SONOpan®

Soundproofing Simplified

Agenda

- About **MSL**
- **Soundproofing**
  - Background
  - Terms
- **Airborne Noise Solutions** (Walls & Ceilings)
  - STC
  - SONOpan
- **Impact Noise Solutions** (Floors)
  - IIC
  - SONOpanX
- **Applications**
  - Case studies

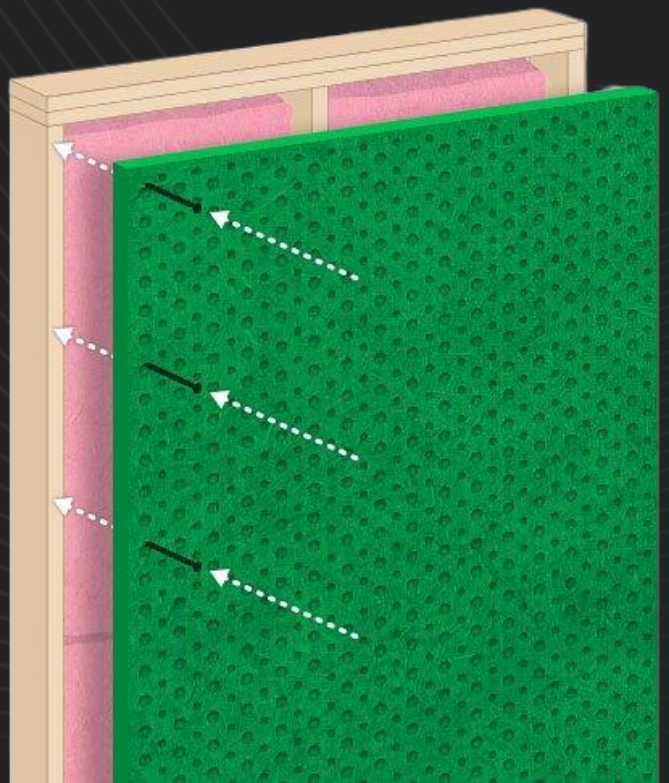
SONOpan®

MSL

- Located in **Louiseville, Quebec**
- Original Mill built in **1946 -** ISO 9001:2015 Certified
- Longtime leader in **fibreboard** manufacturing
- We provide solutions for **roofing, insulation,** and **soundproofing**

Eco-Friendly Process

- Our panels are made using **natural** materials
- **100%** recycled wood, sourced from within **150 km** of our factory
- Mill operates with a **closed-loop** water system



SONOpan

For Walls & Ceilings

- 100% Recycled Wood
- 4' x 8' x 3/4"
- 26 lbs
- R 2.45
- STC 27

Thousands of impressions in each panel, varying densities

Low cost, high performance

Easy to install

c UL us LISTED

Soundproofing

SONOpan®

Sound vs Noise

Sound: Energy that travels as a vibration, detected by our ears

Noise: Unwanted sound

Two Types of Noise

Airborne

Measured with STC

Impact

Measured with IIC

Soundproofing *Sound isolation, sound attenuation*

The process of reducing sound transmission between two spaces

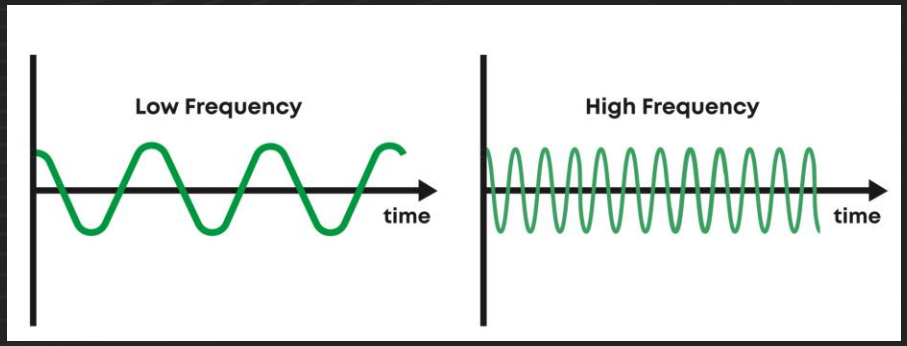
Why soundproof?

- A growing demand for quiet spaces
- Exceed building code requirements to reduce noise complaints
- Privacy and mental health benefits
- Competitive edge for builders, increased property values and a strong selling feature!

Other Terms to Know

- **Decibel (dB):** Unit for measuring sound intensity
  - Higher dB = louder sound

- **Frequency:** Number of sound waves per unit of time
  - Pitch: measured in Hertz (Hz)
  - Higher Frequency → Higher Pitch (Treble)
  - Lower Frequency → Lower Pitch (Bass)



