



## VACC Recent Key Projects: Condo-Hotel Acoustical STC/IIC Testing (Sound Transmission / Impact Isolation Class) Vacation Ownership Resort Southern California Desert

**Project Scope**  
STC/IIC Forensic Analyses

Recently, a global vacation ownership program completed Phase 1 of construction for a new vacation resort in the Southern California Desert.

**Test & Measurement Scope**  
Sound Transmission Testing  
Impact Noise Testing

After Phase 1 was completed, the resort received noise complaints from owners of every unit type. The rate of complaints was higher than expected based on previous experience. Complaints indicated disturbance by impact noises from units above (walking) and by airborne noises from adjacent units (talking, radios, etc.).

**Forensic Goals**  
Identify systemic deficiencies

**Resort Size**  
Hundreds of units, from studios to presidential suites

The developer approached us to conduct noise and impact testing of the common party walls and floor-ceiling assemblies. The purpose of the testing was to determine whether the Sound Transmission Class (STC) and Impact Isolation Class (IIC) of the walls and floor/ceilings met typical standards. Additionally, these data were intended to inform whether the deficiency was in design or in construction execution.

**Completion**  
Testing completed 2008  
Validation work pending decision by Owner to proceed

We tested the party walls and floor-ceiling assemblies in a sampling of units in three different buildings. Our testing 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 demising walls. The poorly-designed partitions resulted in excessive low-frequency noise transmission between units. The poor noise isolation performance was compounded by low quality in construction execution. We formulated a retrofit strategy that (once validated) could improve the intrinsic noise isolation offered by the party walls.