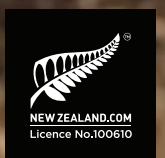


FLOC

WOOL ACOUSTIC PANELS





PREMIER WOOL ACOUSTIC PANELS

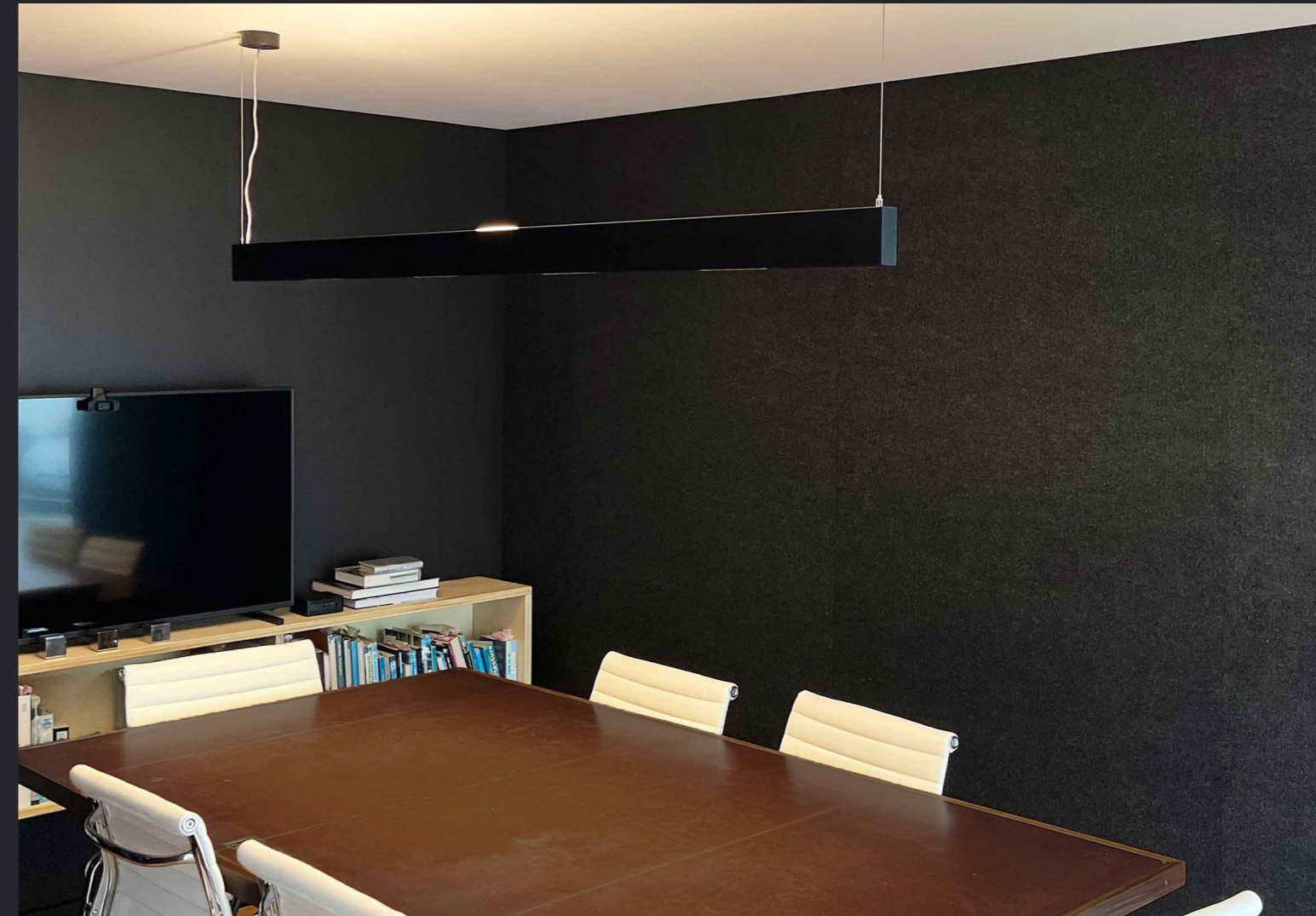
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Floc.

[flok] noun.

Premier wool acoustic panels that are strong, resilient, innovative and bring together all the goodness of Aotearoa, into interior spaces.

Acoustic consideration is an integral element to designing high-performing interiors. Floc offers an innovative, fresh use for New Zealand strong-wool as acoustic panels. The natural properties and benefits of wool create Floc's well rounded approach to enhancing interior environments. Bringing wool indoors makes every interior better.



Floc Panel installed at Borrmeister Offices, Christchurch.



Why wool?

Floc harnesses the natural, forgiving attributes of wool and brings these indoors.

New Zealand wool is exceptional; sheep in unspoilt landscapes with the freshest air, growing the finest natural fibres. It is a product grown every year and needs to be removed annually for animal welfare, making it a truly sustainable and renewable product.