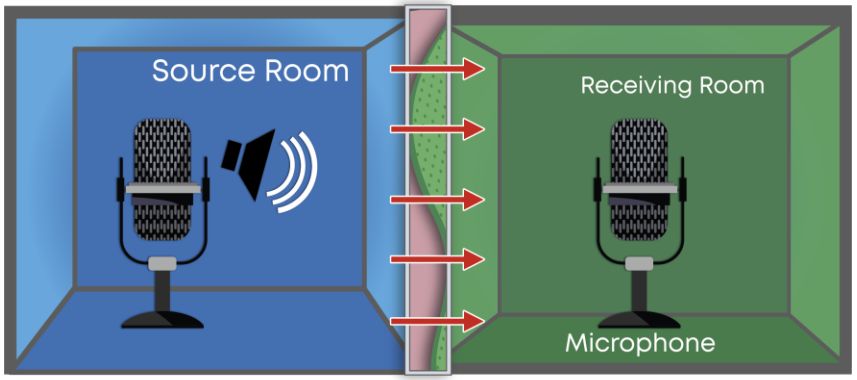
Airborne Noise

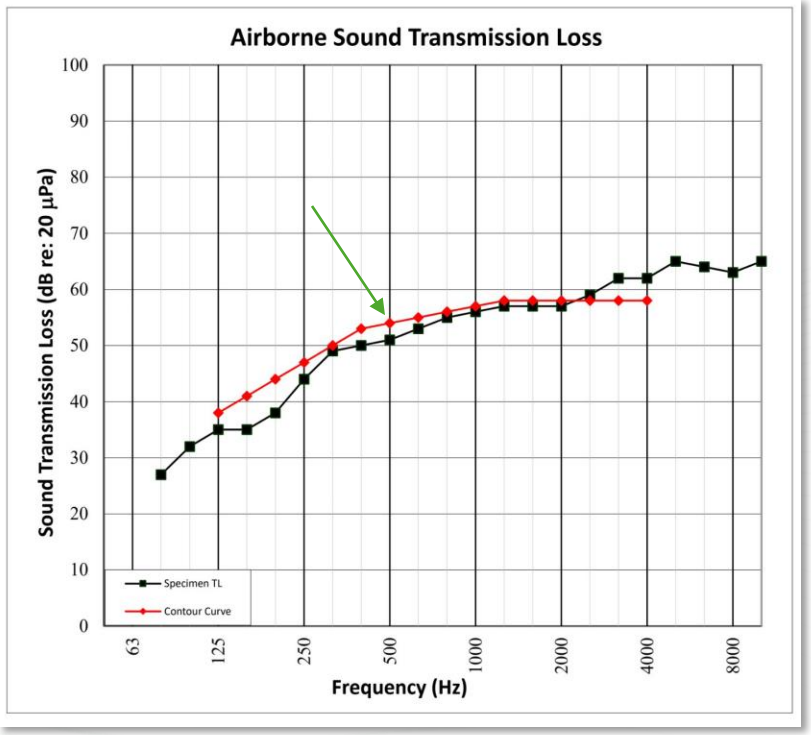
SONOpan®

Sound Transmission Class (STC) → Airborne Sound

ASTM E90 is a standardized test measuring the decibel reduction of an assembly over a range of 16 frequencies, from 125 Hz to 4000Hz, resulting in an **STC** rating

The STC rating assigned to the assembly is the TL (Transmission Loss) value of the contour curve at **500 Hz**



