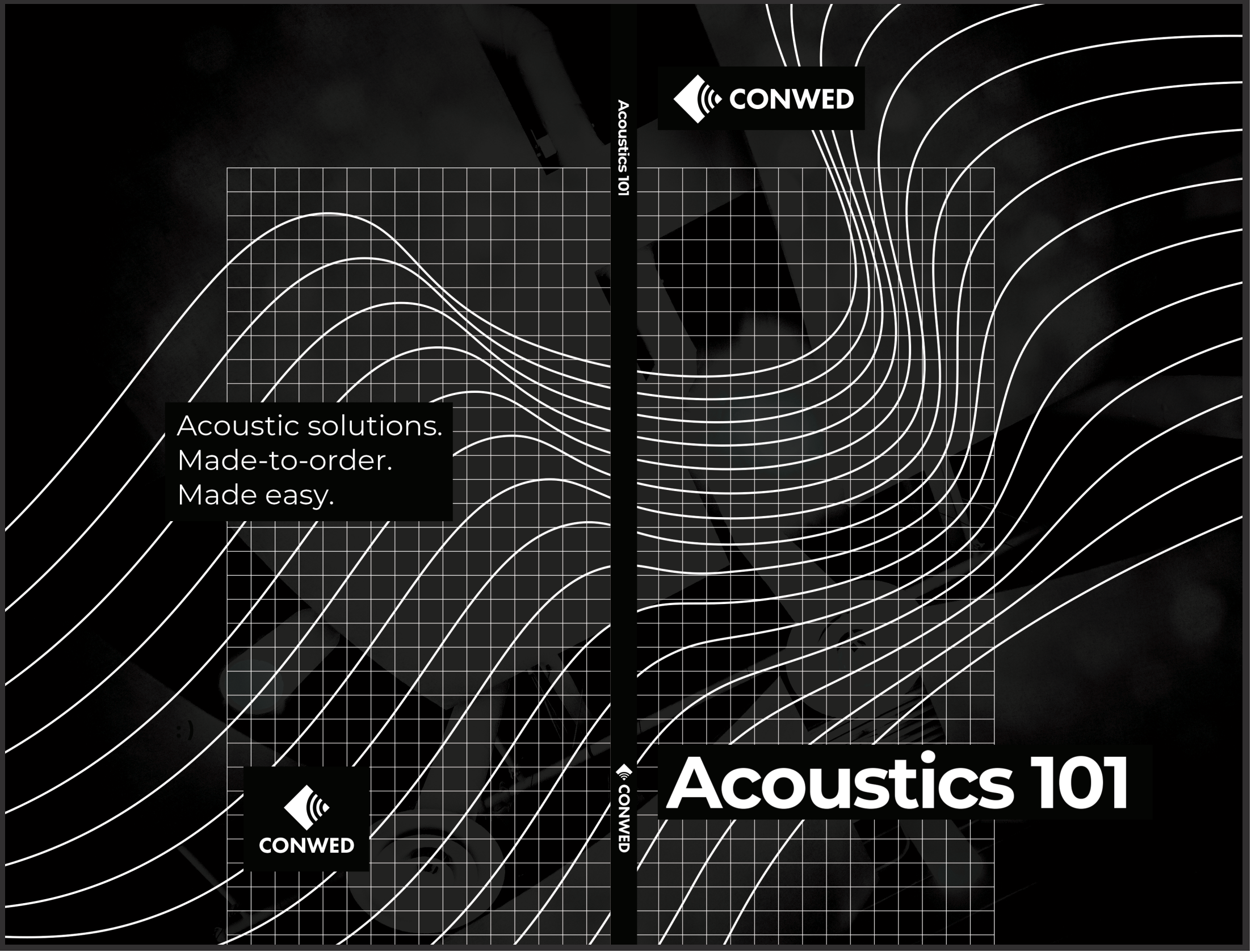

Acoustic solutions.
Made-to-order.
Made easy.
CONWED
Acoustics 101
CONWED
CONWED
Acoustics 101

Acoustics 101

Dark mode

Acoustics After Dark Vol. 01

Enjoy some hand-picked tunes while you browse.

Table of contents

Date of last revision: 04.01.2025

Acoustics ar 'e important.

Offices. Restaurants. Auditoriums. Hospitals. Schools. Lobbies.

Everywhere you are, sound is too. Left unchecked, sounds can become noise. Any environment can be acoustically unbalanced.

