

ARCHITECTURAL TERRACOTTA

TM **NBK** | ARCHITECTURAL
TERRACOTTA

ARCHITECTURAL TERRACOTTA

While technology has continuously progressed, the manufacture of clay-based construction materials still centres on the three elements of fire, water and clay – as it has done for millennia. Exploiting all the age-old traditions, skills and workmanship necessary for processing the material clay, Niederrheinische Baukeramik (NBK) has developed the TERRART® terracotta façade system.

TERRART® is a ventilated curtain wall/rainscreen system whose exposed components are made exclusively from terracotta. This was the key requirement imposed on the NBK development team by Renzo Piano for the Potsdamer Platz scheme – the starting point for the presentday TERRART®-system.

The system components are manufactured so as to maximize shape accuracy and guarantee best fit. State-of-the-art drying and firing techniques allow a nearly tolerance-free production of units up 180 cm long. The TERRART® rainscreen system – a patented developed within the TERRART® product range – comprises a mere 15 individual components and ensures excellent integration of the system in any classical and contemporary wall construction.

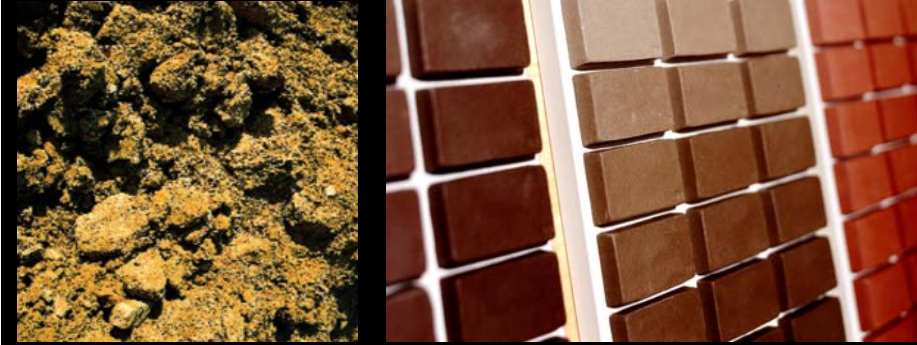
With its “Large”, “Mid” and “Shingle” ranges, the versatile TERRART®-system offers architects maximum scope for creativity. Purpose-made project-specific developments provide designers with practically boundless options. The global success experienced by the TERRART®-system is documented in this book. Many of the buildings that feature a TERRART® façade are prime examples of forwardlooking architecture.

Enthusiastic architects draw inspiration from components whose shape, colour and finish may be suitably orchestrated to produce striking façade designs. Satisfied clients can delight in buildings of tremendous aesthetic appeal, while reaping the benefits of one of the most weather resistant construction materials available.

TERRART® has opened up a completely new dimension in façade design and received worldwide acclaim. Every new building serves as an impetus for further projects. What all schemes share is exceptional architecture.

Today, the TERRART®-system developed by Niederrheinische Baukeramik is used in all its variants across the globe. The most distinguished of architects have come to appreciate the tremendous creative possibilities offered by this terracotta façade system, which combines traditional craftsmanship with leading-edge manufacturing technology. Its ability to accommodate even the finest design details in terms of shape, colour, texture and glaze paves the way for unique, tailored solutions.





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TERRART® PRODUCTS

12

COLOURS / SURFACES

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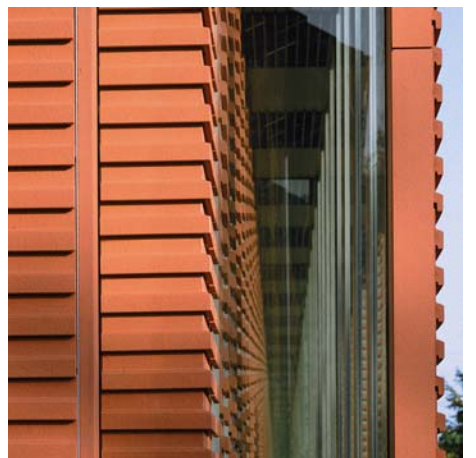
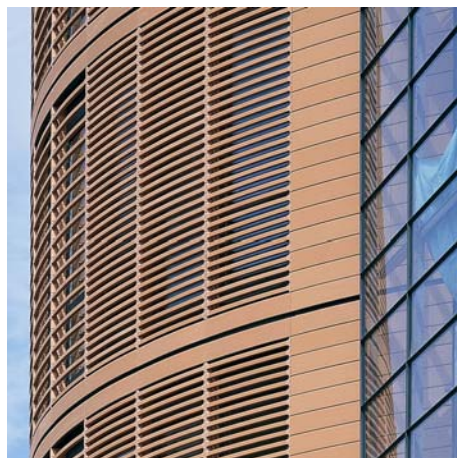
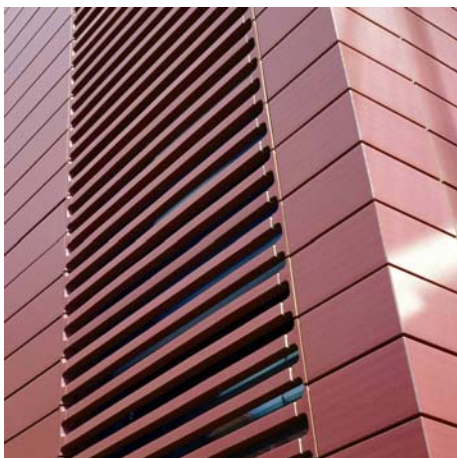
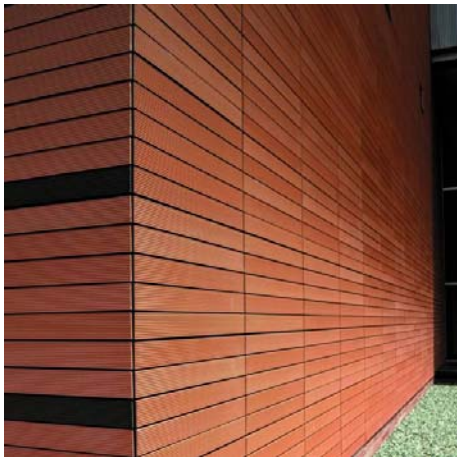
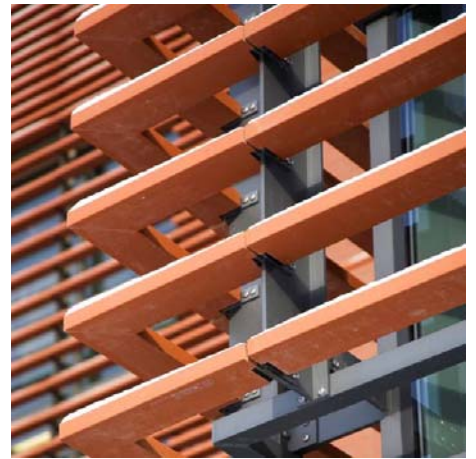
TERRART®
RAINSCREEN SYSTEM

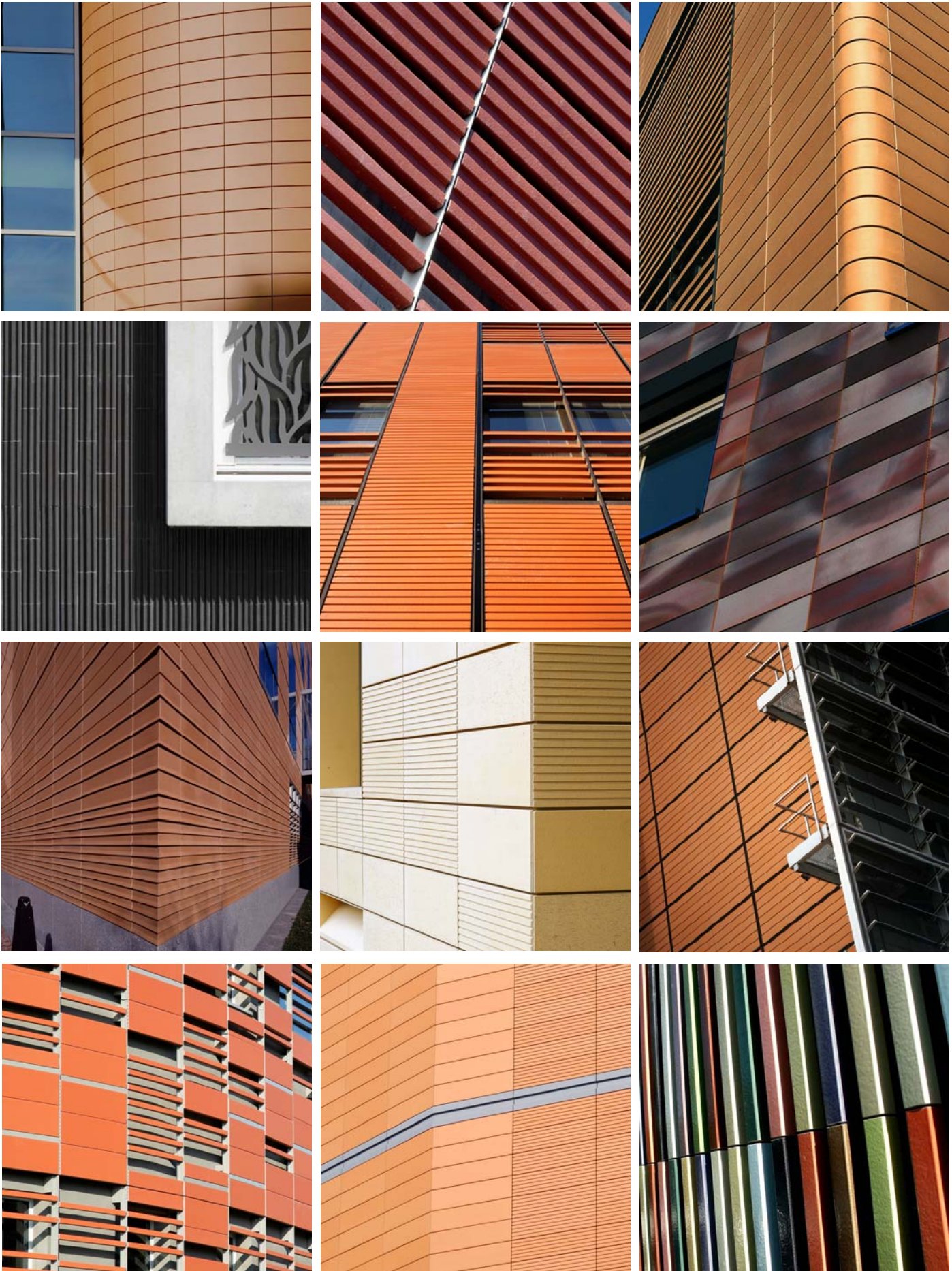
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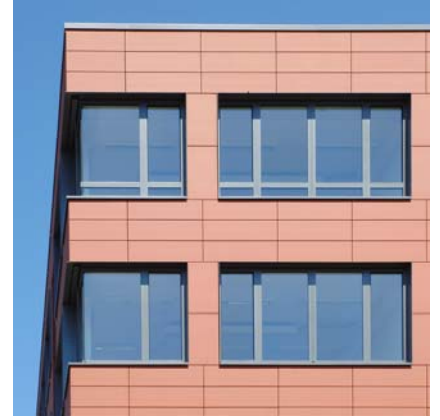
DETAILS

