

STC & IIC: Plain-English Guide

Demystifying sound transmission ratings for building owners and designers.

Customer resource • factual guide • Vancouver / BC commercial project context

Key takeaway: STC is mainly about airborne sound such as voices and music. IIC is about impact sound such as footsteps and dropped objects. Both describe assemblies, not just products, and field performance can differ from lab ratings.

STC: airborne sound

What it means	Sound Transmission Class is a single-number rating used to describe how well a wall, floor/ceiling, door, window, or assembly reduces airborne sound over a defined frequency range.
Common examples	Voices through a demising wall, meeting-room privacy to a corridor, music transfer between spaces, and exterior traffic through a façade.
Key limitation	STC is less descriptive for very low-frequency noise such as bass music, mechanical rumble, or heavy equipment vibration.

IIC: impact sound

What it means	Impact Insulation Class is a single-number rating used for impact sound transfer through floor/ceiling assemblies.
Common examples	Footsteps above, dropped objects, rolling carts, fitness uses, hard flooring over residential or office space, and tenant improvements over sensitive uses.
Key limitation	Floor finishes, underlayments, structure, ceilings, and flanking paths can all affect field results.

Lab vs field

Laboratory ratings	STC and IIC are commonly based on controlled laboratory testing of assemblies. They are useful for comparing assemblies but do not include all building-specific flanking paths.
Field ratings	Field tests can report related metrics such as FSTC, ASTC, NIC, FIIC, or AIIC depending on the method and jurisdictional requirements.
Flanking	Sound can bypass the obvious wall or floor through ceilings, façades, ducts, structure, side walls, doors, electrical boxes, and unsealed penetrations.

Owner checklist

1	Ask whether the concern is airborne, impact, mechanical, or vibration-related.
2	Confirm whether the target applies to the lab assembly or the constructed field condition.
3	Review doors, glazing, seals, penetrations, ceilings, and plenum paths before upgrading only the main wall or floor.
4	Use tested assemblies and manufacturer data, but verify in the field when acceptance matters.
5	Avoid comparing STC, IIC, NRC, and RT60 as if they measure the same thing.

Use note: This guide is intended for customer education and early coordination. It is not a code ruling, engineered specification, or substitute for field measurements where a numeric performance target is required.