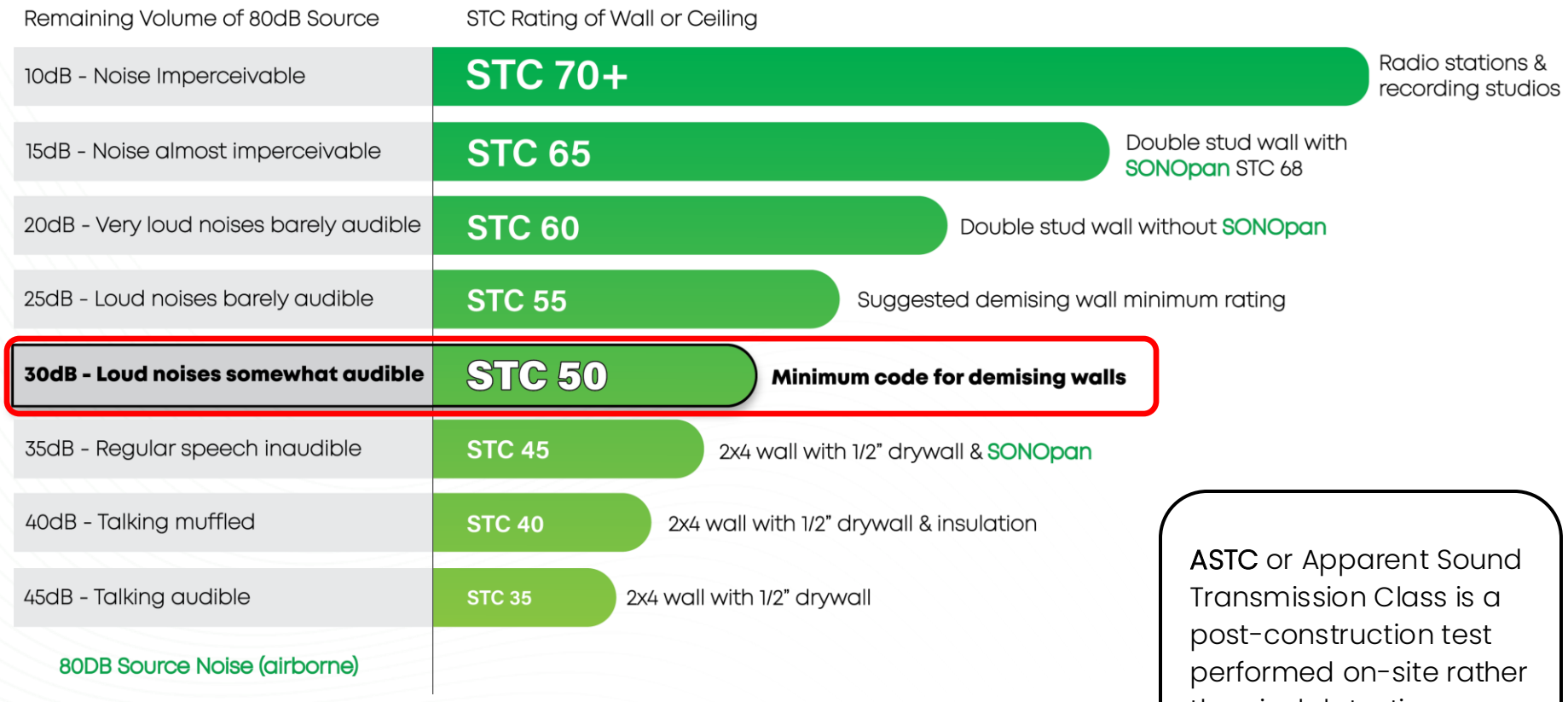


FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m²	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% SAMPLING LIMIT	NUMBER OF DEFICIENCIES
50	39	25.4	107	80	24	4.4	-
63	36.5	18.1	104	79	24	5.9	-
80	35.6	14.4	100	72	27	3.4	-
100	31.5	10.3	99	69	32	2.7	-
125	34.0	12.9	99	65	35	2.7	3
160	25.5	8.5	97	64	35	1.2	6
200	20.8	9.3	93	56	38	2.0	6
250	15.2	9.5	96	53	44	1.5	3
315	18.8	9.4	100	52	49	1.0	1
400	14.6	8.8	99	50	50	1.0	3
500	16.2	7.6	96	47	51	0.9	3
630	16.7	7.4	97	45	53	0.4	2
800	15.7	7.5	97	44	55	0.5	1
1000	22.4	7.4	96	42	56	0.6	1
1250	19.0	7.2	96	41	57	0.4	1
1600	14.2	7.3	96	41	57	0.5	1
2000	12.4	8.2	96	41	57	0.3	1
2500	12.1	9.2	91	33	59	0.3	0
3150	13.6	10.0	91	30	62	0.6	0
4000	10.7	10.9	91	29	62	0.7	0
5000	12.6	12.4	89	24	65	0.8	-
6300	9.2	15.1	86	21	64	0.7	-
8000	9.0	19.3	86	21	63	0.8	-
10000	9.1	19.3	85	18	65	1.8	-
STC Rating	**54**	*(Sound Transmission Class)*			**Sum of Deficiencies**		**32**

Making Sense of STC

Minimum building code requirement is STC 50, but this is often insufficient for many applications.

Aim for STC 55 or 60 for better results!



ASTC or Apparent Sound Transmission Class is a post-construction test performed on-site rather than in-lab testing

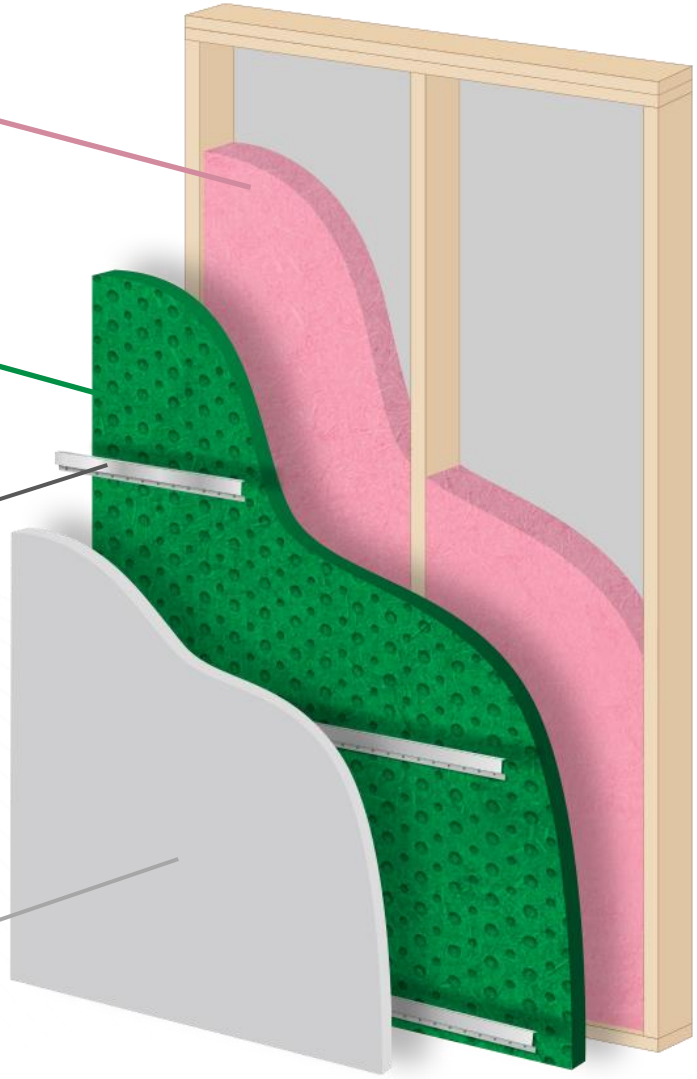
Elements of Soundproofing

Resonance
Insulation

Absorbtion
Fibreboard Panel

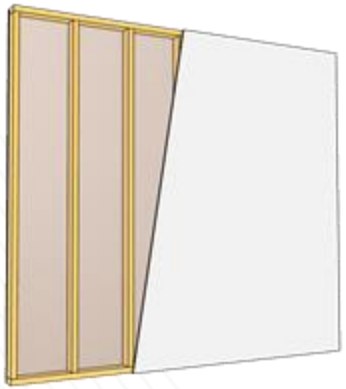
Decoupling
Clips/Channels

Mass
Drywall



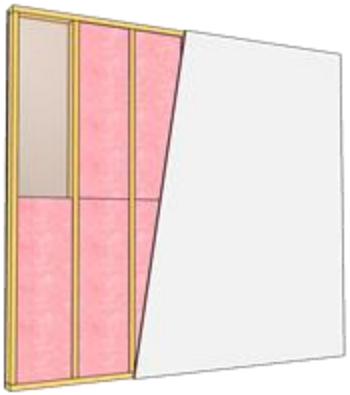
Stacking Technologies
Wall Assemblies

STC 32



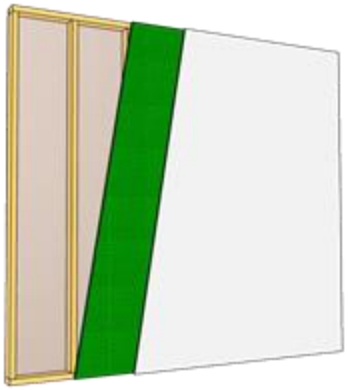
½" Drywall
2"x4" Studs
½" Drywall

STC 34



½" Drywall
2"x4" Studs
+ Insulation
½" Drywall

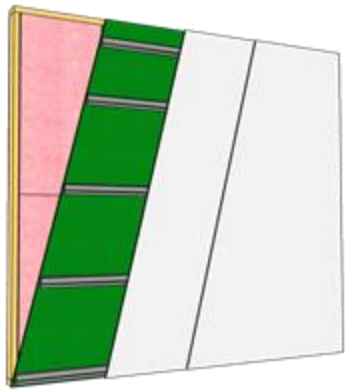
STC 42



½" Drywall
2"x4" Studs
+ **SONOpan**
½" Drywall

Stacking Technologies

STC 56



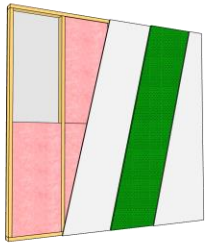
+ Insulation
+ **SONOpan**
+ Resilient Channel
+ 2x 5/8" Drywall