Sound ▸ The term used to describe what is heard when sound waves pass through a medium to the ear.

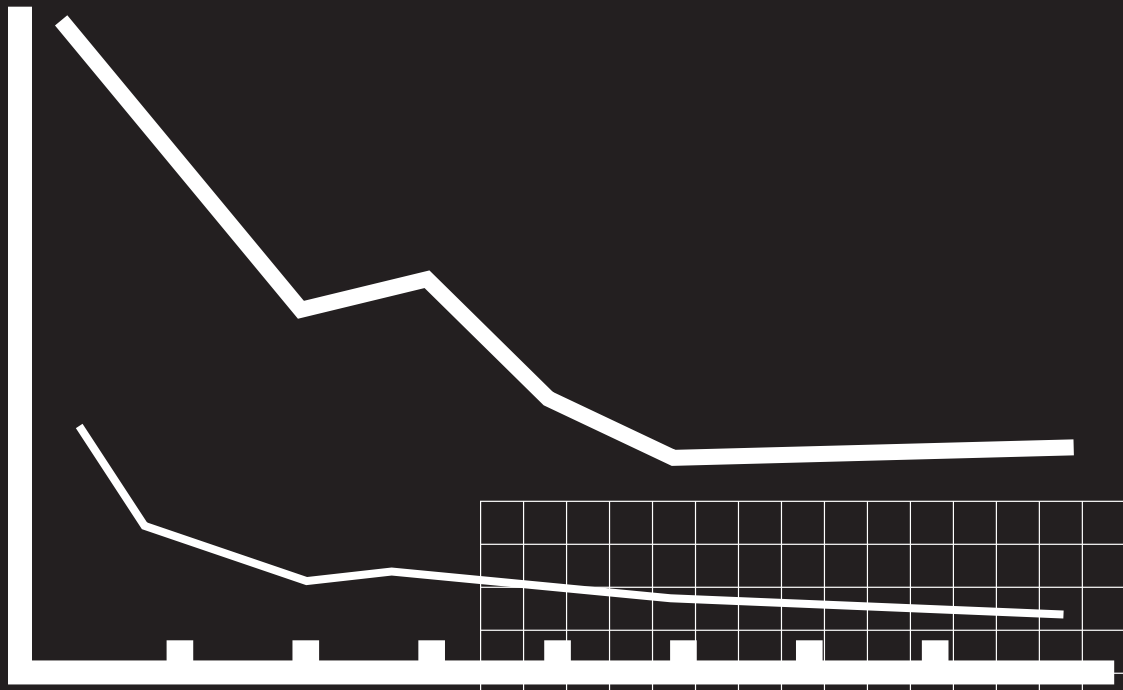
Think of "sound" as an all-encompassing term for everything you hear. Anything quiet, loud, good, bad, it's all sound. We won't bother with the "if a tree falls in the forest" bit though.

Sound v s. Noise

This is what acoustic solutions absorb

Noise is any unwanted, unpleasant, or distracting sound. Imagine the echoes that make you dread a certain conference room, or the inability to talk with your date at dinner.

Noise ▸ Sounds that are unwanted (i.e. what Conwed gets rid of).



RT60 Test ▸ The decay-time of audible frequencies in a space.

Acoustician ▸ A professional audio scientist that can accurately chart sound and mathematically outline the material needs to address noise.

How noise is measured.

The intensity of noise in a given space is measured by an RT60 Test. It measures the amount of time it takes for a given frequency to become inaudible. The average of those times can represent the overall noise.

Typically, a good RT60 time is 1.0 second. To quickly (and roughly) assess your space, you can find many RT60 apps on your phone.

Once you're ready to tackle your noise problem though, it's time to call an acoustician.

Room tone ▸ The general term for a space with a comfortable, and relatively appropriate amount of reverberation.

