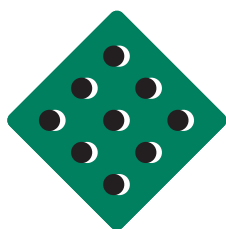


THE NEW YORK COLLECTION

Quiet Sound – Contemporary Plaster Acoustic Wall & Ceiling Panels



AUSTRALIAN
PLASTER ACOUSTICS
Innovative Sound Solutions

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 three unique designs with either round or square 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 0.90
- 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

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

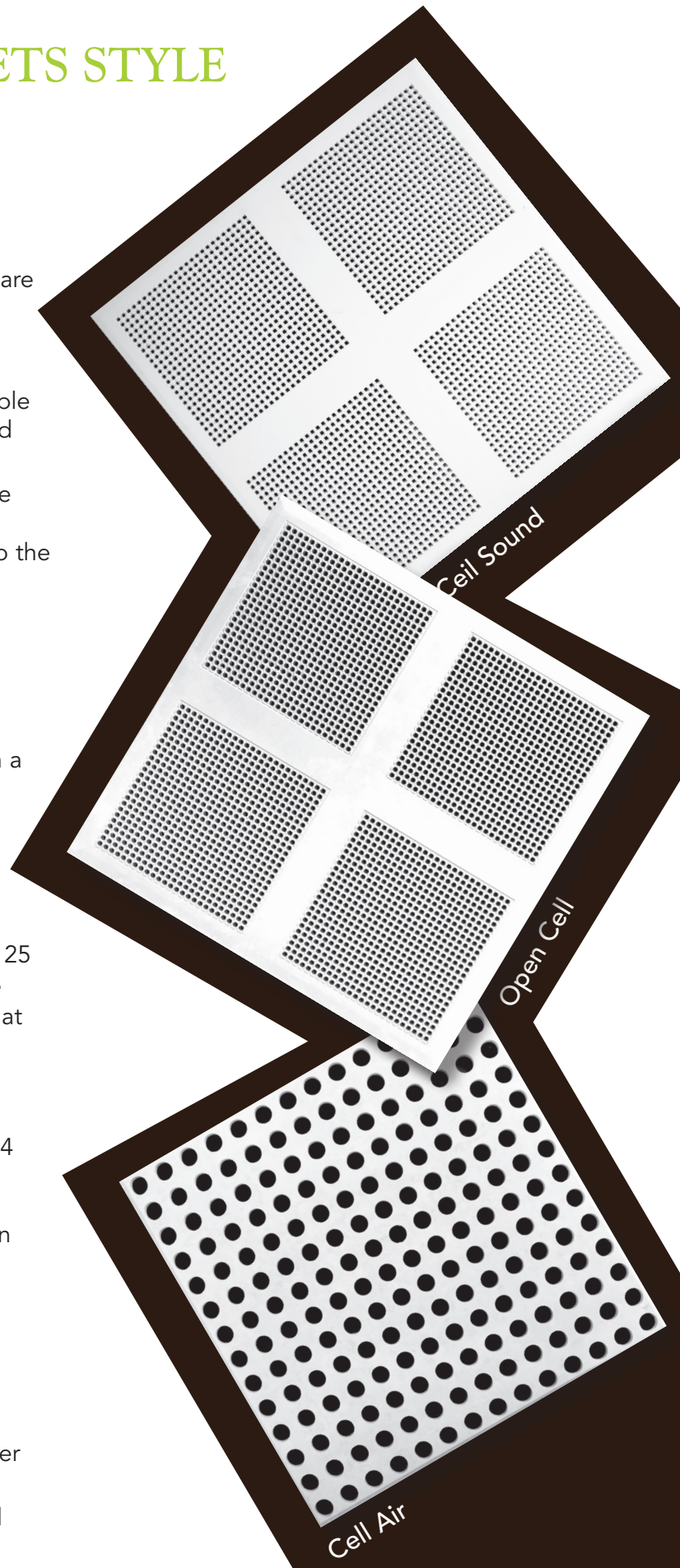
Perforated with 4 sets of holes per panel, 25 x 25 holes per set, hole size 15 mm diameter at the mouth, tapering to 13.5 mm at the rear; holes at 19.2 mm centres.

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.