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TERRART®
BAGUETTE SYSTEM







The TERRART®-LARGE ceramic elements are always produced individually for each project in the colour and shape desired by the customer.

Length: max. 6' -0" (1800mm)

The length of the ceramic elements can be adjusted individually to maximum 6'-0".

Height: max. 2' -7 ½" (800mm)

The height of the elements can be adjusted to the desired horizontal grid.

Thickness: approx. 1-½ inches (40 mm)

Hollow chambers, according to production specifications. For corners, we offer mitre-cut elements or cut and bond corners. Alternatively, we provide specially designed corner plates with a maximum side length of approx. 9 inches (250mm) and a maximum height of 1 feet (300mm).

Colours:

For standard colours see our colour table. Other colours are available on request. Glazing according to customer wishes or RAL specifications.

Surface finishes:

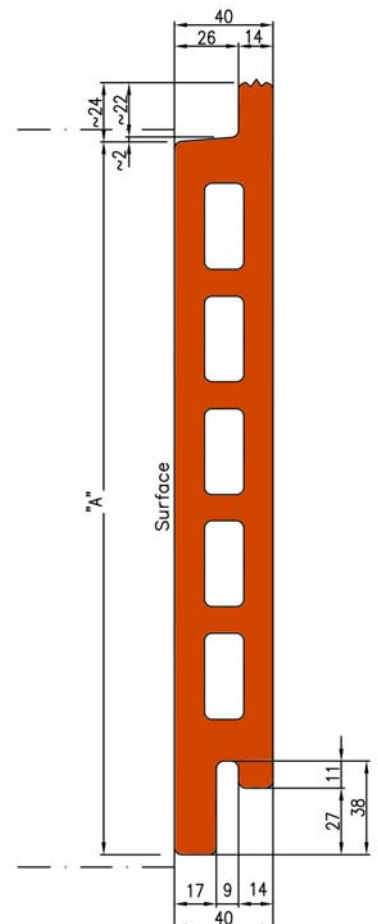
Natural, polished, textured, peeled, profiled, engobe, glazed.

Curved surfaces can not be polished.

Other surfaces are available on request.

Mass per unit area:

approx. 11.5 lb/ sq.ft.





The TERRART®-MID ceramic elements are always produced individually for each project in the colour and shape desired by the customer.

Length: max. 5'-0" (1500mm)

The length of the ceramic elements can be adjusted individually to maximum 5'-0".

Height: max. 1'-5" (450mm)

The height of the elements can be adjusted to the desired horizontal grid.

Thickness: approx. 1-¼ inches (30 mm)

Hollow chambers, according to production specifications. For corners, we offer mitre-cut elements or cut and bond corners. Alternatively, we provide specially designed corner plates with a maximum side length of approx. 9 inches (250mm) and a maximum height of 1 feet (300 mm).

Colours:

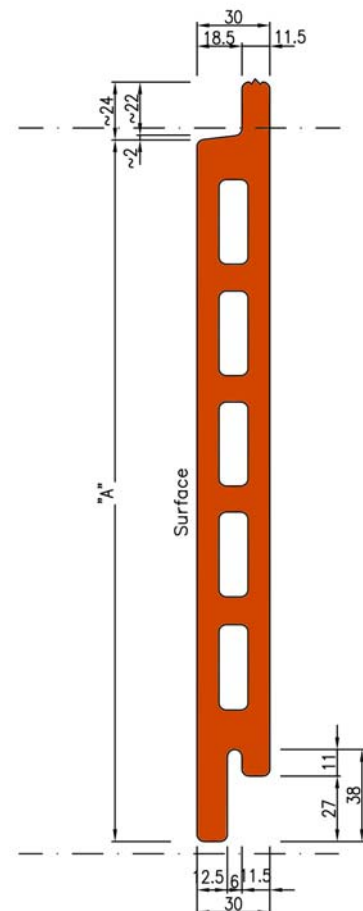
For standard colours see our colour table. Other colours are available on request. Glazing according to customer wishes or RAL specifications.

Surface finishes:

Natural, polished, textured, peeled, profiled, glazed.
Curved surfaces can not be polished.
Other surfaces are available on request.

Mass per unit area:

approx. 10.3 lb/sq.ft.





The TERRART®-SHINGLE ceramic elements are always produced individually for each project in the colour and shape desired by the customer.

Length: max. 6'-0" (1800 mm)

The length of the ceramic elements can be adjusted individually to maximum 1,800mm

Height: max. 1'-0" (300 mm)

The height of the elements can be adjusted to the desired horizontal grid.

Thickness: approx. 1 inch/1-½ inches (25/40mm)

Hollow chambers, according to production specifications. For corners, we offer mitre-cut elements or cut and bond corners. Alternatively, we provide specially designed corner plates with a maximum side length of approx. 9 inches (250 mm) and a maximum height of 1 feet (300 mm).

Colours:

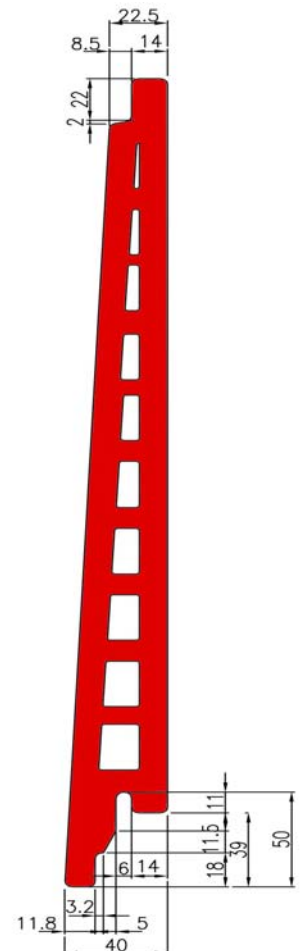
For standard colours see our colour table. Other colours are available on request. Glazing according to customer wishes or RAL specifications.

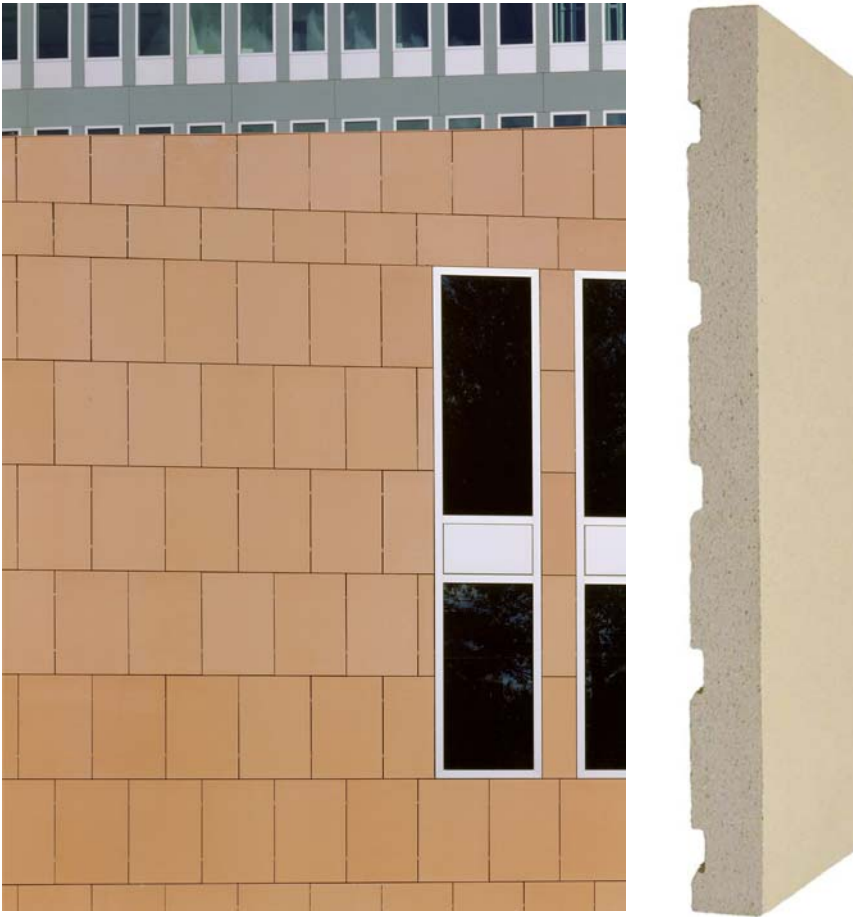
Surface finishes:

Natural, polished, textured, peeled, profiled, glazed.
Curved surfaces can not be polished.
Other surfaces are available on request.

Mass per unit area:

approx. 13.0 lb/sq.ft.