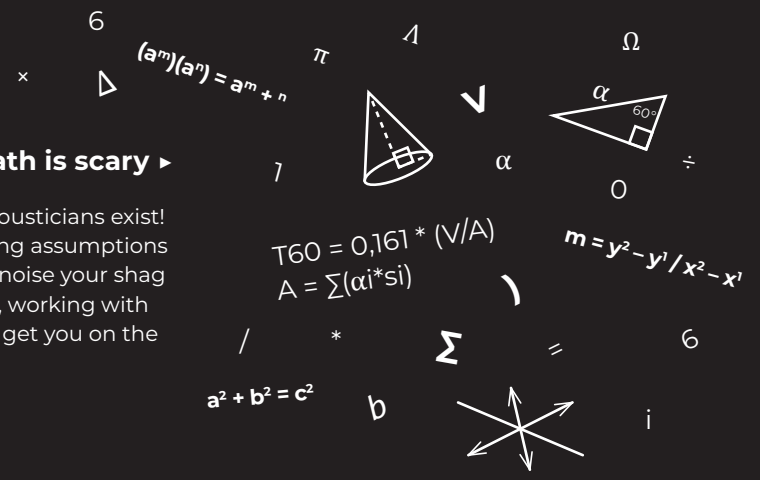
Calculating coverage is (literally) not straightforward.

It's an easy mistake to think a room twice as large as another needs twice the acoustical coverage. Not only is the math non-linear, but there are many factors that determine just how much coverage is needed to achieve good room tone.

A 20×20×15 room needs 250sqft of our 2" panels for room tone, assuming it's all hard surfaces. If it were a quiet reading space, 450sqft would be appropriate. If the floors were 3" thick shag carpet, only 120sqft.

Acoustical math is scary ▸

And that's why acousticians exist! Rather than making assumptions about how much noise your shag carpet will absorb, working with a professional will get you on the right track.



Average sound decay-time in seconds ▼	
10.00	Stadium concert
5.00	Conference room with all hard surfaces
3.50	Noisy restaurant
2.00	Average restaurant
1.50	Concert that's too quiet
1.00	Comfortable restaurant
0.50	Comforable conference room
0.25	Excellent classroom

Loud ≠ Noise.

Have you ever been in an office space that's too quiet?

Different environments should have different acoustic performances. Don't sweat it if your venue isn't dead silent.

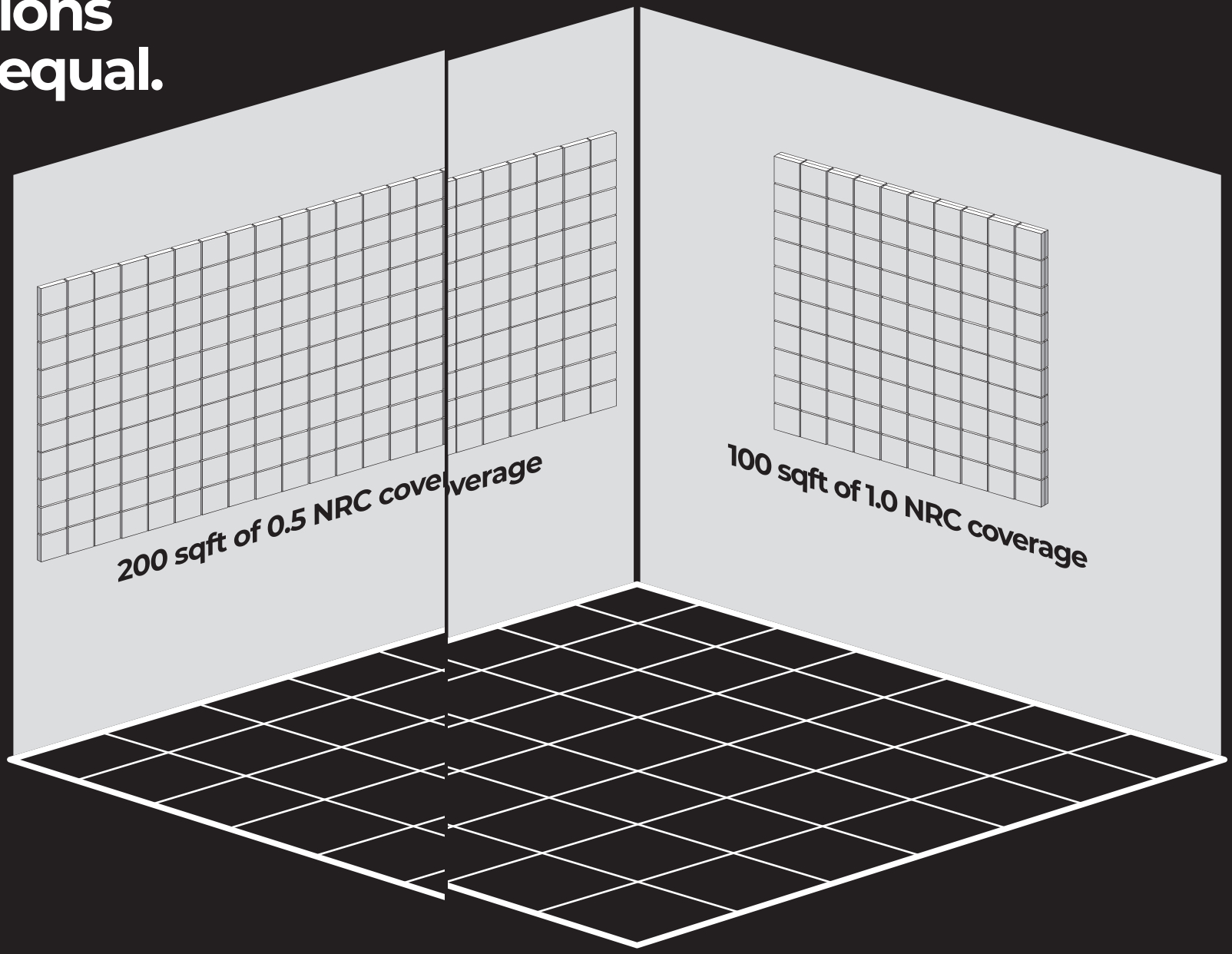
Not all solutions are created equal.