Best results are achieved by using all elements of soundproofing together

Additional STC 50 Wall Assemblies

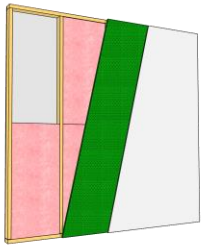
2"x4" Wood Studs 24" O.C.

STC 50



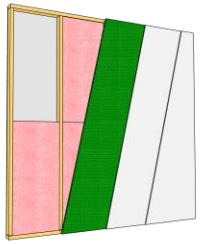
½" Drywall
Insulation
½" Drywall
SONOpan
5/8" Drywall

STC 50



5/8" Drywall
Insulation
SONOpan
5/8" Drywall

STC 54



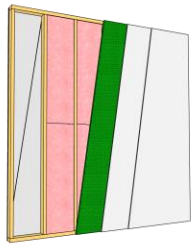
5/8" Drywall
Insulation
SONOpan
5/8" Drywall x2

2"x4" Wood Studs 16" O.C.

Using materials of different **mass** and **density** together is another way to achieve well-rounded performance.

In this case, different types of drywall with **SONOpan** and insulation.

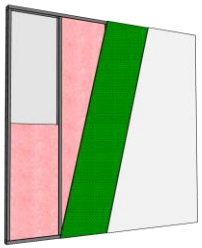
STC 50



½" Drywall x2
Insulation
SONOpan
5/8" Drywall x2

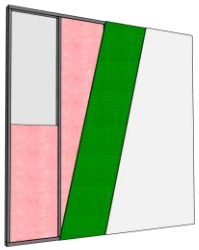
3-5/8" Steel Studs 24" O.C.

STC 51



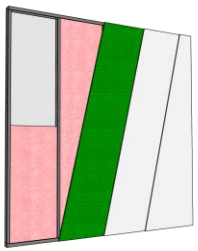
½" Drywall
Insulation
SONOpan
½" Drywall

STC 52



5/8" Drywall
Insulation
SONOpan
5/8" Drywall

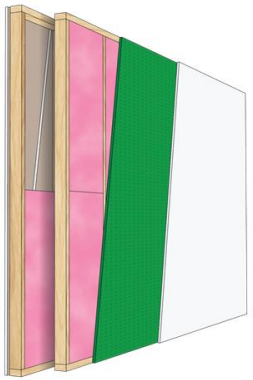
STC 54



5/8" Drywall
Insulation
SONOpan
5/8" Drywall x2

Double Stud - 2"x4" Wood Studs 24" O.C.

STC 68



5/8" Drywall x2
Insulation
1" Airspace
Insulation
SONOpan
5/8" Drywall

Ultimate Soundproofing

Additional Strategies To Reduce Sound Transmission

Wider Stud Spacing (24" O.C. vs 16" O.C.): Reduces material contact, limiting sound paths

Staggered/Double Stud Walls: Decouples or breaks direct sound transfer between the layers of your assembly

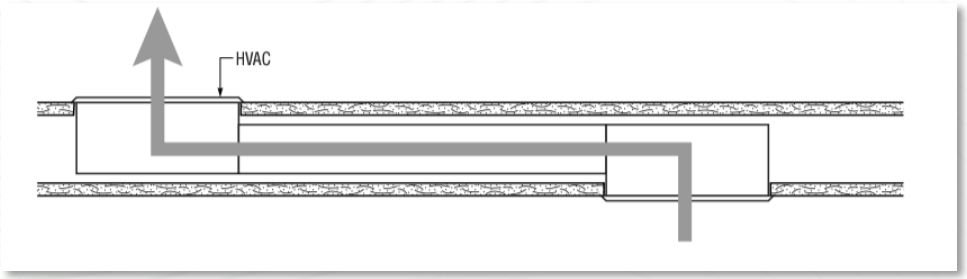
Steel Studs: Dissipates sound vibrations better than wood frame construction

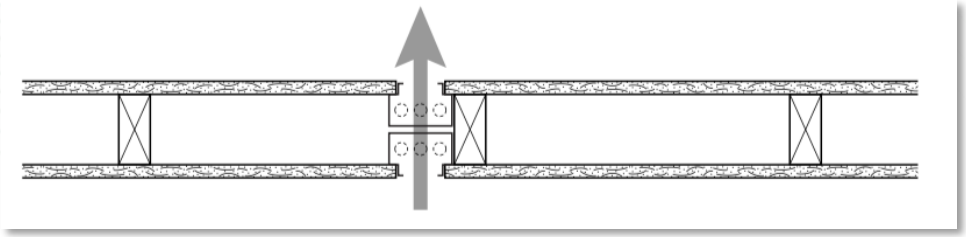
Flanking Sound

Indirect paths sound takes to travel through the structure of a building, bypassing shared walls and systems

When sound encounters a barrier (like a wall), it takes the **easiest** path

Flanking sound can travel through **structural** elements (like joists, studs, and concrete) or **gaps** (like doors, windows, and electrical boxes).

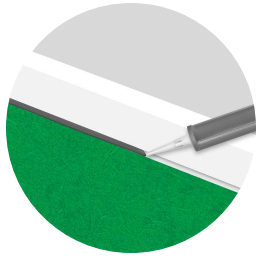




Solutions To Combat Flanking

Seal Gaps & Cracks: Sound travels like water, it will find a way through any opening. Seal outside corners with acoustical sealant.

