Australian Plaster Acoustics

Quiet Sound – Contemporary Plaster Acoustic Ceiling Tiles and Panels

AUSTRALIAN
PLASTER ACOUSTICS
Innovative Sound Solutions

ABOVE: CASINO INSTALLATION

STAR CITY CASINO

SYDNEY NSW AUSTRALIA

COVER : CELL AIR PANEL INSTALLATION

UNIVERSITY OF WOLLONGONG

NSW AUSTRALIA

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UNIVERSITY OF WOLLONGONG

NSW AUSTRALIA

Quiet Sound CONTEMPORARY COLLECTION

The **Quiet Sound** collection was developed from our *Standard Range of Plaster Acoustic Ceiling Tiles*. It involved major research and development that highlighted the substantial relationship between acoustic performance and the weight of the tiles. As a consequence of research and development, the **Quiet Sound** collection provides:

- New innovative modern designs only achievable from cast plaster
- Exceptionally sharp tile profiles possible only with the use of silicone rubber moulds
- Higher acoustic & sound transmission properties
- Lightweight properties which allow lighter structural ceiling grid
- Easier installation
- Easier packaging & transportation

The **Quiet Sound** consists of perforated ceiling tiles and panels, perfect for acoustic engineers architects and interior designers who are looking for aesthetic designs coupled with high acoustic properties. **Quiet Sound** provides subtle innovative solutions for creating a unique, decorative finish giving many benefits.

KEY SELECTION ATTRIBUTES

- Cost effective ceiling and wall solution
- High-quality product
- Decorative or non-decorative
- High humidity performance. Our acoustic tiles and panel do not sag in humid conditions. They are able to withstand high humidity and temperature from 0° to 80°C
- Dimensional stability up to 95% humidity
- Anti-mould paint applied at the time of manufacture which stops growth of mould (Tiles are pre-painted white)
- Simple installation Plaster Acoustic Tiles.
- Plaster glass panels screw fix to steel or timber battens
- Flush jointing
- High acoustic performance – all products having NRC ranges between 0.75 up to 0.95 NRC
- CAC between 32 to 46 for acoustic ceiling tiles
- Reduces noise reverberation
- Prevents dust entering into room space
- Reduces echo
- Able to distinguish between music and speech
- Fire rated to group 1 certification
- High light reflective
- Good R values in plaster acoustic tiles 0.80 thermal resistance
- All products 100% Australian made

All acoustic tests for NRC carried out by RMIT University of Melbourne and CSIRO Melbourne in accordance with ASTM-C423-90A NRC (Noise Reduction Coefficient)

Acoustic tests for CAC (Ceiling Attenuation Class) carried out by Acoustic Laboratories Australia
Pty Ltd in accordance with
ASTM E1414/E1414 M 11A for CAC

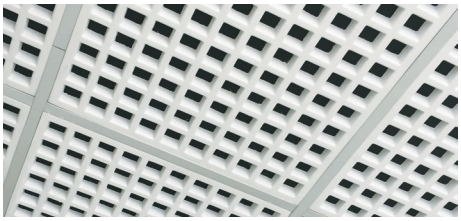
All dimensions are in mm and are approximate

APPLICATIONS

- Commercial office buildings
- Show rooms
- Schools and universities
- Restaurants, cafes, food halls
- Retail complexes
- Shopping centres
- Auditoriums and concert halls
- Libraries and galleries
- Cinemas
- Home theatres
- Foyers for public buildings
- Music rooms
- Public Domains
- Health Care Areas

The CONTEMPORARY COLLECTION

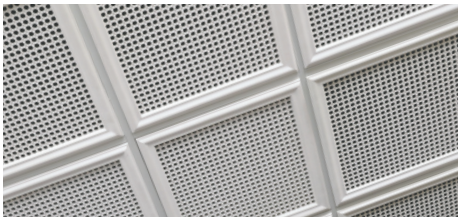
SECTION A: 600 x 600mm CEILING TILES



CRAFTSTONE COLLECTION

PLASTER ACOUSTIC CEILING TILES

Two unique designs that have high acoustic performance made in modules to suit 600mm x 600mm exposed ceiling grid systems.

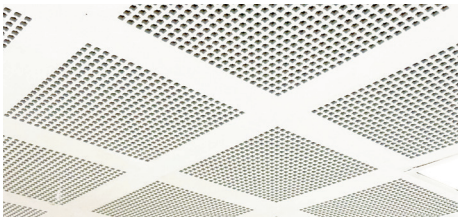


COFFERED

PLASTER ACOUSTIC CEILING TILES

Three unique coffered designs with either round or square perforations, or a very stylish slotted design. made to suit 600mm x 600mm steel or aluminium exposed ceiling grid systems.

SECTION B: 1200 x 1200mm CEILING & WALL PANELS



NEW YORK COLLECTION

PLASTERGLASS ACOUSTIC PANELS

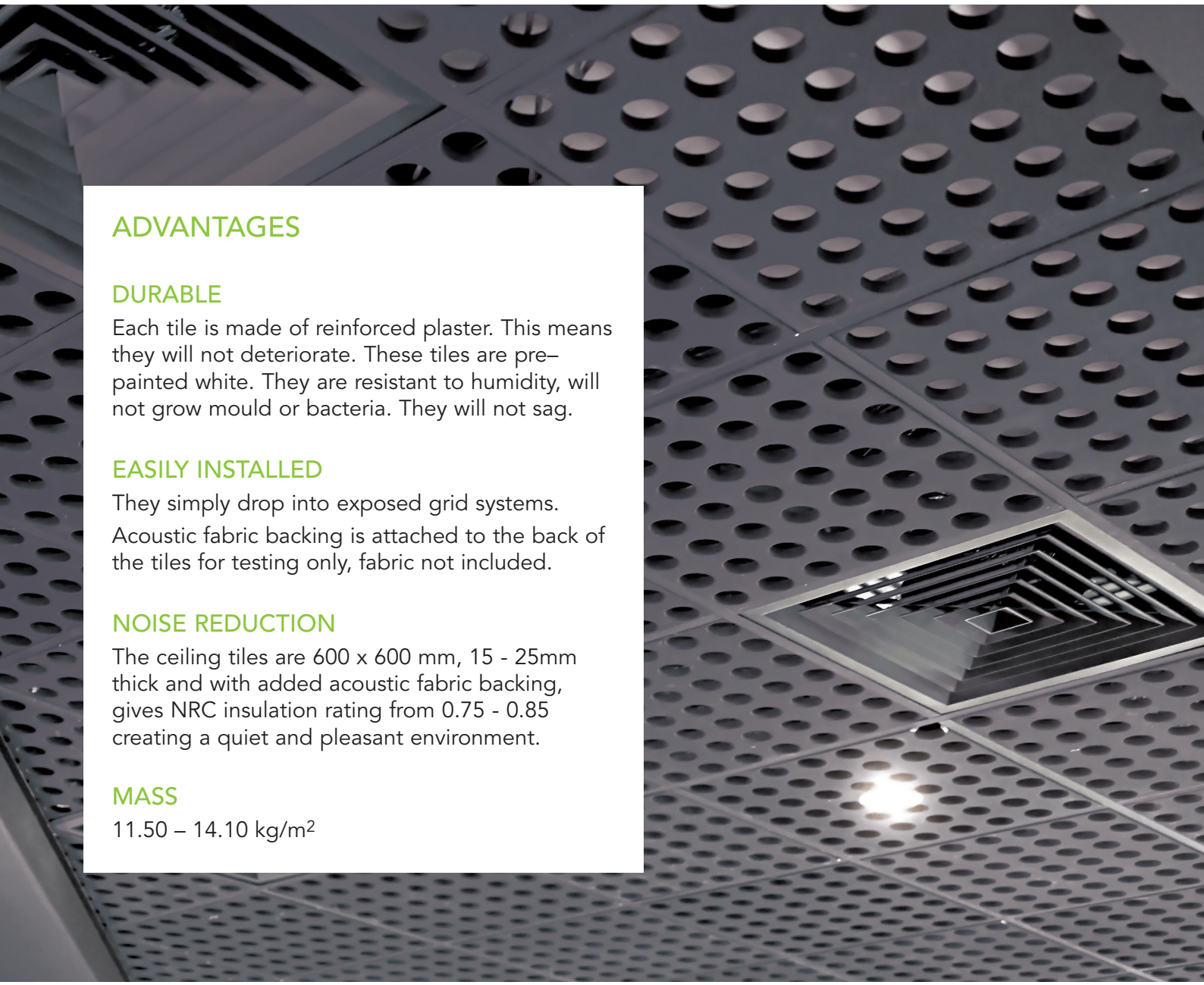
Four subtle designs with either round or square perforations. Panels are made in 1200mm x 1200mm modules, which enables high acoustic performance.

SECTION A

600mm x 600mm Ceiling Tiles

THE CRAFTSTONE COLLECTION

- for plaster acoustic tiles



ADVANTAGES

DURABLE

Each tile is made of reinforced plaster. This means they will not deteriorate. These tiles are pre–painted white. They are resistant to humidity, will not grow mould or bacteria. They will not sag.

EASILY INSTALLED

They simply drop into exposed grid systems.

Acoustic fabric backing is attached to the back of the tiles for testing only, fabric not included.

NOISE REDUCTION

The ceiling tiles are 600 x 600 mm, 15 - 25mm thick and with added acoustic fabric backing, gives NRC insulation rating from 0.75 - 0.85 creating a quiet and pleasant environment.

MASS

11.50 – 14.10 kg/m^2

ABOVE: MOON INSTALLATION

WESTERN SYDNEY LEAGUES CLUB

ASHFIELD, NSW AUSTRALIA

A truly beautiful, decorative ceiling tile, the Craftstone Collection is aesthetic, artistic and functional.

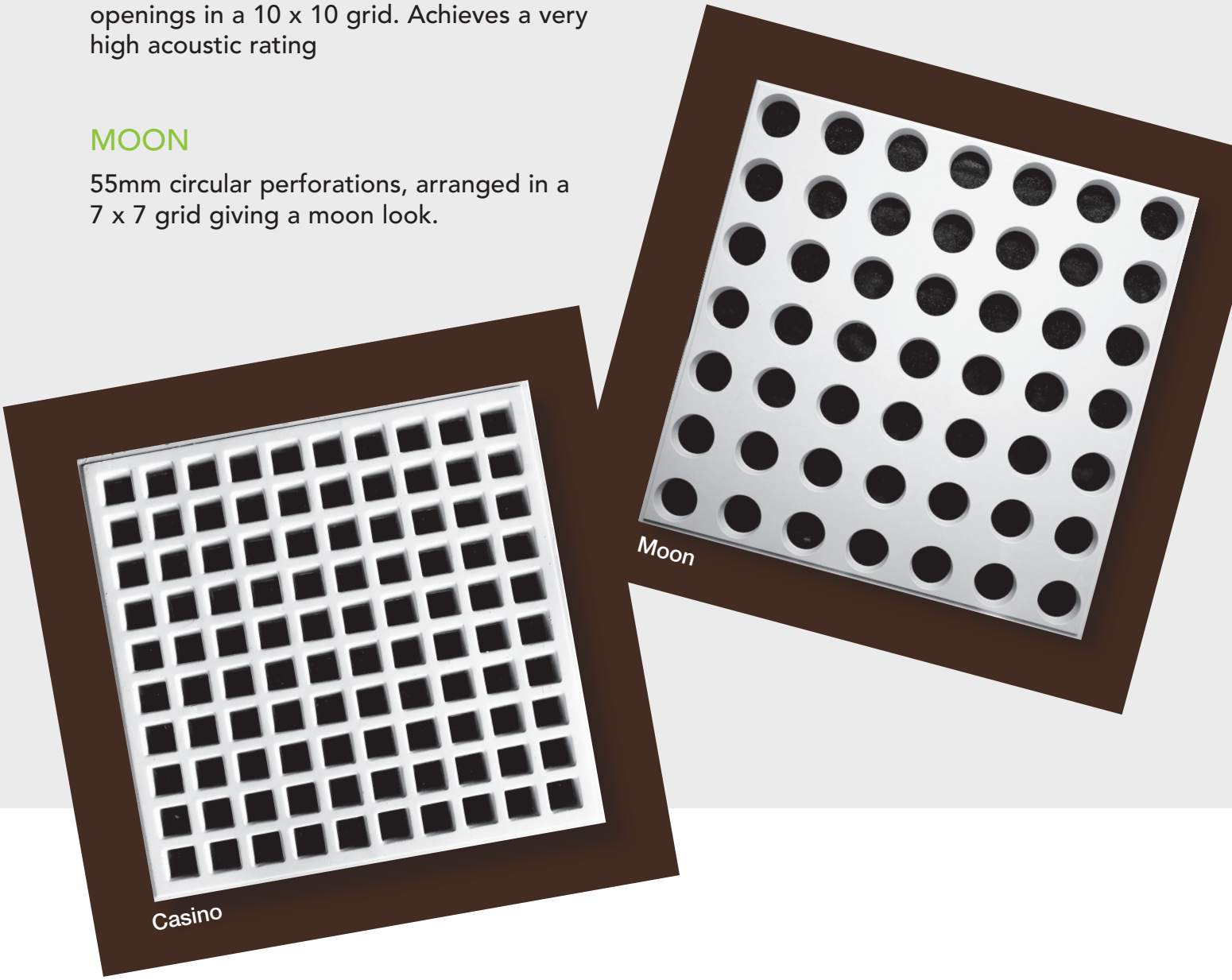
The CRAFTSTONE range

CASINO

A 25mm thick tile with 45mm square holed openings in a 10 x 10 grid. Achieves a very high acoustic rating

MOON

55mm circular perforations, arranged in a 7 x 7 grid giving a moon look.

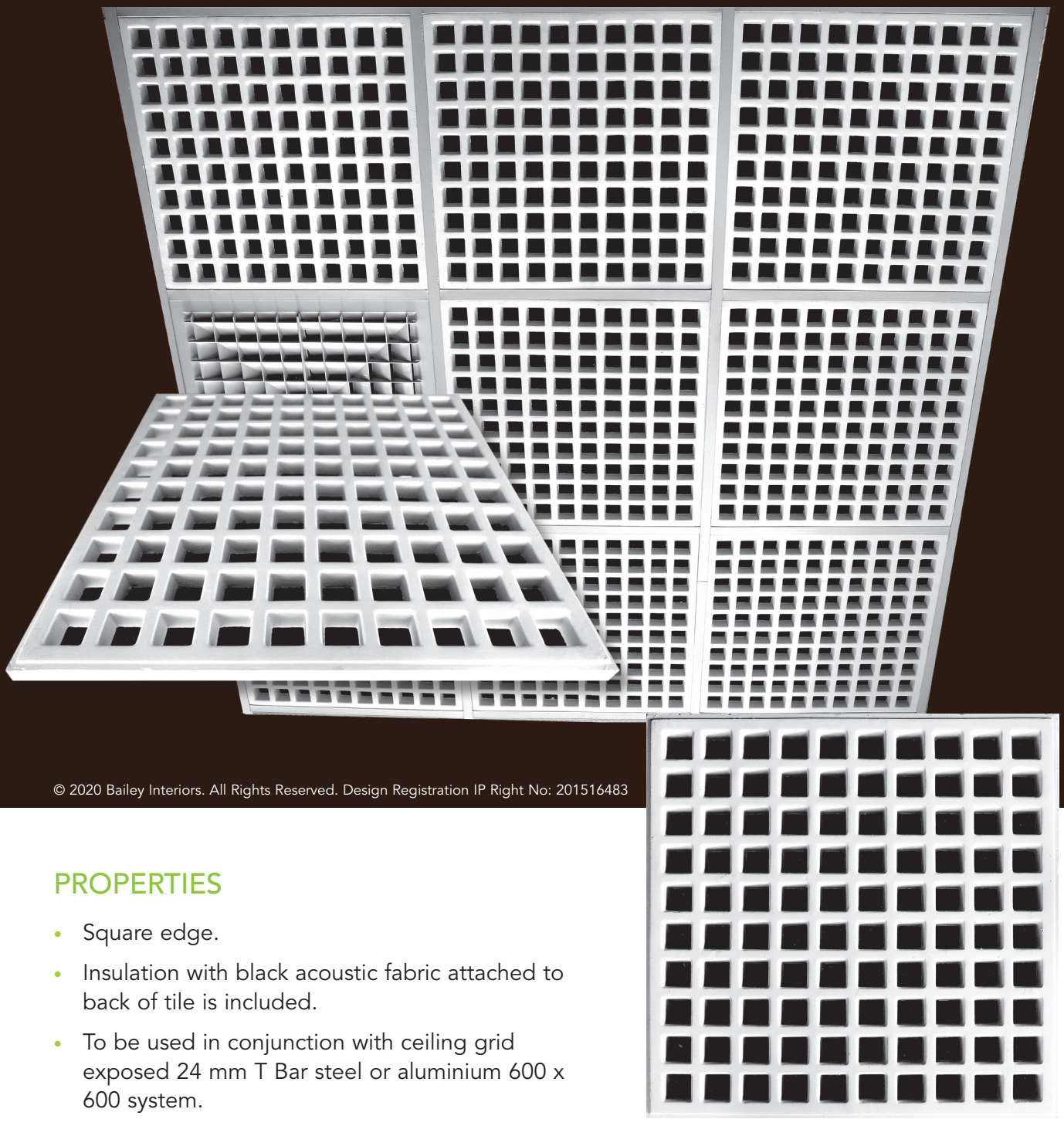


CASINO INSTALLATION

STAR CITY CASINO

SYDNEY NSW AUSTRALIA

Casino



PROPERTIES

- Square edge.
- Insulation with black acoustic fabric attached to back of tile is included.
- To be used in conjunction with ceiling grid exposed 24 mm T Bar steel or aluminium 600 x 600 system.

Casino ACOUSTIC PERFORMANCE AND SPECIFICATION

Open Area	Thickness Tile mm	Thickness Insulation mm	Size mm	NRC	SAA	% Light Reflective	Mass Kg/m²	Weight per Tile Kg
44.2%	25	20	600 x 600	0.90	0.90	0.70	14.10	5.08

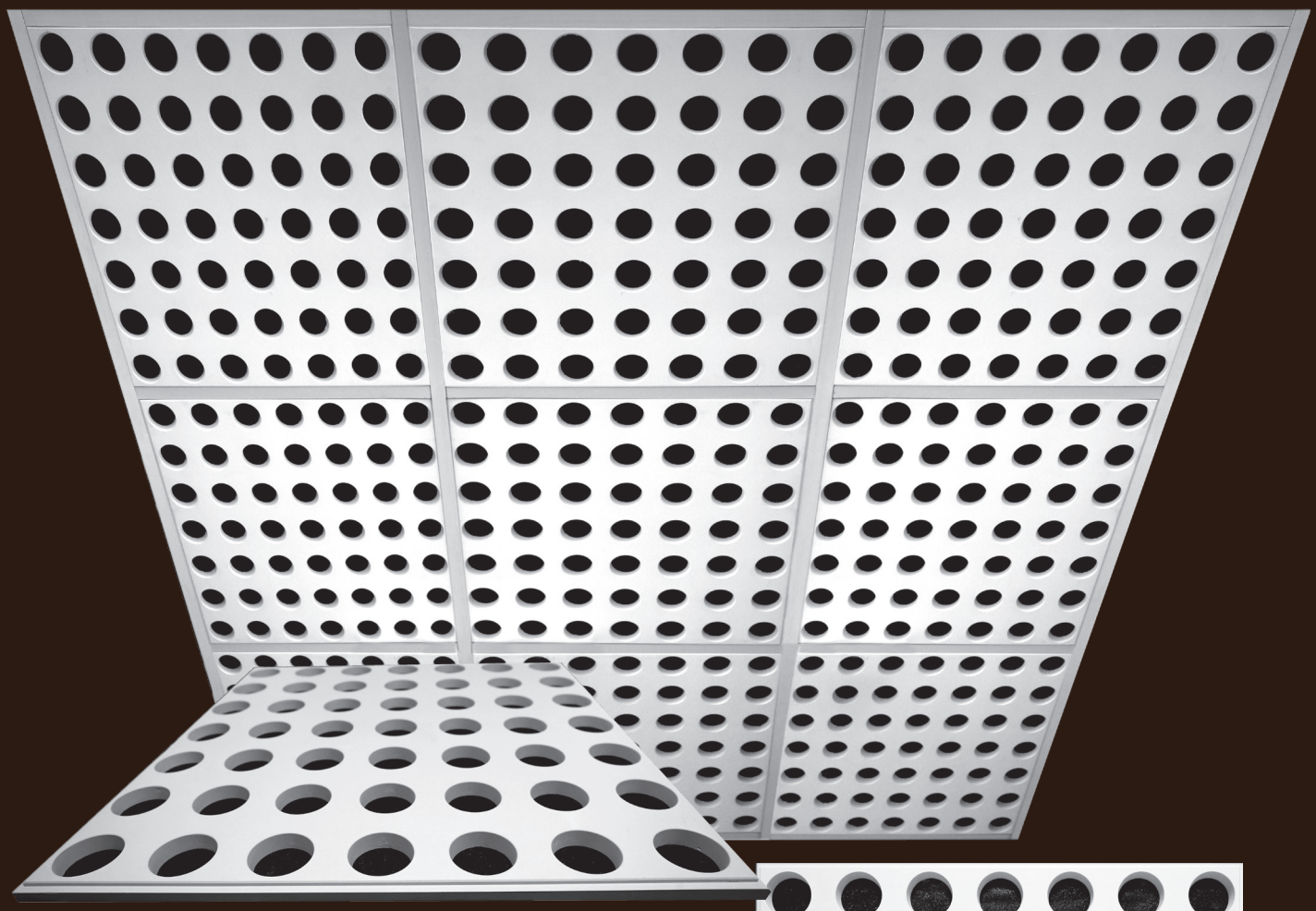
All dimensions are in mm and are approximate

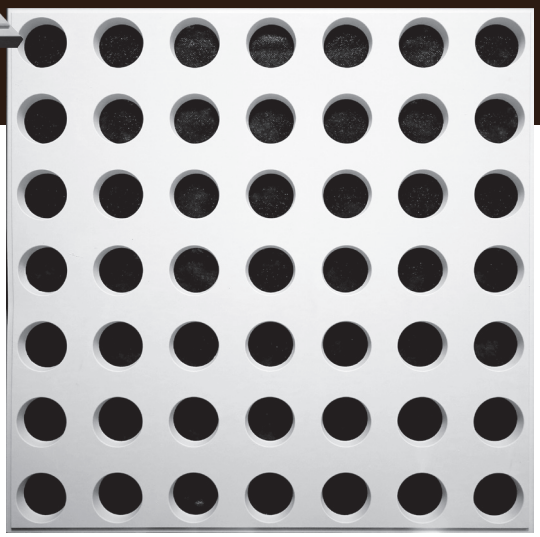
ABOVE: MOON INSTALLATION

WESTERN SYDNEY LEAGUES CLUB

ASHFIELD, NSW AUSTRALIA

Moon





PROPERTIES

- Bevelled edge.
- Insulation with black acoustic fabric attached to back of tile is included.
- To be used in conjunction with ceiling grid exposed 24 mm T Bar steel or aluminium 600 x 600 system.

Moon ACOUSTIC PERFORMANCE AND SPECIFICATION

Open Area	Thickness mm	Thickness Insulation mm	Size mm	NRC	SAA	% Light Reflective	Mass Kg/m²	Weight per Tile Kg
31.2%	16	20	600 x 600	0.90	0.90	0.74	11.5	3.94

All dimensions are in mm and are approximate

COFFERED PLASTER CEILING TILES

■ for exposed grid ceiling systems.

Coffered Collection

Sound Absorptive, Decorative Cast Plaster, Ceiling Tiles.

1. This collection is perfect for interior designers and architects who are looking for aesthetic designs coupled with high acoustical properties.
2. This collection is the subtle, innovative solution for creating a unique decorative finish while providing a high level of sound absorption for ceilings.
3. Ceiling tiles are available in three unique designs with either round perforations, square perforations or a very stylish slotted design.

FEATURES

1. Three unique and innovative designs
2. Precise Lines
3. Full acoustic perforations
4. Easily Installed tiles simply dropped into an exposed 600 x 600mm wide ceiling grid

BENEFITS

- High sound absorption with NRC up to 0.85
- Reduces noise reverberation
- Unique and innovative designs which can only be achieved with cast plaster
- Prevents dust entering into room space
- Reduces echo
- Able to help to distinguish between music and speech

MEET OUR LATEST ADDITION

Coffered Plaster acoustic ceiling tiles are manufactured from reinforced casting plaster and offer excellent sound absorption, controlled sound transmission and decorative finishes.

The tiles are supplied with an attached acoustic fabric and sound absorbent batt inserted at the back of the tile. These tiles are pre–painted white and produced in a range of varying designs.

ACOUSTIC PROPERTIES

These tiles measure 13mm thick, 600 x 600mm with a 20mm thick sound absorbent batt giving a high NRC value.

ADVANTAGES

1. Dimensionally stable will not warp or buckle at 95% humidity
2. Fire resistant
3. Acoustic properties
4. Redecoration does not affect the properties
5. Easy removal and replacement
6. Mass 12.5 kg/m^2

THE COLLECTION CONSISTS OF:

NU SHADEX

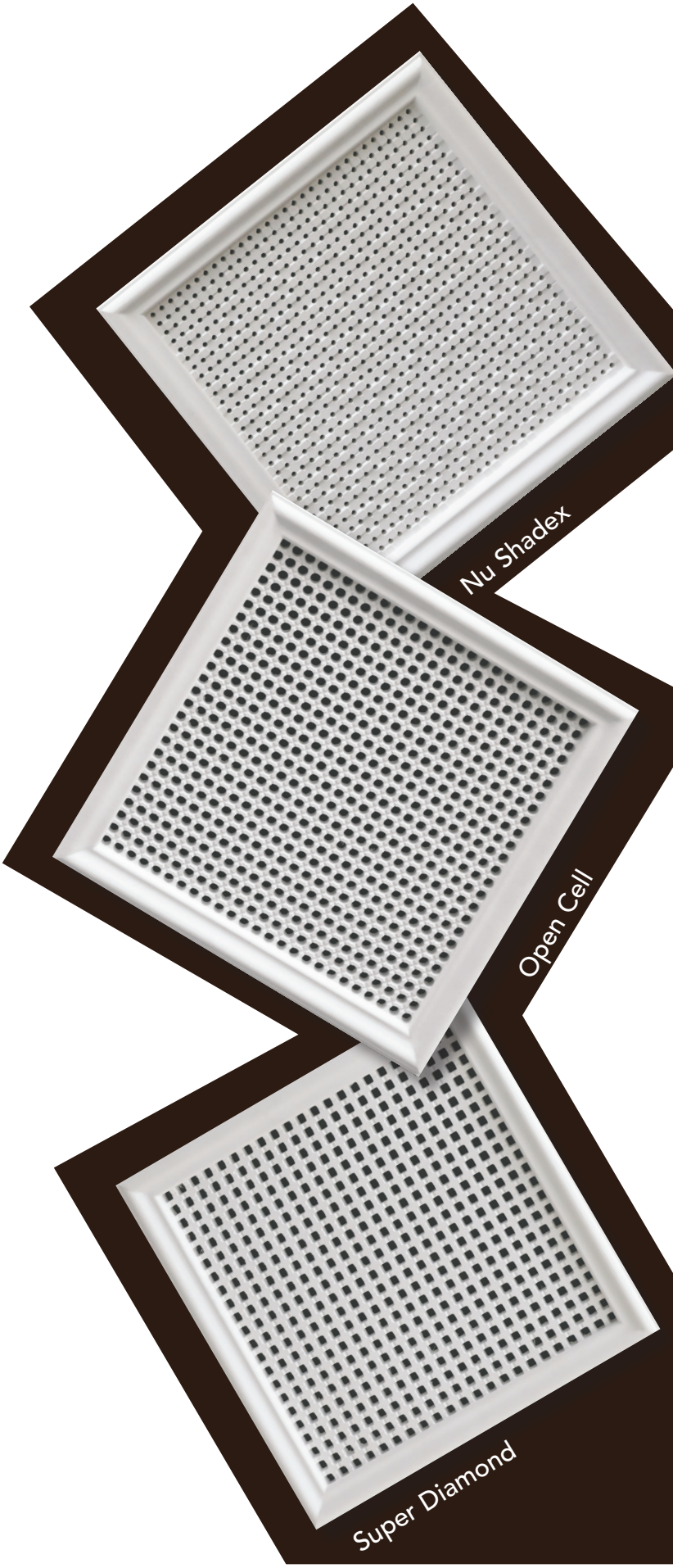
Multi-level mosaic faced tile with uniform perforated circular holes.