A product's NRC value represents how well it absorbs noise. An NRC of 1.0 absorbs just about all noise that comes in contact with it, while a 0.0 absorbs nothing.

Keeping that in mind, these two examples of panels offer the same amount of acoustical performance. When you're creating your acoustic solution, be mindful of NRC values and how manufacturers go about verifying their scores.

Conwed submits all products to an accredited NVAP Lab for ASTM C423 acoustical testing.

In this example, both of these solutions have roughly the same acoustical performance.



Placing your product

It's not all about square footage. Depending on the size, shape, and materials in a space, any combination of noise types can be experienced. It's what acoustic solutions you use, and where you put them that makes the difference.

Wall solution

◀ Most wall solutions are customized in an aesthetic way, since they're in line of sight. Consider a mosaic of custom shapes, or printing custom images to the surface for a little flair.

Ceiling solution

▲ A great place to catch bouncing noise, and hide things like electrical or pipes. Conwed solutions can be customized so that accessibility to the ceiling is not a problem down the road.

Echo ▸ A sound heard distinctly multiple times, due to the amount of space the sound travels through before reflecting back to the listener.

Slap-Back ▸ A loud noise distinctly heard twice due to a reflective surface behind the listener.

Flutter Echo ▸ A faint echo caught bouncing between two parallel walls that fades over time.

Resonance ▸ When a space vibrates at a natural frequency, amplifying surrounding frequencies, creating a booming sound.

Reverberation ▸ A series of echoes heard before the original sound completes. Often strategically implemented in performance halls to enhance audio.

Noise emission ▸ Muffled noise and reverb escaping a space by transferring vibration through the structure of the space itself.

Materials & methods matter (and there's a whole lot of them)

Conwed products & methods in solid white

Not all materials he lp noise (some make it worse).

Noise absorbers

Fiberglass ▸ An industry-standard that gets the jobs done. Can be finished in a variety of materials.

No-added-formaldehyde (NAF) ▸ The same as standard fiberglass, but much better for LEED points.

Felt ▸ A material made from matting, pressing, and condensing fibers together.

Wood fibers ▸ Shredded fibers mixed with other agents to form a moderate-performing, wood-board substrate.

Acoustical plaster ▸ A specialized mixture that, if applied correctly, can appear like drywall, while still absorbing.

Acoustical glass ▸ We think it's some sort of magical material.
Pretty sure it just blocks noise though, doesn't absorb.

Wool ▸ Compressed wool fibers that perform well but are hard to handle and finish.

Finishes

The outermost layer of the product. Also impacts durability, cleanability, and accessibility.

Paint ▸ Thin layers of paint carefully sprayed onto a drywall-like top layer.

Fabric ▸ Acoustically-transparent textiles adhered to the surface. Conwed uses Hotmelt to fuse the fabric to the core, whereas other manufacturers use common glue adhesives.

Print ▸ A custom image applied directly to a scrim layer adhered to the core.

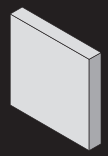
Copolymer ▸ A highly durable blend of perforated plastics that adheres to the surface, providing protection to the absorber underneath.