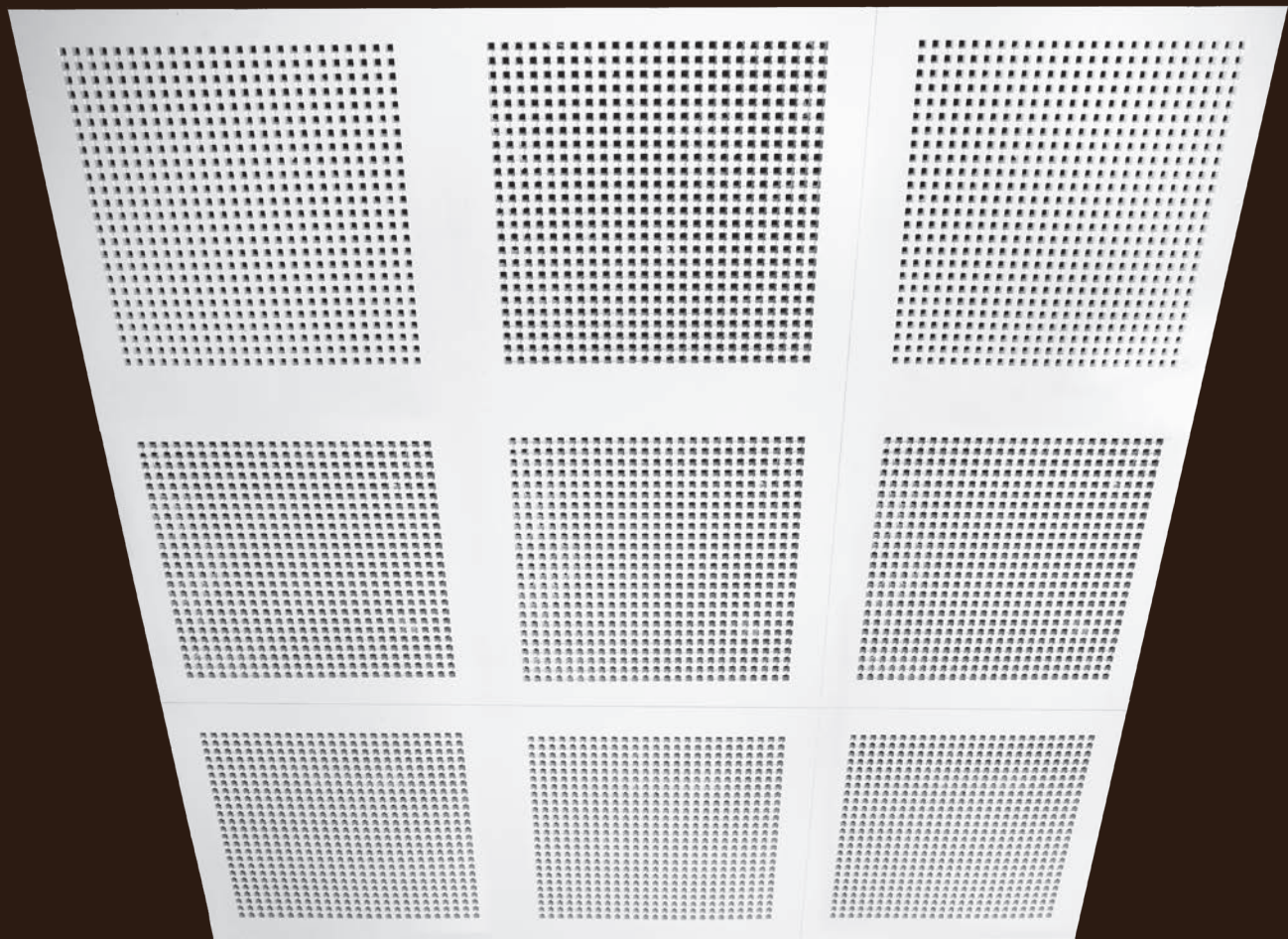
FEATURES

- Three 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





Ceil Sound Panel



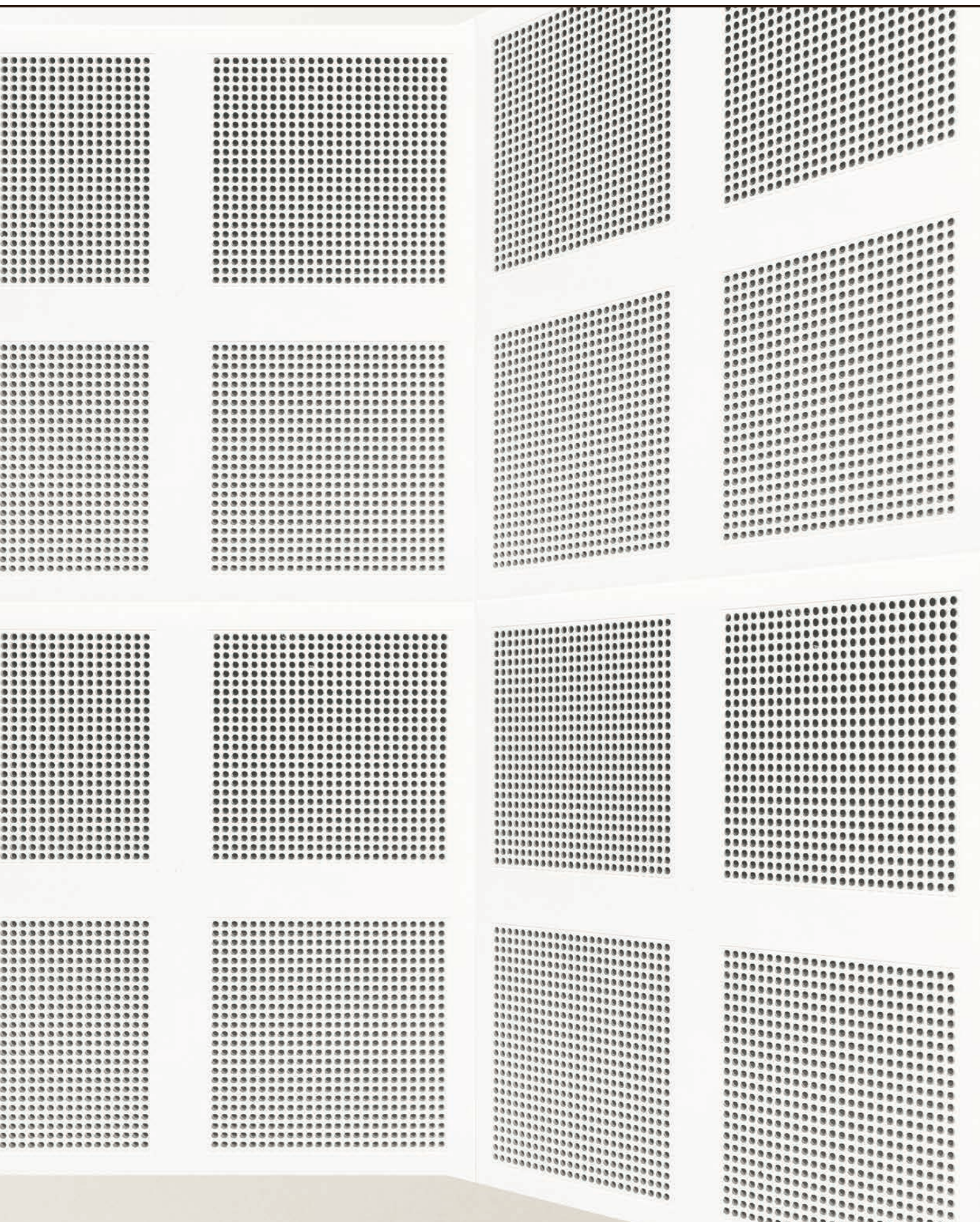
© 2020 Bailey Interiors. All Rights Reserved. Design Registration IP Right No: 201516489

PROPERTIES

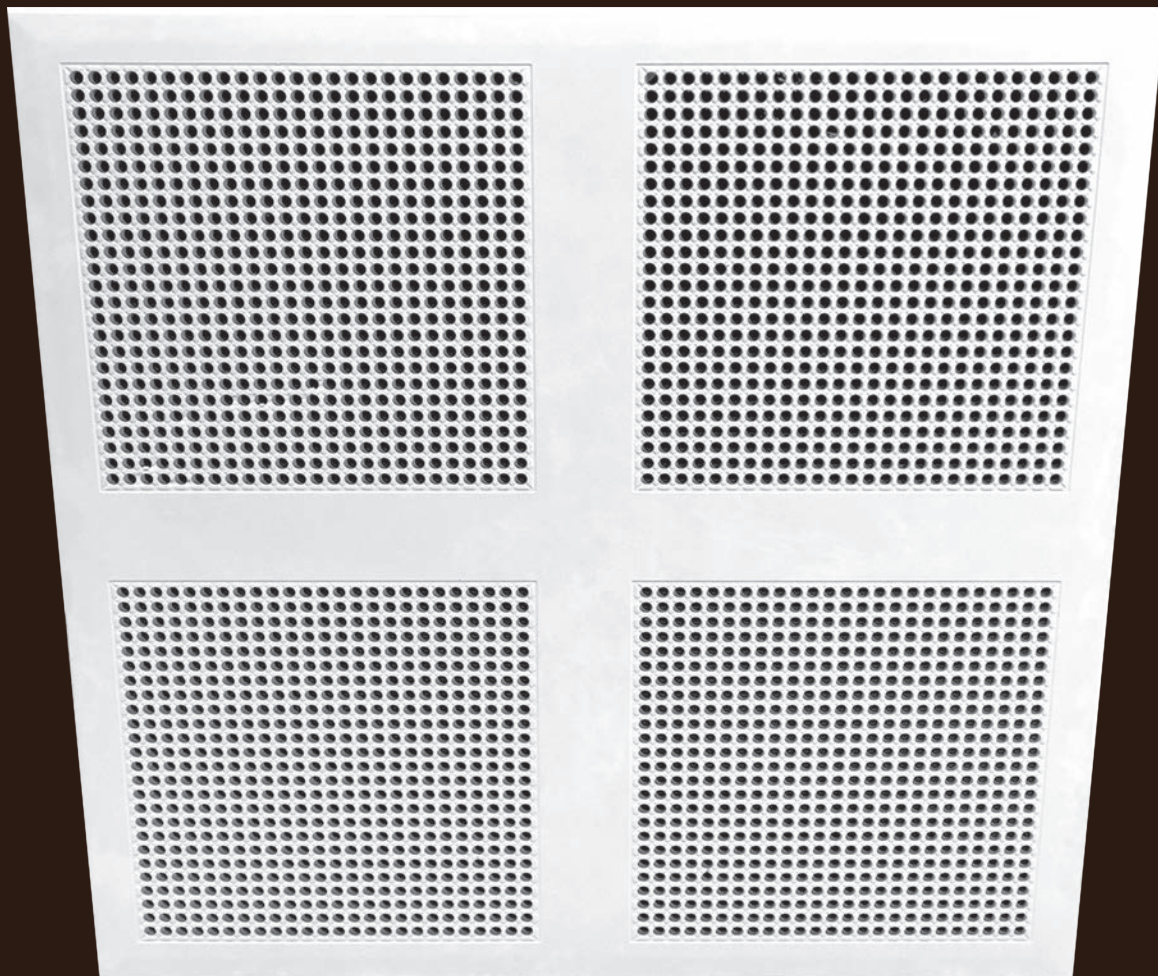
- 14mm square hole perforated plasterglass with a half round intesecting indent into each square. Pattern is arranged in a grid of 4 per panel, forming a continous pattern when joined. Perimeter band 65mm
- 13mm thick perforated moulded plaster panel
- Mechanically fixed (screwed to furring channel)
- Insulated with 20 mm Supertel 32Kg/m³ glasswool (1) or 50 mm Supertel 32Kg/m³ glasswool behind, faced with black matt tissue (2)

