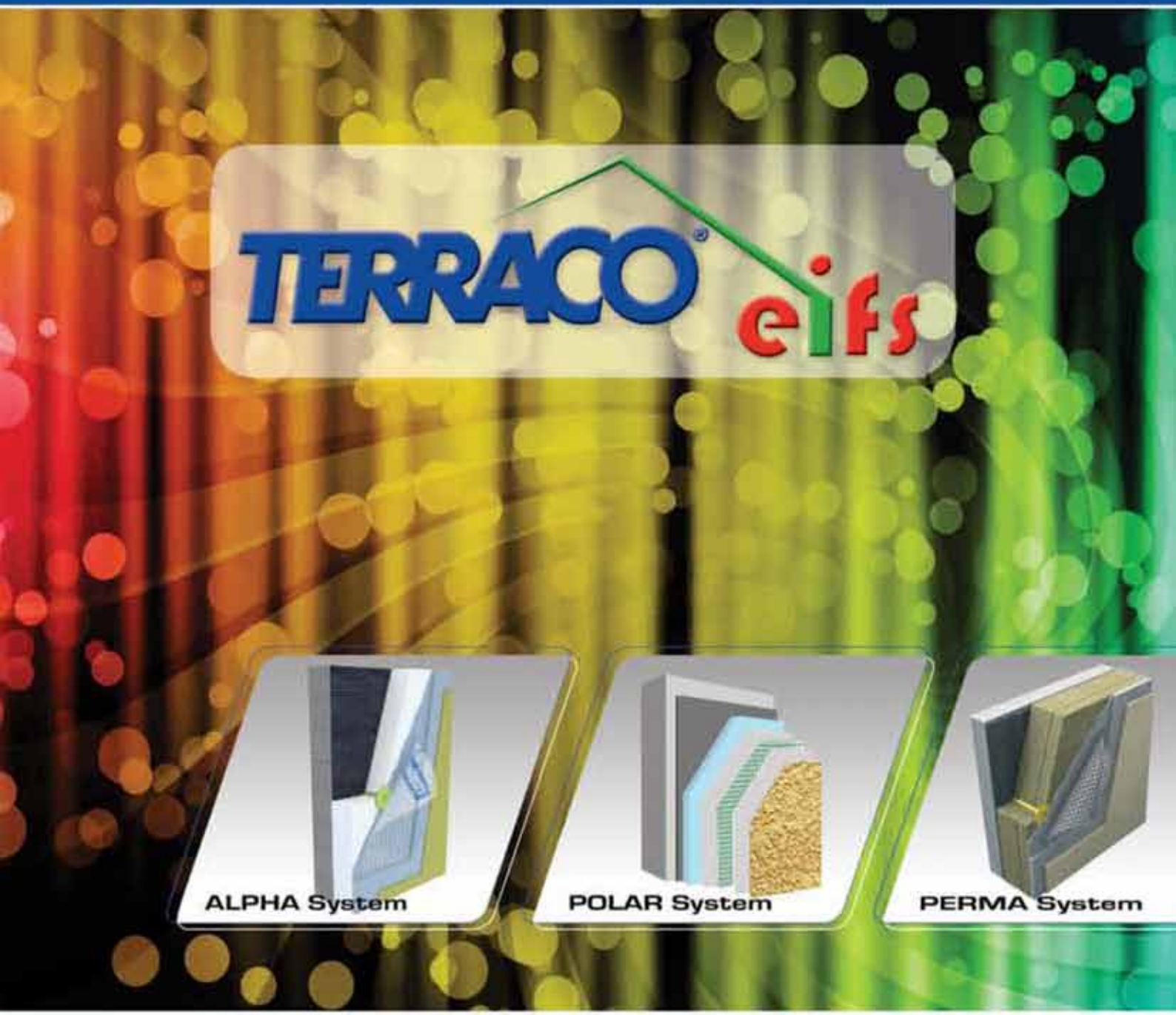
TERRACO

TERRACO eifs



Exterior Insulation Finishing Systems

EIFS

ETA

The House of Scandinavian Finishing Materials

INDEX

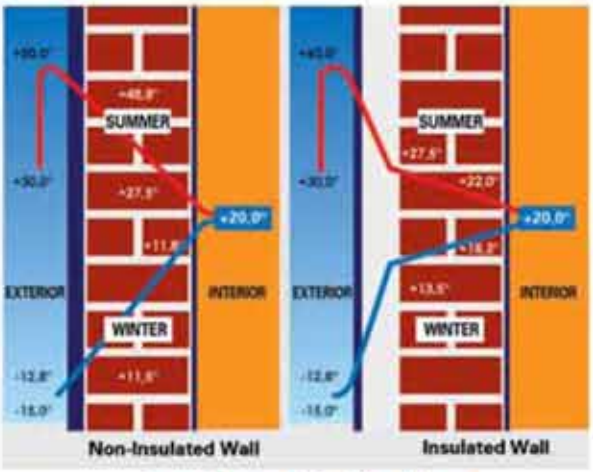
Introduction

As a leader in the production and distribution of environmentally friendly finishing materials, Terraco pioneers innovative solutions aimed at reducing a building's impact on the environment. Since its founding in 1980, Terraco has become recognised as the manufacturer of choice for discerning customers that need quality, durability and environmentally friendly products.

Sustainable building and in particular energy efficiency in buildings has become a key benchmark of successful building design. Terraco EIFS, an External Insulation Finishing System also known as External Thermal Insulation Composite System is developed to promote a comfortable indoor climate while substantially reducing the need for heating and/or cooling. These energy savings not only greatly reduce energy bills and saves on greenhouse emissions, but includes a vast number of other benefits.

This Terraco EIFS brochure features a full guidance on the three main Terraco EIF systems, the system components as well as the application procedures, and includes a selection of international project references.

The versatility of Terraco EIFS makes it ideal for new buildings as well as renovation projects.



Terraco EIF system Reduces Thermal Impact

Where your home loses heat in cold climates

Why use Terraco EIFS ?

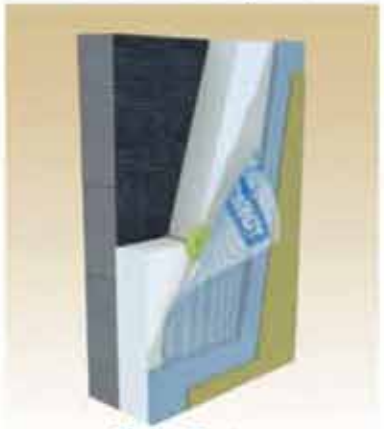
- Proven track record: guaranteed system.
- Promotes indoor comfort and improved quality of life.
- Substantially reduces cost of heating and cooling.
- Smart investment - Terraco EIFS will typically pay for itself in around 5-6 years.
- Proven contribution towards Green Building.
- Saves non-renewable resources and reduces greenhouse emissions.
- Eliminates condensation on walls and ceilings.
- Enhanced soundproofing is achieved, depending on the system used.
- Excellent impact resistance.
- No need for occupants to vacate the building whilst installing Terraco EIFS.
- Terraco EIFS can give you more internal living space.

