

CASE STUDY

Project: Tropical Resort Confidential Client



CHALLENGE:

Problem avoidance for a tropical resort seeking very high building envelope air barrier goals in an effort to attain energy efficiency and eliminate potential mold/moisture issues.

SOLUTION:

Liberty provided design and construction commissioning services (including air barrier testing) to determine whether infiltration was occurring and whether building envelope air tightness goals were being met.

RESULTS:

Building was found to be leakier than specified during construction phase air tightness testing. The original air barrier goals were found to be unrealistic based on the air barrier materials selected. Some installation defects also caused leakiness. However, the installed air barrier system was determined acceptable as compared to industry knowledge and standards and given proper operation of the HVAC system.

CASE EXPERTS:

Richard Scott, AIA – Forensic Architect

Norman L. Nelson, PE – Senior Forensic Engineer

SERVICES PROVIDED:

Liberty Building Forensics Group (Liberty) provided design and construction phase building commissioning and peer review services, including air barrier testing.

CASE SUMMARY:

The design team had set unrealistically high building envelope air barrier goals for an oceanfront tropical resort. This was done in an effort to avoid the extensive mold damage suffered by another tropical resort nearby due to wind-driven infiltration. During design phase commissioning peer review, Liberty recommended installation of a fluid-applied air barrier system. The design team decided to use a sheet-applied building wrap instead. Liberty recommended air tightness testing to confirm the efficacy of the building wrap with respect to the design team's goals. Our air barrier testing found the building to be leakier than predicted and specified. Although these results alarmed the client, Liberty suggested the goals originally set were unrealistic for the specified air barrier assembly, and that a lower number would be acceptable with the proper as-designed HVAC system in place. We also recommended that the design team and general contractor provide better directions to workers on air barrier assembly installation.