We have carefully selected local fibres which encompass our sought after performance and durability, and the complex structure of wool lends itself perfectly to an acoustic application.

Wool has the ability to absorb sound while simultaneously enhancing the interior environment. With its unique and inherent ability to regulate temperature and its natural air filtering capabilities, no man-made product has come close to replicating the properties of wool. Wool is also non-allergenic and breathable; excellent properties for busy workspaces.

In an architectural context, wool can contribute to biophilic environments helping to bring nature indoors, and contributes to wellness in interior spaces.

Floc has been refined and developed to meet increased fire performance requirements. Despite the common conception that 'wool doesn't burn', its raw performance in interior fire tests is less than desirable. With natural additions, the wool performance has been increased to pass required fire tests and meets New Zealand Building Code standards with a Group 1-S status.



NEW ZEALAND WOOL PRODUCTION PER YEAR

120,000 Tonnes

100% grown and manufactured in New Zealand.

New Zealand has a strong association with wool. Our 26 million sheep are bred specifically to grow the finest fibres.

Each year, New Zealand sheep produce approximately 120,000 Tonnes of wool. 85% of this is strong-wool, which lends itself perfectly to the interior furnishings and products market.

Designing interior products which create value with New Zealand grown, made and manufactured items increases the value for our wool. Our climate allows the wool to be more consistent, whiter and in larger volumes than sheep in other parts of the world.



Floc Panel installed at Pāmu, Wellington.

Floc Panel.



Premier acoustic panels made from needle punched New Zealand strong-wool.

Floc harnesses the sustainable nature of wool, adding multiple health, wellness and acoustic benefits to commercial interior environments. At end of life it can be returned to the earth as the product is fully compostable.

Made from 100% New Zealand strong-wool. Floc is born, grown, processed and manufactured in Aotearoa.

Specifications

Material: 100% New Zealand strong-wool.
 Sizes: 1.2 x 25.0m L/M Rolls and cut to length available on request.
 Ceiling Tile Sizes: 1200x600mm & 600x600mm.
 Thickness: 6-8mm.
 Weight: 1.4kg/m² (1400gsm).

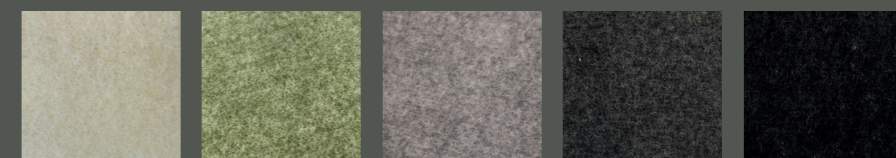
Colours: Available in a range of neutrals and dyed wool- ex stock.
 Custom Colours: Custom colour matches available- MOQ applies.
 Patterns: Choose a pattern from our online collections or provide your own vector file.

Fire Performance: Group 1-S.
 Acoustic absorption: NRC 0.4.

A biodegradable and compostable natural product.

