CERAGRES

Programme of Delivery
Facade Systems

DEUTSCHE STEINZEUG AGROB BUCHTAL


We understand. Since 1755.

Contents

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slip resistance

swimming pool ceramics

AGROB BUCHTAL. Competence from tradition.

AGROB BUCHTAL offers concentrated competence in the field of ceramic tiles for all areas of application. The brand was born in 1992 by the merger of two companies rich in tradition: Deutsche Steinzeug Cremer & Breuer AG and AGROB Wessel Servais AG.

The brand name is composed of a part of the firm name AGROB Wessel Servais AG and Buchtal, the ceramic factory of Deutsche Steinzeug at Schwarzenfeld. The brand can look back on a history which already started in the 18th century.

The combination of functionality, highest quality and first-class design for individual requirements is the challenge which we successfully meet again and again at the development of new products. This results in new and innovative products just as well as individual solutions.

Sustainable

Active against pollutants in the air, antibacterial and extremely easy to clean: AGROB BUCHTAL's durably burned in HT surface coating lends the facade amazing characteristics.

Made in Germany

Extensive competence, great care at the production and strict quality controls give architects the certainty of having made the right choice with facade ceramics of AGROB BUCHTAL. All facade systems are produced in Germany in compliance with high quality standards.

architectural ceramics

high-quality ceramics for living environments

The air-cleaning and antibacterial HT coating, the surface upgrading Protecta, orientation aids for the blind as well as tiles producing a photoluminescent effect in the darkness are only some of our innovations. Besides product quality “made in Germany”, we offer extensive services and professional advice.

More information about our products and our services for architects and planners is available at www.agrob-buchtal.de.

ED!T

Ideas have their own dimensions

In the spirit of partnership

So that architects can concentrate exclusively on the implementation of their creative ideas, our experienced In-House Planning Department relieves them of many tasks.

Individual

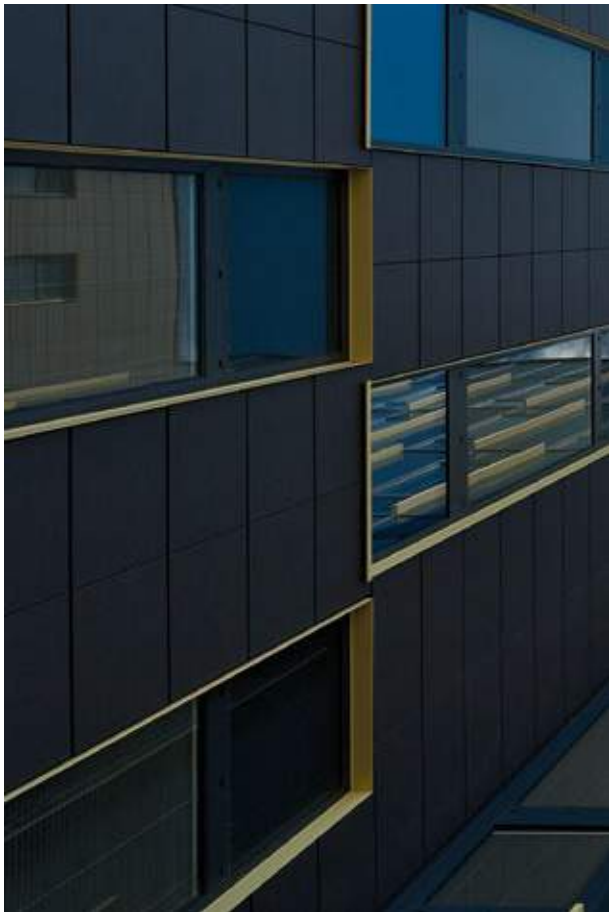
Project-specific solutions are part of our core business. Whether special formats and colours for indoor rooms or facades, whether water-jet cuts or mosaic pictures – we have the necessary know-how.

The perfect solution: curtain-type, rear-ventilated ceramic facades

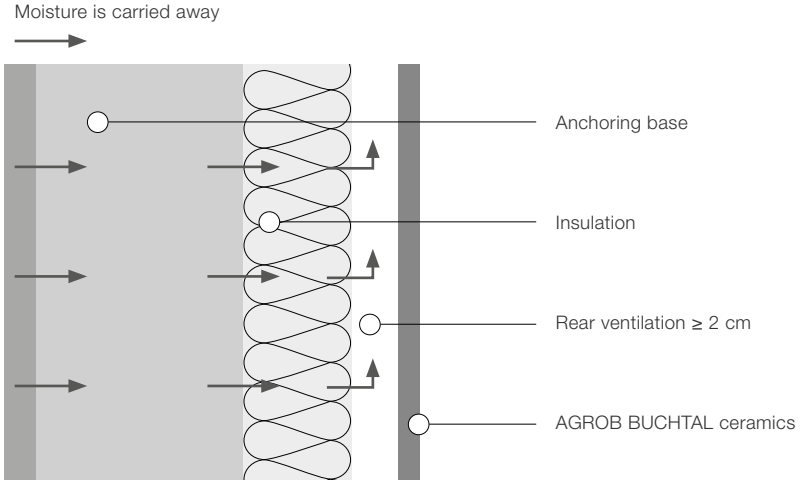
Aesthetics, economic efficiency and sustainability: the combination of these three factors is the basis for the growing success of curtain-type, rear-ventilated ceramic facades. The decisive reason for the technical superiority of these systems is the constructional separation of the functions of heat insulation and weather protection.

With their great variety of colours, formats and surface structures, the curtain-type, rear-ventilated facade systems of AGROB BUCHTAL offer an ideal basis for the implementation of the most diverse architectural concepts. KeraTwin®, KerAion® and 3D Facade Ceramics support architects both at the planning of new buildings and at renovation projects thanks to the combination of sophisticated technique, high product quality and great freedom of design. And also those who have special wishes will find what they are looking for, because individual special productions are one of the company's strong points.

Sustainability and the conservation of natural resources are gaining increasing importance also at the planning and design of facades. Ceramic curtain-type, rear-ventilated facade systems are almost unbeatable in this field: as the panels are frost-proof, light- and colour-fast, their life time is practically unlimited. The HT coating with its self-cleaning effect reduces the cleaning costs and works, and if the building will be demolished one day, all components of the facade cladding – the ceramics, the mineral wool and the aluminium of the substructure – can be separated without any problems and individually recycled. Therefore, the decision in favour of ceramic curtain-type, rear-ventilated facade systems is a significant step towards the granting of the Green-Building-Certificates becoming more and more important – especially as AGROB BUCHTAL supports the architect during the bureaucratic certification procedure.



Facade ceramics
The indestructible material of ceramics not only offers optimal protection against rain and snow. The panels and special pieces available in a range of modern colours lend the building its distinctive appearance, support the architect at the realization of its ideas and clean themselves during every rain shower thanks to the HT coating.



Senukai Office, Kaunas, Lithuania / Architect:
Natkevicius ir. Patneriai Raguvos 4, Kaunas, Lithuania

Rear ventilation
The ventilated space between the ceramic panels and the insulating material regulates the moisture balance of the building, carries moisture away towards the outside and ensures the quick drying of humid exterior walls. The insulating material remains dry and fully functional, the indoor climate is improved.

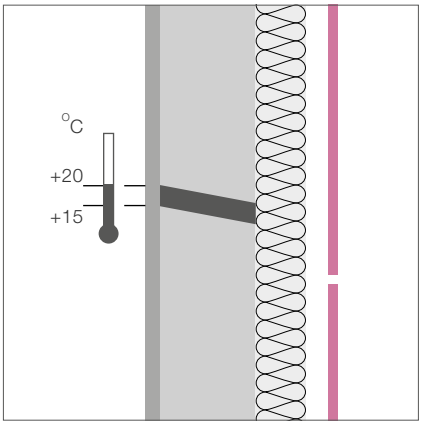
Insulation
Independent of the height and the utilization of the building, mineral insulating materials of the thermal conductivity classes 040 or 035 are mostly used in the case of rear-ventilated ceramic facades. As the system permits the installation of insulating materials in any thickness required, the requirements of the energy saving regulations can also be met without any problems.

Substructure
The substructure connects the ceramic panels to the supporting exterior wall, ensures an efficient installation, levels irregularities of the walls and reliably supports the cladding in the long term. Aluminium substructures play an important part with regard to the protection against lightning.

