

Sound Transmission Class (STC) - is a single-number metric used to measure the sound isolation performance of walls and flooring-ceiling assemblies in a laboratory. ASTM Standards define the procedures and methodology for calculating STC (E901 for Laboratory Test Methods and E4132 for Rating Classifications). STC values are calculated by measuring loud sound levels in one room (source room) and subsequently measuring the resulting sound levels in an adjacent room (receiving room). The sound level differences between source and receiving rooms are used to calculate the STC value for the wall or floor-ceiling assembly, known as Noise Reduction (NR) values or Transmission Loss (TL) values, depending on measurement conditions. Higher values of STC indicate that an assembly is more effective at reducing the sound transmitted to the receiving room.

IBC Code Requirements - Acoustics requirements for multi-family residential buildings are presented in the International Building Code⁷ (IBC), which has been adopted throughout most of the United States as well as several jurisdictions outside of the United States. The IBC contains requirements for sound isolation, defining minimum ratings of STC 50 between residences and adjacent residences / public spaces. Impact insulation is also required to be a minimum of IIC 50 between vertical residence adjacencies. It should be noted that the IBC criteria of STC 50 & IIC 50 represent 'minimum' requirements: multi-family residences are typically designed to exceed these to provide higher sound isolation and impact insulation between residences.

NRMCA and the RMC Research and Education foundation have developed a report – **Compilation of Acoustics Information for Concrete Construction and Other Materials**, that reviews data on specific concrete wall, floor and ceiling assemblies to meet the IBC sound transmission requirements.

STC data on ICF wall assemblies are featured in this report. For more information on Fox Blocks specific wall assemblies, please contact Fox Blocks.

The NRMCA report is available through this link, scroll down to open this report –

**Compilation of Acoustics Information for
Concrete Construction and Other**

<https://www.nrmca.org/association-resources/codes-and-standards/>

