

HVAC / Chiller Operating Engineer First Class

Qualifications

- Education - High School Diploma, GED or equivalent
 - Experience - Two years
 - Minimum time in previous grade - One year.
 - Examination - Written
 - Maximum Prime Mover Horsepower (Unsupervised) - 1000 Hp
 - Maximum Boiler Size (Unsupervised) HP - 300 BHP / LP Unlimited BHP
 - Maximum Refrigeration or Air Conditioning (Unsupervised) 500 ton
 - Must have a CFC Certificate
 - No conversion in this classification test only
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Recommended Books and Readings

HVAC-Heating, Ventilating and Air Conditioning Third Edition American Technical Publishers
Industrial Maintenance American Technical Publishing
Low Pressure Boilers American Technical Publishers
Refrigeration Air Conditioning Technology

Curriculum at the Minimum:

- Safety
- Thermodynamics and Heat
- Combustion and Fuels
- Electricity
- Psychometrics
- Forced Air Heating System
- Refrigeration Principles
- Management of Refrigerants and Refrigeration Systems
- Pressure-Enthalpy Diagrams
- Compression Systems –Low Side
- Compression System- High Side
- Condition Systems
- Heat Pumps
- Control Systems
- Heating and Cooling Loads
- Load Calculations
- HVAC Unit Selection
- Forced Air System Design
- Hydronic System Design
- Distribution System Balance
- Introduction to Absorption Chillers
- Maintenance Principles

- Service and Repair Principles
- Electronic and Programmable Controllers
- Boiler Systems
- Mechanical Systems
- Fluid Power Systems
- Troubleshooting
- Boiler Operation and Principle
- Boiler Fittings
- Boiler Systems Boiler Water Treatment
- Emergency Diesel Generator Operation and Maintenance
- Pump and Valve Maintenance
- Facility Energy Efficiency
- Facility Building Heating and Cooling Systems Control Optimization
- Facility Refrigeration Systems Operation and Maintenance
- Air Compressor Operation and Maintenance
- Facility Pneumatic and Electrical Controls Operation and Maintenance
- Facility Air Quality Control
- Safety and Environmental codes
- Facility Maintenance Management Systems.