Curtain-type, rear-ventilated facades: the advantages at a glance

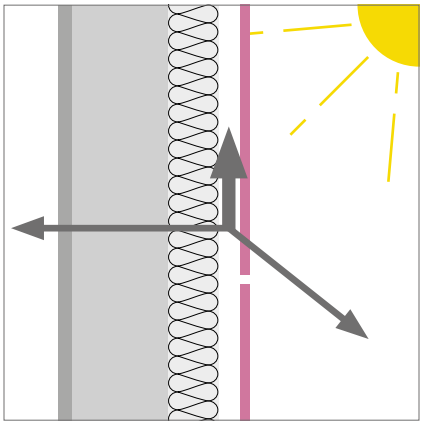
Thanks to the air space between the outer facade cladding (ceramics) protecting the building against snow and rain and the insulation (mostly mineral wool), curtain-type, rear-ventilated facade systems improve the indoor climate, save heating costs and conserve natural resources. Apart from that, they offer many other advantages.

Healthy interior climate



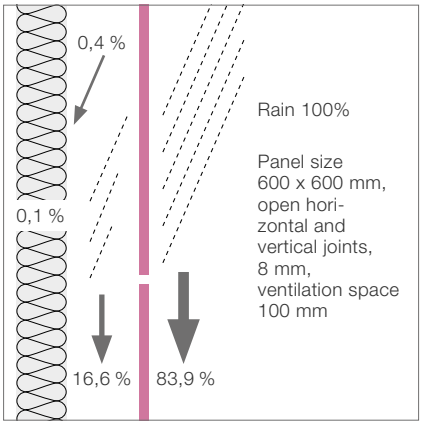
Too humid air may contribute to the formation of mould and cause illnesses. Curtain-type, rear-ventilated facades ensure a steam diffusion resistance decreasing from inside towards outside. Thanks to that, moisture from the walls and the interior of the building is carried away via the rear ventilation space. In this way, a healthy and agreeable interior climate is created, which improves the quality of life of the persons living or working there.

Warm in winter - cool in summer



As the construction of the curtain-type, rear-ventilated ceramic facade is suitable for the use of insulating materials in any thickness desired, U-values can be reached which satisfy the requirements to be met by low-energy houses. This not only saves heating costs in winter and thus reduces the CO_2 emission harmful to the climate. Agreeable temperatures in the interior rooms are also ensured in summer heat.

Protection against rain and snow



Neither frost and heat nor rain, snow, ultraviolet radiation or air pollutants have a negative effect on ceramic facade panels. That is why curtain-type, rear-ventilated facade systems not only protect the building itself against weather and environmental influences, but also make sure that the insulating material layer remains uncongested and dry. Even driving rain getting in through the joints does not cause any damage, as the moisture runs down on the reverse side of the panels.

Fire protection, sound insulation and protection against lightning

Curtain-type, rear-ventilated facades not only reduce heat losses but also insulate the interior of the building from sound immissions. In addition, the components of the construction, all of which are non-combustible, ensure a highly effective fire protection. The system also proves itself in the case of thunderstorms, as the aluminium substructure acts as lightning conductor and forms an electromagnetic shielding, which protects the electronics inside the building.

Cost certainty, durability, quality

Ceramic facade systems pay off: this is due to the wear resistance and the unlimited durability of the material. In addition, the unique HT coating with “self-washing” effect reduces the maintenance costs. And high quality is guaranteed by products “made in Germany”. Even in case of a demolition, the owner of the building is safe from expensive surprises: all components can be recycled without any problems.

Design variety: colours and formats

With the great choice of formats and the wide range of harmoniously matched colours in diverse surfaces, AGROB BUCHTAL offers planners and architects immense creative scope at the realization of their ideas. Thus, it is possible to emphasize the function and the character of the building, to underline significant components or to include colours of the environment in the design. And the technical support by experts of AGROB BUCHTAL ensures a successful implementation.

Setting standards – for more than 40 years

A facade is far more than just the protective shell of a building. Its design not only characterizes the building itself, but also influences – often visible from far away – the urban environment.

As leading ceramics manufacturer, AGROB BUCHTAL has extensive know-how in all fields of Architectural Ceramics. With this background, the company has been developing and producing ceramic facade systems setting standards for more than four decades: functionally, aesthetically and by their product quality “made in Germany”. Curtain-type, rear-ventilated facades optimizing the energy efficiency and economical balance of buildings play a central part in this context. High competence in building physics results in technically sophisticated substructures, which ensure an efficient mounting and a safe fastening of the panels. These constructions are the connecting element from the wall – via the insulating layer – to the facade cladding and support the realization of creative ideas. The In-House Planning Department is permanently further developing the various systems and accompanies the implementation of individual concepts world-wide – on request also on location at the construction site.

Thermal power station, Viborg, Denmark / Architect: Peter Kjelgaard & Thomas Pedersen M.A.A

1996

1976

Polytechnikum (polytechnic institute), Hongkong, China / Architect: Messrs. Palmer & Turner

1987

Museé d’Arte Moderne, St. Etienne, France / Architect: Didier Guichard

Students' hall of residence Isledon Road,
London, Great Britain / Architect: TP Bennet

2012

2006

Bouwhuis, Zoetermeer, Netherlands /
Klunder Architecten, Rotterdam

Three systems for all facades

The protection of buildings against atmospheric influences is one of the classic functions of every facade cladding. Today – in consideration of the climate and the natural resources – demanding energetic standards have to be complied with in addition, which can be met best with curtain-type, rear-ventilated facades.

This not only applies to new buildings, but also to the renovation of existing buildings worth to be conserved. With the three systems KeraTwin®, KerAion® and 3D Facade Ceramics – all of them made of extruded ceramics – AGROB BUCHTAL offers the planning architect the appropriate materials for realizing its quite individual solution.

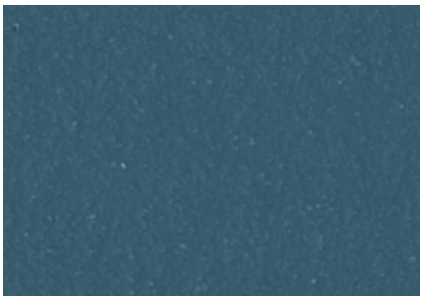
KerAion®, the classic among the ceramic facade systems, has been successfully used all over the world for decades. Apart from the well-known advantages of the ceramic material, it is above all the sophisticated technique which speaks in favour of this system: KerAion® facades are conforming to standards, to official approvals and – thanks to their practically unlimited durability – also very economical. With their well balanced range of colours, the diverse sizes and project-specific special productions, they also lend buildings with large surfaces an individual look. The square large-size formats from 60 x 60 cm up to 120 x 120 cm with a panel thickness of only 8 mm offer varied design possibilities.

Developed as an economical and design alternative to KerAion®, KeraTwin® is convincing by architectural flexibility and visual variety. Besides the great choice of formats with standard heights of 20 to 50 cm and lengths of up to 180 cm, a wide and varied range of colour families harmoniously matched to each other is available among other things, which is completed by vivid contrasting colours.

One of the most important advantages of the KeraTwin® system is the efficient laying. While the variant KeraTwin® K18 is fastened on horizontal rails and thus can be laid alternatively with straight joints or irregular bond pattern, the installation of KeraTwin® K20 is possible without any adapters and clamps.

With its 3D Facade Ceramics, AGROB BUCHTAL offers the architect a product usable for diverse purposes. The rectangular tubes, the lamellar elements and the corner profiles can be used as protection against the sun or view, for the aesthetic design of corners and projections, which is also safe with regard to construction physics, or for making large facade surfaces appear less monotonous by giving them a visual rhythm.

Surface structures



Surface KeraTwin® and 3D Facade Ceramics

Surface KerAion®

KeraTwin®

The particularly efficient laying and practically unlimited application possibilities thanks to diverse fastening systems speak in favour of KeraTwin®.

Further system advantages:

- great variety of sizes up to large formats of 180 x 50 cm
- particularly wide and varied range of colours
- panels available both glazed and unglazed
- easy to clean and environment-friendly thanks to the HT coating

KerAion®

The classic, which has proved itself for decades, also offers square formats and lends large-size facades a characteristic look.

