

Stratocell™ Whisper®

Sound Absorbing
Polyethylene Foam

NRC = 1



BRANZ Appraised
Appraisal No.949 [2017]

Stratocell® Whisper™ FR
Sound Absorbing Foam



DECIBELS, PERCEPTION VS REALITY

dB	Actual Sound Pressure Level (SPL) Reduction	Perceived Volume Reduction
3	50.00%	18.77%
6	75.00%	34.02%
9	87.50%	46.41%
12	93.75%	56.47%
15	96.88%	64.64%
18	98.44%	71.28%
21	99.22%	76.67%
24	99.61%	81.05%
27	99.80%	84.61%
30	99.90%	87.50%
33	99.95%	89.85%
36	99.98%	91.75%
39	99.99%	93.30%
42	99.99%	94.56%
45	100.00%	95.58%
48	100.00%	96.41%
51	100.00%	97.08%
54	100.00%	97.63%
57	100.00%	98.08%
60	100.00%	98.44%
63	100.00%	98.73%
66	100.00%	98.97%
69	100.00%	99.16%
72	100.00%	99.32%
75	100.00%	99.45%
78	100.00%	99.55%
81	100.00%	99.64%

- A small dB reduction can be a good reduction in energy.
- A 3dB reduction can actually halve the noise energy, and can double the available exposure times.
- It takes around a 10dB difference for most people to physically hear half or double the sound.

ELIMINATE NOISE POLLUTION

The World Health Organisation has concluded that noise pollution is an environmental killer, second only to air pollution. Our hearing is an active sense, meaning that excessive noise can trigger stress responses in our bodies, impacting our physiological and mental health.

Increasing population densities and the prevalence of acoustically reflective hard surfaces in our day to day environment, mean that noise is becoming a part of our lives that should not be overlooked.

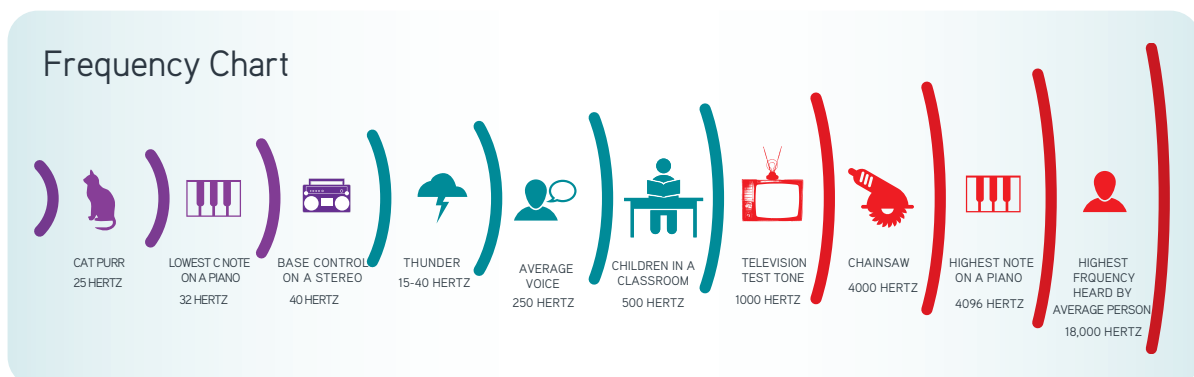
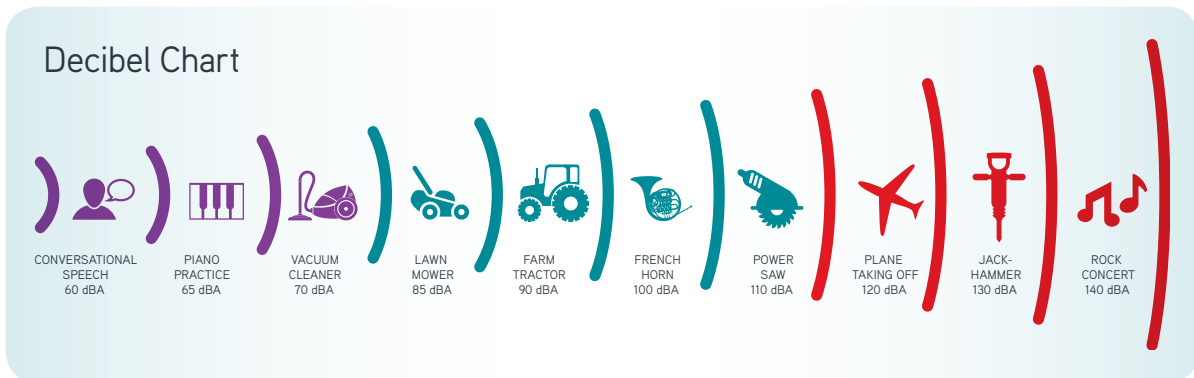
The intelligibility of speech is impacted by the presence of reverberation or echo. Stratocell Whisper® works to absorb sound energy, reducing echo and eliminating the problem of reverberation which results in an improved acoustical environment.

WHAT IS STRATOCELL WHISPER® FOAM?

It is a closed cell polyethylene foam providing excellent acoustic properties. Stratocell Whisper® is easy to fabricate, quick to install, and retains its structure in humid environments. Its superior noise reduction qualities stand up to the most rigorous applications, such as road and rail traffic and industrial machinery.

If you have external conditions to deal with such as, water, moisture, humidity, dirt, dust, ultraviolet light, chlorine and harsh chemicals, then Stratocell Whisper® is the right acoustic solution for you.

Whisper® sound absorbing panels are used to control problems with noise and sound in indoor and outdoor environments. They can make music sound better, allow people to speak and hear better and provide a safer work environment.



THE PERFECT ACOUSTIC SOLUTION

Stratocell Whisper[®] has superior sound absorption, making it the ideal choice for acoustic panels.





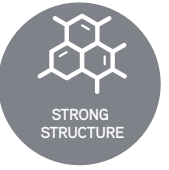
SOUND ABSORPTION

Stratocell Whisper® uses a networked honeycomb like structure to absorb sound, providing unique properties over conventional fiber, polyester and open cell foams.



