

FIELD SOUND TRANSMISSION LOSS TESTS IN LOW RISE CONSTRUCTION

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Introduction

Sound transmission loss tests following ASTM E336-84 procedures were conducted in a three storey multifamily residential dwelling prior to occupancy. Tests were conducted on two wall types - a block firewall and a double wood stud wall - separating equal sized small bedrooms on the third floor. The field test results were compared to lab tests for the same construction. Comments on flanking were made.

Wall Configuration

The building construction consisted of wood framing with exterior brick veneer and aluminum siding. A block firewall separated every two units. The firewall consisted of 190 mm normal weight hollow block covered on each side by 38 mm batt insulation and wood strapping with 16 mm gypsum board.

The wall between pairs of units was double wood stud construction from basement floor slab to underside of roof. In the ceiling space, double roof trusses formed the partition. The construction below the ceiling was two wythes of 16 mm gypsum board on 89 mm wood studs with mineral wool insulation separated by a 25 mm air space. A metal firestop was used at each floor.

The rooms had equal size and layout on each side of the common wall but the rooms for the wood stud wall had carpet while the rooms for the block wall did not.

Reverberation time was measured using decays of the pink noise. The STC value was automatically calculated by the LD 2800 Real Time Analyzer.

Block Wall Test Results

The measured Field Sound Transmission Class (FSTC) was FSTC 58. The laboratory results from NRC were STC 60. Figure 1 shows the comparison.

Wood Wall Results

The measured Field Sound Transmission Class (FSTC) was FSTC 52. The laboratory results from NRC were STC 57. Figure 2 shows the comparison. The poorer field performance is possibly due to the metal firestop used at the floor level. Other flanking paths may also be causing the loss of high frequency performance. The tests done by NRC in their flanking test facility showed less high frequency performance than in the reverberation room facility. This is consistent with what was found here.

FIGURE 1
BLOCK WALL

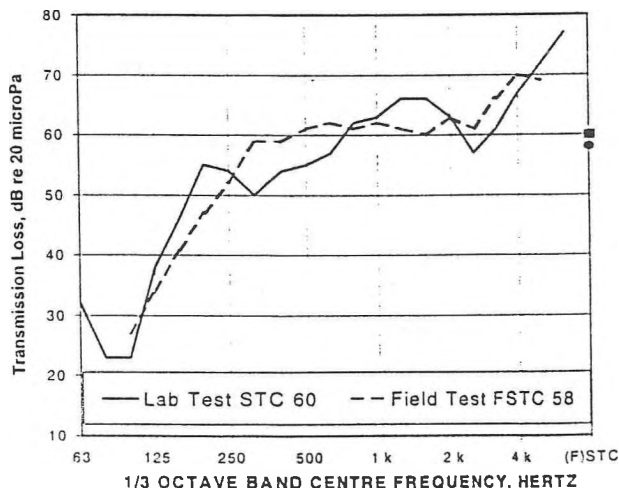


FIGURE 2
WOOD WALL

