



# *Ambient* Acoustic Systems



**Acoustic Ceiling Systems**

*The House of Scandinavian Finishing Materials*

Make peace with noise

# ***Ambient*** **Acoustic Systems**

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# Introduction

The manner in which we experience sound can dramatically affect the environment in which we live. Within an urban environment, it is noticeable that people are increasingly affected by unwanted noise. Such unwanted noise has a very negative affect on the quality of our interior environment.

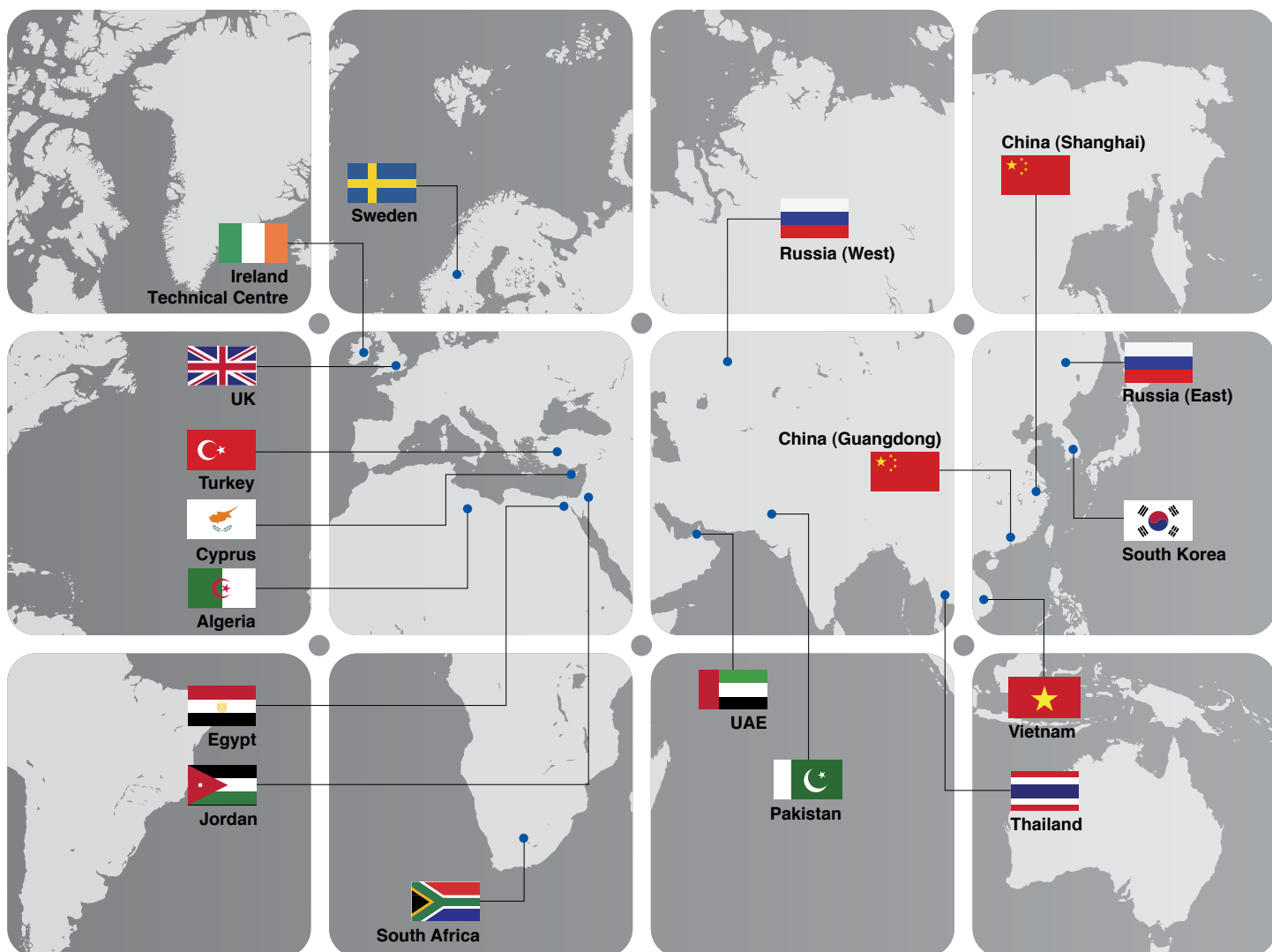
Controlling this noise means controlling an important part of our overall health and well-being. Controlling noise reduces stress caused by excessive or unpleasant noise. **Terraco Ambient™** Acoustic Ceiling Systems offer convenient solutions to controlling and reducing noise levels.

