

## Gas Heating Systems Outline

### Gas Fired Heating Systems: Design and Operation

- Gas fuels and combustion theory
- Gas regulators, valves, burners
- Heat exchangers
- Pilot safety controls: thermocouples, standing pilot, direct spark
- Glow-coil ignition, hot surface ignition
- Safety devices and controls

### Controls and Control Systems

- Thermostats
  - Anticipators
- and proper settings

### Gas Fired Heating Systems: Maintenance and Troubleshooting

- Combustion efficiency
- Troubleshooting ignition problems
- Preventive maintenance procedures

- Comfort, humidity, humidification, dehumidification
- Wet-bulb and dry-bulb temperature, relative humidity
- Psychrometric chart and air movement
- Fans, centrifugal and axial
- Filter design, selection, and maintenance

### Electrical Components of HVAC Systems

- Electrical fundamentals, safety
- Electrical diagrams
- Electrical test equipment
- Fundamentals of electrical troubleshooting
- Electrical system components

### Maintenance and Troubleshooting of Rooftop Units

- Fault occurrence
- Scheduled and typical maintenance
- Early detection and diagnosis of problems
- Troubleshooting techniques