Further system advantages:

- great variety of sizes up to the large format of 120 x 120 cm
- wide range of coloured glazes with HT coating
- advanced technique developed in the course of decades
- statically advantageous thanks to low panel weight

3D Facade Ceramics

With its diverse profiles, 3D Facade Ceramics fulfils numerous functions - from the protection against the sun and view to the three-dimensional design of facades.

Further system advantages:

- suitable for horizontal and vertical mounting
- wide range of colours, glazed and unglazed
- ideal for the execution of corners and projections
- elements in lengths of up to 180 cm

LIGHT WORKS

New Thinking – New Building – With HT.

Ceramic facades activated by light. Sustainable building with HT.

Building in great contexts

Approximately one third of the energy consumed world-wide is utilized for the construction and operation of buildings. Also with regard to subjects such as building with the focus on healthy living or the ecological and economical effects of the building, the owners, planners and those carrying out the construction works will have to meet new requirements.

Every building of a town or city contributes to its individual microclimate – just as every building product has an influence on the success of a sustainable building planning and utilization.

Green lungs now are also available in colours

Thus, sustainable building is one of the most urgent tasks of our days, and AGROB BUCHTAL feels obliged to contribute to it to a high degree. That is why the ceramic tiles are coated with HT in order to obtain – without impairing the classic qualities of the facade ceramics – essential economical and ecological advantages.

Ting 1, Örnsköldsvik, Sweden
Wingårdh Arkitektkontor AB, Göteborg / Stockholm / Malmö, Sweden
Completion: 2013 / KeraTwin® (K20), special colours

University of Aquila, Aquila, Italy
Architect: Pierluigi de Berardinis
Completion: 2013

FACADES ACTIVATED BY LIGHT

And the weather is always on your side

Senukai Office, Kaunas, Lithuania / Architect: Natkevicius ir Patneriai Raguvos 4, Kaunas, Lithuania

Light activates

Titanium dioxide (TiO_2) is inseparably and durably baked onto the ceramic surface at high temperature. As catalyst, which is not used up, it effects a reaction activated by light (photo-catalysis) with oxygen and air humidity practically for a tile life long. In this way, activated oxygen and a hydrophilic, water-friendly ceramic surface are produced. The activated oxygen now fulfils two decisive functions:

1. Directly on the surface of the ceramics, it decomposes microorganisms such as fungi, algae, moss or germs and inhibits the growth. Thus, the growth of algae and moss on facades is inhibited, and time-consuming and expensive cleaning works are avoided. This saves considerable maintenance costs in the life cycle of a building.

2. Air pollutants such as, for example, nitrogen oxides from traffic or industry are considerably reduced. HT permanently improves the ambient air of the building.

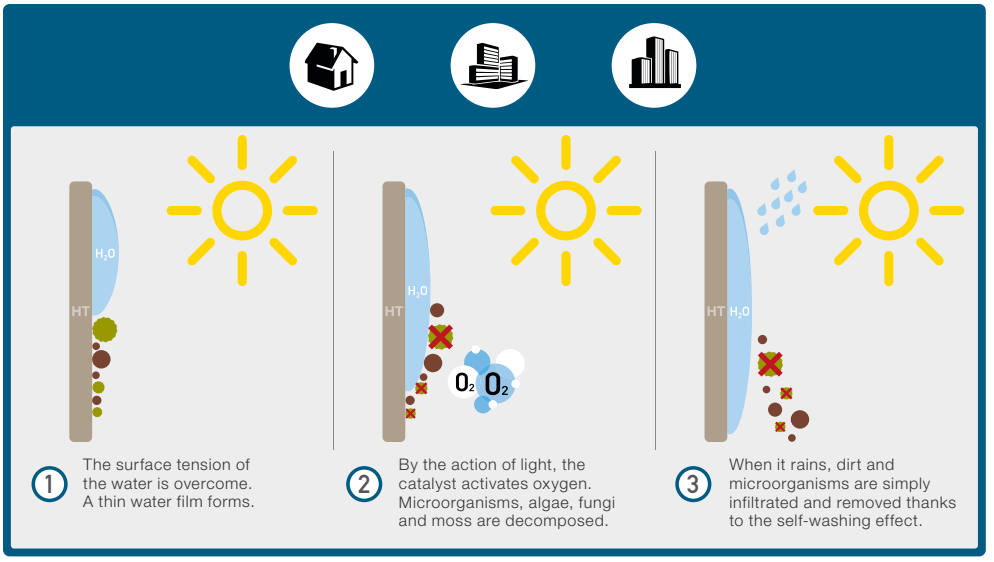
Rain cleans

The hydrophilic ceramic surface effects that rain drops are not simply repelled but spread to form a thin film and infiltrate the dirt. The result is an efficient self-washing effect, which prevents the adherence of dirt. This also avoids costs with regard to cleaning and the early replacement of panels.

Active support at every weather – sun and rain perform the effective and environment-friendly cleaning free of charge! HT keeps facades clean.

HT-coated ceramics: The effects

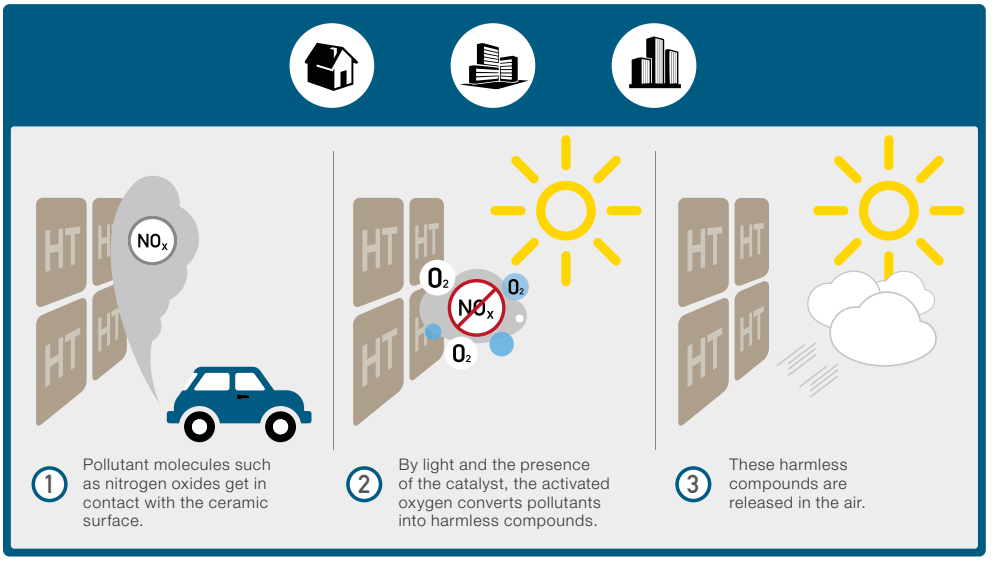
Self-washing effect

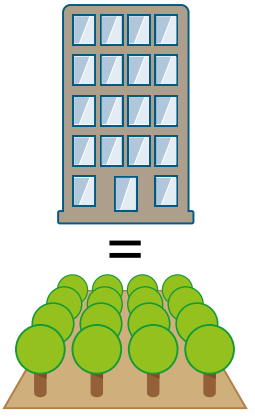


Clean without effort

Graffiti can be removed from glazed facade ceramics without any problems. As the material is insensitive to effective cleaning agents, dirt can be easily washed away without leaving any residues and the surface be restored to its original state. After that, the HT effect is reactivated by the daylight.

Pollutant degradation





1,000 m² of facade ceramics with HT clean the air as effectively as a small deciduous forest.

Renowned test institutes confirm the effects of HT.

Further information:
www.agrob-buchtal.de
→ HT coating

KeraTwin® K20 / K18

One system – two variants

With its variety of colours, formats and surfaces, KeraTwin® offers the architect an enormous freedom of design. And as diverse fastening alternatives ensure technical and constructional flexibility, this system offers the appropriate solution to every challenge – even on difficult bases.

Both variants, K20 and K18, are not only supplied in numerous formats, with KeraTwin® K20 being available in greater lengths. As facade system with the widest variety of colours, KeraTwin® permits every architect to realize its creative ideas. Thus, besides the colour range “SpectraView” developed by the designer Peter Zoernack with nine colour families harmoniously matched to each other and contrasting colours, the colour systems “Natura unglazed”, “Design unglazed” and “Design glazed” are also available.

