

TRADE SCHEDULE FOR: ELECTRICIAN (CONSTRUCTION)

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include: Internet-learning, video telecast and CD-ROM.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 4 years with an OJT attainment of 8000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

The Ratio of Apprentices to Journeypersons will be 2:1.

3. APPRENTICE WAGE SCHEDULE

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

Term: 8000 Hours

0-2000 hours @ 40% =
2000-3500 hours @ 50% =
3500-5000 hours @ 60% =
5000-6500 hours @ 70% =
6500-8000 hours @ 83% =

The Journeyworker wage rate in _____ County on _____ is \$ _____

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Processes/Work Experience Schedule)

Apprenticeship Committees may add to the work processes prior to submitting these Standards to the appropriate Registration Agency for approval.

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

Curriculum is based on Industry Standardized applications of current construction practices in the referenced craft and is skill-based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests. Curriculum is designed to be completed in levels of instruction as indicated in the outline. The levels of instruction are designed to reflect a commonly accepted progression of instruction consistent with a continuous growth and understanding of the craft and attainment of the related craft skills. Levels comprise successive tiers of instruction and meet the minimum Apprenticeship, Training, Employer, and Labor Services requirement for classroom-related training.

A4.1- WORK PROCESSES/WORK EXPERIENCE SCHEDULE **HOURS**

This instruction and experience shall include the following operations but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

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| 1. | (A) Preliminary work | 600 |
| | a. Learning the names and uses of the equipment used in the trade, such as kind, size, and use of cable, wire, boxes, conduits and fitting, switches, receptacles, service switches, cutouts, etc. | |
| | b. Learning names and uses of the various tools use in assembling this material, care of these tools, and other instructions necessary to familiarize the apprentice with the material and tools of the trade. | |
| | c. Safety. | |
| 2. | (B) Residential and commercial rough wiring | 2500 |
| | a. Assisting in getting the material from stockroom. | |
| | b. Loading truck and unloading material and equipment on the job. | |
| | c. Laying out the various outlets, switches, receptacles, and other details of the job from blueprints or by direction of the superintendent of construction. | |
| | d. Laying out the system with materials to be used, where they are to be placed, and other details as to how they shall be run. | |
| | e. Cutting wires, cables, conduit and raceway; threading and reaming conduit, boring and cutting chases under the direction of the journeyman. | |
| | f. Installing various kinds of wires, cables, and conduits in accordance with | |

- requirements.
- g. Assisting journey person in pulling wires, attaching wires to fishtape, and keeping wires from kinks or abrasions.
 - h. Connecting conductors to switches, receptacles, or appliances with proper methods of splicing, or soldering, and typing.
 - i. Installing service switches or load center and subfeeders and fastening up these parts, running raceways and pulling in conductors under the direction of journey person electricians.
 - j. Assisting in preparing lists of materials used, including names, number of pieces, or number of feet, etc. for office records.
 - k. Loading unused material and cleaning UP job area.
3. (C) Residential and commercial finish work 1500
- a. Connecting and setting switches, receptacles, plates, etc.
 - b. Installing proper size and types of fuses for each circuit.
 - c. Installing and connecting various kinds of fixtures.
 - d. Tracing the polarity of conductors and devices.
 - e. Testing the circuit for grounds and shorts and locating and correcting job defects.
 - f. Assisting journey person in installing and completion of work in accordance with the rules and regulations of the National Board of Fire Underwriters and special local regulations-proper sizes of wires, service, conduits, etc.
4. (D) Industrial lighting and service installation 2000
- a. Installing rigid conduit, electric metallic tubing, BX armored cable wiremolds on all types of heavy electrical equipment and majorsize service entrance
 - b. Wiring all types (gas, oil, stoker, etc.) of heating equipment.
 - a. Installing wiring and controls for air conditioning.
 - d. Wiring of specialized systems to include: sound systems, CRT and data systems, telephones, fire alarm systems, fiber optics, energy management systems, nurse call systems, closed circuit TV, street and highway lighting, and signal systems.
5. (E) Troubleshooting 1000
- a. Repairing all kinds of electrical work.
 - b. Checking out trouble and making repairs under supervision of electrician.
 - c. Checking out trouble and making repairs without supervision.
6. (F) Motor installation and control 400
- a. Installing overcurrent devices.
 - b. Checking for installation and rotation.
 - c. Installing replacement motors.
 - d. Analyzing motor circuits and troubleshooting.

- e. Installing emergency generators and controls.
- f. Installing pushbuttons, pilot lights, relays, timing devices, and interlocking controls.

TOTAL HOURS

8000

A5.1- ELECTRICIAN RELATED CLASSROOM INSTRUCTION

Modules	Hours
Safety	200
Introduction to Construction Math	10
Introduction to Hand Tools	5
Introduction to Power Tools	5
Introduction to Blueprints	5.5
Electrical Safety	10.5
Hand Bending	5.5
Fasteners and Anchors	4
Electrical Theory One	5.5
Electrical Theory Two	5.5
Electrical Test Equipment	5.5
Introduction to the National Electrical Code	2.5
Raceways, Boxes, and Fittings	7.5
Conductors	10
Introduction to Electrical Blueprints	5.5
Wiring: Commercial and Industrial	5.5
Wiring: Residential	12
Alternating Current	12
Motors: Theory and Application	15
Grounding	7.5
Conduit Bending	10
Boxes and Fittings	5
Conductor Installations	5
Cable Tray	10
Conductor Terminations and Splices	5.5
Installation of Electric Services	10
Circuit Breakers and Fuses	7.5
Contactors and Relays	8
Electric Lighting	8
Load Calculations-Branch Circuits	7.5
Conductor Selection and Calculations	10
Overcurrent Protection	7.5
Raceway, Box and Fitting Fill Requirements	7.5
Wiring Devices	8
Distribution Equipment	7.5
Distribution System Transformers	10
Lamps, Ballasts, and Components	5
Motor Calculations	10.5

Motor Maintenance, Part One	10.5
Motor Controls	15
Hazardous Locations	10
Load Calculations-Feeder and Services	10
Practical Applications of Lighting	8
Standby and Emergency Systems	7.5
Basic Electronic Theory	10
Fire Alarm System	12
Specialty Transformers	15
Advanced Motor Controls	12
HVAC Controls	12
Heat Tracing and Freeze Protection	8
Motor Maintenance, Part 2	7.5
High Voltage Terminations/Splices	8
TOTAL HOURS	629.5