**Due to the natural makeup of Floc, organic matter may be present.*

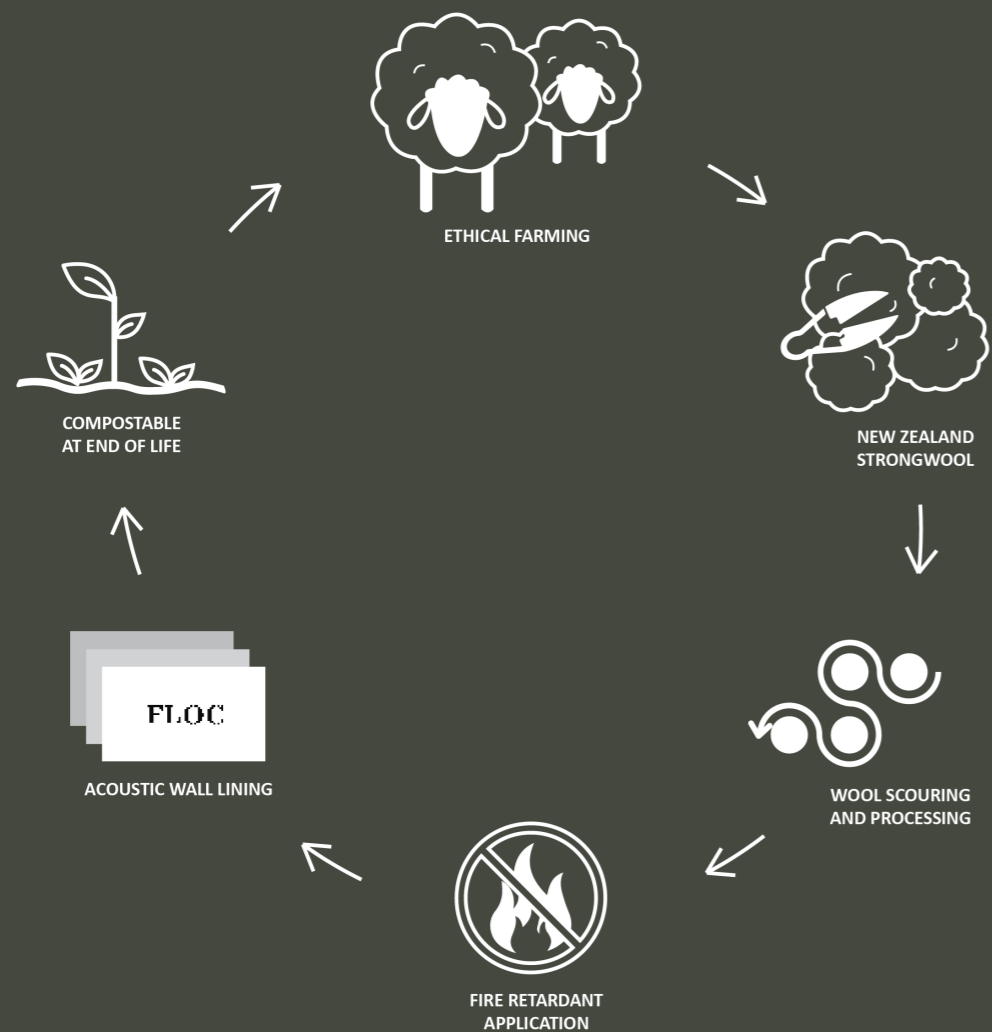
Pending NZ Patent App. No. 788814



NATURAL GREEN LIGHT GREY MID GREY DARK GREY

Truly Renewable.

Floc harnesses the sustainable nature of wool, enhancing its performance for the built environment. At end of life it can be returned to the earth as the product is fully compostable. Made from 100% New Zealand born, grown and processed strong-wool, utilising the by-product of shearing to create a sustainable wall lining.



Shearing is the process where a sheeps wool is removed from the animal, leaving behind a thin layer of wool to protect the animal from overheating in warmer months. New Zealand's 26 million sheep are bred to grow the finest fibres and they thrive in our climate, producing cleaner, whiter wool.

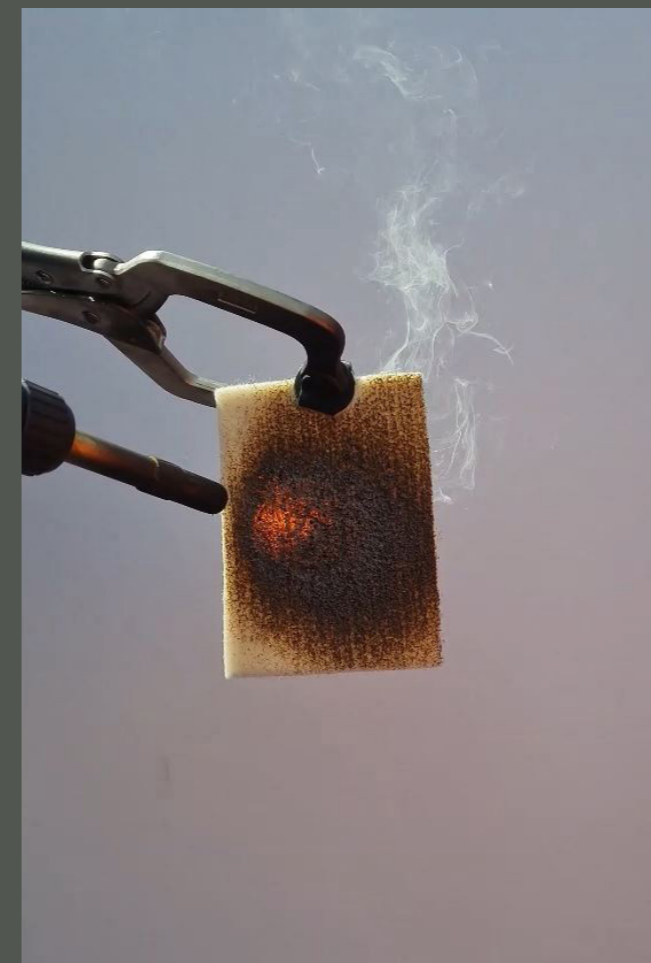
Approximately 85% of New Zealand grown wool is strong-wool, which is mainly used for carpets, rugs and upholstery. A coarser fiber than Merino (commonly used for clothing), strong-wool has the potential to significantly influence the wool export market.

Floc & Flames.

