

EPA Certification

- **Refrigerant Application:** CFC, HCFC, HFC, Amonia, Propane and Water.
- **Refrigerant Properties:** Pressure temperture relation, boiling point, bubbling point, Azeotropic/Zeotropic operating pressure.
- **Alternate Refrigerants** - HFC, HCFC, Water, Amonia: - Charging methods
- **Lubricants:** Mineral oil, Alkylbenzene, Ester, PAG: Application & Compatability
- **Retrofit:** - Proper flushing procedure, Residual oil testing, acid/moisture testing, off site chemical analysis.
- **Recover, Recycle, Reclaim:** On-site procedures
- **Refrigerant management:** Leak detection- Electronic, Ultraviolet, ultrasonic, Halite, Soap bubbles and Helium.

Controls, Motors and Electrical Application

Theory

- Ohm's Law
- Series & Parallel Circuits
- Electrical Symbols and Schematic reading

Overcurrent Protection

- Solid State & Mechanical
- Fuse Operation

Electrical Instruments

- Multimeter (Volt/Ohm/Amp)
- Clamp on Amp Probe
- Megger Ohm
- Micron Gauge

Controls

- Starters, Contactors, Relays, Transformers, Thermostats, Time delay's, Gas valves, Primary control (Oil Burner)

Electric Motors

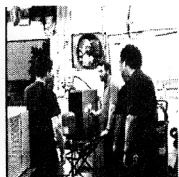
- Motor Design, Shaded Pole, Single & Three Phase, Starting Relays, Start & Run capacitors, Motor Overloads.

Commercial A/C



- **Refrigerant Components & Operation**
Accumulators, EPR Valve,
Oil Separator, Head Pressure Valve,
Hot Gas valves,
pressure reliefs
- **Compressors:** - Scroll, Rotary, Reciprocating,
Screw
- **Capacity Control:**
Hot Gas Bypass, Multi-speed Motors, Condenser Output Reduction, Suction Gas Bypass, Pressure Control Settings and Adjustments, Compressor Unloading
- **Central Air Conditioning Installation:**
Electric, Ducting, Piping, Unit Sizing
- **Compressor Burnouts and Replacements:**
Refrigerant & Oil Flooding, Acid Testing, Megger Ohm Testing, and Clean Up After Burnout.

Air Condition



- **Introduction to Refrigerants:**
CFC, HCFC, HFC, Amonia, Pressure/
Temperature Relation: Boiling point,
saturated pressure, Phase out, and Alternatives. Application: Refrigerants & Safety
- **Basic Refrigeration Cycle:**
Metering devices: TEV, Cap Tube & fixed orifice.
- **Tools and Equipment of the Air Conditioning and Refrigeration field.**
- **Pipe fitting, Silver brazing and Deep vacuum procedures.**
- **Refrigerant Charging Methods:**
Liquid/Vapor Weight, Ultrasonic, Superheat, Frost Line and Sub-Cooling.
- **Proper System Operating Pressures:** Pump Down Cycle, Pressure Control Settings and Adjustments.
- **Types of Compressors:**
Reciprocating, Scroll, Screw, Centrifugal, and Rotary.

EPA PREPARATION AND CERTIFICATION

REGISTRATION FORM (Please Print)

Name _____
Address _____
State _____ Zip _____
Home # _____ Business # _____
Fax # _____

*EPA review and test: \$250.00
3 Hours Review, 2 Hours Test
Fee includes training guide.*

*Minimum 5 students, class dates are
dependent upon enrollment...
Special single training and testing available.*

*Please send fees to:
A&R Technical
89 Gate Lane
Levittown, NY 11756
516-827-9570
Email: freezart@aol.com*

*Sessions held
9:00am - 3pm on the last
Saturdays*