Terraco Ambient is a range of high-performance acoustic plastering compounds, available in dry-powder and ready-mix versions, used as an acoustic system on ceilings. Terraco Ambient comes in a variety of aesthetically pleasing finishes with unique sound controlling properties. It is also a Terraco EcoLife product - free from Volatile Organic Compounds (VOCs), formaldehyde and other potentially harmful emissions.

The Terraco Ambient Acoustic Ceiling Systems bring together aesthetics and acoustics like never before. They are highly versatile, are environmentally friendly and non-combustible allowing Terraco Ambient to be used in a wide range of settings such as theatres, opera houses, reception areas, hotel lobbies, school class rooms, lecture halls, and domestic applications.

Terraco Ambient can be used in several ways to achieve different acoustical effects according to the requirement of the building in question. Combinations with sound boards, suspended ceilings and other ceiling systems are common.

The Terraco Ambient Acoustic Ceiling Systems are an improved construction solution for modern interiors combining the properties of noise control, breathability, zero-emissions, fire resistance and the aesthetic requirements of modern and traditional interiors.



## How does The Terraco Ambient Acoustic Ceiling System Work?

It has to do with the ability of the materials used to produce Terraco Ambient Acoustic products (basecoats and finishcoats) to absorb both high frequency (short wave-lengths) and low frequency (long wave-lengths) into the Acoustic System itself.

- Higher frequencies are absorbed by thin layers of porous materials.
- Lower frequencies require a deeper suspended construction for efficient absorption.
- In a domestic environment it is important to control the frequency range of the human voice and hearing, whereas in a concert hall or opera house control of a broader frequency range is required to enhance the sound.
- In a room where communication is important, such as in schools, the clarity of hearing is important. Studies have shown that learning capacity can be greatly enhanced with proper acoustical control in the classroom.
- In rooms with only hard surfaces, communication can become difficult as the unabsorbed sound reverberates off the various surfaces creating echoes and unwanted background noise. Expensive Hi-Fi systems can end up sounding annoying and disturbing.

A room with an acoustically treated ceiling gives an instant feeling of warmth whereas a room with only hard surfaces has a distinctive colder feeling.

## An EcoLife product

The Terraco EcoLife range has been developed to ensure we can offer products free from Volatile Organic Compounds (VOCs), formaldehyde and other potentially harmful emissions. These water based, solvent free, products contain specially developed polymers and additives that ensure their inertness and ecologically friendly nature.



The EcoLife range of products surpasses the most stringent international and national regulations pertaining to interior decoration products.

The EcoLife marking denotes that a product is part of the EcoLife range of zero-emission coatings. Terraco Ambient products, both the basecoats and the finishcoats, carry this symbol. Furthermore, Terraco Ambient is produced using 80% recycled material enhancing the products environmentally friendly characteristics even further.

## Benefits

- Excellent reverberation control
- Noise reduction = stress reduction (at home and at work)
- Good acoustics = improved work efficiency and performance
- Enhanced listening experience
- Excellent design flexibility – can be applied on curved and vaulted ceilings
- Jointless acoustic finish
- Non polarised material ensures low maintenance and easy cleaning
- Can be applied equally well to hard substrates or suspended ceilings
- Non hazardous
- Easy to maintain and repair
- An EcoLife product – Zero VOCs
- Uses 80% recycled material
- Incombustible
- Vapour permeable
- Excellent fungal resistance
- Large colour spectrum is available



Stanley House, London, United Kingdom



# Research and Development

The Terraco Group is committed to an extensive Research & Development Program. The Technical Centre, based in Ireland, leads the group's in-house product development program and is responsible for making sure that Terraco products remain at the forefront of their field with regard to innovation, quality and environmental standards. Terraco cooperates with several technology partners and suppliers, conducting joint research projects in common interest areas.

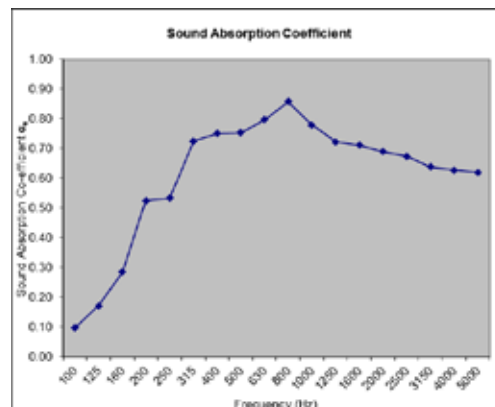
## Terraco Sound Absorption Boards and Ambient Finishcoat

Laboratory measurements carried out by the Ventac Laboratory in Ireland on the Ambient Acoustic Ceiling System using a 25mm and a 50mm Terraco Ambient Acoustic Board finished with Ambient Finishcoat are shown below. These sound absorption tests were done in accordance with ASTM C423-09a (Standard test method for Sound Absorption and Sound Absorption Co-efficient by the Reverberation Room Method) and Type A mounting as per ASTM E795-05 (Standard Practices for Mounting Specimens during Sound Absorption Tests).