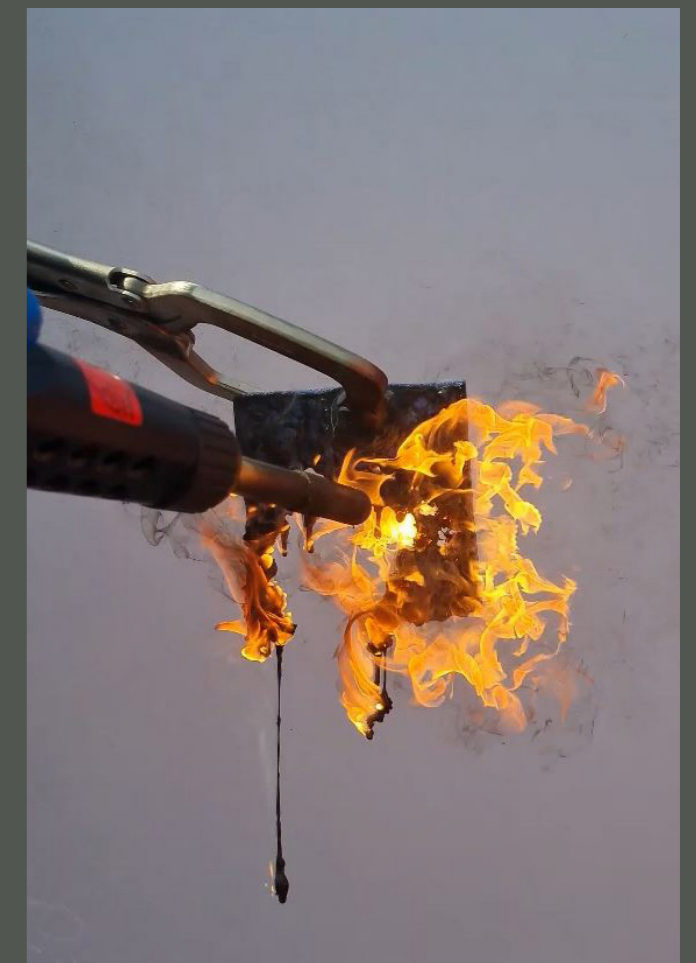
Achieving Group 1-S, Floc Panel provides a considered, natural and safe acoustic wall lining for interior environments. Through extensive research and development, Floc has a clever, natural addition to the lanolin rich strong wool - allowing the product to gain Group 1-S status.

When compared to its polyester counterpart - Floc's performance is progressive. Floc releases little heat, produces less smoke than synthetic fibres and results in a charred state- where synthetics catch light and melt away from the flame.

Please note both products shown achieve a Group 1-S rating.



FLOC PANEL



POLYESTER



Pāmu.

Floc Panel Feature Project

Pāmu is the brand name for Landcorp Farming Limited. The Māori word 'Pāmu' means 'to farm' but also reflects the Māori concept of guardianship of the environment (kaitiakitanga).

Pāmu strives to be a leader in New Zealand agriculture, carefully creating natural products of high quality. This made the Pāmu offices in Wellington a perfect first official client for Floc panels. Floc from T&R Interior Systems is a premier wool acoustic panel that is strong, resilient, innovative and brings together all the goodness of Aotearoa, into commercial spaces.

Aluminium frames with Floc on either side line one side of the offices to separate the working areas from the circulation spaces. Gaps between the panels maintain a visual connection. The acoustic absorption offered by the panels ensures that the spaces are quiet and comfortable.

Floc offers an innovative, fresh use for New Zealand strong-wool as acoustic panels. By selecting fibres which encompass sought-after performance, this produces a wall covering that is strong, natural white, less fluffy, and durable. The fibrous nature of wool lends itself perfectly to an acoustic application. Wool has the ability to absorb sound while enhancing the interior environment by its unique and inherent ability to regulate temperature; excellent properties for busy workspaces.

Bringing wool indoors makes every interior better.

Project: Pāmu Offices in Wellington
Architects: Alice Sharpe and Michael Gould from LT McGuinness
Contractor: LT McGuinness



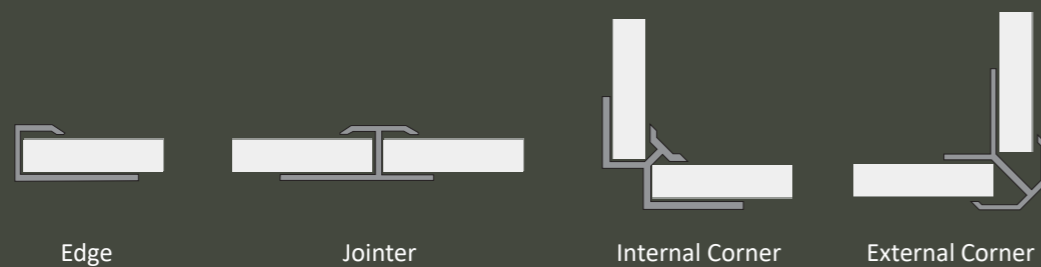
Floc Panel Installation.