The TERRART®-SOLID ceramic elements are always produced individually for each project in the colour and shape desired by the customer.

Length: max. 4'-0" (1200 mm)

The length of the ceramic elements can be adjusted individually to maximum 1,800mm

Height: max. 2'-0" (600 mm)

The height of the elements can be adjusted to the desired horizontal grid.

Thickness: approx. ¾ inch / 1-¼ inch (20/30 mm)

Solid ceramic element, without hollow chambers for precast applications. For corners, we offer mitre-cut elements.

Colours:

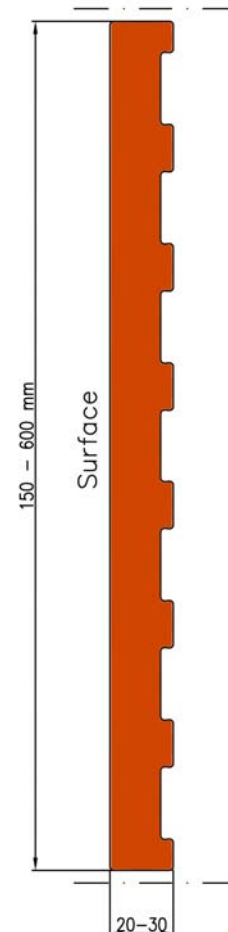
For standard colours see our colour table. Other colours are available on request. Glazing according to customer wishes or RAL specifications.

Surface finishes:

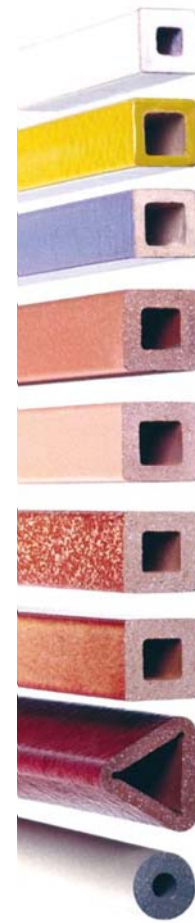
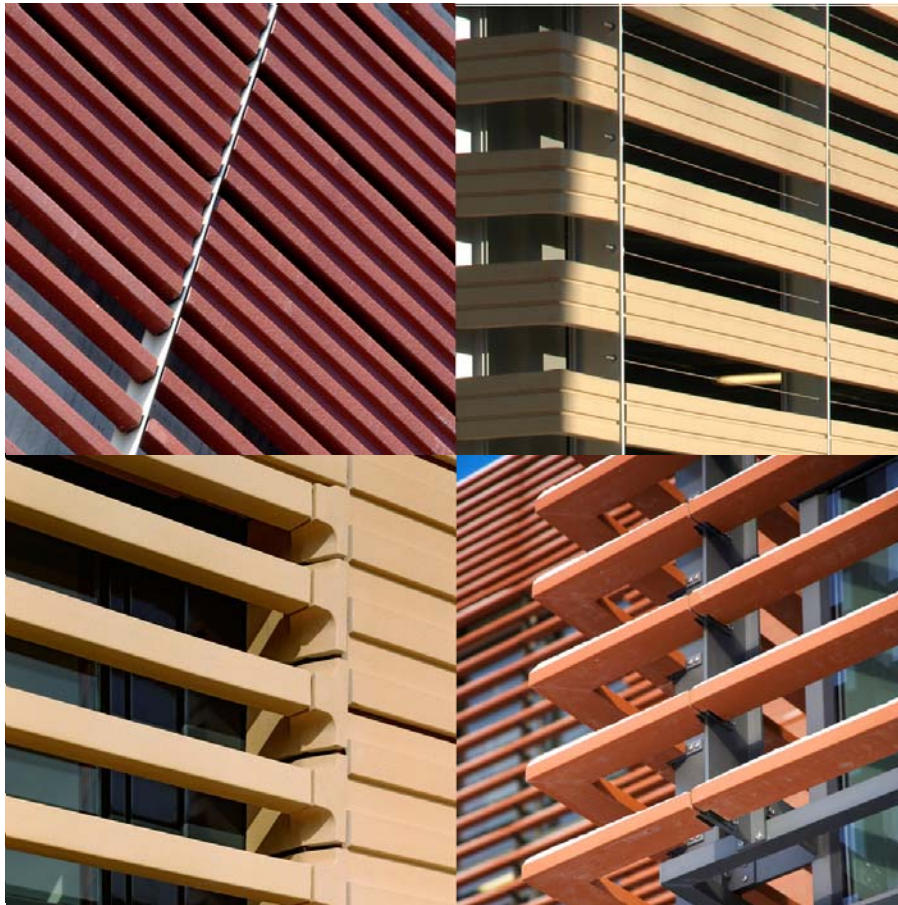
Natural, polished, textured, peeled, profiled, glazed.
Curved surfaces can not be polished.
Other surfaces are available on request.

Mass per unit area:

approx. 13.0 lb/sq.ft.



TERRART®-BAGUETTE



The **TERRART®-BAGUETTE** ceramic elements are always produced individually for each project in the colour and shape desired by the customer.

Length: max. 6'-0" (1800 mm)

The length of the ceramic elements can be adjusted individually to maximum 6'-0" (1800mm)

Height:

The **TERRART®-BAGUETTE** is a special shape element with a minimum diameter of 1¾ x 1¾ inches (45 x 45 mm).

The most commonly used size is

2 x 2 inches (50 x 50 mm)

Special shapes and dimensions are available on request.

For corners, we offer mitre-cut **BAGUETTE** elements.

Colours:

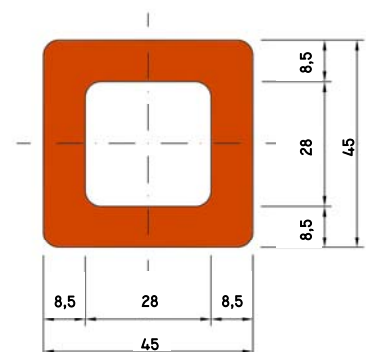
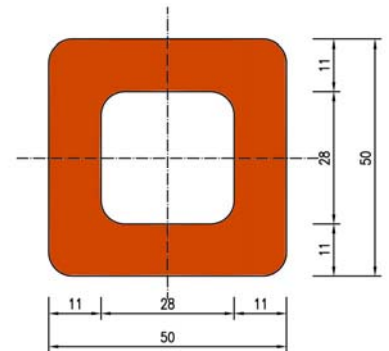
For standard colours see our colour table. Other colours are available on request. Glazing according to customer wishes or RAL specifications.

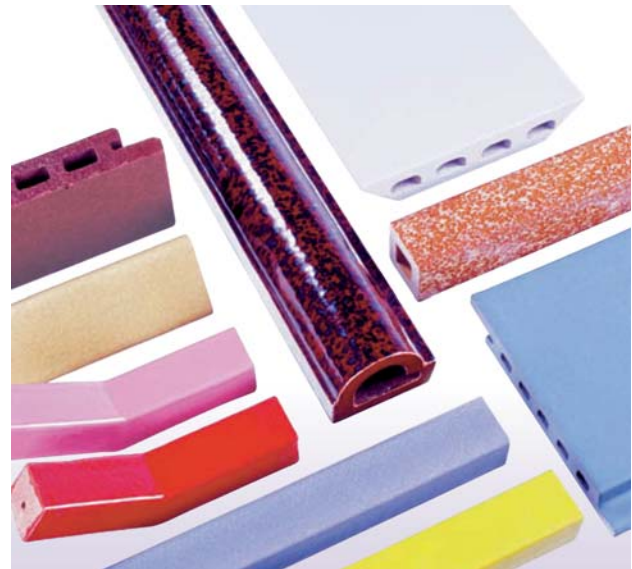
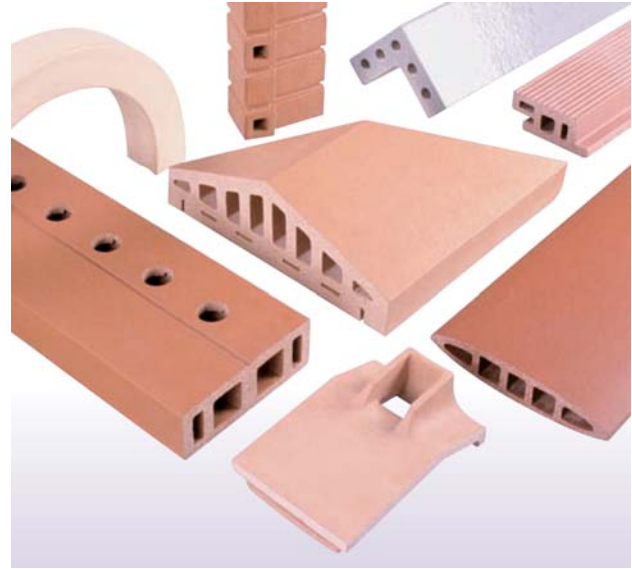
Surface finishes:

Natural, textured, peeled, glazed.
Other surfaces are available on request.

Mass per unit area:

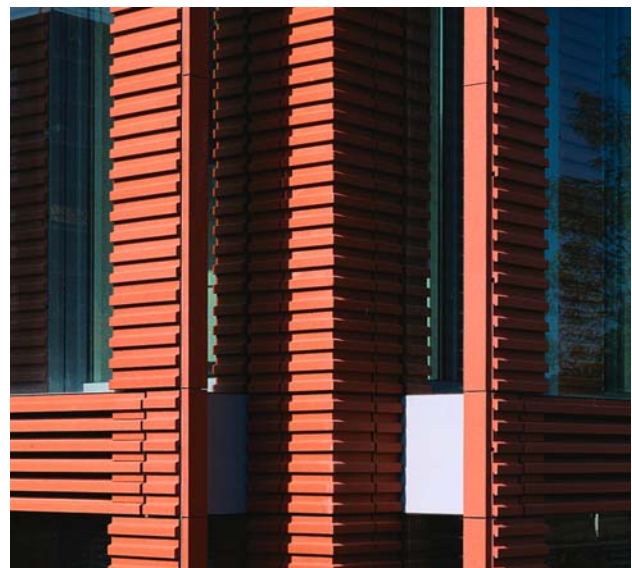
approx. 2.4 lbs.





