IAQ – 100% Outdoor Air Units Topics

The following are the topics that will be covered during the Outdoor Air Units course. Technicians must pass a written exam with a score of 80% or higher based off the topics below in order to become a Desert Aire Certified Service Technician.

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. 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
6. Psychometrics
    a. Understanding dewpoint / Kilojoules
    b. Compressor staging
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. Obsolete controls
    a. Johnson Controls – Metasys / UNT / AHU / Zone Terminals
        i. Computer requirements
        ii. Required software – HVAC pro
        iii. Required connection devices
    b. MD-20
    c. Controls by others
10. Review in detail – QS / QV / QM
    a. Piping diagrams –
    b. Electrical schematics
11. ROC set up
    a. Pressure switches – fan activation settings
    b. Vertical & Horizontal installations
    c. Lineset configurations –
        i. Use of traps
        ii. Adding additional oil
12. Preventative Maintenance
    a. Air filters change frequency
    b. Belts
    c. Coil cleaning
13. Components failures
    a. Compressor change out – Burnout / Tandem replacement
    b. Refrigerant clean up
    c. Evacuation / Micron levels / Multiple condensers
    d. Reuse of refrigerant