ACOUSTI-MAT®

THE SOUND CONTROL SOLUTION FOR YOUR MASS TIMBER PROJECT

MAXXON CORPORATION
Because acoustical privacy is almost always one of the first factors cited in occupant satisfaction, it should be one of the top considerations when designing multifamily buildings. Code doesn’t cut it anymore. The appendix to the International Building Code, ICC G2-2010, establishes two additional levels of acoustical performance, better suited to meet occupant expectations.

**SYSTEM PERFORMANCE RATINGS**

**EXPOSED CEILING**

**EXPECTED SYSTEM PERFORMANCE**

<table>
<thead>
<tr>
<th>SOUND CONTROL SYSTEM**</th>
<th>BARE SURFACE</th>
<th>FLOORING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acousti-Mat 3/8 Premium, 1” Underlayment</td>
<td>IIC 40</td>
<td>STC 50</td>
</tr>
<tr>
<td>Acousti-Mat Double Mat System††, 2” Underlayment</td>
<td>IIC 46</td>
<td>STC 52</td>
</tr>
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</table>

**DRYWALL CEILING**

**EXPECTED SYSTEM PERFORMANCE**

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<tr>
<td>Acousti-Mat Double Mat System††, 2” Underlayment</td>
<td>IIC 52</td>
<td>STC 58</td>
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**WAVE® SUSPENDED CEILING**

**EXPECTED SYSTEM PERFORMANCE**

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<tbody>
<tr>
<td>Acousti-Mat 1/8, 3/4” Underlayment</td>
<td>IIC 51</td>
<td>STC 59</td>
</tr>
<tr>
<td>Acousti-Mat 3/8 Premium, 1” Underlayment</td>
<td>IIC 60</td>
<td>STC 63</td>
</tr>
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</table>

*Maxxon Underlayments and Acousti-Mats are but single components of an effective sound control system. No sound control system is better than its weakest component. Care must be taken in the selection and installation of all components of construction to ensure the ultimate designed acoustical performance. For more information, including type of floor covering used and additional system component information, contact Maxxon Corporation. All data presented on this page is backed by third party testing. For copies of relevant test reports, contact Maxxon Corporation.

**Maxxon Underlayments are selected based on the end use requirements. Considerations should at minimum include: end use sound code requirements, floor goods strength requirements, building frame type.

†The FTC and FIIC terminology used by the ICC to refer to field testing has been superseded by the ASTC and AIE in ASTM E336-19 and E1007-19

††Double Mat System: Acousti-Mat 3/4 Premium + Acousti-Mat SBR
**System includes Acousti-Mat, Acousti-Mat Perimeter Isolation Strip and Maxxon Underlayment poured at minimum recommended depth. Performance based on comprehensive collection of lab and field data. Performance will vary based on assembly, construction and material selections. Graphs do not serve as a guarantee of performance, rather, a guide to approximate acoustical performance based on this test program’s findings.**
## Sound Control Basics

### Examples
- Footsteps
- Dropping/Falling Items
- Chair Scrapes

### Sound Transmission Method
Direct impact on a floor is transmitted through the building material and is radiated as sound.

### How It Is Measured
Impact sounds are measured using a tapping machine in which standard sized weights are dropped onto the floor in a constant rhythmic pattern. Sound levels in the room below are recorded at 16 frequency bands and calculated into one number identified as the IIC (Impact Insulation Class) Rating.

Airborne sounds are measured at 16 frequency bands through a floor/ceiling assembly. The resulting reduction in sound is calculated into a single rating identified as the STC (Sound Transmission Class) Rating.

### Mitigation Factors
- **Isolation Break** — The basic principle behind impact noise reduction is decoupling: complete separation of building materials will reduce sound vibration transfer.
  - The entangled mesh layer of an Acousti-Mat not only separates the mass timber floor panel and the underlayment, but also creates an air gap, improving the impact isolation performance even more.

- **Mass** — Adding mass to a floor increases the amount of airborne sound that is blocked.
  - Underwriters Laboratory (UL) requires a minimum of 3/4" gypsum topping to meet International Building Code Fire requirements. Maxxon Underlayment minimum thickness is dictated by sound mat requirements.

### Additional Considerations
- **Resilient Channel** — Adding Resilient Channels, such as WAVE Hangers, offer an additional vibrational break between the mass timber floor panel and the ceiling, providing an air space proven to further reduce impact sounds. Mass timber assemblies without a dropped ceiling, such as drywall screwed direct or bare ceiling, do not.

- **Flanking Paths** — Rigid connections across isolation breaks, exposed ducts between separate spaces, continuous curtain walls or doors with undercuts for ventilation are often potential flanking paths. Flanking path noise is typically observed as high frequency sounds. A topically applied sound mat, like Maxxon's Acousti-Top, is excellent at reducing high frequency sound, thus is a great solution if flanking paths exist.