

REFRIGERATION TECHNICIAN: SERVICE (120 Hours)

Course No.: 79-10-65

COMPETENCY CHECKLIST

Student Name _____

Teacher Name _____ School Site _____

Start Date _____ Completion Date _____ Certificate Date _____

Teacher Signature _____ Student Signature _____

(Signatures verify completion of course competencies)

A. ORIENTATION, EMPLOYABILITY SKILLS, & SAFETY

(6 hrs)

- _____ 1. Industry standards for employment
- _____ 2. Wage scales & job classifications for the trade
- _____ 3. Understand customer relations
- _____ 4. Fill out job application
- _____ 5. Rehearse equipment care procedures
- _____ 6. Refrigerant/tools safe handling procedures
- _____ 7. Shop procedures for fire & earthquake safety
- _____ 8. Pass safety test with 100% accuracy

- _____ 5. Electrical circuit types
- _____ 6. Use wiring diagrams to trace circuits
- _____ 7. Schematic symbols
- _____ 8. Three phases of electrical power
- _____ 9. Electrical color codes
- _____ 10. Voltage changes
- _____ 11. Voltage losses
- _____ 12. Read electric motor schematic wiring diagrams
- _____ 13. Motor controls and accessories
- _____ 14. Various motor performance problems
- _____ 15. Operation of electronic air cleaners
- _____ 16. Operation of electric furnaces

B. THEORY OF REFRIGERATION (23 hrs)

- _____ 1. Understand force and pressure
- _____ 2. Understand power and energy
- _____ 3. Define temperature
- _____ 4. Describe heat transfer
- _____ 5. Describe three states of water
- _____ 6. Pressurization effects on boiling/vapor points
- _____ 7. Explain system cycle
- _____ 8. List refrigerant characteristics
- _____ 9. Describe system compression
- _____ 10. Explain evaporator function
- _____ 11. Explain condenser function
- _____ 12. Understand expansion valve operation
- _____ 13. Explain thermostat operation
- _____ 14. Cooling system components
- _____ 15. Cooling system controls
- _____ 16. Heating system components
- _____ 17. Heating system controls
- _____ 18. Heating system operation for electric and gas

D. AIR DISTRIBUTION (6 hrs)

- _____ 1. Heat convention-natural and forced
- _____ 2. Air discharge, return and flow patterns
- _____ 3. Various air control devices
- _____ 4. Air ducting and insulating
- _____ 5. Calculate air volume to motor size & elec. load
- _____ 6. Identify fan types and uses
- _____ 7. Air distribution problems

E. METALWORKING (12 hrs)

- _____ 1. Demo cutting and bending of tubing
- _____ 2. Demo brazing and soldering
- _____ 3. Demo welding
- _____ 4. Demo proper forming/joining of metal ducting

F. LAB WORK (50 hrs)

- _____ 1. Diagnose & repair cooling system problems
- _____ 2. Perform service procedures on cooling systems
- _____ 3. Evacuate and dehydrate a refrigeration system
- _____ 4. Set gas heating system to manufacturer specs
- _____ 5. Diagnose/repair gas heating systems
- _____ 6. Diagnose/repair electric heating systems
- _____ 7. Service system filters

C. ELECTRICAL (23 hrs)

- _____ 1. Compare/contrast AC & DC
- _____ 2. Uses of AC & DC
- _____ 3. Function of transformers
- _____ 4. Motor operation