

## **NOTE ON PERFORMANCE TESTING**

Performance Profile Sheet(s) are included in a format that can be easily photocopied for each trainee. Performance tests are designed to measure competency in the tasks taught in each module.

Please note the number of tasks to be tested while teaching each module. Each trainee should be tested on all the tasks listed on the Performance Profile Sheet(s). Before performance testing, the instructor should brief the trainees on:

- Test objectives and criteria
- Safety precautions
- Procedures for each task to be tested

The instructor administering the performance testing should also do the following:

- Ensure that all of the needed equipment is available and operating properly.
- Set up the testing stations.
- Organize and administer the test in a way that allows for optimal performance.
- Complete the Performance Profile Sheet(s) for each trainee by assigning a pass/fail score for each listed task. Also, include the testing date for each task in the rating box.
- Monitor adherence to all safety regulations and precautions.
- Provide adequate supervision to prevent injuries.
- Take immediate and effective action to remedy any emergency.

### **Performance Testing**

If Performance Testing is done as part of the National Center for Construction Education and Research Standardized Craft Training Program, the following conditions must be met:

1. The Craft Instructor must hold valid NCCER instructor certification for the craft being tested.
2. The training must be delivered through a Accredited Training Sponsor recognized by NCCER.
3. For every module, the specific performance testing must be completed to the satisfaction of the instructor.
4. The results of the testing must be recorded on the Training Report Form 200. This form must be provided to the local Accredited Training Sponsor to be forwarded to the NCCER National Registry.



**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40201-08**

**Module Title: Industrial Safety for E & I Technicians**



Contren® Learning Series

TRAINEE NAME: \_\_\_\_\_

TRAINEE SOCIAL SECURITY NUMBER: \_\_\_\_\_

CLASS: \_\_\_\_\_

TRAINING PROGRAM SPONSOR: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

**Rating Levels:** (1) Passed: performed task (2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

**Recognition:** When testing for the NCCER Standardized Craft Training Program, be sure to record Performance testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.

Objective	TASK	RATING
1	1. Perform a visual inspection and an air test on rubber gloves.	
4	2. Develop a task plan and deliver a task briefing:	
	<ul style="list-style-type: none"> <li>Discuss the work to be performed and the hazards involved.</li> </ul>	

continued

**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40201-08**

**Module Title: Industrial Safety for E & I Technicians**



Contren® Learning Series

Objective	TASK	RATING
	<ul style="list-style-type: none"> <li>• Locate the closest phone to the work site and ensure that the local emergency telephone numbers are either posted at the phone or known by you and your partner(s).</li> </ul>	
	<ul style="list-style-type: none"> <li>• Plan an escape route from the location in the event of an accident.</li> </ul>	
3	3. Identify and describe the electrical hazards in your work site.	

**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40202-08**

**Module Title: Introduction to the *National Electrical Code*®**



Contren® Learning Series

TRAINEE NAME: \_\_\_\_\_

TRAINEE SOCIAL SECURITY NUMBER: \_\_\_\_\_

CLASS: \_\_\_\_\_

TRAINING PROGRAM SPONSOR: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

**Rating Levels:** (1) Passed: performed task (2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

**Recognition:** When testing for the NCCER Standardized Craft Training Program, be sure to record Performance testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.

Objective	TASK	RATING
3	1. Find the definition of the term <i>feeder</i> in the <i>NEC</i> ®.	
3	2. Look up the <i>NEC</i> ® specifications that you would need to follow if you were installing a receptacle in a cooling tower.	
3	3. Find the minimum wire bending space required for two 1/0 AWG conductors installed in a junction box or cabinet and entering opposite the terminal.	

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**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40203-08**

**Module Title: Electrical Theory**



Contren® Learning Series

TRAINEE NAME: \_\_\_\_\_

TRAINEE SOCIAL SECURITY NUMBER: \_\_\_\_\_

CLASS: \_\_\_\_\_

TRAINING PROGRAM SPONSOR: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

**Rating Levels:** (1) Passed: performed task (2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

**Recognition:** When testing for the NCCER Standardized Craft Training Program, be sure to record Performance testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.

