

Guide to Fixing and Installing Stratocel® Whisper™

April 2018

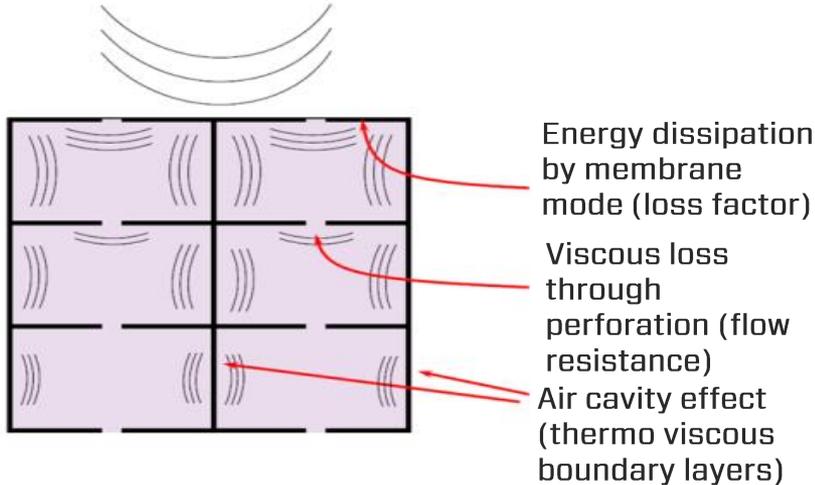
Sealed Air
Product Care

Stratocell® Whisper® is a unique closed cell laminated polyethylene foam providing excellent acoustic properties.



Whisper[®]: Noise Transfer to Energy

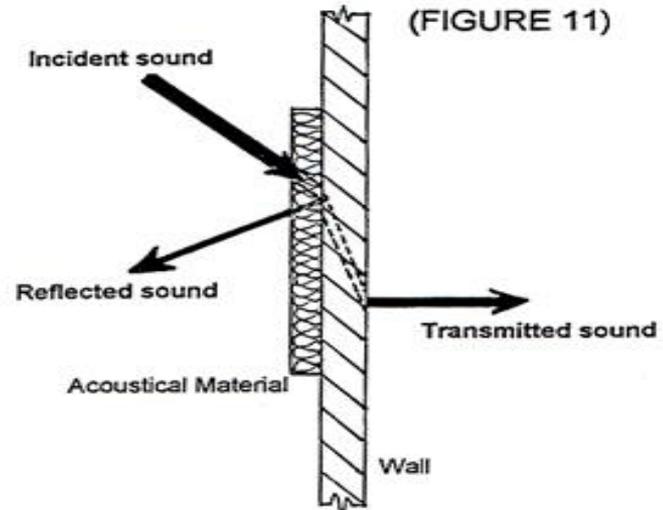
Sound energy loss from three modes:



Absorbers are usually **SOFT** surfaces that absorb sound **REDUCING** echo.

NRC = 1 @ 50MM ASTM C 423 & ISO 354

Whisper[®] is an Acoustic Absorber



Barriers are usually **HARD** surfaces that **REFLECT** sound leading to Echo. R_w 13dB @ 50MM per ISO 717-1

Whisper® FR-Indoors



Black (charcoal) or white

- ✓ Group 1-S Result ISO 9705 NZBC C/VM2 Appendix A; Australia NCC C1.10 AS/ISO 9705 Group 1
- ✓ Fire Retardant
- ✓ Not UV Stable
- ✓ Hydrophobic
- ✓ 25kg/m³
- ✓ NRC = 1

Whisper® UV-Outdoors



Black Only

- ✓ Self-extinguishing material DIN 4102 Class B2
- ✓ UV Stable- after 2000 hours QUV (10 years indoor span) tests similar to new product
- ✓ Hydrophobic
- ✓ 30kg/m³
- ✓ NRC = 1



Life without
Stratocell® Whisper®



Life with
Stratocell® Whisper®

Stratocell® Whisper® is available in Fire Retardant and UV resistant additives.