### Result 2824a

<b>Customer:</b> Terraco Technical Centre Ltd	<b>Test Date:</b> 28/02/2017
<b>Specimen mounted by:</b> Terraco Technical Staff	<b>Test room ID:</b> Reverberation Chamber 1
<b>Volume of Reverberation Chamber (m³):</b> 282.98	<b>Product Identification:</b> 25mm Terraco Ambient Acoustic Board & 2-3 mm Terraco Ambient finish coat plaster
<b>Specimen Area (m²):</b> 10.86	<b>Temperature of Test Chamber (°C):</b> 10.3
<b>Mounting Depth (mm):</b> 0	<b>Humidity of test rooms (%):</b> 49
<b>Specimen mounting:</b> Type A	

Frequency	2824a
Hz	$\alpha_s$
100	0.10
125	0.17
160	0.29
200	0.53
250	0.53
315	0.73
400	0.75
500	0.75
630	0.80
800	0.86
1000	0.78
1250	0.72
1600	0.71
2000	0.69
2500	0.67
3150	0.64
4000	0.63
5000	0.62



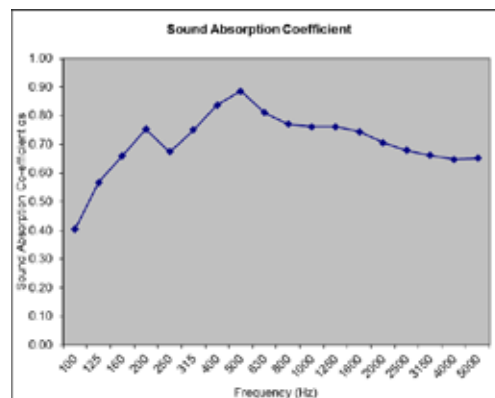
Frequency	$\alpha_s$
250	0.53
500	0.75
1000	0.78
2000	0.69

N.R.C Rating 0.70 (Noise Reduction Co-efficient)  
S.A.A Rating 0.71 (Sound Absorption Average)

### Result 2826a

<b>Customer:</b> Terraco Technical Centre Ltd	<b>Test Date:</b> 28/02/2017
<b>Specimen mounted by:</b> Terraco Technical Staff	<b>Test room ID:</b> Reverberation Chamber 1
<b>Volume of Reverberation Chamber (m³):</b> 282.98	<b>Product Identification:</b> 50mm Terraco Ambient Acoustic Board & 2-3 mm Terraco Ambient finish coat plaster
<b>Specimen Area (m²):</b> 10.86	<b>Temperature of Test Chamber (°C):</b> 10.2
<b>Mounting Depth (mm):</b> 0	<b>Humidity of test rooms (%):</b> 46
<b>Specimen mounting:</b> Type A	

Frequency	2826a
Hz	$\alpha_s$
100	0.41
125	0.57
160	0.66
200	0.75
250	0.67
315	0.75
400	0.84
500	0.89
630	0.81
800	0.77
1000	0.76
1250	0.76
1600	0.74
2000	0.71
2500	0.68
3150	0.66
4000	0.65
5000	0.65



Frequency	$\alpha_s$
250	0.67
500	0.89
1000	0.76
2000	0.71

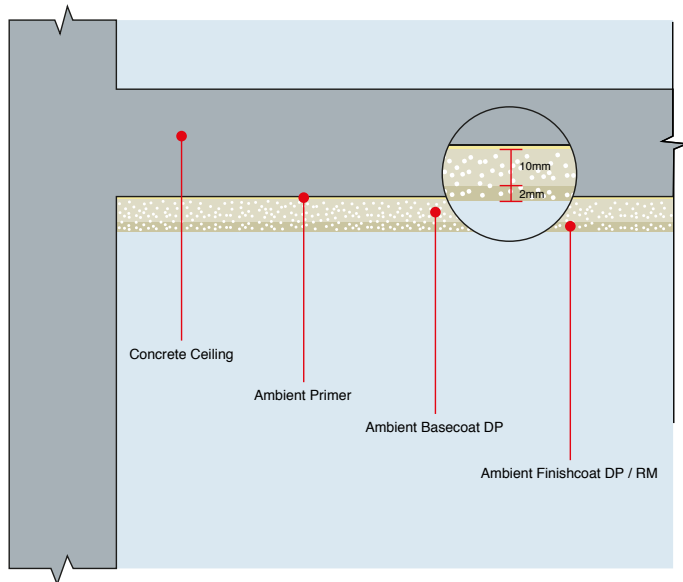
N.R.C Rating 0.80 (Noise Reduction Co-efficient)  
S.A.A Rating 0.76 (Sound Absorption Average)

