

Construction Defect Claim

Resolved During Pre-Litigation Using Science

The Problem

The project was two, six-story condominium buildings with a total of 96 one story units, and located within 200 yards of the sea. When the project was three years old the Owners made a Builder's "Right to Repair" claim that included malfunctioning elevators, deteriorating paint, leaking drains in the parking garages, concrete sidewalks, and pool deck settlement, stucco cracks, leaks, and stains, buried weep screeds, reverse slope at flat roofs, corrosive sheet metal, improper drainage at planters, soil issues and too much water on one side of the fountain.

The most pressing allegation from the Owners' perspective was the malfunctioning elevators. The problem was real. The Owners hired a well-known and respected mechanical engineering expert consultant to examine the evidence, diagnose the problem, and prescribe a solution. He interviewed the sole-source contractor who had installed the elevators during construction and had (from our perspective) a one-sided maintenance contract with the Owners. The elevator contractor claimed that the problem was condensation in the elevator closets, which in turn was wetting the electronic equipment and causing the malfunctions, so they charged the Owners for each repair. The Owners' consultant assumed that the claims by the elevator contractor were true and specified adding expensive air conditioning units to the two elevator equipment closets.

The Solution

PFCS believed the elevator problem had been misdiagnosed, that the prescription was not going to cure the disease, and that the Owners would be saddled with a permanent maintenance burden related to new air conditioning units. Condensation problems like these are common in hot, humid climates like Florida, but rare in the West because the humidity levels are so much lower and the air typically does not hold enough moisture to turn into enough condensation (water) to cause problems. Lucky for us, there was a physicist on the HOA Board of Directors. He understood our argument and allowed us to conduct testing because he believed we were thinking hard to create a solution that was in the Owners' best interests.

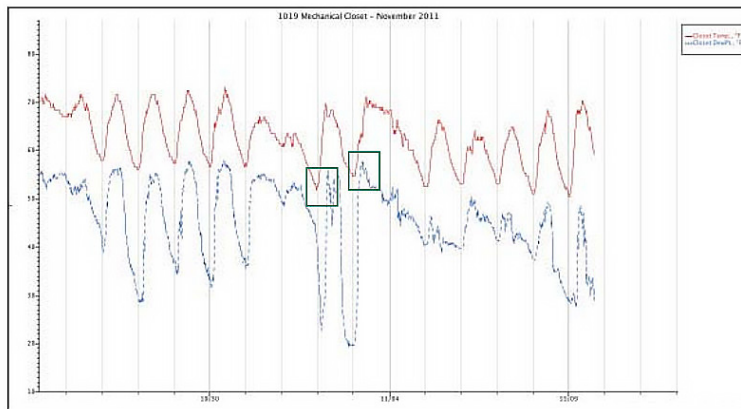


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We applied the PFCS Building Performance Analysis (BPA) Process:

1. **Document & Information Management:** We composed a 70-point Timeline of Elevator Events.
2. **Meetings & Interviews with Key People:** We interviewed all available "persons most knowledgeable".
3. **Building Information Management:** We collected all of the plans, specifications, photographs, project images, and information related to the elevator performance and organized it for analysis and presentation.
4. **Inspection:** We conducted on-site visual inspections.
5. **Analysis:** We analyzed all of the above and developed working hypothesis.
 - We engaged a world-renowned condensation and building moisture management expert and author to aid in testing and offer recommendations best suited for the building owners.
 - We engaged an elevator expert who was well versed in the problems the Owners were experiencing based on having solved many similar problems with this same elevator manufacturer.
6. **Testing:** We conducted a "hygrothermal study", collecting thousands of data points to measure the temperature and humidity over the course of many months.
7. **Estimate:** We monetized the recommendations applying our professional construction cost estimating skills.
8. **Report / Repair Recommendations:**
 - Our specialty building moisture management expert composed and delivered a report with recommendations.
 - Our specialty elevator expert composed and delivered a report with recommendations.
 - PFCS made elevator closet moisture management repair recommendations and composed and delivered an RFP that could be sent to contractors for bidding.
 - PFCS made repair recommendations for all other (traditional construction defect) issues.



November 2011 - Condensation is possible... Dew point rises quickly in the morning, while surface may still be cool

In late October and November, the temperature and dew point still rise and fall together. But note how they are much closer. If the dew point rises quickly, surfaces inside the closet may have remained cool enough to condense moisture, as could have been the case during the highlighted periods.

After months of hygrothermal testing, we concluded that it was possible that some limited condensation could have developed in the elevator closets. However, we were convinced (and so were the Owners) that the problem was primarily with the elevator installation and maintenance. Therefore, a much less expensive, more passive system was specified and installed to ensure no condensation could occur in the elevator closets, and the elevator expert directed repairs to the elevators that brought them into conformance with an acceptable standard of performance.

PFCS made recommendations that were presented to and accepted by the Owners for many of the other issues, and the developer paid for the execution of these repairs. In the end, the matter was settled without litigation.