The range of TERRART® products offers numerous other shapes and sizes. This gives the designers the opportunity to create signature buildings on every NBK terra cotta project.

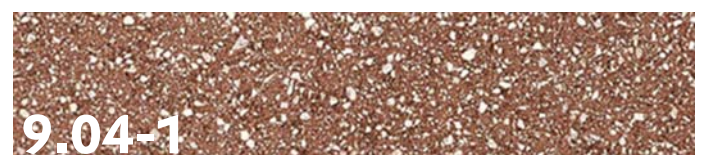
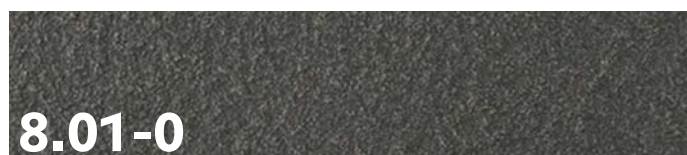
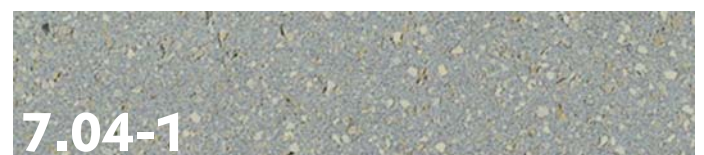
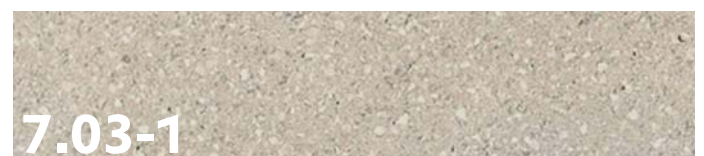
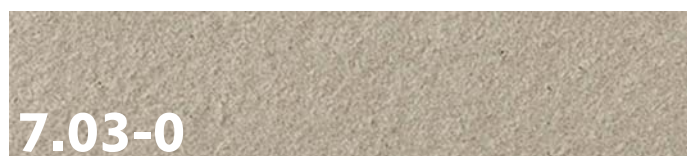
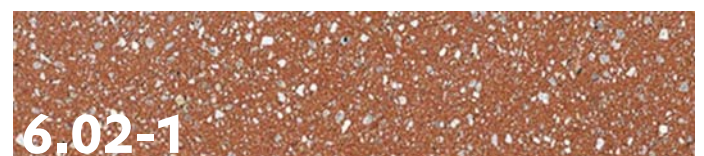
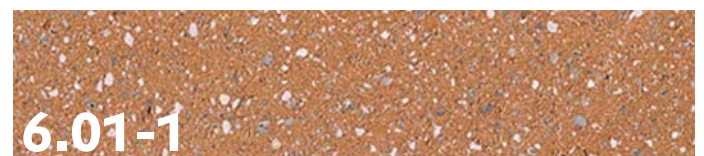
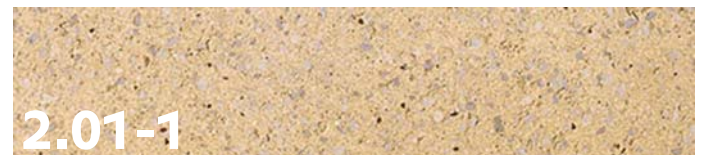
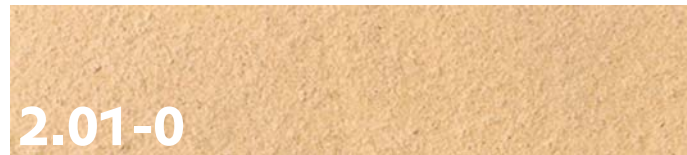
Custom designed shapes and profiles, solid corner tiles, radius tiles, and radius baguettes, window sill and wall copings, are some of the features we are able to produce for your project.



COLORS AND SURFACES

natural surface

honed surface



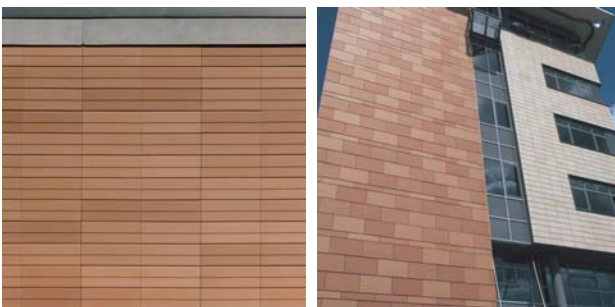
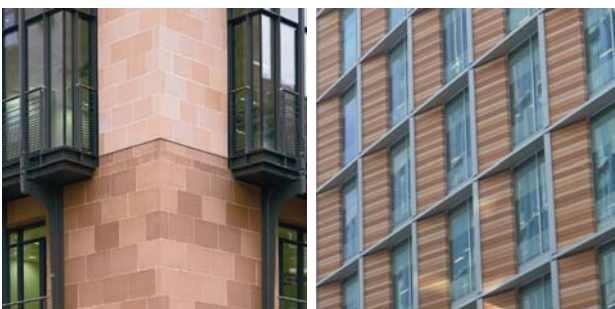
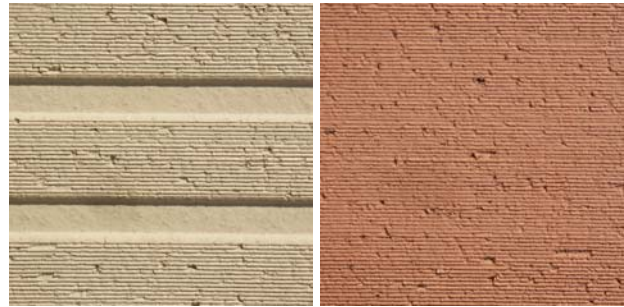


TERRART® natural and honed finishes are being increasingly exploited as a design feature in contemporary architecture.

NBK's expertise in complicated mixing techniques and traditional firing methods, allows virtually any colour and surface texture specification to be met to the letter. This allows our company, in consultation with designers of exclusive product assortments, to make unique buildings.

The colours shown represent only a few of our overall range. Any required shade can be provided upon request.

A multitude of profiles are available, the broad design spectrum ranges from the finest structure up to the strongly profiled plastic relief.



ENGOBES



TERRART® engobes are becoming more and more popular.

Whenever there's a need for a colored surface on the one hand but to conserve the natural character of the material on the other hand engobes are that perfect alternative.

An engobe is a white or colored clay slip coating applied to a ceramic body to give it decorative color or improved texture.

Engobes are manufactured in a single-fired process and do not have any coated edges.



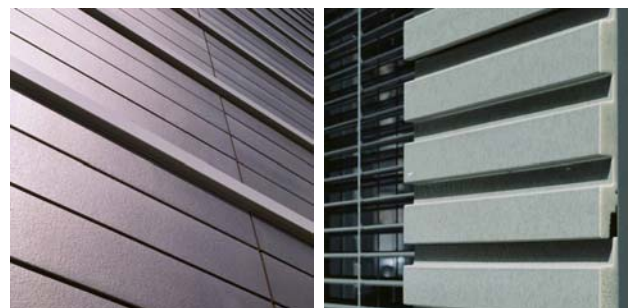
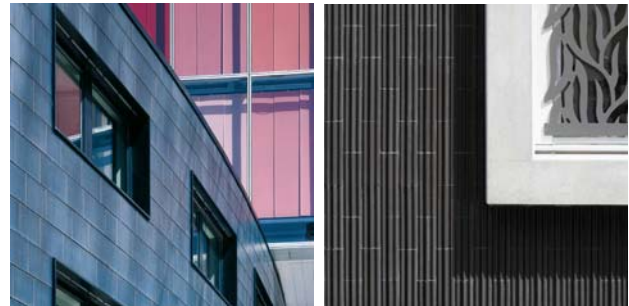
TERRART® engobes are also developed in our laboratories according to the architect's demands, they are limited in their range of colours because of their specific mixture of raw materials but opening up a completely new dimension in facade design because of their unique and distinctive character.

TERRART® engobes create buildings of tremendous aesthetic appeal, while reaping the benefits of one of the most weather resistant construction materials available.



TERRART® glazes are being increasingly exploited as a design feature in contemporary architecture. NBK's expertise in complex mixing techniques and traditional firing methods allows practically any color and surface texture specification to be met to the letter. This permits manufacture, in consultation with designers, of exclusive product assortments to make unique buildings.

All of the glazed components from the TERRART® façade systems are mostly twice-fired and provide guaranteed weather and frost resistance. In principle, nearly any RAL color can be produced. Provision of an original sample is essential when specifying colors.