ACOUSTIC PERFORMANCE AND SPECIFICATION

	Open Area	Thickness Tile mm	Thickness Insulation mm	Size mm	NRC	SAA
Ceil Sound (1)	21.7%	13	20	1200 x 1200	0.75	0.75
Ceil Sound (2)	21.7%	13	50	1200 x 1200	0.80	0.83



Open Cell Panel



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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 20 mm Supertel 32Kg/m³ glasswool (1) or 50 mm Supertel 32Kg/m³ glasswool behind, faced with black matt tissue (2)
- Mechanically fixed (screwed to furring channel)

ACOUSTIC PERFORMANCE AND SPECIFICATION

	Open Area	Thickness Tile mm	Thickness Insulation mm	Size mm	NRC	SAA
Open Cell (1)	24.9%	13	20	1200 x 1200	0.75	0.77
Open Cell (2)	24.9%	13	50	1200 x 1200	0.85	0.85



CELL AIR INSTALLATION
UNIVERSITY OF WOLLONGONG
NSW AUSTRALIA

Cell Air Panel



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PROPERTIES

- V edged 1200 x 1200mm panels with 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 20 mm Supertel 32Kg/m³ glasswool (1) or 50 mm Supertel 32Kg/m³ glasswool behind, faced with black matt tissue (2)

ACOUSTIC PERFORMANCE AND SPECIFICATION

	Open Area	Thickness Tile mm	Thickness Insulation mm	Size mm	NRC	SAA
Cell Air (1)	32.3%	15	20	1200 x 1200	0.75	0.79
Cell Air (2)	32.3%	15	50	1200 x 1200	0.90	0.85

SUMMARY

PLASTER ACOUSTIC CEILING PANELS – NEW YORK COLLECTION

Tile Dimensions: 1200mm x 1200mm							
	Open Area	Thickness Tile	Thickness Insulation	NRC	SAA	α_w	Suspension
Ceil Sound Panel	21.7%	13mm	20mm	0.75	0.75	0.75	 <p>Furring channel 28mm thick Steel Stud (Walls) 64, 76, 92 wide</p>
			50mm	0.80	0.83	0.75	
Open Cell Panel	24.9%	13mm	20mm	0.75	0.77	0.80	
			50mm	0.85	0.85	0.80	
Cell Air Panel	22.7%	15mm	20mm	0.75	0.79	0.75	
			50mm	0.90	0.85	0.75	

INSTALLATION

LIGHT WEIGHT PLASTER ACOUSTIC CEILING TILES, 600 X 600 MM RANGE

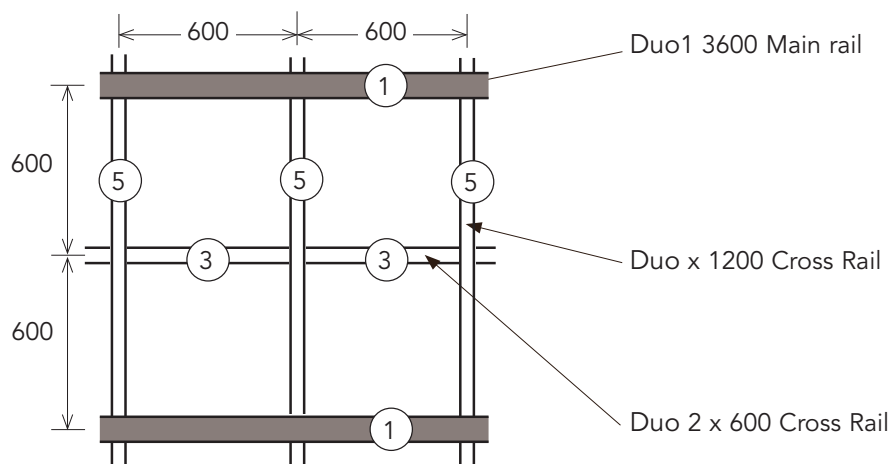
- Plan ceiling layout to provide even margins at the perimeter.
- Centre the ceiling both ways ensuring centre lines are at right angles.
- Fix wall angle trim to perimeter walls at the correct height set by a level line. Mitre the wall angle trim around piers and columns.
- Fix ceiling grid in accordance to Rondo grid layout using Duo system.
- 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.
- 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 tiles or 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

- ① The Duo 1 main tee shall be hung on soft galvanize rod or 2.5mm wire, accurately levelled.
Suspension clips shall be spaced at 1200mm centres along the Duo 1 main tee.
 - ⑤ Duo 1 main tees to be spaced at 1200mm centres.
Duo 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.