On request, the panels are also supplied with profiles which – due to their three-dimensional structure – can make large facades less monotonous and lend an entire building a distinctive character. The joints are realized in such a way that the construction is optimally protected against driving rain. With their relatively low weight of 32 kg/m², the panels are easy to transport and to install.

The two KeraTwin® variants essentially differ from each other with regard to the fastening, whose type depends on the requirements of the specific project. The vertical system rail K20, for example, offers an enormous freedom of design and an extensive range of accessories. As the panels are simply hung in the system rail, no additional tool is necessary for the mounting. An even faster and more efficient laying is possible with the innovative T-profile K20, which requires fewer individual components in the substructure. The vertical Omega profile K20 has proved itself as specialist for the efficient installation on difficult bases, e.g. walls with post and beam construction, while the clamp system K20 permits the mounting of the panels not only in horizontal and vertical direction, but also on ceilings.

The system of the clamp fastening with its varied possibilities is also available for KeraTwin® K18 in the appropriate version. An additional option is the K18 adapter fastening. Its most important advantage: laying is possible in semi-bond and irregular bond.

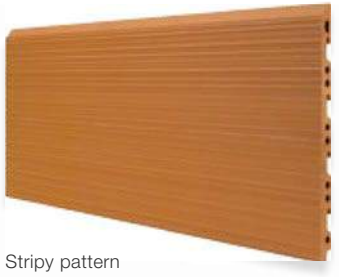
School Centre Rehau, Rehau, Germany / Architekturbüro Hermann Beyer, Döhlau / Completion: 2012 / KeraTwin® K20

Surfaces and formats for KeraTwin®

KeraTwin®K20

smooth

Grooved panel K20



Stripy pattern

KeraTwin®, brushed surface – special colour sandstone

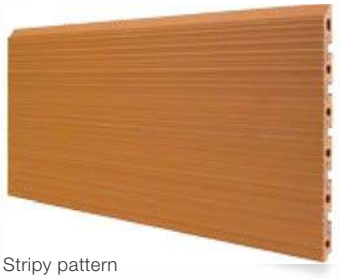
sandstone, glazed

Sine wave

KeraTwin®K18

smooth

Grooved panel K18

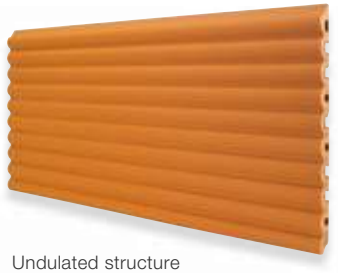


Stripy pattern

KeraTwin®, brushed surface – special colour sandstone

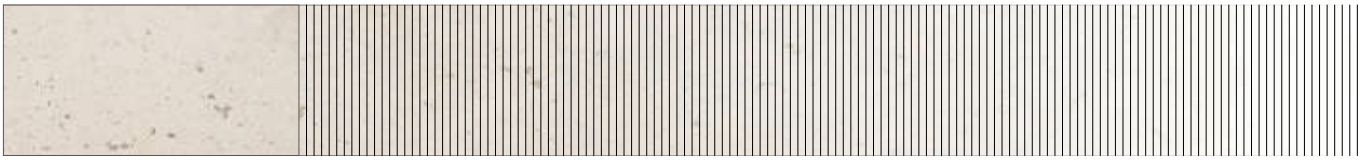
sandstone, glazed

Sine wave



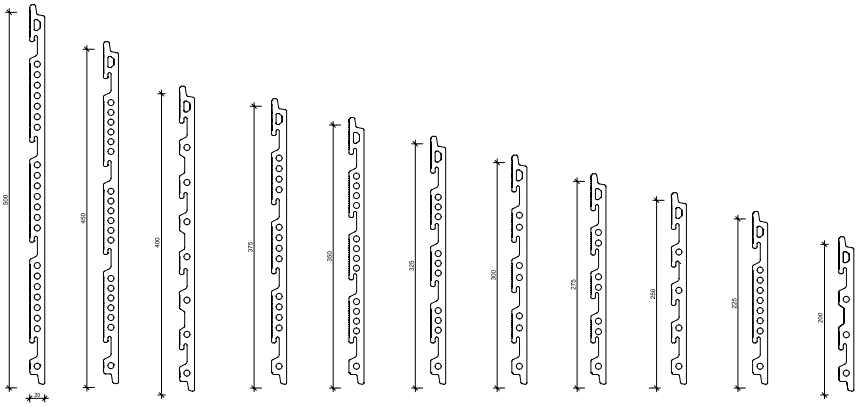
Undulated structure

Extruded Ceramic Panels, Precision, DIN EN 14411, group AII_a, glazed/unglazed (GL/UGL) (small-/large-size stoneware panels), 20 mm thick, 32 kg / m²
Lengths of up to 1,800 mm (in 1 mm steps)
Heights: 200 mm, 225 mm up to a length of 1,200 mm;
250 mm, 275 mm up to a length of 1,500 mm;
300 mm, 325 mm, 350 mm, 375 mm, 400 mm, 450 mm, 500 mm up to a length of 1,800 mm.
Other heights can be supplied on request.



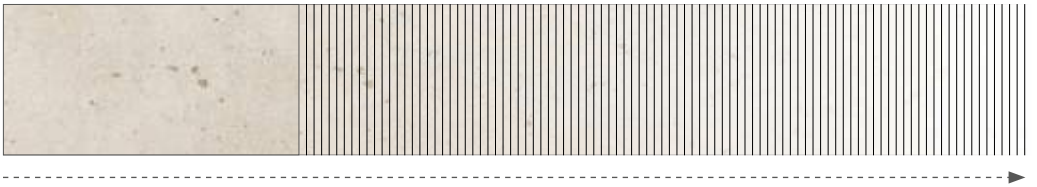
Lengths of up to 1,800 mm
(in 1 mm steps)

NEW: lengths of up to 1.80 m

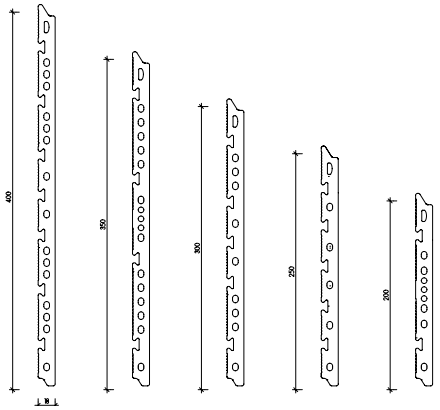


Schematic diagram: production-related deviations possible in individual cases; exact panel cross-section on request.

Extruded Ceramic Panels, Precision, DIN EN 14411, group AII_a, glazed/unglazed (GL/UGL) (small-/large-size stoneware panels), 18 mm thick, 32 kg / m²
Lengths of up to 1,350 mm (in 1 mm steps)
Heights: 200 mm up to a length of 1,200 mm;
250 mm, 300 mm, 350 mm, 400 mm up to a length of 1,350 mm.
Other heights can be supplied on request.



Lengths of up to 1,350 mm
(in 1 mm steps)



Schematic diagram: production-related deviations possible in individual cases; exact panel cross-section on request.