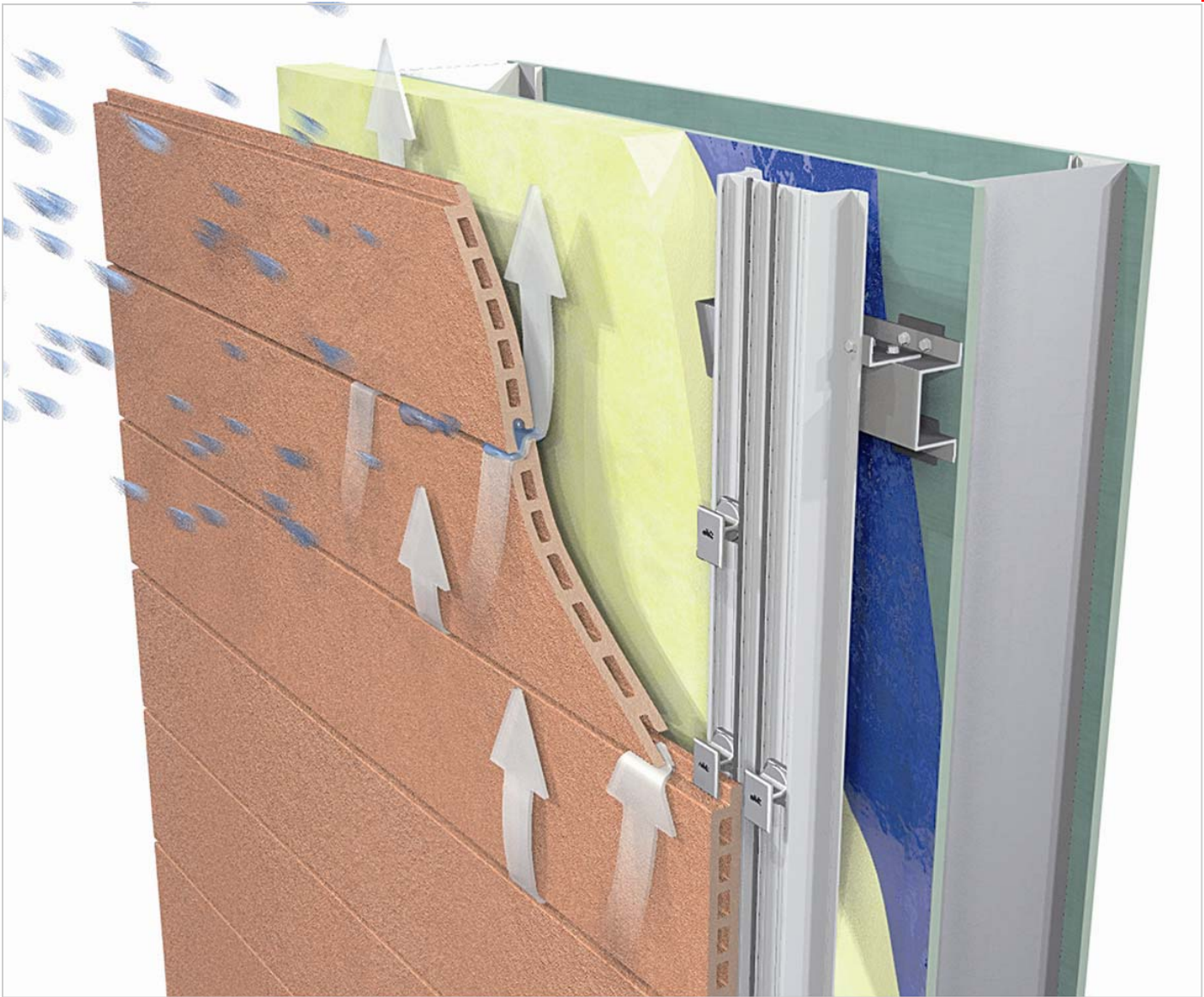


TECHNICAL DATA SHEET FOR NATURAL TERRA COTTA TILES

Water absorption <i>all approved colors</i> DIN EN 14411 <i>Group All_a</i> DIN EN 14411 <i>Group All_b</i>	EN ISO 10545 Part 3	3,0 - 6,0 % 6,0 - 10,0 %
Bending tensile strength <i>Natural and glazed finish</i> DIN EN 14411 <i>Group All_a</i> DIN EN 14411 <i>Group All_b</i>	EN ISO 10545 Part 4	> 1740 lb/in ² > 1305 lb/in ²
Raw density		128 lb/ft ³ - 137 lb/ft ³
Freeze / thaw resistance	EN ISO 10545 Part 12 (100 Freeze - thaw - cycles)	fulfilled
Efflorescence and soluble salts	DIN 105 Teil / Part 1	well below the permitted maximum limit
Chemical resistance	DIN EN ISO 10545 Part 13	fulfilled
Dimensions + tolerances		
Length 15-3/4" - 70-7/8"	Overall horizontal axis of tile	± 0.039" for cuts
Height 5-7/8" - 31-1/2"	Overall vertical axis of tile	± 1/16" to 9-7/8" ± 1/8" to 1' - 3-3/4" ± 1/8" to 1' - 11-5/8" ± 1/8" to 2' - 7-1/2"
Thickness	EN ISO 10545 Part 2 <i>deviation if surface is honed</i>	± 1/16"
Straightness in core direction <i>Horizontal / length axis</i>	EN ISO 10545 Part 2	± 0.25 % of length
Diagonal flatness	EN ISO 10545 Part 2	± 0.25 % <i>of diagonal</i>
Vertical flatness <i>Direction vertical / height axis</i>	EN ISO 10545 Part 2	± 0,50 % of height
Torsion	EN ISO 10545 Part 2	± 0.50 % of diagonal

Remarks:

The tiles are ceramics made from natural materials, so small variations in color, size and consistency from the sample façade are unavoidable. All other formats, dimensions and special sizes are available on inquiry basis. Subject change without notice. Glazed terra cotta façade tiles and elements could show hairline cracks called Craquelé. This is a well know effect on glazed terra cotta ceramics which could appear in a short or over a longer period of time. The Craquelé will not affect any of the mechanical properties of the product.



The NBK TERRART® ceramic clay tile façade system, which is based on the rainscreen principle, is custom designed and engineered.

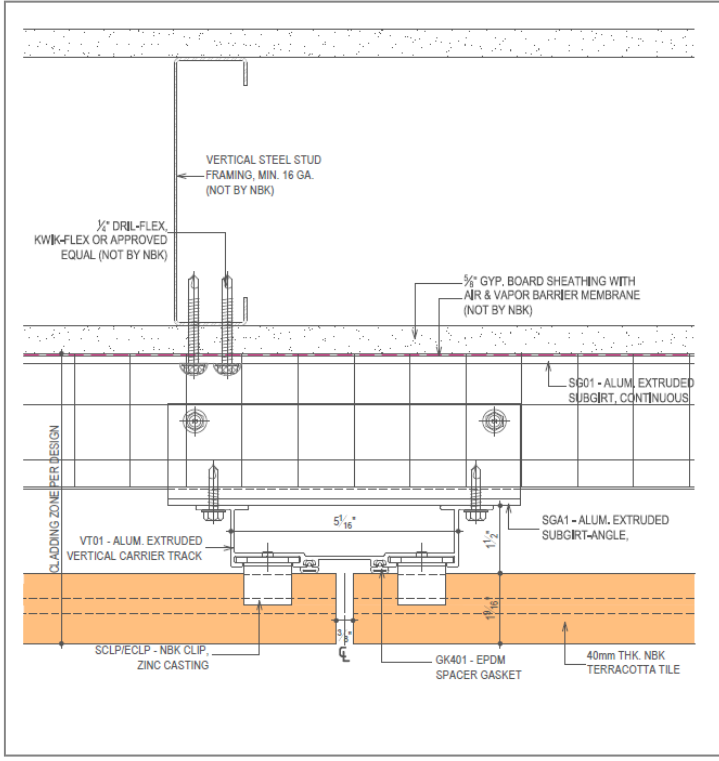
The vertical joints are backed by a support system which drains rainwater away from the cavities behind. The gaskets, together with balanced air pressure, discourages water from entering the wall cavities.

The tile design allows for air to flow through „open joints“, which helps to balance air pressure in the

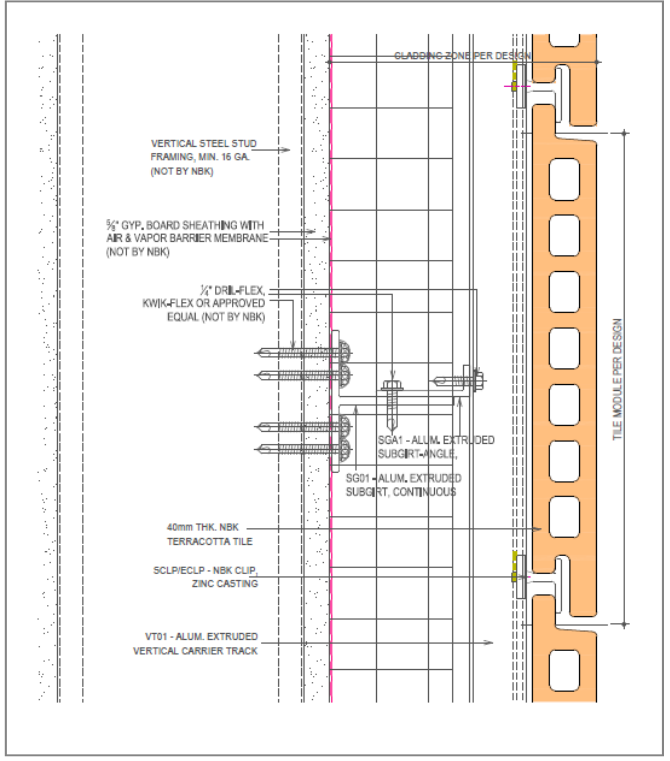
cavities behind the terracotta cladding elements with that of outside air, hence, the term - pressure equalization.

Driven rainwater will not enter the cavities because of the overlapping joints („protected openings“) and lack of pressure differential.

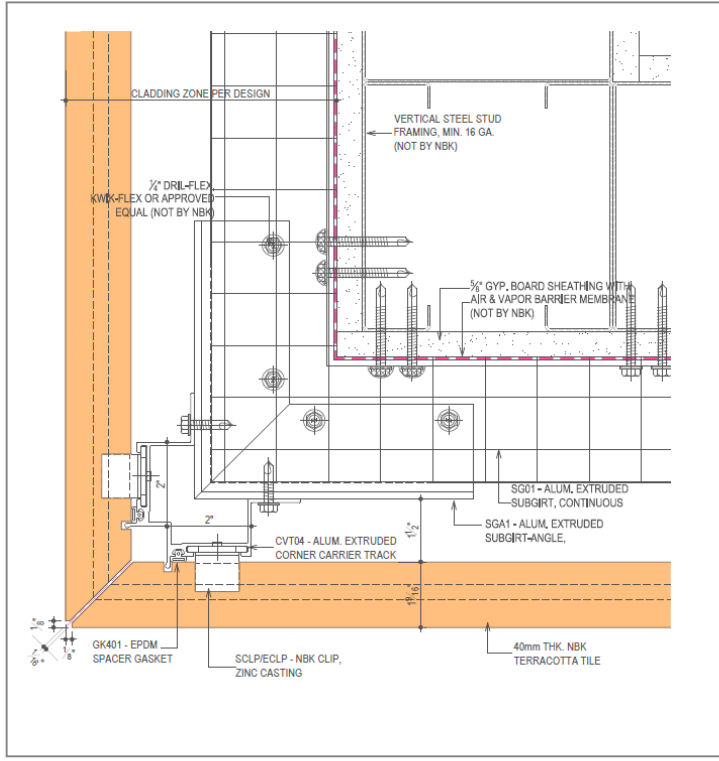
The „back ventilation“ assists in maintaining a dry cavity and negates the build up of hot air, an additional benefit to the TERRART® rainscreen system.



