ELECTRICAL HANDS-ON LESSON PLANS

Lesson One (7 hour session)

Field trip to the IBEW/NECA Technical Institute

I. Lecture:

- Safety and terminology
- Tool and material identification and demonstration (actual tools and materials plus the hand-out)
- introduction to the electricians' apprenticeship program and application process

II. Hands-on Activities

- Material Handling – Demonstrate how to correctly lift and carry a bundle of 5 - ¾" rigid conduit. Watch students as they negotiate lifting, then carrying the bundle upstairs, through demonstration building, downstairs and return it to the pile.
- Pipe cutting – Demonstrate and allow students to practice measuring and cutting ½" conduit with a hack saw.
- Conduit bending – Introduce students to conduit bending and assist them in measuring and completing 90 degree bends.
- Communications - what is a communications electrician; describe telecom closet, picture color code, categories of wiring, types of termination blocks; demonstrate and help students pull cable with fishtape and polyline; demonstrate and help students terminate jacks.

III. Lunch and Tradeswomen's question and answer

IV. Introduction to electricity and circuitry

- Brief explanation of how electricity flows and circuit boards.
- Have students work individually to complete a variety of parallel and series circuits on the board, by asking them to figure out how to link switches and light bulbs.

Hand-outs: conduit bending instructions and math worksheet, print reading, common electrical symbols, Electrical supply drawing, safety rules, electrical terms, tools and materials

Tools and Materials Required: tape measures, channel locks, torpedo levels, sharpies, hacksaws, new blades, conduit benders, 4 way screw drivers, vices, stepladders, linesman's pliers, polyline, fishtape

Lesson Two (2 ½ hour session)

Circuit board activity

- Introduction and demonstration – installing a switch, outlet and light fixture in circuit board.
- Students work in pairs to complete projects from the job list

Hand-outs: Pipe and wire board drawings and job list

Tools and Materials Required: Wire, screw drivers, wire strippers, wire cutters, wire nuts, receptacles, switches, light bulbs, lamp holder, power cords, extension cords

LESSON THREE (2 ½ HOUR SESSION)

Installation of socket, outlet and switch in room projects

- Review drawing and demonstrate new skills, including installation of 1900 boxes, connections and drilling holes in studs.
- Divide students into small groups and assist them in planning and executing the project.

To the extent that time allows, have students work together to determine placement of boxes and the lengths of pipes and bends required to connect them. An instructor should okay the plan before cutting begins.

Hand-outs: Project drawing

Tools and Materials required: Wire, screw drivers, wire strippers, wire cutters, wire nuts, receptacles, switches, light bulbs, lamp holder, power cords, extension cords, 1/2" conduit, hacksaws, drills w/3/4" spade bit, 1900 boxes, pipe benders, chain vise, switch plates for switches and outlets

CHICAGO WOMEN IN TRADES
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