OPEN CELL

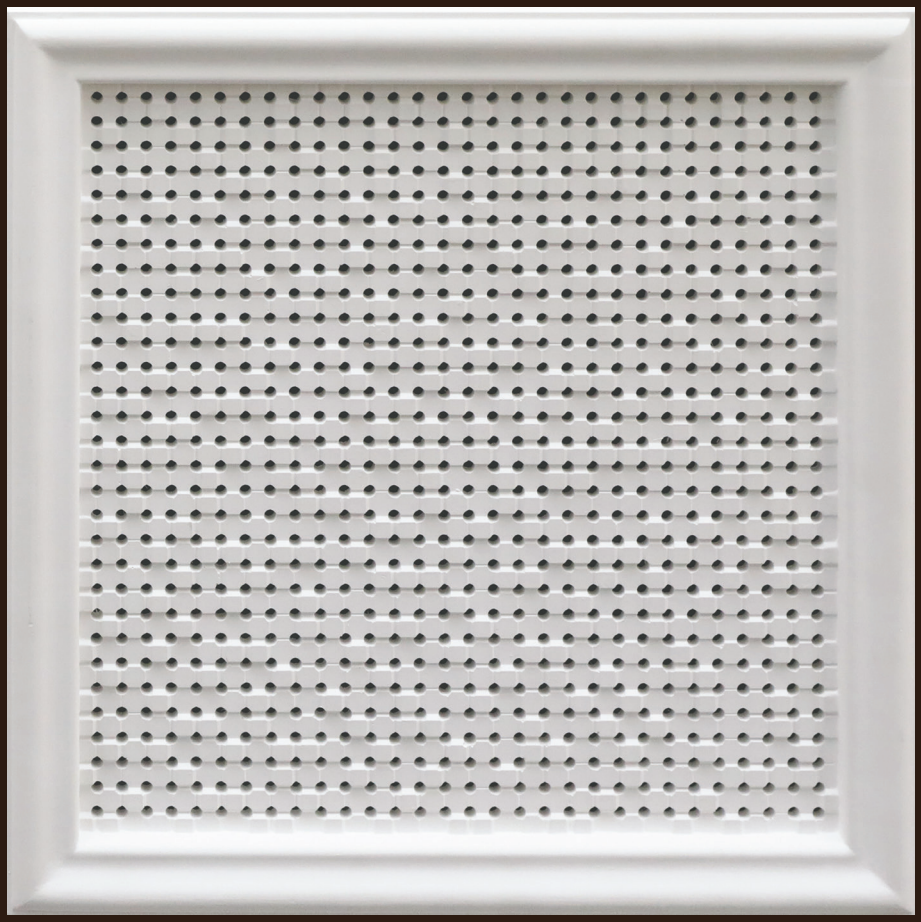
Uniform perforated circular holes with groove indent on top surface of each hole making a stunning tile.

SUPER DIAMOND

Uniform Chocolate block pattern tile with half rounded indent on the face of each square hole.



Nu Shadex Coffered



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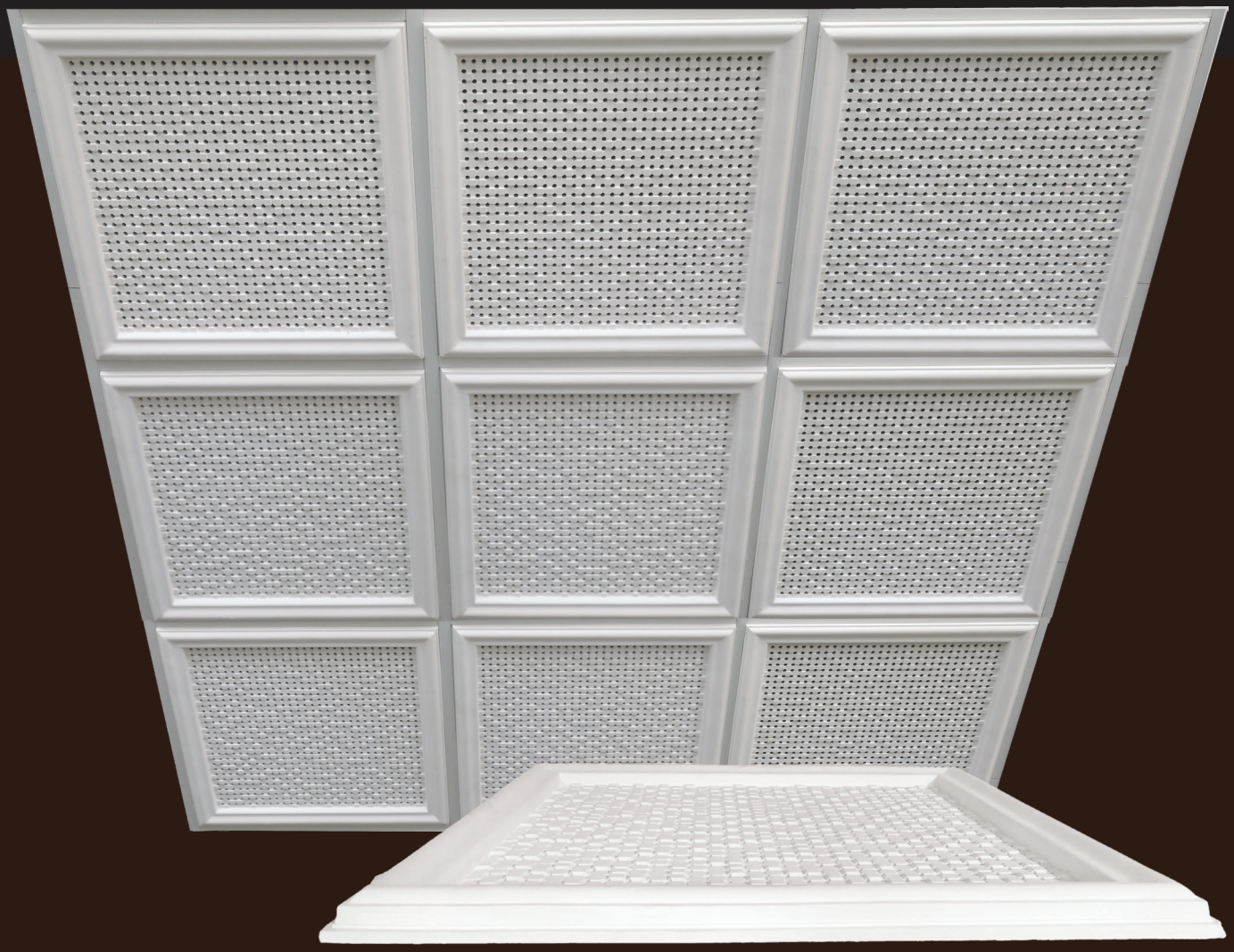


PROPERTIES

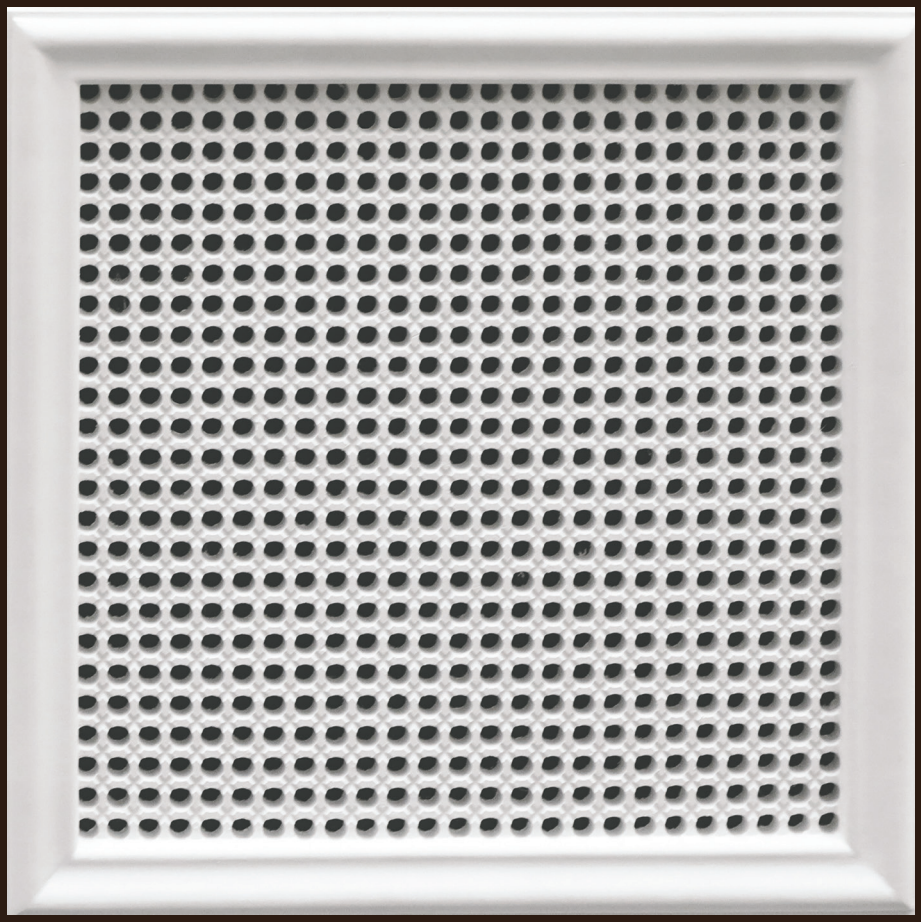
- Coffered, multi levelled faced tile, perforated with 30 x 30 circular holes with bevelled edges.
- A 600 x 600 mm Plaster Acoustic coffer with an ovolo edge trim of 30 mm combined with a 13 mm thick perforated plaster acoustic tile.
- Insulated with 20 mm Supertel 32Kg/m^2 glasswool with black fabric to the back
- To be used in conjunction with ceiling grid exposed 24mm T Bar steel or aluminium 600 x 600 system.

ACOUSTIC PERFORMANCE AND SPECIFICATION

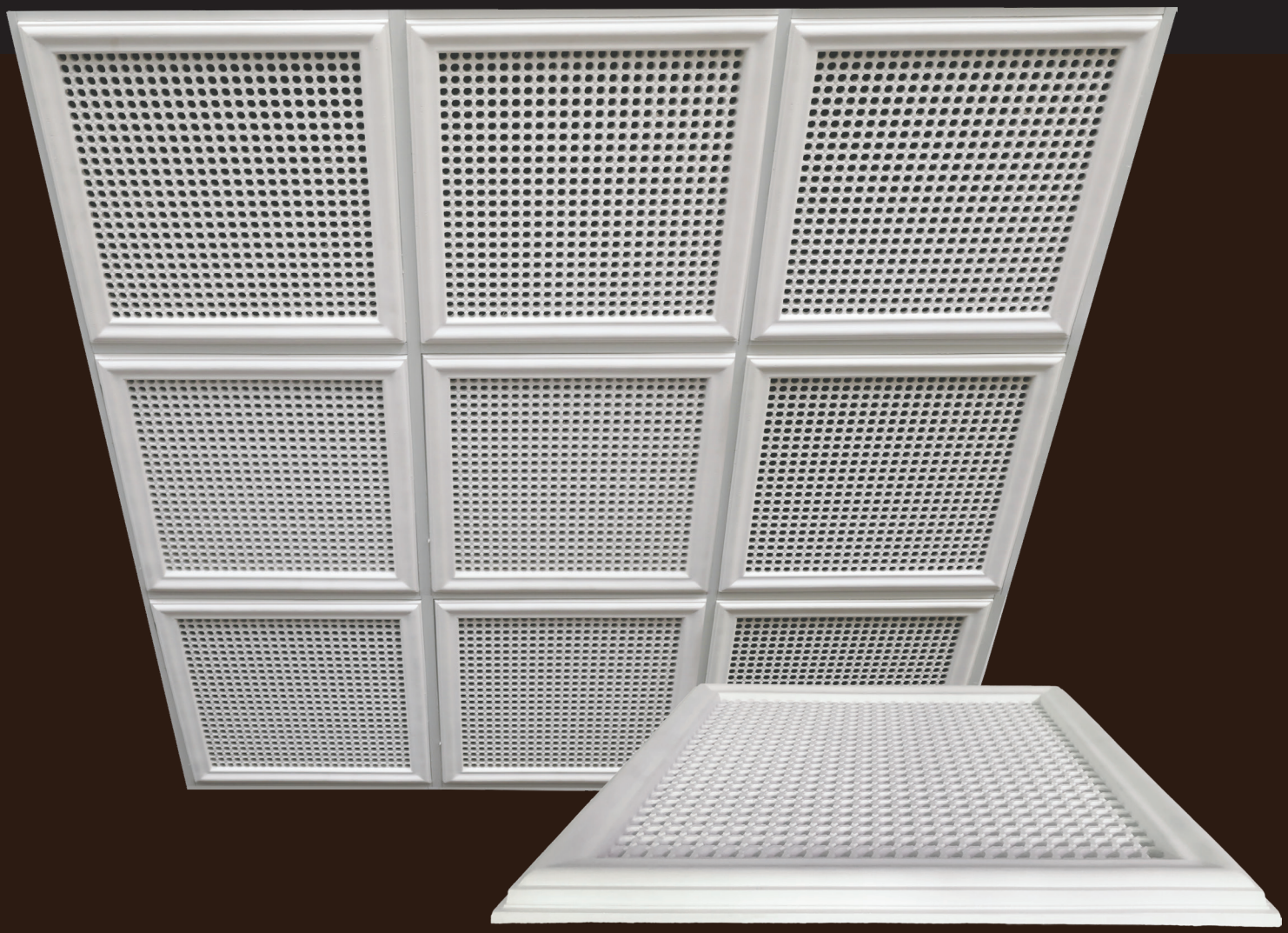
	Open Area	Thickness Tile mm	Thickness Insulation mm	Weight per Tile Kg	Mass Kg/m^2	Size mm	NRC	SAA
Nu Shadex	**19.6%**	**30** border **13** centre	**20**	**4.5**	**12.5**	**600 x 600**	**0.80**	**0.80**

All dimensions are in mm and are approximate

Open Cell Coffered



All dimensions are in mm and are approximate



PROPERTIES

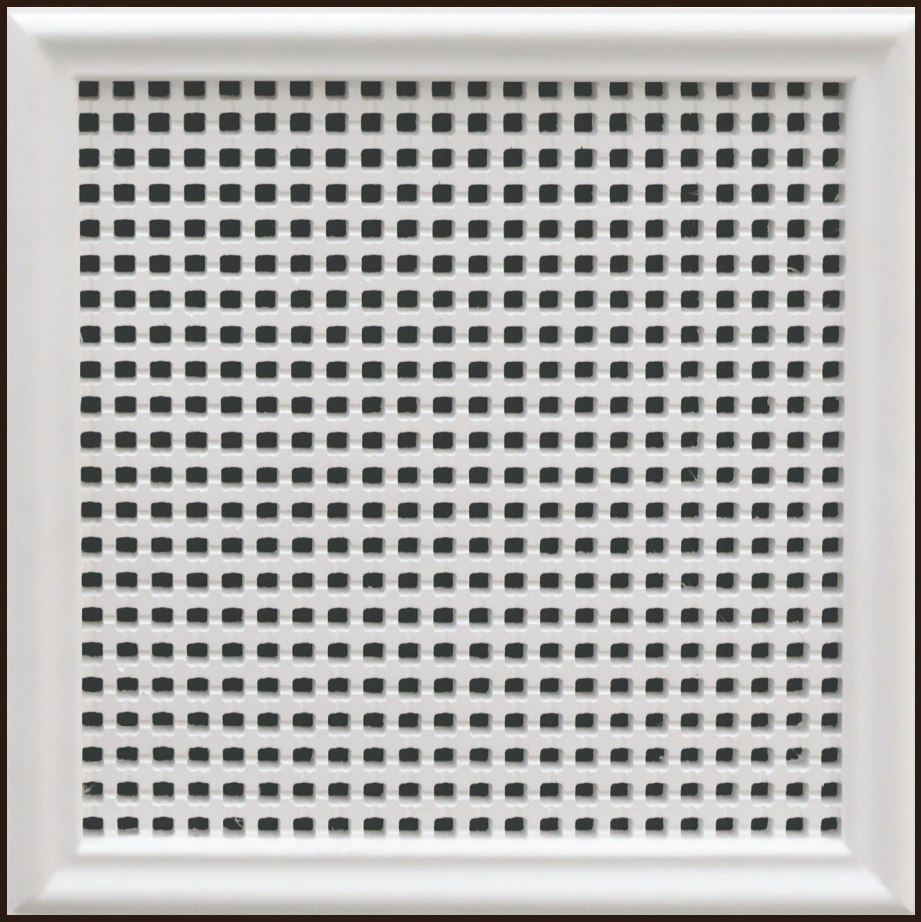
- Coffered tile, perforated with a set of 25 x 25 circular holes, 15 mm in diameter at the mouth, tapering to 13.5 mm at the rear. Holes are at 19.2 mm centres.
- A 600 x 600 mm Plaster Acoustic coffer with an ovolo edge trim of 30 mm combined with a 13 mm thick perforated plaster acoustic tile.
- Insulated with 20 mm Supertel 32Kg/m^2 glasswool with black fabric to the back
- To be used in conjunction with ceiling grid exposed 24mm T Bar steel or aluminium 600 x 600 system.

ACOUSTIC PERFORMANCE AND SPECIFICATION

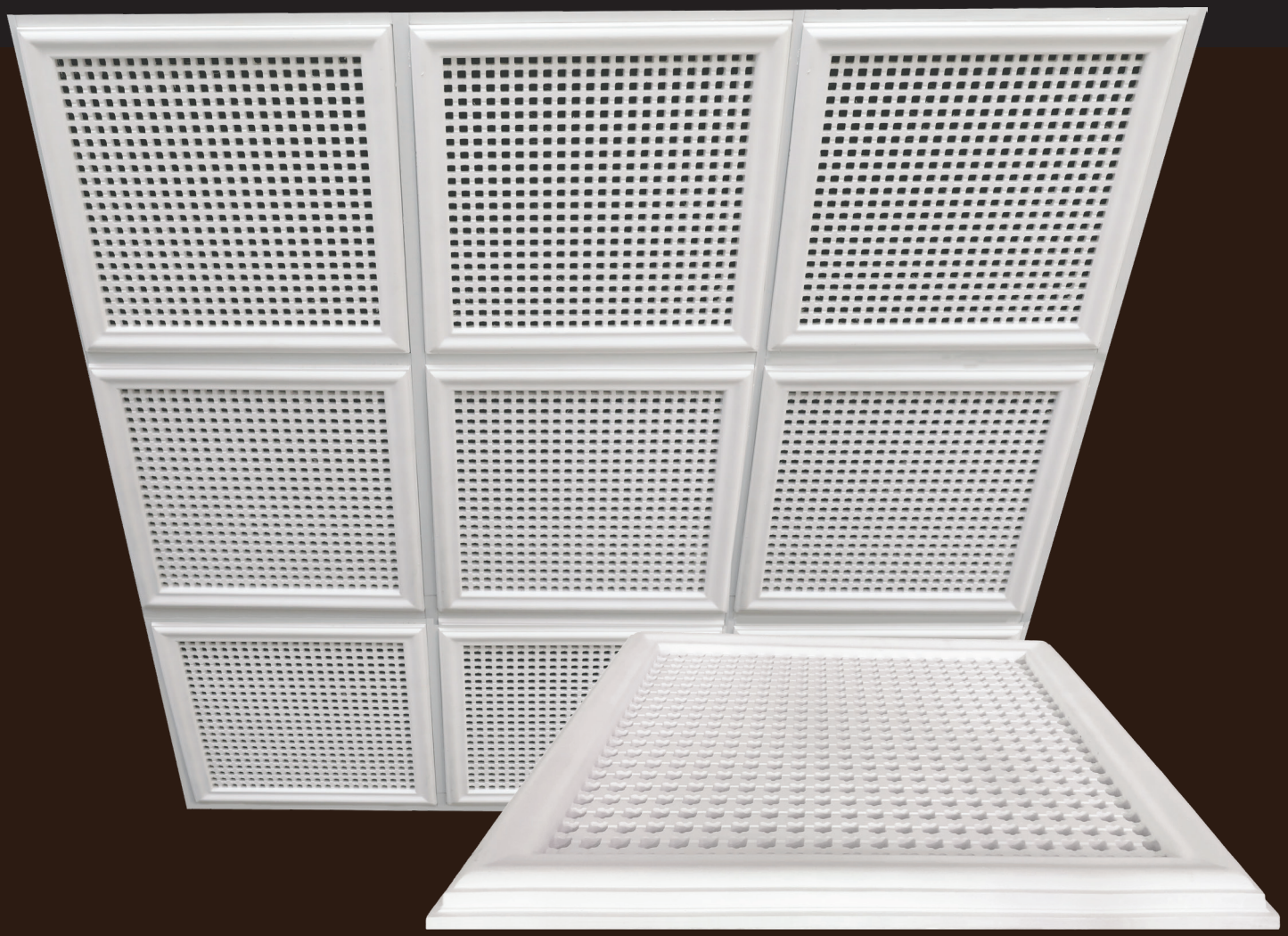
	Open Area	Thickness Tile mm	Thickness Insulation mm	Weight per Tile Kg	Mass Kg/m^2	Size mm	NRC	SAA
Open Cell	24.9%	30 border 13 centre	20	4.5	12.5	600 x 600	0.80	0.80

All dimensions are in mm and are approximate

Super Diamond Coffered



All dimensions are in mm and are approximate



PROPERTIES

- Coffered tile, perforated with a set of 22 x 22 square holes with rounded corners. Hole size 14 mm opening at the mouth, tapering to 13 mm at the rear; holes at 22 mm centres.
- A 600 x 600 mm Plaster Acoustic coffer with an ovolo edge trim of 30 mm combined with a 13 mm thick perforated plaster acoustic tile.
- Insulated with 20 mm Supertel 32Kg/m^2 glasswool with black fabric to the back
- To be used in conjunction with ceiling grid exposed 24mm T Bar steel or aluminium 600 x 600 system.

ACOUSTIC PERFORMANCE AND SPECIFICATION

	Open Area	Thickness Tile mm	Thickness Insulation mm	Weight per Tile Kg	Mass Kg/m^2	Size mm	NRC	SAA
Super Diamond	**27.2%**	**30** border **13** centre	**20**	**4.5**	**12.5**	**600 x 600**	**0.80**	**0.82**

All dimensions are in mm and are approximate

SECTION B

1200mm x 1200mm Ceiling & Wall Panels

NEW YORK COLLECTION

- Plasterglass panels

New York Collection

Sound Absorptive, Decorative Cast Plaster, Wall and Ceiling Panels.

1. This collection is perfect for interior designers and architects who are looking for aesthetic designs coupled with high acoustical properties.
2. This collection is the subtle, innovative solution for creating a unique decorative finish while providing a high level of sound absorption for ceilings and walls.
3. Ceiling and wall panels are available in four unique designs with either round, square, or slotted perforations.

FEATURES

1. Full acoustic perforations
2. Simple installation screw fix to steel or timber battens
3. Flush jointing
4. Precise lines
5. Three unique and innovative designs

BENEFITS

- High sound absorption with NRC up to 0.95
- Reduces noise reverberation
- Unique and innovative designs which can only be achieved with cast plaster
- Prevents dust entering into room space
- Reduces echo
- Able to help to distinguish between music and speech

APPLICATION

- Commercial office buildings
- Show rooms
- Schools and universities
- Restaurants, cafes, food halls
- Retail complexes
- Shopping centres
- Auditoriums and concert halls
- Libraries and galleries
- Cinemas
- Home theatres
- Foyers for public buildings
- Music rooms

INSTALLATION

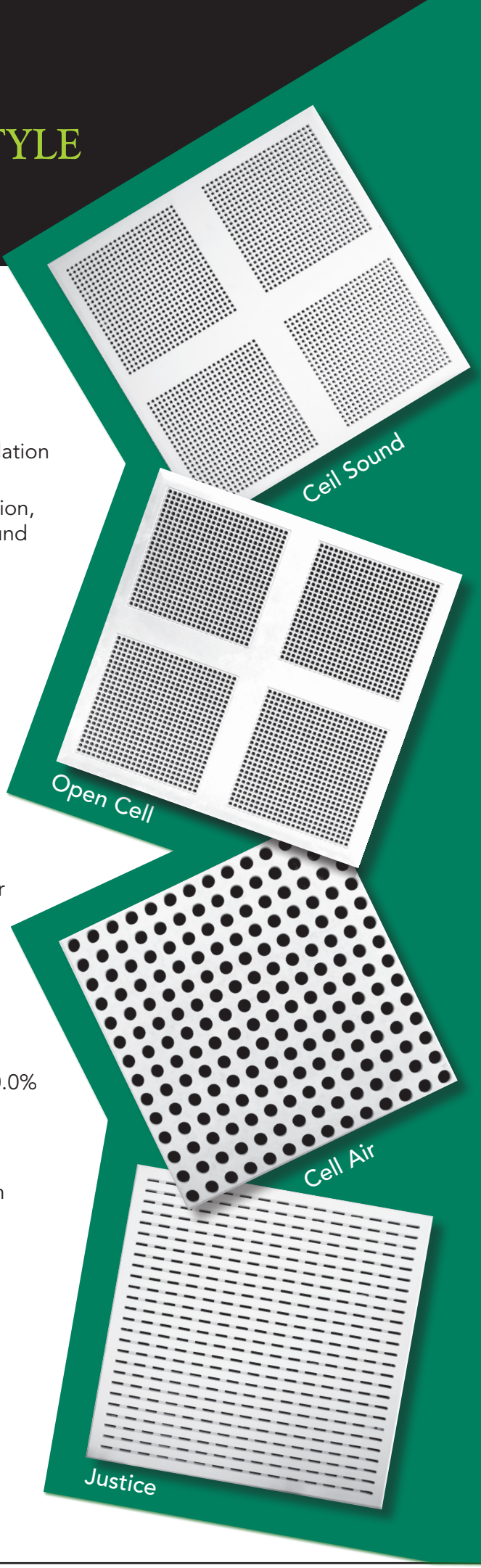
- Plan layout before commencing
- Take measurements from the center of the room to ensure even borders
- Fit furring channels at 600 centres
- Line up perforated panels to create uniform pattern
- Use insulation behind board for better NRC performance

All dimensions are in mm and are approximate

FUNCTIONALITY MEETS STYLE

The perfect solution for walls & ceilings

- Acoustical solutions and plaster innovations available in 3 stylish designs with either square or round perforations to suit restaurants, home theatres and music rooms, schools, public buildings and more.
- Perforated cast plaster ceiling sheet is suitable for installation of feature panels on walls and ceilings.
- Sound absorptive decorative plaster. It is the quiet solution, functional and decorative. It provides a high level of sound absorption to the space. These are exceptional designs.



THE COLLECTION CONSISTS OF:

CEIL SOUND PANEL

14mm square hole perforated cast plaster with a half round intersecting indent into each square. Pattern is arranged in a grid of 4 per panel. Perimeter band 65mm

OPEN CELL PANEL

Perforated with 4 sets of holes per panel, 25 x 25 holes per set, hole size 15 mm diameter at the mouth, tapering to 13.5 mm at the rear; holes at 19.2 mm centres.

CELL AIR PANEL

V-Edged panel, perforated with a set of 14 x 14 circular holes, 55 mm opening at the mouth, tapering to 53 mm at the rear; holes at 86 mm centres, open area percentage 30.0% based on 53 mm throat opening.

JUSTICE PANEL

800mm linear slots intersected at 50mm intervals with plain 25mm x 10mm band. Perimeter band 50mm

FEATURES

- Four unique and innovative designs
- Full acoustic perforations
- Simple installation screw fix to steel or timber battens
- Flush jointing for Ceil Sound and Open Cell panels
- V-edged jointing for Cell Air panel (requires minimal setting)
- Precise lines

CASE STUDY

Child Care Centre under Church, Lugarno

Location: Congregational Christian Church in Samoa-Parish of Sydney

977 Forest Rd, Lugarno, NSW Australia

The project involved creating a child care facility in the existing basement area of the church, including classroom areas.

Challenges:

Difficulties with echoing due to the large expanse of hard surfaces, coupled with a relatively low ceiling height.

Sound travelling through the concrete slab from the church above would have to be deflected and absorbed so that noise would be reduced from above and absorbed into the acoustic ceiling tile.

Solution:

80 m^2 of 600mm x 600mm EcoCheck ceiling tiles were installed in the classrooms and 360 m^2 of 1200 x 1200mm Ceil Sound ceiling Panels were installed throughout the basement area using the Rondo Ceiling grid. Ceil Sound panels for the ceiling was chosen due to its high sound absorption properties NRC of 0.90 and its very pleasing aesthetic value

Result:

The ceiling panels and tiles are not only effective at reducing the echo and absorbing sound from room to room but also give a considerable amount of ambiance and styling to the area.