Colours and glazes for KeraTwin®

SpectraView (glazed, silky-matt)


6201 cream 1 H


6202 cream 2 H


6203 cream 3 H


6204 cream 4 H

6205 cream 5 H


6211 yellow 1 H


6212 yellow 2 H


6213 yellow 3 H


6214 yellow 4 H

6215 yellow 5 H


6221 apricot 1 H


6222 apricot 2 H


6223 apricot 3 H


6224 apricot 4 H


6225 apricot 5 H


6231 salmon-red 1 H


6232 salmon-red 2 H


6233 salmon-red 3 H


6234 salmon-red 4 H


6235 salmon-red 5 H


6241 pink 1 H


6242 pink 2 H


6243 pink 3 H


6244 pink 4 H


6245 pink 5 H

Contrasting colours (glazed, glossy)


150 lemon-yellow H


151 orange H


152 apple-green H


153 violet H


154 contrasting red H

Natura (unglazed)

407 white

NEW

410 cream
410 cream H


411 ochre
411 ochre H


412 salmon
412 salmon H


403 red
403 red H


414 light-grey
414 light-grey H


409 iron-grey

NEW


415 vulcan-grey
415 vulcan-grey H


419 black

NEW


416 smoky-blue
416 smoky-blue H

Design (unglazed)


1403 golden red
1403 golden red H


1410 golden cream
1410 golden cream H


1414 golden grey
1414 golden grey H


1415 golden anthracite
1415 golden anthracite H

Design (glazed)

Haze


1090 Haze 1 H


1091 Haze 2 H


1093 Haze 3 H


1092 Haze 4 H

Stonewall

1100 Stonewall 1 H


1101 Stonewall 2 H


1102 Stonewall 3 H


1103 Stonewall 4 H

Mega

1110 Mega 1 H


1111 Mega 2 H


1112 Mega 3 H


6251 neutral-grey 1 H


6252 neutral-grey 2 H


6253 neutral-grey 3 H


6254 neutral-grey 4 H

6255 neutral-grey 5 H


6261 grey 1 H


6262 grey 2 H


6263 grey 3 H


6264 grey 4 H

6265 grey 5 H


6271 blue 1 H


6272 blue 2 H


6273 blue 3 H


6274 blue 4 H


6275 blue 5 H


6281 green 1 H


6282 green 2 H


6283 green 3 H


6284 green 4 H


6285 green 5 H

4230 glacier-white, glossy H

4234 chalk-white, matt

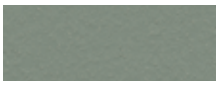

4530 black, glossy H


4534 black, matt H


144 intense blue H


408 red-brown NEW


418 brown
418 brown H


417 patina-green
417 patina-green H

Bosco


1170 Bosco 1 H


1171 Bosco 2 H


1172 Bosco 3 H

Rockface


1115 Rockface 1 H


1116 Rockface 2 H


1117 Rockface 3 H

Metal


1180 Metal 1 H


1181 Metal 2 H


1182 Metal 3 H

Construct


1140 Construct 1 H


1141 Construct 2 H

In addition to the variants shown, the production of individual articles is also possible. After a short check of the individual case for technical and economical feasibility, we will be pleased to provide you with project-specific information.

H = HT coating

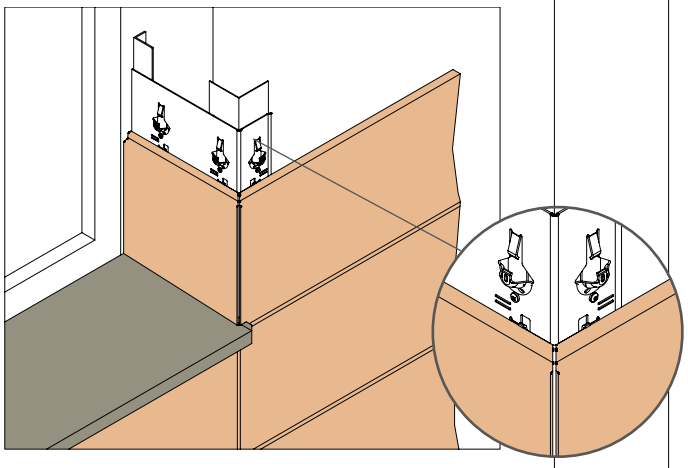
Detail solutions for KeraTwin®

For ensuring the visual and technical perfection of corners and borders as well, AGROB BUCHTAL has developed standard technical details, which can be adapted to the project-specific requirements as needed – also as special production.

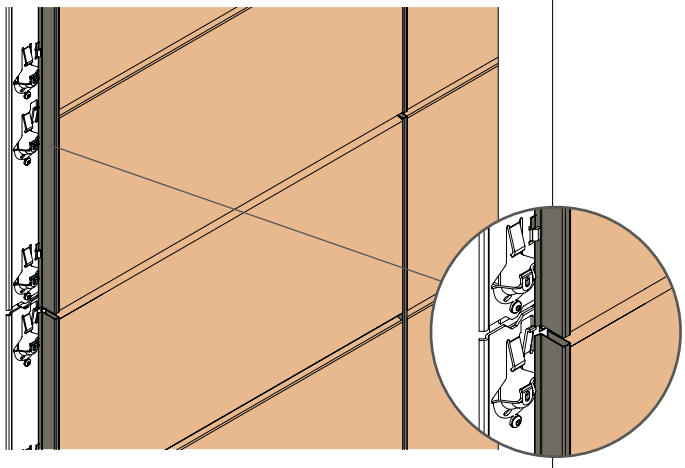
This includes, for example, terminations at windows, doors and the corresponding embrasures, both horizontal and vertical. In addition, mitre-cut panels for corner solutions and practical corner profiles (rectangular or rounded) facilitate the convincing design of problematic facade details.

Beijing Airport Industrial Park / Peking, China /
Architect: Perkins + Will

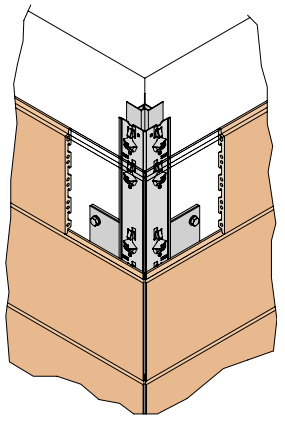
Embrasure KeraTwin®



Joint profile KeraTwin®

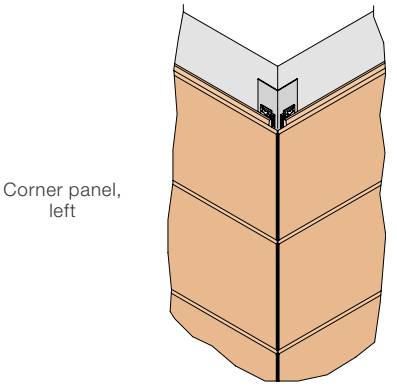


Corner solution with mitre-cut panels



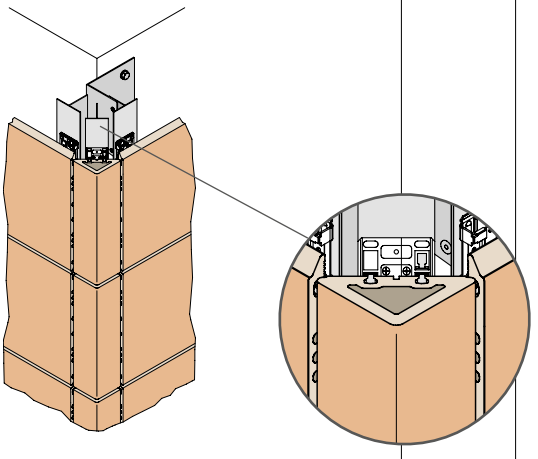
Mitre-cut panel for fastening with system rail K20, Omega profile K20 and T-profile K20

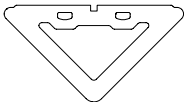
Corner solution with mitre-cut panels / undercut