Some other common openings that should be addressed are:

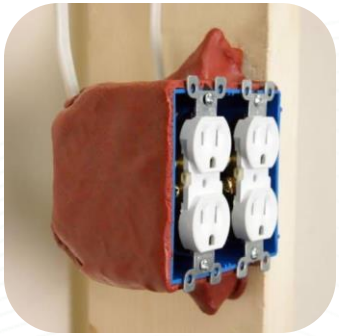


Doors & Windows

Solid Wood Door

Triple Pane Windows

Electrical Boxes



Putty Pads

Electrical Box

Recessed Lights

Thin LED Box

Standard Box

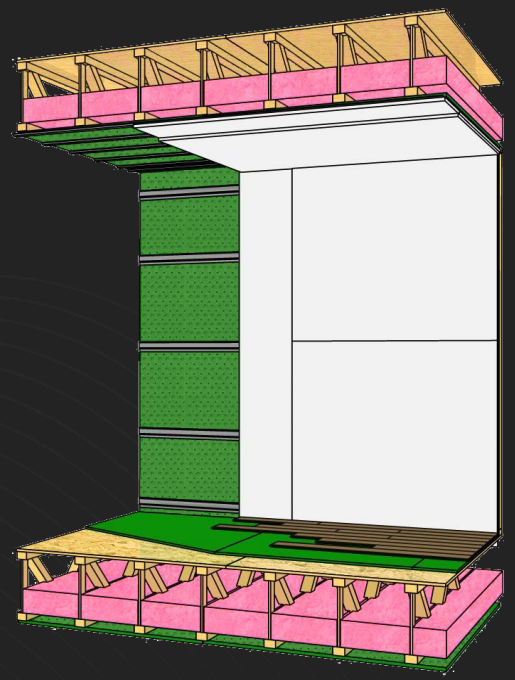
Competitive Advantage

SONOpan® as a Project Starter

Adding SONOpan Soundproofing Panels to your assortment can help you **win more business!**

SONOpan represents **20%** of the cost of a soundproofing project.

Increase Basket Size: Build better and boost from $1 per sq ft -> $5 per sq ft with a complete assembly



This benefits:

Retailers

Builders

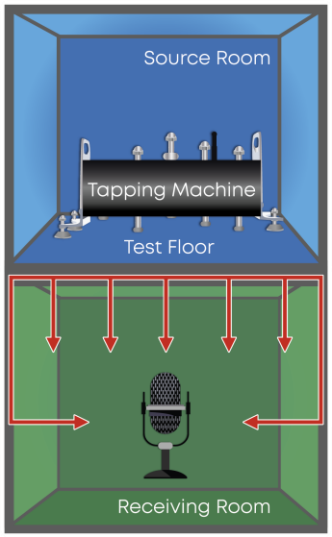
Contractors

SONOpan® Installation Video

Impact Noise

SONOpan®

Impact Insulation Class (IIC) → Impact Sound



ASTM E492 is a standardized test measuring the impact performance of an assembly, using a tapping machine, resulting in an IIC rating.

Delta IIC (ΔIIC) is a more accurate rating to compare impact sound solutions

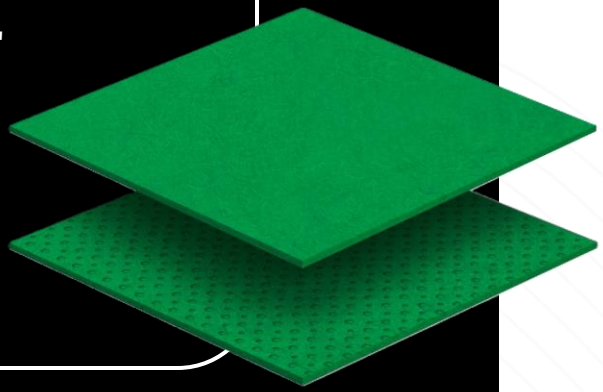
Impact Noise	IIC Rating of Floor Assembly	
Foot fall, running and furniture moving is usually not audible	IIC 70+	Extreme performance (Concrete slab)
Significant reduction in noise transmission from foot fall, running and furniture moving	IIC 55 - 65	High performance range (Wood frame construction)
Common impact noise caused by foot fall, running and furniture moving is audible	**IIC 50**	**NBC suggested minimum rating for demising floors**
There is no IIC requirment within single family homes	IIC < 50	Base floor assemblies