Felt ▸ Also usable as a finish, in case you want the look of felt on the outside, but want the high performance of fiberglass underneath.

Wood ▸ Wood itself is reflective, but if microperforated it can allow some noise to pass through.

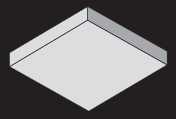
Combinations of these materials & methods are then made into different products.

These ones make up the core of the market.



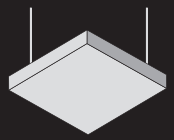
Wall Panels

A true classic and the most customizable, these can be found in any type of space you can imagine.



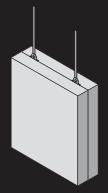
Ceiling Panels

Think wall panel, but on the ceiling. A solid choice when wanting to keep your walls smooth and your floors hard.



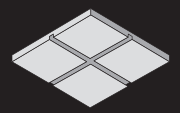
Clouds

Imagine that ceiling panel, but now gently suspended, creating space behind the solution for fixtures, pipes, ducts, or any other obstacle.



Baffles

Now take that cloud, and hang it vertically. Arrays of baffles are commonly used to intercept noise in the midst of a space and visually distinguish areas.



Tiles

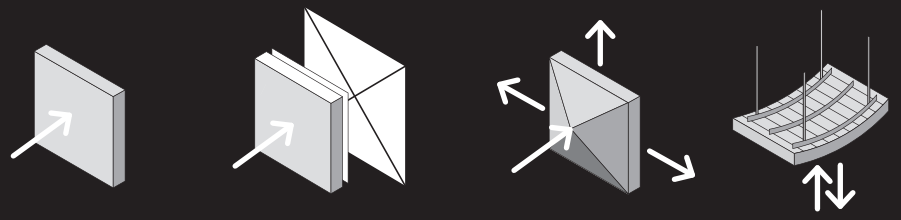
Tiles laid in grids is a hallmark of commercial buildings, only with Conwed, yours can be high-performing, and highly-tailored.

Eurospan ▸
If you'd rather keep the smooth look of your drywall, then buddy do we have the solution for you. Replace your entire ceiling with one seamless acoustical surface.
conwed.com/eurospan

Some spac:es need additional t:uning.

You may need to reflect sound in different directions, or scatter frequencies that are getting trapped in a corner. We call these solutions "Specialized", and they can serve four different functions. These products are made by using additional materials, layers, and shapes.

Core Products | **Specialized**



Absorb

Noise absorption is a product trapping sound waves, preventing reverberation. Sound can still pass through and around the product, but the better it absorbs, the less noise will escape it.