Mitre-cut panel / undercut for clamp fastening K20

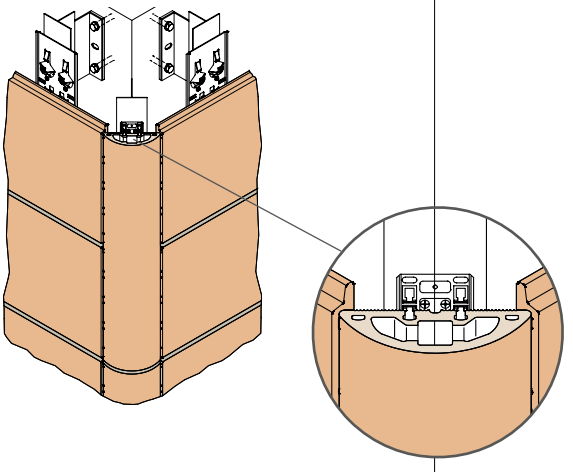
Corner profile 90 *

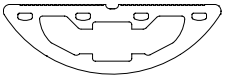




Cross-section of corner profile 90

3D profile *





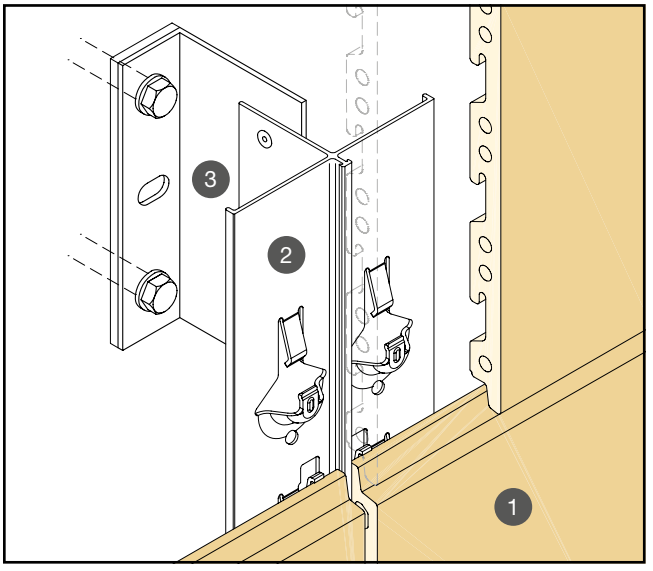
Cross-section of 3D profile

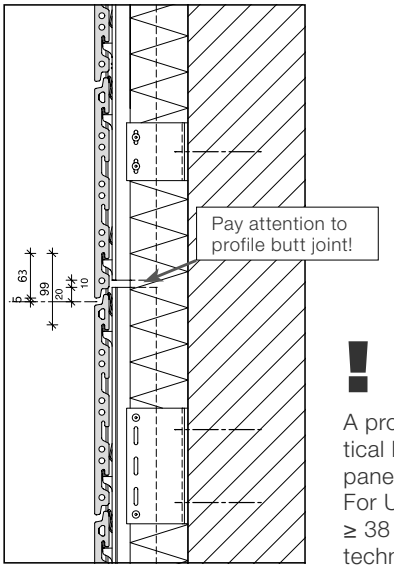
* product-specific details, project-related upon request.

KeraTwin® K20 – Fastening with vertical T-profile K20

System description

The KeraTwin® K20 facade panels are simply hung in the vertical T-profile K20 with the holding grooves on the reverse side. For mounting the panels, no additional tools are required. The compression spring and removal protection integrated in the T-profile K20 prevents clattering and constraining forces in the case of alternating wind loads and also the easy removal of panels. The position of the panels is secured either by means of profile types adjusted to the joint width or by means of spacers for closed or open vertical joints.





!

A profile butt joint of the vertical bearing profiles behind a panel is not allowed!
For UK-Market: cavity ≥ 38 mm. See standard technical detail drawings.

1. Facade panel KeraTwin® K20
2. Vertical T-profile K20, article 698
3. Wall bracket (basic substructure)

Essential system advantages

+ Rapid and simple panel installation with well thought-out system components
+ More rapid and cheaper installation of the substructure thanks to fewer individual components
+ The low panel weight of 32 kg / m² facilitates transport and handling and also permits the use in case of a statically demanding building structure
+ Execution with closed or open vertical joints is possible
+ Great design scope thanks to a wide variety of sizes with standard panel thickness
+ General approval of the construction supervisory authority by “Deutsches Institut für Bautechnik”, Berlin: no. Z-33.1-1175

Mounting instructions for KeraTwin® K20 – Fastening by means of vertical T-profile K20

Mounting instructions as video film:
www.agrob-buchtal.de

Substructure

The mounting of the substructure must be carried out according to project-specific, static calculation.
The general approval Z-33.1-1175 of the construction supervisory authority serves as basis.

- Mount the T-profiles K20 (Art. no. 690, 695, 698) perpendicularly and in a flush way.
- Exactly align the T-profiles K20 horizontally.
- Open vertical joints with T-profile K20 (Art. no. 698) or T-profile K20 (Art. no. 695) with spacer (Art. no. 645).
- Fastening with single-span girder: T-profiles K20 (Art. no. 690, 695, 698)
- Fastening with single-span girder with jib on both sides: T-profile K20 (Art. no. 645); for closed vertical joints, use the plug-in joint profile (Art. no. 647).

Basic substructure

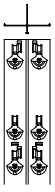
Mount the T-profile with approved fastening means

Hang in the KeraTwin® panels

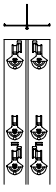
Alternative to T-profile with joint profile: spacer, Art. no. 645 (for open joints)

Accessories: KeraTwin® K20 – Fastening by means of vertical T-profile K20

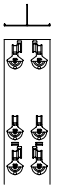
* legally protected



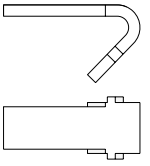
Article 690
T-profile K20 with joint profile, painted*
Material: EN AW-6060 T6
painted black



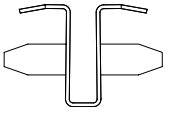
Article 698
T-profile K20 with recessed joint profile, painted*
Material: EN AW-6060 T6
painted black



Article 695
T-profile K20 without joint profile, painted*
Material: EN AW-6060 T6
painted black, for installation with joint spacer K20/8



Article 645
Joint spacer K20/8
Weight: 0.5 kg / box
Material: AlMg3 H22 (EN AW-5754)
Box contents: 250 pieces
painted black



Article 647
Plug-in joint profile K20/8
Material: AlMg3 H22 (EN AW-5754)
painted black
RAL-colour-painted on request for installation in case of single-span girder with jibs
Length: 1496 mm

Profile lengths available: Grid of 20 cm, 25 cm, 30 cm, 37.5 cm, 50 cm: 2992 mm · Grid of 22.5 cm, 32.5 cm: 2917 mm
Grid of 27.5 cm: 3017 mm · Grid of 35 cm, 40 cm: 2792 mm
Grid of 45 cm: 2692 mm

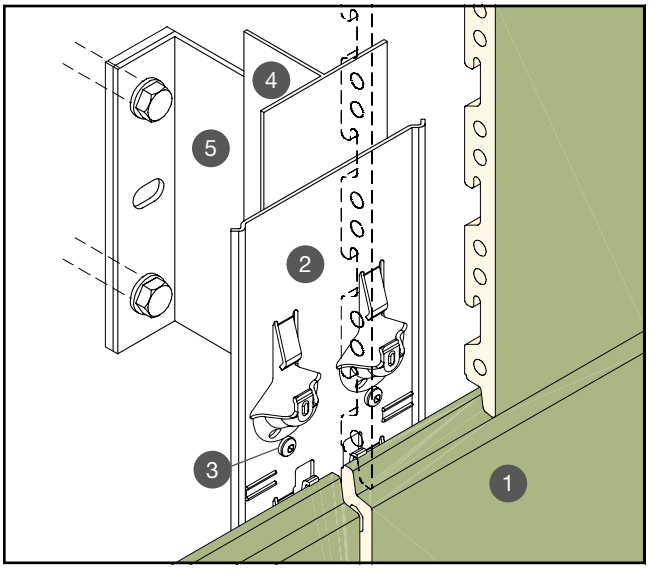
T-profile K20 available for panel grids of 20 cm - 22.5 cm - 25 cm - 27.5 cm - 30 cm - 32.5 cm - 35 cm - 37.5 cm - 40 cm - 45 cm - 50 cm. Other grids on request.

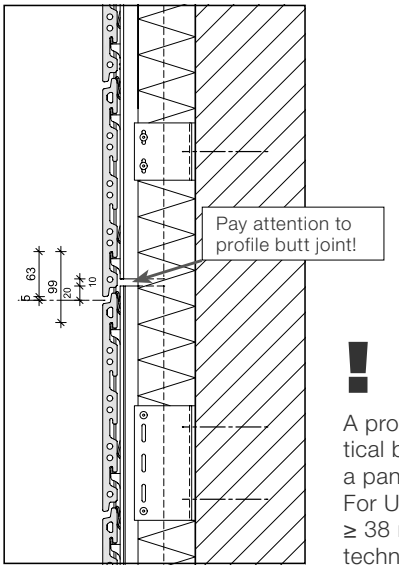
Important: The use of silicone caoutchoucs must be absolutely avoided, because silicone fluids segregate and effect sticky surfaces on which dirt adheres. Therefore, only use the system components mentioned (foamed pieces, EDPM rubber profile, neoprene rubber washer) and pointing, bonding and sealing materials recommended by us. We will be pleased to inform you in detail. The usual final cleaning after completion of the construction works is still required. A warranty for the system KeraTwin® K20 in the scope of the general approval no. Z-33.1-1175 of the construction supervisory authority only applies if the system components shown on these pages are used.