Market leaders in EIFS in some of the world's harshest climate conditions!

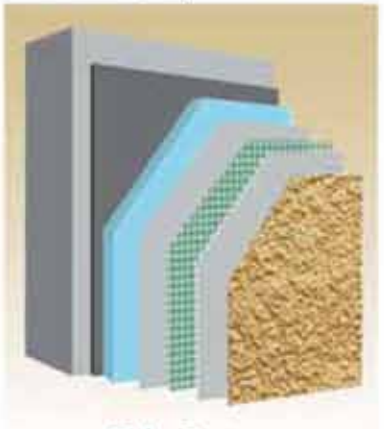
Terraco EIFS systems

The three types of Terraco EIF systems are:

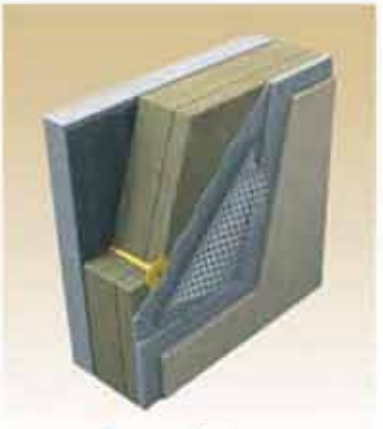
- TERRACO EIFS Alpha System, which uses Expanded Polystyrene Board (EPS) as the insulation material.
- TERRACO EIFS Polar System, which uses Extruded Polystyrene Board (XPS) as the insulation material.
- TERRACO EIFS Perma System, which uses Mineral Wool (MW) as the insulation material.



Alpha System



Polar System



Perma System

Terraco's best selling EIFS Alpha system is often specified by architects and consultants alike for both new work and renovation projects. This EIF system is based on using EPS (Expanded Polystyrene) as the insulation material.

The principal reason for Terraco EIFS utilising EPS as an insulation material is because it is typically the most cost effective board used today.

Graphite enhanced EPS is also being used more frequently as it offers 10% more thermal efficiency and is best suited for renovation work.

The EPS is fixed to the substrate using a combination of adhesive, Terraco Styrofix, and mechanical fasteners. The board is then strengthened with a range of quality profiles and Terraco Styrobond DP is applied and reinforced with a layer of glass fibre mesh. This creates a surface which is then primed and decorated using one or more of Terraco's extensive range of decorative, high performance finishing coats.

Terraco is pleased to offer architects, consultants, construction companies, property managers, maintenance companies as well as private home owners a sample service when it comes to selecting a Terraco EIF System. Shown here is an example of the sample presentation in which the full Alpha System can be seen.

Of particular importance to designers, architects and owners is the decorative finishing coat to be used on the project, both from an aesthetic and a durability perspective. Terraco offers a comprehensive range of finishing options from long-life renders, breathable mineral renders and stone effect coatings.

These decorative finishes, consisting of products such as Terracoat Granule, Terracoat Excel, Terralite, Terol and more are all available in a wide variety of colours and patterns to provide the architect with a combination of functionality and design.

EPS Insulation Board

Graphite Enhanced EPS Insulation Board

	ALPHA SYSTEM				
Standard Components	EPS INSULATION BOARD				
	TERRACO EIFS GLASSFIBRE MESH				
	MECHANICAL FASTENERS				
	STYROFIX (ADHESIVE)				
	STYROBOND DP (BASECOAT)				
	PRIMER				
Decorative Finish	**Acrylic Based Decorative Finish**	**Silicone Based Decorative Finish**	**Elastomeric Decorative Finish**	**Natural Aggregate Based Decorative Finish**	**Mineral Based Decorative Finish**
	Terracoat Granule 1mm	Terracoat Sil Granule 1mm	Terracoat Flex Granule 1mm	Terralite Coarse	Terol Decor
	Terracoat Granule 2mm	Terracoat Sil Granule 2mm	Terracoat Flex Granule 2mm	Terralite Granite	Terol Granule 1mm
	Terracoat Excel 2mm	Terracoat Sil Excel 2mm	—	Terralite Fine	Terol Granule 2mm
	Terracoat Excel 3mm	Terracoat Sil Excel 3mm	—	Terracoat Stone	Terol Sahara 2mm
	—	—	—	Terracoat Istanbul	Terol Granite

POLAR SYSTEM

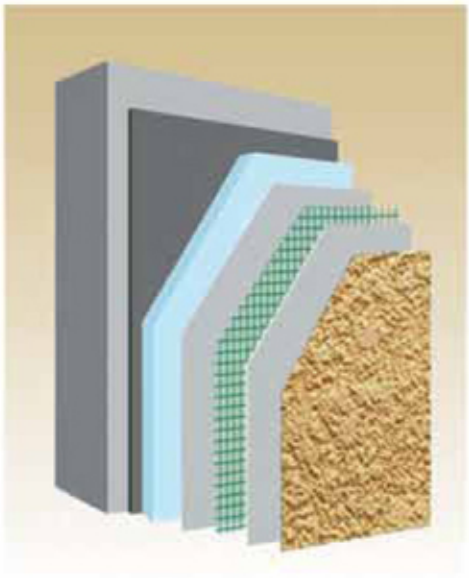
The popular Terraco EIFS Polar system uses XPS (Extruded Polystyrene) board as the insulation material.

XPS insulation is highly suitable for countries which while being hot, also have high humidity and use air conditioning units inside structures where XPS's low vapour permeability is a distinct advantage.

Furthermore, the Terraco EIFS Polar system has enhanced mechanical properties for use in high traffic areas.

This EIF system consists of using Terraco Styrofix adhesive and quality accessories to attach the XPS board. After which Styrobond, incorporating glass fibre mesh, is used to prepare a suitable reinforced surface onto which some of Terraco's extensive range of decorative, high performance finishing coats can be applied.

A comprehensive range of finishing options from long-life renders, breathable mineral renders and stone effect coatings are available. These decorative finishes, which consist of products such as Terracoat Granule, Terracoat Excel, Terralite, and Terol, are all available in a wide variety of colours and patterns.



XPS Insulation Board

Architects, consultants, construction companies, property managers, maintenance companies as well as private home owners can enjoy a sample service when it comes to selecting a Terraco EIF System. The entire Polar System can be seen in the sample presentation box shown here.

Terraco EIFS Polar system allows designers the freedom to create their buildings with a combination of creativity and the environment in mind.

POLAR SYSTEM					
Standard Components	XPS INSULATION BOARD				
	TERRACO EIFS GLASSFIBRE MESH				
	MECHANICAL FASTENERS				
	STYROFIX (ADHESIVE)				
	STYROBOND DP (BASECOAT)				
	PRIMER				
Decorative Finish	**Acrylic Based Decorative Finish**	**Silicone Based Decorative Finish**	**Elastomeric Decorative Finish**	**Natural Aggregate Based Decorative Finish**	**Mineral Based Decorative Finish**
	Terracoat Granule 1mm	Terracoat Sil Granule 1mm	Terracoat Flex Granule 1mm	Terralite Coarse	Terol Decor
	Terracoat Granule 2mm	Terracoat Sil Granule 2mm	Terracoat Flex Granule 2mm	Terralite Granite	Terol Granule 1mm
	Terracoat Excel 2mm	Terracoat Sil Excel 2mm	—	Terralite Fine	Terol Granule 2mm
	Terracoat Excel 3mm	Terracoat Sil Excel 3mm	—	Terracoat Stone	Terol Sahara 2mm
	—	—	—	Terracoat Istanbul	Terol Granite

Terraco's EIFS Perma system is based on using mineral wool (MW), or rock wool, as the insulation material.