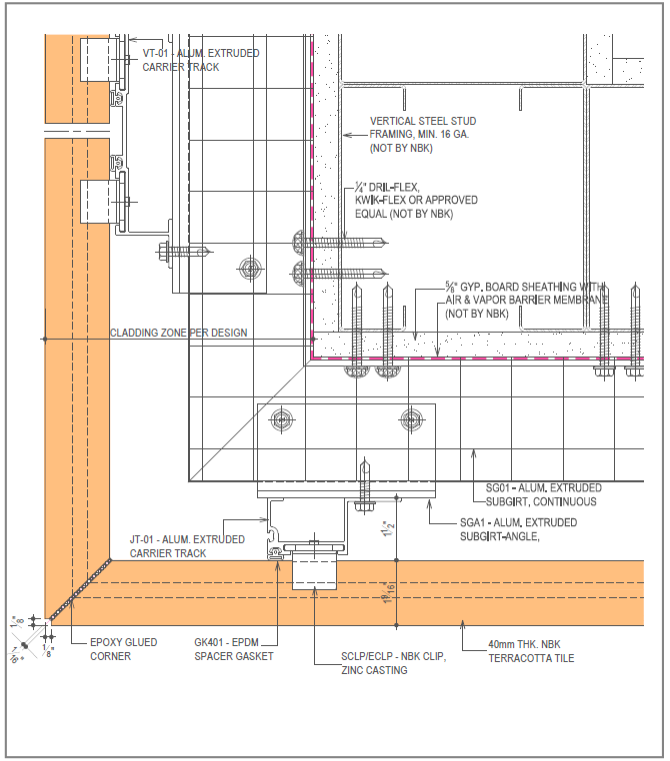
PLAN SECTION



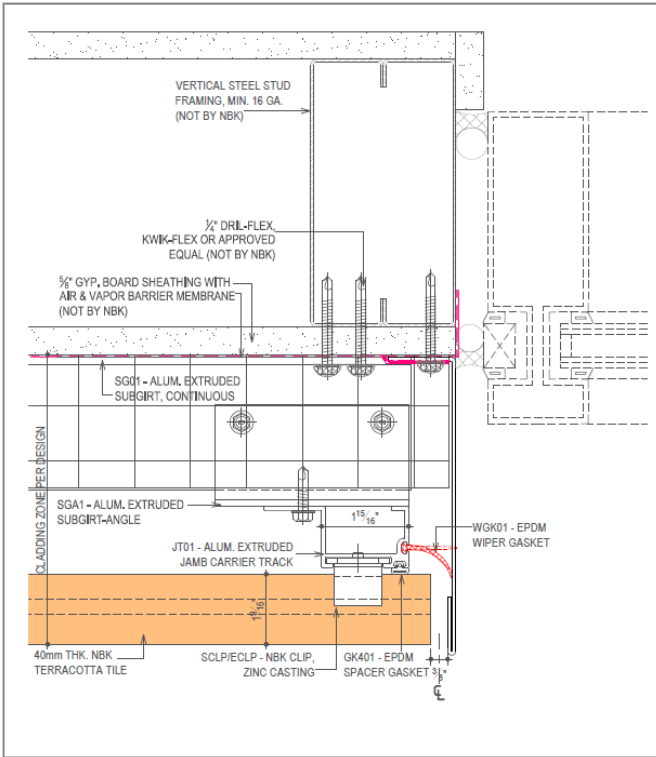
WALL SECTION



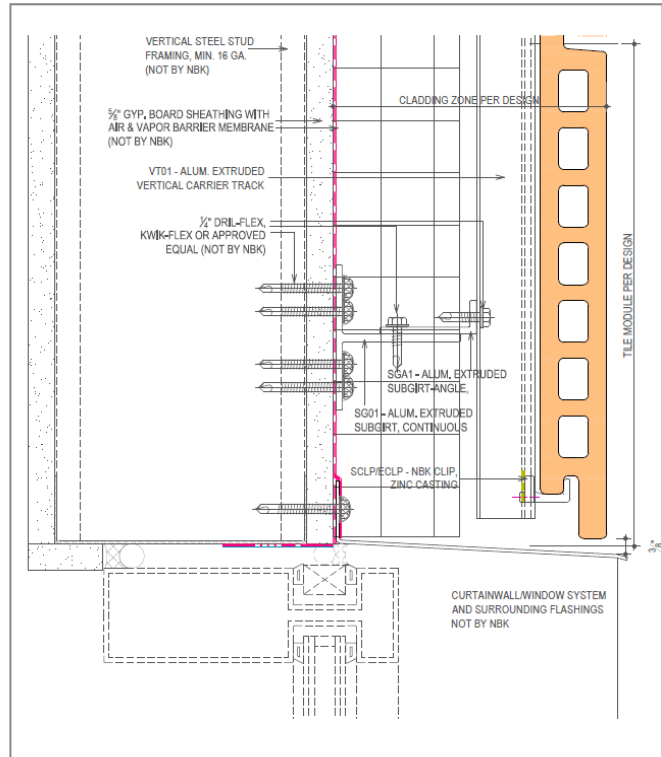
MITER CORNER - INDEXED



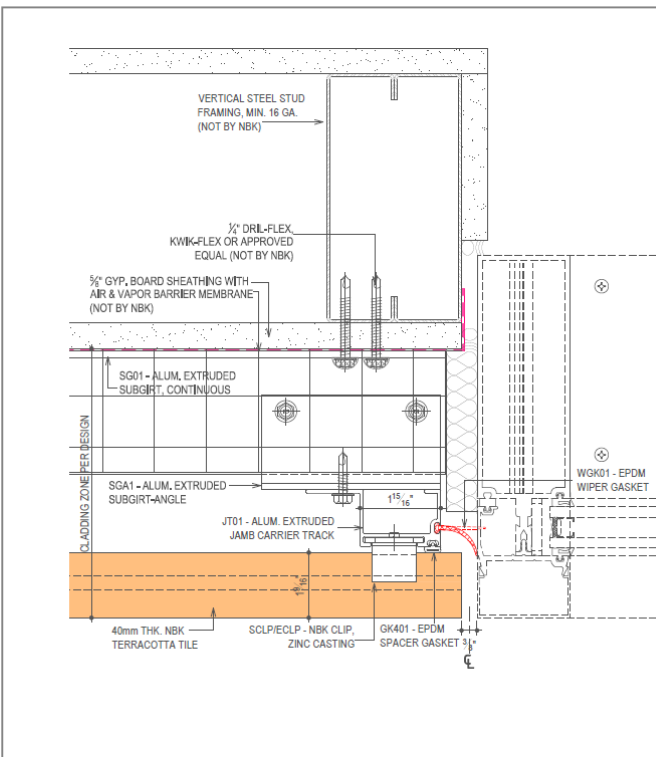