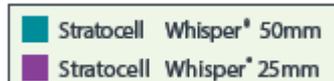
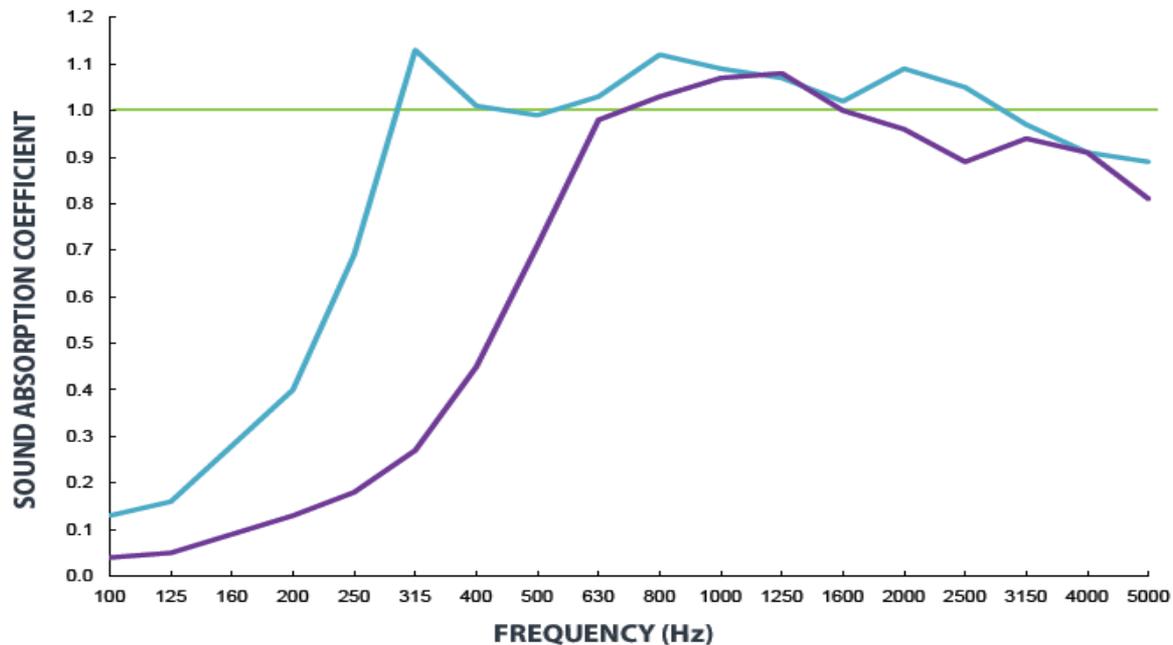


Whisper™ Advantages

- Excellent and efficient acoustic properties
- Self supporting structure
- Low weight enables slim and flexible construction
- Versatile (easy to cut, install on site, connect to surfaces)
- Material saving (can use thinner material with Whisper)
- Moisture resistant
- Minimal particulate and VOC emissions (fibre free)
- Robust (elastically impact resistant)
- Fire retardant (FR version)
- Recyclable
- UV resistant version available (self extinguishing)
- Does not support mould growth