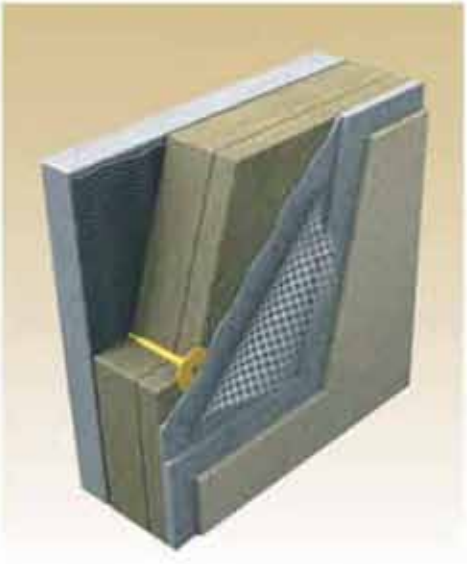
Terraco EIFS Perma system utilises MW as the insulation material and is highly suitable when additional fire resistance is required.

It is popular when insulating structures or old buildings which have high levels of moisture in the substructures and enhanced breathability is required.

This EIF system is popular in cold and damp climates, such as Russia, where highly vapour permeable renders, such as Terracoat Sil or Terol, are extensively used.

The Perma system consists of Terraco Styrofix, quality accessories, Styrobond adhesive, and glass fibre mesh. They are used to prepare a suitable reinforced surface onto which Terraco's vapour permeable decorative, high performance finishing coats can be applied.

When architects, consultants, construction companies, property managers, maintenance companies as well as private home owners come to selecting a Terraco EIF System they are able to avail themselves of the Terraco sample service by calling on their nearest representative. Shown here is an example of the sample box presentation for the Perma system.



Mineral Wool Insulation Board

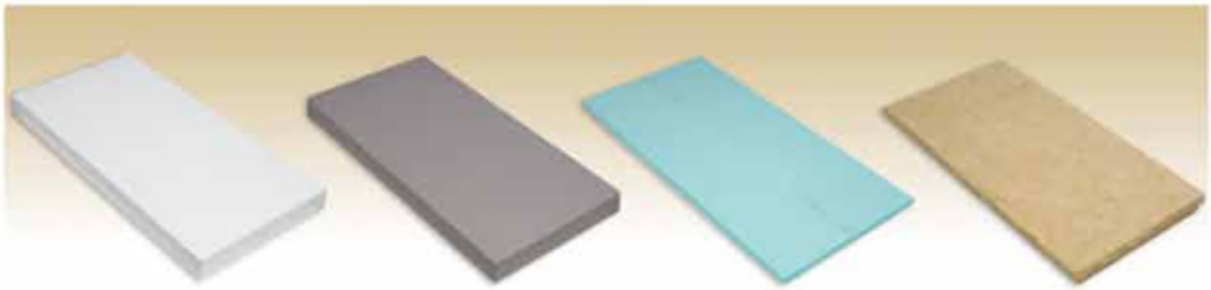
Particularly beneficial to the Specifier and user is the fact that Terracoat Sil and Terol are available in a wide range of colours and textures which provides them with technically advanced solutions and a high level of durability.

PERMA SYSTEM		
Standard Components	MINERAL WOOL INSULATION BOARD	
	TERRACO EIFS GLASSFIBRE MESH	
	MECHANICAL FASTENERS	
	STYROFIX (ADHESIVE)	
	STYROBOND DP (BASECOAT)	
	PRIMER	
Decorative Finish	**Silicone Based Decorative Finish**	**Mineral Based Decorative Finish**
	Terracoat Sil Granule 1mm	Terol Decor
	Terracoat Sil Granule 2mm	Terol Granule 1mm
	Terracoat Sil Excel 2mm	Terol Granule 2mm
	Terracoat Sil Excel 3mm	Terol Sahara 2mm
	——	Terol Granite

Terraco EIFS consists of the following components, which are explained in greater detail in the following pages, namely:

1. Insulation Board
2. System Profiles
3. Mechanical Fasteners
4. Glass Fibre Mesh
5. Styrofix (Adhesive)
6. Styrobond DP (Basecoat)
7. Primer
8. Decorative Finish
9. Topcoats

1. INSULATION BOARD



Expanded Polystyrene Insulation Board (EPS)

λ = 0,033

Graphite Enhanced Expanded Polystyrene Insulation Board (EPS)

λ = 0,030

Extruded Polystyrene Insulation Board (XPS)

λ = 0,030

Mineral Wool Insulation Board (MW)

λ = 0,040

Terraco EIFS strives to utilise the most suitable type of insulation board depending on the job at hand:

- EPS board is the most cost effective board used for general application and new buildings.
- Graphite EPS has 10% more efficient insulation properties, hence thinner sections are required and the product lends itself well for renovation work.
- XPS board has excellent impact resistance for special use in high traffic areas or where impact can be expected. It is also excellent for hot countries where a board with low vapour permeability is desired.
- MW board has high breathability and is completely fireproof, so its use with wooden substructures is recommended. It is also recommended where the moisture level in the substrate is high.

Insulation Board	Thickness (mm)	Thermal Conductivity K-Value [W/(m.K)]	Thermal Resistance R-Value [(m².K)/W]	Thermal Transmittance U-Value [W/(m².K)]
EPS	50	0.033	1.52	0.66
	100		3.03	0.33
	150		4.55	0.22
	200		6.06	0.17
Graphite EPS	50	0.030	1.67	0.60
	100		3.33	0.50
	150		5.00	0.20
	200		6.67	0.15
XPS	50	0.030	1.67	0.60
	100		3.33	0.30
	150		5.00	0.20
	200		6.67	0.15
MW	50	0.040	1.25	0.80
	100		2.50	0.40
	150		3.75	0.27
	200		5.00	0.20