MOISTURE RESISTANT

The acoustic properties of Stratocell Whisper® are demonstrably maintained following exposure to moisture. Therefore, there is no need for a water barrier, protective film or perforated metal facing to ensure acoustic properties are maintained.



STRONG STRUCTURE

With its self-supporting structure, Stratocell Whisper® foam is easy to cut and easy to install on site.



LIGHT WEIGHT

Stratocell Whisper® is easy to handle with a weight of less than 1.5 kilograms per square meter at 50mm, providing sustainable use of raw material inputs.



FIBRE FREE- WASHABLE

Stratocell Whisper® has no fibrous materials, low VOC and zero ODP. Whisper® foam does not cause irritation, is non-friable and does not crumble. In the Danish Society of Indoor Climate's rigorous particle emissions test (for particles as small as 0.7 µm) Whisper® averaged 0.02mg/m² over the 15 hour period.



UV RESISTANT

Whisper® UV has been independently tested to over 2000 hours in a QUV accelerated aging chamber. Testing showed that after UV exposure, the material exhibited similar acoustic behaviour to unexposed material. Whisper® UV is rated as a self-extinguishing material to DIN 4102 Class B2.



FIRE RETARDANT

Stratocell Whisper® FR foam panels achieved a Group 1-S result in the C/VM2 appendix A to ISO 9705:1993 as outlined in the New Zealand building code. Similarly it achieved Group 1 compliance of the Australian NCC specification C1.10 to AS ISO 9705-2003 as outlined in the Australian building code.



TRANSMISSION LOSS

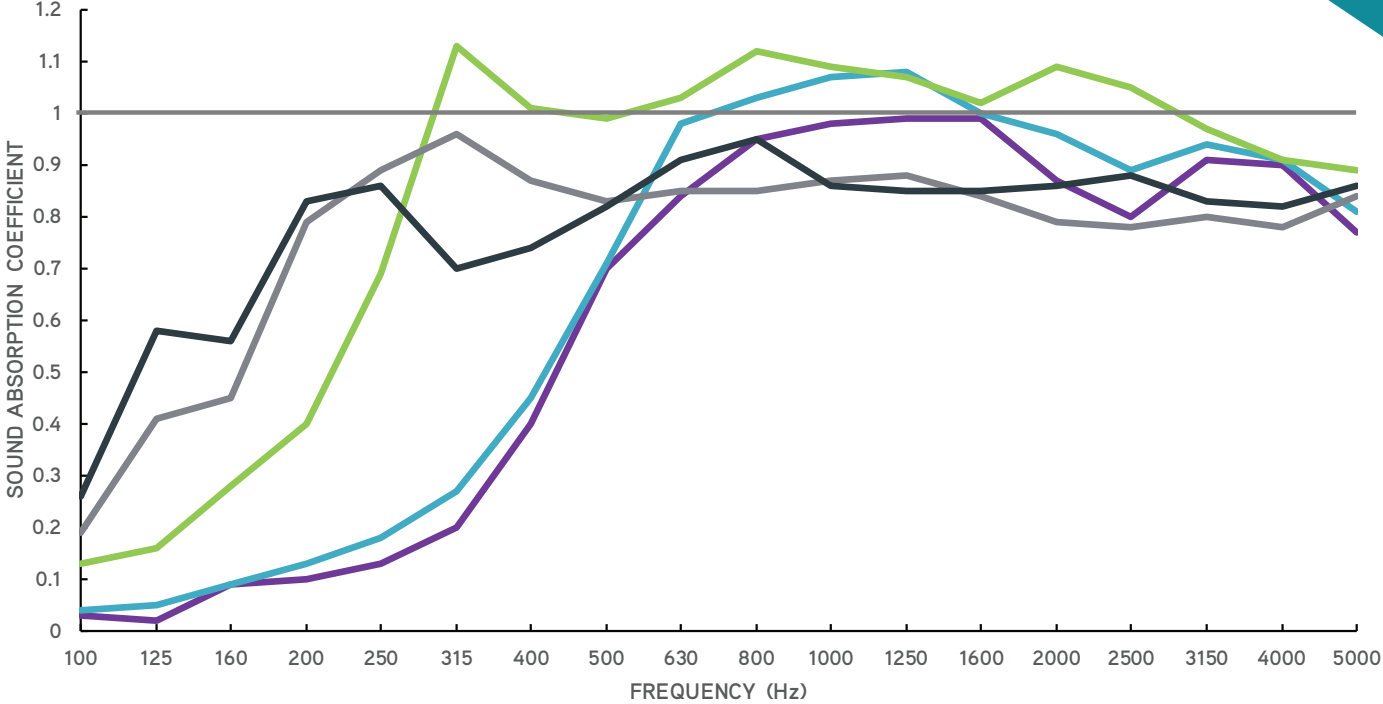
Stratocell Whisper® has incredibly high airflow resistivity giving it performance closer to the mass law of acoustics than conventional friable absorption material.

Stratocell Whisper® has a low surface energy and is non polar plastic. This means that polar substances such as water, and dust do not typically stick to it. This image illustrates how the water sticks onto the high surface energy glass, making it spread out. Whereas the water beads on the low surface energy Whisper® stands proud of the surface.



Stratocell
Whisper®
50mm
is classified as high
absorbent – according
to EN ISO 11654 –
Class A

**REVERBERATION ROOM TESTING
ACCORDING TO EN ISO 354**



Frequency (Hz)	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	NRC	SAA
Whisper 20mm	0.03	0.02	0.09	0.1	0.13	0.2	0.4	0.7	0.84	0.95	0.98	0.99	0.99	0.87	0.8	0.91	0.9	0.77	0.65	0.65
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
Whisper 60mm	0.19	0.41	0.45	0.79	0.89	0.96	0.87	0.83	0.85	0.85	0.87	0.88	0.84	0.79	0.78	0.8	0.78	0.84	0.85	0.85
Whisper 100mm	0.26	0.58	0.56	0.83	0.86	0.7	0.74	0.82	0.91	0.95	0.86	0.85	0.85	0.86	0.88	0.83	0.82	0.86	0.85	0.84

Testing of Stratocell Whisper® was carried out by Eco-scan bvba, Belgium under EN ISO 354 Measurement of Sound Absorption in a reverberation room. www.ecoscan.be

RIGOROUS APPLICATIONS

Stratocell Whisper® sound absorbing panels are the perfect solution to reduce problems with noise, including other unwanted sounds in all types of indoor and outdoor environments. They also provide a safer work environment.