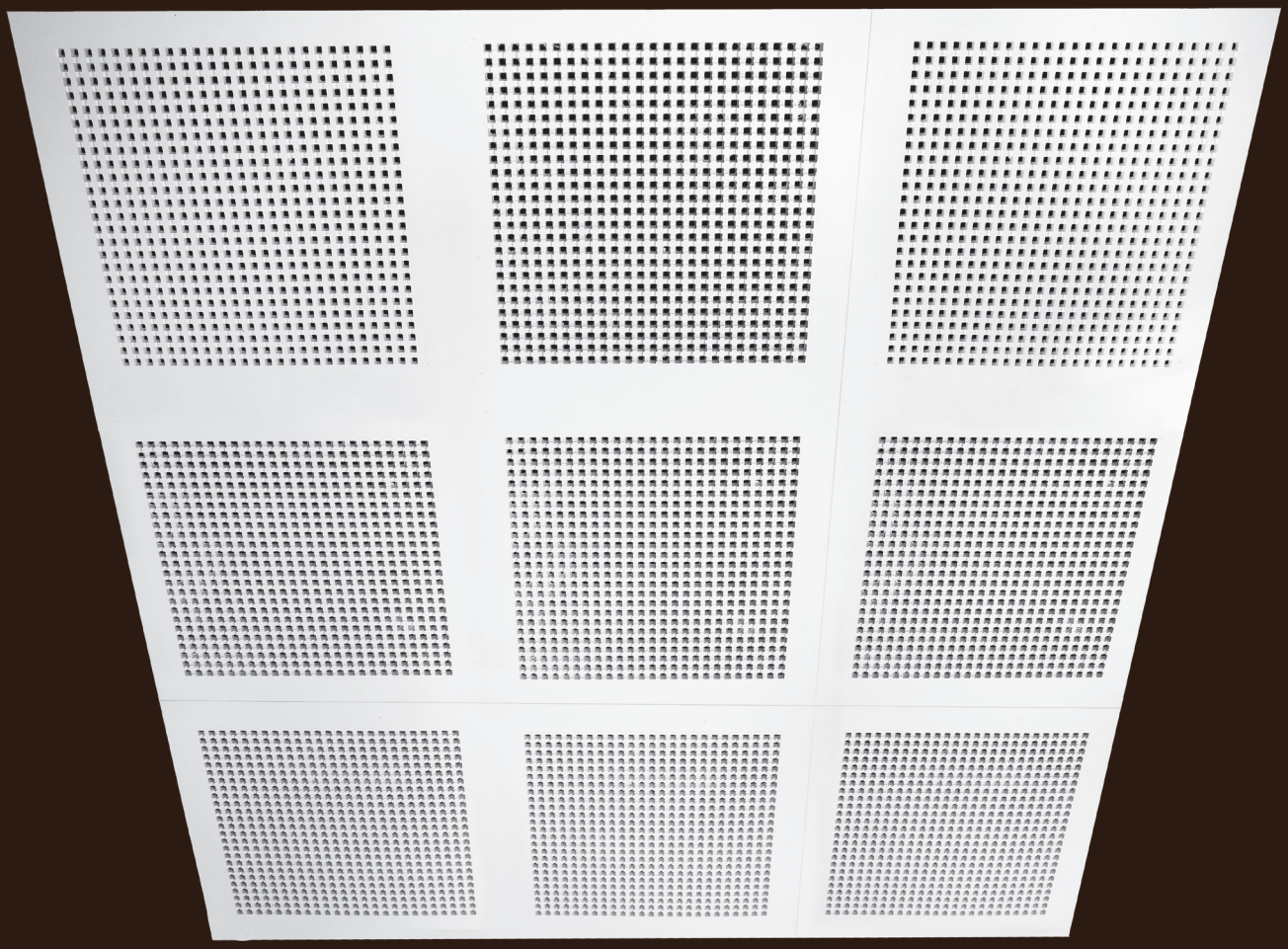
CEIL SOUND INSTALLATION

CHURCH BASEMENT

LURGARNO NSW AUSTRALIA

All dimensions are in mm and are approximate

Ceil Sound Panel



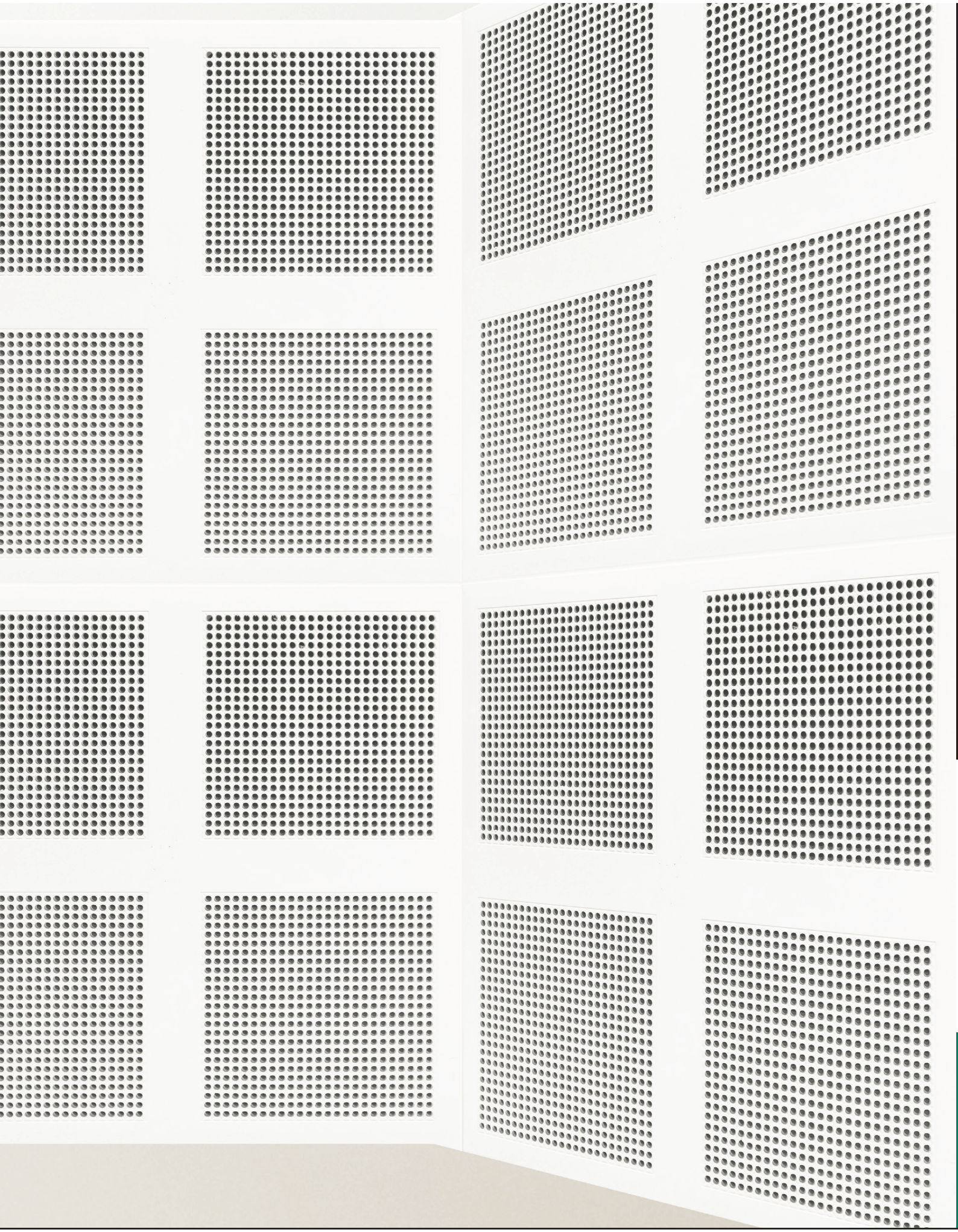
PROPERTIES

- 14mm square hole perforated plasterglass with a half round intersecting indent into each square. Pattern is arranged in a grid of 4 per panel, forming a continuous pattern when joined. Perimeter band 65mm
- 13mm thick perforated moulded plaster panel
- Mechanically fixed (screwed to furring channel)
- Insulated with 50 mm thick semi rigid high-density CSR Bradford glass fibre material (nom 32 kg/m^3), faced with a black tissue fabric.

ACOUSTIC PERFORMANCE AND SPECIFICATION

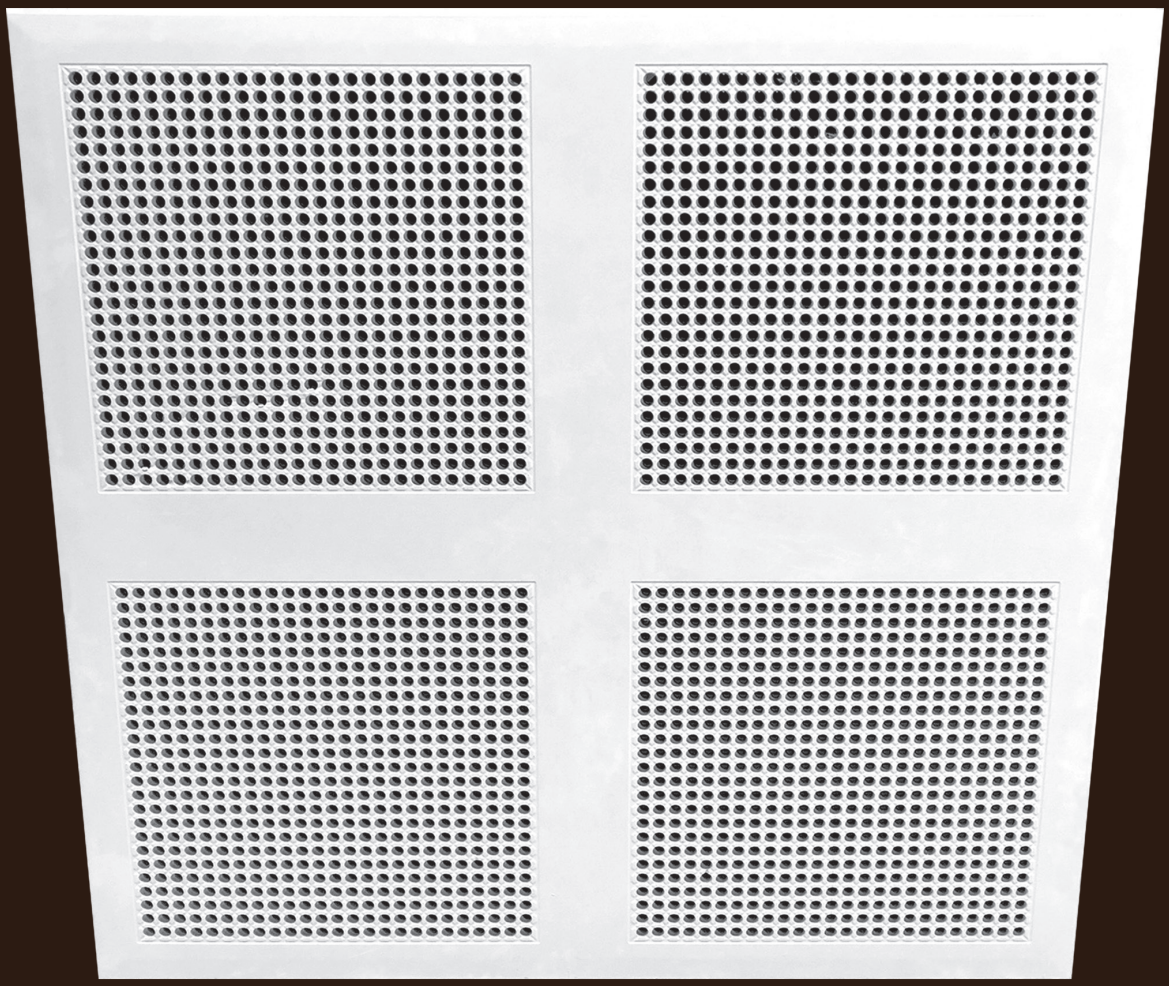
	Open Area	Thickness Tile mm	Thickness Insulation mm	Mass Kg/m^2	Size mm	NRC	SAA
Ceil Sound	27.2%	13	20	11.00	1200 x 1200	0.80	0.79
Ceil Sound	27.2%	13	50	11.00	1200 x 1200	0.90	0.88

All dimensions are in mm and are approximate



All dimensions are in mm and are approximate

Open Cell Panel



PROPERTIES

- Recessed edged panel 1200 x 1200mm, perforated with 4 sets of holes per panel, 25 x 25 holes per set, hole size 15 mm diameter at the mouth, tapering to 13.5 mm at the rear; holes at 19.2 mm centres.
- 13mm thick perforated moulded plaster panel
- Insulated with 50 mm thick semi rigid high-density CSR Bradford glass fibre material (nom 32 kg/m^3), faced with a black tissue fabric.
- Mechanically fixed (screwed to furring channel)

ACOUSTIC PERFORMANCE AND SPECIFICATION

	Open Area	Thickness Tile mm	Thickness Insulation mm	Mass Kg/m^2	Size mm	NRC	SAA
Open Cell	30.7%	13	20	11.00	1200 x 1200	0.80	0.82
Open Cell	30.7%	13	50	11.00	1200 x 1200	0.90	0.90

All dimensions are in mm and are approximate

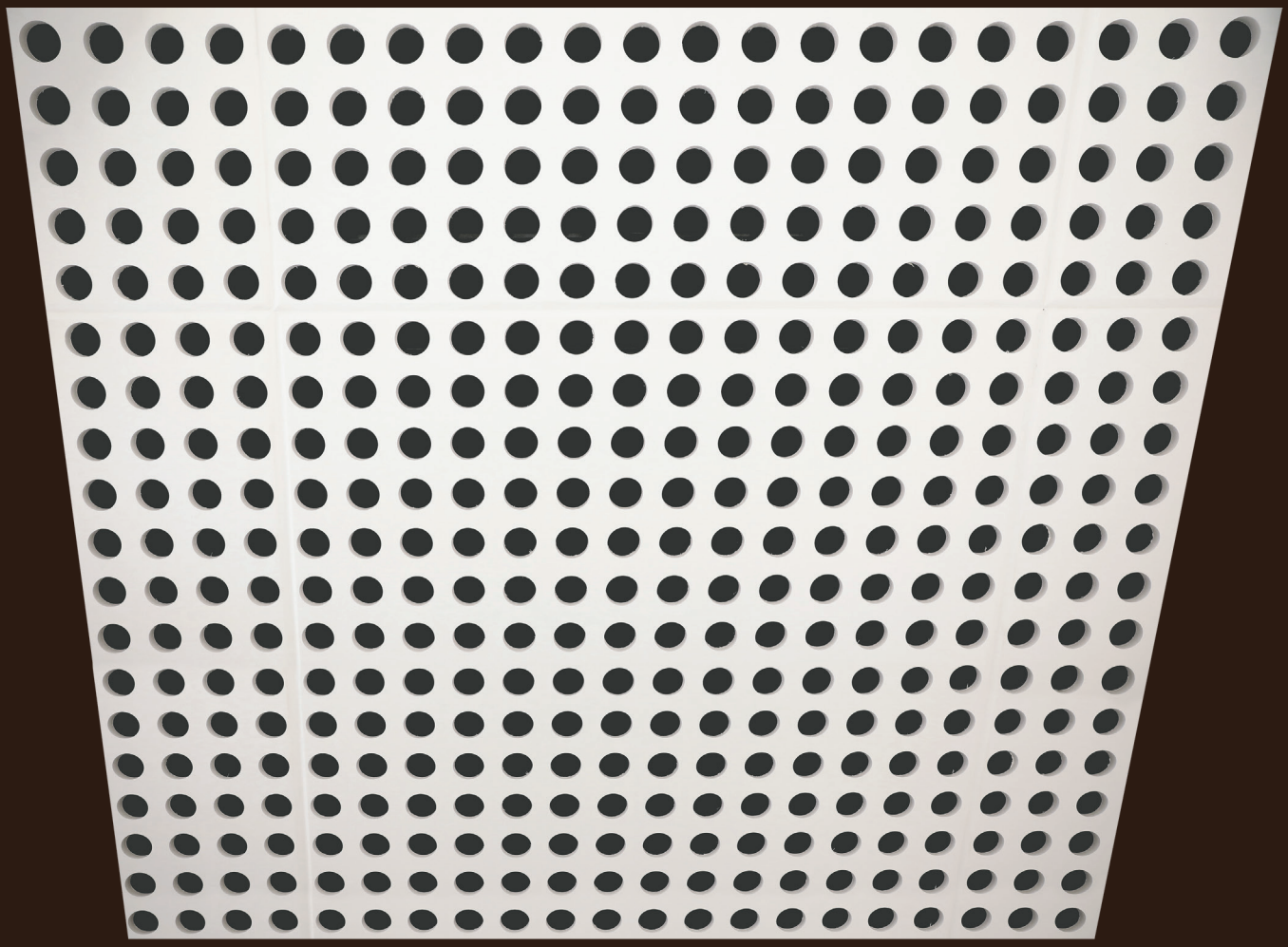
CELL AIR INSTALLATION

UNIVERSITY OF WOLLONGONG

NSW AUSTRALIA

All dimensions are in mm and are approximate

Cell Air Panel



PROPERTIES

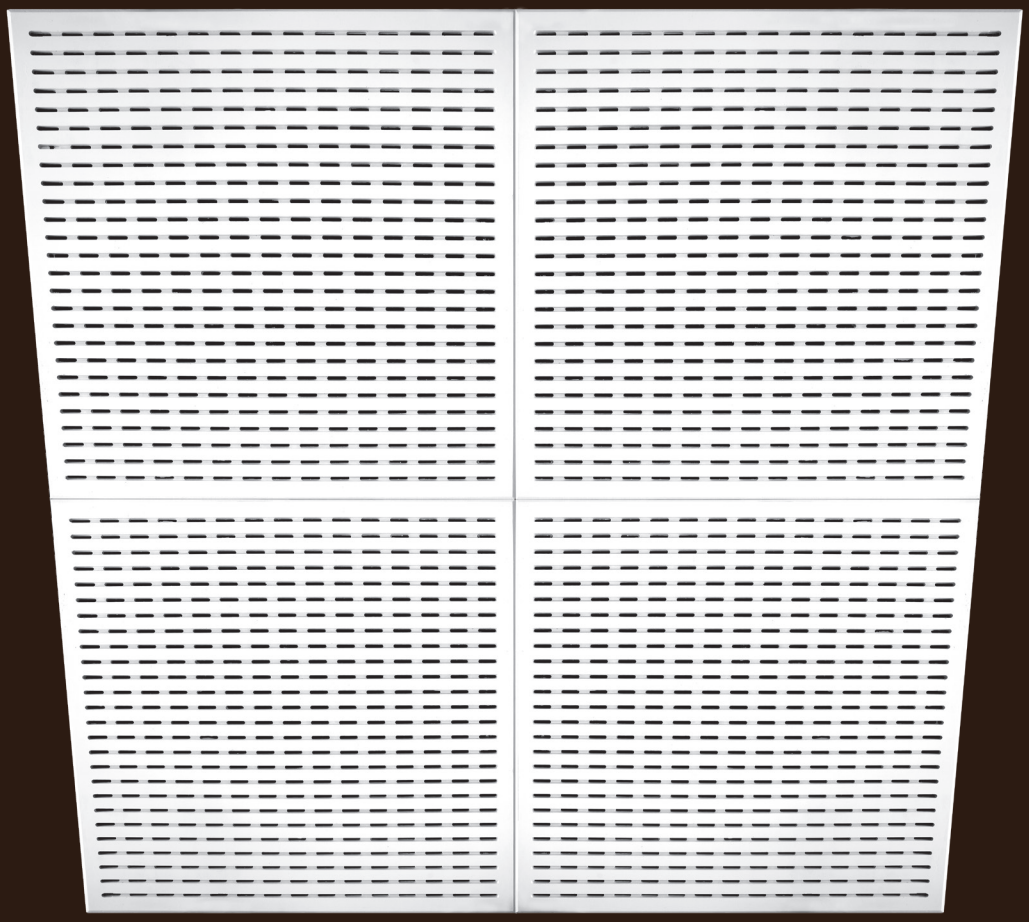
- V edged 1200 x 1200mm panels with a set of 14 x 14 circular perforations 55mm at the mouth, tapering to 53 mm at the rear; holes at 86 mm centres, forming a continuous pattern when joined.
- 15mm thick perforated plasterglass V-edged ceiling panel requires minimal setting
- Mechanically fixed (screwed to furring channel)
- Insulated with 50 mm thick semi rigid high-density CSR Bradford glass fibre material (nom 32 kg/m^3), faced with a black tissue fabric.

ACOUSTIC PERFORMANCE AND SPECIFICATION

	Open Area	Thickness Tile mm	Thickness Insulation mm	Mass Kg/m^2	Size mm	NRC	SAA
Cell Air	31.8%	15	20	12.50	1200 x 1200	0.85	0.84
Cell Air	31.8%	15	50	12.50	1200 x 1200	0.95	0.93

All dimensions are in mm and are approximate

Justice



PROPERTIES

- One way 1.1m slotted channels intersected at 50mm intervals with plain 25mm x 12mm perforations. Perimeter band 50mm wide.
- 13mm thick slotted plasterglass panel
- Insulated with 50mm 32Kg/m^2 Glasswool / Polyester (2)
- Mechanically fixed (screwed to Rondo Furring Channel Part No 155)

ACOUSTIC PERFORMANCE AND SPECIFICATION

	Open Area	Tile Thickness mm	Thickness of Insulation mm	Mass Kg/m^2	Size mm	NRC	SAA
Justice	10.4%	13	20	11.00	1200 x 1200	0.55	0.48
Justice	10.4%	13	50	11.00	1200 x 1200	0.75	0.75

All dimensions are in mm and are approximate

SUMMARY

SECTION A: 600 x 600mm CEILING TILES

PLASTER ACOUSTIC PLASTERGLASS TILES – CRAFTSTONE COLLECTION

Tile Dimensions: 600mm x 600mm

	Open Area	Mass Kg/m²	Thickness Tile	Thickness Insulation	NRC	SAA	α_w	% Light Reflective	Suspension
Casino	44.2%	14.10	25mm	20mm	0.90	0.90	0.90	0.70	Duo1/DuoH x 1200 Duo2/600
Moon	31.2%	11.50	16mm	20mm	0.90	0.90	0.90	0.74	

COFFERED PLASTER ACOUSTIC TILES – EXPOSED GRID CEILING SYSTEM

Tile Dimensions: 600mm x 600mm, Mass 12.50 Kg/m²

	Open Area	Thickness Tile mm	Thickness Insulation	NRC	SAA	α_w	R Value	% Light Reflective	Suspension
Nu Shadex	19.6%	13mm 30 border	20mm	0.80	0.80	0.75	0.80	0.80	Duo1/Duo x1200 Duo2/600
Open Cell	24.9%	13mm 30 border	20mm	0.80	0.80	0.80	0.80	0.78	
Super Diamond	27.2%	13mm 30 border	20mm	0.80	0.82	0.80	0.80	0.76	

SECTION B: 1200 x 1200mm CEILING & WALL PANELS

PLASTER ACOUSTIC CEILING PANELS – NEW YORK COLLECTION

	Open Area	Mass Kg/m²	Thickness Tile	Thickness Insulation	NRC	SAA	α_w	Suspension
Ceil Sound Panel 1200mm x 1200mm	27.2%	11.00	13mm	20mm	0.80	0.79	0.75	Furring channel 28mm thick Steel Stud (Walls) 64, 76, 92 wide
				50mm	0.90	0.88	0.80	
Open Cell Panel 1200mm x 1200mm	30.7%	11.00	13mm	20mm	0.80	0.82	0.75	
				50mm	0.90	0.90	0.85	
Cell Air Panel 1200mm x 1200mm	31.8%	12.50	15mm	20mm	0.85	0.84	0.70	
				50mm	0.95	0.93	0.75	
Justice Panel 1000mm x 1000mm	10.4%	11.00	13mm	20mm	0.55	0.48	0.50	
				50mm	0.75	0.75	0.55	

All dimensions are in mm and are approximate

SUMMARY - PHYSICAL PROPERTIES

Insulated with 32Kg/m^3, Bradford Supertel glasswool.

Results shown is a guide to acoustic performance. Products can be supplied with acoustic fabric or choice of insulation.

Thicker Insulation may be used to further increase absorption.

All tiles and panels are supplied with acoustic fabric to backing.

Acoustic Test shown here are examples of what can be achieved for NRC using different insulation methods.

Dimensional stability at 95% humidity.

All thicknesses and weights are nominal

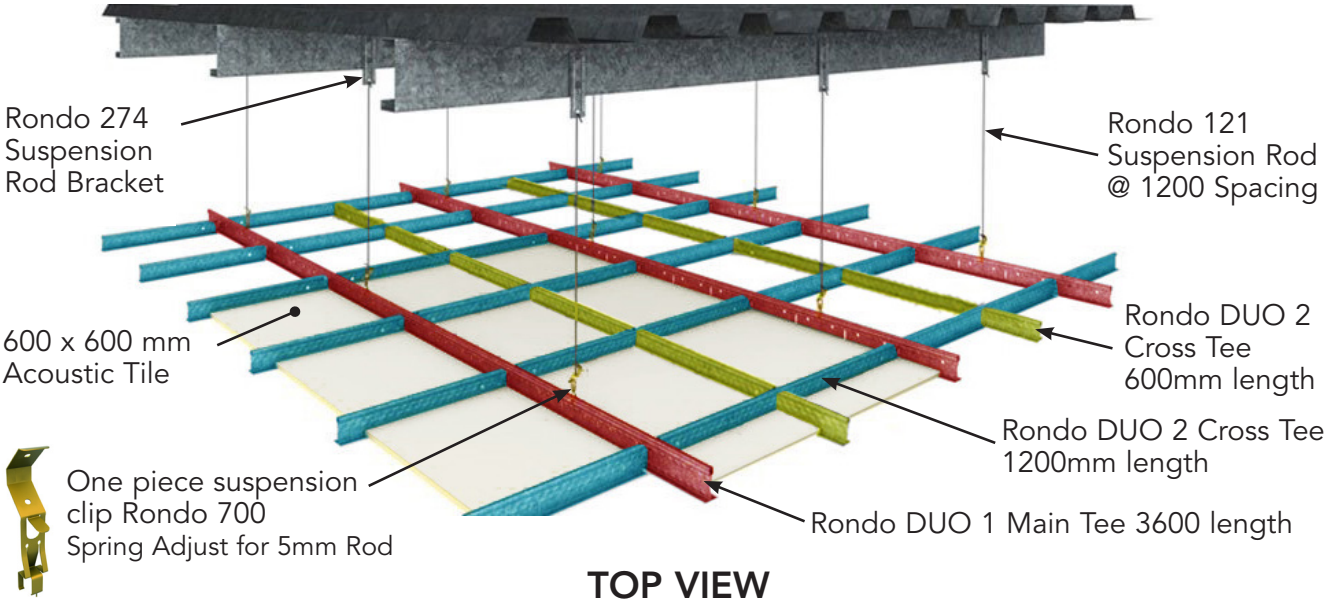
INSTALLATION TIPS

PLASTER ACOUSTIC CEILING TILES, 600 X 600 MM RANGE

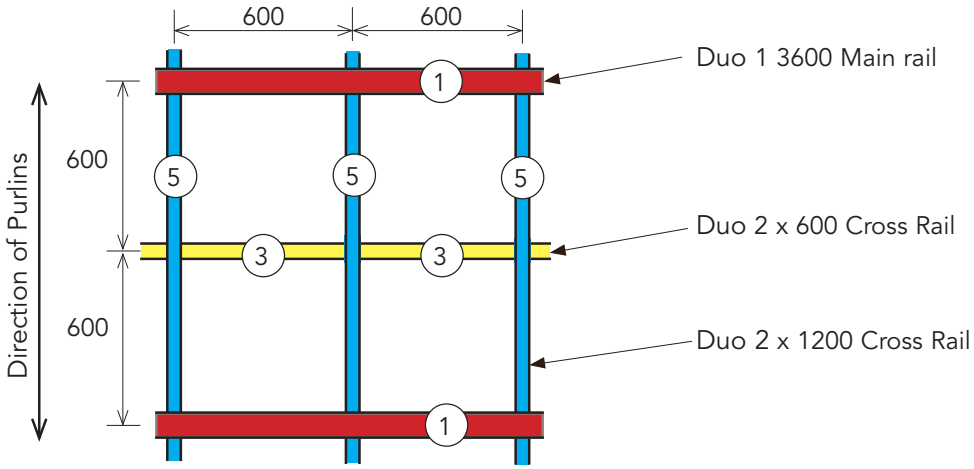
1. Plan ceiling layout to provide even margins at the perimeter.
2. Centre the ceiling both ways ensuring centre lines are at right angles.
3. Fix wall angle trim to perimeter walls at the correct height set by a level line. Mitre the wall angle trim around piers and columns.
4. Fix ceiling grid in accordance to Rondo grid layout using Duo system.
5. Cutting tiles can generally be avoided by designing the ceiling so that whole tiles or panels extend as close as practicable to the room area perimeters and then filling to the wall with a plaster board margin.
6. If cutting cannot be avoided the following typical methods are recommended.
    - When ordering plaster acoustic ceiling tiles make sure to order solid tiles with the same pattern but without the acoustic insulation, these separate tiles will make cutting of the tiles much easier to perform.
    - Use a router bit to cut panels and tiles to the required size. The router bit rebates the tile to enable installation into the ceiling grid.
    - Panels and tiles can also be cut to size with a panel saw.
    - Cable penetrations and sprinkler head holes should be cut into solid tiles or panels using a drill with an appropriate hole saw attachment.
    - Down light & pipe penetrations should also be cut into solid tilesor panels using a key hole saw or a drill with an appropriate hole saw attachment.

GRID SYSTEM LAYOUT

PLASTER ACOUSTIC CEILING TILE 600 X 600 MM RANGE



TOP VIEW



PLAN VIEW

1 The Duo 1 main tee shall be hung on soft galvanize rod or 2.5mm wire, accurately leveled. Suspension clips shall be spaced at 1200mm centres along the Duo 1 main tee.

5 Duo 2 main tees to be spaced at 1200mm centres. Duo 2 X 1200 cross tees shall intersect main tees at 600mm centres and be positively locked together.

3 Duo 2 x 600 cross tees are to be spaced at 600mm and shall intersect Duo 1200 cross tees at 600mm centres and be positively locked together.

Wall angle shall be securely fixed to the wall at 600mm centres providing a true level edge.

The suspension hangers, main tees and cross tees shall be spaced as not to exceed the design ceiling load, or
as required to prevent deflection, in excess of 1/360 of the span of cross tee or main tee.

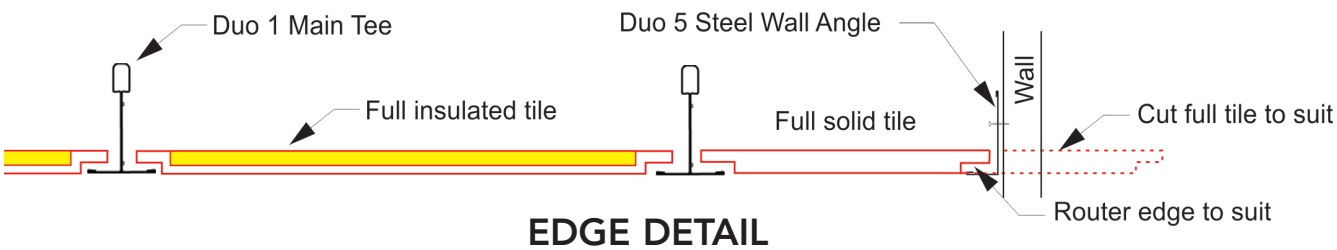
Extra hangers are to be provided for light fittings and conditioning units etc.