MITER CORNER - EPOXY BOND



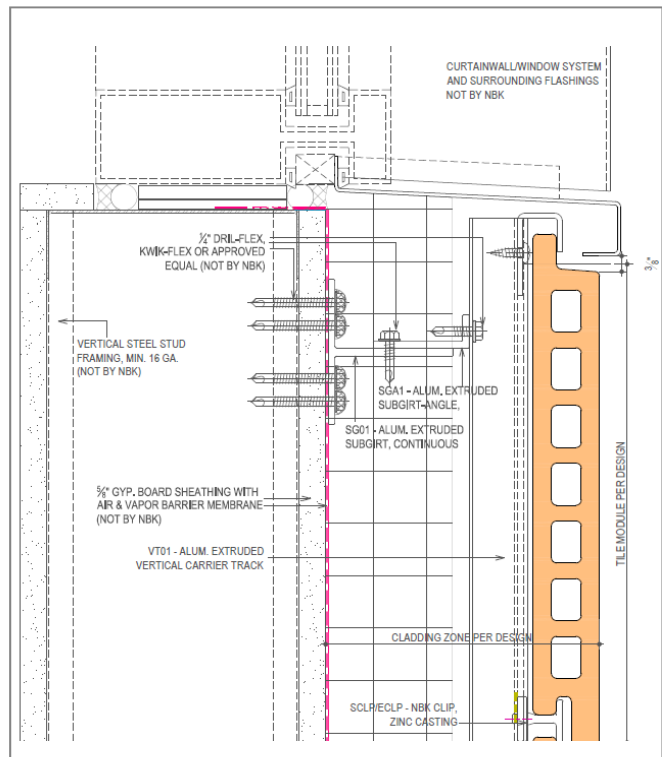
WINDOW JAMB - RECESSED



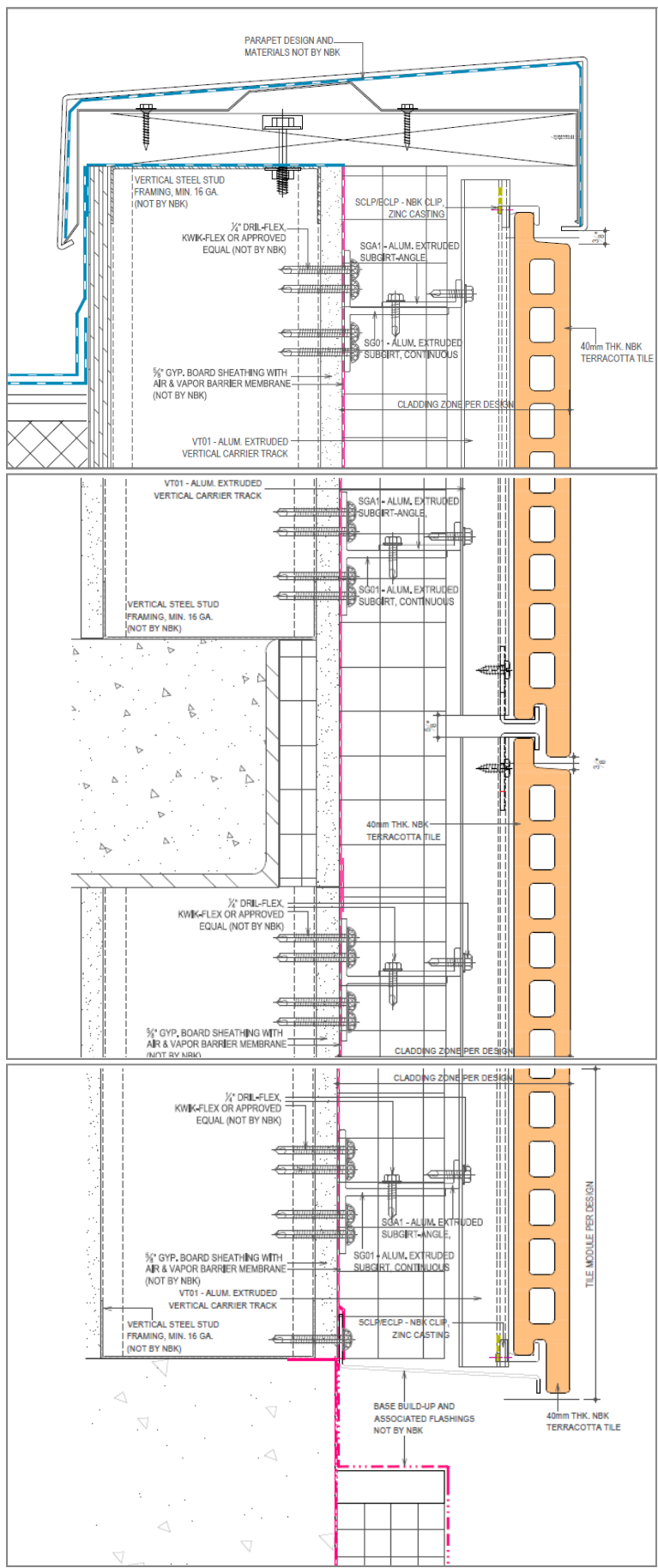
WINDOW HEAD

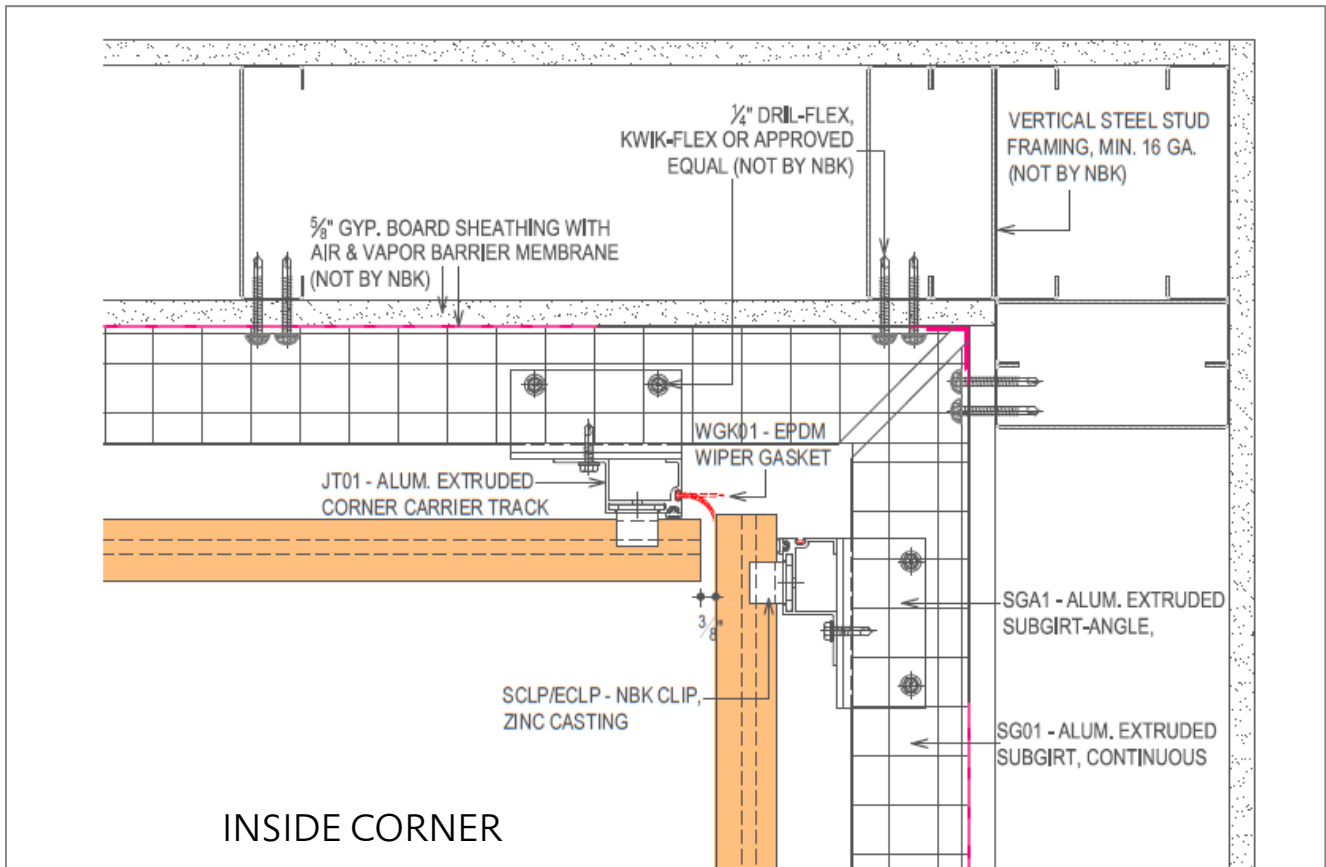
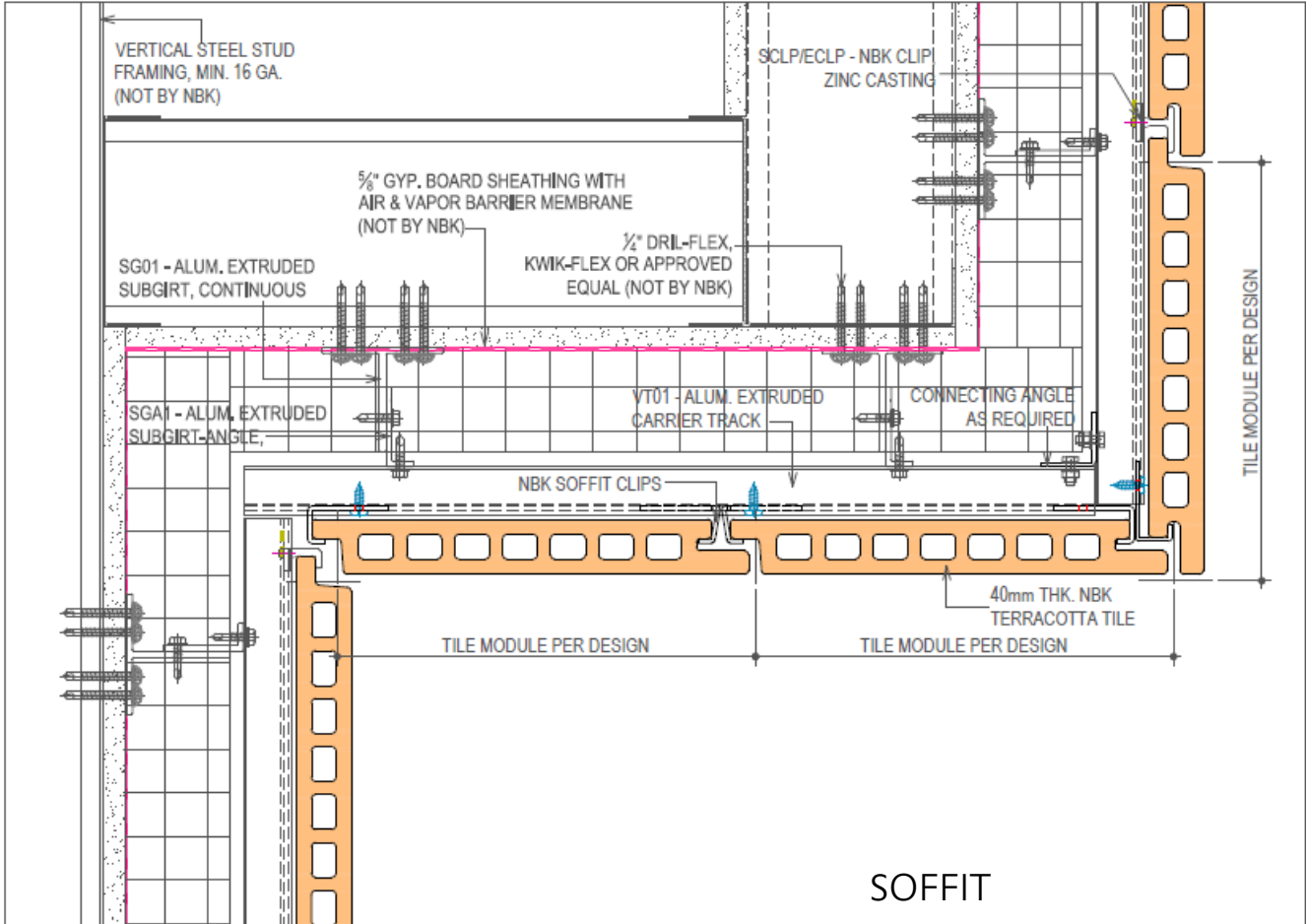


