REFERENCE SYLLABUS

For

HVAC Plant Operator (1st Class)
Introduction

This Syllabus is intended to assist candidates studying for the HVAC Plant Operator (1st Class) Examination.

**Recommended Study Program:**

It is recommended that, before undertaking this examination, the candidate completes Power Engineering Course of study, offered through a recognized and approved technical institute or training provider which addresses the Syllabus Outline.
Major Topic: Heating Boilers

Topic 1 Cast Iron Sectional and Modular Boilers
Topic 2 Oil Burners for Heating Boilers
Topic 3 Gas Burners for Heating Boilers
Topic 4 Basic Fittings for Low Pressure Steam Boilers
Topic 5 Basic Fittings for Hot Water Boilers
Topic 6 Hot Water and Steam Heating Boiler Operation

Major Topic: Steam and Water Heating Systems

Topic 7 Steam Heating Equipment
Topic 8 Steam Heating Systems
Topic 9 Hot Water Heating Systems
Topic 10 Hot Water Heating System Equipment and Operation
Topic 11 Warm Air Heating System Equipment
Topic 12 Warm Air Furnace Components and Maintenance
Topic 13 Ventilation and Air Filters
Topic 14 Infrared and Electric Heating

Major Topic: Heating Boiler and Heating System Controls

Topic 15 Heating Boiler Feedwater Controls
Topic 16 Heating Boiler Operating Controls
Topic 17 Heating Boiler Combustion Controls
Topic 18 Pneumatic Controls for Heating Systems
Topic 19 Electric Controls for Heating Systems
Topic 20 Electronic Controls for Heating Systems

Major Topic: Auxiliary Building Systems

Topic 21 Lighting Systems
Topic 22 Building Water Supply Systems
Topic 23 Sanitary Drainage Systems
Major Topic: Air Conditioning
Topic 24 Psychrometric Properties of Air
Topic 25 Application of the Psychrometric Chart
Topic 26 Fans for Air Distribution Systems
Topic 27 Air Conditioning Duct Systems
Topic 28 Coil Types
Topic 29 Coil Operation
Topic 30 Humidification

Major Topic: Air Conditioning Systems
Topic 31 Air Conditioning Systems I
Topic 32 Air Conditioning Systems II
Topic 33 Air Conditioning Heat Recovery Systems
Topic 34 Air Conditioning System Controls
Topic 35 Heat Gains and Losses
REFERENCE CURRICULUM

For

HVAC Plant Operator (2nd Class)
Introduction

This Curriculum is intended to assist candidates studying for the HVAC Plant Operator (2nd Class) Examination.

Recommended Study Program:
It is recommended that, before undertaking this examination, the candidate completes Power Engineering Course of study, offered through a recognized and approved technical institute or training provider which addresses the Syllabus - Curriculum Outline.
Reference Curriculum for HVAC Plant Operator (2nd Class) Examination Candidates

Major Topic: Heating Systems and Human Comfort
Topic 1 Heat Gains and Losses
Topic 3 Steam Heating Systems
Topic 4 Hot Water Heating Systems
Topic 5 Hot Water Heating System Equipment and Operation
Topic 6 Warm Air Heating System Equipment
Topic 7 Warm Air Furnace Components and Maintenance
Topic 8 Ventilation and Air Filters
Topic 9 Infrared and Electric Heating
Topic 10 Humidification
Topic 11 Electric Controls for Heating Systems

Major Topic: Plumbing and Auxiliaries
Topic 12 Building Water Supply Systems
Topic 13 Sanitary Drainage Systems

Major Topic: Lighting
Topic 14 Lighting Systems

Major Topic: Refrigeration
Topic 15 Refrigeration Theory
Topic 16 Refrigerants
Topic 17 Compression Refrigeration Systems
Topic 18 Refrigeration Compressors
Topic 19 Heat Exchangers for Refrigeration Systems
Topic 20 Refrigeration Accessories
Topic 21 Cooling Towers
Topic 22 Air Conditioning Systems

Major Topic: Refrigeration
Topic 23 Refrigeration Metering Devices and Capacity Controls
Topic 24 Refrigeration Cycle Controls
Topic 25 Compression Refrigeration System Pre-Startup Procedures
Major Topic: **Pumps and Air Compressors**
- Topic 26 Air Compression
- Topic 27 Pump Operation and Maintenance
- Topic 28 Lubrication
- Topic 29 Types of Bearing Lubrication

Major Topic: **Distributed Generation**
- Topic 30 Microturbines
- Topic 31 Internal Combustion (IC) Engine Gen-Sets
- Topic 32 Compression Refrigeration System Pre-Startup Procedures
- Topic 33 Compression Refrigeration System Operations