KeraTwin® K20 – Fastening with vertical system rail K20

System description

The KeraTwin® K20 facade panels are simply hung in the vertical system rail with the holding grooves on the reverse side. For mounting the panels, no additional tools are required. The compression spring and removal protection integrated in the system rail prevents clattering and constraining forces in the case of alternating wind loads and also the easy removal of panels. The position of the panels is secured either by means of a joint profile adjusted to the joint width or by means of spacers.





!

A profile butt joint of the vertical bearing profiles behind a panel is not allowed! For UK-Market: cavity ≥ 38 mm. See standard technical detail drawings.

1. Facade panel KeraTwin® K20
2. Vertical system rail K20, article 620
3. A4 stainless steel screw, article 659 (alternatively, fastening with Al blind rivet, article 658, is possible), fixing necessary under each fastening hook!
4. Vertical bearing profile (basic substructure) Minimum width 80 mm / recommended width 100 mm
5. Wall bracket (basic substructure)

Essential system advantages

+ Rapid and simple panel installation with well thought-out system components
+ The low panel weight of 32 kg/m² facilitates transport and handling and also permits the use in case of a statically demanding building structure
+ Extensive range of accessories for various details such as e.g. corner solutions, etc.
+ Execution with joint profile is possible
+ Great design scope thanks to a wide variety of colours, surfaces and sizes with standard panel thickness
+ General approval of the construction supervisory authority by “Deutsches Institut für Bautechnik”, Berlin: no. Z-33.1-1175
+ BBA certificate 13 - 4980

Mounting instructions for KeraTwin® K20 – Fastening by means of vertical system rail K20

Mounting instructions as video film:
www.agrob-buchtal.de

Substructure

The mounting of the substructure must be carried out according to project-specific, static calculation.
The general approval Z-33.1-1175 of the construction supervisory authority serves as basis.

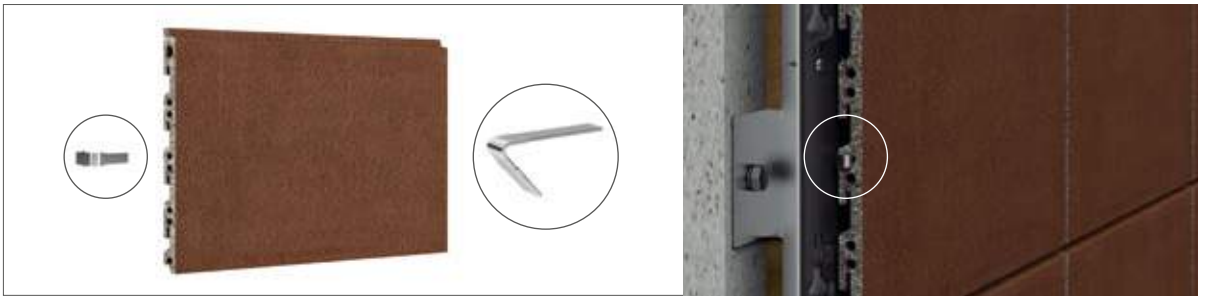
- The profiles of the basic substructure have to be mounted perpendicularly and in a flush way. (T-profile width ≥ 80 mm; recommended width ≥ 100 mm)
- The system rails K20 (Art. no. 620, 625, 630) have to be precisely aligned horizontally and fastened at the provided holes by means of screws (Art. no. 659) or rivets (Art. no. 658).
- The distance of the system rails K20 in horizontal direction must correspond to the longitudinal grid of the panels.
- The length of the vertical profiles must be divisible by the height of the panel format and should not exceed the height of a storey of the building.
- A profile butt joint behind a panel is not allowed.
- In case of open vertical joints, one joint spacer per panel (Art. no. 645) is inserted in a centric extrusion hole of the panel.
- In case of closed vertical joints, the joint profile (Art. no. 640 in case of single-span girder; plug-in joint profile, Art. no. 647, in case of single-span girder with jibs) must be used.

Basic substructure

Fasten system rail with Al blind rivet (Art. no. 658) or A4 stainless steel screw (Art. no. 659)

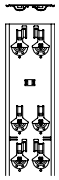
Click in the joint profile (for closed joints)

Hang in the KeraTwin® panels

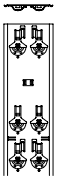


Alternative to the joint profile: spacer, Art. no. 645 (for open joints)

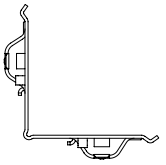
Accessories: KeraTwin® K20 – Fastening with vertical system rail K20



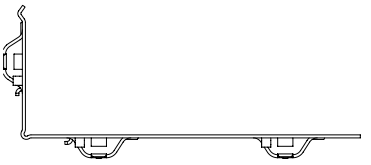
Article 620
System rail, painted*
Material: AlMg3 H22
(EN AW-5754),
painted black, for installation
with joint spacer K20/8



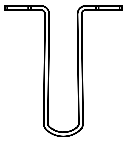
Article 625
System rail, bright*
Material: AlMg3 H22
(EN AW-5754),
unpainted, for installation
with joint profile K20/8



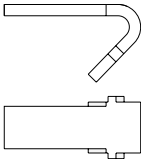
Article 630
System rail, external angle*
Material: AlMg3 H22
(EN AW-5754),
unpainted, for installation
of mitre-cut panels and
external angle profiles



Article 635
Embrasure profile*
Material: AlMg3 H22
(EN AW-5754),
unpainted, dimensions and grid
according to project-specific
requirements



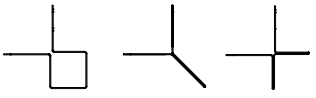
Article 640
Joint profile K20/8
Material: AlMg3 H22
(EN AW-5754),
painted black,
RAL-colour-painted on
request.



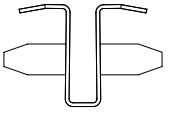
Article 645
Joint spacer K20/8
Weight: 0.5 kg / box
Material: AlMg3 H22
(EN AW-5754)
Box contents: 250 pieces
painted black

Article 658
Al blind rivet, bright
Weight: 1.3 kg / box
Nominal dimensions: 4.8 x 10 mm
Box contents: 500 pieces
for system rail installation

Article 659
A4 stainless steel screw, bright
Weight: 2.8 kg / box
Nominal dimensions: 4.8 x 16 mm
Box contents: 1,000 pieces + 1 bit
for system rail installation



Article 650 / 652 / 654
External angle profile Square /
Sword / Negative
Material: AlMg3 H22
(EN AW-5754),
painted black,
RAL-colour-painted
on request.



Article 647
Plug-in joint profile K20/8
Material: AlMg3 H22
(EN AW-5754)
painted black
RAL-colour-painted on request.
for installation in case of
single-span girder with jibs
Length: 1496 mm

* legally protected

Profile lengths available: Grid of 20 cm, 25 cm, 30 cm, 37.5 cm,
50 cm: 2992 mm · Grid of 22.5 cm, 32.5 cm: 2917 mm
Grid of 27.5 cm: 3017 mm · Grid of 35 cm, 40 cm: 2792 mm
Grid of 45 cm: 2692 mm

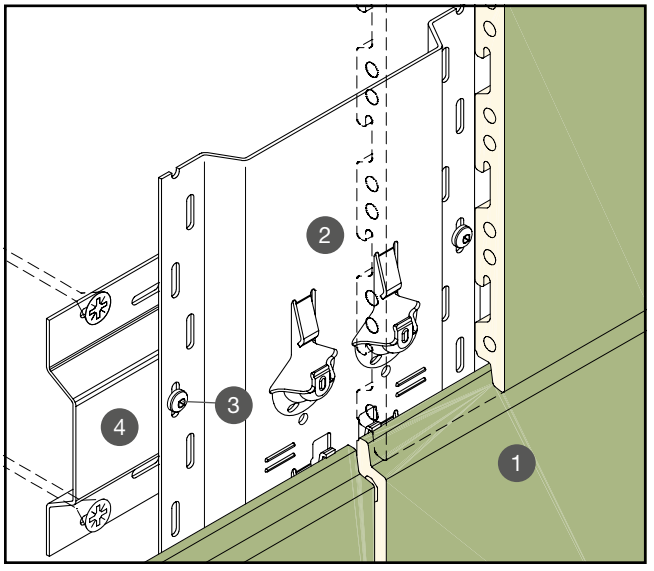
Max. profile length: 320 cm, lengths < 260 cm only available on request. System profiles, joint profile K20/8 and external angle profiles available for panel grids of 20 cm - 22.5 cm - 25 cm - 27.5 cm - 30 cm - 32.5 cm - 35 cm - 37.5 cm - 40 cm - 45 cm - 50 cm. Other grids on request.