All light fittings are to be supported on the main tee.

All dimensions are in mm and are approximate

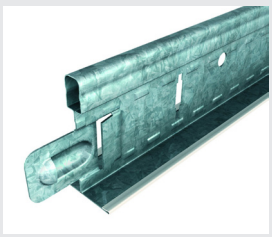
INSTALLATION

Acoustic Ceiling Tile Installation Using RONDO DUO Ceiling System

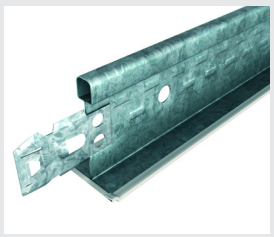


EDGE DETAIL

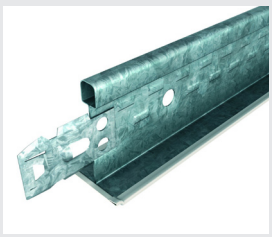
RONDO DUO COMPONENTS



Rondo DUO 1
24 x 38mm Main Tee
3600 mm Length



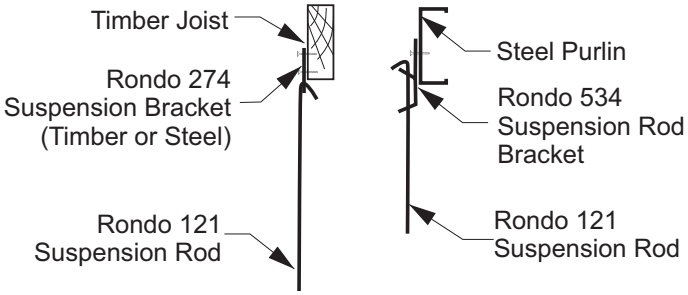
Rondo DUO 2
24 x 34mm Cross Tee
1200 mm Length



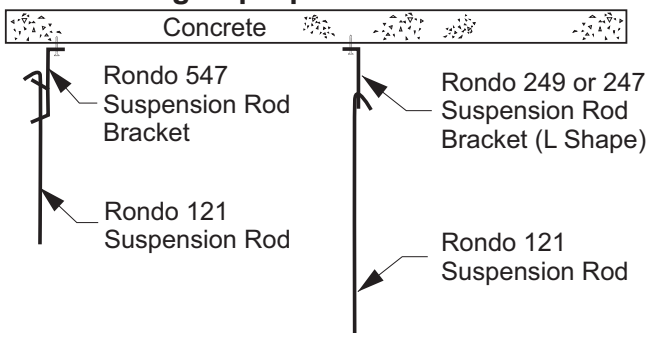
Rondo DUO 2
24 x 34mm Cross Tee
600 mm Length

Rondo DUO 5
25 x 19mm Steel
Wall Angle

Direct Fixing Clip Options to Timber or Steel Purlins



Direct Fixing Clip Options to Concrete



FIXING DETAIL

RONDO SUSPENSION ROD HANGERS

Rondo 274
Suspension Rod Bracket
(Timber/ Steel)

Rondo 547
Adjustable Hanger
(Concrete)

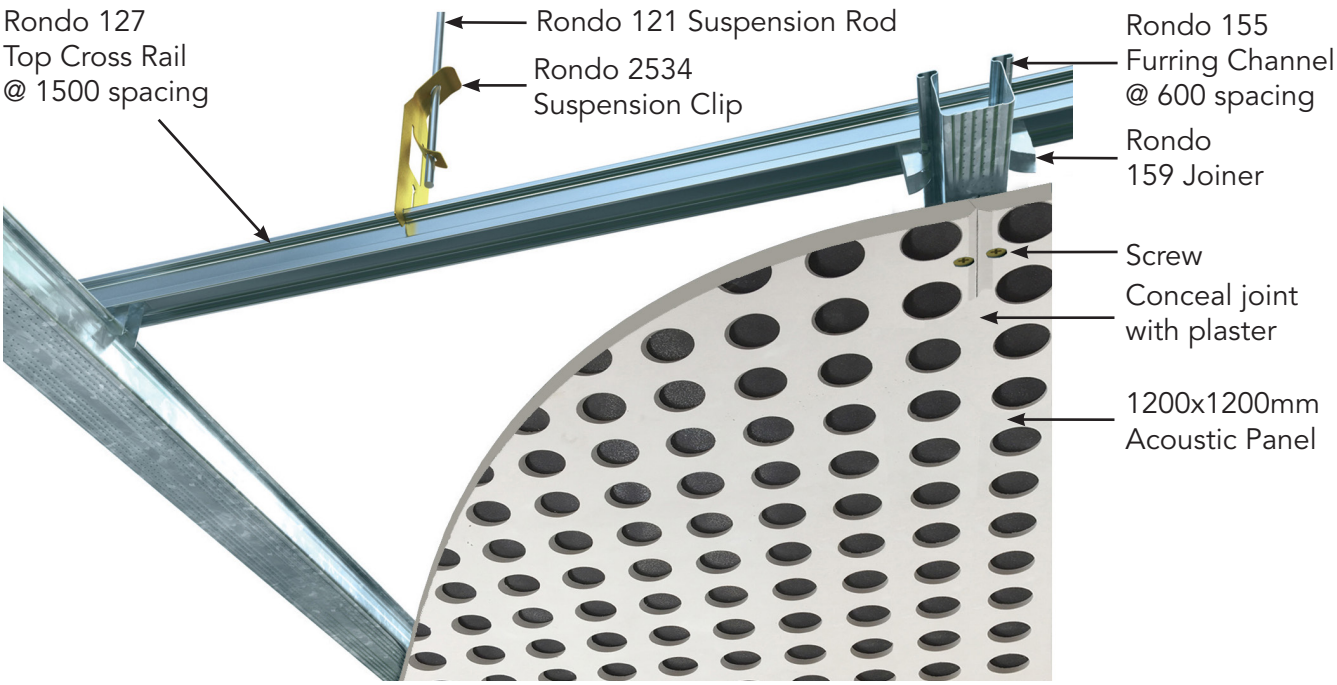
Rondo 534
Adjustable Hanger
(Purlins)

Rondo 247
Suspension Rod
Bracket (Concrete)

INSTALLATION

Panel Ceiling Installation Using RONDO KEY-LOCK® Ceiling System

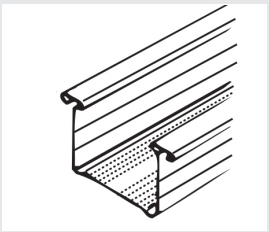
CONCEALED SUSPENDED CEILING INSTALLATION



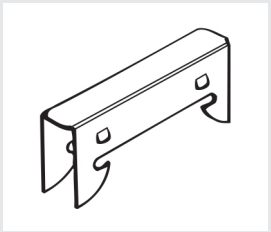
BOTTOM VIEW

Typical Ceiling Installation with RONDO KEY-LOCK® Ceiling System

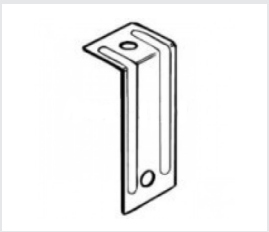
RONDO KEY-LOCK® Components



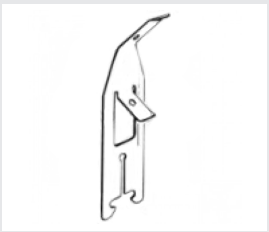
155 Furring Channel



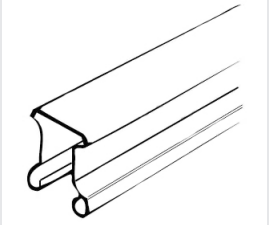
159 Joiner



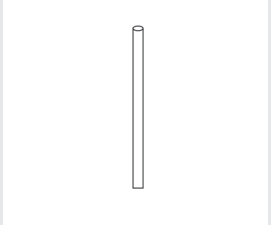
Rondo 247 Suspension Rod Bracket



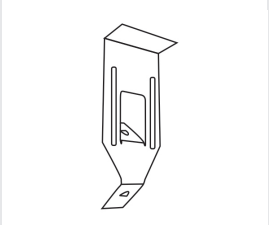
Rondo 2534 Suspension Clip



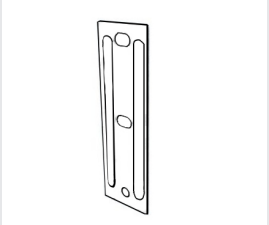
Rondo 127 Top Cross Rail



Rondo 121 Suspension Rod



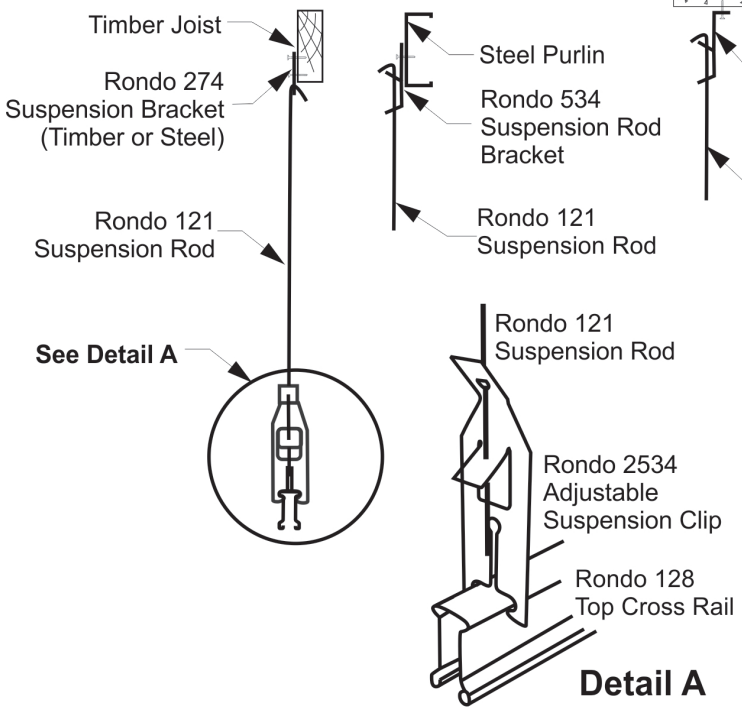
Rondo 547 Adjustable Suspension Hanger



Rondo 274 Suspension Bracket

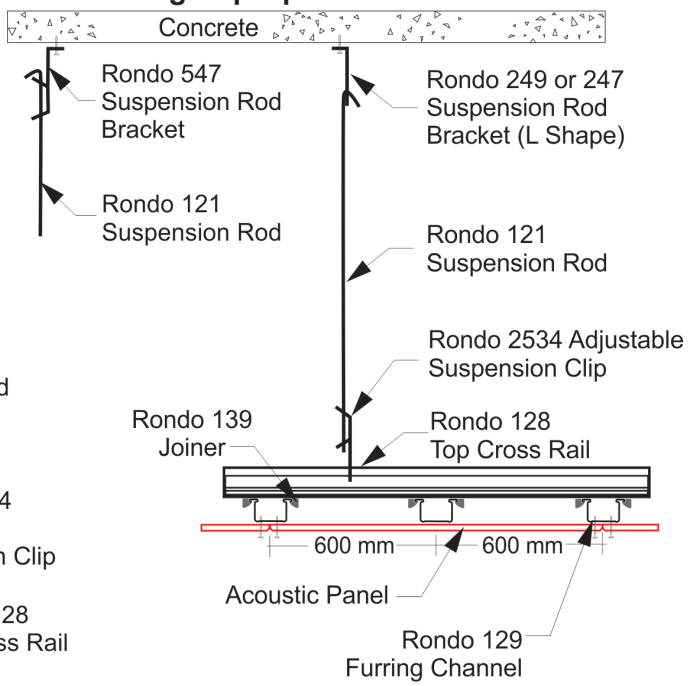
All dimensions are in mm and are approximate

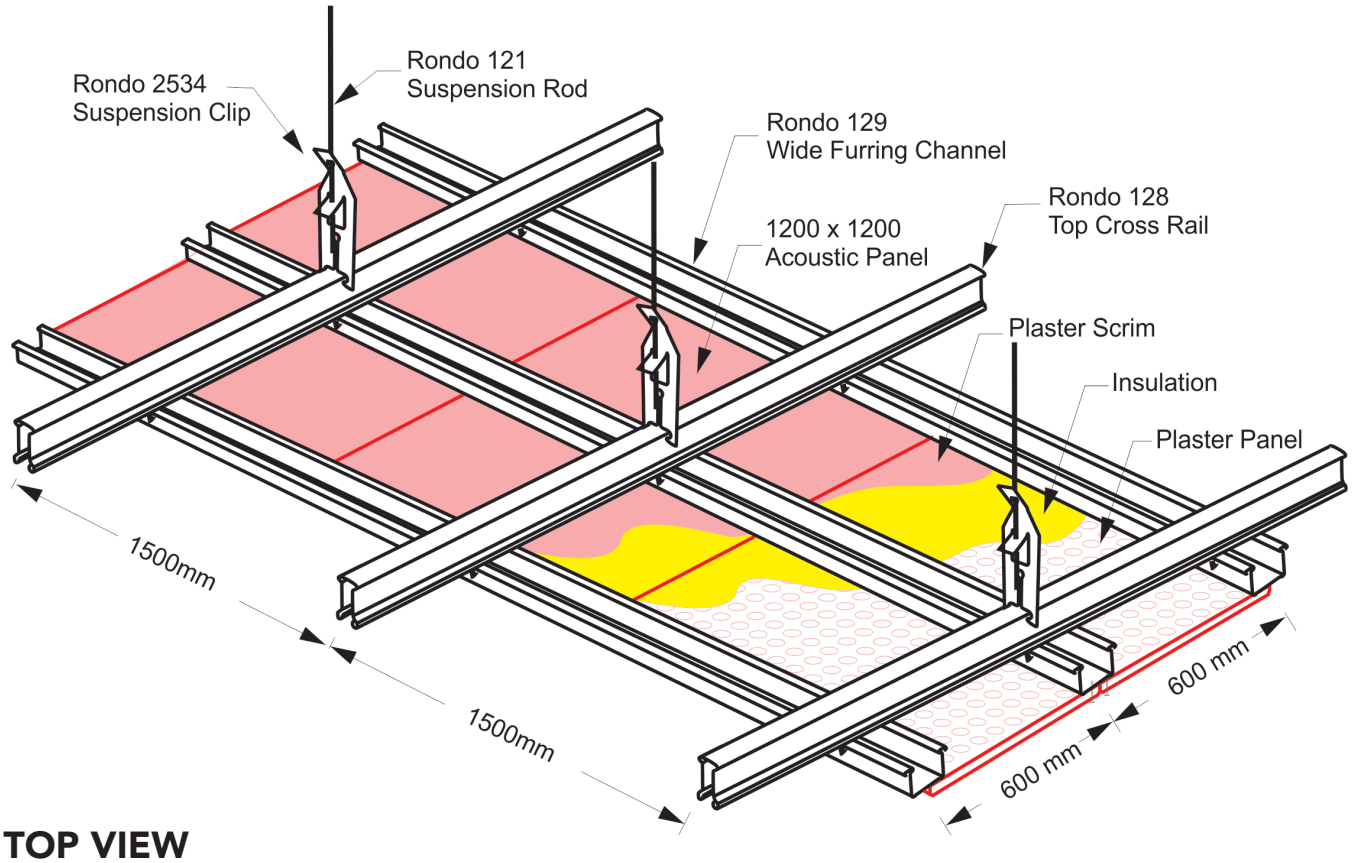
Direct Fixing Clip Options to Timber or Steel Purlins



Detail A

Direct Fixing Clip Options to Concrete



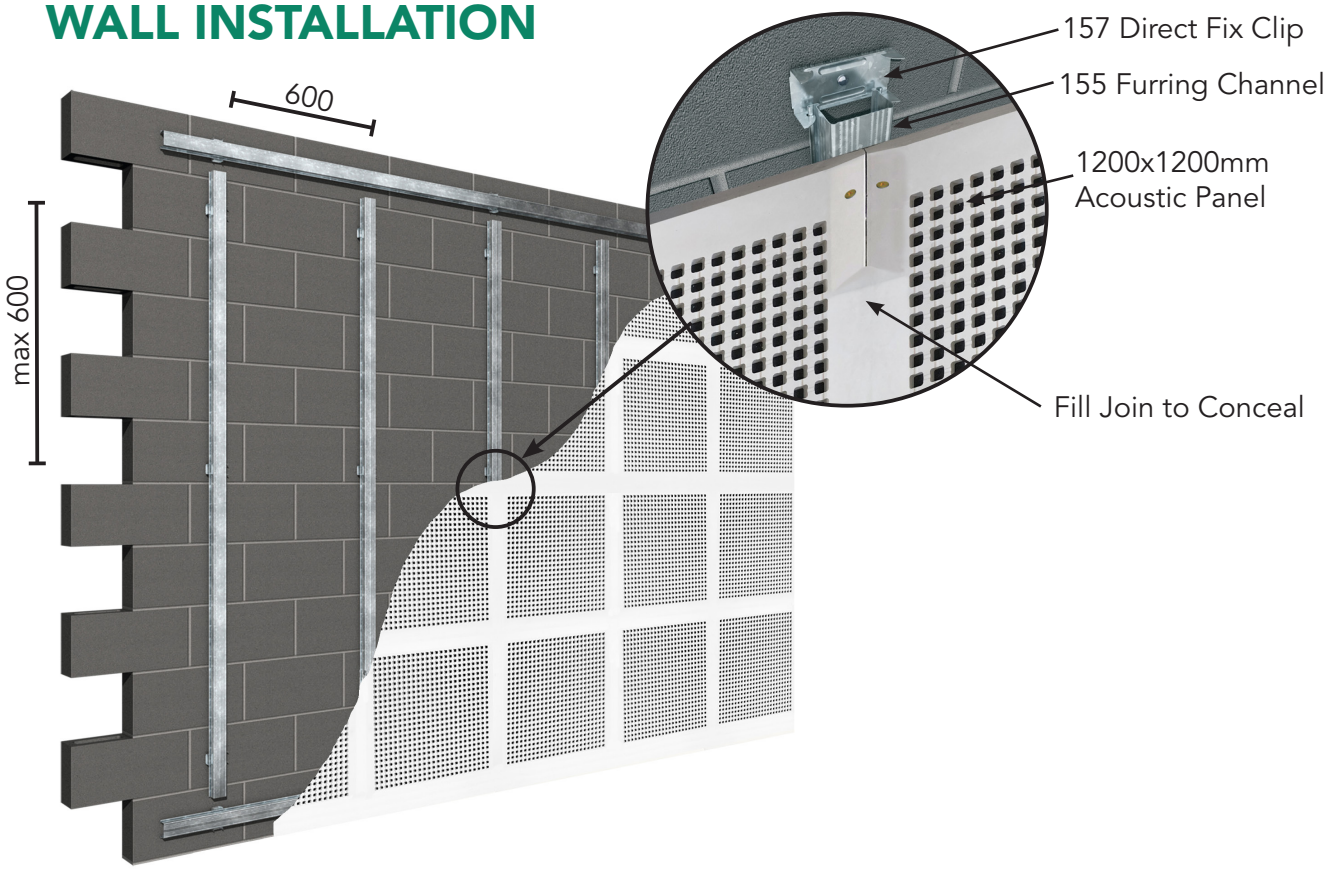


TOP VIEW

INSTALLATION

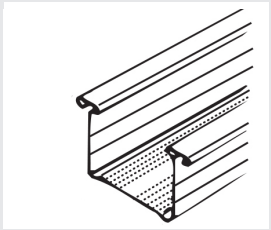
Panel Wall Installation Using Rondo Internal Express Joint Wall

WALL INSTALLATION

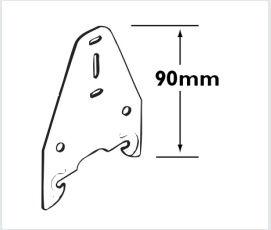


Typical Wall Installation with RONDO KEY-LOCK® Components

Typical Direct Ceiling Installation with RONDO KEY-LOCK® Components

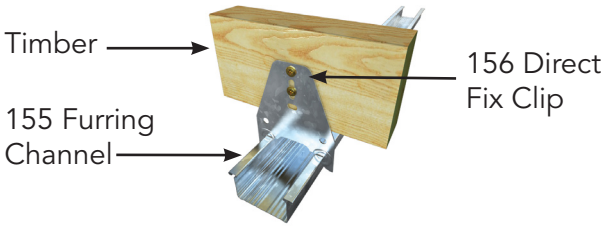


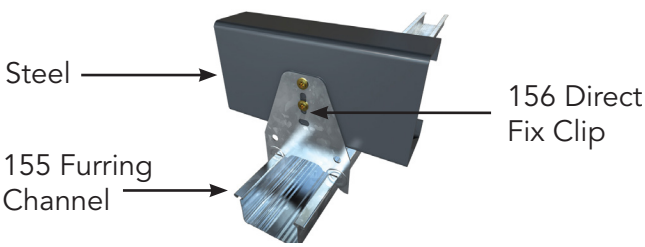
155 Furring Channel



156 DIrect Fix Clip

The 156 Direct Fix Clip is able to fix the 155 Furring Channel to steel purlins or timber joists in ceiling applications as well as to steel girts or timber stud work in walls.

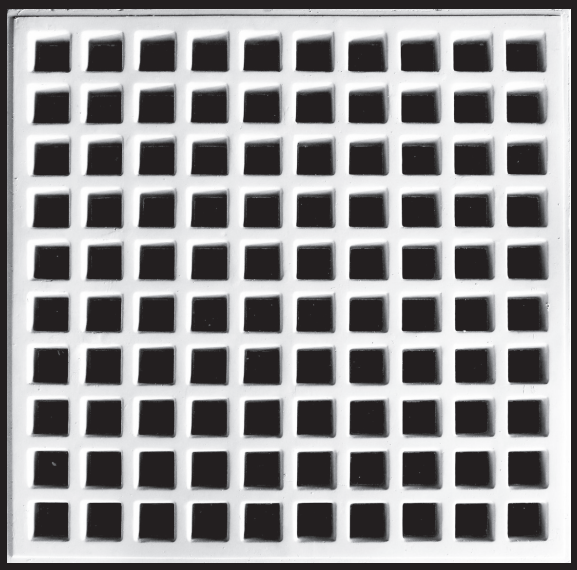


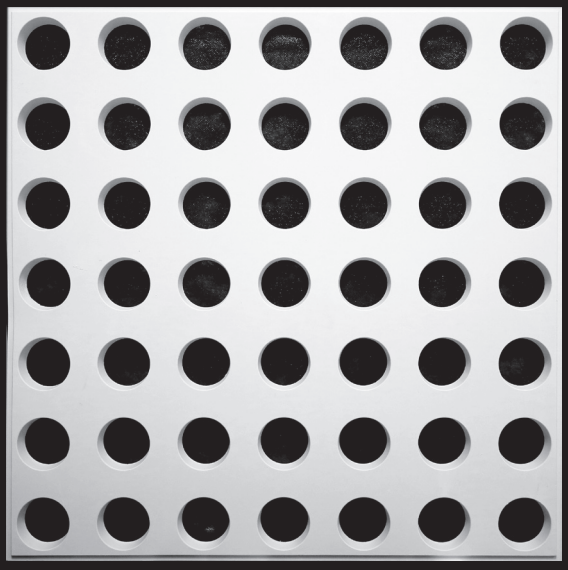


All dimensions are in mm and are approximate

TEST RESULTS

Craftstone Collection





TESTING

Plaster Acoustic Products have been tested for **NRC** in accordance with ASTM-C423-90A at CSIRO Melbourne, Australia with NATA accreditation.

Plaster Products tested for **Room to Room CAC** have been tested in accordance with ASTM E1414 / E 1414M - 11A at Acoustic Laboratories Australia Pty Ltd, Perth, Western Australia.

Plaster Products tested for **Steady - State Thermal Transmission** properties by means of the Heat Flow Apparatus have been product tested in Melbourne, Australia at AWTA Product Testing. (ASTM-C518) 2010

Plaster Products tested for **Heat + Smoke** release have been tested in accordance with AS/NZS 3837 - 1998 and ISO 5660.1- 2002 (Cone Colorimeter Method) at AWTA Product Testing Melbourne, Australia.

CSIRO Acoustic Measurement Report

Commonwealth Scientific and Industrial Research Organisation, Infrastructure Technologies
Acoustics Testing Laboratory, Gate 5, 2 Normanby Road, Clayton, Vic 3168 Australia

Report No:
AC277-23-1

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mortdale, NSW 2223

Measurement Type: Sound Absorption

AS ISO 354–2006 [R2016]: *Acoustics–Measurement of sound absorption in a reverberation room*
AS ISO 11654–2002 [R2016] (ISO 11654:1997): *Acoustics–Rating of sound absorption–Materials and systems*

Test Specimen

[Specimen area: 3.6 x 3.0 m (10.8 m²)]

Description: • Bailey "Casino" drop-in ceiling tiles, • in 600 mm grid, • with black tissue faced glass fibre batt fixed to rear of each tile, open to the cavity airspace (Type E-200)

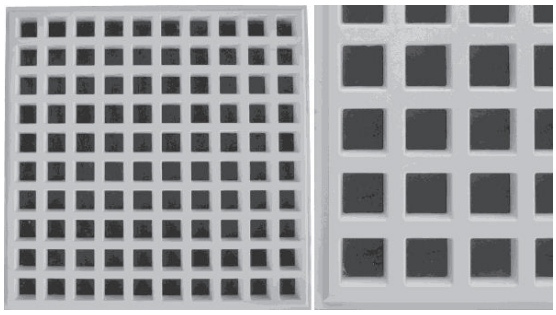
Tile and Batt Details[3]

- Moulded plaster ceiling tiles designed to drop into a standard 600 mm suspended ceiling grid.
- Perforated with a regular pattern of 100 square holes with rounded corners (10 x 10 array), opening into a black tissue-faced glass fibre batt behind (stapled to the rear of the tile). Hole size was approx 40 mm at the face, tapering to 36 mm at the rear, positioned at approx 56 mm centres. The perforated region of the tile extended proud of the perimeter by approx 5 mm.
- Open area percentage[4] (estimated): 44.2 % (based on mouth area at face); 35.8 % (based on throat area at rear of tile).
- Each tile was fitted with a black tissue-faced semi rigid high-density CSR Bradford glass fibre batt, approx 570 x 570 x 20 mm (nom 32 kg/m³); factory-stapled to the rear of the tile.

Installation

- The test specimen was installed as an upside-down ceiling on the floor of the chamber.
- A 200 mm deep enclosure (32 mm MDF timber, approx 23 kg/m², built to surround an area of 3600 x 3000 mm) was placed on the floor of the chamber at an 11° angle to the chamber walls (not parallel, as per AS ISO 354 cl6.2.1.2). All enclosure edges and junctions were taped.
- A system of extruded aluminium profiles (all solid, not hollow) and plastic support pieces was set up inside the enclosure to support the tiles with their edges nominally flush with the enclosure. The cavity behind was a single undivided cavity without internal partitions.
- Tiles were arranged in a 6 x 5 array on the support system.
- Tee sections were placed on top to cover the gaps between adjacent tiles, equivalent to a normal ceiling installation. The perimeter of the installed test specimen was taped with masking tape to seal between the tiles and the enclosure at the perimeter.
- Specimen installation was carried out by laboratory staff.

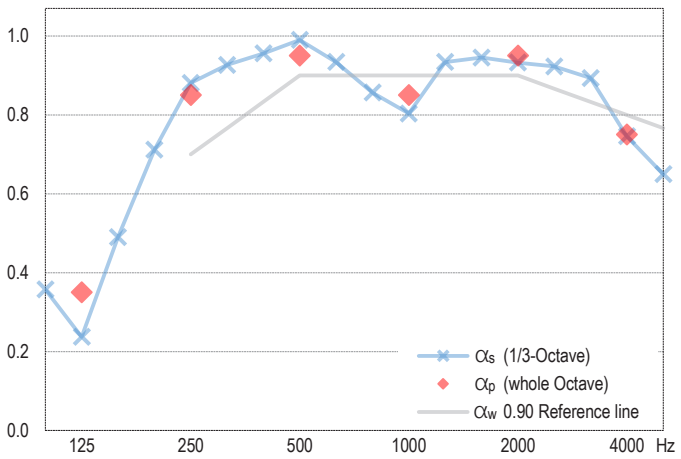
Test specimen installed for testing (image inverted to depict ceiling installation)



Tile details – Left: whole tile, Right: close-up view

Measurement Details & Results

Freq	Absorption coefficients			Reverberation times, T_{60} (sec)	
Hz	α_s	α_p	95% Conf (δ)	Empty room	with Specimen
100	0.36		0.07	5.13	3.19
125	0.24	0.35	0.04	6.60	4.35
160	0.49		0.06	6.48	3.16
200	0.71		0.08	5.80	2.45
250	0.88	0.85	0.05	5.20	2.07
315	0.93		0.09	6.22	2.14
400	0.96		0.05	6.19	2.10
500	0.99	0.95	0.07	5.74	1.99
630	0.93		0.05	5.75	2.07
800	0.86		0.05	5.42	2.14
1000	0.80	0.85	0.04	5.23	2.19
1250	0.93		0.05	4.65	1.91
1600	0.95		0.03	4.15	1.81
2000	0.93	0.95	0.05	3.69	1.73
2500	0.92		0.04	3.23	1.63
3150	0.89		0.03	2.83	1.55
4000	0.75	0.75	0.03	2.30	1.48
5000	0.65		0.05	1.85	1.34



Performance Indices[1,2]
α_w = 0.90
SAA = 0.90
NRC = 0.90

The required 12 spatially independent decay curves came from ensemble averaging 10 successive decays with each of 3 different source loudspeaker positions, all sampled by 4 fixed microphones, using linear averaging.