Stratocell Whisper® is manufactured to perform in the most rigorous indoor, outdoor and industrial environments. It is a lightweight and durable alternative to traditional materials. It is a closed cell laminated polyethylene foam which has cells that are subsequently opened through the manufacturing process, resulting in a highly efficient sound absorbent material. Patented technology allows for rapid manufacturing, and therefore Whisper® does not have capacity constraints. It has many unique features such as:

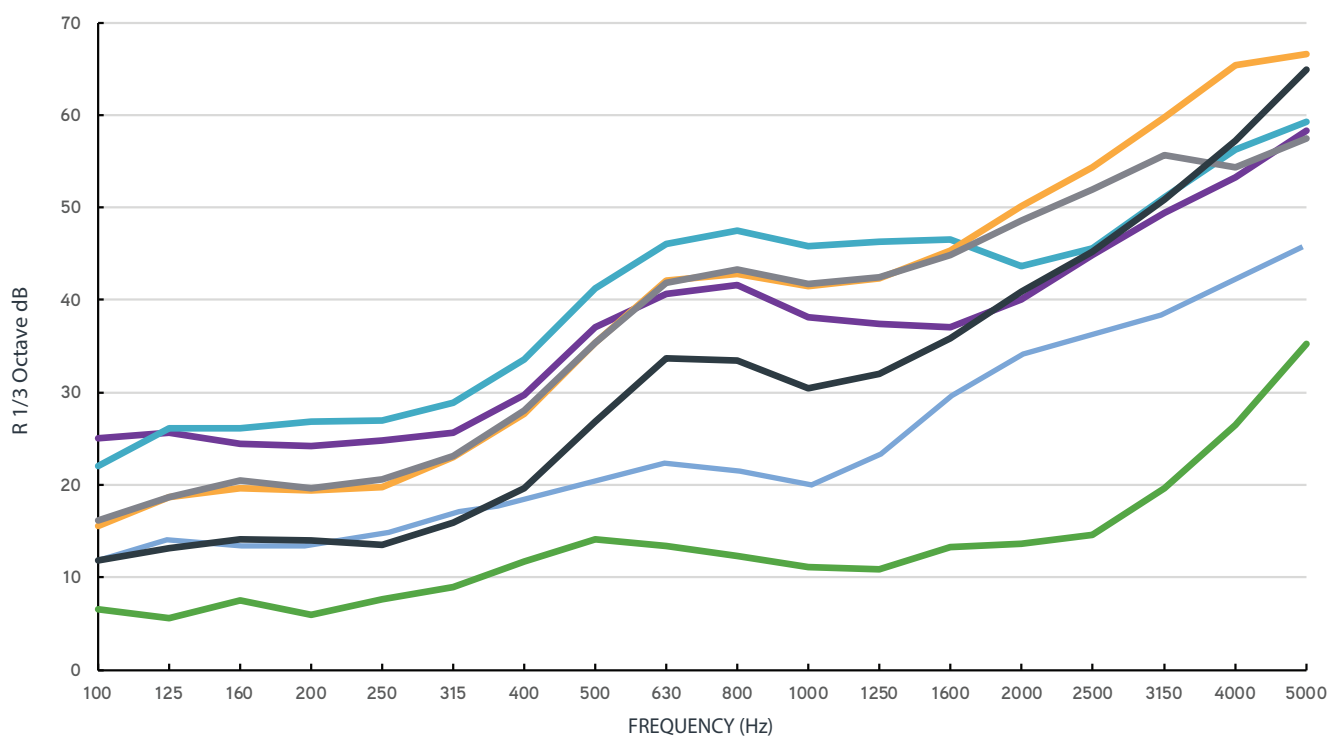
- Superior noise control
- Resistant to water and humidity
- Flame retardant
- Does not support fungal growth
- Non corrosive
- Low dust adhesion
- No need for moisture barriers
- Perforated facings not required
- Fast installation

TYPICAL APPLICATIONS:

- Construction
- Machinery
- Automotive
- Transportation
- Buildings
- Industrial
- Rail (HL1 & HL2)
- Marine



**STRATOCELL WHISPER® 50MM
SOUND REDUCTION INDEX R, ACCORDING
TO ISO 10140-2, IN COMBINATION WITH
COMMON BARRIER MATERIALS.**



Frequency (Hz)	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	Rw
Whisper 50mm	6.6	5.6	7.5	5.9	7.6	9	11.70	14.1	13.4	12.3	11.1	10.9	13.3	13.6	14.6	19.7	26.5	35.2	13.8
25 mm Plywood + Whisper 50	25.1	25.6	24.5	24.2	24.8	29.7	29.7	37.0	40.7	41.6	38.1	37.4	37.1	40.0	44.8	49.4	53.3	58.3	37.0
10 mm Fibre cement + Whisper 50 mm	22.0	26.1	26.1	26.8	27	28.9	33.6	41.3	46.0	47.5	45.8	46.3	46.5	43.6	45.6	51.1	56.3	59.3	41.0
1 mm Corten Sheet + Whisper 50 mm	15.6	18.7	19.6	19.4	19.8	23.0	27.7	35.4	42.1	42.8	41.5	42.3	45.3	50.1	54.4	59.7	65.4	66.6	35.0
3 mm Aluminium Plate + Whisper 50 mm	16.2	18.7	20.5	19.6	20.6	23.1	28.1	35.4	41.8	43.3	41.7	42.5	44.9	48.6	52.0	55.7	54.3	57.5	35.0
0.4mm Painted Steel Sheet + Whisper 50 mm	11.8	13.1	14.1	14	13.5	15.9	19.7	26.9	33.7	33.4	30.4	32.0	35.9	40.9	45.2	50.9	57.2	64.9	28.0
WhisperFence™ 24dB	11.6	14.1	13.6	13.7	14.7	16.9	18.6	20.5	22.4	21.7	20.1	23.0	29.7	34.1	36.3	38.6	42.1	45.7	23.0

Stratocell Whisper® installed facing noise source, edges and joints sealed.