- YOU WILL NEED:**
- | | |
|----------------|----------------------------|
| Spirit level | Sabre S42 Adhesive |
| Scissors | Trim guide |
| Box cutter | Straight edge |
| Tape measure | Pencil |
| Painters tape | Crain 435 Flex Axle Roller |
| Floor covering | |

IMPORTANT NOTES

- Floc Panels are usually supplied as 1200mm x 25m rolls with squared edges. When panels are cut on site, they need to be properly knife trimmed, measured, and aligned/squared due to the stretch properties of wool.

Due to the nature of wool, some depth variation may occur between panels. Joins will never be completely invisible.
- We recommend edge profiles on exposed edges. The following profiles are available from your local T&R branch.



WALL PREP

- Use painters' tape to mask the skirtings and ceiling.
- Apply painters' tape opposite finished corner to prevent any glue adhesive to finished wall.

ADHESIVE INSTRUCTION

- All substrates are to be clean and dry, free from moisture and all contaminants.
- Spray 100% coverage on both substrates that require a bond together and wait sufficient time for adhesive to flash off before laminating together (refer to product TDS and instructions).
- Install Floc Panel carefully, applying direct pressure with a Crain #333 floor/wall roller or similar.
- Strictly follow adhesive instructions.

Floc Panel Installation.

STEP ONE (two people required)

Draw a vertical line in pencil using a spirit level to ensure the first Floc Panel is perfectly straight. If going from a corner, measure the width of the panel minus 30mm and check against the spirit level. Put a mark close to the ceiling at this point. This will be the point to determine the edge of the panel. Using a spirit level, draw a vertical line.

STEP TWO

Trim the Floc roll to desired length of panel if applicable. Allow for a minimum 20mm or adequate overlap over skirting, scotia and frames- this is to be trimmed later.

Note: Floc Panels are usually supplied as 1200mm x 25m rolls with squared edges. When panels are cut on site, they need to be properly trimmed, measured, and aligned/squared.

Due to the nature of wool, some depth variation may occur between panels. Joins will never be completely invisible.

STEP THREE

Spray both surfaces with the adhesive, being careful not to over spray the painter's tape. Ensure adequate adhesive transfer for a strong bond. Wait sufficient time for adhesive to flash off before laminating together. Refer to adhesive instructions.

STEP FOUR

The left-hand side of the first Floc Panel should line up with your straight pencil mark, allowing a gap between your first panel and the corner. Fit this panel later.

Once positioned correctly, smooth out with your hand as you work your way down the Floc Panel. Smooth out all bubbles and ensure the edges are firmly in contact with the wall. Floc Panels are forgiving and can be manipulated into place. Using a sharp box cutter, trim opposite edge using a spirit level to accurately cut a straight line.

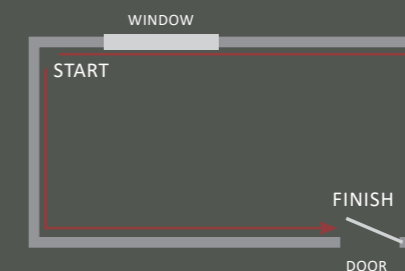
Note: When joining Floc Panels together with a butt-joint it is recommended the panel is fitted firmly at the join first, use a Crain 435 Flex Axle Roller to even out join if required.

STEP FIVE

Continue the wall coverings onto the ceiling and skirting, then trim any excess at top and bottom with a straight edge and box cutter. At corners allow a 30mm overlap (over painter's tape). Using a straight edge, run your box cutter down the corner to create a perfect straight edge.

Slightly pull Floc away from edges to remove painters' tape then push the Floc Panel back to substrate. This will prevent wool and adhesive particles sticking to finished surfaces.

NB: Always work away from the main source of light and finish in the least conspicuous corner.





Floc 3D at Ryman Healthcare.

Floc 3D.



3D pressed acoustic tiles made from New Zealand strong-wool. Born, grown, scoured and manufactured in New Zealand.

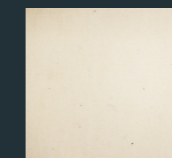
Floc 3D is a contemporary and sustainable choice for commercial and residential interiors. The tile is made from woollen fibres pressed into a 3D configuration to give exceptional acoustic and wellness benefits to the interior environment. Proudly New Zealand made.

Floc 3D will eliminate common acoustic issues such as headache-inducing echoes and reverberation. Employers aiming to create a healthy and productive workspace must look at all aspects of the interior design including air quality and materials.

Specifications

Direct Fix 3D Wall Tiles:	500x500mm.
Colours:	Grey & Natural White.
Standard patterns:	Dimple, Gemini, Pivot, Chevron, Flat, Fractile, Siren, Spectrum, Atlas and Swish.
Acoustic absorption	
Direct Fix:	NRC 0.65.
Suspended:	NRC 0.80.
Weight:	1.4kg/m ² .
Fire Performance:	Group 3-S.