Measurement Conditions	Empty room	with Test Specimen
Date of measurement:	25 Aug 2020	25 Aug 2020
Temperature & humidity:	16 °C, 55 % R.H.	17 °C, 55 % R.H.
Atmospheric pressure:	1018 mBar	1017 mBar

Notes, Deviations etc

1. Shape indicators (L, M, and H), if any, following the α_w index, indicate α_p values above the reference contour by ≥ 0.25 in the Low, Medium or High frequency ranges respectively; it is strongly recommended to use this single number rating in combination with the complete sound absorption coefficient curve.
2. SAA and NRC are defined in ASTM C423; laboratory requirements for which differ from AS ISO 354.
3. Physical characteristics of materials may be as per client or supplier's advice; not necessarily verified by CSIRO.
4. Open area estimates are based on 600 x 600 mm of ceiling area being 'treated' by each tile.

Issuing Authority

Signed: .....
David Truett
Date: 9 September 2020

Instrumentation

Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphones/preamps: • 2 x GRAS type 46AR mic/preamp sets, and 2 x B&K type 4134 mics on B&K 2669 preamps, in 4 fixed positions as per AS ISO 354

Laboratory Construction

Reverb room: • 300 mm thick concrete (closed off from the adjoining room by a plasterboard wall) • parallelepiped with dimensional proportions 1:1.3:1.6 for distribution of room modes • approx 202 m³ total room

CSIRO ACOUSTIC MEASUREMENT REPORT

Commonwealth Scientific and Industrial Research Organisation, Infrastructure Technologies
Acoustics Testing Laboratory, Gate 5, 2 Normanby Road, Clayton, Vic 3168 Australia

Report No: **AC277-24-1**

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mortdale, NSW 2223

Measurement Type: Sound Absorption

AS ISO 354–2006 [R2016]: *Acoustics–Measurement of sound absorption in a reverberation room*
AS ISO 11654–2002 [R2016] (ISO 11654:1997): *Acoustics–Rating of sound absorption–Materials and systems*

Test Specimen

[Specimen area: 3.6 x 3.0 m (10.8 m²)]

Description: • Bailey "Moon" drop-in ceiling tiles, • in 600 mm grid, • with black tissue faced glass fibre batt fixed to rear of each tile, open to the cavity airspace (Type E-200)

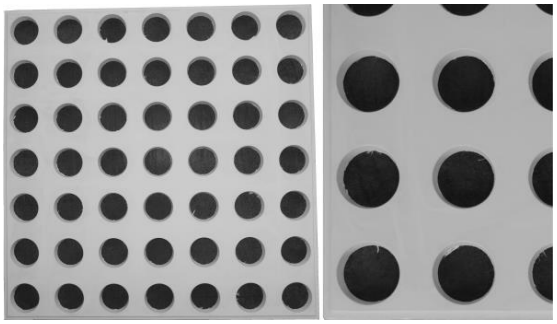
Tile and Batt Details[3]

- Moulded plaster ceiling tiles designed to drop into a standard 600 mm suspended ceiling grid.
- Perforated with a regular pattern of 49 circular holes (7 x 7 array), opening into a black tissue-faced glass fibre batt behind (stapled to the rear of the tile). Hole size was approx 54 mm at the face, tapering to 50 mm at the rear, positioned at approx 84 mm centres.
- Open area percentage[4] (estimated): 31.2 % (based on mouth area at face); 26.7 % (based on throat area at rear of tile).
- Each tile was fitted with a black tissue-faced semi rigid high-density CSR Bradford glass fibre batt, approx 590 x 590 x 20 mm (nom 32 kg/m³); factory-stapled to the rear of the tile.

Installation

- The test specimen was installed as an upside-down ceiling on the floor of the chamber.
- A 200 mm deep enclosure (32 mm MDF timber, approx 23 kg/m², built to surround an area of 3600 x 3000 mm) was placed on the floor of the chamber at an 11° angle to the chamber walls (not parallel, as per AS ISO 354 cl6.2.1.2). All enclosure edges and junctions were taped.
- A system of extruded aluminium profiles (all solid, not hollow) and plastic support pieces was set up inside the enclosure to support the tiles with their edges nominally flush with the enclosure. The cavity behind was a single undivided cavity without internal partitions.
- Tiles were arranged in a 6 x 5 array on the support system.
- Tee sections were placed on top to cover the gaps between adjacent tiles, equivalent to a normal ceiling installation. The perimeter of the installed test specimen was taped with masking tape to seal between the tiles and the enclosure at the perimeter.
- Specimen installation was carried out by laboratory staff.

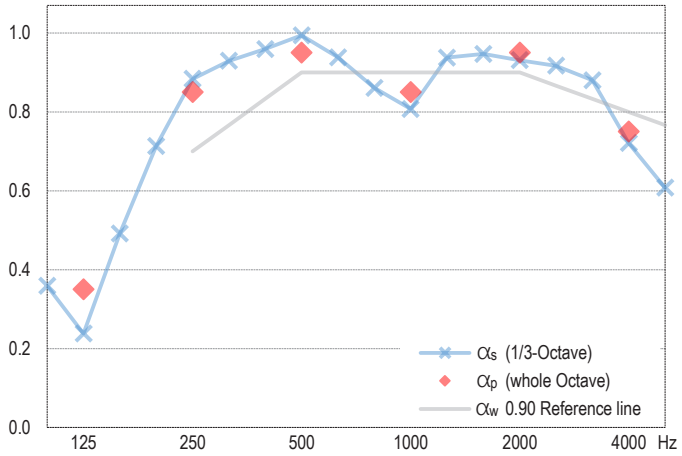
Test specimen installed for testing (image inverted to depict ceiling installation)



Tile details – Left: whole tile, Right: close-up view

Measurement Details & Results

Freq	Absorption coefficients			Reverberation times, T_{60} (sec)	
Hz	α_s	α_p	95% Conf (δ)	Empty room	with Specimen
100	0.36		0.07	5.13	3.19
125	0.24	0.35	0.04	6.60	4.35
160	0.49		0.06	6.48	3.16
200	0.71		0.08	5.80	2.45
250	0.88	0.85	0.05	5.20	2.07
315	0.93		0.09	6.22	2.14
400	0.96		0.05	6.19	2.10
500	0.99	0.95	0.07	5.74	1.99
630	0.94		0.05	5.75	2.07
800	0.86		0.05	5.42	2.14
1000	0.81	0.85	0.04	5.23	2.19
1250	0.94		0.05	4.65	1.91
1600	0.95		0.03	4.15	1.81
2000	0.93	0.95	0.05	3.69	1.73
2500	0.92		0.04	3.23	1.63
3150	0.88		0.03	2.83	1.55
4000	0.72	0.75	0.03	2.30	1.48
5000	0.61		0.05	1.85	1.34



Performance Indices[1,2]
α_w = 0.90
SAA = 0.90
NRC = 0.90

The required 12 spatially independent decay curves came from ensemble averaging 10 successive decays with each of 3 different source loudspeaker positions, all sampled by 4 fixed microphones, using linear averaging.

Measurement Conditions	Empty room	with Test Specimen
Date of measurement:	25 Aug 2020	25 Aug 2020
Temperature & humidity:	16 °C, 55 % R.H.	16 °C, 54 % R.H.
Atmospheric pressure:	1018 mBar	1017 mBar

Notes, Deviations etc

1. Shape indicators (L, M, and H), if any, following the α_w index, indicate α_p values above the reference contour by ≥ 0.25 in the Low, Medium or High frequency ranges respectively; it is strongly recommended to use this single number rating in combination with the complete sound absorption coefficient curve.
2. SAA and NRC are defined in ASTM C423; laboratory requirements for which differ from AS ISO 354.
3. Physical characteristics of materials may be as per client or supplier's advice; not necessarily verified by CSIRO.
4. Open area estimates are based on 600 x 600 mm of ceiling area being 'treated' by each tile.

Issuing Authority

Signed: .....
David Truett
Date: 9 September 2020

Instrumentation

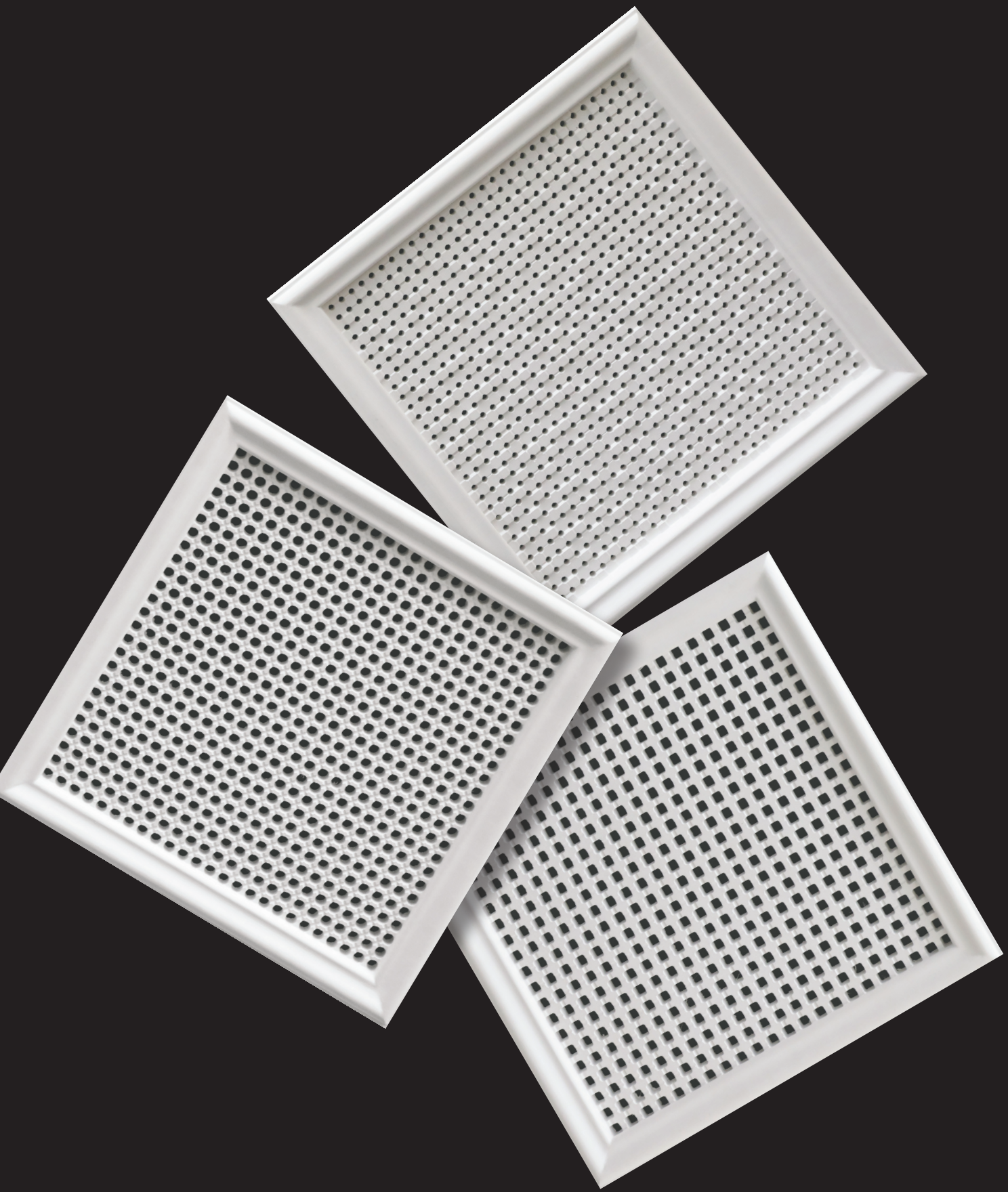
Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphones/preamps: • 2 x GRAS type 46AR mic/preamp sets, and 2 x B&K type 4134 mics on B&K 2669 preamps, in 4 fixed positions as per AS ISO 354

Laboratory Construction

Reverb room: • 300 mm thick concrete (closed off from the adjoining room by a plasterboard wall) • parallelepiped with dimensional proportions 1:1.3:1.6 for distribution of room modes • approx 202 m³ total room

TEST RESULTS

Coffered Collection



CSIRO ACOUSTIC MEASUREMENT REPORT

Commonwealth Scientific and Industrial Research Organisation, Infrastructure Technologies
Acoustics Testing Laboratory, Gate 5, 2 Normanby Road, Clayton, Vic 3168 Australia

Report No: **AC277-10-1**

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mortdale, NSW 2223

Measurement Type: Sound Absorption

AS ISO 354–2006 [R2016]: *Acoustics–Measurement of sound absorption in a reverberation room*
AS ISO 11654–2002 [R2016] (ISO 11654:1997): *Acoustics–Rating of sound absorption–Materials and systems*

Test Specimen

[Specimen area: 3.6 x 3.0 m (10.8 m²)]

Description: • Bailey "New Shadex Acoustic Coffer" drop-in ceiling tiles, • in 600 mm grid,
• with black tissue-faced glass fibre batts behind, open to the cavity (Type E-200)

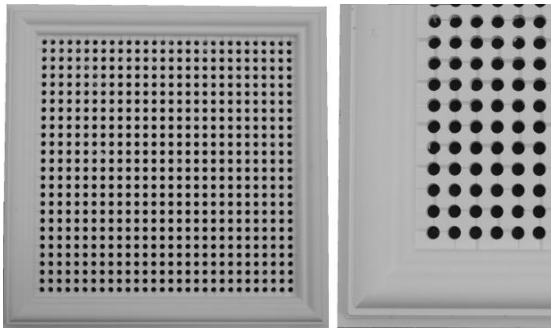
Tile and Batt Details[3]

- Moulded plaster ceiling tiles designed to drop into a standard 600 mm suspended ceiling grid.
- Perforated with a regular pattern of 900 circular holes (30 x 30 array); hole size approx 10 mm at the face, tapering to 9 mm at the rear, positioned at approx 15.6 mm spacing.
- Decorative effect of perforations was supplemented by additional moulding details (protruding coffer frame, and facets between perforations being of varying height).
- Open area percentage[4] (estimated): 19.6 % (based on mouth area at perforated face); 15.9 % (based on throat area at rear of panel, behind which lay the fibre batt and ceiling cavity).
- Each tile backed with a semi rigid high-density glass fibre batt faced with a black tissue material (CSR Bradford product), 500 x 500 x 20 mm (approx 42 kg/m³); the black tissue face being against the perforated rear face of the tile. Ordinarily the batts would be factory-fixed (stapled) to the rear of each tile, but in this instance the batts were provided as separate items and positioned behind the perforated area of the tiles during test-installation.

Installation

- The test specimen was installed as an upside-down ceiling on the floor of the chamber.
- A 200 mm deep enclosure (32 mm MDF timber, approx 23 kg/m², built to surround an area of 3600 x 3000 mm) was placed on the floor of the chamber at a 12° angle to the chamber walls (not parallel, as per AS ISO 354 cl6.2.1.2). The junction of the enclosure and the floor was taped.
- A system of steel wall studs/track, and support struts was set up inside the enclosure to support the batts and tiles. The cavity behind was a single undivided cavity without internal partitions.
- Batts and tiles were arranged in a 6 x 5 array on the support system.
- Tee sections were placed on top to cover the gaps between adjacent tiles, equivalent to a normal ceiling installation. The perimeter of the installed test specimen was taped with masking tape to seal between the tiles and the enclosure at the perimeter.
- Specimen installation was carried out by laboratory staff.

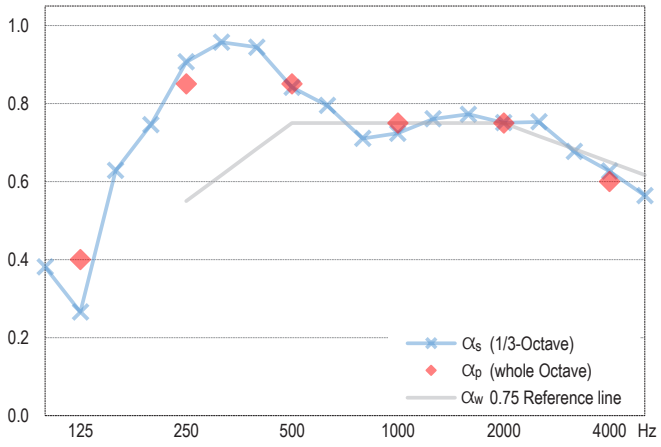
Test specimen installed for testing (image inverted to depict ceiling installation)



Tile details – Left: whole tile, Right: close-up view

Measurement Details & Results

Freq	Absorption coefficients			Reverberation times, T_{60} (sec)	
Hz	α_s	α_p	95% Conf (δ)	Empty room	with Specimen
100	0.38		0.07	5.82	3.36
125	0.27	0.40	0.05	6.19	4.01
160	0.63		0.09	6.19	2.71
200	0.75		0.05	5.74	2.38
250	0.91	0.85	0.06	4.91	1.99
315	0.96		0.07	5.93	2.06
400	0.94		0.05	5.89	2.08
500	0.84	0.85	0.05	5.60	2.19
630	0.79		0.05	5.35	2.22
800	0.71		0.04	5.11	2.32
1000	0.72	0.75	0.03	4.81	2.24
1250	0.76		0.04	4.31	2.07
1600	0.77		0.04	3.87	1.95
2000	0.75	0.75	0.03	3.41	1.85
2500	0.75		0.04	3.02	1.73
3150	0.68		0.03	2.60	1.65
4000	0.63	0.60	0.04	2.08	1.46
5000	0.56		0.04	1.65	1.27



Performance Indices[1,2]
α_w = 0.75 (L)
SAA = 0.80
NRC = 0.80

The required 12 spatially independent decay curves came from ensemble averaging 10 successive decays with each of 3 different source loudspeaker positions, all sampled by 4 fixed microphones, using linear averaging.

Measurement Conditions	Empty room	with Test Specimen
Date of measurement:	24 Jul 2020	24 Jul 2020
Temperature & humidity:	16 °C, 46 % R.H.	17 °C, 46 % R.H.
Atmospheric pressure:	1012 mBar	1013 mBar

Notes, Deviations etc

1. Shape indicators (L, M, and H), if any, following the α_w index, indicate α_p values above the reference contour by ≥ 0.25 in the Low, Medium or High frequency ranges respectively; it is strongly recommended to use this single number rating in combination with the complete sound absorption coefficient curve.
2. SAA and NRC are defined in ASTM C423; laboratory requirements for which differ from AS ISO 354.
3. Physical characteristics of materials may be as per client or supplier's advice; not necessarily verified by CSIRO.
4. Open area estimates are based on 600 x 600 mm of ceiling area being 'treated' by each tile.

Issuing Authority

Signed: .....
David Truett
Date: 4 August 2020

Instrumentation

Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphones/preamps: • 4 x GRAS microphones (types 40AR & 40AP, 2 ea) on GRAS & B&K preamplifiers, in 4 fixed positions as per AS ISO 354
Noise source: • Room populated with three dodecahedron loudspeakers; (2 x Norsonic NOR276 & 1 x B&K 4296), driven in turn by a Norsonic NOR280 power amplifier.
Calibration: • Analyser: July 2018 (NATA cal)

Laboratory Construction

Reverb room: • 300 mm thick concrete (closed off from the adjoining room by an MDF wall) • parallelepiped with dimensional proportions 1:1.3:1.6 for distribution of room modes • approx 202 m³ total room volume • approx 215 m² surface area excluding diffusers
Diffusers: • 20 stationary diffusers, approx 40 m² total surface area
Absorption area: • in accordance with AS ISO 354, unless noted otherwise

CSIRO ACOUSTIC MEASUREMENT REPORT

Commonwealth Scientific and Industrial Research Organisation, Infrastructure Technologies
Acoustics Testing Laboratory, Gate 5, 2 Normanby Road, Clayton, Vic 3168 Australia

Report No: **AC262-04-1**

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mortdale, NSW 2223

Measurement Type: Sound Absorption

AS ISO 354–2006 *"Acoustics–Measurement of sound absorption in a reverberation room"*
AS ISO 11654–2002 (ISO 11654:1997) *"Acoustics–Rating of sound absorption–Materials and systems"*

Test Specimen

[Specimen area: 3.6 x 3.0 m (10.8 m^2), Test Configuration[4]: Type E-400]

Description: • Bailey "Open Cell" acoustic coffer tile with black scrim backing, • in 600 mm grid • with 20 mm Supertel glaswool behind

Materials[3]

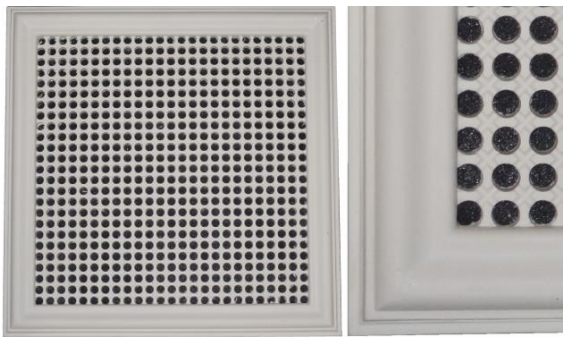
a] Bailey "Open Cell" acoustic coffer tile: • perforated moulded plaster ceiling tiles, • with Pyrotek Sorbertextile P44FR fabric stapled to the back of the panel, • designed to drop into a standard 600 x 600 mm suspended ceiling grid (actual tile size approx 590 mm square), • thickness: 33mm overall (10 mm behind ceiling tee), • perforated with a set of 25 x 25 circular holes, • hole size 15 mm opening at the mouth, tapering to 13.5 mm at the rear; holes at 19.2 mm centres, • open area percentage in standard grid installation: 24.9% (based on 13.5 mm throat opening; 30.7% based on 15 mm mouth opening) , • decorative effect of perforations supplemented by additional moulding details (raised coffer framing the perforated area which was also furnished with grooves between the perforations).

b] Bradford Supertel 20 mm: • 20 mm thick semi-rigid glasswool board (32 kg/m^3), • no facing fabric, • supplied in 550 x 550 mm panels (factory-cut).

Installation

- The test specimen was installed as an upside down ceiling on the floor of the chamber.
- A 400 mm deep enclosure (32 mm MDF timber, approx 23 kg/m^2) was placed on the floor of the chamber, 12° off parallel with the walls. The enclosure was taped at all joints to prevent air leakage between the enclosed space and the outside.
- A system of steel wall studs/track was set up inside the enclosure to support the specimen panels. The cavity behind the panels was a single undivided cavity without internal partitions.
- A set of timber struts was installed in the metal support system to suspend the glasswool material [item b] immediately behind the perforated panels.
- Thirty (30) tiles [item a] were then installed (at 600 mm centres) against the glasswool.
- Tee sections were placed on top to cover the gaps between adjacent tiles and acoustically mimic a normal ceiling installation. At the perimeter of the test specimen, the gap between the enclosure and the edges of the tiles was covered with masking tape.
- Specimen installation was carried out by laboratory staff.

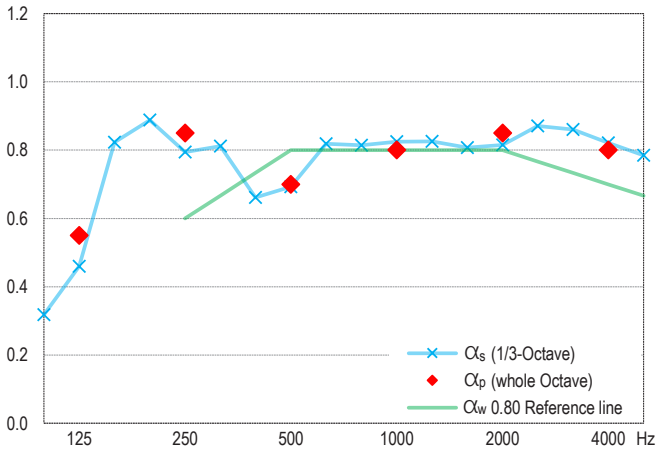
Test specimen installed for testing (image inverted to depict ceiling installation)



Panel details – Left: whole panel, Right: perforations (exposed black fabric behind)

Measurement Details & Results

Freq	Absorption coefficients			Reverberation times, T_{60} (sec)	
Hz	α_s	α_p	95% Conf (δ)	Empty room	with Specimen
100	0.32		0.09	5.73	3.57
125	0.46	0.55	0.13	6.75	3.33
160	0.82		0.09	6.87	2.39
200	0.89		0.09	5.98	2.17
250	0.79	0.85	0.07	5.22	2.20
315	0.81		0.08	5.87	2.28
400	0.66		0.06	5.98	2.59
500	0.69	0.70	0.03	5.92	2.51
630	0.82		0.05	5.72	2.24
800	0.81		0.03	5.41	2.20
1000	0.82	0.80	0.04	5.24	2.16
1250	0.83		0.04	4.78	2.07
1600	0.81		0.04	4.27	1.99
2000	0.81	0.85	0.04	3.82	1.87
2500	0.87		0.03	3.41	1.71
3150	0.86		0.02	3.00	1.61
4000	0.82	0.80	0.03	2.46	1.46
5000	0.78		0.04	2.03	1.31



Performance Indices[1,2]
α_w = 0.80 (L)
SAA = 0.80
NRC = 0.80

The required 12 spatially independent decay curves came from ensemble averaging 10 successive decays with each of 3 different source loudspeaker positions, all sampled by 4 fixed microphones, using linear averaging.

Measurement Conditions	Empty room	with Test Specimen
Date of measurement:	4 Oct 2019	4 Oct 2019
Temperature & humidity:	16 °C, 63 % R.H.	17 °C, 56 % R.H.
Atmospheric pressure:	1011 mBar	1010 mBar

Notes, Deviations etc

1. Shape indicators (L, M, and H), if any, following the α_w index, indicate α_p values above the reference contour by ≥ 0.25 in the Low, Medium or High frequency ranges respectively; it is strongly recommended to use this single number rating in combination with the complete sound absorption coefficient curve.
2. SAA and NRC are defined in ASTM C423; laboratory requirements for which differ from AS ISO 354.
3. Physical characteristics of materials may be as per client or supplier's advice; not necessarily verified by CSIRO.
4. The E-400 mounting designation is based on the distance from the rear of the cavity to the exposed face of the ceiling grid.

Issuing Authority

Signed: .....
David Truett
Date: 8 October 2019

Instrumentation

Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphones/preamps: • 2 x GRAS type 40AP and 2 x B&K type 4134 microphones, all on B&K type 2669 preamps, in 4 fixed positions as per AS ISO 354
Noise source: • Room populated with three decahedron loudspeakers; 2 Norsonic NOR276 & 1 x B&K 4296), driven in turn by a Norsonic NOR280 power amplifier.
Calibration: • Analyser: July 2018 (NATA cal)

Laboratory Construction

Reverb room: • 300 mm thick concrete (closed off from the adjoining room by an MDF Wall) • parallelepiped with dimensional proportions 1:1.3:1.6 for distribution of room modes • approx 202 m^3 total room volume • approx 215 m^2 surface area excluding diffusers
Diffusers: • 20 stationary diffusers, approx 40 m^2 total surface area
Absorption area: • in accordance with AS ISO 354, unless noted otherwise

CSIRO ACOUSTIC MEASUREMENT REPORT

Commonwealth Scientific and Industrial Research Organisation, Infrastructure Technologies
Acoustics Testing Laboratory, Gate 5, 2 Normanby Road, Clayton, Vic 3168 Australia

Report No: **AC277-09-1**

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mortdale, NSW 2223

Measurement Type: Sound Absorption

AS ISO 354–2006 [R2016]: *Acoustics–Measurement of sound absorption in a reverberation room*
AS ISO 11654–2002 [R2016] (ISO 11654:1997): *Acoustics–Rating of sound absorption–Materials and systems*

Test Specimen

[Specimen area: 3.6 x 3.0 m (10.8 m²)]

Description: • Bailey "Super Diamond Acoustic Coffer" drop-in ceiling tiles, • in 600 mm grid, • with black tissue-faced glass fibre batts behind, open to the cavity (Type E-200)

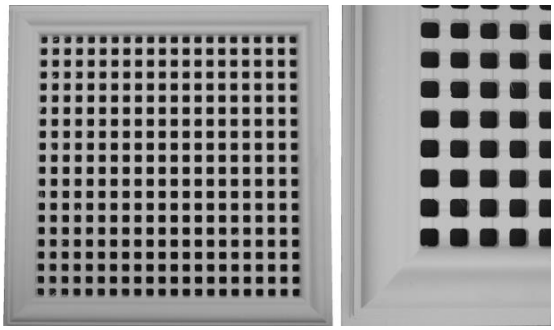
Tile and Batt Details[3]

- Moulded plaster ceiling tiles designed to drop into a standard 600 mm suspended ceiling grid.
- Perforated with a regular pattern of 484 square holes with rounded corners (22 x 22 array); hole size approx 14.5 mm at the face, tapering to 13 mm at the rear, positioned at approx 22 mm spacing.
- Decorative effect of perforations was supplemented by additional moulding details (protruding coffer frame, and orthogonal grooves between adjacent perforations).
- Open area percentage[4] (estimated): 27.2 % (based on mouth area at perforated face); 21.7 % (based on throat area at rear of panel, behind which lay the fibre batt and ceiling cavity).
- Each tile backed with a semi rigid high-density glass fibre batt faced with a black tissue material (CSR Bradford product), 500 x 500 x 20 mm (approx 42 kg/m³); the black tissue face being against the perforated rear face of the tile. Ordinarily the batts would be factory-fixed (stapled) to the rear of each tile, but in this instance the batts were provided as separate items and positioned behind the perforated area of the tiles during test-installation.