Block

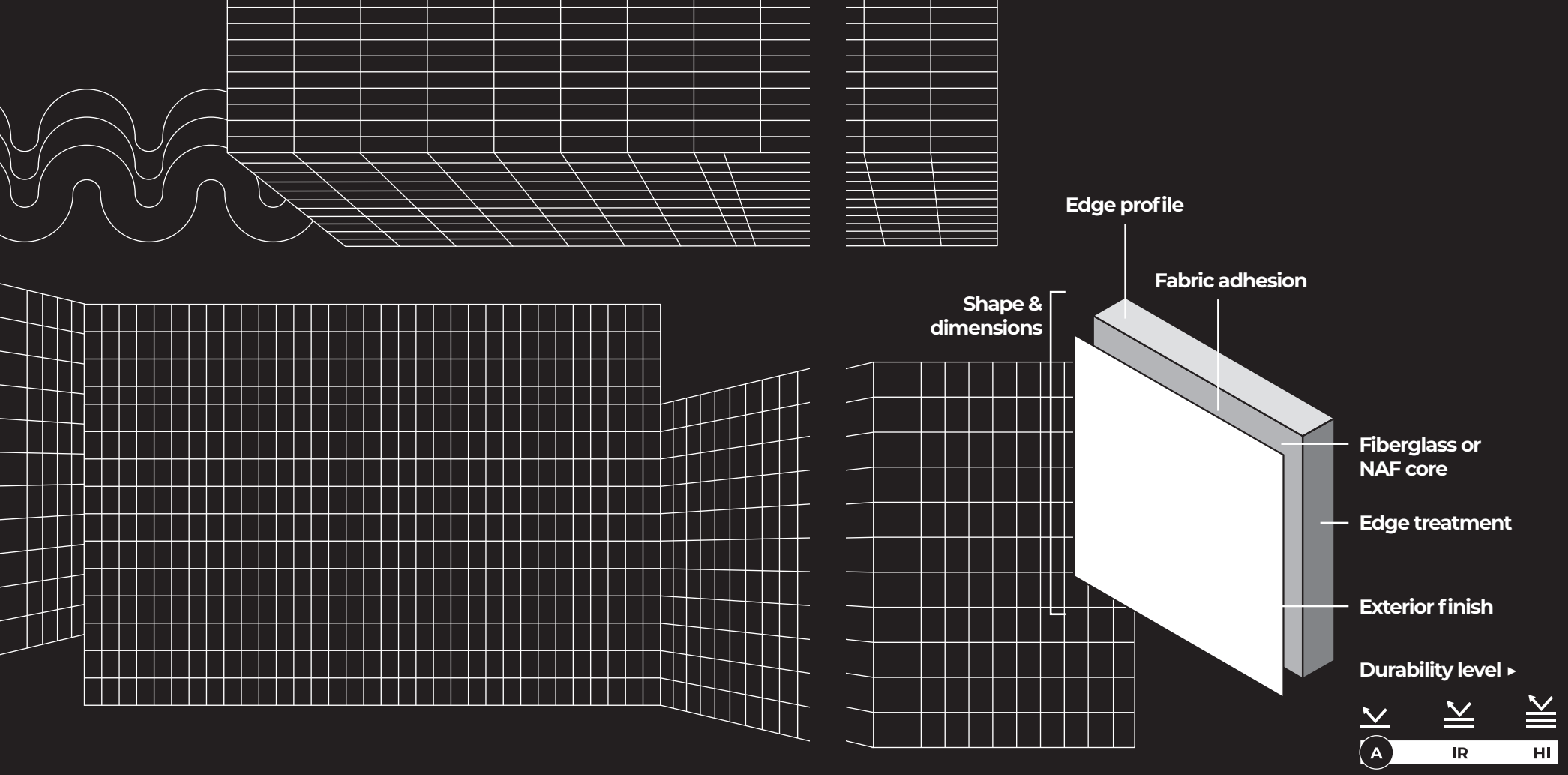
Blocking noise does not quiet the room where the noise is. Rather, it prevents noise from passing through a wall or ceiling, keeping other spaces quiet.

Diffuse

Diffusion is scattering a soundwave into multiple directions, ensuring