Calculations

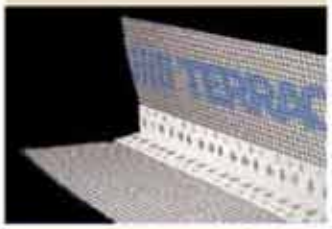
K-Value: Constant

R-Value: Board Thickness (m) / K-Value

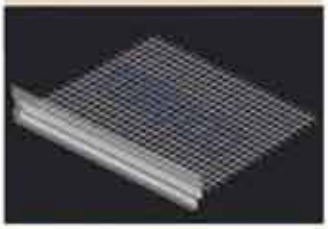
U-Value: 1 / R-Value

2. SYSTEM PROFILES

PVC Corner Bead with Mesh



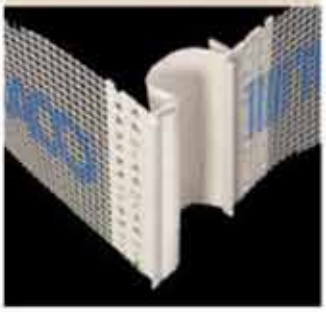
Window Reveal Bead



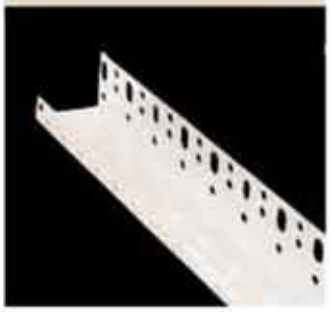
Drip Nose Bead

Groove Bead

Movement Bead



Starter Base Profile



3. MECHANICAL FASTENERS (also known as Anchors or Dowels)

Fastener with Steel Expansion Pin

Fastener with Plastic Expansion Pin

Fastener for Aerated Lightweight Concrete (ALC)

4. TERRACO EIFS GLASS FIBRE MESH

Technical Properties:

Product	: Fibreglass Mesh – E Glass
Weave	: Leno
Mesh Spacing	: 3.50 x 4.0 mm
Standard Width	: 1000 mm ± 10 mm
Standard Length	: 50 m
Finished Product Weight	: 161 g/m^2 ± 10 DIN 53854
Tensile Strength	: ≥ 2000 N/5cm DIN EN ISO 13934-1
Elongation	: ≤ 3,90 DIN EN ISO 13934-1
Tear Resistance	: ≥ 50% (after 28 days conditioning in 5% solution of sodium hydroxide)
Alkali Resistance	: High

5. STYROFIX

Styrofix is an adhesive in the Terraco EIF system. It is user friendly and factory mixed, improving on-site quality control. It shows excellent adhesion between various substrates and insulation boards.

Styrofix has the following properties:

- Water resistant
- Excellent adhesion
- Good flexural strength
- Easy to use

MIXING

Styrofix should be mixed on site with clean water in the ratio of approximately 4 parts Styrofix to 1 part water by weight, mixing with a high speed mixer for 3-5 minutes. Allow the material to stand for 5 minutes, remix and use. Mix only enough material for immediate use.

APPLICATION

Apply Styrofix to the insulation board and ensure correct level when pressing the boards into place using a spirit level. Do not allow adhesive to skin before fixing into place.

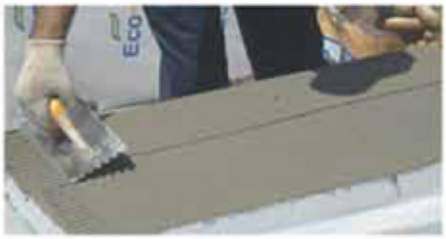
Spot Method (5kg/m²) – Used on uneven substrates.

Apply Styrofix adhesive to the external edges and to 5 – 6 inner spots on the back side of the insulation board, ensuring to cover 40% of the surface area.

Notched Trowel Method (4 kg/m²) – Used on even substrates

Apply Styrofix adhesive to the entire back surface of the insulation board using a notched trowel.

Spot Application



Notched Trowel Application

6. STYROBOND DP

Styrobond DP is a basecoat and adhesive in the Terraco EIF system. It shows excellent adhesion between substrate and insulation boards when used as an adhesive. It also provides an excellent basecoat for embedding glass fibre mesh on top of which the Terraco EIFS finishing coat is applied.

Styrobond DP has the following properties:

- Water resistant
- Excellent adhesion
- Good flexural strength
- Good impact resistance
- Easy to use

MIXING

Styrobond DP should be mixed on site with clean water in the ratio of approximately 4 parts Styrobond DP to 1 part water by weight, mixing with a high speed mixer for 3 - 5 minutes. Allow the material to stand for 5 minutes, remix and use. Mix only enough material for immediate use.

APPLICATION

When used as an adhesive, apply to the insulation board and press into place using a spirit level. Do not allow adhesive to skin before fixing in place.

When used as an embedding mortar, apply a coat of Styrobond DP mix to the insulation board and immediately embed the mesh into the surface by trowelling outwards from the centre to avoid any wrinkles. All mesh edges must overlap by a minimum of 10 cm. Apply another 2 mm coat of mix to the surface to ensure full cover of the mesh and an overall thickness of approximately 5 mm. Clean tools with water after use.

Adhesive Basecoat

Embedding Glass Fibre Mesh

	Styrofix	Styrobond DP
PRODUCT	: Styrofix - Adhesive between substrate and insulation board	Styrobond DP - EIFS Basecoat
COMPOSITION	: Mixture of cement minerals, organic binders and additives.	Mixture of cement minerals, organic binders and additives.
APPEARANCE	: Fine grey powder.	Fine powder.
MIXING RATIO	: By weight: 4:1 with water	By weight: 4:1 with water
DENSITY OF PASTE (sg)	: 1.7	1.7
POT LIFE	: 3 hours at 25°C	3 hours at 25°C
COLOURS	: Grey	Grey / White
ADHESION TO CONCRETE	: ≥ 0.25 Mpa ETAG 004 EN 1542	
ADHESION TO POLYSTYRENE	: ≥ 0.08 Mpa ETAG 004 EN 13494	≥ 0.08 Mpa ETAG 004 EN 13494
FLEXURAL STRENGTH	: ≥ 3.5 N / mm²	≥ 3.5 N / mm²
COMPRESSION STRENGTH	: ≥ 15 N / mm²	≥ 15 N / mm²
MATERIAL CONSUMPTION	: 1.7 kg/m²/mm thickness	1.7 kg/m²/mm thickness.
PACKAGING	: 25 kg paper bags	25 kg paper bags

7. PRIMERS

Terraco offers a comprehensive range of primers for use in the Terraco EIF system as follows:

P Primer Clear : is an acrylic penetrating primer with excellent adhesion promoting properties;
P Primer Pigmented : is a pigmented penetrating primer tinted to same shade as the decorative finish;
P Primer Textured : is a pigmented aggregate primer for extra grip when applying trowel-on renders;
Silprime : is a breathable primer used when applying Terracoat Sil.

8. DECORATIVE FINISHES

8.1 Terracoat - Acrylic Based

Terracoat acrylic textured coatings is a range of ready-mixed acrylic textured coatings. These products, as they are high build by design and matt by nature, are recommended as the decorative finish for Terraco EIFS to disguise most substrate imperfections.

These products provide a unique combination of an architectural decorative wall finish and surface durability as they are full bodied colour textured products, and therefore minor scratches and abrasions are not evident. They provide optimum impact resistance, being 1.5 mm to 3.0 mm in actual coating thickness. Being a long life protective coating, they not only extend the life span of the Terrraco EIF system, but also the substrate of the building they are protecting. They offer superior resistance to algae / fungal growth with the incorporation of specific anti-fungal agents, improved vapour permeability, and are more durable, and remain pristine for longer than conventional paint systems. Terracoat products are guaranteed against peeling and fading.