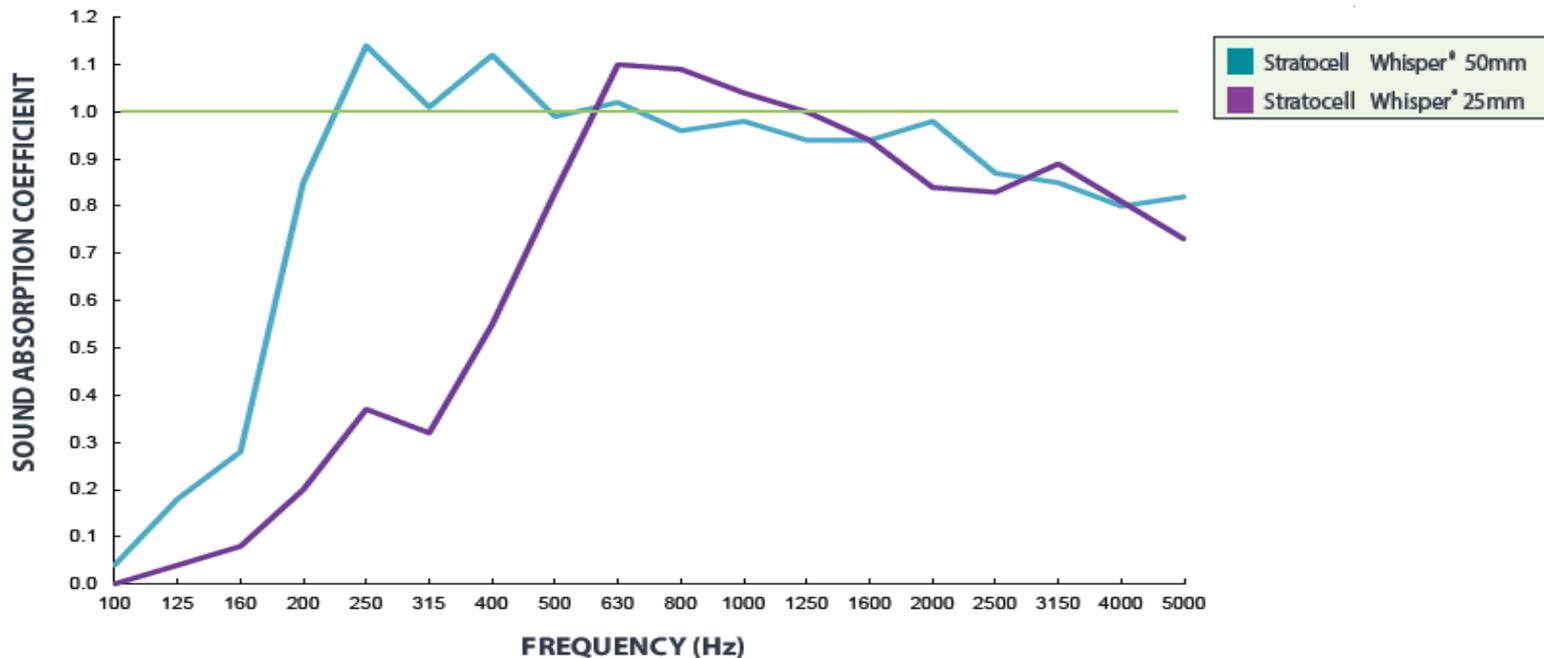


Reverb. Room Test EN ISO 354



	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	NRC	SAA
Whisper 25mm	0.04	0.05	0.09	0.13	0.18	0.27	0.45	0.71	0.98	1.03	1.07	1.08	1	0.96	0.89	0.94	0.91	0.81	0.75	0.76
Whisper 50mm	0.13	0.16	0.28	0.4	0.69	1.13	1.01	0.99	1.03	1.12	1.09	1.07	1.02	1.09	1.05	0.97	0.91	0.89	1	0.98

Reverb. Room Test ASTM C423



	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	NRC	SAA
Whisper 25mm	0.00	0.04	0.08	0.20	0.37	0.32	0.55	0.83	1.10	1.09	1.04	1.00	0.94	0.84	0.83	0.89	0.81	0.73	0.75	0.76
Whisper 50mm	0.04	0.18	0.28	0.85	1.14	1.01	1.12	0.99	1.02	0.96	0.98	0.94	0.94	0.98	0.87	0.85	0.80	0.82	1	0.98

Storage & Handling Considerations

Stratocell® Whisper™ is manufactured in sheets at 1200x2400mm for maximum efficient coverage.

Standard Pack Quantities:

50mm: 7 sheets

25mm: 14 sheets

Packs are based upon as close as possible to a 1m³ volume

Packs are individually labelled with batch codes, where possible retain and record pack label data for reference. Sustainable, ventilated bags are used to package Whisper to facilitate curing, as a result of the ventilation holes the bags may rip during rough handling. Wherever possible use a forklift, where manual handling is required, one person at each end of a pack using lifting straps is recommended. Do not leave lifting straps around the pack under tension as this may result in foam compression set.

Do not drag bags across the ground on site.

Stratocell® Whisper™ should always be stored horizontally, indoors on a flat surface.

Stratocell® Whisper™ should not be exposed to temperatures outside the range of -40-+80°C

Before you install Stratocell Whisper also consult the MSDS & tolerance sheet.

Although it is moisture resistant, Stratocell Whisper should not be fully immersed or waterlogged prior to installation.

It is best practice to allow sheets to condition indoors, free of packaging, at 17-28°C for 2 hours immediately prior to installation. This conditioning will ensure any dimensional change from thermal expansion is minimized.

Cutting Stratocell Whisper

Stratocell Whisper is very quick and easy to cut around penetrations and openings with conventional methods including:

- Boxcutter
- Insulation Saw
- Abrasive wire
- Waterjet
- Router
- Die cut

Tidy lines are best made with sharp blades.