ACOUSTIC TILE RANGE 600 X 600 - GRID DESIGN LAYOUT



TESTING

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

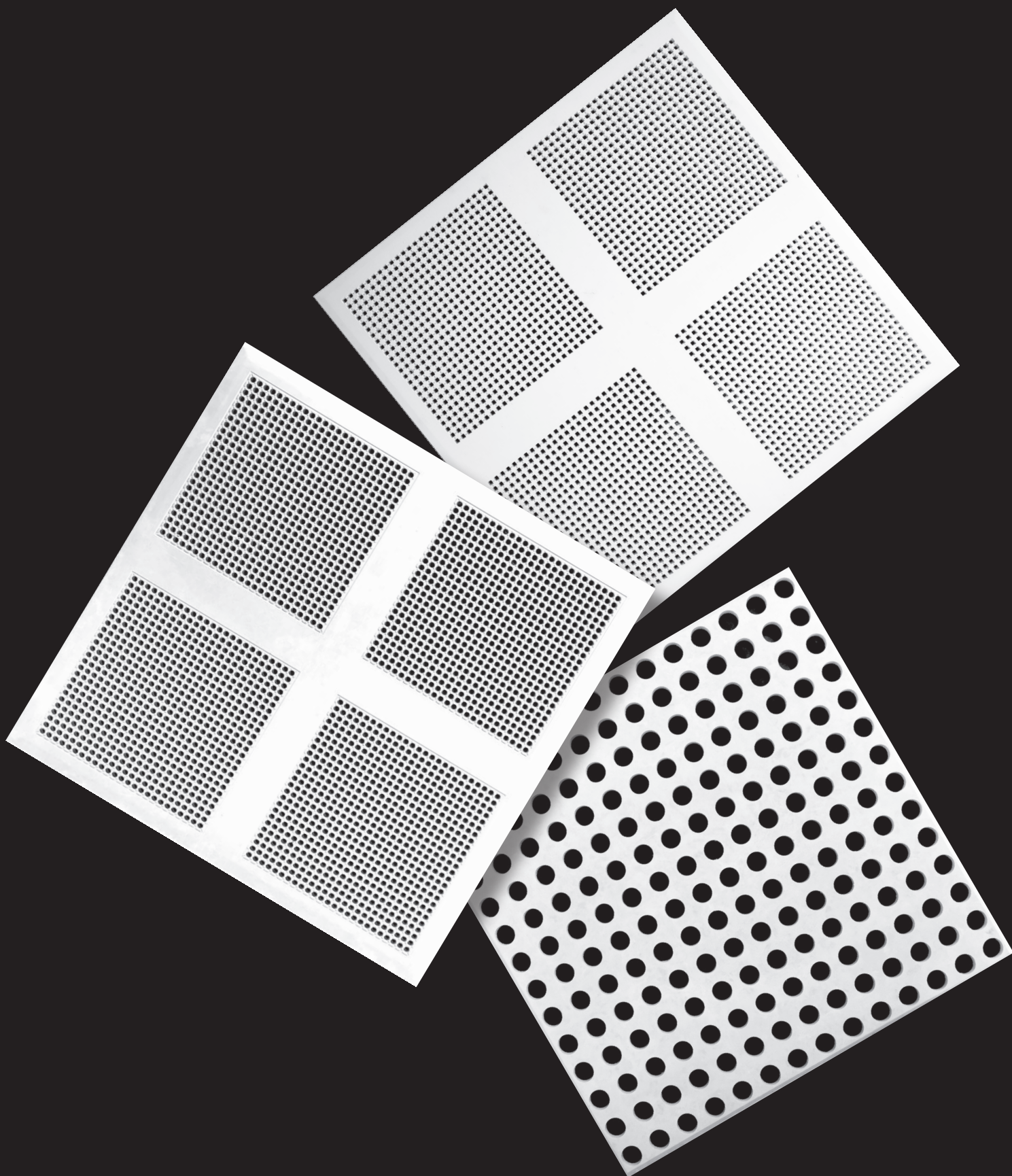
Plaster Products tested for **Room to Room CAC** have been tested in accordance with ASTM E1414 / E 1414M - 11A at Acoustic Laboratories Australia Pty Ltd, Perth, Western Australia.

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.

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:
AC257-20-1

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 m²), Test Configuration: Type E-400]

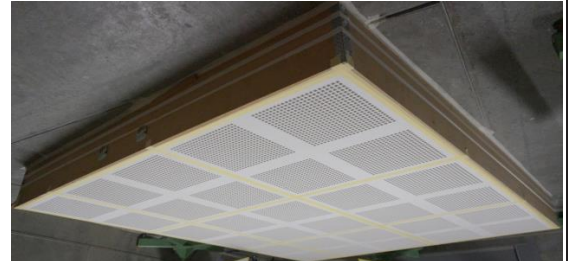
Description: • Bailey "Cell Sound" acoustic panel with black scrim backing
• with 20 mm Supertel glasswool behind

Materials³

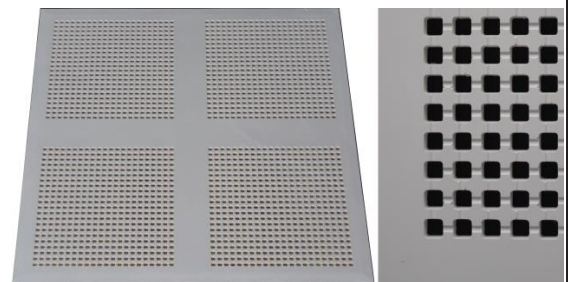
- a) Bailey "Cell Sound" acoustic panel: • perforated moulded plaster ceiling panels, • with Pyrotek Sorbertextile P44FR fabric stapled behind the perforated areas, • designed to be screw-fixed to overhead battens, • size: 1200 x 1200 mm (nom) x 13 mm thick, • perforated with 4 sets of square holes (with radiused corners) per panel, 22 x 22 holes per set, hole size 14 mm opening at the mouth, tapering to 13 mm at the rear; holes at 22 mm centres, • decorative effect of perforations supplemented by a pattern of grooves in the perforated regions, • open area percentage 21.7% (based on 13 mm throat opening; 25.3% based on 14 mm mouth opening).
b) Bradford Supertel 20 mm: • 20 mm thick semi-rigid glasswool board (32 kg/m³), • 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/m²) was placed on the floor of the chamber, 12" off parallel with the walls. The edges of the enclosure were taped to seal against the concrete floor of the chamber.
- A system of steel wall studs/track was set up inside the enclosure to support the specimen panels [item a] with their exposed face 400 mm from the concrete floor of the chamber inside the enclosure. 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.
- Six (6) full-size and three (3) half panels [item a] were then installed against the glasswool. The prototype specimen panels supplied were rasped as required to fit in the enclosure.
- The full perimeter of the test specimen, and the adjoining edges of the panels were all taped with masking tape to close off gaps/openings at all of the panel edges.
- 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)

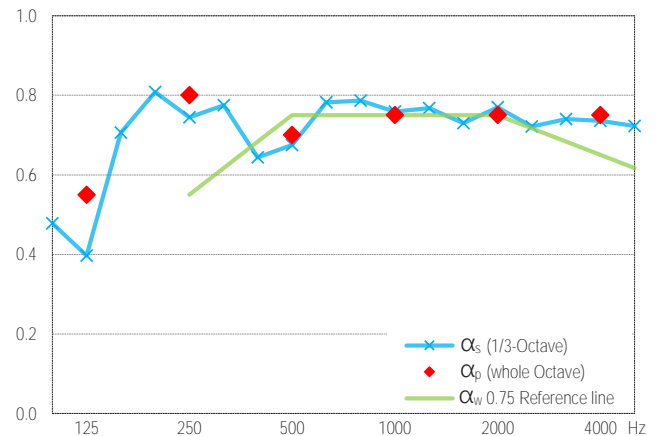
Measurement Details & Results

Freq Hz	Absorption coefficients			Reverberation times, T ₆₀ (sec)	
	α _s	α _p	95% Conf (δ)	Empty room	with Specimen
100	0.48	0.10	0.07	6.79	3.29
125	0.40	0.55	0.07	7.35	3.76
160	0.71		0.10	7.39	2.73
200	0.81	0.10		6.53	2.39
250	0.74	0.80	0.06	6.00	2.44
315	0.78		0.05	6.93	2.51
400	0.64		0.04	6.86	2.80
500	0.68	0.70	0.05	6.61	2.68
630	0.78		0.04	6.10	2.38
800	0.79		0.05	5.76	2.32
1000	0.76	0.75	0.03	5.47	2.32
1250	0.77		0.03	4.88	2.19
1600	0.73		0.04	4.25	2.11
2000	0.77	0.75	0.04	3.81	1.95
2500	0.72		0.03	3.37	1.88
3150	0.74		0.03	2.93	1.72
4000	0.74	0.75	0.03	2.39	1.53
5000	0.72		0.04	1.89	1.32

Performance Indices^{1,2}

α_w = 0.75 (L)
SAA = 0.75
NRC = 0.75

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:	12 Jul 2019	12 Jul 2019
Temperature & humidity:	12 °C, 66 % R.H.	12 °C, 66 % R.H.
Atmospheric pressure:	994 mBar	993 mBar

Notes, Deviations etc

- 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.
- 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.