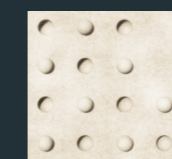
**Due to the natural makeup of Floc, organic matter may be present.*



NATURAL WHITE



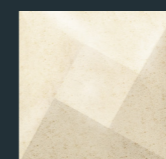
GREY



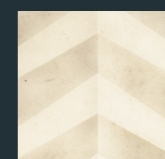
DIMPLE



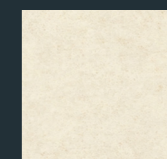
GEMINI



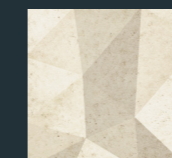
PIVOT



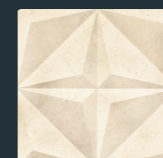
CHEVRON



FLAT



FRACTILE



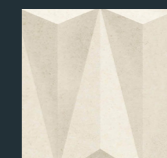
SIREN



SPECTRUM



ATLAS



SWISH



Expo 2020, Dubai.

Floc 3D Feature Project

We are delighted our Floc 3D tiles were used in the entrance to the New Zealand Pavilion, at Expo 2020 in Dubai.

Visitors entered the pavilion and the first space they encountered was lined in its entirety with Floc 3D panels. These were made of New Zealand grown, sustainable strong-wool. The bespoke design and development of these panels was a collaboration between Haumi and Workshop e and tied in with the Pavilion theme, Care for People and Place. The adaptation of Toi Whakairo into a pressed wool form is a beautiful juxtaposition of hard and soft materials.

"The rauponga pattern broadly represents the silver fern or ponga fronds. The pattern is used in Māori wood carving to represent the ribs of an ancestor and gives life and animation to the space – compositionally and conceptually. It reminds us of our connection to and 'as' nature. Rauponga are often used by carvers to adorn the outside of waka taonga, the organising idea for the pavilion, notionally protecting the contents it holds."

- Karl Johnstone, Dubai 2020 Creative Director, Haumi.

Amongst the panels, visitors were able to take a moment to reset from the heat, noise, and bustle outside of the Pavilion and enjoy the cool air and muted sounds before continuing into the space.

(Unfortunately, this specific design is not available for reproduction as the IP is protected.)

New Zealand Pavilion, Expo 2020, Dubai.

Visitor Experience – Delivery:
Lead Architect – Pavilion and Visitor Experience Concepts:
Creative Direction and Panel Design:

Workshop e
 Jasmx
 Haumi

Care for People and Place.

Led by Jasmx in collaboration with Haumi, Whanganui iwi Te Āti Haunui-a-Pāpārangi, Workshop e, Kaynemaile, and Mott MacDonald, the New Zealand Pavilion at Expo 2020 was themed 'Care for People and Place'. The concept underpinning the design was based on the Māori concept of kaitiakitanga.

At the heart of this concept lies the belief that people and nature are inextricably connected; that we are one with nature, and that we have a responsibility to care for and protect our environment, and in return, it will care for and protect us.

The pavilion experience centred on showcasing how kaitiakitanga is inspiring New Zealanders and New Zealand businesses to think differently about their relationship with the world; to better address the challenges the world is facing, and to create innovative solutions to help overcome them.



Floc 3D Installation.

Direct Fix

You will need: Floc 3D Clips (required number will equal the amount of tiles)
Screws
500x500 Floc 3D Tiles

STEP ONE

Floc Acoustic Tiles are 500x500. Measure your ceiling or wall space and work out where you would like your tiles mounted as an area divisible by 500mm.

In most situations it is best to measure out from a wall. Mark a straight line. This is your datum. On the datum mark your first corner.

STEP TWO

For every junction of 4 tiles designate a focus clip. For all edges break one Focus clip in half. For the four corners break one Focus clip into quarters.

STEP THREE

Using fixings suitable for your substrate, fix the first corner in place (always use a mechanical means of fixing).

STEP FOUR

Work your way along the ceiling or wall, using a guide to ensure accuracy. Set out the clips at 500mm centers (never use the tiles to measure spacing).

STEP FIVE

Once you have reached the desired length, use another quarter clip. Start a new row and check the distance is consistently at 500mm centers in both directions.

STEP SIX

Once you have two rows of clips, double check your spacing by installing the first row of tiles. Always stay one row ahead of the installed tiles so the tiles don't interfere with the spacing.

STEP SEVEN

Install the rest of your clips and put up the tiles to finish.



Floc 3D Installation.

Suspended Ceiling

You will need: Hold Down Clips
Two Way Exposed Ceiling Grid
600x600 Floc 3D Ceiling Tiles

STEP ONE

Floc 3D Acoustic Suspended Ceiling Tiles are 600x600. Construct two-way exposed suspended ceiling grid in 600x600 modules as per manufacturers instructions.