Note: For test reports, technical specifications and technical details please contact Terraco Technical Centre directly at [technical-centre@terraco.com](mailto:technical-centre@terraco.com)

# Ambient Acoustic Ceiling Systems

## Application of Ambient Plaster System on Hard Substrates

### Onto a concrete ceiling



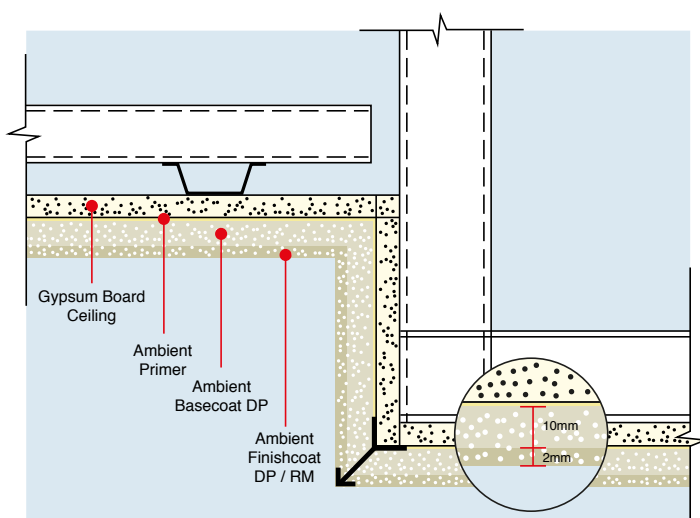
#### Preparation of substrate

- New concrete ceilings:
  - Ensure that the ceiling is level and that all protrusions are removed and that the surface has been made level. If necessary, apply the Terraco Sprayplaster system to prepare concrete soffits.
  - Apply a coat of Ambient Primer to consolidate surfaces and optimise adhesion of Terraco Ambient Basecoat.
- Old masonry surfaces:
  - Clean with a sugar soap solution.
  - Stains should be treated with a suitable stain blocker.
  - Apply a coat of Ambient Primer to consolidate surfaces and optimise adhesion of Terraco Ambient Basecoat.

#### Application: 10 mm Ambient Basecoat DP + 2 mm Ambient Finishcoat DP or RM

1. Apply the Ambient Basecoat in layers to a maximum application thickness of 5mm per coat of up to 10 mm. Plaster guides can be used to control the film thickness. Use a 2 metre straight edge to level surface. Once dry the Ambient Basecoat plaster can be sanded-off to remove any rough edges. The consumption rate is 0.3 kg/m<sup>2</sup>/mm.
2. Allow the Ambient Basecoat to dry for 48 hours and apply the Ambient Finishcoat DP / RM in the same way at a thickness of 2 mm. Trowel to a smooth finish or leave textured as required. Ambient Finishcoat DP / RM is available in a range of attractive colours.

### Onto a gypsum board ceiling



#### Preparation of substrate

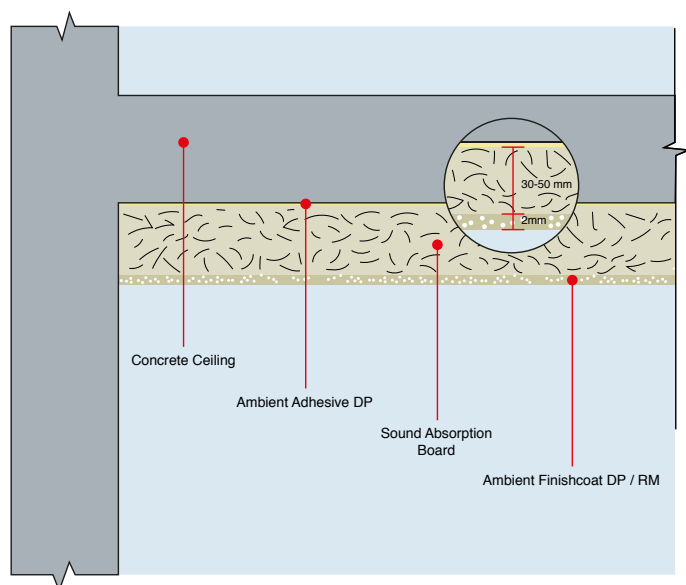
- Patch and joint gypsum board and other sheeting using Terraco Acrylic Filler with glass fibre scrim.
- Ensure sheeting is properly secured and treat any fixing screws with rust-proofer.
- Apply a coat of Ambient Primer to consolidate surfaces and optimise adhesion of Ambient Basecoat.