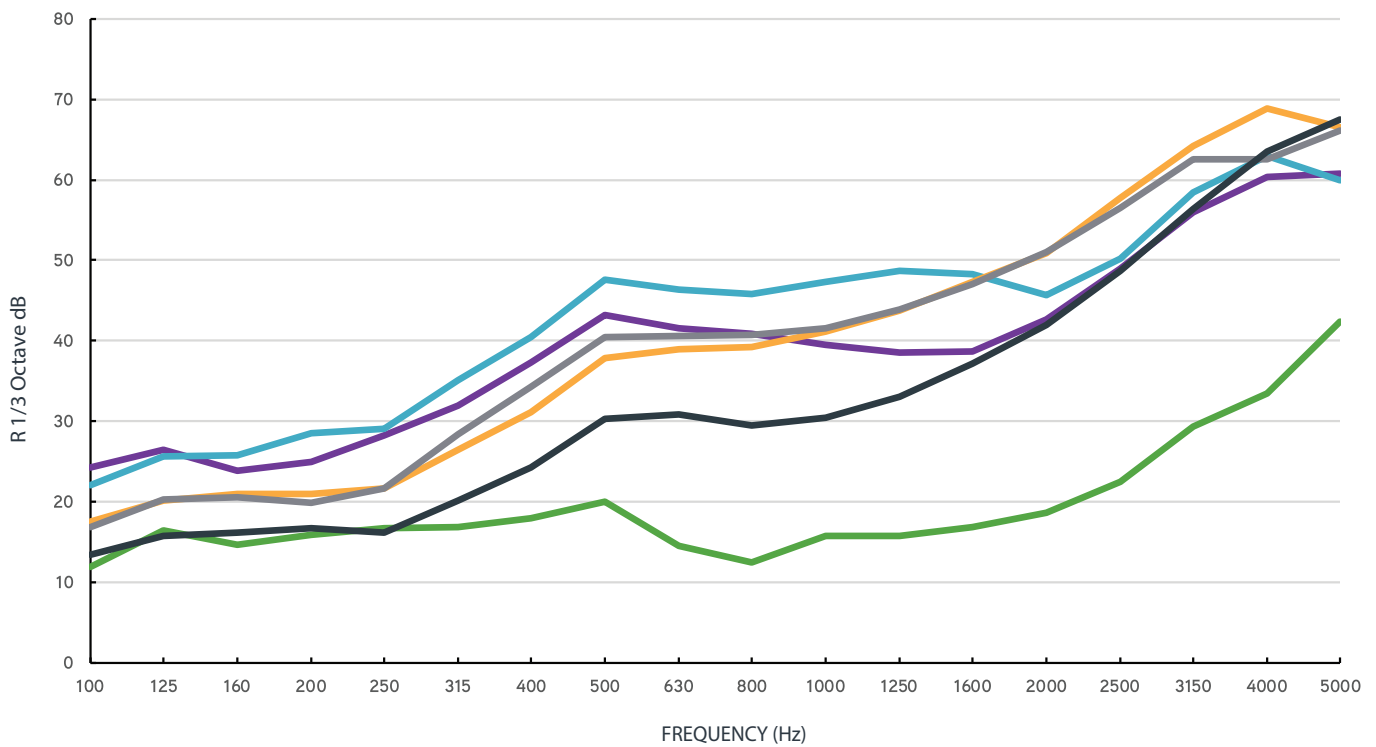
Disclaimer: As every installation is unique, we cannot guarantee the repeat occurrence of these test results. We recommend employing an acoustic consultant and using an accredited test lab prior to purchasing product.

Testing of Stratocell Whisper® under ISO10140-2 was conducted by Ecoscan bvba, Belgium. www.ecoscan.be

Stratocell Whisper®
100mm has a
Rw of 18dB according
to ISO717-1

Highway barrier.
Calma-Tec Germany

STRATOCELL WHISPER® 100MM
SOUND REDUCTION INDEX R, ACCORDING
TO ISO 10140-2, IN COMBINATION WITH
COMMON BARRIER MATERIALS.



Frequency (Hz)	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	Rw
Whisper 100	12	16	15	16	17	17	18	20	15	13	16	16	17	18.6	22.5	29	33.5	42.4	18
25 mm Plywood + Whisper 100	24	27	24	25	28	32	37	43	42	41	40	39	39	42.6	49	56	60.4	60.7	39
10 mm Fibre cement + Whisper 100mm	22	26	25	29	29	35	41	48	46	46	47	49	48	45.7	50.2	58	63	59.9	43
1 mm Corten Sheet + Whisper 100mm	18	20	21	22	22	27	31	38	39	39	41	44	47	50.9	57.7	64	68.8	66.6	37
3 mm Aluminium Plate + Whisper 100mm	17	20	21	22	22	28	34	40	41	41	42	44	47	51	56.5	63	62.5	66.1	37
0.4mm Painted Steel Sheet + Whisper 100mm	13	16	16	16	16	20	24	30	31	30	31	33	37	41.9	48.7	56	63.5	67.5	30

Stratocell Whisper® installed facing noise source, edges and joints sealed.

Disclaimer: As every installation is unique, we cannot guarantee the repeat occurrence of these test results. We recommend employing an acoustic consultant and using an accredited test lab prior to purchasing product.

Testing of Stratocell Whisper® under ISO10140-2 was conducted by Ecoscan bvba, Belgium. www.ecoscan.be