Issuing Authority

Signed:
Date: 9 August 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 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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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:
AC257-23-1

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mordial, 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 m²), Test Configuration: Type E-400]

Description: • Bailey 'Cell Sound' acoustic panel (without scrim backing)
• with 50 mm Supertel glasswool behind (faced with black matt tissue)

Materials³

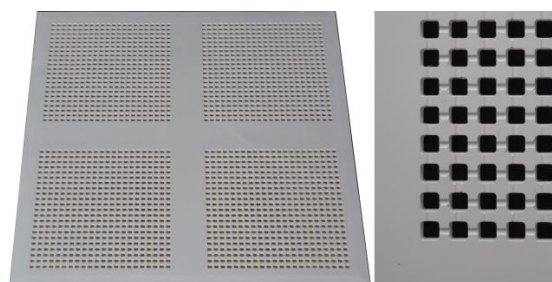
- a) Bailey 'Cell Sound' acoustic panel: • perforated moulded plaster ceiling panels (without scrim backing), • designed to be screw-fixed to overhead battens, • size: 1200 x 1200 mm (nom) x 13 mm thick, • perforated with 4 sets of square holes (with radiused corners) per panel, 22 x 22 holes per set, hole size 14 mm opening at the mouth, tapering to 13 mm at the rear: holes at 22 mm centres, • decorative effect of perforations supplemented by a pattern of grooves in the perforated regions, • open area percentage 21.7% (based on 13 mm throat opening: 25.3% based on 14 mm mouth opening).
- b) Bradford Supertel 50 mm (BMF): • 50 mm thick semi-rigid glasswool board (32 kg/m³), • with Black Matt Tissue facing, • supplied in 2400 x 1200 mm panels: cut to size by the laboratory – to fit snugly into the test frame.

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/m²) was placed on the floor of the chamber, 12" off parallel with the walls. The edges of the enclosure were taped to seal against the concrete floor of the chamber.
- A system of steel wall studs/track was set up inside the enclosure to support the specimen panels (item a) with their exposed face 400 mm from the concrete floor of the chamber inside the enclosure. 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) with its black tissue face immediately behind the perforated panels.
- Six (6) full-size and three (3) half panels (item a) were then installed against the black tissue facing of the glasswool. The prototype specimen panels supplied were rasped as required to fit in the enclosure.
- The full perimeter of the test specimen, and the adjoining edges of the panels were all taped with masking tape to close off gaps/openings at all of the panel edges.
- Specimen installation was carried out by laboratory staff.



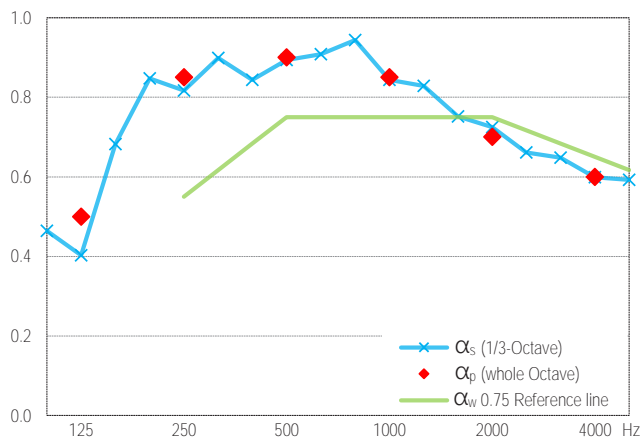
Test specimen installed for testing (image inverted to depict ceiling installation)



Panel details – Left: whole panel, Right: perforations exposing black fabric behind

Measurement Details & Results

Freq Hz	Absorption coefficients			Reverberation times, T ₆₀ (sec)	
	α _s	α _p	95% Conf (δ)	Empty room	with Specimen
100	0.46		0.09	6.14	3.18
125	0.40	0.50	0.06	6.67	3.55
160	0.68		0.11	6.96	2.73
200	0.85		0.11	6.50	2.32
250	0.82	0.85	0.11	6.01	2.31
315	0.90		0.04	6.92	2.28
400	0.84		0.05	6.70	2.35
500	0.89	0.90	0.05	6.60	2.26
630	0.91		0.05	6.06	2.17
800	0.94		0.03	5.81	2.08
1000	0.84	0.85	0.03	5.50	2.19
1250	0.83		0.04	4.89	2.11
1600	0.75		0.03	4.28	2.09
2000	0.73	0.70	0.04	3.85	2.01
2500	0.66		0.03	3.51	1.99
3150	0.65		0.04	3.13	1.88
4000	0.60	0.60	0.03	2.56	1.69
5000	0.59		0.04	2.09	1.47



Performance Indices^{1,2}

α_w = 0.75 (L)
SAA = 0.83
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:	16 Jul 2019	16 Jul 2019
Temperature & humidity:	12 °C, 81 % R.H.	11 °C, 80 % R.H.
Atmospheric pressure:	1010 mBar	1011 mBar

Notes, Deviations etc

- 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.

- 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.

Issuing Authority

Signed:

David Truett

Date:

David Truett
9 August 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 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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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:
AC257-18-1

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 m²), Test Configuration: Type E-400]

Description: • Bailey "Open Cell" acoustic panel with black scrim backing
• with 20 mm Supertel glasswool behind