#### Application: 10 mm Ambient Basecoat DP + 2 mm Ambient Finishcoat DP or RM

1. Apply the Ambient Basecoat in layers to a maximum application thickness of 5mm per coat of up to 10 mm. Plaster guides can be used to control the film thickness. Use a 2 metre straight edge to level surface. Once dry the Ambient Basecoat plaster can be sanded-off to remove any rough edges. The consumption rate is 0.3 kg/m<sup>2</sup>/mm.
2. Allow the Ambient Basecoat to dry for 48 hours and apply the Ambient Finishcoat DP / RM in the same way at a thickness of 2 mm. Trowel to a smooth finish or leave textured as required. Ambient Finishcoat DP / RM is available in a range of attractive colours.

## Application of Ambient Plaster System on Sound Absorption Boards

### Onto a concrete ceiling



#### Preparation of substrate

- New concrete ceilings:
  - Ensure that ceiling is level and that all protrusions are removed. If necessary, apply the Terraco Sprayplaster system to prepare concrete soffits.
  - If necessary, apply a coat of Ambient Primer to consolidate surfaces and optimise adhesion of Ambient Adhesive DP.
- Old masonry surfaces:
  - Clean with a sugar soap solution.
  - Stains should be treated with a suitable stain blocker.
  - If necessary, apply a coat of Ambient Primer to consolidate surfaces and optimise adhesion of Ambient Adhesive DP.

### Sound Absorption Boards\*

The use of sound absorption boards fixed directly to hard substrates is typically specified in areas which require a higher level of sound absorption where there is a low floor to ceiling height restricting the use of a suspended ceiling system.

Terraco cooperates with the leading manufacturers of high quality absorption board to ensure functionality regarding the acoustical performance, mechanical properties, fire safety and overall compatibility with the Terraco Ambient Acoustic Plasters.

The sound absorption boards should:

- Have a density of minimum  $100 \text{ kg/m}^3$  -  $125 \text{ kg/m}^3$  with a thickness of 30 - 50 mm and a size of 120 cm x 90 cm;
- Be fixed either mechanically or glued using Ambient Adhesive DP;
- When using mechanical fixing, use metal fixing screws and washers to optimise the fire resistance of the system;
- If the substrate is solid, Terraco recommends the use of Ambient Adhesive DP for fixing the panels;  
The adhesive is used at a rate of 3 - 5  $\text{kg/m}^2$  applied to the back of the boards, which are then fixed in place, edge to edge;
- Be tapped with glass fibre scrim and skimmed with Terraco Acrylic Filler;
- When used for vaulted and curved surfaces, follow the system mentioned above, which makes Ambient Acoustic an ideal system for old buildings requiring acoustical treatment without destroying the beauty of the original structure.

### Application: 30 - 50 mm Sound Absorption boards + 2 mm Ambient Finishcoat DP or RM

- The first coat of Ambient Finishcoat plaster is then spray applied at a 2 mm thickness directly to the absorption boards and finished by trowel to a smooth finish or by spraying left textured as required. A smooth finish is recommended.
- The consumption rate is 0.5 - 1.0  $\text{kg/m}^2$ .
- Ambient Finishcoat DP / RM is available in a range of attractive colours.