Terracoat Granule 2mm / Random Pattern

Terracoat Granule:
Terracoat Granule is a trowel applied texture creating a granular finish in various grain sizes. It can also be spray applied. Terracoat Granule is specifically designed for application as part of Terraco EIFS as well as for use on conventional masonry substrates. Available in 2 grain sizes, namely 1.0 mm and 2.0 mm.

Terracoat Excel 2mm / Vertical Pattern

Terracoat Excel:
Terracoat Excel is a trowel applied texture giving an alpine scratch finish. Terracoat Excel is specifically designed for application as part of Terraco EIFS as well as for use on conventional masonry substrates. Available in 2 grain sizes, namely 2.0 mm and 3.0 mm.

Terracoat Stone

Terracoat Stone:
Terracoat Stone is a spray applied natural aggregate coating, creating the effect of 'hammer toned granite', sometimes also known as 'flamed granite'. This product has excellent weathering properties and is extremely tough and durable. Terracoat Stone is specifically designed for application as part of Terraco EIFS as well as for use on conventional masonry substrates.

Type of Product	Terracoat Granule 1mm	Terracoat Granule 2mm	Terracoat Excel 2mm	Terracoat Excel 3mm	Terracoat Stone
Consumption (kg/m²)	2.2 - 3.0	3.3 - 4.0	2.3 - 3.2	3.5 - 5.0	2.8 - 3.2
Application	Trowel / Spray	Trowel / Spray	Trowel	Trowel	Spray

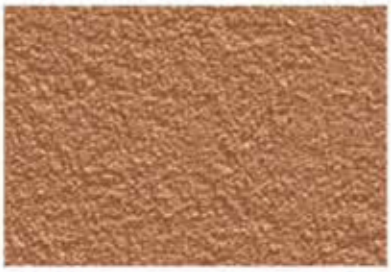
8.2 Terracoat Sil - Silcone Based

Terracoat Sil is a range of ready-mixed acrylic silicone resin based textured coatings.

This product range is characterised by its outstanding water repellency properties, and therefore its resistance to dirt pick-up, keeping the building pristine for longer. These high build matt products, not only mask imperfections in the substrate, but are extremely weather resistant, particularly in freezing climates, and provide excellent vapour permeability allowing the coating to breathe. Overcoating using silicone based or conventional paint systems, when required, is acceptable. Terracoat Sil products are guaranteed against peeling and fading.

Terracoat Sil Granule:
Terracoat Sil Granule is a trowel applied texture giving a granular finish with various grain sizes. It can also be spray applied. Terracoat Sil Granule is specifically designed for application as part of Terraco EIFS, as well as for use on conventional masonry substrates. Available in 2 grain sizes: 1.0 mm and 2.0 mm.

Terracoat Sil Excel:
Terracoat Sil Excel is a trowel applied texture giving an alpine scratch finish. Terracoat Sil Excel is specifically designed for application as part of Terraco EIFS as well as for use on conventional masonry substrates. Available in 2 grain sizes: 2.0 mm and 3.0 mm.



Terracoat Sil Granule 2 mm / Random Pattern

Terracoat Sil Excel 2mm / Vertical Pattern

Type of Product	Terracoat Sil Granule 1mm	Terracoat Sil Granule 2mm	Terracoat Sil Excel 2mm	Terracoat Sil Excel 3mm
Consumption (kg/m²)	2.2 - 3.0	3.3 - 4.0	2.3 - 3.2	3.5 - 5.0
Application	Trowel / Spray	Trowel / Spray	Trowel	Trowel

8.3 Terracoat Flex - Elastomeric Based

Incorporating elastomeric resins, this range of ready-mixed coatings are known as Terracoat Flex. They have been designed to provide highly flexible architectural wall coatings, which can easily handle any substrate movement or extreme fluctuations in surface temperatures.

Terracoat Flex being a flexible, high build, matt coating offers optimal impact resistance, algae and fungal resistance, and is ideally suited to form part of the Terraco EIF System. Terracoat Flex products are guaranteed against peeling and fading.

Terracoat Flex Granule:
Terracoat Flex Granule is a trowel applied texture giving a granular finish with various grain sizes. It can also be applied by spray. Terracoat Flex Granule is specifically designed for application as part of Terraco EIFS as well as for use on conventional masonry substrates. Available in 2 grain sizes: namely 1.0 mm and 2.0 mm.

Terracoat Flex Granule 2mm / Random Pattern

Type of Product	Terracoat Flex Granule 1mm	Terracoat Flex Granule 2mm
Consumption (kg/m²)	2.2 - 3.0	3.3 - 4.0
Application	Trowel	Trowel

8.4 Terralite - Natural Aggregate Based

Terralite is a range of ready-mixed, natural stone-simulation renders, dispersed in an acrylic resin, which when cured, dries to a clear film leaving the natural stone colours to create the appearance of a stone cladded facade.

The Terralite range of decorative natural marble coatings exhibit remarkable weather resistant properties. Once hardened it becomes highly weather resistant, washable, impact and abrasion resistant. It has been designed to meet the most demanding architectural requirements for exterior coatings, providing excellent substrate protection, vapour permeability, with high resistance to chemical and marine corrosion and fading. It protects building against salt laden air.

Terralite Fine

Terralite Coarse

Terralite Granite

Terralite is supplied ready for application in a range of natural multi-colour finishes:

Terralite Fine:
Terralite Fine is trowel applied to a maximum film thickness of 2mm resulting in a fine / medium textured surface, similar to natural 'dressed granite'. Available in range of 24 light to deep colours.

Terralite Coarse:
Terralite Coarse is a heavy, trowel applied product, resulting in a maximum film thickness of 3mm giving a medium/coarse granular finish. Available in a range of 24 light to deep colours.

Terralite Granite:
Terralite Granite is applied by trowel or spray to give a realistic granite effect and is ideal for use on Terraco EIFS to achieve granite simulation in a thin coat layer of only 3mm. It is also suitable for use on conventional masonry substrates. Available in a range of 16 attractive granite effects.

Type of Product	Terralite Fine	Terralite Coarse	Terralite Granite
Consumption (kg/m²)	3.0 - 3.5	5.0 - 5.5	4.5 - 5.0
Application	Trowel	Trowel	Trowel / Spray

8.5 Terol - Mineral Based

Terol is a polymer modified mineral render designed for economical finishing of EIFS substrates. Terol is available in four texture types; Decor, Granule , Granite and Sahara. These grades are produced as a white colour and topcoated with Terracoat Stain to colour as required. Terol Granite is a stone-simulation grade of Terol.

Mixing
Terol is delivered in powder form and simply needs mixing with water using a high-speed mixer for approximately 3 minutes, or a slow mixer for 15 minutes. For small quantities, mixing can be carried out with an agitator driven by a power drill. After mixing, allow to stand for 5 minutes, remix and use.

Application
For a uniform finish, ensure that the water content and mixing time are consistent. Prepared material should be used within 1 hour of mixing.

Terol Decor:
Apply Terol Decor using a steel trowel and finish using a plastic trowel to create desired finish. Clean tools and equipment with water after use.

Terol Granule:
Apply by trowel to a level granular finish. Clean tools and equipment with water after use.

