

Course Topics

The course will cover all of the topics below for pool and outside air units. Technicians who take the combined course will be tested for each category and will need to pass each written exam with a score of 80% or higher to become a Desert Aire Certified Service Technician.

Pool Room Units Topics

1. Room designs
 - a. Duct layouts
 - b. Water piping
 - c. Sensor locations
 - d. Water features
 - e. Condensate drain sizing
 - f. Unit sizing – sq ft of space vs pool
2. Space conditions / sequence of operation
 - a. Pool room RH settings
 - b. Pool water temp settings
 - c. Air temp settings
 - d. Outside air pre-heater
3. Airflow Measurements
 - a. Testing equipment Unocc / Occ modes – LC units
 - b. Balancing internal dampers – SA units
 - c. External static pressure – Duct designs
 - d. Coil pressure drop
4. Water flow
 - a. Coil Pressure drop
 - b. External booster pumps
 - c. Valve configurations
5. Pool Room chemicals
 - a. Storage of Chemicals – Covered containers
 - b. Unit deterioration Green copper / White powder / Rust
 - c. Chloramines – Airborne problems / Eye irritation / burning nostrils / General illness
 - d. Protective coatings – Heresite / Electro fin
 - e. Chlorine deactivator filters
6. Unit start up procedures
 - a. Desert Aire – management of job site
 - b. Expectations of installation contractor / jobsite preparation / unit inspection for damage
 - c. Expectations of CST / Completion of start-up report / payment
7. Unit set up
 - a. Tighten all electrical connections



- b. Inspect and tighten all refrigeration valves
 - c. Adjustment of internal components / TXV / Hot gas / EEV
- 8. Controller set up – Carel
 - a. Unit set points
 - b. Service menus – password entry
 - c. Factory configuration mode – password entry
 - d. BMS set up – configuration of controllers
 - e. Carel programs – Bacset tools
 - i. LON
 - ii. Ethernet
 - iii. MSTP
 - iv. Modbus
- 9. Controller set-up – Honeywell CA 2500
 - a. Controller locations / sensor locations
 - b. LON connections
 - c. Programming features
 - d. Customer programming / compared to T7350
 - e. Firmware & software upgrades
- 10. Obsolete controls
 - a. Johnson Controls – Metasys / UNT / AHU / Zone Terminals
 - i. Computer requirements
 - ii. Required software
 - iii. Required connection devices
 - b. FX Controller
 - c. Controls by others
- 11. Review in detail – HPR / LC / SA
 - a. Piping diagrams –
 - b. Electrical schematics
- 12. ROC set up
 - a. Pressure switches – fan activation settings
 - b. Vertical & Horizontal installations
 - c. Lineset configurations –
 - i. Use of traps
 - ii. Adding additional oil
- 13. Preventative Maintenance
 - a. Air filters change frequency
 - b. Belts
 - c. Coil cleaning
- 14. Components failures
 - a. Compressor change out – Burnout / Tandem replacement
 - b. Refrigerant clean up
 - c. Evacuation / Micron levels / Multiple condensers
 - d. Reuse of refrigerant



IAQ – 100% Outside Air Units Topics

1. Room designs
 - a. Duct layouts
 - b. Water piping
 - c. Sensor locations
 - d. Condensate drain sizing
 - e. Unit sizing – dewpoint vs CFM
 - f. Applications – QM/QS/QV/LT/HPR
2. Space conditions / sequence of operation
 - a. Room RH settings
 - b. OA dewpoint settings
 - c. Control logic – SAT / Room reset
3. Airflow Measurements
 - a. Testing equipment Unocc / Occ modes
 - b. Balancing internal dampers –
 - c. External static pressure – Duct designs
 - d. Coil pressure drop
 - e. Heat wheel pressure drop
 - f. MSP coils
4. Water flow
 - a. Coil Pressure drop
 - b. Valve configurations
5. Psychometrics
 - a. Understanding dewpoint / Kilojoules
 - b. Compressor staging
6. Controller set up – Carel
 - a. Unit set points
 - b. Service menus – password entry
 - c. Factory configuration mode – password entry
 - d. BMS set up – configuration of controllers
 - e. Carel programs – Bacset tools
 - i. LON
 - ii. Ethernet
 - iii. MSTP
 - iv. Modbus
7. Review in detail – QS / QV / QM
 - a. Piping diagrams –
 - b. Electrical schematics