Installation

- The test specimen was installed as an upside-down ceiling on the floor of the chamber.
- A 200 mm deep enclosure (32 mm MDF timber, approx 23 kg/m², built to surround an area of 3600 x 3000 mm) was placed on the floor of the chamber at a 12° angle to the chamber walls (not parallel, as per AS ISO 354 cl6.2.1.2). The junction of the enclosure and the floor was taped.
- A system of steel wall studs/track, and support struts was set up inside the enclosure to support the batts and tiles. The cavity behind was a single undivided cavity without internal partitions.
- Batts and tiles were arranged in a 6 x 5 array on the support system.
- Tee sections were placed on top to cover the gaps between adjacent tiles, equivalent to a normal ceiling installation. The perimeter of the installed test specimen was taped with masking tape to seal between the tiles and the enclosure at the perimeter.
- Specimen installation was carried out by laboratory staff.

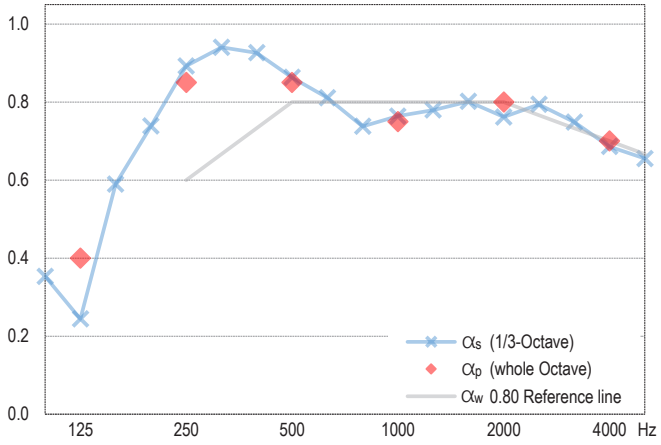
Test specimen installed for testing (image inverted to depict ceiling installation)



Tile details – Left: whole tile, Right: close-up view

Measurement Details & Results

Freq	Absorption coefficients			Reverberation times, T_{60} (sec)	
Hz	α_s	α_p	95% Conf (δ)	Empty room	with Specimen
100	0.35		0.06	5.82	3.46
125	0.24	0.40	0.04	6.19	4.13
160	0.59		0.09	6.19	2.81
200	0.74		0.07	5.74	2.39
250	0.89	0.85	0.07	4.91	2.01
315	0.94		0.07	5.93	2.09
400	0.93		0.06	5.89	2.10
500	0.86	0.85	0.05	5.60	2.16
630	0.81		0.05	5.35	2.20
800	0.74		0.04	5.11	2.27
1000	0.76	0.75	0.03	4.81	2.17
1250	0.78		0.03	4.31	2.04
1600	0.80		0.03	3.87	1.91
2000	0.76	0.80	0.04	3.41	1.84
2500	0.79		0.04	3.02	1.69
3150	0.75		0.03	2.60	1.60
4000	0.69	0.70	0.04	2.08	1.43
5000	0.66		0.04	1.65	1.24



Performance Indices[1,2]
α_w = 0.80 (L)
SAA = 0.82
NRC = 0.80

The required 12 spatially independent decay curves came from ensemble averaging 10 successive decays with each of 3 different source loudspeaker positions, all sampled by 4 fixed microphones, using linear averaging.

Measurement Conditions	Empty room	with Test Specimen
Date of measurement:	24 Jul 2020	24 Jul 2020
Temperature & humidity:	16 °C, 46 % R.H.	17 °C, 47 % R.H.
Atmospheric pressure:	1012 mBar	1014 mBar

Notes, Deviations etc

1. Shape indicators (L, M, and H), if any, following the α_w index, indicate α_p values above the reference contour by ≥ 0.25 in the Low, Medium or High frequency ranges respectively; it is strongly recommended to use this single number rating in combination with the complete sound absorption coefficient curve.
2. SAA and NRC are defined in ASTM C423; laboratory requirements for which differ from AS ISO 354.
3. Physical characteristics of materials may be as per client or supplier's advice; not necessarily verified by CSIRO.
4. Open area estimates are based on 600 x 600 mm of ceiling area being 'treated' by each tile.

Issuing Authority

Signed: .....
David Truett
Date: 4 August 2020

Instrumentation

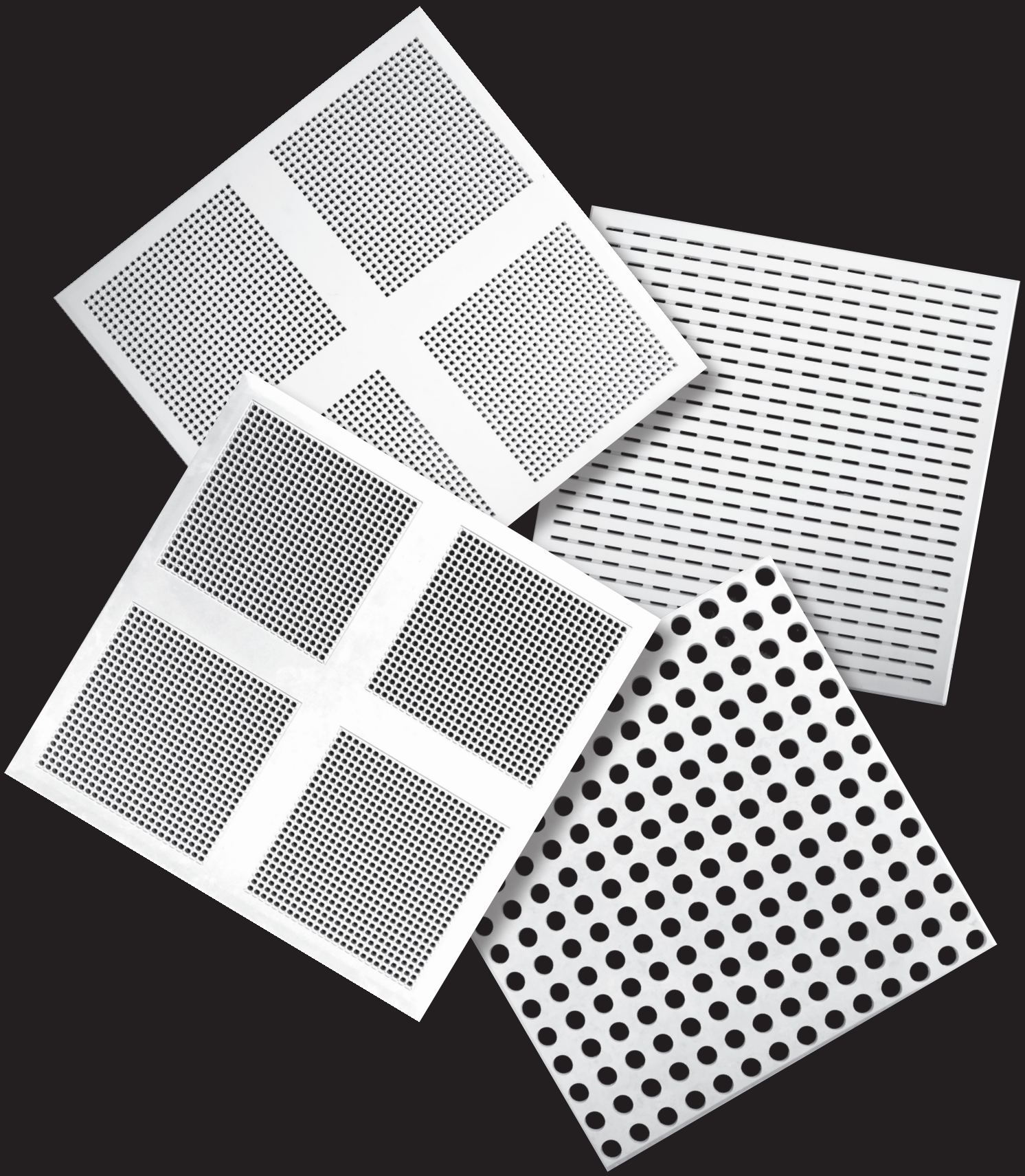
Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphones/preamps: • 4 x GRAS microphones (types 40AR & 40AP, 2 ea) on GRAS & B&K preamplifiers, in 4 fixed positions as per AS ISO 354
Noise source: • Room populated with three dodecahedron loudspeakers; (2 x Norsonic NOR276 & 1 x B&K 4296), driven in turn by a Norsonic NOR280 power amplifier.
Calibration: • Analyser: July 2018 (NATA cal)

Laboratory Construction

Reverb room: • 300 mm thick concrete (closed off from the adjoining room by an MDF wall) • parallelepiped with dimensional proportions 1:1.3:1.6 for distribution of room modes • approx 202 m³ total room volume • approx 215 m² surface area excluding diffusers
Diffusers: • 20 stationary diffusers, approx 40 m² total surface area
Absorption area: • in accordance with AS ISO 354, unless noted otherwise

TEST RESULTS

New York Collection



CSIRO ACOUSTIC MEASUREMENT REPORT

Commonwealth Scientific and Industrial Research Organisation, Infrastructure Technologies
Acoustics Testing Laboratory, Gate 5, 2 Normanby Road, Clayton, Vic 3168 Australia

Report No: **AC277-27-1**

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mortdale, NSW 2223

Measurement Type: Sound Absorption

AS ISO 354–2006 [R2016]: *Acoustics–Measurement of sound absorption in a reverberation room*
AS ISO 11654–2002 [R2016] (ISO 11654:1997): *Acoustics–Rating of sound absorption–Materials and systems*

Test Specimen

[Specimen area: 3.6 x 3.0 m (10.8 m²)]

Description: • Bailey "Ceil Sound" screw-up acoustic ceiling panels (1200 x 1200 mm),
• with black tissue-faced 50 mm glass fibre behind, open to the cavity (Type E-200)

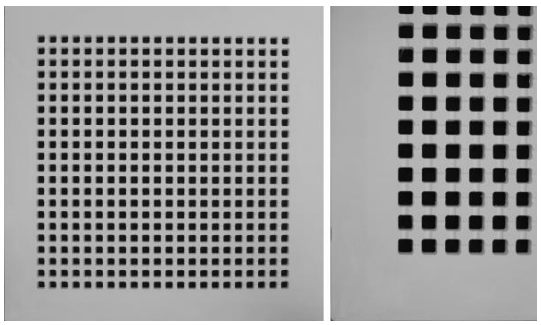
Panel and Batt Details[3]

- Moulded plaster ceiling panels designed to be screw fixed to ceiling battens above.
- Perforated with square holes with rounded corners; hole size approx 14.5 mm at the face, tapering to 13 mm at the rear. Holes were positioned at approx 22 mm spacing in four banks of 22 x 22 holes (484 holes per 600 x 600 mm quarter-panel; 1936 holes per 1200 x 1200 mm panel).
- Decorative effect of perforations was supplemented by orthogonal grooves between adjacent perforations within each bank).
- Open area percentage[4] (estimated): 27.2 % (based on mouth area at perforated face); 21.7 % (based on throat area at rear of panel, behind which lay the fibre batt and ceiling cavity).
- A layer of 50 mm thick semi rigid high-density CSR Bradford glass fibre material (nom 32 kg/m³), faced with a black tissue fabric was supported to the underside of the perforated panels during installation.

Installation

- The test specimen was installed as an upside-down ceiling on the floor of the chamber.
- A 200 mm deep enclosure (32 mm MDF timber, approx 23 kg/m², built to surround an area of 3600 x 3000 mm) was placed on the floor of the chamber at a 11° angle to the chamber walls (not parallel, as per AS ISO 354 cl6.2.1.2).
- A system of extruded aluminium profiles (all solid, not hollow) and plastic support pieces was set up inside the enclosure to support the panels with their exposed face nominally flush with the enclosure, and the tissue-faced glass fibre material against the rear surface of the panels. The cavity behind was a single undivided cavity without internal partitions.
- The glass fibre material was cut to size and laid on the supporting ledges formed by the aluminium extrusions, and the plaster panels laid on top; 6 x full panels and 3 x half-panels.
- All exposed edges/junctions/joins of panels, enclosure and the floor of the room were taped with masking tape.
- Specimen installation was carried out by laboratory staff.

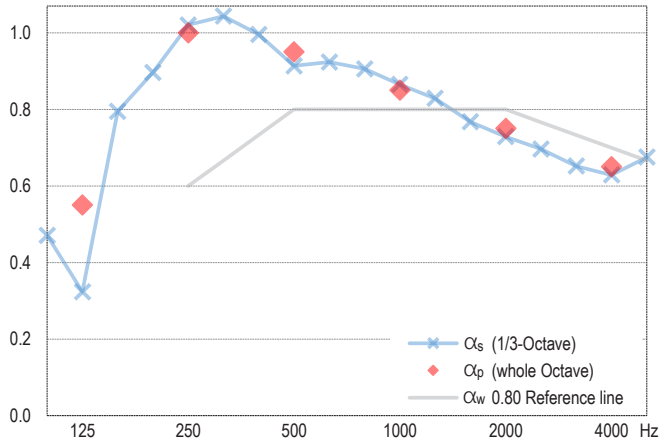
Test specimen installed for testing (image inverted to depict ceiling installation)



Panel details – Left: perforations (quarter of a panel), Right: close-up view

Measurement Details & Results

Freq	Absorption coefficients			Reverberation times, T_{60} (sec)	
Hz	α_s	α_p	95% Conf (δ)	Empty room	with Specimen
100	0.47		0.09	5.38	2.93
125	0.32	0.55	0.06	6.62	3.88
160	0.79		0.11	6.51	2.41
200	0.90		0.08	5.85	2.15
250	1.02	1.00	0.08	5.07	1.88
315	1.04		0.09	6.15	1.98
400	1.00		0.06	6.24	2.05
500	0.91	0.95	0.05	5.82	2.12
630	0.92		0.04	5.75	2.09
800	0.91		0.04	5.38	2.07
1000	0.86	0.85	0.05	5.19	2.10
1250	0.83		0.05	4.65	2.05
1600	0.77		0.03	4.15	2.02
2000	0.73	0.75	0.04	3.67	1.95
2500	0.70		0.03	3.19	1.83
3150	0.65		0.04	2.78	1.73
4000	0.63	0.65	0.05	2.25	1.52
5000	0.68		0.04	1.80	1.27



Performance Indices[1,2]
α_w = 0.80 (L)
SAA = 0.88
NRC = 0.90

The required 12 spatially independent decay curves came from ensemble averaging 10 successive decays with each of 3 different source loudspeaker positions, all sampled by 4 fixed microphones, using linear averaging.

Measurement Conditions	Empty room	with Test Specimen
Date of measurement:	26 Aug 2020	26 Aug 2020
Temperature & humidity:	17 °C, 51 % R.H.	16 °C, 50 % R.H.
Atmospheric pressure:	1019 mBar	1018 mBar

Notes, Deviations etc

1. Shape indicators (L, M, and H), if any, following the α_w index, indicate α_p values above the reference contour by ≥ 0.25 in the Low, Medium or High frequency ranges respectively; it is strongly recommended to use this single number rating in combination with the complete sound absorption coefficient curve.
2. SAA and NRC are defined in ASTM C423; laboratory requirements for which differ from AS ISO 354.
3. Physical characteristics of materials may be as per client or supplier's advice; not necessarily verified by CSIRO.
4. Open area estimates are based on 1200 x 1200 mm of ceiling area being 'treated' per whole panel.

Issuing Authority

Signed: .....
David Truett
Date: 9 September 2020

Instrumentation

Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphones/preamps: • 2 x GRAS type 46AR mic/preamp sets, and 2 x B&K type 4134 mics on B&K 2669 preamps, in 4 fixed positions as per AS ISO 354
Noise source: • Room populated with three dodecahedron loudspeakers; (2 x Norsonic NOR276 & 1 x B&K 4296), driven in turn by a Norsonic NOR280 power amplifier.
Calibration: • Analyser: July 2018 (NATA cal)

Laboratory Construction

Reverb room: • 300 mm thick concrete (closed off from the adjoining room by a plasterboard wall) • parallelepiped with dimensional proportions 1:1.3:1.6 for distribution of room modes • approx 202 m³ total room volume • approx 215 m² surface area excluding diffusers
Diffusers: • 20 stationary diffusers, approx 40 m² total surface area
Absorption area: • in accordance with AS ISO 354, unless noted otherwise

CSIRO Acoustic Measurement Report

Commonwealth Scientific and Industrial Research Organisation, Infrastructure Technologies
Acoustics Testing Laboratory, Gate 5, 2 Normanby Road, Clayton, Vic 3168 Australia

Report No: **AC277-15-1**

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mortdale, NSW 2223

Measurement Type: Sound Absorption

AS ISO 354–2006 [R2016]: *Acoustics–Measurement of sound absorption in a reverberation room*
AS ISO 11654–2002 [R2016] (ISO 11654:1997): *Acoustics–Rating of sound absorption–Materials and systems*

Test Specimen

[Specimen area: 3.6 x 3.0 m (10.8 m²)]

Description: • Bailey "Ceil Sound" screw-up acoustic ceiling panels (1200 x 1200 mm),
• with black tissue-faced glass fibre batts behind, open to the cavity (Type E-200)

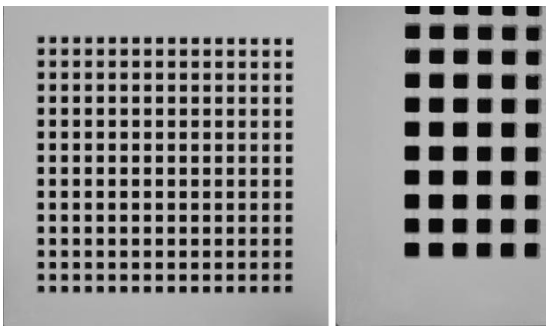
Panel and Batt Details[3]

- Moulded plaster ceiling panels designed to be screw fixed to ceiling battens above.
- Perforated with square holes with rounded corners; hole size approx 14.5 mm at the face, tapering to 13 mm at the rear. Holes were positioned at approx 22 mm spacing in four banks of 22 x 22 holes (484 holes per 600 x 600 mm quarter-panel; 1936 holes per 1200 x 1200 mm panel).
- Decorative effect of perforations was supplemented by orthogonal grooves between adjacent perforations within each bank).
- Open area percentage[4] (estimated): 27.2 % (based on mouth area at perforated face); 21.7 % (based on throat area at rear of panel, behind which lay the fibre batt and ceiling cavity).
- Each bank of perforations on each tile backed with a semi rigid high-density glass fibre batt faced with a black tissue material (CSR Bradford product), 500 x 500 x 20 mm (approx 42 kg/m³); the black tissue face being against the perforated rear face of the tile. Ordinarily the batts would be factory-fixed (stapled) to the rear of each tile, but in this instance the batts were provided as separate items and positioned behind the perforated area of the tiles during test-installation.

Installation

- The test specimen was installed as an upside-down ceiling on the floor of the chamber.
- A 200 mm deep enclosure (32 mm MDF timber, approx 23 kg/m², built to surround an area of 3600 x 3000 mm) was placed on the floor of the chamber at a 11° angle to the chamber walls (not parallel, as per AS ISO 354 cl6.2.1.2). The junction of the enclosure and the floor was taped.
- A system of steel wall studs/track, and support struts was set up inside the enclosure to support the batts and tiles. The cavity behind was a single undivided cavity without internal partitions.
- 30 batts in a 6 x 5 array were carefully arranged on the support struts to align with the banks of holes in the panels placed on top (3 x whole panels and 3 x half panels).
- All panel joins were taped with masking tape, as also was the junction between the enclosure and the perimeter of the test specimen panel installation.
- Specimen installation was carried out by laboratory staff.

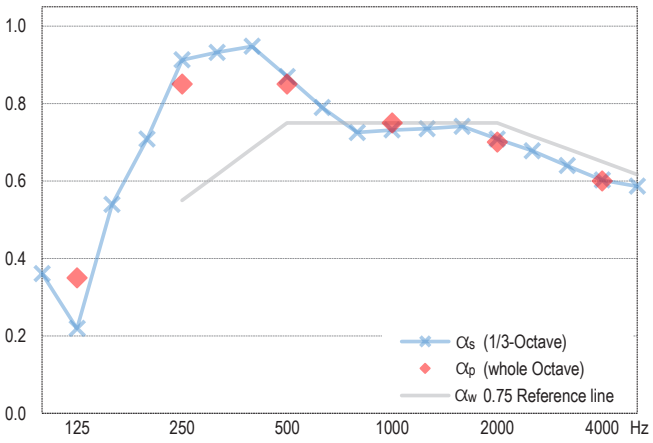
Test specimen installed for testing (image inverted to depict ceiling installation)



Panel details – Left: perforations (quarter of a panel), Right: close-up view

Measurement Details & Results

Freq	Absorption coefficients			Reverberation times, T_{60} (sec)	
Hz	α_s	α_p	95% Conf (δ)	Empty room	with Specimen
100	0.36		0.06	5.79	3.42
125	0.22	0.35	0.05	6.33	4.34
160	0.54		0.07	6.21	2.95
200	0.71		0.05	5.62	2.43
250	0.91	0.85	0.09	5.11	2.01
315	0.93		0.07	6.01	2.11
400	0.95		0.05	5.96	2.08
500	0.87	0.85	0.06	5.54	2.14
630	0.79		0.05	5.26	2.22
800	0.73		0.05	5.09	2.29
1000	0.73	0.75	0.04	4.98	2.26
1250	0.74		0.03	4.40	2.13
1600	0.74		0.03	3.95	2.01
2000	0.71	0.70	0.05	3.59	1.95
2500	0.68		0.03	3.21	1.87
3150	0.64		0.03	2.88	1.79
4000	0.60	0.60	0.04	2.41	1.64
5000	0.59		0.04	1.95	1.42



Performance Indices[1,2]
α_w = 0.75 (L)
SAA = 0.79
NRC = 0.80

The required 12 spatially independent decay curves came from ensemble averaging 10 successive decays with each of 3 different source loudspeaker positions, all sampled by 4 fixed microphones, using linear averaging.

Measurement Conditions	Empty room	with Test Specimen
Date of measurement:	28 Jul 2020	28 Jul 2020
Temperature & humidity:	17 °C, 61 % R.H.	18 °C, 61 % R.H.
Atmospheric pressure:	1008 mBar	1007 mBar

Notes, Deviations etc

1. Shape indicators (L, M, and H), if any, following the α_w index, indicate α_p values above the reference contour by ≥ 0.25 in the Low, Medium or High frequency ranges respectively; it is strongly recommended to use this single number rating in combination with the complete sound absorption coefficient curve.
2. SAA and NRC are defined in ASTM C423; laboratory requirements for which differ from AS ISO 354.
3. Physical characteristics of materials may be as per client or supplier's advice; not necessarily verified by CSIRO.
4. Open area estimates are based on 1200 x 1200 mm of ceiling area being 'treated' by each panel.

Issuing Authority

Signed: .....
David Truett
Date: 4 August 2020

Instrumentation

Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphones/preamps: • 4 x GRAS microphones (types 40AR & 40AP, 2 ea) on GRAS & B&K preamplifiers, in 4 fixed positions as per AS ISO 354
Noise source: • Room populated with three dodecahedron loudspeakers; (2 x Norsonic NOR276 & 1 x B&K 4296), driven in turn by a Norsonic NOR280 power amplifier.
Calibration: • Analyser: July 2018 (NATA cal)

Laboratory Construction

Reverb room: • 300 mm thick concrete (closed off from the adjoining room by an MDF wall) • parallelepiped with dimensional proportions 1:1.3:1.6 for distribution of room modes • approx 202 m³ total room volume • approx 215 m² surface area excluding diffusers
Diffusers: • 20 stationary diffusers, approx 40 m² total surface area
Absorption area: • in accordance with AS ISO 354, unless noted otherwise

CSIRO ACOUSTIC MEASUREMENT REPORT

Commonwealth Scientific and Industrial Research Organisation, Infrastructure Technologies
Acoustics Testing Laboratory, Gate 5, 2 Normanby Road, Clayton, Vic 3168 Australia

Report No: **AC277-29-1**

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mortdale, NSW 2223

Measurement Type: Sound Absorption

AS ISO 354–2006 [R2016]: *Acoustics–Measurement of sound absorption in a reverberation room*
AS ISO 11654–2002 [R2016] (ISO 11654:1997): *Acoustics–Rating of sound absorption–Materials and systems*

Test Specimen

[Specimen area: 3.6 x 3.0 m (10.8 m²)]

Description: • Bailey "Open Cell" screw-up acoustic ceiling panels (1200 x 1200 mm),
• with black tissue-faced 50 mm glass fibre behind, open to the cavity (Type E-200)

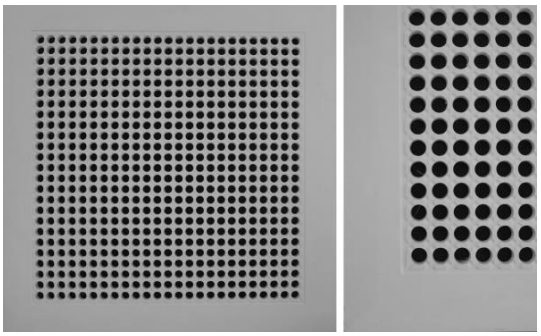
Panel and Batt Details[3]

- Moulded plaster ceiling panels designed to be screw fixed to ceiling battens above.
- Perforated with circular holes; hole size approx 15 mm at the face, tapering to 13.5 mm at the rear. Holes were positioned at approx 19.1 mm spacing in four banks of 25 x 25 holes (625 holes per 600 x 600 mm quarter-panel; 2500 holes per 1200 x 1200 mm panel).
- Decorative effect of perforations was supplemented by diagonal grooves on the facets between the perforations within each bank, and a square groove framing each bank of perforations.
- Open area percentage[4] (estimated): 30.7 % (based on mouth area at perforated face); 24.9 % (based on throat area at rear of panel, behind which lay the fibre batt and ceiling cavity).
- A layer of 50 mm thick semi rigid high-density CSR Bradford glass fibre material (nom 32 kg/m³), faced with a black tissue fabric was supported to the underside of the perforated panels during installation.

Installation

- The test specimen was installed as an upside-down ceiling on the floor of the chamber.
- A 200 mm deep enclosure (32 mm MDF timber, approx 23 kg/m², built to surround an area of 3600 x 3000 mm) was placed on the floor of the chamber at a 11° angle to the chamber walls (not parallel, as per AS ISO 354 cl6.2.1.2).
- A system of extruded aluminium profiles (all solid, not hollow) and plastic support pieces was set up inside the enclosure to support the panels with their exposed face nominally flush with the enclosure, and the tissue-faced glass fibre material against the rear surface of the panels. The cavity behind was a single undivided cavity without internal partitions.
- The glass fibre material was cut to size and laid on the supporting ledges formed by the aluminium extrusions, and the plaster panels laid on top; 6 x full panels and 3 x half-panels.
- All exposed edges/junctions/joins of panels, enclosure and the floor of the room were taped with masking tape.
- Specimen installation was carried out by laboratory staff.

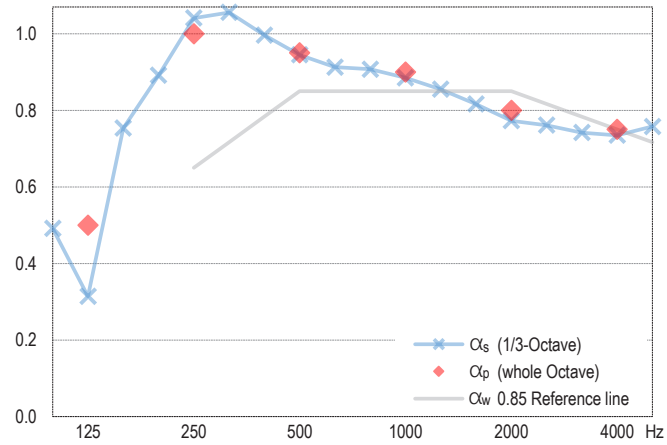
Test specimen installed for testing (image inverted to depict ceiling installation)



Panel details – Left: perforations (quarter of a panel), Right: close-up view

Measurement Details & Results

Freq	Absorption coefficients			Reverberation times, T_{60} (sec)	
Hz	α_s	α_p	95% Conf (δ)	Empty room	with Specimen
100	0.49		0.09	5.38	2.88
125	0.31	0.50	0.05	6.62	3.93
160	0.75		0.16	6.51	2.49
200	0.89		0.07	5.85	2.15
250	1.04	1.00	0.10	5.07	1.85
315	1.06		0.08	6.15	1.96
400	1.00		0.05	6.24	2.05
500	0.95	0.95	0.07	5.82	2.07
630	0.91		0.04	5.75	2.11
800	0.91		0.05	5.38	2.07
1000	0.88	0.90	0.04	5.19	2.07
1250	0.85		0.05	4.65	2.01
1600	0.82		0.03	4.15	1.96
2000	0.77	0.80	0.04	3.67	1.89
2500	0.76		0.04	3.19	1.76
3150	0.74		0.04	2.78	1.63
4000	0.73	0.75	0.04	2.25	1.43
5000	0.76		0.04	1.80	1.21



Performance Indices[1,2]
α_w = 0.85 (L)
SAA = 0.90
NRC = 0.90

The required 12 spatially independent decay curves came from ensemble averaging 10 successive decays with each of 3 different source loudspeaker positions, all sampled by 4 fixed microphones, using linear averaging.