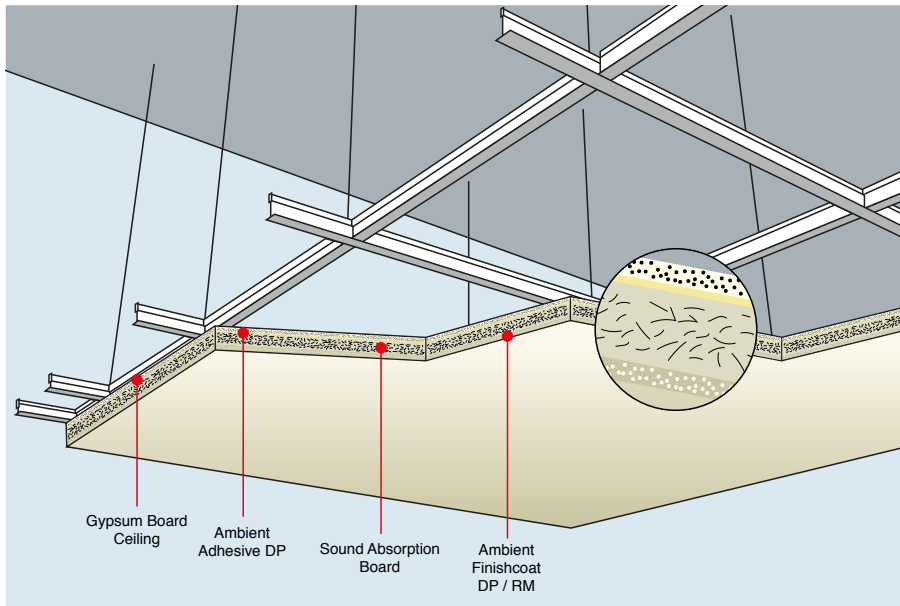


British Medical Association, Auditorium, London, United Kingdom



## Application of Ambient Plaster System on Sound Absorption Boards

### Onto a suspended ceiling



To improve the low frequency absorption, particularly in a room where communication is important, the use of a suspended acoustic ceiling system is recommended.

The following Suspended Ceiling System installation method is carried out:

- The standard framework, as used with suspended gypsum board ceilings, is used with secondary joists placed at a distance of 300 - 400 mm centres.
- The absorption boards are mounted with steel washers and self-tapping screws at a rate of 6 pc/m<sup>2</sup>.
- Boards should be mounted edge to edge and jointed with glass fibre mesh and Terraco Acrylic Filler.

### Preparation of substrate

- If necessary, apply a coat of Ambient Primer to consolidate surfaces and optimise adhesion of Ambient Adhesive DP.

### Sound Absorption Boards

- Refer to page 3 & 5\* - Sound Absorption Boards for detailed information.
- The sound absorption boards should be fixed either mechanically or glued using Ambient Adhesive DP.

### Application: 30 - 50 mm Sound Absorption boards + 2 mm Ambient Finishcoat DP or RM

- The first coat of Ambient Finishcoat plaster is then spray applied at a 2 mm thickness directly to the absorption boards and finished by trowel to a smooth finish or by spray to achieve a textured finish. A smooth finish is recommended.
- The consumption rate is 0.5 - 1.0 kg/m<sup>2</sup>.
- Ambient Finishcoat DP / RM is available in a range of attractive colours.

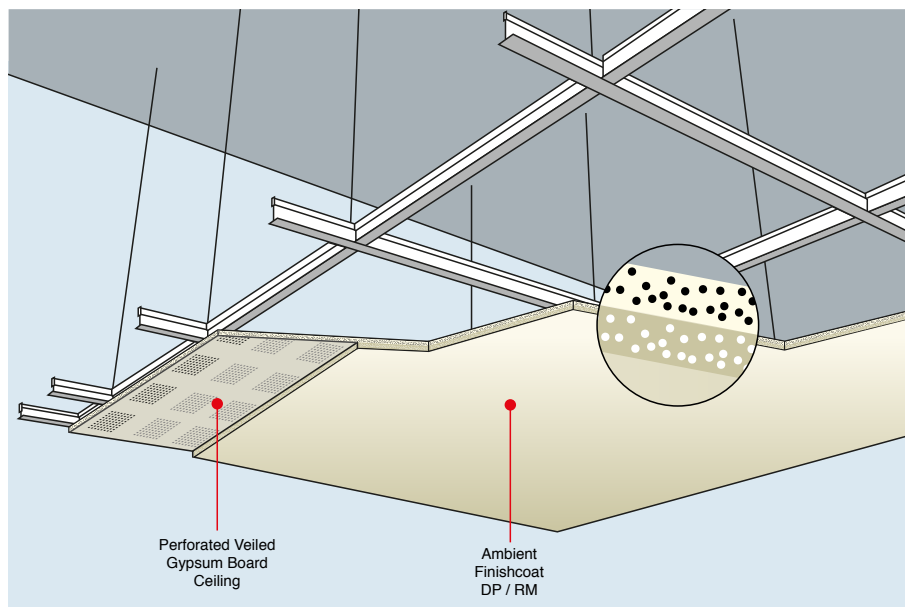


Etihad Museum, Jumeirah, Dubai, United Arab Emirates

## On Perforated Veiled Acoustic Gypsum Boards

Many gypsum board manufacturers produce sound absorbing ceiling and wall perforated veiled gypsum boards, which require an acoustic finish. This is where Ambient Acoustic plasters play a significant role in the finishing system.