Objective	TASK	RATING
8	1. Use the formula for Ohm’s law to calculate voltage, current, and resistance.	
3	2. Given different resistors, identify the correct resistance value and tolerance using the color code.	
3, 5	3. Use the power formula to calculate the amount of power used by a circuit.	

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**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40203-08**

**Module Title: Electrical Theory**



Contren® Learning Series

Objective	TASK	RATING
3, 5	4. Use a variation of the power formula to calculate the main current a resistor can carry based on the resistor's value and power rating.	
3, 5	5. Calculate the total resistance for selected series, parallel, and series-parallel circuits.	
6	6. Use Kirchhoff's current law to calculate the total and unknown currents in parallel and series-parallel circuits.	
7	7. Use Kirchhoff's voltage law to calculate voltage drops in series, parallel, and series-parallel circuits.	

**Craft: Industrial Maintenance E&I Technician**

**Module Number: 40204-08**

**Module Title: Alternating Current**



Contren® Learning Series

TRAINEE NAME: \_\_\_\_\_

TRAINEE SOCIAL SECURITY NUMBER: \_\_\_\_\_

CLASS: \_\_\_\_\_

TRAINING PROGRAM SPONSOR: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

**Rating Levels:** (1) Passed: performed task (2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

**Recognition:** When testing for the NCCER Standardized Craft Training Program, be sure to record Performance testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.

Objective	TASK	RATING
1	1. Given the parameters of an inductive circuit with a low power factor, calculate the true and apparent power and identify methods that could be used to improve the efficiency of the circuit.	
2	2. Solve for two values of a power triangle provided by your instructor.	



**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40205-08**

**Module Title: E & I Test Equipment**



Contren® Learning Series

TRAINEE NAME: \_\_\_\_\_

TRAINEE SOCIAL SECURITY NUMBER: \_\_\_\_\_

CLASS: \_\_\_\_\_

TRAINING PROGRAM SPONSOR: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

**Rating Levels:** (1) Passed: performed task (2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

**Recognition:** When testing for the NCCER Standardized Craft Training Program, be sure to record Performance testing results on Craft Training Report Form 200, and submit the results to Training Program Sponsor.

Objective	TASK	RATING
1	1. Under instructor supervision, measure the voltage in your classroom (hot to neutral and neutral to ground).	
1	2. Under instructor supervision, use an ohmmeter to measure the values of various resistors.	
1	3. Use a continuity tester to verify whether a lamp is burned out.	
1	4. Using a pressure source, measure pressure with the appropriate device.	

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**Craft: Industrial Maintenance E & I Technician****Module Number: 40205-08****Module Title: E & I Test Equipment**

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<b>Objective</b>	<b>TASK</b>	<b>RATING</b>
1	5. Use a field communicator.	
1	6. Use a manometer or a deadweight tester.	

**Module 40206-08 has no Performance Profile Sheet;  
no performance testing is required for this module.**

**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40207-08**

**Module Title: Process Mathematics**



Contren® Learning Series

TRAINEE NAME: \_\_\_\_\_

TRAINEE SOCIAL SECURITY NUMBER: \_\_\_\_\_

CLASS: \_\_\_\_\_

TRAINING PROGRAM SPONSOR: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

**Rating Levels:** (1) Passed: performed task (2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

**Recognition:** When testing for the NCCER Standardized Craft Training Program, be sure to record Performance testing results on Craft Training Report Form 200, and submit the results to Training Program Sponsor.

Objective	TASK	RATING
2	1. Find the point where Fahrenheit equals Celsius.	
2	2. Do three temperature conversions, using figures provided by your instructor.	
3	3. Calculate differential pressure using values provided by your instructor.	
3	4. Calculate the volume of a vessel using variables provided by your instructor.	

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**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40208-08**

**Module Title: Hand Bending**



Contren® Learning Series

TRAINEE NAME: \_\_\_\_\_

TRAINEE SOCIAL SECURITY NUMBER: \_\_\_\_\_

CLASS: \_\_\_\_\_

TRAINING PROGRAM SPONSOR: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

**Rating Levels:** (1) Passed: performed task (2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

**Recognition:** When testing for the NCCER Standardized Craft Training Program, be sure to record Performance testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.