Measurement Conditions	Empty room	with Test Specimen
Date of measurement:	26 Aug 2020	26 Aug 2020
Temperature & humidity:	17 °C, 51 % R.H.	16 °C, 49 % R.H.
Atmospheric pressure:	1019 mBar	1016 mBar

Notes, Deviations etc

1. Shape indicators (L, M, and H), if any, following the α_w index, indicate α_p values above the reference contour by ≥ 0.25 in the Low, Medium or High frequency ranges respectively; it is strongly recommended to use this single number rating in combination with the complete sound absorption coefficient curve.
2. SAA and NRC are defined in ASTM C423; laboratory requirements for which differ from AS ISO 354.
3. Physical characteristics of materials may be as per client or supplier's advice; not necessarily verified by CSIRO.
4. Open area estimates are based on 1200 x 1200 mm of ceiling area being 'treated' per whole panel.

Issuing Authority

Signed: .....
David Truett
Date: 9 September 2020

Instrumentation

Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphones/preamps: • 2 x GRAS type 46AR mic/preamp sets, and 2 x B&K type 4134 mics on B&K 2669 preamps, in 4 fixed positions as per AS ISO 354
Noise source: • Room populated with three dodecahedron loudspeakers; (2 x Norsonic NOR276 & 1 x B&K 4296), driven in turn by a Norsonic NOR280 power amplifier.
Calibration: • Analyser: July 2018 (NATA cal)

Laboratory Construction

Reverb room: • 300 mm thick concrete (closed off from the adjoining room by a plasterboard wall) • parallelepiped with dimensional proportions 1:1.3:1.6 for distribution of room modes • approx 202 m³ total room volume • approx 215 m² surface area excluding diffusers
Diffusers: • 20 stationary diffusers, approx 40 m² total surface area
Absorption area: • in accordance with AS ISO 354, unless noted otherwise

CSIRO ACOUSTIC MEASUREMENT REPORT

Commonwealth Scientific and Industrial Research Organisation, Infrastructure Technologies
Acoustics Testing Laboratory, Gate 5, 2 Normanby Road, Clayton, Vic 3168 Australia

Report No: **AC277-16-1**

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mortdale, NSW 2223

Measurement Type: Sound Absorption

AS ISO 354–2006 [R2016]: *Acoustics–Measurement of sound absorption in a reverberation room*
AS ISO 11654–2002 [R2016] (ISO 11654:1997): *Acoustics–Rating of sound absorption–Materials and systems*

Test Specimen

[Specimen area: 3.6 x 3.0 m (10.8 m²)]

Description: • Bailey "Open Cell" screw-up acoustic ceiling panels (1200 x 1200 mm),
• with black tissue-faced glass fibre batts behind, open to the cavity (Type E-200)

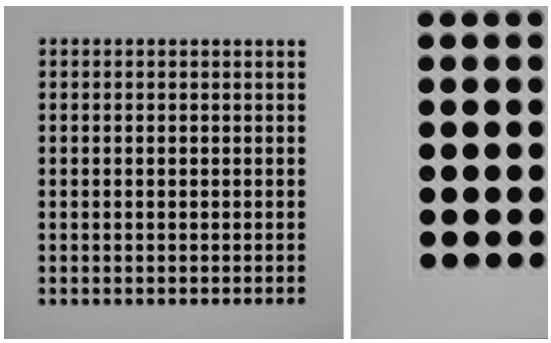
Panel and Batt Details[3]

- Moulded plaster ceiling panels designed to be screw fixed to ceiling battens above.
- Perforated with circular holes; hole size approx 15 mm at the face, tapering to 13.5 mm at the rear. Holes were positioned at approx 19.1 mm spacing in four banks of 25 x 25 holes (625 holes per 600 x 600 mm quarter-panel; 2500 holes per 1200 x 1200 mm panel).
- Decorative effect of perforations was supplemented by diagonal grooves on the facets between the perforations within each bank, and a square groove framing each bank of perforations.
- Open area percentage[4] (estimated): 30.7 % (based on mouth area at perforated face); 24.9 % (based on throat area at rear of panel, behind which lay the fibre batt and ceiling cavity).
- Each bank of perforations on each tile backed with a semi rigid high density glass fibre batt faced with a black tissue material (CSR Bradford product), 500 x 500 x 20 mm (approx 42 kg/m³); the black tissue face being against the perforated rear face of the tile. Ordinarily the batts would be factory-fixed (stapled) to the rear of each tile, but in this instance the batts were provided as separate items and positioned behind the perforated area of the tiles during test-installation.

Installation

- The test specimen was installed as an upside-down ceiling on the floor of the chamber.
- A 200 mm deep enclosure (32 mm MDF timber, approx 23 kg/m², built to surround an area of 3600 x 3000 mm) was placed on the floor of the chamber at a 11° angle to the chamber walls (not parallel, as per AS ISO 354 cl6.2.1.2). The junction of the enclosure and the floor was taped.
- A system of steel wall studs/track, and support struts was set up inside the enclosure to support the batts and tiles. The cavity behind was a single undivided cavity without internal partitions.
- 30 batts in a 6 x 5 array were carefully arranged on the support struts to align with the banks of holes in the panels placed on top (3 x whole panels and 3 x half panels).
- All panel joins were taped with masking tape, as also was the junction between the enclosure and the perimeter of the test specimen panel installation.
- Specimen installation was carried out by laboratory staff.

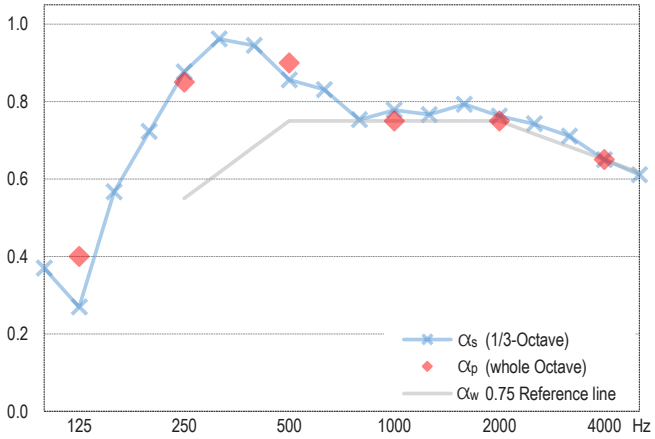
Test specimen installed for testing (image inverted to depict ceiling installation)



Panel details – Left: perforations (quarter of a panel), Right: close-up view

Measurement Details & Results

Freq	Absorption coefficients			Reverberation times, T_{60} (sec)	
Hz	α_s	α_p	95% Conf (δ)	Empty room	with Specimen
100	0.37		0.07	5.79	3.39
125	0.27	0.40	0.06	6.33	4.05
160	0.57		0.08	6.21	2.87
200	0.72		0.06	5.62	2.40
250	0.88	0.85	0.06	5.11	2.06
315	0.96		0.07	6.01	2.06
400	0.94		0.05	5.96	2.08
500	0.86	0.90	0.06	5.54	2.15
630	0.83		0.05	5.26	2.15
800	0.75		0.02	5.09	2.24
1000	0.78	0.75	0.04	4.98	2.18
1250	0.77		0.03	4.40	2.08
1600	0.79		0.03	3.95	1.94
2000	0.76	0.75	0.04	3.59	1.88
2500	0.74		0.03	3.21	1.79
3150	0.71		0.04	2.88	1.72
4000	0.65	0.65	0.04	2.41	1.59
5000	0.61		0.05	1.95	1.40



Performance Indices[1,2]
α_w = 0.75 (L)
SAA = 0.82
NRC = 0.80

The required 12 spatially independent decay curves came from ensemble averaging 10 successive decays with each of 3 different source loudspeaker positions, all sampled by 4 fixed microphones, using linear averaging.

Measurement Conditions	Empty room	with Test Specimen
Date of measurement:	28 Jul 2020	28 Jul 2020
Temperature & humidity:	17 °C, 61 % R.H.	18 °C, 60 % R.H.
Atmospheric pressure:	1008 mBar	1007 mBar

Notes, Deviations etc

1. Shape indicators (L, M, and H), if any, following the α_w index, indicate α_p values above the reference contour by ≥ 0.25 in the Low, Medium or High frequency ranges respectively; it is strongly recommended to use this single number rating in combination with the complete sound absorption coefficient curve.
2. SAA and NRC are defined in ASTM C423; laboratory requirements for which differ from AS ISO 354.
3. Physical characteristics of materials may be as per client or supplier's advice; not necessarily verified by CSIRO.
4. Open area estimates are based on 1200 x 1200 mm of ceiling area being 'treated' by each panel.

Issuing Authority

Signed: .....
David Truett
Date: 4 August 2020

Instrumentation

Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphones/preamps: • 4 x GRAS microphones (types 40AR & 40AP, 2 ea) on GRAS & B&K preamplifiers, in 4 fixed positions as per AS ISO 354
Noise source: • Room populated with three dodecahedron loudspeakers; (2 x Norsonic NOR276 & 1 x B&K 4296), driven in turn by a Norsonic NOR280 power amplifier.
Calibration: • Analyser: July 2018 (NATA cal)

Laboratory Construction

Reverb room: • 300 mm thick concrete (closed off from the adjoining room by an MDF wall) • parallelepiped with dimensional proportions 1:1.3:1.6 for distribution of room modes • approx 202 m³ total room volume • approx 215 m² surface area excluding diffusers
Diffusers: • 20 stationary diffusers, approx 40 m² total surface area
Absorption area: • in accordance with AS ISO 354, unless noted otherwise

CSIRO ACOUSTIC MEASUREMENT REPORT

Commonwealth Scientific and Industrial Research Organisation, Infrastructure Technologies
Acoustics Testing Laboratory, Gate 5, 2 Normanby Road, Clayton, Vic 3168 Australia

Report No: **AC277-25-1**

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mortdale, NSW 2223

Measurement Type: Sound Absorption

AS ISO 354–2006 [R2016]: *Acoustics–Measurement of sound absorption in a reverberation room*
AS ISO 11654–2002 [R2016] (ISO 11654:1997): *Acoustics–Rating of sound absorption–Materials and systems*

Test Specimen

[Specimen area: 3.6 x 3.0 m (10.8 m²)]

Description: • Bailey "Cell Air" screw-up acoustic ceiling panels (1200 x 1200 mm),
• with black tissue-faced 50 mm glass fibre behind, open to the cavity (Type E-200)

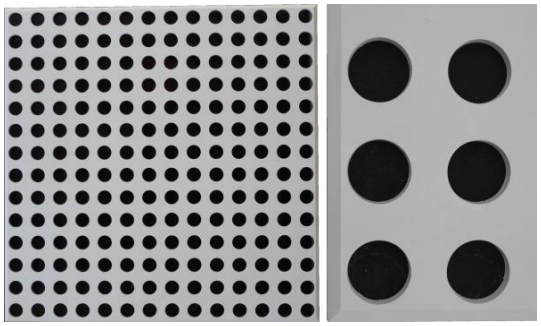
Panel and Batt Details[3]

- Moulded plaster ceiling panels designed to be screw fixed to ceiling battens above.
- Perforated with large circular holes; hole size approx 54.5 mm at the face, tapering to 53 mm at the rear. Holes were positioned at approx 85.5 mm spacing in a continuous array of 196 holes per panel (14 x 14 array).
- Open area percentage[4] (estimated): 31.8 % (based on mouth area at perforated face); 30.0 % (based on throat area at rear of panel, behind which lay the fibre batt and ceiling cavity).
- A layer of 50 mm thick semi rigid high-density CSR Bradford glass fibre material (nom 32 kg/m³), faced with a black tissue fabric was supported to the underside of the perforated panels during installation.

Installation

- The test specimen was installed as an upside-down ceiling on the floor of the chamber.
- A 200 mm deep enclosure (32 mm MDF timber, approx 23 kg/m², built to surround an area of 3600 x 3000 mm) was placed on the floor of the chamber at a 11° angle to the chamber walls (not parallel, as per AS ISO 354 cl6.2.1.2).
- A system of extruded aluminium profiles (all solid, not hollow) and plastic support pieces was set up inside the enclosure to support the panels with their exposed face nominally flush with the enclosure, and the tissue-faced glass fibre material against the rear surface of the panels. The cavity behind was a single undivided cavity without internal partitions.
- The glass fibre material was cut to size and laid on the supporting ledges formed by the aluminium extrusions, and the plaster panels laid on top; 6 x full panels and 3 x half-panels.
- All exposed edges/junctions/joins of panels, enclosure and the floor of the room were taped with masking tape.
- Specimen installation was carried out by laboratory staff.

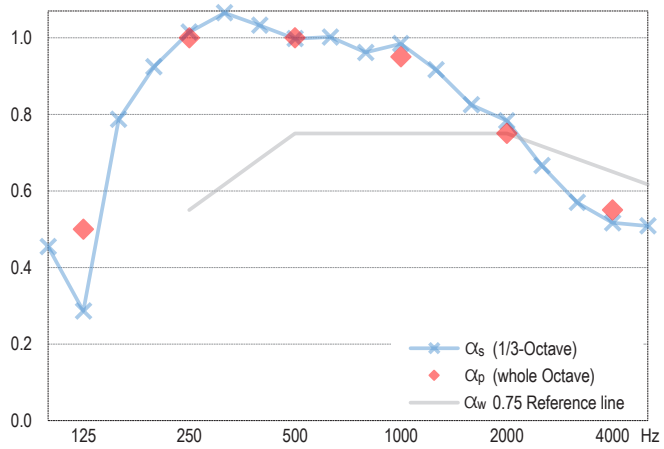
Test specimen installed for testing (image inverted to depict ceiling installation)



Panel details – Left: whole panel, Right: close-up view

Measurement Details & Results

Freq	Absorption coefficients			Reverberation times, T_{60} (sec)	
Hz	α_s	α_p	95% Conf (δ)	Empty room	with Specimen
100	0.45		0.07	5.38	2.98
125	0.29	0.50	0.07	6.62	4.08
160	0.79		0.13	6.51	2.42
200	0.92		0.08	5.85	2.10
250	1.01	1.00	0.09	5.07	1.88
315	1.07		0.09	6.15	1.95
400	1.03		0.06	6.24	2.00
500	1.00	1.00	0.04	5.82	2.00
630	1.00		0.04	5.75	1.98
800	0.96		0.04	5.38	1.99
1000	0.98	0.95	0.04	5.19	1.93
1250	0.92		0.06	4.65	1.94
1600	0.82		0.03	4.15	1.95
2000	0.78	0.75	0.04	3.67	1.89
2500	0.67		0.03	3.19	1.88
3150	0.57		0.03	2.78	1.84
4000	0.52	0.55	0.03	2.25	1.64
5000	0.51		0.03	1.80	1.40



Performance Indices[1,2]
α_w = 0.75 (LM)
SAA = 0.93
NRC = 0.95

The required 12 spatially independent decay curves came from ensemble averaging 10 successive decays with each of 3 different source loudspeaker positions, all sampled by 4 fixed microphones, using linear averaging.

Measurement Conditions	Empty room	with Test Specimen
Date of measurement:	26 Aug 2020	26 Aug 2020
Temperature & humidity:	17 °C, 51 % R.H.	17 °C, 53 % R.H.
Atmospheric pressure:	1019 mBar	1019 mBar

Notes, Deviations etc

1. Shape indicators (L, M, and H), if any, following the α_w index, indicate α_p values above the reference contour by ≥ 0.25 in the Low, Medium or High frequency ranges respectively; it is strongly recommended to use this single number rating in combination with the complete sound absorption coefficient curve.
2. SAA and NRC are defined in ASTM C423; laboratory requirements for which differ from AS ISO 354.
3. Physical characteristics of materials may be as per client or supplier's advice; not necessarily verified by CSIRO.
4. Open area estimates are based on 1200 x 1200 mm of ceiling area being 'treated' per whole panel.

Issuing Authority

Signed: .....
David Truett
Date: 9 September 2020

Instrumentation

Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphones/preamps: • 2 x GRAS type 46AR mic/preamp sets, and 2 x B&K type 4134 mics on B&K 2669 preamps, in 4 fixed positions as per AS ISO 354
Noise source: • Room populated with three dodecahedron loudspeakers; (2 x Norsonic NOR276 & 1 x B&K 4296), driven in turn by a Norsonic NOR280 power amplifier.
Calibration: • Analyser: July 2018 (NATA cal)

Laboratory Construction

Reverb room: • 300 mm thick concrete (closed off from the adjoining room by a plasterboard wall) • parallelepiped with dimensional proportions 1:1.3:1.6 for distribution of room modes • approx 202 m³ total room volume • approx 215 m² surface area excluding diffusers
Diffusers: • 20 stationary diffusers, approx 40 m² total surface area
Absorption area: • in accordance with AS ISO 354, unless noted otherwise

CSIRO Acoustic Measurement Report

Commonwealth Scientific and Industrial Research Organisation, Infrastructure Technologies
Acoustics Testing Laboratory, Gate 5, 2 Normanby Road, Clayton, Vic 3168 Australia

Report No: **AC277-17-1**

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mortdale, NSW 2223

Measurement Type: Sound Absorption

AS ISO 354–2006 [R2016]: *Acoustics–Measurement of sound absorption in a reverberation room*
AS ISO 11654–2002 [R2016] (ISO 11654:1997): *Acoustics–Rating of sound absorption–Materials and systems*

Test Specimen

[Specimen area: 3.6 x 3.0 m (10.8 m²)]

Description: • Bailey "Cell Air" screw-up acoustic ceiling panels (1200 x 1200 mm),
• with black tissue-faced glass fibre batts behind, open to the cavity (Type E-200)

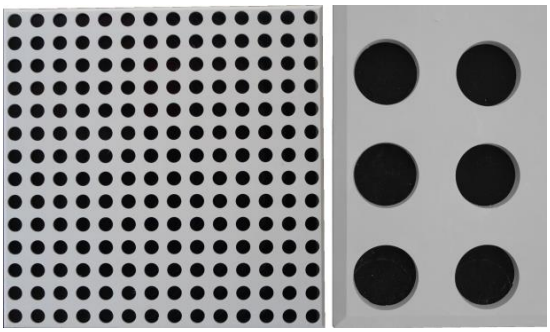
Panel and Batt Details[3]

- Moulded plaster ceiling panels designed to be screw fixed to ceiling battens above.
- Perforated with large circular holes; hole size approx 54.5 mm at the face, tapering to 53 mm at the rear. Holes were positioned at approx 85.5 mm spacing in a continuous array of 196 holes per panel (14 x 14 array).
- Open area percentage[4] (estimated): 31.8 % (based on mouth area at perforated face); 30.0 % (based on throat area at rear of panel, behind which lay the fibre batt and ceiling cavity).
- The perforated area of each tile was backed with a set of semi rigid high density glass fibre batts 20 mm thick, faced with a black tissue material (CSR Bradford product), (approx 42 kg/m³); the black tissue face being against the perforated rear face of the tile. Ordinarily, 550 x 550 mm batts would have been used, four batts to be factory-fixed (stapled) to the rear of each tile, but in this instance 500 x 500 mm batts were provided as separate items, and were positioned behind the perforated area of the tiles during test-installation (this necessitated cutting additional batts in order to ensure the entire perforated area of the panels was backed with the tissue-faced batt material).

Installation

- The test specimen was installed as an upside-down ceiling on the floor of the chamber.
- A 200 mm deep enclosure (32 mm MDF timber, approx 23 kg/m², built to surround an area of 3600 x 3000 mm) was placed on the floor of the chamber at a 11° angle to the chamber walls (not parallel, as per AS ISO 354 cl6.2.1.2). The junction of the enclosure and the floor was taped.
- A system of steel wall studs/track, and support struts was set up inside the enclosure to support the batts and tiles. The cavity behind was a single undivided cavity without internal partitions.
- 35 whole batts and approximately 6 batts cut into strips were carefully arranged on the support struts to align with the holes in the panels placed on top (3 x whole panels and 3 x half panels).
- All panel joins were taped with masking tape, as also was the junction between the enclosure and the perimeter of the test specimen panel installation.
- Specimen installation was carried out by laboratory staff.

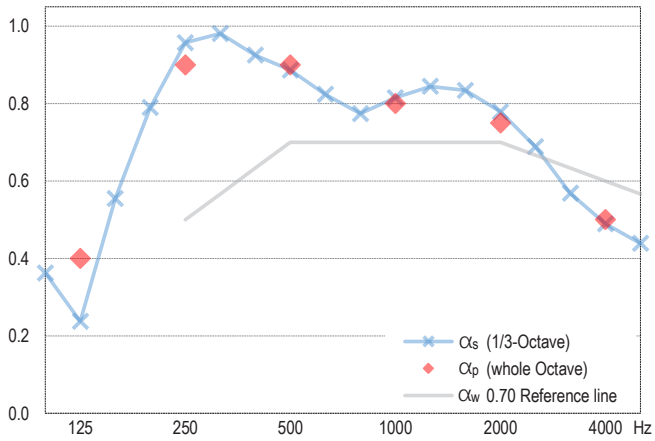
Test specimen installed for testing (image inverted to depict ceiling installation)



Panel details – Left: whole panel, Right: close-up view

Measurement Details & Results

Freq	Absorption coefficients			Reverberation times, T_{60} (sec)	
Hz	α_s	α_p	95% Conf (δ)	Empty room	with Specimen
100	0.36		0.06	5.79	3.42
125	0.24	0.40	0.06	6.33	4.22
160	0.55		0.11	6.21	2.90
200	0.79		0.06	5.62	2.28
250	0.96	0.90	0.09	5.11	1.95
315	0.98		0.06	6.01	2.04
400	0.92		0.06	5.96	2.11
500	0.89	0.90	0.07	5.54	2.11
630	0.82		0.05	5.26	2.16
800	0.77		0.03	5.09	2.20
1000	0.82	0.80	0.06	4.98	2.12
1250	0.84		0.04	4.40	1.97
1600	0.83		0.03	3.95	1.89
2000	0.78	0.75	0.03	3.59	1.87
2500	0.69		0.04	3.21	1.86
3150	0.57		0.03	2.88	1.89
4000	0.49	0.50	0.03	2.41	1.77
5000	0.44		0.03	1.95	1.57



Performance Indices[1,2]
α_w = 0.70 (L)
SAA = 0.84
NRC = 0.85

The required 12 spatially independent decay curves came from ensemble averaging 10 successive decays with each of 3 different source loudspeaker positions, all sampled by 4 fixed microphones, using linear averaging.

Measurement Conditions	Empty room	with Test Specimen
Date of measurement:	28 Jul 2020	28 Jul 2020
Temperature & humidity:	17 °C, 61 % R.H.	19 °C, 65 % R.H.
Atmospheric pressure:	1008 mBar	1008 mBar

Notes, Deviations etc

1. Shape indicators (L, M, and H), if any, following the α_w index, indicate α_p values above the reference contour by ≥ 0.25 in the Low, Medium or High frequency ranges respectively; it is strongly recommended to use this single number rating in combination with the complete sound absorption coefficient curve.
2. SAA and NRC are defined in ASTM C423; laboratory requirements for which differ from AS ISO 354.
3. Physical characteristics of materials may be as per client or supplier's advice; not necessarily verified by CSIRO.
4. Open area estimates are based on 1200 x 1200 mm of ceiling area being 'treated' by each panel.

Issuing Authority

Signed: .....
David Truett
Date: 4 August 2020

Instrumentation

Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphones/preamps: • 4 x GRAS microphones (types 40AR & 40AP, 2 ea) on GRAS & B&K preamplifiers, in 4 fixed positions as per AS ISO 354
Noise source: • Room populated with three dodecahedron loudspeakers; (2 x Norsonic NOR276 & 1 x B&K 4296), driven in turn by a Norsonic NOR280 power amplifier.
Calibration: • Analyser: July 2018 (NATA cal)

Laboratory Construction

Reverb room: • 300 mm thick concrete (closed off from the adjoining room by an MDF wall) • parallelepiped with dimensional proportions 1:1.3:1.6 for distribution of room modes • approx 202 m³ total room volume • approx 215 m² surface area excluding diffusers
Diffusers: • 20 stationary diffusers, approx 40 m² total surface area
Absorption area: • in accordance with AS ISO 354, unless noted otherwise

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REPORT ON THE DETERMINATION OF SOUND ABSORPTION COEFFICIENTS OF BAILEY INTERIORS JUSTICE PANEL 1200MM X 1200MM PERFORATED PLASTER CEILING PANELS WITH A GLASSWOOL BACKING (50MM @ 32KG/M^3) TESTED WITH A 400MM AIR GAP IN A REVERBERATION ROOM.

Testing Procedure:	AS ISO 354 - 2006
Testing Laboratory:	Applied Acoustics Laboratory School of Electrical and Computer Engineering RMIT University Melbourne, Victoria 3000, Australia NATA Accreditation Number: 1421
Client:	Bailey Interiors Pty. Ltd. 83-85 Boundary Road Mortdale, New South Wales 2223 Australia
Date of Test:	18th of July 2013
Date of Report:	3rd of September 2013
Report Number:	13-091/PD
Testing Officer:	Peter Dale

Peter Dale
Approved NATA Signatory

Accredited for compliance with ISO/IEC 17025

5. RESULTS

The mean reverberation times at each frequency for the empty room, $T60_e$, the room with the sample installed, $T60_{e+s}$, the sound absorption coefficient and the 95% confidence interval are provided in Table 1. The results are rounded to 0.01. The 95% confidence interval for each frequency is determined from the standard deviation of the reverberation times of the empty room and the room with the sample. The k factor used to determine the 95% Confidence interval is 2.201.

The results for the sample are detailed in Table 1, Table 2 and Graph 1 of this report.

Test conditions:

Room Empty:	Air temperature	20.8ºC,
	Relative Humidity	51%
	Barometric Pressure	0.7670 metre of mercury.
Room with Sample:	Air temperature	20.7ºC,
	Relative Humidity	64%
	Barometric Pressure	0.7593 metre of mercury.

Table 1: Reverberation times and Sound Absorption Coefficients of Bailey Interiors Justice Panel 1200mm x 1200mm Perforated Plaster Ceiling Panels with 50mm thick 32kg/m^3 Glasswool installed to rear of panels tested with a 400mm air gap.

Octave Centre Frequency Bands, Hz	Average RT's for Empty Room $T60_e$	Average RT's for Room with Sample $T60_{e+s}$	Sound Absorption Coefficient α_s	95% Confidence Interval for α_s
100	8.594	3.318	0.55	0.15
125	8.944	3.439	0.53	0.18
160	9.410	3.051	0.66	0.07
200	9.505	2.830	0.74	0.09
250	8.664	2.605	0.80	0.06
315	8.087	2.469	0.84	0.06
400	8.272	2.511	0.83	0.04
500	7.430	2.265	0.91	0.04
630	7.224	2.164	0.96	0.03
800	6.597	2.259	0.86	0.03
1000	6.105	2.272	0.82	0.03
1250	5.321	2.367	0.69	0.03
11100	4.617	2.389	0.60	0.02
2000	4.202	2.436	0.52	0.02
2500	3.515	2.377	0.43	0.03
3150	2.908	2.192	0.38	0.03
4000	2.337	1.853	0.41	0.03
5000	1.976	1.653	0.41	0.03

3. SAMPLE FOR TESTING

As provided by Client:

Bailey Interiors Justice Panel 1/ 00mm x 1/ 00mm Perforated Plaster Ceiling Panels with 50mm thick 32kg/m^3 Glasswool installed to rear of panels tested with a 400mm air gap:

Manufacturer:	Bailey Interiors Pty. Ltd.
Product Designation:	Justice Panel
Colour:	White
Nominal Open Area of Panel:	10.4%
Nominal Individual Panel Size:	1200 mm x 1200 mm x 13mm
Test Air gap:	400mm
Dimensions of Sample:	3.00m x 3.61m
Area of Sample:	10.83m^2
Insulation:	Glass-wool insulation, 32kg/m^3 and 50mm thick installed against the rear face of the panels.
Panel Mounting:	Type E-400

The panels were tested by mounting the panels on a 420mm in height, 20mm thick MDF Frame with dimensions 2840mm wide by 3640mm long that was installed on the floor of the Reverberation Chamber. The sample under test was supported in the MDF Test Frame by a steel suspension frame to achieve a 400mm void between the underside of the sample under test and the floor of the Reverberation Chamber. The glasswool insulation was installed on top of the steel suspension frame and the ceiling panels were installed on the frame with the glasswool directly behind rear face (ie the non-sound incident face) of the ceiling panel. The mass of the Plaster Ceiling panels compressed the glasswool around the perimeter of the ceiling panel where the suspension frame is supporting the sample under test. Standard ceiling panel suspension grid was also installed in the joins between adjacent ceiling panels on the sound-incident side of the panels under test to replicate a standard field installation.

The sound-incident side of the ceiling panel featured a perforated face and is pictured below in detail in Figure 1. Figure 2 depicts the sample installed in the Reverberation Chamber for testing.

Figure 1: Ceiling Panel Face Detail: Bailey Interiors Justice Panel 1200mm x 1200mm Perforated Plaster Ceiling Panels.