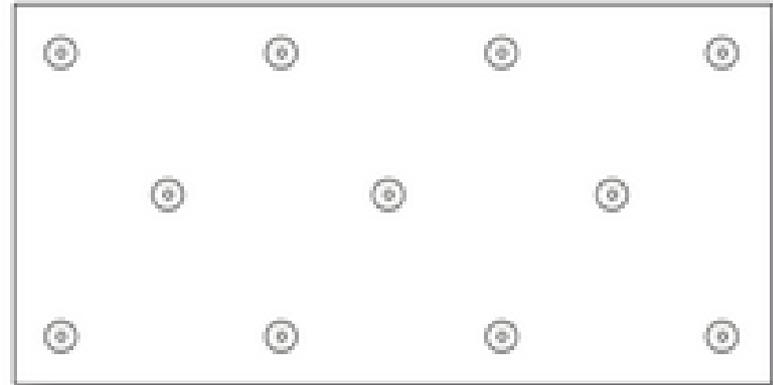
Whisper[®] Cutting Example



Mechanical Fastening

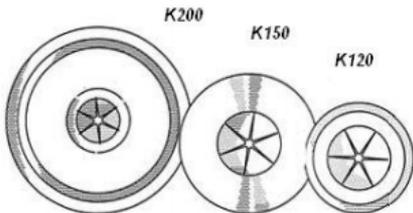
For interior wall linings, sheets of 1200mm x 2400mm Stratocell® Whisper™ FR may be installed with a suitable mechanical fastener such as Screws or Insul Anchors, in conjunction with Insulation Washers with a minimum head diameter of 25mm, achieving sufficient mechanical penetration to anchor the sheet to the solid substrate or framing. Note that Insul Anchors extending beyond the Insulation Washer should be trimmed, capped or bent to mitigate potential injury. **Always consult the fastener manufacturers recommendations prior to installation.**

Sheets should be butt jointed to cover the desired surface area. A minimum of 11 fasteners per sheet should be applied or 4 fixings per m²; these should be installed no less than 50mm and no more than 150mm from the edge of the sheet and evenly distributed over the area of the sheet. For example on a standard 1200mm x 2400mm sheet we recommend 4 fasteners along each length, and three fasteners along the middle offset from the edge positions. An alternative evenly distributed layout may be used to fix into battens or framing through plasterboard or soffits or to avoid services or on trimmed or partial sheets.



Suggested Layout of fasteners on a 1200 x 2400mm sheet.

Insulation Washers



Style	K120	K150	K200	K125	K150S	K 250
Size/Diam (mm).	30mm	38mm	51mm	29 x 32	38 x 38	63 x 63
Thickness (mm)	0.4	0.4	0.4	0.4	0.4	0.4
Finish	Galv	Galv	Galv	Galv	Galv	Galv
Pack	1,000	1,000	2,000	1,000	3,000	1,000
Approx. Wgt/1000 (kg)	2.2	3.6	6.4	2.9	4.5	14
Other Materials	S.S.	S.S. Alum	S.S. Alum	S.S. Alum	S.S. Alum	S.S. Alum

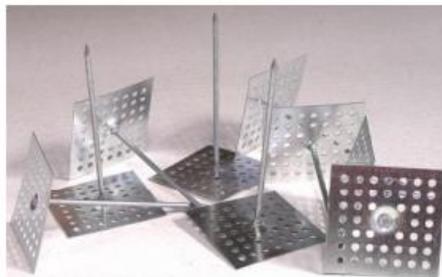
AGM Washers are designed to be used with weld pins, Insul anchors, lacing anchors, etc. Specify spindle size when ordering.

Special holes sizes are available upon request.

K250 also available 0.50 thick on order



Insul Anchors



Insul anchors have 12 ga (2.7mm) diameter mild steel spindles with a corrosion resistant coating. The perforated base plate is 50mm square and is made of galvanized steel. Standard lengths range from 25mm through to 240mm and are packed 1,000 pieces per carton up to 64mm; 500 pieces per carton for longer sizes.

240mm are packed 250 pieces per carton. Other materials (Stainless Steel, Aluminium), packaging (100 packs), lengths and configurations are available on special order.

A complete line of Insulation Washers in various styles and materials is available for use with Insul anchors.

Insul anchors are secured with General Purpose Adhesive, specially formulated to bond to metal, masonry and other sound substrates. Surfaces must be clean and dry before adhesive is applied. Some protective coatings are not compatible with adhesives and it is recommended that the user make test bonds before proceeding with the application.

