CorrosionCOPS
When it's Rust Call US!

Corrosion problem: Air conditioning systems ductwork is rusting.

Points to consider:
1. A/C system duct work is produced from galvanized finished sheet metal, sometimes painted over.
2. Internal ductwork at intake is not protected which allows moist tropical air to accelerate the corrosion rate.
3. Moist tropical air movement into the ductwork at intake side moves deep into the ductwork, where further corrosion starts at seams/folded joints, causing rapid erosion of galvanizing as high CFM moisture laden air movement is primary reason of the cause of corrosion within the ductwork and galvanized sheet metal.

Exterior:

Galvanized sheet metal ductwork is particularly susceptible to corrosion and once corrosion starts, the corrosion can accelerate at a higher rate due to the combination of metals and sacrificial anode characteristic of galvanized finish.

Exterior treatment with thin film rust inhibitors (CarWell CP90) for corrosion control is practical and inexpensive as seen here:

Consideration of what is going on with the interior of the assembly requires recognition as seen here:

The above image shows partial surface treatment & drops of a thin film rust inhibitor that was applied too late in the life cycle of this ductwork and mechanical louver system. While the use of thin film inhibitors will slow the corrosion rate & forestall the eventual decay to stage 4 corrosion, holed sheet metal with a high % of good substrate material loss may become a candidate for complete replacement. Note the fastening assembly as it relates to allowing any swiveling of the linkage. This frozen assembly is direct cause for electrical control system failure as the system pertains to opening and shutting this louvered system.

While the baffle plates within this system show good integrity, where the moist air that has sped behind it hits against the flat wall of the enclosure, corrosion problems accelerate. Certain design changes could aid in longer life.

Solution:
While design changes help, including a sound corrosion prevention program will aid in providing longer life from these components allowing the facility owner to get the return on their investment for an important part of their facility.

Systems that are subject to the close proximity of the Pacific ocean, along windward coast lines, or/and where the ocean tidal and wave activity and spray results in the chloride rich moisture being picked up and carried to air conditioning intake systems should require ways of entering duct work to aid in providing access to the galvanized panels and mechanical components for corrosion protection. Standard coatings applied during manufacture would help, but follow on annual inspections and CPAC treatments would aid in obtaining the longest life possible. Contact Us for details.