all frequencies are distributed throughout a space.

Reflect

Reflection is bouncing a soundwave back to the source, or redirecting it somewhere else; preventing soundwaves from being trapped in high spaces.



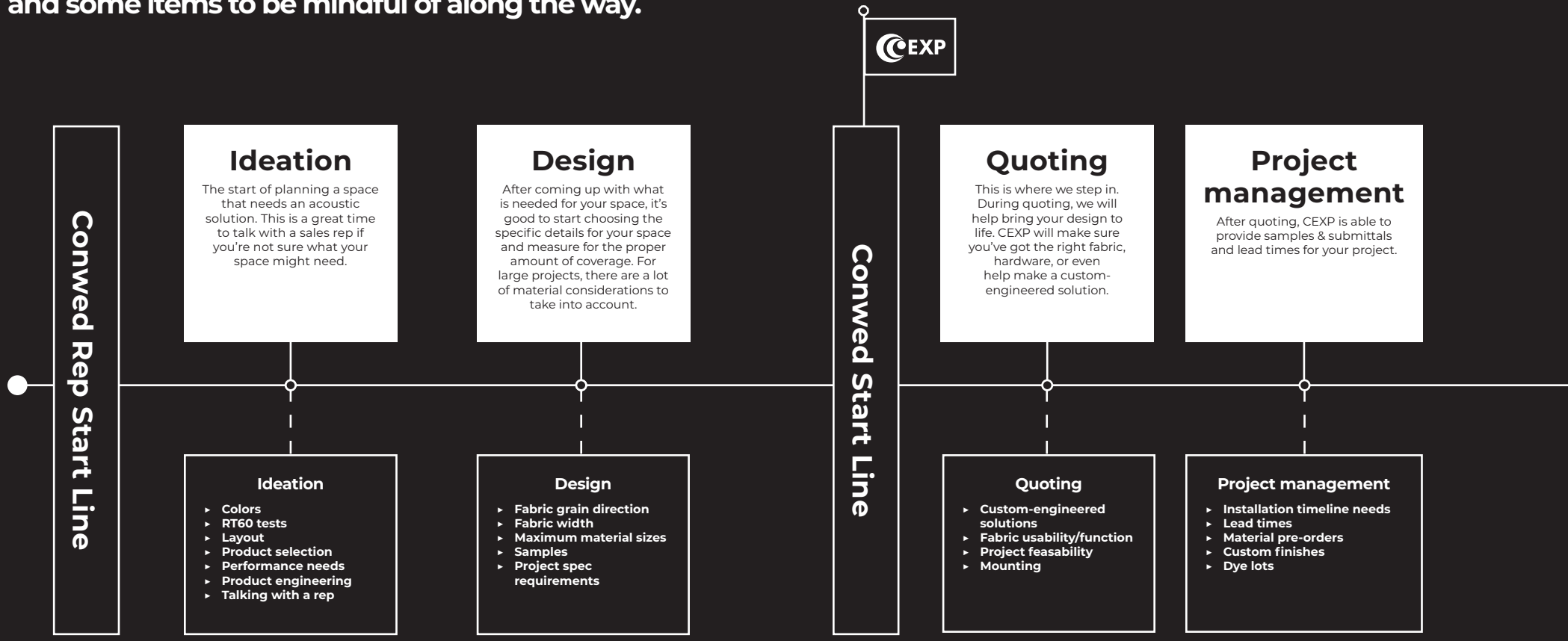
Customizing your product.