Perforated veiled gypsum boards have approximately 20% perforations in the board surface. The front of these gypsum boards have an acoustical facer bonded on to the board in the form of a thin, porous, non-woven glass fibre veil.



### Preparation of substrate

- The standard framework, as used with suspended gypsum board ceilings, is used with secondary joists placed at a distance of 300 - 400 mm centres.
- The perforated absorption boards are mounted with self-tapping screws to manufacturers' guidelines.
- Boards should be mounted edge to edge and jointed with glass fibre mesh and Terraco Acrylic Filler.
- Apply a coat of Ambient Primer to consolidate surfaces and optimise adhesion of Ambient Finishcoat.

### Application

1. A first coat of Terraco Ambient Finishcoat DP / RM plaster is applied directly to the acoustic boards by trowel to a thickness of 1 mm.
2. A second coat of Terraco Ambient Finishcoat DP / RM is then spray applied to the first coat of Ambient Finishcoat to a thickness of 1mm to obtain an overall thickness of 2 mm in a spray texture. Ambient Finishcoat DP / RM is available in a range of attractive colours. The consumption rate is 0.5 - 1.0 kg/m<sup>2</sup>.



# Product Range

The Ambient product range is comprehensive and consists of products specifically designed to be fit for purpose.

## ADHESIVE (for fixing sound absorption panels)

### Ambient™ Adhesive DP



A dry-powder, polymer modified adhesive used for fixing sound absorption panels, providing excellent adhesion between most substrates and mineral wool / glass fibre panels. **ECO<sup>+</sup>LIFE**

## PRIMER

### Ambient™ Primer



A ready-mix adhesion promoting primer for application on masonry and other construction substrates prior to application of Terraco Ambient finishing coats, which acts to stabilise the substrate and provide a mechanical key for subsequent coats. **ECO<sup>+</sup>LIFE**

## PLASTERING COMPOUND

### Ambient™ Basecoat DP



A base-coat acoustic plastering compound supplied as a powder compound, which is also suitable for spray application. It is applied in coats of 5-10mm with the final thickness being either 8mm or 18mm. Allow the material to cure for 48 hours after which it is over coated with the Ambient Finishcoat DP / RM. **ECO<sup>+</sup>LIFE** ♻️

### Ambient™ Finishcoat DP



A finish-coat acoustic plastering compound supplied in powder form which is also suitable for spray application. Terraco Ambient Finishcoat DP can be finished to a textured or smooth finish according to application method employed. It is a pre-coloured system available in a standard range of attractive shades. **ECO<sup>+</sup>LIFE** ♻️

### Ambient™ Finishcoat RM



A finish-coat acoustic plastering compound used to finish acoustic panels, supplied in paste form which is also suitable for spray application. It can be finished to a textured or smooth finish according to application method employed, is available in a bespoke range of attractive shades and comes in 2 grain sizes: 0.5mm and 1.0mm. **ECO<sup>+</sup>LIFE** ♻️

## ACCESORIES

### Acrylic Filler



A ready-mixed, interior and exterior, filler for use on all types of common building surfaces.

### Handytape



A glass fibre scrim tape used whenever two pieces of plasterboard have been joined, with the joined area levelled smooth with Handycoat Interior or Handycoat EZ-Skim Interior.

# Technical Information

Ambient Adhesive DP	
Performance Test	Sound Absorption Board Adhesive - dry powder
Flame Spread	Class 0 BS 476 Part 6/7
Mixing Ratio	4 parts Ambient Adhesive DP to 1 part water by weight
Mixing Instructions	Mix with a high speed drill for 3-5 minutes Allow material to stand for 5 minutes - this is important for chemical reaction times Remix and use
Pot Life	3 hours @ 25°C
Consumption rate	3 - 5 kg/m <sup>2</sup>
Colour	Grey
Packaging	20kg Plastic Pails
Storage	6 months in original unopened packaging

Ambient Primer	
Performance Test	n/a
Flame Spread	Na/a
VOC Level	<5gsm / litre
Mixing Ratio	-
Mixing Instructions	Stir thoroughly until homogenous liquid is formed
Pot Life	-
Consumption rate	0.3 - 0.4 kg/m <sup>2</sup>
Colour	White
Packaging	20kg Plastic Pails
Storage	12 months in original unopened packaging