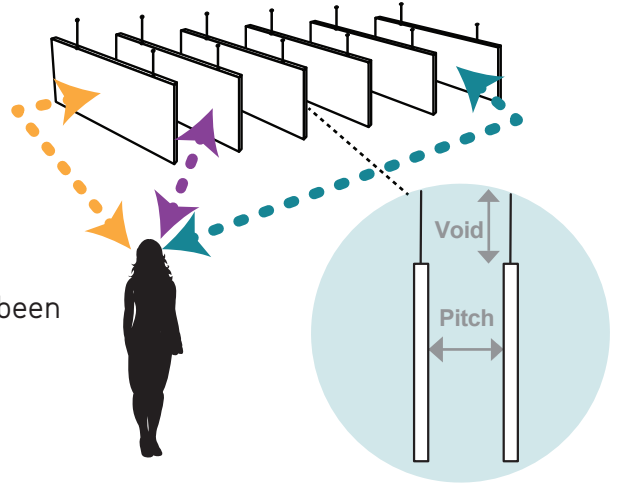
Otaki Pool, Wellington, New Zealand



MINIMAL MATERIAL MAXIMUM PERFORMANCE

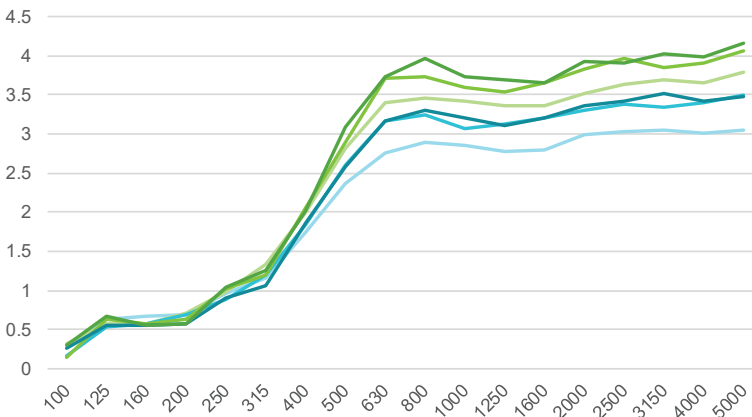
Vertical Hanging Baffles

Hanging baffles are the most economic method of applying acoustic absorption to an interior space. Whisper® absorbs sound on both sides, therefore baffles enable minimum product for maximum absorption. As many as 16 baffles have been installed per hour on large builds.



Measurement of sound absorption in a reverberation room (ISO 354). Results below are presented in equivalent sound absorption area, 1 object in m² or sabin (SA).

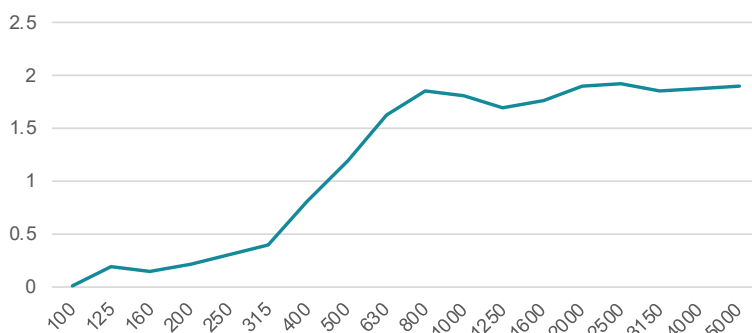
Baffles 50 x 1200 x 2400mm



Frequency (Hz)	600mm Pitch		
	500mm Void (SA)	600mm Void (SA)	1000mm Void (SA)
100	0.31	0.17	0.27
125	0.63	0.54	0.55
160	0.68	0.58	0.55
200	0.7	0.69	0.57
250	0.96	0.88	0.91
315	1.15	1.19	1.07
400	1.75	1.85	1.86
500	2.36	2.6	2.59
630	2.76	3.17	3.17
800	2.9	3.25	3.31
1000	2.85	3.08	3.21
1250	2.77	3.12	3.11
1600	2.79	3.21	3.21
2000	2.99	3.31	3.36
2500	3.04	3.39	3.43
3150	3.06	3.35	3.51
4000	3.01	3.41	3.43
5000	3.06	3.5	3.48
NRC	1	1	1

Frequency (Hz)	1000mm Pitch		
	500mm Void (SA)	600mm Void (SA)	1000mm Void (SA)
100	0.32	0.15	0.3
125	0.58	0.63	0.67
160	0.57	0.57	0.55
200	0.71	0.64	0.57
250	0.99	1.03	1.04
315	1.33	1.2	1.26
400	1.99	2.06	2.02
500	2.82	2.9	3.09
630	3.41	3.72	3.73
800	3.47	3.73	3.97
1000	3.42	3.59	3.73
1250	3.37	3.54	3.7
1600	3.37	3.66	3.65
2000	3.51	3.84	3.92
2500	3.64	3.97	3.91
3150	3.69	3.86	4.02
4000	3.65	3.91	3.98
5000	3.79	4.07	4.17
NRC	1	1	1

Small Baffles (see page 8), 50 x 400 x 2400mm.



Frequency (Hz)	Sound Absorption (SA)
100	0.27
125	0.55
160	0.55
200	0.57
250	0.91
315	1.07
400	1.86
500	2.59
630	3.17
800	3.31
1000	3.21
1250	3.11
1600	3.21
2000	3.36
2500	3.43
3150	3.51
4000	3.43
5000	3.48
NRC	1

MAXIMUM CREATIVITY
For advice on alternative baffle sizes, layouts and shapes contact your Stratocell Whisper® distributor.