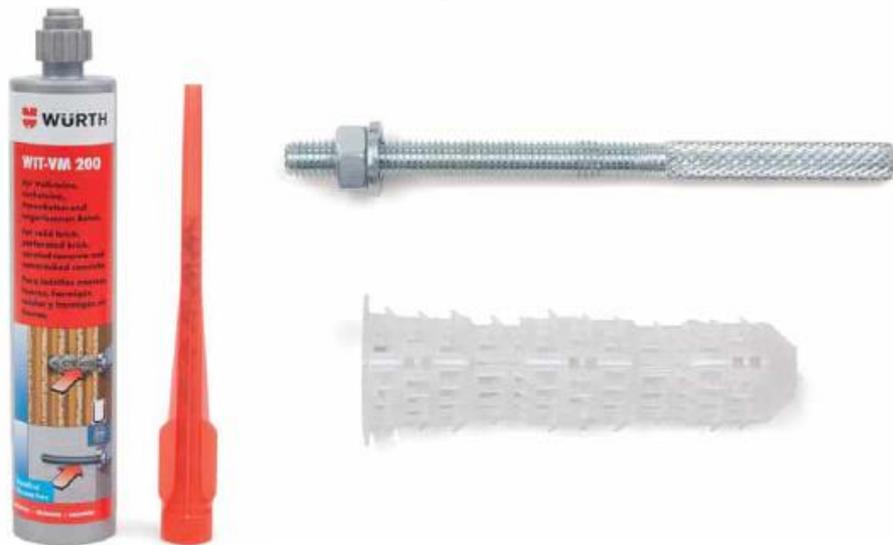




WIT-VM 200 + SIEVE SLEEVE WIT-SH 12/50

Approved for Tunnel – Project in Norway

WIT-VM 200 + SIEVE SLEEVE WIT-SH 12/50



Proof of performance

Approvals

Masonry:
Solid and
perforated brick



2. Advantages

- Safe anchoring in solid and perforated bricks
- The anchor may also be anchored in masonry joints
- No spreading effect, enabling small edge and axial distances to be complied with
- Cartridge can be used up to expiration of the best before date by replacing the static mixer or by being closed again with the sealing cap

24.1

Styrene-free 2-component special mortar

Individual fastening:

Solid and perforated stone masonry

Static Mixture Cartridge, 300 ml, incl. 1 static mixer

for working with the dispenser gun, Art. No. 0891 003

WIT-A5 Anchor Bar

Galvanized, blue passivated steel

Stainless steel A4

HCR, highly corrosion-resistant steel

Available on special order

Plastic Sieve Sleeve WIT-SH 12/50



Truck Wash – acoustic lining to wall and ceiling

Interior Hanging Baffles

Stainless steel corkscrew fittings can be used to fix the product to droppers or rigging wires for hanging baffles.

Corkscrews should extend at least 30mm into a 50mm thick sheet. When fitted to either the short or long edge of the sheet, at least one fitting per 600mm is recommended. Always close and lock the corkscrew loop.

Corkscrew fittings can be fitted to faces of the sheet with at least two fasteners per square metre recommended.

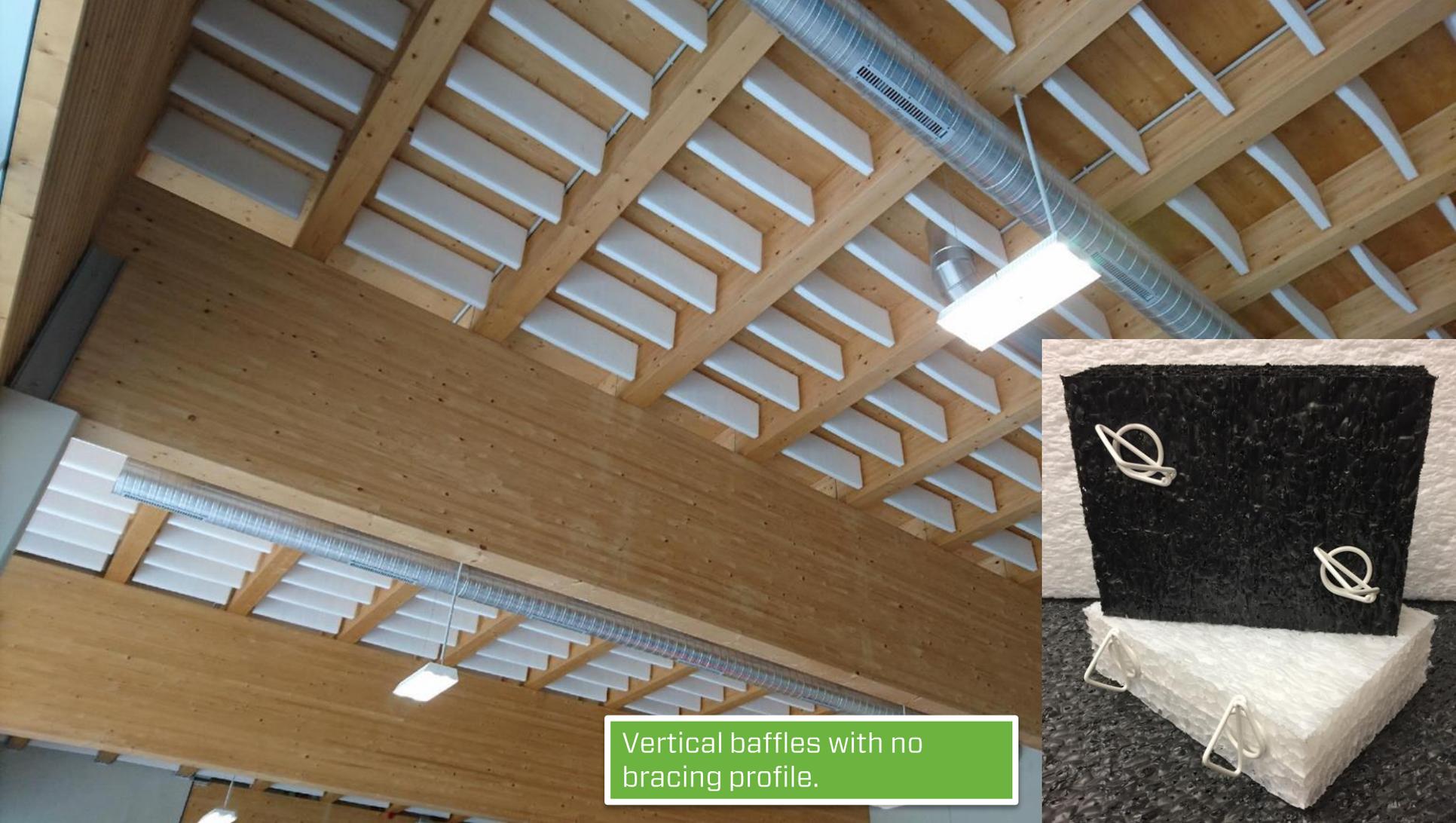
Corkscrew PLUS is available with a corrosion resistant coating. A drilled ABS profile can be used to maintain straight lines.