IIC ratings include the entire assembly, not a product alone*

SONOpan X

For Floors

- 100% Recycled Wood
- 4' x 4' x 7/16"
- 9.33 lbs
- R 1.13
- ΔIIC 25



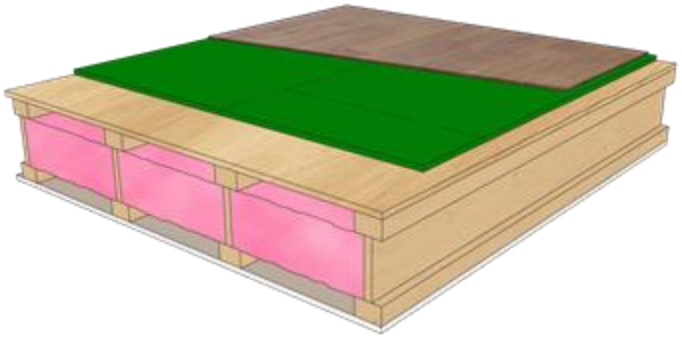
Excellent performance for impact sound

Easy to install, lightweight, and affordable

Great for a variety of floor types

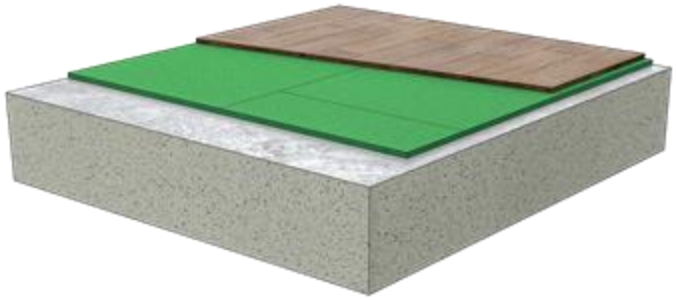
Floor Assemblies

Wood Frame Construction



Up to **STC 56** & **IIC 57**

Concrete Slab Construction

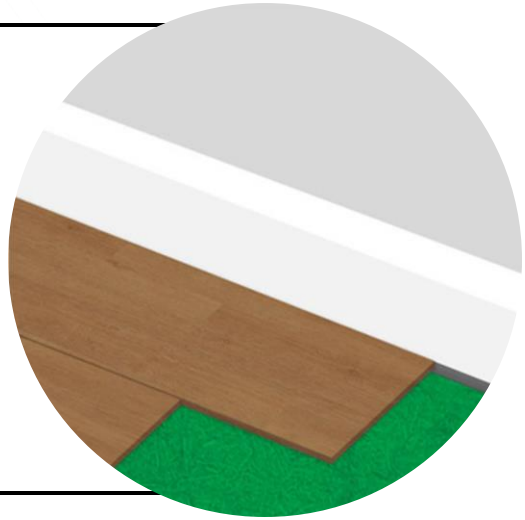


Up to **STC 62** & **IIC 72**

Flooring Installation

A variety of floor types can be installed with SONOpan*X*:

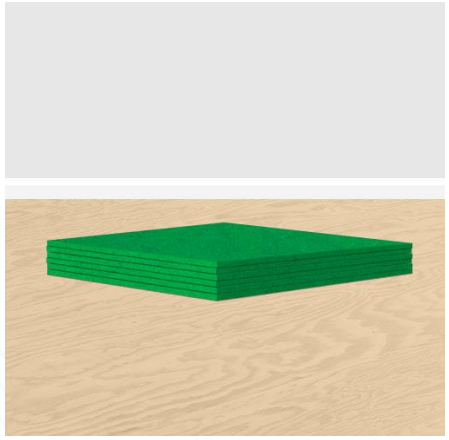
- **Laminate**
- **Engineered Wood**
- **Solid Hardwood**
- **Luxury Vinyl Plank**
- **Tile**
- **Carpet**



Some floor types require the installation of ¼" plywood over SONOpanX

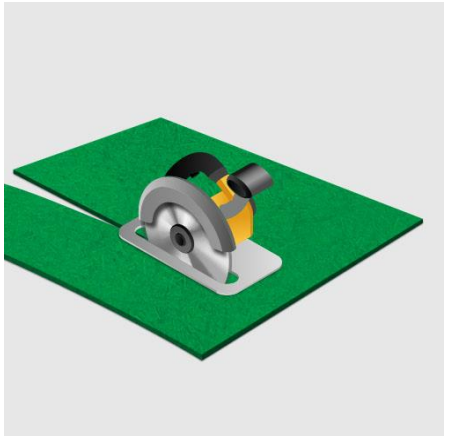
SONOpanX Installation

Step 1



Store panels lying flat prior to use. Secure the subfloor with screws or glue before installing SONOpanX to prevent sqeaks and movement.

Step 2

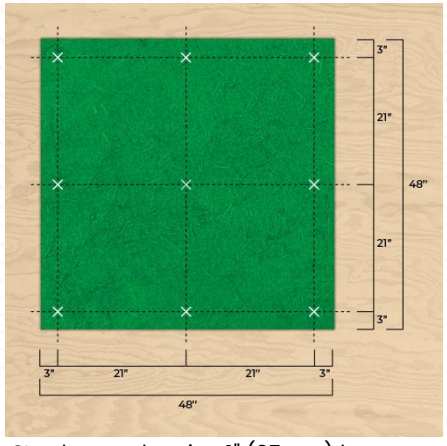


SONOpanX panels are made from wood and cut best with a circular saw. They may also be cut with a sharp knife, but do not score and snap!

Step 3

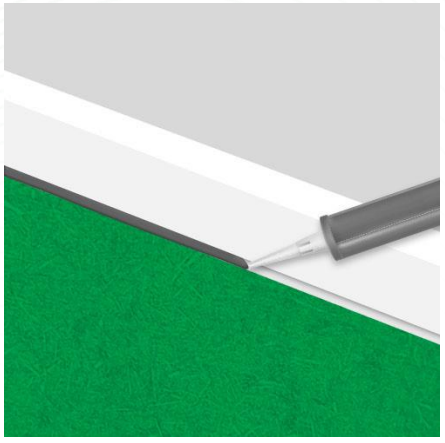
SONOpanX should be installed with the dimple side facing down. Ensure a tight fit between panels.

Step 4



Staple panels using 1" (25mm) long crown staples. Place 9 staples in each panel, following the spacing guide above. Staples should be countersunk to a depth of 1/16" (1mm) below the surface.

Step 5



Leave a gap of 1/8-¼" (3-6mm) around the perimeter of the room and around any opening made in the SONOpanX. Fill the perimeter gap with acoustical sealant or backer rod.

Step 6

Flooring must be installed shortly after the SONOpanX to avoid wear on the panel. A variety of floor types can be used over SONOpanX. Plywood may need to be installed over SONOpanX, depending on the floor type.

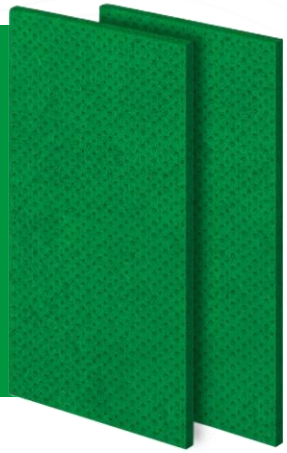
Putting it Together

SONOpan®

Airborne Noise Solution

SONOpan

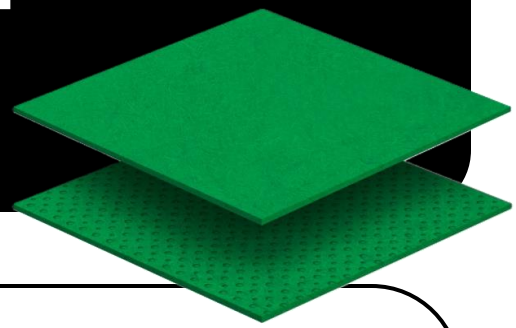
For Walls & Ceilings



Impact Noise Solution

SONOpan X

For Floors



For use in Residential and Commercial Spaces:

- Shared Walls, Ceilings, and Floors
- Multi-Unit Residential Buildings
- ADUs and Legal Second Suites
- Tiny Homes
- Warehouses and Mechanical Rooms
- Offices
- Hotels
- Gyms
- Schools
- Studios

& Many More!