<b>Objective</b>	<b>TASK</b>	<b>RATING</b>
3	1. Make 90-degree bends, back-to-back bends, offsets, kicks, and saddle bends using a hand bender.	
4	2. Cut, ream, and thread conduit.	

**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40209-08**

**Module Title: Tubing**



Contren® Learning Series

TRAINEE NAME: \_\_\_\_\_

TRAINEE SOCIAL SECURITY NUMBER: \_\_\_\_\_

CLASS: \_\_\_\_\_

TRAINING PROGRAM SPONSOR: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

**Rating Levels:** (1) Passed: performed task (2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

**Recognition:** When testing for the NCCER Standardized Craft Training Program, be sure to record Performance testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.

Objective	TASK	RATING
5	1. Bend copper tubing at 45-degree and 90-degree angles using a compression-type bender.	
4	2. Cut and deburr copper tubing using a hacksaw or tubing cutter.	
4	3. Cut and deburr stainless steel tubing.	

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**Craft: Industrial Maintenance E & I Technician****Module Number: 40209-08****Module Title: Tubing**

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<b>Objective</b>	<b>TASK</b>	<b>RATING</b>
7	4. Install a flare fitting on a section of copper tubing.	
8	5. Properly make up an instrument tubing connection with a compression fitting, then loosen and re-tighten it.	

**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40210-08**

**Module Title: Clean, Purge, and Test Tubing and Piping Systems**



Contren® Learning Series

TRAINEE NAME: \_\_\_\_\_

TRAINEE SOCIAL SECURITY NUMBER: \_\_\_\_\_

CLASS: \_\_\_\_\_

TRAINING PROGRAM SPONSOR: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

**Rating Levels:** (1) Passed: performed task (2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

**Recognition:** When testing for the NCCER Standardized Craft Training Program, be sure to record Performance testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.

Objective	TASK	RATING
6	1. Set up and perform a pressure leak test.	
6	2. Inspect the system to verify there is no leakage.	
3	3. Perform a blowdown/purge.	
7	4. Document the test results and restore the system to be service-ready.	

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**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40211-08**

**Module Title: Instrument Drawings and Documents, Part One**



Contren® Learning Series

TRAINEE NAME: \_\_\_\_\_

TRAINEE SOCIAL SECURITY NUMBER: \_\_\_\_\_

CLASS: \_\_\_\_\_

TRAINING PROGRAM SPONSOR: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

**Rating Levels:** (1) Passed: performed task (2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

**Recognition:** When testing for the NCCER Standardized Craft Training Program, be sure to record Performance testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.

Objective	TASK	RATING
1 – 6	1. Locate and identify drawing elements as specified by your instructor.	

**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40212-08**

**Module Title: Conductors and Cables**



Contren® Learning Series

TRAINEE NAME: \_\_\_\_\_

TRAINEE SOCIAL SECURITY NUMBER: \_\_\_\_\_

CLASS: \_\_\_\_\_

TRAINING PROGRAM SPONSOR: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

**Rating Levels:** (1) Passed: performed task (2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

**Recognition:** When testing for the NCCER Standardized Craft Training Program, be sure to record Performance testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.

<b>Objective</b>	<b>TASK</b>	<b>RATING</b>
4	1. Install conductors in a raceway system.	

**Craft: Industrial Maintenance E & I Technician**

**Module Number: 40213-08**

**Module Title: Conductor Terminations and Splices**



Contren® Learning Series

TRAINEE NAME: \_\_\_\_\_

TRAINEE SOCIAL SECURITY NUMBER: \_\_\_\_\_

CLASS: \_\_\_\_\_

TRAINING PROGRAM SPONSOR: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

**Rating Levels:** (1) Passed: performed task (2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

**Recognition:** When testing for the NCCER Standardized Craft Training Program, be sure to record Performance testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.

Objective	TASK	RATING
2, 3, 5	1. Terminate conductors using selected crimp-type and mechanical-type terminals and connectors.	
2, 3, 5	2. Terminate conductors on a terminal strip.	
2, 3, 5	3. Insulate selected types of wire splices and/or install a motor connection kit.	