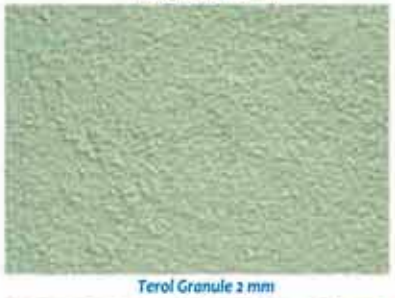
Terol Sahara:
Apply Terol Sahara, as with Terol Granule, by trowel to a level granular finish. Clean tools and equipment with water after use.

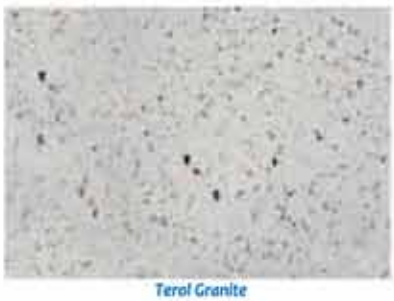
Terol Granite:
Apply Terol Granite by trowel or spray to a thickness of 3 - 4 mm and level with steel trowel to create the desired finish. Clean tools and equipment with water after use.

Type of Product	Consumption (kg/m²)
Terol Decor	2,5 – 3,5
Terol Granule 1 mm	2,5 – 3,0
Terol Granule 2 mm	3,0 – 4,0
Terol Sahara 2 mm	2,8 – 3,5
Terol Granite	4,5 – 5,5


Terol Decor


Terol Granule 1 mm


Terol Granule 2 mm


Terol Granite


Terol Sahara 2 mm

9. TOPCOATS

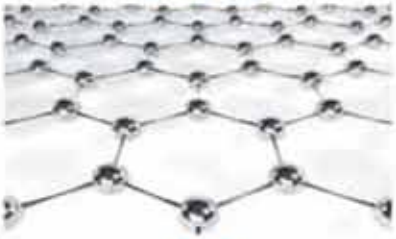
When enhanced dirt pick-up resistance is required Terraco has the perfect solution in its range of specially formulated topcoats to ensure enhanced long life attractive finishes.

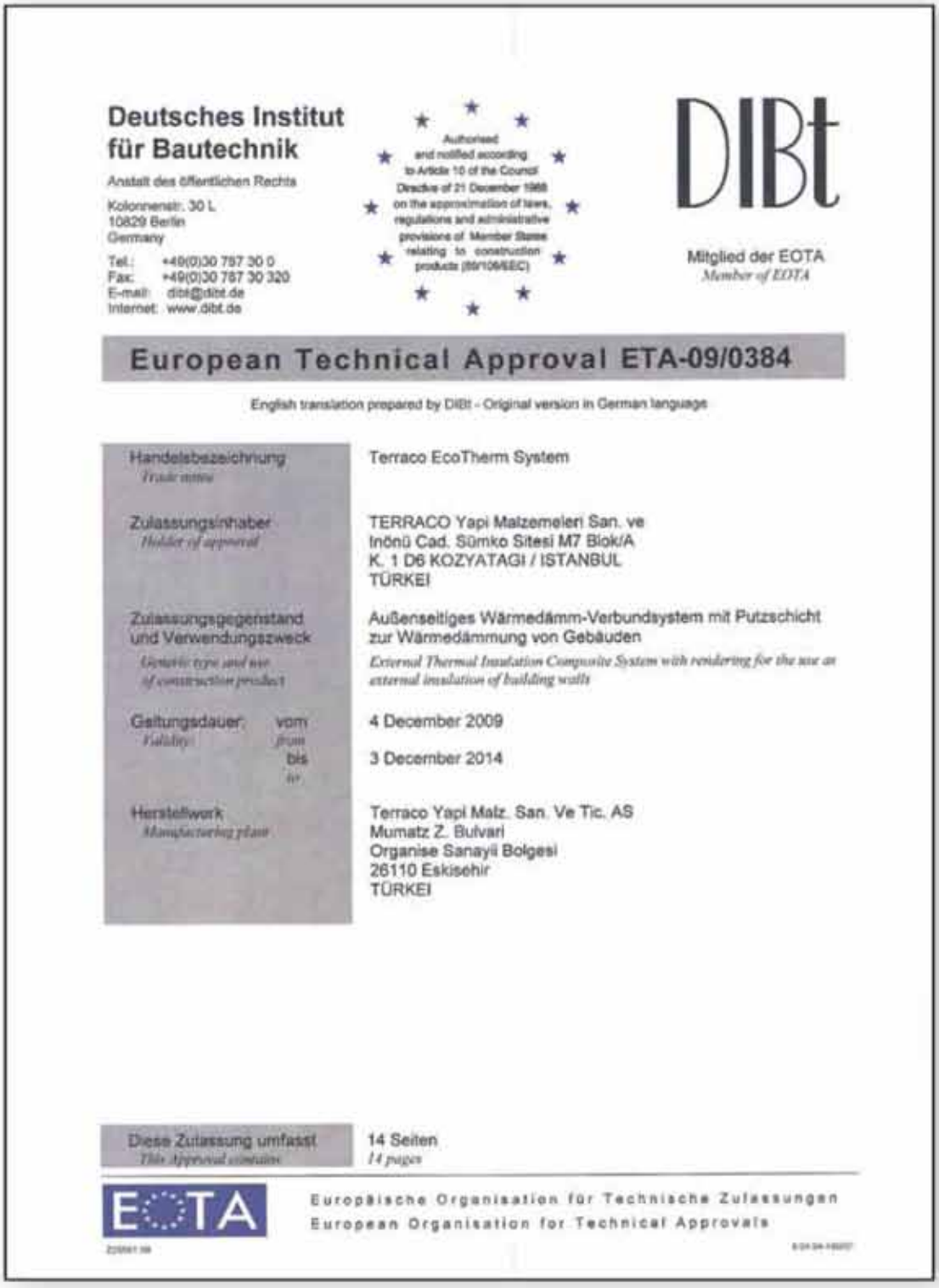
Terracoat Stain:
Terracoat Stain is a ready mixed and elastomeric pigmented coating, especially designed for application as a topcoat for cementitious acrylic based textured coatings used in Terraco EIFS, such as Terol.

It has excellent dirt pick-up resistance and is designed for use in areas where atmospheric pollution is a problem. Terracoat Stain is a low profile coating imparting colour to the surface with minimum film build, thereby retaining the original texture of the Terracoat.


Terracoat Stain

Kode 8:
Kode 8 is a new generation clear topcoat to enhance dirt pick-up resistance of exterior coating systems. It is ideal for use to topcoat Terracoat. Kode 8 is based on innovative nano technology which ensures enhanced dirt pick-up resistance, outperforming all other products in its class. Kode 8 has excellent resistance to weathering and is non-yellowing.