Hogs' Breath Cafe,
Geraldton, Western Australia



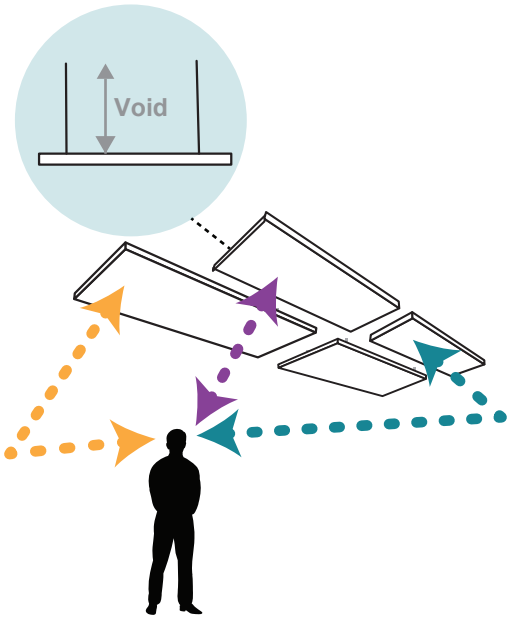
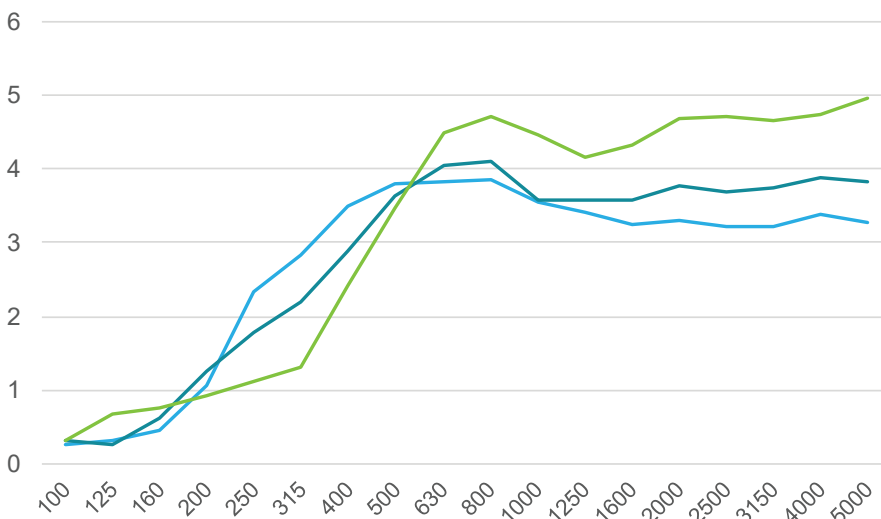
MINIMAL MATERIAL MAXIMUM PERFORMANCE

CEILING RAFTS

Hanging panels are an economic method of applying acoustic absorption to an interior space. Whisper® absorbs sound on both sides, therefore baffles enable minimum product for maximum absorption. Ceiling rafts are a better option where total available height in a space is restricted or material use needs to be minimised for maximum acoustic performance.

Results below are presented in equivalent sound absorption area, 1 object in m² or sabin (SA).

Baffle Layout Horizontal 50x1200x2400



Sound Absorption SA

Frequency (Hz)	50mm Void (SA)	150mm Void (SA)	600mm Void (SA)
100	0.26	0.31	0.32
125	0.32	0.26	0.69
160	0.45	0.62	0.77
200	1.07	1.27	0.92
250	2.33	1.77	1.12
315	2.84	2.21	1.31
400	3.49	2.89	2.43
500	3.8	3.64	3.47
630	3.82	4.05	4.49
800	3.85	4.1	4.71
1000	3.54	3.58	4.47
1250	3.41	3.57	4.15
1600	3.25	3.58	4.32
2000	3.3	3.76	4.67
2500	3.23	3.69	4.72
3150	3.22	3.74	4.66
4000	3.39	3.87	4.74
5000	3.28	3.83	4.95
NRC	1	1	1



MAXIMUM CREATIVITY

Whisper® Foam can be easily cut into a variety of shapes and sizes in order to allow you to get really creative.

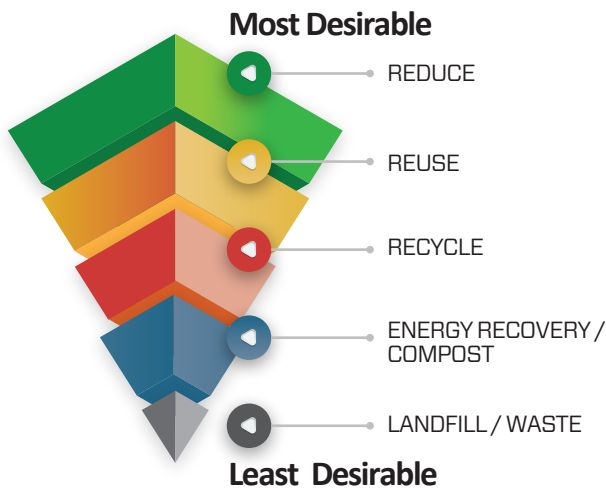
ENVIRONMENTAL APPROACH

When manufacturing Whisper® we focus on minimising the amount of materials used for a high performing durable acoustic solution. Whisper has low VOC's, low particle emissions, is fibre-free, and has zero ozone depleting substances.

Uncontaminated product may be returned to Sealed Air for recycling. Qualifying projects will have recycling bins placed on site. Our recycling partners are locally based and the Smartlife program ensures renewed life for the resin, as it is made into a new product.



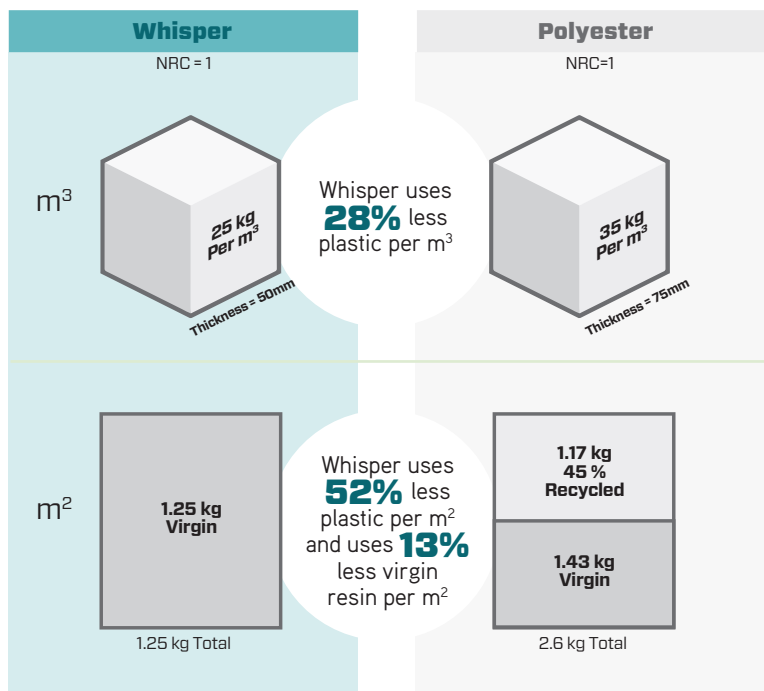
Hierarchy of Waste



In the hierarchy of sustainability reducing material use is key. Source reduction is the only contributor that guarantees a reduction in the total use of resources. Stratocell Whisper® is created with this in mind. Its light weight nature is proof that minimum resources are used for maximised acoustic performance.