Case Studies

SONOpan®

Radio Station - Louiseville

Country-pop 103.1FM, a popular radio station based in Louiseville Quebec Canada, was faced with the challenge of moving to a new location in order to upgrade their equipment. Jonathan Cyrenne, the station's Director, took the opportunity to design new soundproof partitions for the four radio studios located inside.

The goal was to create an environment with minimal sound transfer, ensuring high-quality broadcasts, free from external noise. This required a comprehensive soundproofing solution that would meet the high standards of a professional radio station.

Jonathan collaborated with contractor Eric Arvisais of Groupe Arvisais to execute the plans. They adopted the principle of building a 'room within a room,' and not sharing walls. SONOpan soundproofing panels on all sides of the structure, this included both sides of the double stud wall, resulting in four layers of SONOpan with rock wool inside the studs for maximum sound absorption.

5/8" drywall was installed over the SONOpan panels, and mineral wool insulation was used in the cavities between the studs to further eliminate sound transfer. Other quality soundproofing products, such as soundproofed doors and angled windows, were also incorporated into the design.

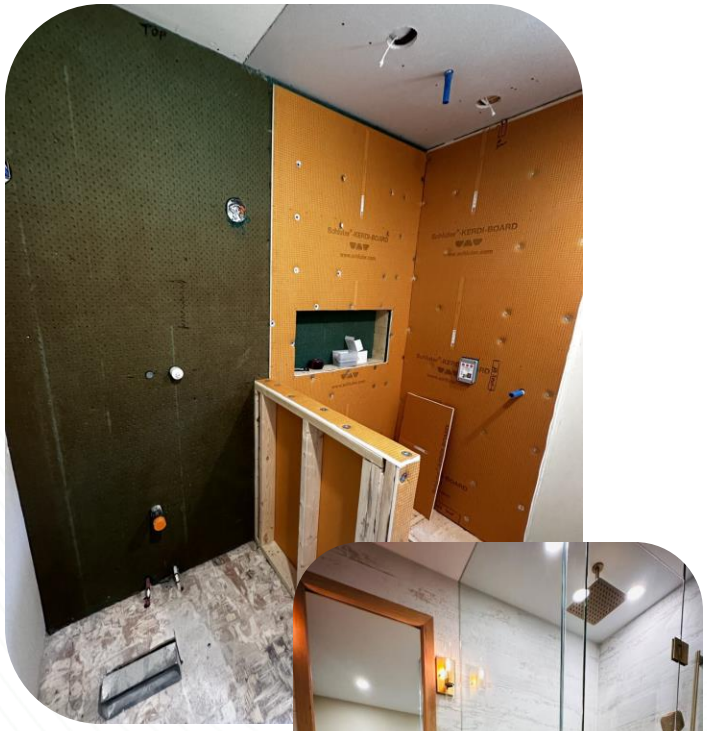
Duplex Conversion

PRO3 Properties, led by Christian Kull, converted a rundown bungalow into a modern, code-compliant duplex. With concerns about soundproofing and building code restrictions, SONOpanX panels were installed seamlessly across the upstairs floor. The project involved transforming an outdated bungalow into a functional duplex. A key challenge was meeting soundproofing requirements to ensure compliance with building codes while maintaining the property's aesthetic and structural integrity.

SONOpanX soundproofing panels were chosen for their ease of installation and superior noise reduction capabilities. By placing the panels between the floors of the duplex, PRO3 Properties effectively minimized sound transfer between units, ensuring privacy and comfort for future tenants.

PRO3 PROPERTIES
PROACTIVE. PROFESSIONAL. PROFICIENT.

Bathroom Privacy



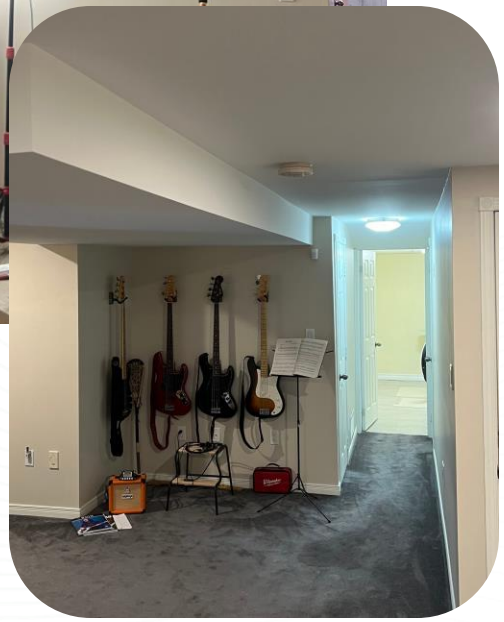
Soundproofing is crucial for maintaining privacy, particularly in spaces like bathrooms and bedrooms in a home where young children are involved. Achieving effective soundproofing is essential for quality sleep and relaxation, contributing to overall health and happiness.

Coates Creek Construction, owned by Brian McGuire and Brian Clark in Ontario, Canada, faced a unique challenge: soundproofing an upstairs bathroom next to a baby's room in a family home. The existing wall was 1/2" drywall with no insulation, offering little sound attenuation during bathroom use, especially at night. The family sought a cost-effective solution that would work with their bathroom renovation plans.

For this application, SONOpan soundproofing panels were installed continuously over the studs. Manufactured from recycled wood fibers with impressions on both sides for effective sound absorption, this product offered a cost-efficient and easy-to-install solution.