Materials³

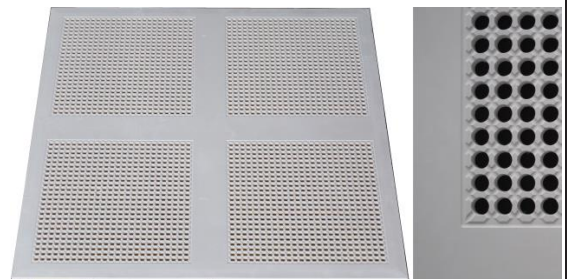
- a) Bailey "Open Cell" acoustic panel: • perforated moulded plaster ceiling panels, • with Pyrotek Sorbertextile P44FR fabric stapled behind the perforated areas, • designed to be screw-fixed to overhead battens, • size: 1200 x 1200 mm (nom) x 13 mm thick, • perforated with 4 sets of holes per panel, 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, • decorative effect of perforations supplemented by a pattern of grooves in the perforated regions, • open area percentage 24.9% (based on 13.5 mm throat opening: 30.7% based on 15 mm mouth opening).
- b) Bradford Supertel 20 mm: • 20 mm thick semi-rigid glasswool board (32 kg/m³), • 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/m²) was placed on the floor of the chamber, 12" off parallel with the walls. The edges of the enclosure were taped to seal against the concrete floor of the chamber.
- A system of steel wall studs/track was set up inside the enclosure to support the specimen panels [item a] with their exposed face 400 mm from the concrete floor of the chamber inside the enclosure. 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.
- Six (6) full-size and three (3) half panels [item a] were then installed against the glasswool. The prototype specimen panels supplied were rasped as required to fit in the enclosure.
- The full perimeter of the test specimen, and the adjoining edges of the panels were all taped with masking tape to close off gaps/openings at all of the panel edges.
- 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 Hz	Absorption coefficients			Reverberation times, T ₆₀ (sec)	
	α _s	α _p	95% Conf (δ)	Empty room	with Specimen
100	0.53		0.08	6.79	3.11
125	0.41	0.55	0.07	7.35	3.71
160	0.74		0.10	7.39	2.64
200	0.82		0.10	6.53	2.38
250	0.74	0.75	0.08	6.00	2.45
315	0.77		0.05	6.93	2.52
400	0.66		0.04	6.86	2.76
500	0.69	0.70	0.04	6.61	2.66
630	0.78		0.04	6.10	2.38
800	0.82		0.03	5.76	2.26
1000	0.76	0.80	0.04	5.47	2.31
1250	0.79		0.04	4.88	2.17
1600	0.77		0.04	4.25	2.06
2000	0.81	0.80	0.05	3.81	1.91
2500	0.78		0.04	3.37	1.84
3150	0.78		0.03	2.93	1.71
4000	0.77	0.75	0.04	2.39	1.54
5000	0.73		0.03	1.89	1.36

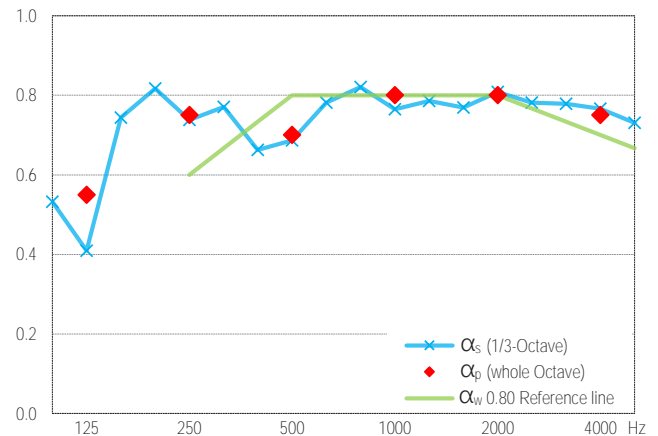
Performance Indices^{1,2}

α_w = 0.80

SAA = 0.77

NRC = 0.75

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:	12 Jul 2019	12 Jul 2019
Temperature & humidity:	12 °C, 66 % R.H.	12 °C, 74 % R.H.
Atmospheric pressure:	994 mBar	993 mBar

Notes, Deviations etc

- 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.
- 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.

Issuing Authority

Signed:

David Truett

Date:

9 August 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 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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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:
AC257-22-1

Client: Bailey Interiors Pty Ltd
83-85 Boundary Road, Mordial, 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 m²), Test Configuration: Type E-400]

Description: • Bailey 'Open Cell' acoustic panel (without scrim backing)
• with 50 mm Supertel glasswool behind (faced with black matt tissue)

Materials³

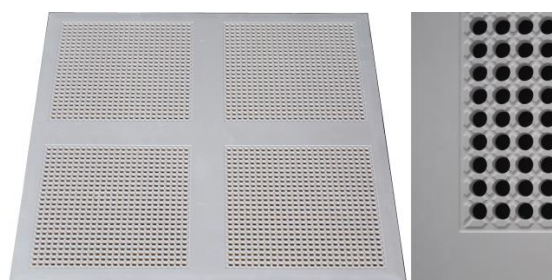
- a) Bailey 'Open Cell' acoustic panel: • perforated moulded plaster ceiling panels (without scrim backing), • designed to be screw-fixed to overhead battens, • size: 1200 x 1200 mm (nom) x 13 mm thick, • perforated with 4 sets of holes per panel, 25 x 25 holes per set, hole size 15 mm diameter at the mouth, tapering to 13.5 mm at the rear; holes at 19.2 mm centres, • decorative effect of perforations supplemented by a pattern of grooves in the perforated regions, • open area percentage 24.9% (based on 13.5 mm throat opening; 30.7% based on 15 mm mouth opening).
- b) Bradford Supertel 50 mm (BMF): • 50 mm thick semi-rigid glasswool board (32 kg/m³), • with Black Matt Tissue facing, • supplied in 2400 x 1200 mm panels: cut to size by the laboratory – to fit snugly into the test frame.

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/m³) was placed on the floor of the chamber, 12" off parallel with the walls. The edges of the enclosure were taped to seal against the concrete floor of the chamber.
- A system of steel wall studs/track was set up inside the enclosure to support the specimen panels [item a] with their exposed face 400 mm from the concrete floor of the chamber inside the enclosure. 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] with its black tissue face immediately behind the perforated panels.
- Six (6) full-size and three (3) half panels [item a] were then installed against the black tissue facing of the glasswool. The prototype specimen panels supplied were rasped as required to fit in the enclosure.
- The full perimeter of the test specimen, and the adjoining edges of the panels were all taped with masking tape to close off gaps/openings at all of the panel edges.
- 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)

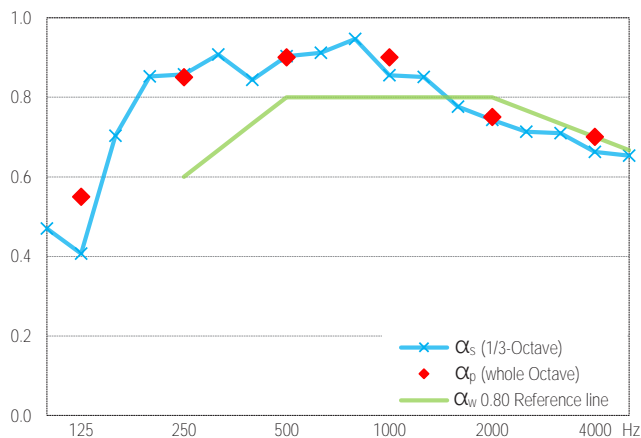
Measurement Details & Results

Freq Hz	Absorption coefficients			Reverberation times, T ₆₀ (sec)	
	α _s	α _p	95% Conf (δ)	Empty room	with Specimen
100	0.47		0.10	6.14	3.17
125	0.41	0.55	0.06	6.67	3.54
160	0.70		0.12	6.96	2.68
200	0.85		0.10	6.50	2.31
250	0.86	0.85	0.10	6.01	2.24
315	0.91		0.05	6.92	2.27
400	0.84		0.06	6.70	2.36
500	0.90	0.90	0.04	6.60	2.24
630	0.91		0.04	6.06	2.17
800	0.95		0.04	5.81	2.08
1000	0.86	0.90	0.03	5.50	2.17
1250	0.85		0.03	4.89	2.07
1600	0.78		0.03	4.28	2.05
2000	0.74	0.75	0.04	3.85	1.98
2500	0.71		0.03	3.51	1.92
3150	0.71		0.03	3.13	1.79
4000	0.66	0.70	0.03	2.56	1.61
5000	0.65		0.04	2.09	1.40

Performance Indices^{1,2}

α_w = 0.80 (L)
SAA = 0.85
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:	16 Jul 2019	16 Jul 2019
Temperature & humidity:	12 °C, 81 % R.H.	11 °C, 77 % R.H.
Atmospheric pressure:	1010 mBar	1011 mBar

Notes, Deviations etc

- 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.
- 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.