How do we stack up against materials that use post consumer waste?

Consider two materials with a similar NRC, one using 45% recycled content polyester, the other using Whisper.



GALLERY



Wollondilly Community Leisure Centre, NSW, Australia



Studioverket, Stockholm, Sweden



Arrosticini Divini restaurant at L'Aquila, Italy



Badajoz municipal band practice room, Badajoz, Spain



Aercel SPA, Italy



Pistol Club, Italy



Otaki Pool, Wellington, New Zealand



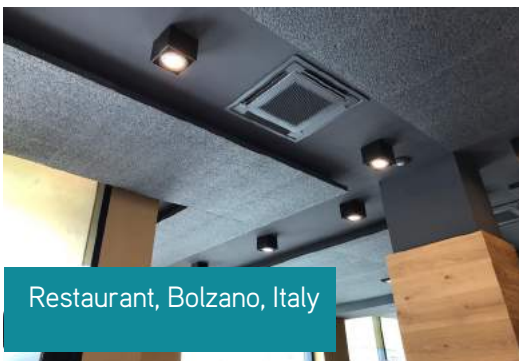
Praja Nightclub, Gallipoli, Italy



Kelly's on King Pub, Sydney, Australia



Highway, Budapest, Hungary



Restaurant, Bolzano, Italy



Whitehart Bar, Melbourne, Australia

PRODUCT CODES

Product Code	Material	Size	Colour
100980654	Stratocell Whisper® FR	25mm x 1.2m x 2.4m	White
101007533	Stratocell Whisper® FR	25mm x 1.2m x 2.4m	Black
100980656	Stratocell Whisper® FR	50mm x 1.2m x 2.4m	White
100792836	Stratocell Whisper® UV	50mm x 1.2m x 2.4m	Black
100980658	Stratocell Whisper® FR	50mm x 1.2m x 2.4m	Black
TBC	Stratocell Whisper® FR	60mm x 1.2m x 2.4m	White
101007534	Stratocell Whisper® UV	100mm x 1.2m x 2.4m	Black
101047670	Whisper® Tape	100mm x 25m	Black

PRODUCT SPECIFICATION SHEET: STRATOCELL WHISPER® FR

Physical Properties	Test Method	Unit	Value
Nominal Density	ASTM D3575-08 Suffix W ISO 845:2006	Kg/m ³	25
Compressive Strength Vertical @ 25% Vertical @ 50%	ASTM D3575-08 Suffix D ISO 7214:2007	KPa	7 12
Compressive Strength 25% (4th compression) 50% (4th compression) 70% (4th compression) (100mm/min compression speed)	ISO 3386 1986 part 1 DIN 53577	KPa	3 7 25
Compression Set	ASTM D3575-08 Suffix B (50% Compression) ISO 1856:2000 (25% compression)	%	< 30 < 20
Cell Size	BS 4443/1 Met.4	Cells/25mm	< 10
Fire-test-response Characteristics (1) Building & Construction	ISO 9705 - 1993	Group	1-S NZBC Verification Method C/VM2 Appendix A NCC Specification C1.10
	AS ISO 9705 - 2003 BRANZ Fire Test FI 5558-TT AS2122.1-1993	Group	1 Test results available upon request
Marine	DNV2.21 Craft Ch.5 Sec.6 B201 EN ISO 9094-1:2003 part 1 EN ISO 9094-2:2002 part 2	OI -	≥ 21
Automotive Appliances & Electronics	FMVSS 302 UL94	Class Class	Pass HF1
Water Pick Up by Diffusion (RH > 95% - after 28 days)	UNI EN 12088	Kg/m ²	< 3
Water Pick Up by Diffusion (RH > 95% - after 28 days)	UNI EN 12088	Volume %	< 5
Thermal Conductivity @ 23°C @ -5°C	ASTM D3575-08 Suffix V ISO 8301	W/mK	0.104 0.082
Thermal stability (24hrs at 70°C)	ASTM D3575-08 Suffix S ISO 2796	%	< 3
Tensile Strength @ Peak	ASTM D3575 Suffix T ISO1798	KPa	130
Tensile Elongation	ASTM D3575 Suffix T ISO1798	%	60
VOC Emissions	AFNOR NF EN ISO 16000-9	Class	A+
Recycling	Recycle used uncontaminated Stratocell Whisper™ FR product to minimise landfill.		
MSDS	Available upon request		
Airflow Resistance	UNI EN 29053:1994	Pa.S/m ³ = Rayls/m ²	510,000 (25mm) 2,785,000 (50mm)

(1) These numerical laboratory fire-test-response characteristics are not intended to reflect hazards presented by this material under actual fire conditions