STEP TWO

Insert Floc tiles into the grid. Check the tile orientation. Install one line at a time.

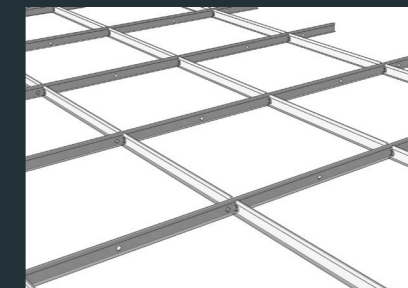
STEP THREE

Clip tiles with hold-down clips once the row is installed. Place one clip wherever two tiles meet.

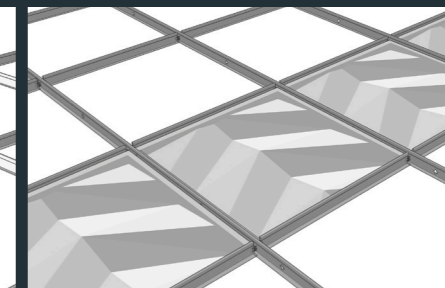
STEP FOUR

Install the rest of the tiles in the same way to finish.

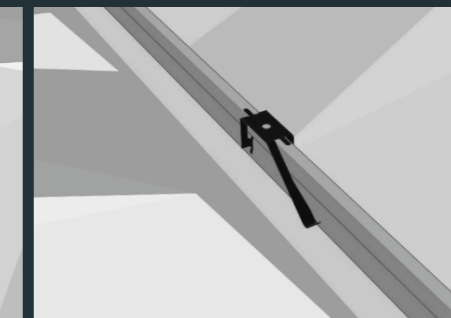
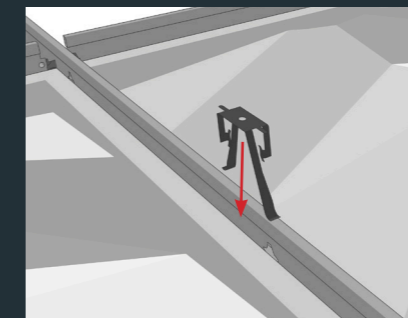
STEP ONE



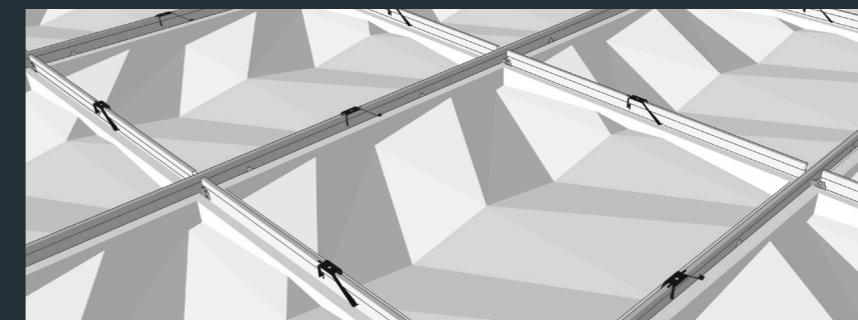
STEP TWO



STEP THREE

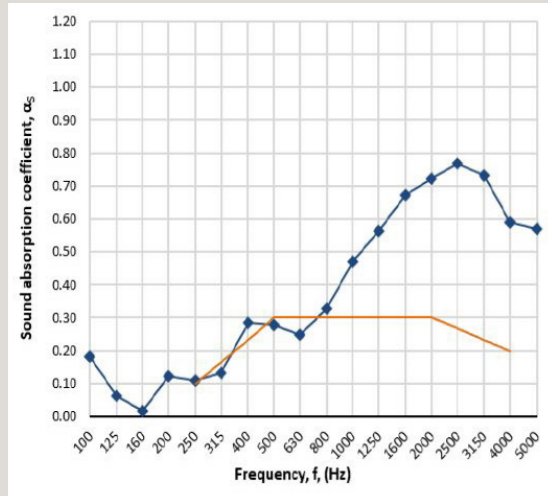


STEP FOUR

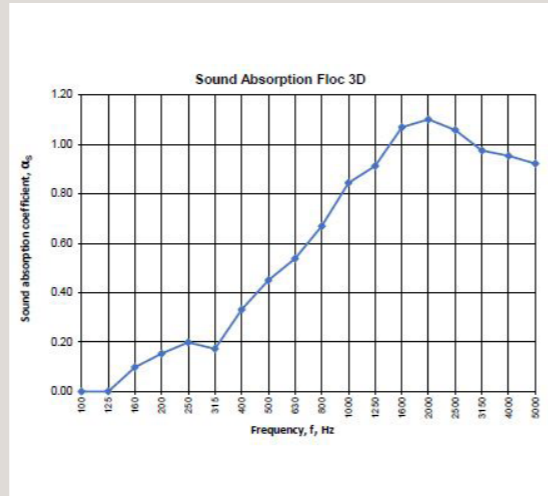


Technical Information.