Issuing Authority

Signed:

David Truett

Date:

David Truett
9 August 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 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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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:
AC262-01-1

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 m²), Test Configuration: Type E-400]

Description: • Bailey "Cell Air" acoustic panel with black scrim backing
• with 20 mm Supertel glaswool behind

Materials³

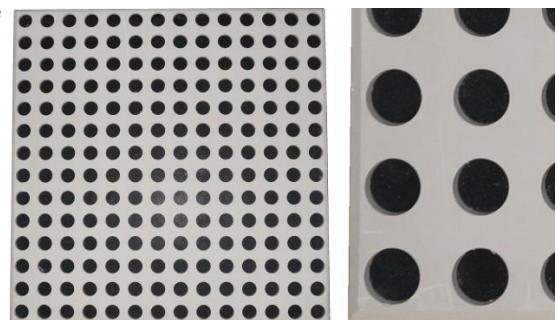
- a) Bailey "Cell Air" acoustic panel: • perforated moulded plaster ceiling panels, • with Pyrotek Sorbertextile P44FR fabric stapled to the back of the panel, • designed to be screw-fixed to overhead battens, • size: 1200 x 1200 mm (nom) x 15 mm thick, • perforated with a set of 14 x 14 circular holes, • hole size 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; 32.3% based on 55 mm mouth opening).
- b) Bradford Supertel 20 mm: • 20 mm thick semi-rigid glasswool board (32 kg/m³), • 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/m²) 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.
- Six (6) full-size and three (3) half panels [item a] were then installed against the glasswool. Longitudinal support members in the enclosure were positioned every 600 mm; masking a small portion of those perforations directly in front.
- The full perimeter of the test specimen, and the adjoining edges of the panels were all taped with masking tape to close off gaps/openings at all of the panel edges.
- 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)

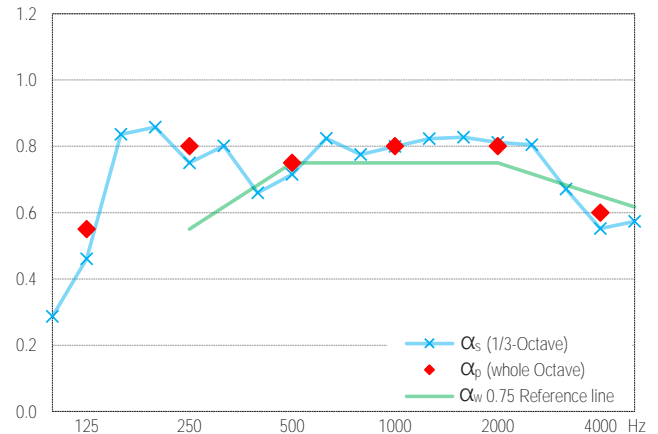
Measurement Details & Results

Freq Hz	Absorption coefficients			Reverberation times, T ₆₀ (sec)	
	α _s	α _p	95% Conf (δ)	Empty room	with Specimen
100	0.29		0.09	5.73	3.69
125	0.46	0.55	0.10	6.75	3.30
160	0.84		0.10	6.87	2.35
200	0.86		0.09	5.98	2.20
250	0.75	0.80	0.07	5.22	2.26
315	0.80		0.08	5.87	2.28
400	0.66		0.06	5.98	2.56
500	0.72	0.75	0.04	5.92	2.43
630	0.82		0.07	5.72	2.20
800	0.78		0.03	5.41	2.23
1000	0.80	0.80	0.04	5.24	2.16
1250	0.82		0.05	4.78	2.04
1600	0.83		0.03	4.27	1.94
2000	0.81	0.80	0.04	3.82	1.86
2500	0.80		0.03	3.41	1.77
3150	0.67		0.02	3.00	1.79
4000	0.55	0.60	0.04	2.46	1.69
5000	0.57		0.04	2.03	1.47

Performance Indices^{1,2}

α_w = 0.75 (L)
SAA = 0.79
NRC = 0.75

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	3 Oct 2019
Temperature & humidity:	16 °C, 63 % R.H.	21 °C, 51 % R.H.
Atmospheric pressure:	1011 mBar	1006 mBar

Notes, Deviations etc

- 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.
- 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.

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 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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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:
AC224-10-1

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 m x 3.0 m = 10.8 m²]

Description: 15 mm thick Plaster Acoustic Ceiling Panels designated "Cell Air Panel (screw up) - 55 mm diameter circular perforations @ 85 mm centres", with 50 mm Bradford Supertel glasswool with Ultraphon facing to rear of panel, in 1200 mm x 1200 mm support grid. Test configuration: Type E-400.

Materials:

- Bailey Interiors 15 mm thick Plaster Acoustic Ceiling panels designated "Cell Air (screw up) - 55 mm diameter circular perforations @ 85 mm centres" with 50 mm thick glasswool with black acoustic fabric facing installed behind the panels (black facing to rear of panel). Panels having a plaster face moulded with circular perforations of diameter 55 mm. The circular perforations are at 85 mm centres in a 14 x 14 array across the sound-incident surface of the panel (approx. 32.3 % open area); Single panel mass approx 17.5 kg, with edges profiled to abut against adjacent panels in a 1200 mm x 1200 mm support grid (with supports @ 600 mm centres).
- Backing: 50 mm Bradford Supertel glasswool with Ultraphon facing.

Installation:

- The test specimen was installed as an inverted ceiling on the floor of the laboratory.
- The support grid was constructed from 64 mm standard steel studs spanning the 3.0 m dimension of the test frame with the panels resting on 30mm high top-hat furring channel at 600 mm centres spanning the 3.6 m dimension of the test frame to achieve a 400 mm distance from the sound-incident side of the panel under test to the floor of the test chamber.
- A 400 mm high perimeter enclosure of 32 mm thick MDF board (approx. 23 kg/m²) was constructed and placed on the concrete floor of the chamber, not parallel to the walls.
- A grid of timber pieces and sheet metal sections (furring channels and wall studs) was set up inside the enclosure to support the specimen panels, which were arranged with the exposed face 400 mm from the surface of the concrete behind. The cavity behind the panels was a single contiguous cavity with no internal partitions.
- After placement of the test specimen panels, the joins between adjacent panels was taped using 18 mm wide electrical tape. The joins between the test frame and the panel sample was taped using 50 mm wide duct tape.
- Specimen installation was carried out by the laboratory.