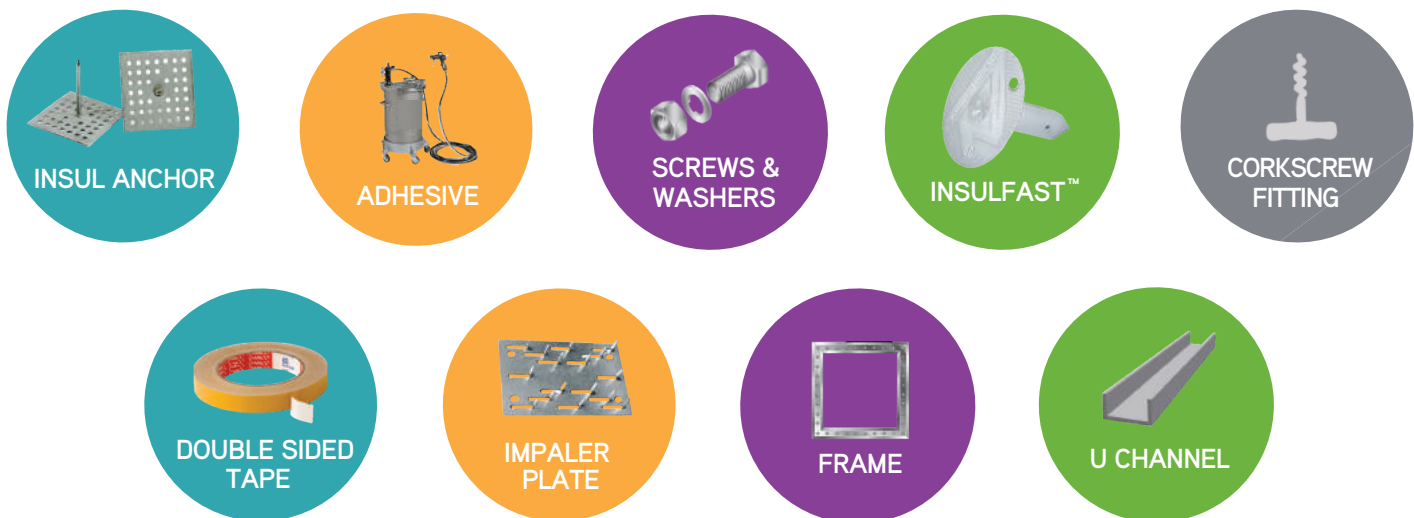
PRODUCT SPECIFICATION SHEET: STRATOCELL WHISPER® UV

Physical Properties	Test Method	Unit	Value
Nominal Density	ASTM D3575-08 Suffix W ISO 845:2006	Kg/m ³	30
Compressive Strength Vertical @ 25% Vertical @ 50%	ASTM D3575-08 Suffix D ISO 7214:2007	KPa	10 24
Compressive Strength 25% (4th compression) 50% (4th compression) 70% (4th compression) (100mm/min compression speed)	ISO 3386 1986 part 1 DIN 53577	KPa	3 13 50
Compression Set	ASTM D3575-08 Suffix B (50% Compression) ISO 1856:2000 (25% compression)	%	< 30 < 20
Cell Size	BS 4443/1 Met.4	Cells/25mm	< 10
Fire test-response Characteristics (1) Building & Construction	DIN 4102	Class	B2
Thermal Conductivity @ 23°C (73°F) @ -5°C (23 °F)	ASTM D3575-08 Suffix V ISO 8301	W/mK	0.104 0.082
Thermal stability (24hrs at 70°C)	ASTM D3575-08 Suffix S ISO 2796	%	< 3
Water Pick Up by Diffusion (RH > 95% - after 28 days)	UNI EN 12088	Kg/m ²	< 3
Water Pick Up by Diffusion (RH > 95% - after 28 days)	UNI EN 12088	Volume %	< 5
Tensile Strength @ Peak	ASTM D3575 Suffix T ISO1798	KPa	130
Tensile Elongation	ASTM D3575 Suffix T ISO1798	%	70

(1) These numerical laboratory fire-test-response characteristics are not intended to reflect hazards presented by this material under actual fire conditions

ACCELERATED AGEING TEST REPORTS IN QUV-CHAMBER AVAILABLE UPON REQUEST.

INSTALLATION

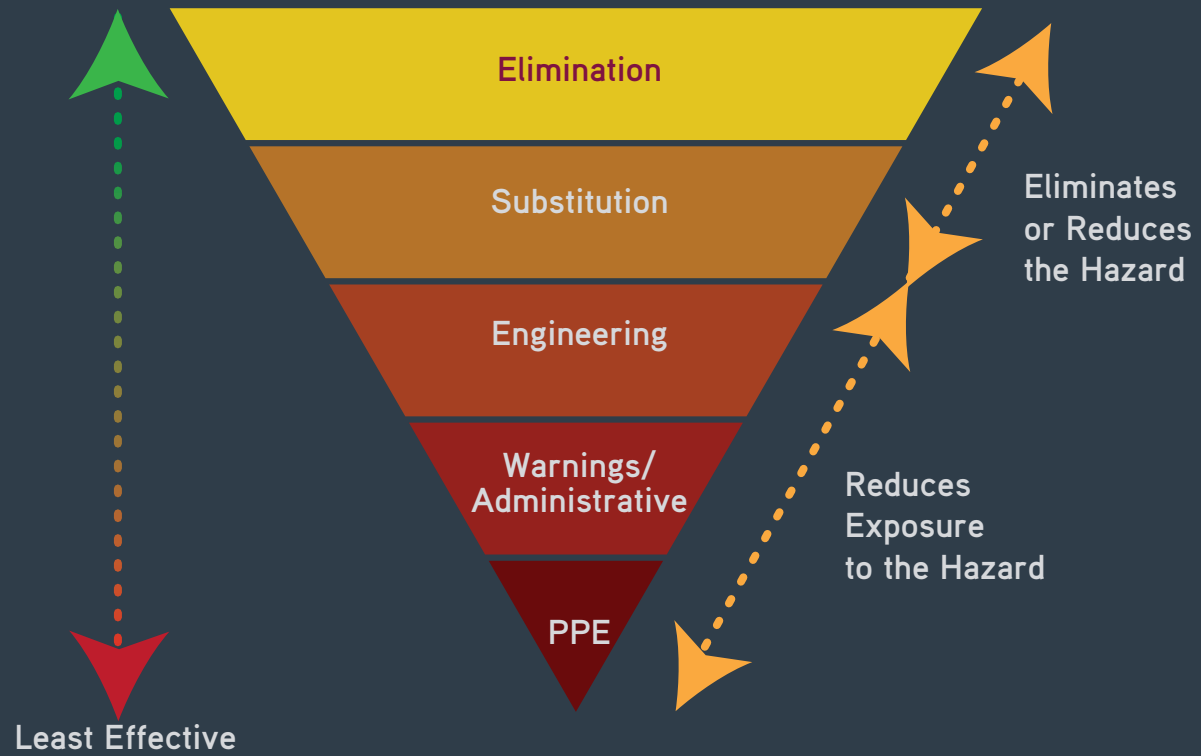


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Hierarchy of Controls

This hierarchy is intended to provide a systematic approach to control hazards. They are ranked by effectiveness. The controls are less effective as they progress to the bottom of the page. It is common to combine controls. The hazard type, consequence severity, and the risk to workers must be considered when identifying which control(s) should be used. As the risk increases so should the control method.

Most Effective



Cover image credits

Project name: LINEA & TYPO – MAXXI MUSEUM

Location | Rome

Date | 2017

Client | Consorzio Stabile Seaman

Design | Andrea Lupacchini architect

Craftsmanship | Devoto Design

Pic by | Nicolò Sardo, courtesy of Andrea Lupacchini architect

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