Kode 8



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Authorised and notified according to Article 10 of the Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products (89/106/EEC)

DIBt

Mitglied der EOTA
Member of EOTA

European Technical Approval ETA-09/0384

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung *Trade name*	Terraco EcoTherm System
Zulassungsinhaber *Holder of approval*	TERRACO Yapi Malzemeleri San. ve Inönü Cad. Sümko Sitesi M7 Blok/A K. 1 D6 KOZYATAGI / ISTANBUL TÜRKEI
Zulassungsgegenstand und Verwendungszweck *Generic type and use of construction product*	Außenseitiges Wärmedämm-Verbundsystem mit Putzschicht zur Wärmedämmung von Gebäuden *External Thermal Insulation Composite System with rendering for the use as external insulation of building walls*
Geltungsdauer: *Validity*	vom *from* 4 December 2009 bis *to* 3 December 2014
Herstellwerk *Manufacturing plant*	Terraco Yapi Malz. San. Ve Tic. AS Mumatz Z. Bulvari Organise Sanayii Bolgesi 26110 Eskisehir TÜRKEI
Diese Zulassung umfasst *This Approval contains*	14 Seiten *14 pages*

EOTA Europäische Organisation für Technische Zulassungen
European Organisation for Technical Approvals

Other International Certifications:

- FED Specification UF GS-07240 (US ARMY) (#09-06-M0149)
- Russian National Standard: Technical Certificate (# 2975 ñ 10)
- P.R. China Certified System JG149 n 2003 (#20102D 00884)
- Turkish Standard TSE (TS EN 13499, TS EN 13500)
- Dubai Municipality (DM) (#102)
- Romania National Institute (INCERC) 001-04/1251-2010

GENERAL INSTALLATION REQUIREMENTS

These requirements are essential to achieve the best possible results from Terraco EIFS. Failure to follow these requirements could lead to problems with the installation or ultimately, to system failure. Follow the requirements of the Technical Data Sheets for each Terraco EIFS product used.

A. Climatic Conditions

As all Terraco products are water based, it is essential that the Terraco EIFS plastering components are only installed at temperatures between 5°C to 45°C. Humidity, wind, cold, heat, rain, etc., can all affect workability and drying/curing time of the system.

B. Substrate Preparation

New surfaces: The surface must be clean, sound and dry. Ensure that all dust, dirt and foreign matter are scraped and brushed away. Also ensure the surfaces are free from salts, oil, grease and ridges. Protect all adjacent surfaces not to be covered. All cracks, chips, voids and damages should be repaired with a suitable filler.

Old surfaces: Before applying the Terraco EIFS products to existing surfaces, ensure the substrate is firm. First wash down the surface with a soda / water solution, rinse thoroughly and allow to dry before repairing or starting application. If necessary, apply one coat of the Terraco P Primer or Terraco Silprime prior to application.

C. Application Coordination Requirements

- Ensure that the installation of the system is being coordinated with other trades on the project.
- Flashing detail must be installed prior to other construction components such as windows, louvres, doors, intersections, roof, deck headers.
- Make sure correct details are in place prior to application of Terraco EIFS.
- Provide appropriate protection/covering for adjacent areas that are likely to be soiled by the application process.
- Employ sufficient manpower to ensure a continuous coating application free of cold joints, scaffold staging shadows and texture variations.
- Have scaffolding and other necessary equipment in place prior to the installation.
- Have access to clean water for mixing.
- Ensure all terminations are correctly sealed to avoid any water ingress.

BEFORE BEGINNING THE INSTALLATION

If there are any discrepancies with the initial inspection of the substrate, do not proceed with the application until all unsatisfactory conditions are corrected. The general contractor should be advised of all discrepancies so that appropriate action can be taken. Failure to advise the general contractor of unsatisfactory conditions before the application begins might be construed as acceptance by the applicator, of the substrate for the purpose of installing the system. At this time, it may also be appropriate to once again review the contract documents to ensure that the installation will be consistent with what has been detailed and specified. Be sure to review critical detail areas of the project. It is certainly easier for all parties concerned if problems are addressed "up-front" rather than when they present themselves in the installation process.

System Detail Review

Ensure that following details are correctly reviewed and designed prior to commencing installation:

1. Window and door reveals
2. Parapet capping
3. Bottom of walls (grade or pavement)
4. Penetrations (gutter down-pipes, fixtures, outlets, signage)
5. Aesthetic features
6. Expansion joints
7. Abutments to dissimilar materials
8. Roof/wall intersection
9. Flashing locations
10. Window sills / over-sills
11. Roofing

INSTALLATION

STEP 1

INSTALLING STARTER BASE PROFILE

Starter base profile must be installed along a level line 5cm above ground level. Attach the starter base profile to the substrate at 30 cm intervals along its length. On cement board or OSB substrates, corrosion resistant screws should be used to fasten through the sheathing and into the frame. On masonry substrates, the starter base profile should be attached with corrosion resistant masonry fasteners. Install 15 cm splice angles into profiles at profile end abutments.

Installing Starter Base Profile

STEP 2
INSTALLING INSULATION BOARDS

Insulation boards must not bridge expansion joints in masonry or concrete substrates. The first step is to ensure that the adhesive is compatible with the substrate. Only use the correctly specified adhesive to fix insulation boards to the substrate. Determine the correct sized notched trowel to be used.

For Terraco EIFS, Terraco Styrofix adhesive must be used. Styrofix can be applied by notched trowel or spot method. If using the notched trowel method, first apply the Styrofix adhesive to the back-facing side of the insulation board so that when it is applied to the substrate, the notched trowel pattern runs in a consistent vertical pattern. The notched pattern should cover the board face all the way to the board edges. To ensure sufficient bonding and coverage of the Styrofix, the insulation board should be visible in between the notches / grooves of adhesive. Adhesive should only be applied to the back-facing side of the insulation board. Remove any adhesive from insulation board edges. Adhesive between board edges can cause cracking and thermal bridging which should be avoided.

Styrofix Spot Application

Prior to installing the insulation board it is important to assess all terminations of the system and ensure that back wrapping, edge wrapping, starting base profile or seal tape is used in these locations. Slide and push the insulation boards into place on the wall using caution not to dent or damage the board. Insert insulation board edges all the way into track. Apply firm, even pressure to the entire insulation board once it is in place. A rasping board is a useful tool to press with even pressure without damaging the insulation board. Install the insulation board in a running bond pattern, staggering vertical joints in successive courses. A thorough inspection should be made for any voids or spaces and all voids must be filled with either a low expanding polyurethane foam or slivers of scrap insulation board.

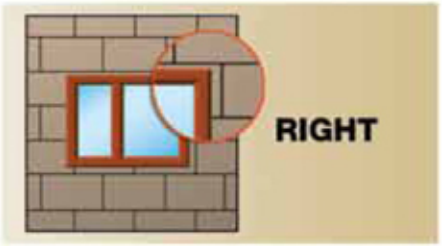
Styrofix Notched Trowel Application

Continue installing the insulation boards horizontally, staggering the boards and overlapping the substrate joints. Off-set insulation board joints 20 cm or more from the corners of openings around doors, windows or other similar conditions. Plan the work so that the insulation board around the corner is cut from a single piece. Insulation board joints should never align with window corners.

