



Condo-Hotel Vacation Ownership Resort Palm Springs, CA

Interior noise isolation & impact noise testing

The third-largest vacation ownership program in the world completed Phase 1 construction of a vacation resort near Palm Springs, CA. The resort consists of multiple buildings with approximately 278 residential units, with floorplans ranging from studios and 2-bedroom units to presidential penthouse suites.

Project Scope
STC/IIC Forensic Analyses

Test & Measurement Scope
Sound Transmission Testing
Impact Noise Testing

Forensic Goals
Identify systemic deficiencies

Total Resort Units
278 units from studios to
presidential suites

After Phase 1 was completed, the resort received noise complaints from owners of every unit type. The rate of complaints was far higher than expected. Complaints indicated disturbance by impact noises from units above (*i.e.* walking) and by airborne noises from adjacent units (*i.e.* talking).

We conducted noise and impact testing of the common party walls and floor-ceiling assemblies, in order to determine 1) whether the Sound Transmission Class (STC) and Impact Isolation Class (IIC) of the walls and floor/ceilings met typical standards and 2) whether the deficiency was in design or construction execution.

We tested party walls and floor-ceiling assemblies in a sampling of units in three different buildings. Our results showed that the party walls and floor-ceiling assemblies consistently underperformed with respect to their stated design airborne noise insulation (NIC) and impact noise insulation (IIC) class rating.

We found that the underperformance was due to the use of an inappropriate partition detail at the party walls. The poorly-designed partitions resulted in excessive low-frequency noise transmission between units. The poor noise isolation performance was compounded by poor construction execution. We formulated a retrofit strategy that would improve the intrinsic noise isolation offered by the party walls.