The more face & perimeter area left exposed, the greater the absorption of the installation.





Corkscrew PLUS white corrosion protection coating
White ABS Plastic U Channels
Location: Otaki Swimming Pool, New Zealand



Vertical baffles with no bracing profile.





Ceiling rafts at Hogs Breath Café, Australia

Corkscrew fittings used in 50mm Whisper FR installation



Whisperframe™

Whisperframe is a rapid cosmetic frame or fence panel for Stratocell Whisper 50mm.

Available in mill, anodized or powder coated finish by request via Whisper distributors.

Friction fit with aluminium frame gussets or for more secure fastening use the screw channels extruded into the profile.

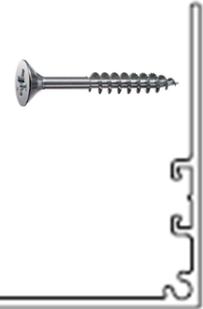
Increase barrier performance or make your own noise wall by fitting heavy acoustically reflective surfaces into the frame rail behind the foam

Backward leg of the frame rail is longer than the front for screw mounting/fastening

Product Codes:

Profile A30707

Gusset 78570A



Adhesives



LABORATORY EVALUATION

EVALUATION OF SUPERTAK HS AND NC BONDING COLORSTEEL TO WHISPERFOAM

Aim: Evaluation of Bostiks' SuperTak HS and NC to bond Colorsteel to Whisperfoam.

Background: Previous work has shown that Supertak NC is suitable for bonding Whisperfoam to a variety of substrates. Further testing is required to determine if Supertak is capable of adhering Whisperfoam to a Colorsteel. Supertak HS was also evaluated in case of failure of the Supertak NC.

Evaluation parameters:

Product: Bostik SuperTak High Solids, Batch: AL1608218A10
Bostik SuperTak Non-Chlorinated, Batch: AL1609253A9

Substrates: Whisper UV-stabilised PE panel
Colorsteel (beige), 300 mm x 300 mm x 100mm (1.3Kg)

Test Methods: Spray application to achieve a minimum of 90% coverage. The test piece was left for an open time of 2 minutes before hand pressing for 30 seconds onto the Colorsteel. The test pieces were left for an hour at 25°C before initial bonding inspection. It was then left for another 3 days to cure.

Surface Preparation: Whisperfoam was scrubbed with water to remove dust and then left to dry.
Colorsteel was wiped down with Bostik's No.3 Solvent

Results:

Test Method	Substrate	Result
SuperTak High Solids	Good initial grab, with no migration. Upon final curing the foam held the steel when only supported only by the foam.	
SuperTak Non-Chlorinated	Initial grab close, but not quite as good as the Supertak HS with a small amount of migration. Upon curing the foam held the steel when only supported only by the foam.	

Conclusions

Both adhesives were able to bond the insulator to the steel well. HS showed better initial adhesion than NC, but there was no difference after curing in adhesive performance. It is recommended Supertak NC to be used for bonding Whisperfoam to Colorsteel. The Colorsteel must be clean and free from dust and contaminants.



Bostik Supertak HS, and Bostik Supertak NC are high performance adhesives, tested by Bostik for adhering Stratocell Whisper to common non-porous construction materials.

Bostik recommend Bostik Supertak NC for adhesion to Colorsteel Endura paint surfaces such as SIP panel systems.

Bostik Supertak HS is recommended for adhesion to concrete, such as tilt slab materials.