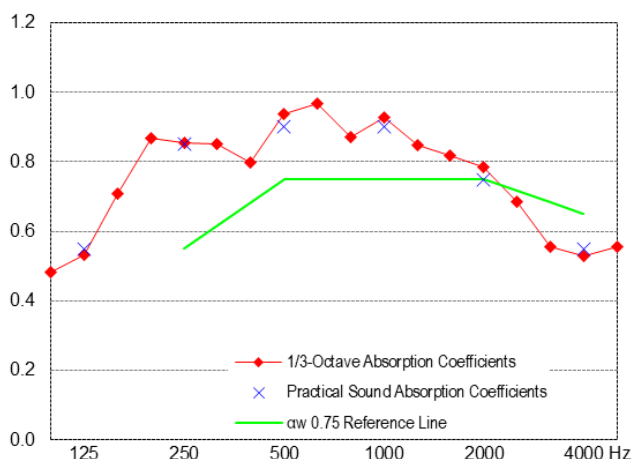
Close-up detail of sound-incident face of test specimen



Test specimen arranged for test

Measurement Details & Results

Freq Hz	Absorption coefficient		Reverberation times, T ₆₀ (sec)	
	α _s	α _p	Empty room	with Specimen
100	0.48		5.63	2.99
125	0.53	0.55	6.96	3.15
160	0.71		7.61	2.75
200	0.87		7.34	2.38
250	0.85	0.85	6.18	2.27
315	0.85		7.52	2.43
400	0.80		6.93	2.47
500	0.94	0.90	6.18	2.14
630	0.97		6.12	2.09
800	0.87		5.67	2.17
1000	0.93	0.90	5.54	2.07
1250	0.85		4.93	2.09
1600	0.82		4.51	2.05
2000	0.78	0.75	4.02	1.99
2500	0.68		3.59	2.01
3150	0.56		3.16	2.03
4000	0.53	0.55	2.67	1.85
5000	0.56		2.10	1.55



Performance Indices^{2,3}

α_w = 0.75 (L)
SAA = 0.85
NRC = 0.90 (rounded from 0.88)

Measurement Conditions

	Empty room	with Test Specimen
Date of measurement:	25 Jul 2017	25 Jul 2017
Temperature & humidity:	14 °C, 72 % R.H.	12 °C, 76 % R.H.
Atmospheric pressure:	1000 mBar	1002 mBar

Notes, Deviations etc

- 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.
- Shape indicators (L, M, and H), if any, accompanying the α_w index, signify absorption coefficients (α_p) exceeding the α_w reference value by 0.25 or more in the Low, Medium or High frequency ranges respectively.
- SAA and NRC are defined in ASTM C423: laboratory requirements for which differ from AS ISO 354.
- Physical characteristics of materials may be as per client or supplier's advice; not necessarily verified by CSIRO.
- Temperature in the chamber, being below 15 °C during testing, is a deviation from AS ISO 354 requirements.
- Empty room absorption area in the 250 Hz and 315 Hz band differed from the mean of the two adjacent bands by more than 15 %: a deviation from AS ISO 354.

Issuing Authority

Signed:
David Truett
Date: 27 September 2017

Instrumentation

Real time analyser: • Brüel & Kjær PULSE LAN-XI type 3160-A-4/2
Microphones/preamps: • 2x GRAS Type 40AP and 2x Brüel & Kjær Type 4134 microphones, on B&K type 2669 preamps, in 4 fixed posns as per AS ISO 354
Noise source: • Norsonic NOR276 Dodecahedron loudspeaker driven by a Norsonic NOR280 power amplifier
Calibration: • Analyser: Feb 2016 (NATA cal)

Laboratory Construction

Reverb room: • 300 mm thick concrete (closed off from the adjoining room by a wall with a medium density fibreboard face) • parallelepiped with dimensional proportions 1:1.3:1.6 for distribution of room modes • approx 207 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^{5,6}

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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/m ³
Test Duration	01:55	02:00 hrs:mins
Measured Heat Flux	26.0	27.8 W/m ²
Measured Thermal Conductivity	0.0520	0.0544 W/m.K
Thermal Resistance	0.8	0.7 m ² K/W

181403

1202

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Accredited for compliance with ISO/IEC 17025 - Testing
- Chemical Testing
- Mechanical Testing
- Performance & Approvals Testing

: Accreditation No. 983
: Accreditation No. 985
: Accreditation No. 1356



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0204/11/06

APPROVED SIGNATORY

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

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 : 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			Mean	
	1	2	3	fti	kW/m ²
Average Heat Release Rate	fti	fti	fti	fti	
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	m ² /kg

Test orientation : Horizontal

	Specimen			Mean	
	1	2	3		
Irradiance	50	50	50	50	kW/m ²
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

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Accredited for compliance with ISO/IEC 17025 - Testing
- Chemical Testing
- Mechanical Testing
- Performance & Approvals Testing

Accreditation No. 983
Accreditation No. 985
Accreditation No. 1356

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[Signature]

APPROVED SIGNATORY



[Signature]
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	Length (%)	Width (%)	Thickness (%)
Specimen			
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

Page 1 of 1

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0205/11/06

APPROVED SIGNATORY

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



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.

PROJECT: Bailey Interiors
PROJ No: 19-023g-1

DATE: 19 Nov. 19
PAGE 2

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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W www.baileyinteriors.com.au

7 October 2015

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.auTo 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[®] 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



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.

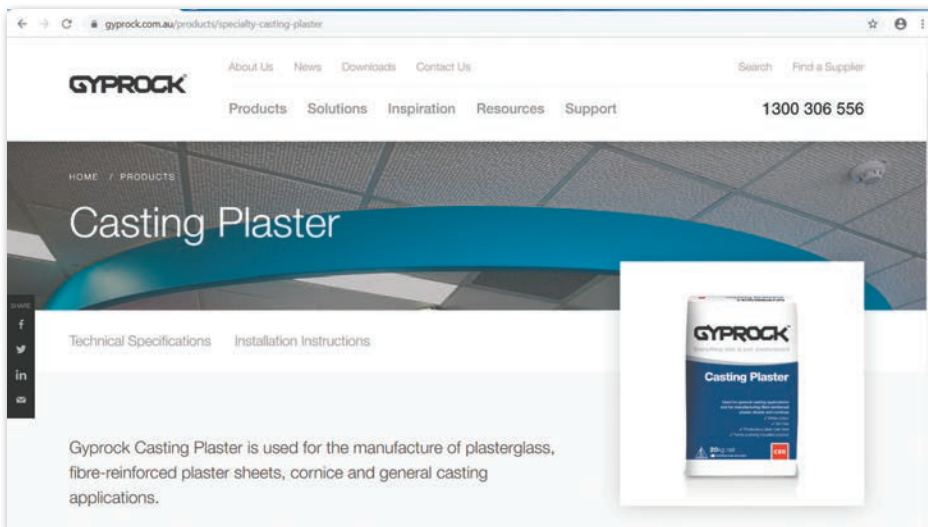
When Gyprock opened its Concord Plaster Mills in 1942, it soon became a supplier of casting plaster to Ernest Alfred Bailey who had established E. A. Bailey & Sons Pty Ltd in Boundary Road, Mortdale in 1938. Since that initial supply, Gyprock has maintained its long association with the Bailey family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





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



SUMMARY - PHYSICAL PROPERTIES

Insulated with 32Kg/m³, 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

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.

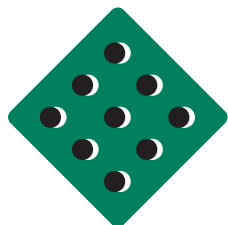
Recycled Shipping

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 from 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

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