressure in a duct system.

4. Use a velometer to measure the velocity of airflow at the output of air system supply diffusers and registers.

5. Use a velometer to calculate system cfm.

16. Basic Copper & Plastic Piping Practices- 03103-13

Module Test Score ________

Module Rating (4, 3, 2)

1. Cut and bend copper tubing.

2. Safely join copper tubing using mechanical fittings.
   - Flare tubing and complete a flared connection.
   - Use a compression fitting and ferrule to make a connection.
   - Use a swagging tool to swage a piece of tubing.

3. Cut and join lengths of plastic pipe.

17. Soldering and Brazing- 03104-13

Module Test Score ________

Module Rating (4, 3, 2)

1. Properly set up and shut down oxyacetylene equipment.

2. Properly set up and shut down an acetylene single tank.

3. Properly prep and safely solder copper tubing in various planes, using various fittings.

4. Properly prep and safely braze copper tubing using various fitting.

18. Basic Carbon Steel Piping Practices- 03105-13

Module Test Score ________

Module Rating (4, 3, 2)

1. Cut, ream, and thread steel pipe

2. Join lengths of threaded pipe using selected fittings.

HVAC LEVEL-II MODULES

20. Leak Detection, Evacuation, Recovery, and Charging- 03205-07

Module Test Score ________

Module Rating (4, 3, 2)

1. Identify the common types of leak detectors and explain the advantages and disadvantages associated with each type.

2. Use selected electronic, ultrasonic, liquid (bubble), and ultraviolet/fluorescent leak detectors to leak test a pressurized operational system.

21. Troubleshooting Gas Heating- 03209-07

Module test Score ________

Module Rating (4, 3, 2)

1. Analyze control circuit diagram(s) for a selected gas heating appliance.

2. Identify the tools and instruments needed to troubleshoot a gas heating appliance.

3. Develop a checklist for troubleshooting a gas heating appliance.

4. Isolate and correct malfunctions in a gas heating appliance:
   - Control circuits
   - Combustion system
   - Safety controls
   - Air systems

22. Troubleshooting Cooling- 03210-07

Module Test Score ________

Module Rating (4, 3, 2)

1. Develop a checklist for troubleshooting cooling systems.

2. Analyze control circuit diagram(s) for a selected cooling system.
3. Identify the tools and instruments needed to troubleshoot a cooling system.

4. Isolate and correct malfunctions in a cooling system:
   - Electrical problems
   - Compressor electrical failures
   - System-related compressor problems
   - Refrigerant overcharge and undercharge
   - Evaporator and condenser problems
   - Metering device problems
   - Refrigerant lines and accessories
   - Non-condensables and contamination

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<table>
<thead>
<tr>
<th>Number of Skills Completed +</th>
<th>49</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Skills on SPR</td>
<td>=</td>
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<tr>
<td>% of Skills Completed</td>
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</tbody>
</table>

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**Conference**

Date: ____________________ Hours in class: ______

Comments:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

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Teacher initial: _______ Student initial: _______