Other Adhesives

Alternative Fastening Recommendations

Two Component Adhesive

Henkel Loctite 3090 ideal for high bond strength to small articles.

Solvent-based Adhesive

Spray adhesive 77 from 3M

3M Hi-Strength 90 – Spray Adhesive

For Best Results:

Follow the adhesive manufacturers instructions.

Apply to clean, dry, surfaces

Dust can be removed from Stratocell Whisper with the aid of a clean microfiber cloth prior to installation.

Porous surfaces can be primed to promote adhesion.

Coat weights in excess of 80gsm work well for solvent adhesive options.

Double side pressure sensitive adhesive tape

Danco 6620 (white) 6621 (black) double sided PE based foam tape may be used in clean, dry interior applications for removable mounting of sheets to a wide variety of substrates. Every surface is different, so a small sample should be tried to the surface prior to installation commencing. 50% surface cover held a sheet of Stratocell Whisper to a painted ceiling for 3 years before being removed for evaluation. Tape should be laminated to Stratocell Whisper with sufficient pressure and coverage prior to installation. Product should be pressed to the surface with the aid of a roller to ensure sufficient adhesion to the substrate. Pressure sensitive adhesives are not recommended for outdoor conditions, porous surfaces, or wet and humid environments.

Insulation Anchors

Examples include:

Ramset Insulfast™ & Hilti Insulation Anchors

A variety of plastic fasteners & drivers are available in the worldwide market using pneumatic pistols & hammers. This fastener type can speed up installation of foams in construction; known as insulation anchors, cobb plug dowels, or spankers. Those with a head diameter of 25mm or more can be used, evenly distributed across the surface of the sheet.

Consult the fastener manufacturer for instruction, suitability & fixing method for your particular application.

Be sure to include details such as environmental conditions, material thickness & substrate.





Insulation Installers

Ceiling & Partitioning Contractor

Insulation to concrete	✓	✓
Insulation to steel	✓	✓



Illustrated above - tool set to operate in mode 1



Features & Benefits

- The fastest insulation fixing system
- Virtually no recoil!
- 3 times less cocking force required than explosive powered tools
- Faster install than explosive powered tools - lower in place cost
- Automatic power adjustment
- Fixes to concrete and steel without the need for adjustment
- Compatible with all major insulation types
- Low insertion force
- Textured face for compatibility with rendering applications
- Sizes to suit soft and rigid insulation from 25mm to 100mm
- Soft insulation with thickness greater than 75mm may be compressed.
- 2 Mode Operation

Note: Insulfast is suited to interior applications only

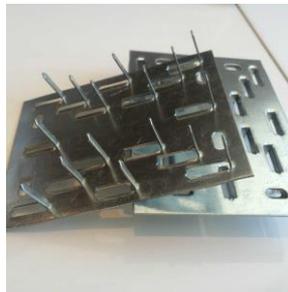
Impaler Plates

For temporary or removable installations on vertical interior surfaces Impaler plates can be screwed or adhesive fastened into position. Whisper™ is pushed onto the exposed spikes.

To remove, just pull the sheet away from the Impaler.

At least 5 impalers per sheet or 3 per m² should be used evenly distributed across the surface to be mounted.

Adhesives, or additional mechanical fasteners will be required to secure permanently, this fastening system will not tolerate significant wind or mechanical loads.



Stratocell Whisper FR Tips

Stratocell® Whisper™ FR Tips and Tricks:

Framed sheets look great!

The face of Whisper should face the noise source, a screen or any covering may effect performance.

Whisper works well as an LED Panel Diffuser

To boost absorption, leave an air gap 10-50mm behind the sheet – note that performance increases are not usually necessary

If whisper is used in a wet environment, sufficient air movement, temperature and humidity differential must exist to enable it to dry out over time

Whisper is unaffected by most common solvent free cleaning products, if you are concerned about chemical damage please contact Sealed Air or your supplier for advice.

It is best practice to allow sheets to condition indoors, free of packaging, at 17-28°C for 2 hours immediately prior to installation.



LED panel lamp, colored stage lighting gel behind Whisper 25mm FR

Stratocell Whisper UV - Tips

The face of Whisper should face the noise source, a screen or any cover may effect performance.

Always install sheets vertically; Whisper is not a roofing material, cladding or moisture barrier

Cap sheets with a profile or flashing to prevent water coming into the open cells at the upper sheet edge

In noise wall applications seal holes and gaps to minimize paths for sound to escape through, check for these at night with the aid of a torch.

Whisper in isolation is not usually effective as a sound barrier. Improve the barrier performance by using a dense acoustically reflective material behind it.

It is best practice to allow sheets to condition indoors, free of packaging, at 17-28°C for 2 hours immediately prior to installation.