The weighted sound absorption coefficient α_w of the sample determined in accordance with AS ISO 11654-1997 "Acoustics: Sound Absorbers for Use in Buildings - Rating of sound absorption" is:

$$\alpha_w = 0.55(LM)$$

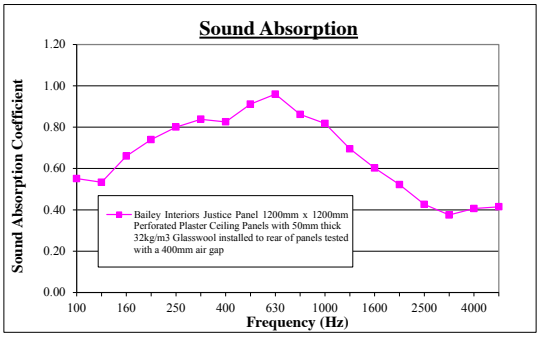
The Practical Sound Absorption Coefficients are detailed below in Table 2. These values have been determined in accordance with AS ISO 11654-1997 "Acoustics: Sound Absorbers for Use in Buildings - Rating of sound absorption".

Table 2: Practical Sound Absorption Coefficients for the Sample

Frequency (Hz)	125	250	500	1000	2000	4000
Practical Sound Absorption Coefficient, α_p	0.60	0.80	0.90	0.80	0.50	0.40

N.R.C. of the sample calculated in accordance with ASTM C423-90A is: .0.75

Graph 1: Sound Absorption Coefficients of Bailey Interiors Justice Panel 1200mm x 1200mm Perforated Plaster Ceiling Panels with 50mm thick 32kg/m^3 Glasswool installed to rear of panels tested with a 400mm air gap.



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REPORT ON THE DETERMINATION OF SOUND ABSORPTION COEFFICIENTS OF BAILEY INTERIORS SLOTTED PERFORATED PLASTER CEILING TILES (1200MM x 1200MM) WITH SORBERTEXTILE P44FR ACOUSTIC FABRIC ADHERED TO THE UNDERSIDE OF THE TILE TESTED WITH A 400MM AIR GAP IN A REVERBERATION ROOM.

Testing Procedure:	AS ISO 354 - 2006
Testing Laboratory:	Applied Acoustics Laboratory School of Electrical and Computer Engineering RMIT University Melbourne, Victoria 3000, Australia NATA Accreditation Number: 1421
Client:	Bailey Interiors Pty. Ltd. 83-85 Boundary Road Mortdale, New South Wales 2223 Australia
Date of Test:	2nd of October 2014
Date of Report:	27th of November 2014
Report Number:	14-145/PD
Report drafted by:	Peter Dale
Testing Officer:	Peter Dale

Peter Dale
Testing Officer

NATA

Accredited for compliance with ISO/IEC 17025

3. SAMPLE FOR TESTING

As provided by Client:

Bailey Interiors Slotted Perforated 1200mm x 1200mm Plaster Ceiling Tiles with Sorbertextile P44FR acoustic fabric adhered to the underside of the tile and tested with a 400mm air gap:

Manufacturer:	Bailey Interiors Pty. Ltd.
Product Designation:	Slotted
Construction:	Perforated Plaster with Sorbertextile P44FR acoustic fabric adhered to the underside of the tile.
Colour:	White
Nominal Open Area of Panel:	10.4%
Hole Pattern :	Rectangular Slots in a 15 x 26 layout.
Nominal Slot Size:	8mm x 41mm
Number of Slot per tile:	390
Nominal Individual Panel Size:	1200mm x 1200mm x 13mm
Single Tile Weight (including backing):	10.76kg/m^2
Nominal Test Air gap:	400mm
Dimensions of Sample:	3.00m x 3.60m
Area of Sample:	10.80m^2
Acoustic Fabric Backing:	Sorbertextile P44FR manufactured by Pyrotek Noise Control (147-149 Magowar Road, Girraween, NSW 2145, Australia)
Acoustic Fabric Colour:	Black
Adhesive:	Heat activated

The sample was tested on the 2nd of October 2014.

The tiles were tested by mounting the tiles on a 420mm in height, 25mm thick MDF Frame with dimensions 3050mm wide by 3650mm long that was installed on the floor of the Reverberation Chamber giving a total sample surface area of 10.80m^2.

The sample under test was supported in the MDF Test Frame by a steel suspension frame to achieve a 400mm void between the underside of the sample under test and the floor of the Reverberation Chamber. The tiles were installed with the Sobertextile P44FR adhered to the underside of the tile with the perforated plaster face incident to the sound field. Standard ceiling tile suspension grid was also installed in the joins between adjacent ceiling tiles on the sound-incident side of the tiles under test to replicate a standard field installation.

The sound-incident side of the ceiling panel featured a perforated face with 8mm x 41mm slots and is pictured below in detail in Figure 1. Figure 2 shows the rear face of the panel with the Sobertextile P44FR acoustic fabric installed. Figure 3 depicts the sample installed in the Reverberation Chamber for testing.

Table 1: Reverberation times and Sound Absorption Coefficients of Bailey Interiors Slotted Perforated 1200mm x 1200mm Plaster Ceiling Tiles with Sorbertextile P44FR acoustic fabric adhered to the underside of the tile and tested with a 400mm air gap.

1/3rd Octave Centre Frequency Bands (Hz)	Average RT's for Empty Room $T60_e$ (s)	Average RT's for Room with Sample $T60_{e+s}$ (s)	Sound Absorption Coefficient α_s	95% Confidence Interval for α_s
100	7.949	3.994	0.37	0.07
125	9.124	3.583	0.50	0.06
160	11.217	4.098	0.46	0.03
200	9.127	3.802	0.46	0.04
250	8.060	3.529	0.47	0.04
315	7.991	3.635	0.45	0.04
400	7.997	3.530	0.47	0.03
500	7.407	3.415	0.47	0.04
630	6.986	3.296	0.47	0.03
800	6.460	3.180	0.47	0.02
1000	5.894	2.972	0.49	0.04
1250	5.108	2.743	0.50	0.03
1600	4.467	2.527	0.51	0.02
2000	3.963	2.302	0.54	0.02
2500	3.336	2.091	0.54	0.03
3150	2.724	1.831	0.55	0.02
4000	2.127	1.574	0.51	0.03
5000	1.722	1.331	0.54	0.05

N.R.C. of the sample calculated in accordance with ASTM C423-90A is: 0.55

The Weighted Sound Absorption Coefficient α_w of the sample determined in accordance with AS ISO 11654-1997 "Acoustics: Sound Absorbers for Use in Buildings - Rating of sound absorption" is:

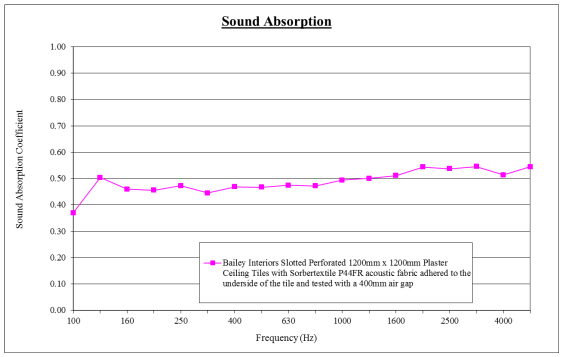
$$\alpha_w = 0.50$$

The Practical Sound Absorption Coefficients are detailed below in Table 2. These values have been determined in accordance with AS ISO 11654-1997 "Acoustics: Sound Absorbers for Use in Buildings - Rating of sound absorption".

Table 2: Practical Sound Absorption Coefficients for the sample

Frequency (Hz)	125	250	500	1000	2000	4000
Practical Sound Absorption Coefficient, α_p	0.45	0.45	0.45	0.50	0.55	0.55

Graph 1: Sound Absorption Coefficients of Bailey Interiors Slotted Perforated 1200mm x 1200mm Plaster Ceiling Tiles with Sorbertextile P44FR acoustic fabric adhered to the underside of the tile and tested with a 400mm air gap.



AWTA PRODUCT TESTING

Australian Wool Testing Authority Ltd - trading as AWTA Product Testing
A.B.N 43 006 014 106
1st Floor, 191 Racecourse Road, Flemington, Victoria 3031
P.O Box 240, North Melbourne, Victoria 3051
Phone (03) 9371 2400 Fax (03) 9371 2499

TEST REPORT

Client : Bailey Interiors
83-85 Boundary Road
Mortdale NSW 2223

Test Number : 14-001048
Issue Date : 31/10/2014
Print Date : 1/10/2019

Sample Description
Clients Ref : "New Shadex, Eco Check; Hush Tile; Shadex; Random"
White molded plaster ceiling tiles - pre insulated with glass fibre batt
Colour : White
End Use : Ceiling tiles
Nominal Composition : Plaster/fibreglass

ASTM C518-2010 **Steady-State Thermal Transmission Properties by Means of the Heat Flow Apparatus**

Date of Testing		20/10/2014	
Test Date		27/10/2014	
Test Apparatus		Lasercomp Fox 600	
Sample Orientation		Horizontal	
Mean Test Temperature		23	°C
Temperature Differential		20	°
Estimated uncertainty in results		3.9	
Specimen	1	2	
Specimen Thickness (as received)	40	39	mm
Specimen Thickness (as tested)	40	39	mm
Specimen Density (as tested)	391	403	kg/m³
Test Duration	01:55	02:00	hrs:mins
Measured Heat Flux	26.0	27.8	W/m²
Measured Thermal Conductivity	0.0520	0.0544	W/m.K
Thermal Resistance	0.8	0.7	m²K/W

181403 1202 Page 1 of 1

Accredited for compliance with ISO/IEC 17025 - Testing
- Chemical Testing : Accreditation No. 983
- Mechanical Testing : Accreditation No. 985
- Performance & Approvals Testing : Accreditation No. 1356

APPROVED SIGNATORY

MICHAEL A. JACKSON B.Sc.(Hons)
MANAGING DIRECTOR

0204/11/06

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TEST REPORT

Client : Bailey Interiors
83-85 Boundary Road
Mortdale NSW 2223

Test Number : 15-002457
Issue Date : 09/06/2015
Print Date : 29/06/2018

Replacement of Report dated :08/05/2018

Sample Description

Clients Ref : "Shadex; Hush; Eco Check; New Shadex; Random; Casino; Open Cell; NUTR 2000 Super Diamond; Open Slot; Moon""

White molded plaster ceiling tiles

Colour : White

End Use : Acoustic paneling

Nominal Composition : Plaster

Nominal Thickness : 28mm

ISO 5660.1-2002 Reaction to Fire Tests - Heat Release Smoke Production and Mass Loss Rate Part 1: Heat Release Rate (Cone Calorimeter Method)

	Specimen 1	2	3	Mean	
Average Heat Release Rate	fti	fti	fti	fti	kW/m²
Group Number Classification	1	1	1		

(In Accordance with New Zealand Building Code Verification Method C/VM2 Appendix A)

Average Specific extinction area	0.2	0.1	1.4	0.6	m²/kg

Test orientation : Horizontal

	Specimen 1	2	3	Mean	
Irradiance	50	50	50	50	kW/m²
Exhaust flow rate	24	24	24	24	L/sec
Time to sustained flaming	fti	fti	fti	fti	sec
Test duration	1800	1800	1800	1800	sec

15644 5140

NATA
Accredited for compliance with ISO/IEC 17025 - Testing
- Chemical Testing : Accreditation No. 983
- Mechanical Testing : Accreditation No. 985
- Performance & Approvals Testing : Accreditation No. 1356

AWTA LIMITED

APPROVED SIGNATORY

MICHAEL A. JACKSON B.Sc.(Hons)
MANAGING DIRECTOR

0204/11/06

AWTA PRODUCT TESTING

Australian Wool Testing Authority Ltd - trading as AWTA Product Testing
A.B.N 43 006 014 106
1st Floor, 191 Racecourse Road, Flemington, Victoria 3031
P.O Box 240, North Melbourne, Victoria 3051
Phone (03) 9371 2400

TEST REPORT

Client : Bailey Interiors
83-85 Boundary Road
Mortdale NSW 2223

Test Number : 19-007603
Issue Date : 4/02/2020
Print Date : 4/02/2020

Sample Description Clients Ref : "Shadex, Hush,Eco Check,New Shades, Random, Casino,Open Cell, Nut R2000, Super Diamond, OpenSlot,Moon"
Moulded Plaster Ceiling Tiles

Dimensional Stability

Date of Testing 04/02/2020

Change In Specimen	Length (%)	Width (%)	Thickness (%)
1	0.0	0.0	0.0
2	0.0	0.0	0.0
3	0.0	0.0	0.0
Mean	0.0	0.0	0.0

Tested conditions: 168 hours at 50degC and 95% Relative Humidity
Observation: After exposure no change in dimension and appearance

192823 41504

Samples, and their identifying descriptions have been provided by the client unless otherwise stated. AWTA Ltd makes no warranty, implied or otherwise, as to the source of the tested samples. The above test results relate only to the sample or samples tested. The above test results are designed to provide THE CLIENT WITH GUIDANCE INFORMATION ONLY.

This document shall not be reproduced except in full and shall be rendered void ifamended or altered.

This document, the names AWTA Product Testing and AWTA Ltd may be used in advertising providing the content and format of the advertisement have been approved in advance by theManaging Director of AWTA Ltd.

AWTA LIMITED

APPROVED SIGNATORY

MICHAEL A. JACKSON B.Sc.(Hons)
MANAGING DIRECTOR

0205/11/06

GABRIELS HEARNE FARRELL

Enquiries: Norbert Gabriels
norbert@gabriels.net.au
Ph (08) 9474 5966

19 November 2019

BAILEY INTERIORS
83 to 85 Boundary Road
Mortdale NSW 2223

Attention: Roger Bailey

EFFECT OF INSULATION OVER PLASTER CEILING TILES

ACOUSTIC OPINION

Dear Roger,

As requested, we provide an acoustic opinion on the improvement in the Ceiling Attenuation Class (CAC) performance of Bailey Interior Plaster Acoustic tiles resultant from an insulation blanket strip located above the ceiling tiles either side of the ceiling height partition wall.

1. BACKGROUND.

As discussed, an acoustic opinion provided by Gabriels Environmental Design dated 27 March 2015 indicated that In 2015, the Acoustic Laboratories Australia Pty Ltd carried out acoustic test of the Room-to-room sound insulation of Plaster Acoustic panels as manufactured by Bailey Interiors. The tests were carried out in accordance with the Australian Standard AS2499:2000, *Acoustics – Measurement of sound insulation in buildings and of building elements – Laboratory measurement of room-to-room airborne sound insulation of a suspended ceiling with a plenum above it.*

The room-to-room sound insulation tests was carried out on a typical Bailey Interior product "Old Shadex" plaster acoustic tile, and a second test was carried out of same ceiling with a 1.8m wide strip of R3.5 Earthwool insulation located both side of the separating wall below the ceiling.

The result of the above tests was a 4 dB improvement in the room-to-room sound insulation performance in terms of the the Weighted Suspended Ceiling Normalised Level ($D_{n,c,w.}$).

Gabriels Hearne Farrell Pty Ltd have been requested by Bailey Interiors to provide an opinion of the expected improvement of providing a 1.8m wide strip of insulation on both sides of the separating partition wall in terms of the Ceiling Attenuation Class (CAC) performance; (ASTM E1414/E1414M – 11a *Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum*).

2. COMPARATIVE TEST PROCEDURES:

The test procedure for the Australian and American Standards are very similar. The laboratory set up at Acoustic Laboratories Australia can be set up to measure in accordance with both standards. The main difference in the two standards is that the Australian standard ($D_{n,c,w.}$) requires acoustic absorption in the ceiling plenum space on the two end plenum walls and one side plenum wall. The American Standard (CAC) requires acoustic absorption on all four plenum walls.

3. ASSESSMENT

The effectiveness of the acoustic absorbent R3.5 Earthwool insulation installed as a 1.8m strip of insulation on both sides of the ceiling height partition wall is to a large extent dependant on the increase in the total absorption in the ceiling void. In the American (CAC) test method there is additional acoustic absorption in the ceiling void plenum space compared to the Australian ($D_{n,c,w'}$) set up. It is therefore expected that the decibel (dB) improvement in sound insulation if tested in accordance with the American Standard would be less than when tested in the Australian standards.

Based on the above, it is our opinion that the improvement in the room-to-room CAC performance if the Bailey Interior "Old Shadex" plaster acoustic tile with strip acoustic absorption on either side of the partition were carried out to American Standard the improvement in Ceiling Attenuation Class (CAC) performance would be in the order of 2 to 3 dB

Conditions

The information given in this opinion represents extrapolation based on laboratory test carried out on Bailey Interiors plaster acoustic tile products. The assessment and opinions expressed refer to the expected comparative laboratory performance of the product when tested and rated in accordance with America Standard ASTM E1414/E1414M – 11a.

The assessment and opinions expressed refer to the expected laboratory performance of the product. It is assumed that when installed in the field the products are installed in accordance with manufacturer's instructions and installed with good workmanship. No allowance is made for flanking transmission and acoustic leakage via the construction, as these are construction and design issues that must be considered in the design and construction of individual projects.

This assessment is only valid for 5 years. It assumes there is no change in the construction of the material systems. This assessment addresses the acoustic performance only.

Where construction systems are to be extensively used, or are required to comply with specific or stringent specification requirements, it is strongly recommended that the product be laboratory tested. It must be noted that an acoustic opinion provides an estimate of performance and that the likely performance is usually within +/- 3 dB of the opinion.

We trust this proposal meets your requirements. Please call if you require any clarifications.

Yours Faithfully

Norbert Gabriels B.Arch F.A.A.S for

GABRIELS HEARNE FARRELL PTY LTD
Member Firm – Association of Australasian Acoustical Consultants

A Unit 3 / 2 Hardy St, SOUTH PERTH WA 6151 **P** (08) 9474 5966
E kingsley @gabriels.net.au **W** gabriels.net.au**M** 0407 470 865

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Architectural Plaster

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Northern Territory Government
Department of Infrastructure
Level 5 Highway House
Palmerston Circuit
P O Box 61 Palmerstone N T 0831

Attention: Kurt Leerburg

"ACOUSTIC CEILING PRODUCTS AS PROJECT SPECIFIC FACTORY DIRECT PACKAGES "
"INCLUSIVE GRID WITH WARRANTY"

Australian Plaster Acoustics has been developing these plaster tiles in conjunction with its parent company Bailey Interiors for the last 5 years.

The organisation has a strong commitment to innovation with major research and development programmes resulting in producing outstanding designs that are truly innovative, lightweight exceptionally high acoustic ratings (NRC) (CAC) and R values . The tiles are fire resistant, pre painted with anti mould paint, will not warp or buckle under humid conditions.

Big innovations have been

1) The reduction in weight of each tile bringing overall weight down from approx. 19.50 Kilos m2 - 12.75 kilos m2(in most cases)this has resulted in being able to use a lighter grid for installation as per Rondo Design confirmation REF 4562-15-001.

2) The introduction of silicone rubber moulds this has made it possible to create very strong, clean, and sharply designed undercut ceiling tiles which are truly innovative this has only been possible with our strong commitment to R & D.

Australian Plaster Acoustics warrants all plaster products in conjunction with Rondo grid systems from the date of purchase for a period of 10 years.

This warranty does not apply to damage caused by

1) Normal wear and tear.
2) The fitting of components not supplied by Australian plaster Acoustics /Bailey Interiors or Rondo.
3) Repair ,Maintenance or service by a person not authorised by Rondo /Bailey Interiors

We Rondo and Bailey Interiors are jointly marketing these products, plaster acoustic tiles and ceiling grid as a package directly to the builder after nomination from the Department of Infrastructure.

Yours Faithfully,
Bailey Interiors Pty Ltd

Roger Bailey
Managing Director
Phone 02 91539326
Fax 0295346532
Email: roger@baileyinteriors.com.au

RONDO®
Rondo Building Services Pty Limited
ABN 69 000 289 207

NATIONAL
57–87 Lockwood Rd, Erskine Park,NSW, 2759
(PO Box 324 St Marys NSW 1790)
TEL (02) 9912 7300 FAX: (02) 9912 7310

CUSTOMER SERVICE HOTLINE
1300-36-RONDO (1300-36-7663)

www.rondo.com.au

To whom It may concern

Rondo Building Services is Australasia's largest manufacturers of roll formed lightweight steel building products for internal and external use, from steel stud and track drywall systems to building board finishing sections and from exposed and concealed ceiling systems to access panels and other ancillary products.

Rondo has been producing product to serve the building industry for over 50 years and not only has manufacturing facilities in Australia but also New Zealand, Malaysia and India as well as JV's elsewhere.

During that period Bailey Interiors manufacturers of Australian Plaster Acoustics panels has been a valued customer of Rondo.

Rondo has been pleased to partner with Bailey Interiors in the development of its innovative plaster acoustic panels by providing specification assistance in the use of the Rondo Duo^{R} Exposed Ceiling Grid System in conjunction with their panels, thereby ensuring their clients have a code compliant suspended ceiling grid system to support their plaster acoustic ceiling panels.

Steve Jupp
Product & Innovation Manager
Rondo Building Services Pty Ltd

AUSTRALIA • NEW ZEALAND • MALAYSIA • MIDDLE EAST • INDOCHINA

GYPROCK™
Everything else is just plasterboard

Bradford™
more than insulation

TO WHOM IT MAY CONCERN

Gyprock provides a comprehensive range of high performance plasterboard wall and ceiling lining solutions across all segments of the construction industry. Gyprock is also a supplier of casting plaster used in the manufacture of cast plaster products and decorative cornices. Gyprock is one of the many companies owned and operated by CSR Limited, one of Australia's oldest and most respected public companies founded in Sydney in 1855 as the Colonial Sugar Refining Company.

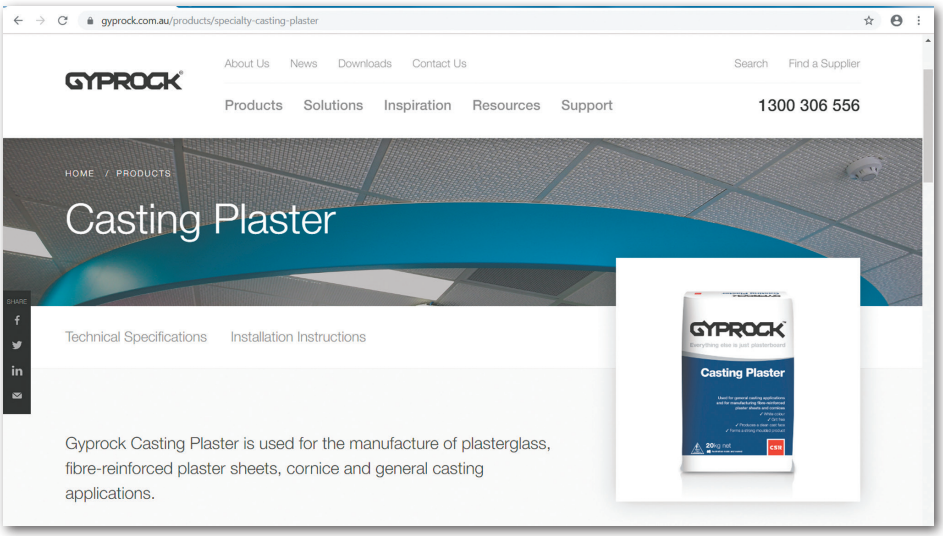
When Gyprock opened its Concord Plaster Mills in 1942, it soon became a supplier of casting plaster to Ernest Alfred Bailey who had established E. A. Bailey & Sons Pty Ltd in Boundary Road, Mortdale in 1938. Since that initial supply, Gyprock has maintained its long association with the Bailey family and continues today to supply its casting plaster to Bailey Interiors.

Over that time, Bailey Interiors has grown in significance to become the largest supplier of all types of architectural plaster products in Sydney and one of Gyprock's major customers for casting plaster. Bailey Interiors has always employed continuously innovative approaches to the manufacture of cast plaster products and demonstrates considerable expertise in moulding and casting from simple to complex shapes.

For over 80 years, CSR has manufactured glasswool insulation under the Bradford brand. Bradford is a supplier of insulation batts and acoustic fabrics used by Bailey Interiors in the manufacture of their exceptionally high performing plaster acoustic ceiling tiles namely for NRC and CAC.

CSR Building Products Limited ABN 55 008 631 356
Commercial Design Centre 7 Slough Avenue Silverwater NSW 2128
Mobile: 0419 477 359 Telephone: 02 8748 1450
Facsimile: 02 8748 1488 Email: aveling@csr.com.au

CSR



GYPROCK™
Everything else is just plasterboard

Bradford™
more than insulation

TO WHOM IT MAY CONCERN

Gyprock manufactures and supplies a comprehensive range of high performance plasterboard wall and ceiling lining solutions across all segments of the construction industry. Gyprock is one of the many companies owned and operated by CSR Limited, one of Australia's oldest and most respected public companies founded in Sydney in 1855 as the Colonial Sugar Refining Company.

Gyprock is the major supplier of casting plaster used by Australian Plaster Acoustics in the manufacture of their innovative plaster acoustic tiles. These exceptionally high performing plaster acoustic ceiling tiles are manufactured at Bailey Interiors' modern facility utilising the latest, innovative plaster tile manufacturing process. Gyprock has been a casting plaster supplier to Bailey Interiors for over 75 years.

CSR also manufactures Bradford glasswool insulation. Bradford is a supplier of insulation batts and acoustic fabrics used by Australian Plaster Acoustics. The resulting range of plaster acoustic tiles have exceptionally high performing acoustics for NRC and CAC with a modern architectural appearance.

Gyprock and Bradford are proud to be associated with Australian Plaster Acoustics and we feel confident that, based on our long association, Australian Plaster Acoustics will provide a high level of product quality, reliable service, trusted performance and industry compliance associated with their large range of plaster acoustic tiles.

Antoine Veling
NSW Commercial Segment Manager
CSR Lightweight Systems

CSR Building Products Limited ABN 55 008 631 356
Commercial Design Centre 7 Slough Avenue Silverwater NSW 2128
Mobile: 0419 477 359 Telephone: 02 8748 1450
Facsimile: 02 8748 1488 Email: aveling@csr.com.au

CSR

MATERIAL SAFETY DATA

Product Name: FBS-1 Glasswool Insulation

is classified as **Non-Hazardous** according to the criteria of the Australian Safety and Compensation Council ASCC (formerly NOHSC) Approved Criteria For Classifying Hazardous Substances. FBS-1 Glasswool Insulation is classified as **Non-Dangerous Goods** according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

- Full test results of each product for acoustic NRC can be viewed online at www.australianplasteracoustics.com.au.
- All ceiling grid and steel support systems by Rondo can be viewed from PDF files on request.
- All acoustic test are NATA approved

DISCLAIMER

Products manufactured and systems designed by Bailey Interiors are produced in accordance with the building code of Australia and New Zealand Building Code and also relevant Australian and New Zealand standards.

All acoustic testing for NRC - (Noise Reduction Coefficients) was carried out in accordance with these standards at RMIT University, Melbourne, Australia and CSIRO, Melbourne, Australia.

All sharing common ceiling testing CAC - (Ceiling Attenuation Class) was also carried out in accordance to Australian and New Zealand standards at Acoustic Laboratories Australia Pty Ltd.

All fire resistance Group 1, thermal resistance testing were also carried out to the latest Australian and New Zealand standards at AWTA a product testing in Melbourne, Australia.

All light reflective tests carried out by Light Lab International, QLD Australia in accordance with NATA accreditation.

All these products received excellent results in all instances they were tested in true laboratory situations which may differ to readings recorded on site.

Australian Plaster Acoustics will not be held responsible for any claims resulting from installation of its products not in accordance with manufacturers recommendations or relevant Australian and New Zealand standards.

Bailey Interiors has been supplying the building and architectural industry with the finest quality acoustic tiles for nearly eighty years. The Acoustic Tile Range features outstanding quality, elegant style, finish and functionality.

Green Product Sheet

Made to last a lifetime

Bailey Interiors Architectural products are made of the finest Gypsum. They have timeless features and built for longevity.

Made of natural Gypsum

Bailey Interiors Architectural products are a unique blend of at least 75% naturally occurring Gypsum.

Energy and water-efficient

Bailey Interiors Architectural products are more energy and water-efficient than alternative acrylic and resin based products. Bailey Interiors have installed a unique water recycling process whereby excess water from the production runs are recycled and used again in further production. The high Gypsum content also outperforms acrylic, which quickly dissipates water heat, resulting in reduced use of water.

Minimal manufacturing impact

Bailey Interiors Architectural products are created by a combination of machine made and hand made production methods. This combination allows for a better quality product as compared with acrylic, and composite products.

Bailey Interior's Architectural products also use significantly less energy than electrically high – heat ovens. They use a combination of natural drying and gas operated ovens.

Additionally Bailey Interiors Architectural products are hand finished by craftsmen, further reducing reliance on non renewable resources.

Minimal impact on the environment

Bailey Interiors Architectural Products are made of the finest Gypsum.

Bailey Interiors have installed two filtration units on top of the bulk silo bin. These units absorb any excess plaster dust from going in to the atmosphere whilst the plaster silo is being loaded with plaster which is pumped by compressed air from the bulk plaster truck. These filtration units allow for the air to remain clean and clear which does not impact on the environment.

Recycled Shipping

Bailey Interiors Architectural products are shipped on pallets made of reclaimed wood, with strapping made from recycled bottles.

Recycled Waste Plaster

Bailey Interiors have a special method of recycling excess casting plaster and fibre glass reinforcement. This material is transported form Bailey's current work place to be recycled as part of road base material .

Customers who choose Bailey Interiors Architectural products know they are making an environmentally good choice because they are making a purchase lasting a lifetime.

AUSTRALIAN
PLASTER ACOUSTICS
Innovative Sound Solutions

Australian Plaster Acoustics Pty Ltd
ABN 69 610 255 242

Visit our showroom at

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