Corners: At all outside and inside corners always interlock or stagger the insulation board. Plumb all outside corners by snapping a chalk line. Level the insulation board to the chalk line by rasping. Remove all loose board particles from the wall surface. Level the entire surface of the insulation board with either a rasping board or power rasper. Check the surface with a straight edge for high and low spots, level as necessary. Thoroughly remove loose particles from the surface of the insulation board.

Terraco recommends using PVC corner profiles with mesh for all outside corners. Reveal beads are recommended around windows.


Insulation Board should never align with window corners

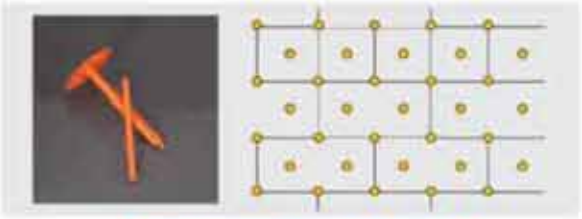


STEP 3
APPLICATION OF MECHANICAL FASTENERS

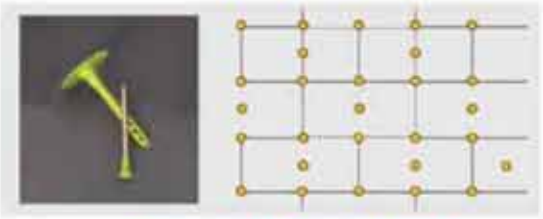
Terraco recommends using at least 6 Terraco EIFS fasteners per square metre depending on building height in order to have a sufficient negative wind-load resistance. Fastening application should be performed when Styrofix is fully cured. Styrofix must dry for a minimum of 24 hours, in cool or damp weather drying will take longer. Fastener heads should also be flush with insulation board surface and patched with Styrobond DP basecoat prior to mesh and basecoat application.

Fastening pattern and the number of fasteners that should be used on insulation boards depending on building height is shown in below pictures.

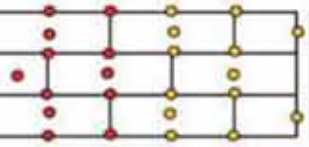
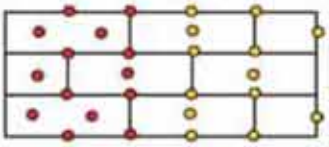
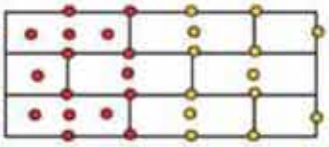
Fastener Application



Fastening pattern for Fastener with plastic nail



Fastening pattern for Fastener with steel nail

	Application Height - H (m)					
	0 ≤ H ≤ 8		8 ≤ H ≤ 20		H ≥ 20	
Pcs/m²	EDGE	SURFACE	EDGE	SURFACE	EDGE	SURFACE
	6	6	8	6	10	6
DOWEL PLACEMENT SCHEME						

Recommended fastener pattern depending on building height

STEP 4
REINFORCING MESH APPLICATION

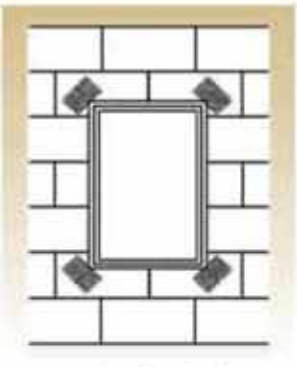
Cut Terraco EIFS reinforcing mesh into workable lengths. Apply an even layer of Styrobond DP approximately 1.5 – 2.0 mm in thickness to the surface of the insulation board using a stainless steel trowel. Immediately embed the Terraco EIFS reinforcing mesh into the fresh Styrobond DP basecoat, trowel it from the centre and outward to its edges. Repeat this procedure in adjacent areas and take care to overlap reinforcing mesh 10 cm at all ends and edges as the application progresses.

Allow to set and apply a second coat of Styrobond DP to ensure an overall thickness of 3-4mm. To mesh a groove or reveal, apply a primary layer of basecoat into the groove and over an area wide enough to embed the width of the detail mesh on either side.

Reinforce corners of all openings such as doors, windows, recessed features by applying a second layer of mesh diagonally. A second coat of mesh / basecoat can be applied to high traffic areas to increase impact resistance of the system.

Mesh application

Mesh application at window edges



Butterfly mesh application

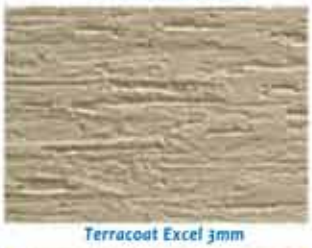
STEP 5
PRIMING

Before priming , the Styrobond DP basecoat must have cured a minimum of 72 hours or longer as required by local climatic conditions. Examine the surface to ensure that it is plumb and free from any irregularities. Correct these to produce a flat surface if necessary. The primer is applied by roller. The primer is normally supplied in the same or complimentary shade as the finishing coat.

STEP 6
DECORATIVE FINISH

Terraco offers a variety of high quality synthetic and mineral based decorative wall finishes in a wide range of colours that give a large number of texture and finish options for Terraco EIFS. When selecting the desired finish, it should be kept in mind that the Terraco textured coatings must be applied continuously for the best possible result. For larger areas sufficient manpower must be assembled to ensure an application free of cold joints and staging lines. Direct sunlight, wind, low or high temperatures and high humidity can all have a negative effect on the workability and drying time of Terraco finishes. As much as it is possible, work must be performed on the shaded side of the building or cover the scaffolding with shade netting. Plan the decorative textured coating application in such a way so as to ensure that there are enough applicators available to finish entire sections of wall area at one time without interruption. Mix the finish with a clean, rust-free mixer. Small amounts of clean water may be added to aid workability of Terracoat Textured Coatings. Only stainless steel trowels should be used for finishing. Application must be performed in pairs with the first person applying the finish to the wall, and the second person floating the finish to the desired or architecturally approved texture.

Terracoat Excel 2mm



Terracoat Excel 3mm

Terracoat Granule 2mm

A misleading practice is trying to create a striking visual impact by using dark colours in extreme contrast to one another, or in contrast to a lighter colour. It is recommended that pastel shades be used to avoid excessive heat build up in the system. If an optional topcoat (Terracoat Stain or Kode 8) is being used, allow the render coat to dry for 48 hours before application. Apply all topcoats as a 2 coat system allowing 4 hours between coats.

Terralite Fine

Terol Sahara 2mm

Terralite Granite

Terralite Coarse

Terol Decor

Alpensia Golf Village - South Korea

Ion Mihala Che - Bucharest, Romania

Elite Apartments - Odessa, Ukraine

Judicial Studies Institute - Sharjah, UAE

Uphill Court - Istanbul, Turkey

Residential Complex - Peschanaya, Moscow, Russia

7 Samurays Residential Apartments - Odessa, Ukraine

Longfor Serviced Apartments - Chunsen Land, China

Oakvalley Ski Resort - South Korea

Resident Complex - Pokrovsky Bereg, Moscow, Russia

Intel Hotel - Aqaba, Jordan

European Housing Complex - Istanbul, Turkey

Mirdif City Center - Dubai, UAE

TERRACO

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