Acoustic Testing



Floc Panel
Absorption (Direct Fix) (ISO 354) NRC 0.4
 α_W 0.3
SAA 0.54



Floc 3D (Direct Fix)
Absorption (Direct Fix) (ISO 354) NRC 0.65
 α_W 0.45
SAA 0.86

VOC Testing

Floc Panel

ASTM D5116-2017 Standard Guide for Small Scale Environmental Chamber Determination of Organism Emission from Indoor Materials/Products

Emission	Emission Factor Criterion (24 Hour) $\mu\text{g}/\text{m}^2.\text{h}$	Emission Factor Test Results (24 Hour) $\mu\text{g}/\text{m}^2.\text{h}$
Formaldehyde	<10	<1.3
Acetaldehyde	<20	10.1
Vinyl Acetate	<400	<1.0
Benzene	<55	<0.5
Toluene	<280	<0.5
4-Vinyl Cyclohexene	<85	<0.3
Xylenes	<50	<0.3
Styrene	<410	<0.3
1-Methyl-2-Pyrrolidine	<300	<50.0
2-Ethyl-1-Hexanol	<50	<2.0
Octanal	<24	<1.0
Nonanal	<24	<1.0
2-Ethylhexanoic	<46	<20.0
Naphthalene	<20	<0.5
Caprolactam	<120	<20.0
4-Phenylcyclohexene	<50	<0.3
Hydrocarbons (C10-C14)	<300	1.2
Total Volatile Organic Compound	<500	10.9

Toxicity Testing

Floc Panel

This test was conducted in accordance with the procedures specified in BS EN 45545-2 : 2020 and using the apparatus and procedures specified in ISO 5659-2 : 2017

Gas	240 seconds Average		480 seconds Average		
	ppm	Kg/m ³	ppm	Kg/m ³	
Carbon Dioxide (CO ₂)	6033.93	0.01	7333.69	0.01	
Carbon Monoxide (CO)	114.76	0.00	352.55	0.00	
Nitrogen Oxide (NO _x)	NO	11.37	0.00	12.61	0.00
	NO2	Not Detected	Not Detected	Not Detected	Not Detected
Sulphur Dioxide (SO ₂)	13.00	0.00	5.86	0.00	
Hydrogen Chloride (HCl)	1.75	0.00	0.41	0.00	
Hydrogen Bromide (HBr)	0.35	0.00	ND	ND	
Hydrogen Fluoride (HF)	ND	ND	ND	ND	
Hydrogen Cyanide (HCN)	34.55	0.00	92.45	0.00	
CIT ₆	0.09		0.02		

Water Sorption

Floc Panel

ASTM C1104/C1104M-2019 Standard Test Method For Determining the Water Vapour Sorption of Unfaced Mineral Fibre Insulation

Percentage water vapour sorption by weight %
Mean 14.1%

Colourfastness Testing

Floc Panel

AS 2001.4.B02-2001 Colour Fastness to Artificial Light

	Light Grey	Mid Grey	Dark Grey	Green	Natural
Rating:	6	6	5-6	6	5-6

AS 2001.4.3-1995 Determination of Colour Fastness to Rubbing

Dry: 4-5
Wet: 4

The stained samples are assessed both dry and wet and graded against a set of Standard Grey Scales for assessing staining. The stained samples are graded on a scale of 1 to 5 with 5 being no staining at all and 1 being excessive staining.

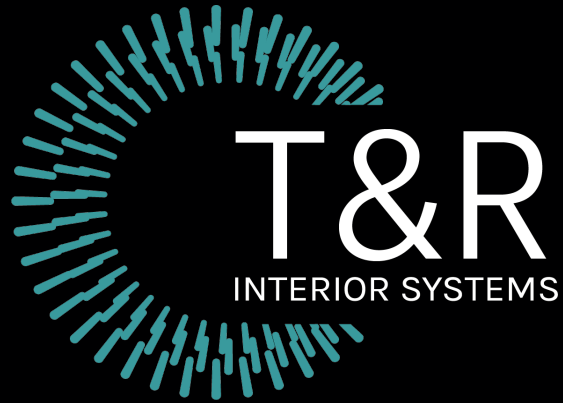


The future is wool.

Bringing together all the goodness of Aotearoa, the strength and resilience of our wool, into a world leading, innovative and responsible wool acoustic tiles.



Floc 3D installed in the New Zealand Pavilion, Dubai 2020.



Scan to view
Floc 3D online.



Scan to view
Floc Panel online.

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