Once you know you need acoustical treatment, it's time to start designing! Our products are all made to order. Shapes, thicknesses, the finish, the edges details, and more, are all up to you.

For a full breakdown of what each product can do for you, pull up the corresponding datasheet at conwed.com/resources

Typical project flow

Here are all the major steps in the average project, and some items to be mindful of along the way.



Contact a rep ▸
conwed.com/contact

Check out Lookbook 01 and read about how CEXP was able to help remotely coordinate the installation of 885 unique wall panels.

Shop drawings

At this point, shop drawings are created. This includes the final layout & field dimensions. Shop drawings can either be provided or CEXP can create them for you.

Shop drawings

- **Custom engineering**
- **Layout**
- **Field dimensions**
- **Final quote created**
- **Most recent architectural pdf drawings**

Purchasing & production

Once the project is outlined & shop drawings are approved, materials are able to be purchased for production. At this point Conwed assigns a ship date for the project.

Purchasing & production

- **Materials are paid for and ordered**
- **Project ship date assigned**

Conwed Finish Line

Installation

Once the project is shipped, it arrives on-site to be installed. We don't install but we can point you in the direction of some qualified installers. Conwed has install guides available for all products & can provide installation support.

Congrats! You made an acoustic solution.

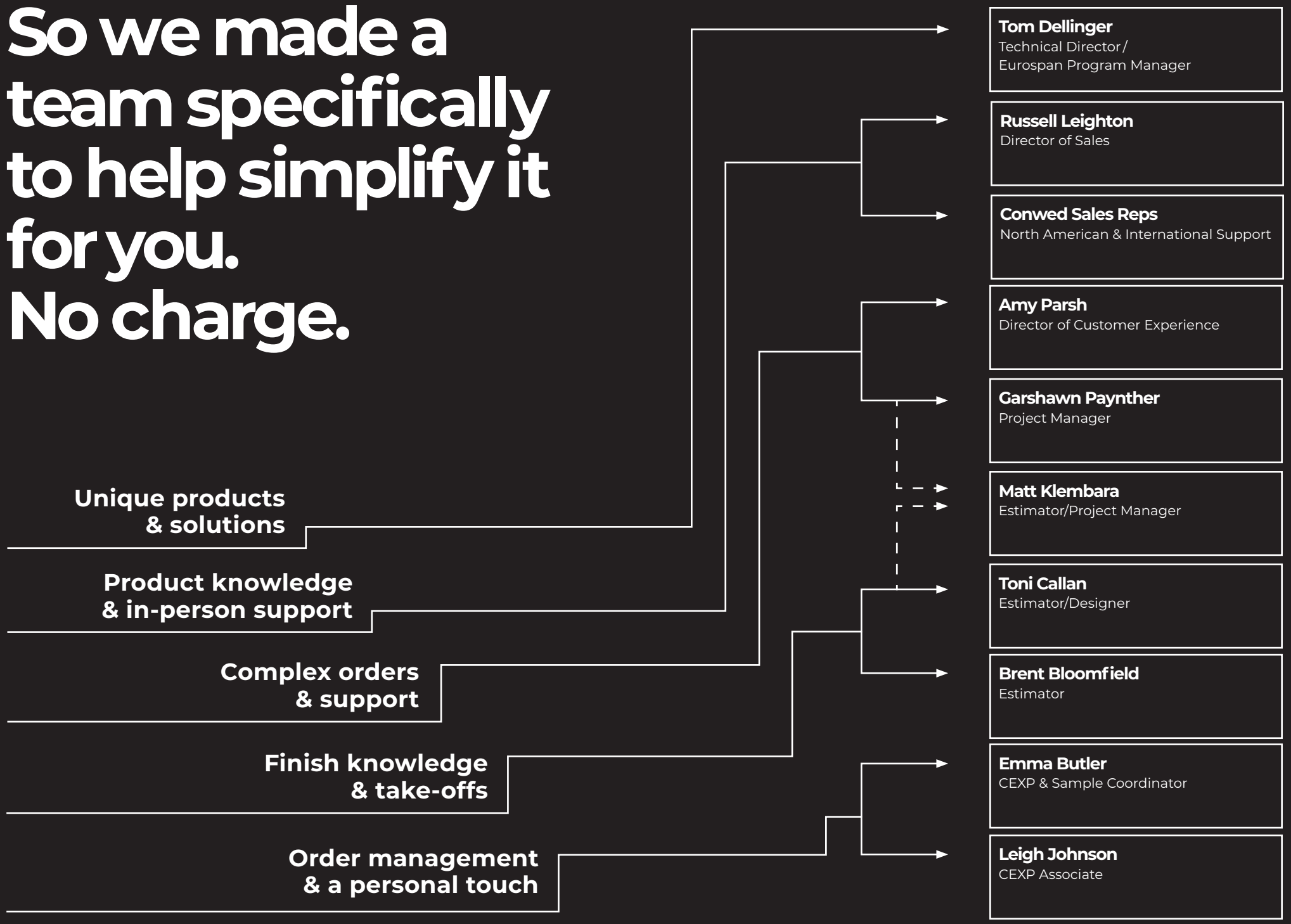
- **Grab a drink**
- **Celebrate**
- **Send us pictures**

Have a really cool install? We'll send our guy.
marketing@conwed.com

Conwed Rep Finish Line

We know the acoustics industry (is complicated).

So we made a team specifically to help simplify it for you. No charge.



Glossary

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Felt ▸ Also usable as a finish, in case you want the look of felt on the outside, but want the high performance of fiberglass underneath.

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Metric Sabins ▸ Unit of sound absorption

Noise ▸ Sounds that are unwanted (i.e. what Conwed gets rid of).

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Sound ▸ Sound is the term to describe what is heard when sound waves pass through a medium to the ear.

Stretch systems ▸ Nam estotaquae non porum, ime nis magnien daest, esto qui invelent eate doluptae officii sciissit, nihita que nus de sam qui restist, sam secesto

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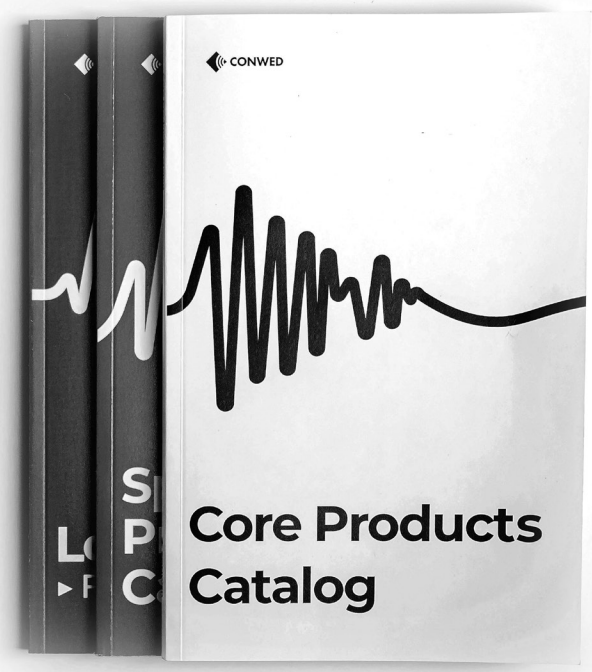

Want to know more about Conwed products and installations?
Check out our catalog series and our portfolio at conwed.com


RIP