

REAL STORIES FROM REAL BUILDINGS

Upstairs, Downstairs: a case study of acoustic transmission in multi-family housing

Joshua Brant and Martha Breed

University of Oregon

Abstract

The lack of acoustic privacy in multiple-dwelling units is widely experienced and anecdotally documented. This paper attempts to quantify the human experience of this failure of the built environment to mitigate sound transmission. To realistically assess the acoustic performance of multi-family housing, we distributed a survey to all of the residents of the Spencer View apartments. This survey was structured to provide data for comparison between impact and airborne sound sources, and the different experiences between the upstairs and downstairs units. We correlated this subjective data against calculations of the acoustic performance of the existing floor assembly. Through the calculations, we found that the apartments are constructed so that they probably meet code minimally. However, the survey data that we received shows a high level of awareness of and annoyance by sounds passing through the floor assembly between apartments. Most striking (no pun intended) was the degree to which people living downstairs heard impact sounds from upstairs. In this regard, the experiences of the upstairs and downstairs apartments were far from similar. These results suggest that minimal code-compliance is not sufficient to create a building system that provides a reasonable level of acoustic separation between units in multi-family housing.