WINDOW JAMB - FLUSH

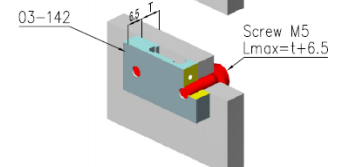
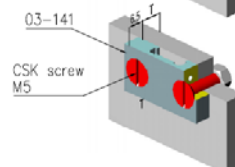
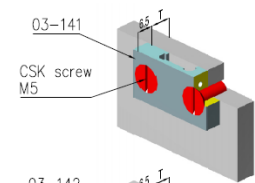
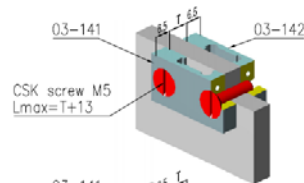
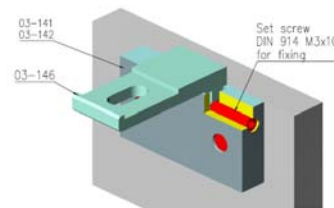
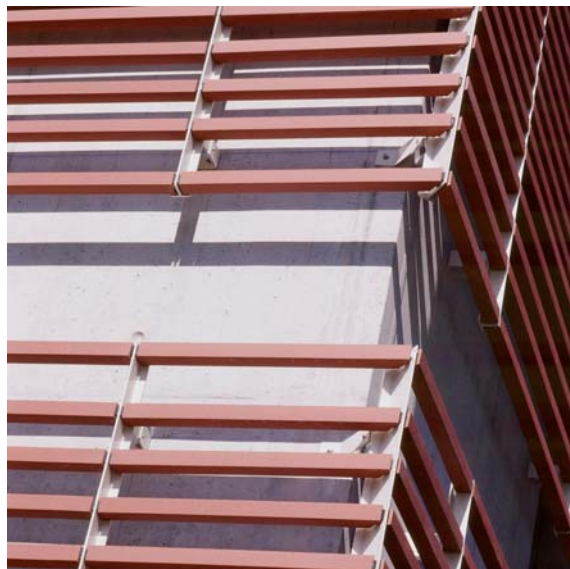
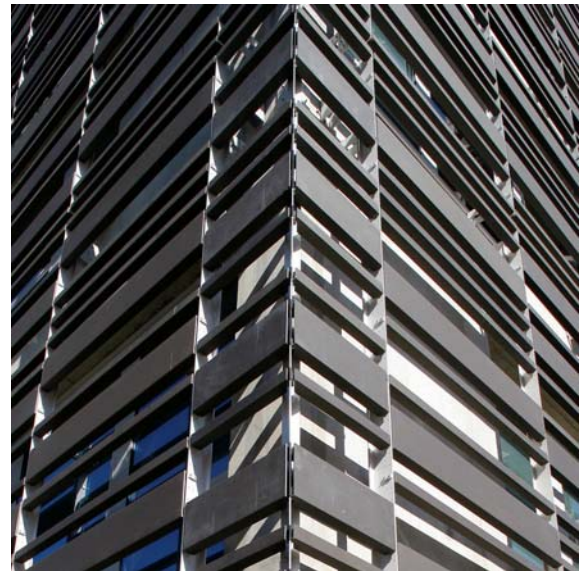
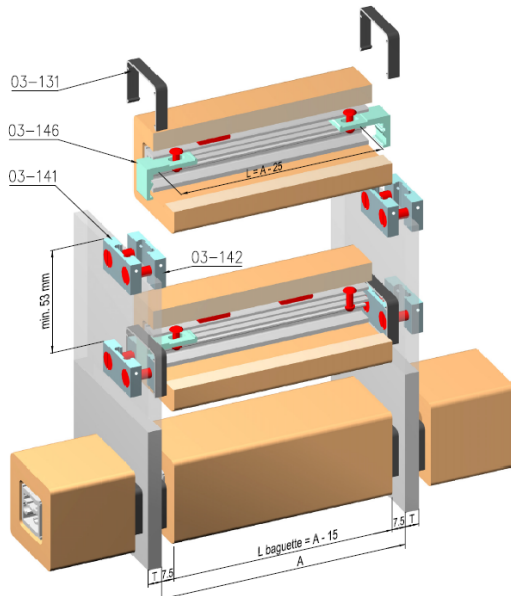
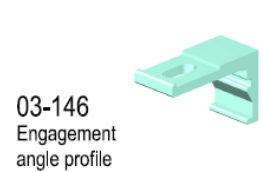
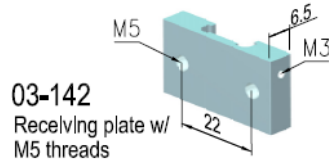
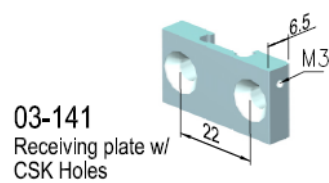
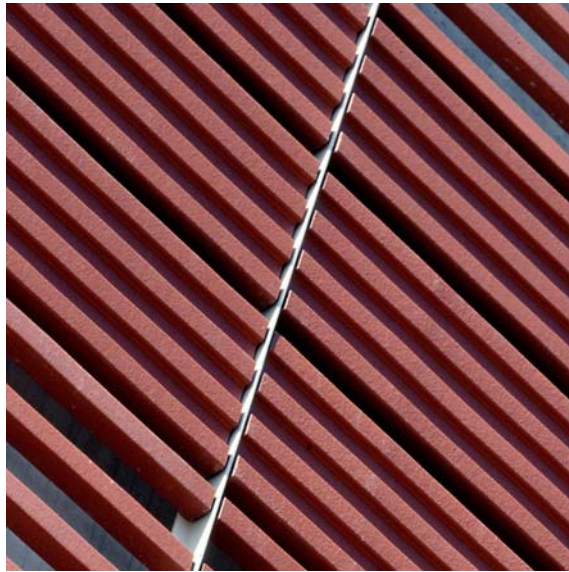


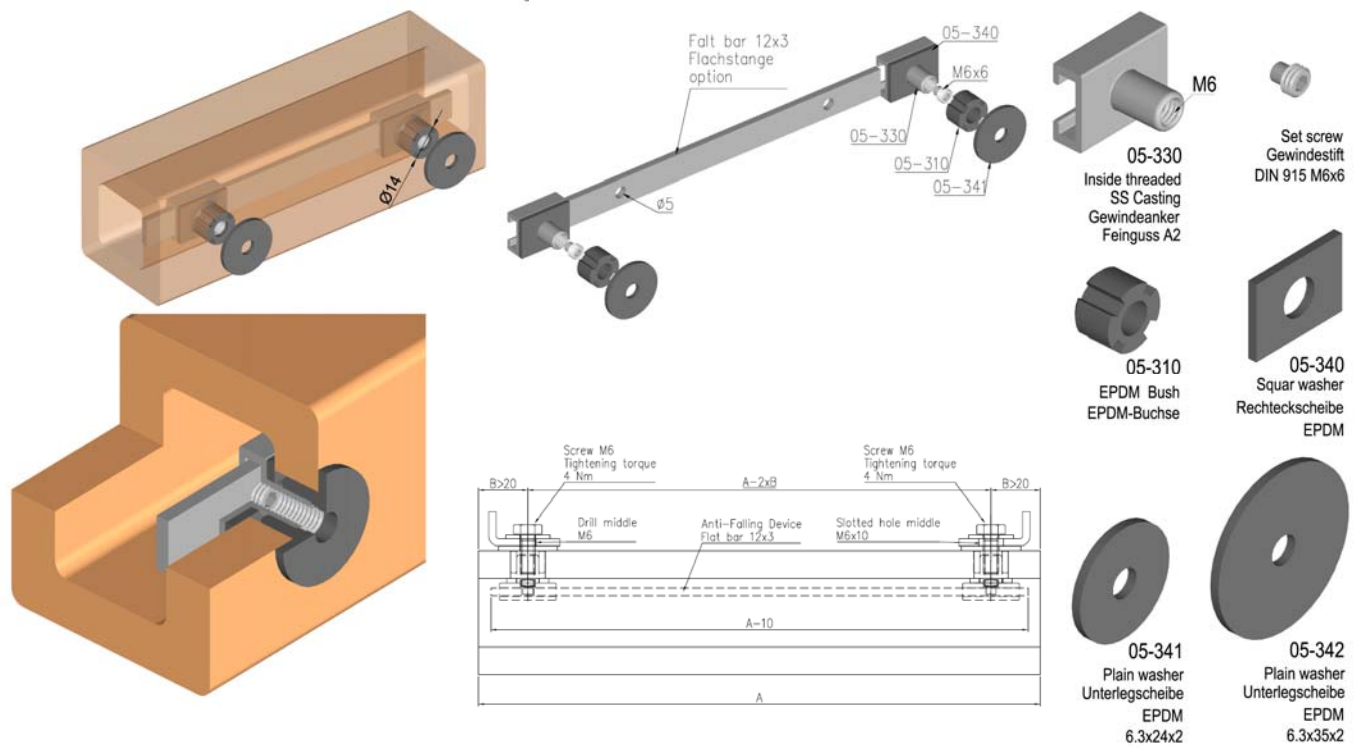
WINDOW SILL



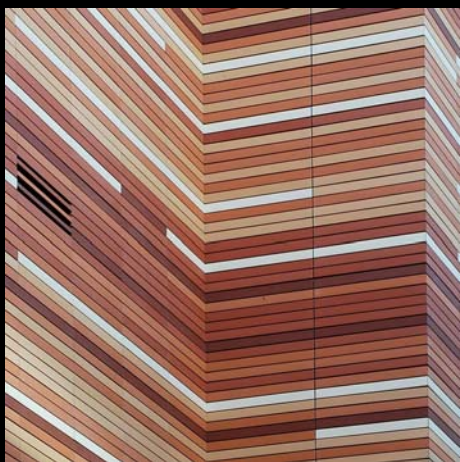


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