Strategically, Coates Creek Construction removed the existing drywall. The new wall assembly included insulation snugly placed between the studs, SONOpan panels installed continuously to the studs using drywall screws, and a layer of 5/8" drywall applied over the top.

Basement Second Suite



When it comes to soundproofing, basements pose unique challenges that demand practical solutions from contractors and builders. Curtis, the Owner of c.h.s.e Ltd., brings expertise in high-quality renovations, specializing in basement projects and optimizing living spaces.

In this legal basement apartment conversion in Oshawa, SONOpan's installation was the ideal solution for soundproofing the ceiling. Manufactured from recycled wood fibers, these panels effectively absorb and dampen sound waves. Whether directly affixed to framing, furring strips, or resilient channels, the panels can be installed as needed in wall and ceiling assemblies. In areas with lower bulkheads, the assembly was adjusted to allow for an increased ceiling height while still maintaining a solid barrier for sound. SONOpan offered superior sound reduction and absorption in a project that came with challenges.

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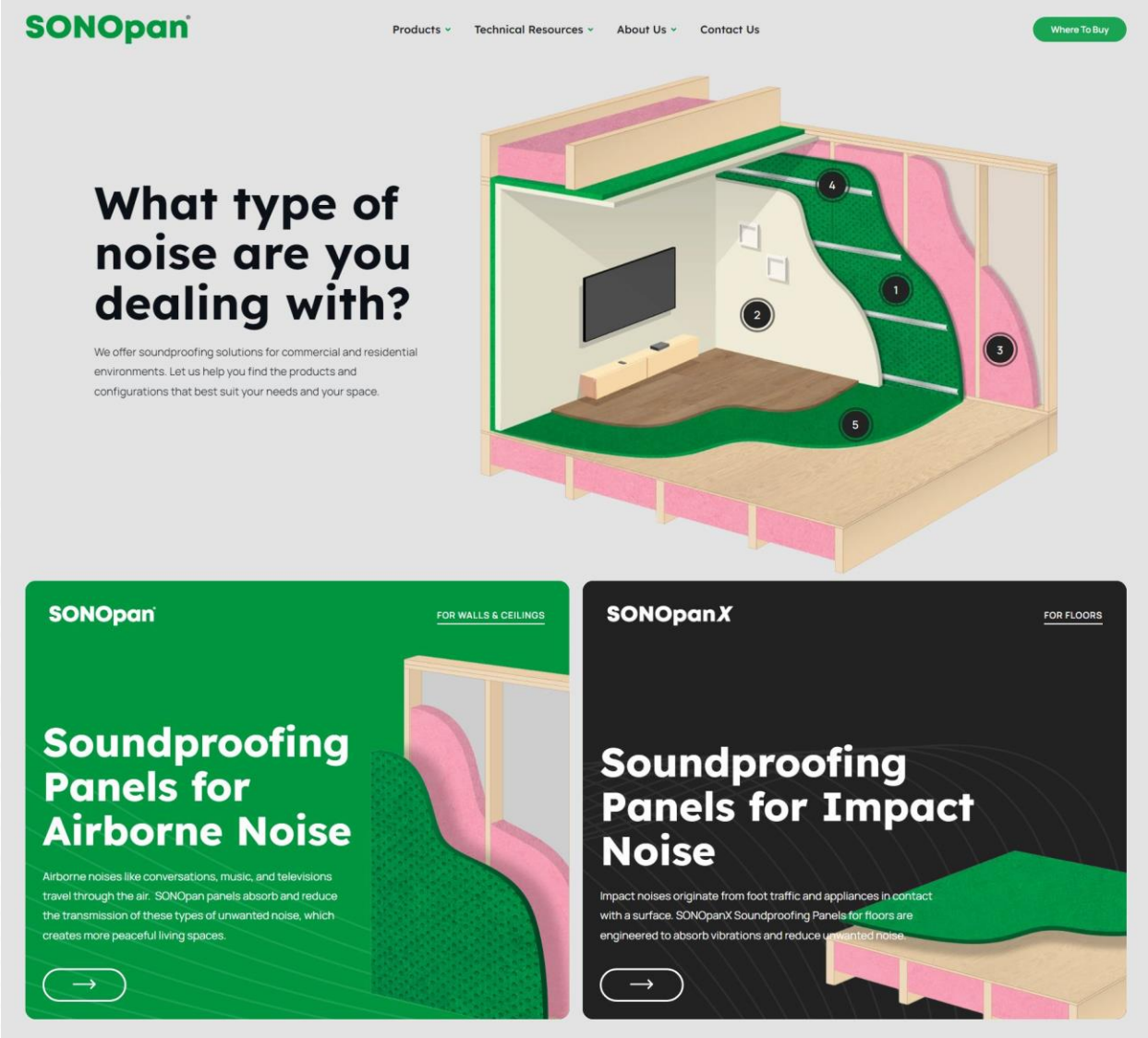
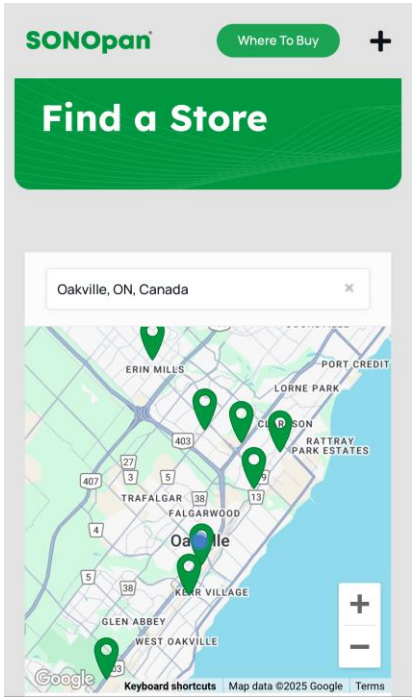
Education - Our Website



- Designed to be a **learning** website to educate
- Leads users directly to our **store finder** to make a buying decision



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