

Dedicated Outside Air System (DOAS) tests at Ft Stewart

Objective: Introduce superdehumidified makeup air into rooms thereby allowing the room temp to be set above dew point (>76 def F) to prevent condensation.



Building 631 Test: DOAS system consisted of replacing existing attic-mounted makeup air units with a new exterior custom air handler unit (AHU), tied into existing 4 pipe system, to provide deep dehumidification of outdoor air with a DX evaporator coil downstream of a chilled water coil.



Building 637 Test: DOAS system consisted of replacing existing attic-mounted makeup air units with a new exterior all electric DX/Dessicant custom air handler unit (AHU) to provided deep dehumidification of outdoor air.



Building 630 Test: DOAS system consisted of retrofitting each of the three original attic-mounted MAUs, augmenting each of them with a DX dehumidifier installed in the downstream ductwork. to provided deep dehumidification of outdoor air.

Conclusion: All options met the objective of superdehumidified makeup air. Retrofit (bldg 630) had lowest initial cost but low maintainability due to tight conditions in attic space. Dessicant system (bldg 637) was most energy efficient but has significant Preventative Maintenance requirements. Ground mounted replacement makeup air unit was slightly less energy efficient but takes advantage of existing 4 pipe heat/cool system and is easily maintained—this is the preferred option for ft Stewart.