Ambient Basecoat DP	
Flame Spread	Class 0 BS 476 Part 6/7
Mixing Ratio	15kg powder with 11-13 litres water
Mixing Instructions	Mix with a high speed drill for 3-5 minutes Allow material to stand for 5 minutes - this is important for chemical reaction times. Remix and use.
Consumption rate	0.3 - 0.35 kg/m <sup>2</sup> /mm thickness Apply in layers of 5-10mm per coat allowing 24 hours to dry between layers
Colour	Off-white
Packaging	25 kg Paper Bags
Storage	6 months in original unopened packaging

Ambient Finishcoat DP	
Flame Spread	Class 0 BS 476 Part 6/7
Mixing Ratio	15kg powder with 12 - 13.5 litres water
Mixing Instructions	Mix with a high speed drill for 3 - 5 minutes Allow material to stand for 5 minutes - this is important for chemical reaction times Remix and use
Consumption rate	0.5 - 1.0 kg/m <sup>2</sup>
Colour	Available in a standard colour range
Packaging	15kg Plastic Pails
Storage	6 months in original unopened packaging



Ambient Finishcoat RM	
Grain sizes	0.5mm: 0.6-1.2kg/m <sup>2</sup> 1.0mm: 0.8-1.6kg/m <sup>2</sup>
Mixing Ratio	1.5 - 2.25 litres of water to 15kg Ambient Finishcoat RM
Mixing Instructions	Mix 15kg Ambient Finishcoat RM with 1.5 - 2.25 litres of water using a high speed drill. Proceed to use.
Consumption rate	0.5 - 1.0 kg/m <sup>2</sup>
Colour	Available in a standard colour range
Packaging	15kg Plastic Pails
Storage	9 months in original unopened packaging

## Cleaning, Maintenance and Repair

A unique feature of Terraco Ambient Acoustic is its ability not to get electrostatically charged. With conventional painted surfaces, dust and other pollutants from the air are attracted to a surface due to the negative and positive charged molecules between the dust and the surface of the paint. The surface of the Ambient material does not need to be cleaned or restored as often as conventional ceiling paint or wallpaper as the Terraco Ambient System does not get electrostatically charged.

To clean, maintain and repair the Ambient Acoustic System:

- Use a soft dusting broom or vacuum on low suction setting to clean surface when required
- Use a soft sponge and lukewarm water on smaller water soluble stains
- Greasy or insoluble spots can be scraped or cut away and new Ambient Finishcoat DP / RM re-applied
- After drying, the surface can be sanded with fine sandpaper or lightly sprayed to blend in with the old surface
- Damaged surfaces can be repaired in the same way and, to ensure the newly patched area is no longer visible, over coated with Terraco Equalising Colour Wash.



The Dubai Mall, Dubai, United Arab Emirates

## Colour Range

The Terraco Ambient Acoustic Ceiling System is available in a range of standard colours, with a full colour spectrum available on request.

## Certifications

- Korea
  - United Kingdom
  - UAE
  - Ireland
- KS F 2805 2004 - Sound Absorption Certification (KICT - Korea Institute of Construction Technology)  
 BS EN ISO 354 2003 - Sound Absorption Certification (University of Salford, Manchester, UK)  
 BS 476 - Fire Test: Non Combustability (Warrington Fire, UK)  
 USEPA 24 - VOC Test Certification (Wimpy Laboratories)  
 ASTM C423-09a and ASTM E795-05 (Ventac Laboratory)



## Reference Projects



CJ Blossom Park R&D Centre, Suwan, South Korea



Hilton Metropole Hotel, London, United Kingdom



Sofitel Hotel, Palm Island, Dubai, United Arab Emirates



Sprayplaster  
Rendering Systems



Ready-Mixed Levellers &  
Fillers



Terraroc  
Concrete Repair



Architectural Coatings &  
Finishes



Designer Collection



Emulsion Paints



Performance Tiling -  
Adhesives & Grouts



General Purpose Tiling -  
Adhesives & Grouts



Waterproofing  
Systems



Ambient Acoustic System



Epoxy Flooring - Epirok



Terracoat Textured  
Coatings



Terralite Fine



Terralite Stone



Terralite Granite



Monocote



[www.terraco.com](http://www.terraco.com)

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Technical Data Sheets and Material Safety Data Sheets are available from your Terraco representative or on [www.terraco.com](http://www.terraco.com). Although every precaution has been taken to ensure the accuracy of the colours and textures represented herein they should be considered indicative. Products containing natural aggregates may be susceptible to colour variation and we recommend that you order sufficient quantity for the complete project at one time. Terraco does not warrant the accuracy of the information provided herein and all information is subject to change without notice.

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