Sheets can expand up to 3% dimensionally between -40-+80°C in outdoor conditions.



Installation Examples











Eave linings, Smaila's Gallipoli; Italy



Eave linings Smaila's Gallipoli; Italy



Wall Linings/Baffles, Smaila's Gallipoli; Italy



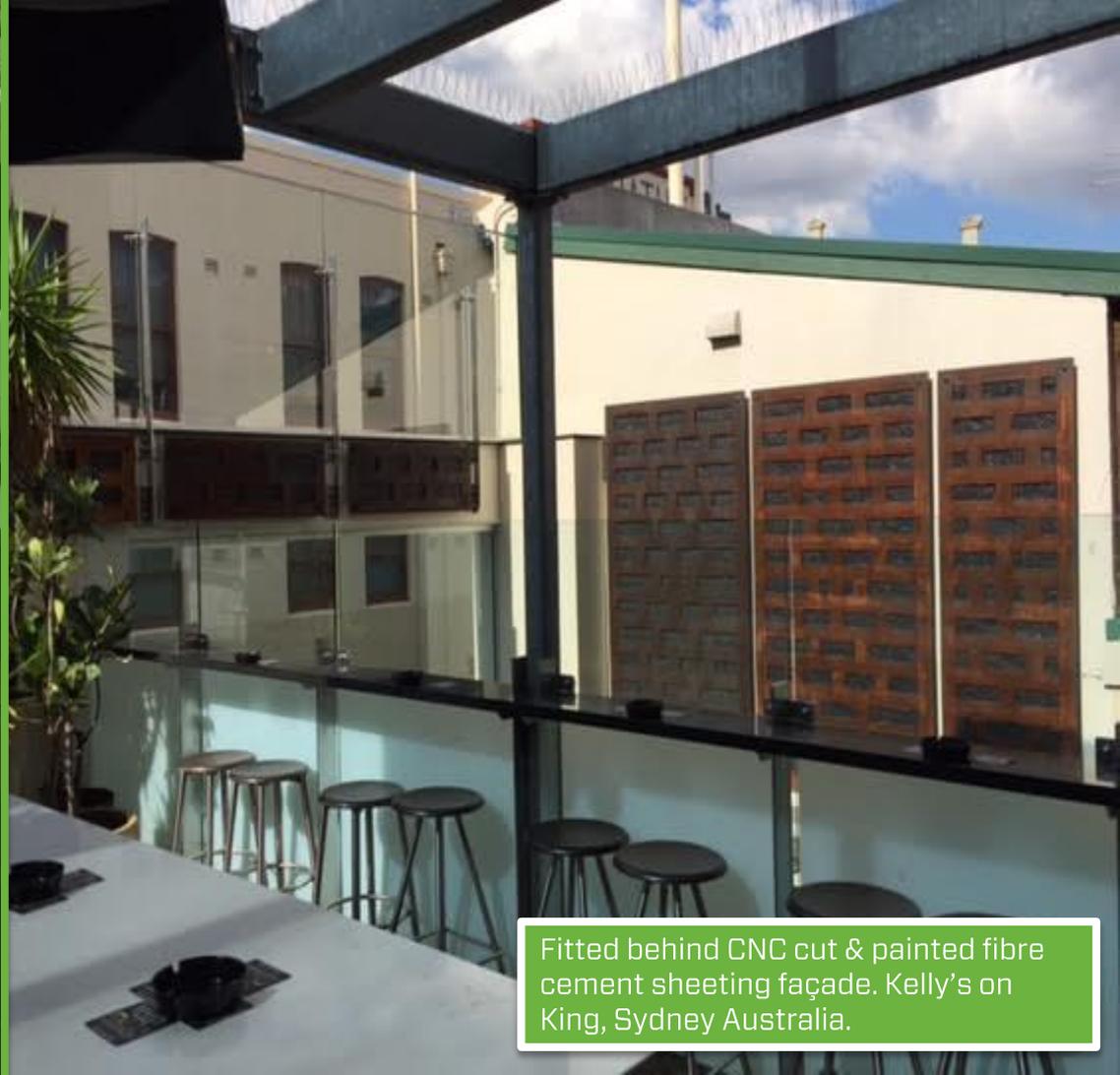
Ceiling lining, Splash Planet, Hastings New Zealand.



Wall/ceiling lining, Woodchipper Shed, Tasmania, Australia



Ceiling lining.



Fitted behind CNC cut & painted fibre cement sheeting façade. Kelly's on King, Sydney Australia.

Design Example



DEVOTG
DESIGN



Calma-Tec Noise Wall; Ulm, Germany



Residential Fence, Paddington, Sydney

Heat pump enclosure Auckland, New Zealand



Sealed Air 
Product Care