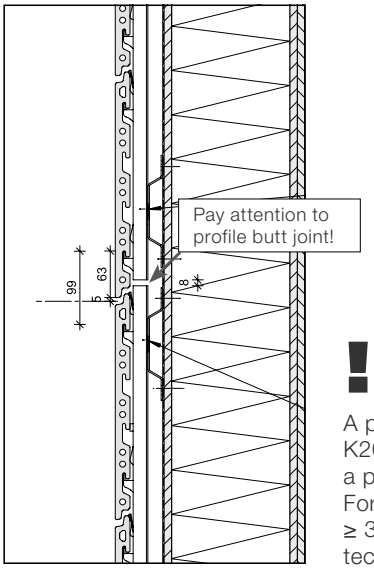
Important: The use of silicone caoutchoucs must be absolutely avoided, because silicone fluids segregate and effect sticky surfaces on which dirt adheres. Therefore, only use the system components mentioned (foamed pieces, EDPM rubber profile, neoprene rubber washer) and pointing, bonding and sealing materials recommended by us. We will be pleased to inform you in detail. The usual final cleaning after completion of the construction works is still required. A warranty for the system KeraTwin® K20 in the scope of the general approval no. Z-33.1-1175 of the construction supervisory authority only applies if the system components shown on these pages are used.

KeraTwin® K20 – Fastening with vertical Omega profile K20

System description

The Omega profile stands out due to its simple and efficient installation on difficult bases such as e.g. walls with post and beam construction. Horizontal bearing profiles are fixed at the posts. The vertical Omega profiles can then be arranged independent of the distance between the posts, and the panel lengths can be freely planned. The complex system structure with dowel, wall bracket and vertical bearing profile is not required. The subsequent laying of the ceramics is carried out as in the case of the system rail K20. The KeraTwin® K20 facade panels are simply hung in the vertical Omega profile with the holding grooves on the reverse side. No additional tools are required for mounting the panels. The compression spring and removal protection integrated in the Omega profile prevents clattering and constraining forces in the case of alternating wind loads and also the easy removal of panels. The position of the panels is secured either by means of a joint profile adjusted to the joint width or by means of spacers.





!

A profile butt joint of the K20 Omega profiles behind a panel is not allowed! For UK-Market: cavity ≥ 38 mm. See standard technical detail drawings.

1. Facade panel KeraTwin® K20
2. Vertical Omega profile K20, article 624
3. A4 stainless steel screw, article 659 (alternatively, fastening with Al blind rivet, article 658, is possible)
4. Horizontal bearing profile (basic substructure)

Essential system advantages

+ Rapid and simple panel installation with well thought-out system components
+ Efficient installation on difficult wall constructions such as e.g. post and beam construction
+ The low panel weight of 32 kg / m² facilitates transport and handling and also permits the use in case of a statically demanding building structure
+ Extensive range of accessories for various details such as e.g. corner solutions, etc.
+ Execution with joint profile is possible
+ Great design scope thanks to a wide variety of sizes with standard panel thickness
+ General approval of the construction supervisory authority by “Deutsches Institut für Bautechnik”, Berlin: no. Z-33.1-1175

Mounting instructions for KeraTwin® K20 – Fastening by means of vertical Omega profile K20

Mounting instructions as video film:
www.agrob-buchtal.de

Substructure

The mounting of the substructure must be carried out according to project-specific, static calculation.
The general approval Z-33.1-1175 of the construction supervisory authority serves as basis.

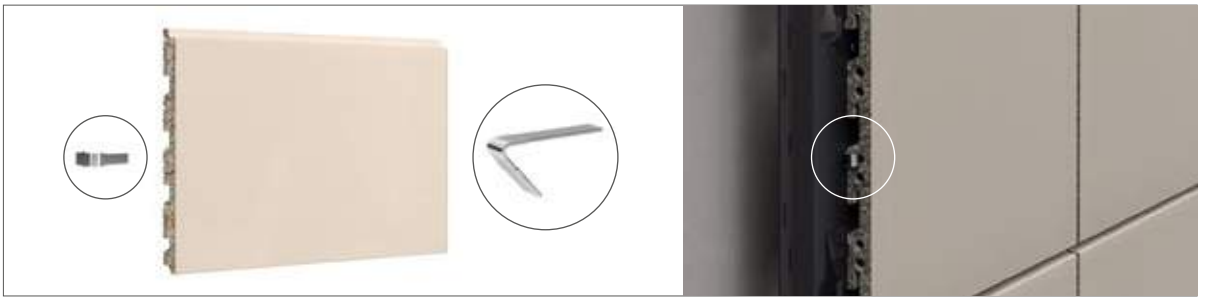
- The profiles of the basic substructure have to be mounted perpendicularly and in a flush way (top-hat or alternatively Z-profile).
- The Omega profiles K20 (Art. no. 624, 627, 633) have to be precisely aligned horizontally and be fixed through the long holes provided on the edge by means of screws (Art. no. 659) or rivets (Art. no. 658). (Pay attention to fixed and sliding point execution!)
- The distance of the rails in horizontal direction must correspond to the longitudinal grid of the panels.
- A profile butt joint behind a panel is not allowed.
- In case of open vertical joints, one joint spacer per panel (Art. no. 645) is inserted in a centric extrusion hole of the panel.
- In case of closed vertical joints, the joint profile (Art. no. 640 in case of single-span girder; plug-in joint profile, Art. no. 647, in case of single-span girder with jibs) must be used.

Basic substructure

Fasten Omega profile with Al blind rivet (Art. no. 658) or A4 stainless steel screw (Art. no. 659) (Pay attention to fixed and sliding point)

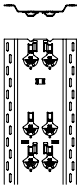
Click in the joint profile (for closed joints)

Hang in the KeraTwin® panels

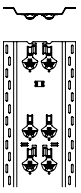


Alternative to the joint profile: spacer, Art. no. 645 (for open joints)

Accessories: KeraTwin® K20 – Fastening by means of vertical Omega profile K20



Article 624
Omega profile, painted*
Material: AlMg3 H22
(EN AW-5754),
painted black, for installation
with joint spacer K20/8

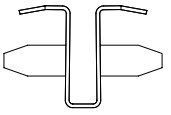


Article 627
Omega profile, bright*
Material: AlMg3 H22
(EN AW-5754),
unpainted, for installation
with joint profile K20/8

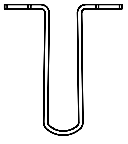
Article 633
Omega profile, external angle*
Material: AlMg3 H22
(EN AW-5754),
unpainted, for the installation of
mitre-cut panels and external
angle profiles

Article 658
Al blind rivet, bright
Weight: 1.3 kg / box
Nominal dimensions: 4.8 x 10 mm
Box contents: 500 pieces
for Omega profile installation

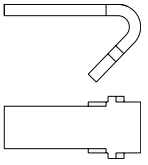
Article 659
A4 stainless steel screw, bright
Weight: 2.8 kg / box
Nominal dimensions: 4.8 x 16 mm
Box contents: 1,000 pieces + 1 bit
for Omega profile installation



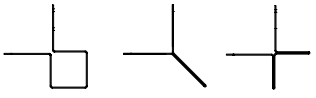
Article 647
Plug-in joint profile K20/8
Material: AlMg3 H22
(EN AW-5754)
painted black
RAL-colour-painted on request
for installation in case of
single-span girder with jib
Length: 1496 mm



Article 640
Joint profile K20/8
Material: AlMg3 H22
(EN AW-5754),
painted black,
RAL-colour-painted on request



Article 645
Joint spacer K20/8
Weight: 0.5 kg / box
Material: AlMg3 H22
(EN AW-5754)
Box contents: 250 pieces
painted black



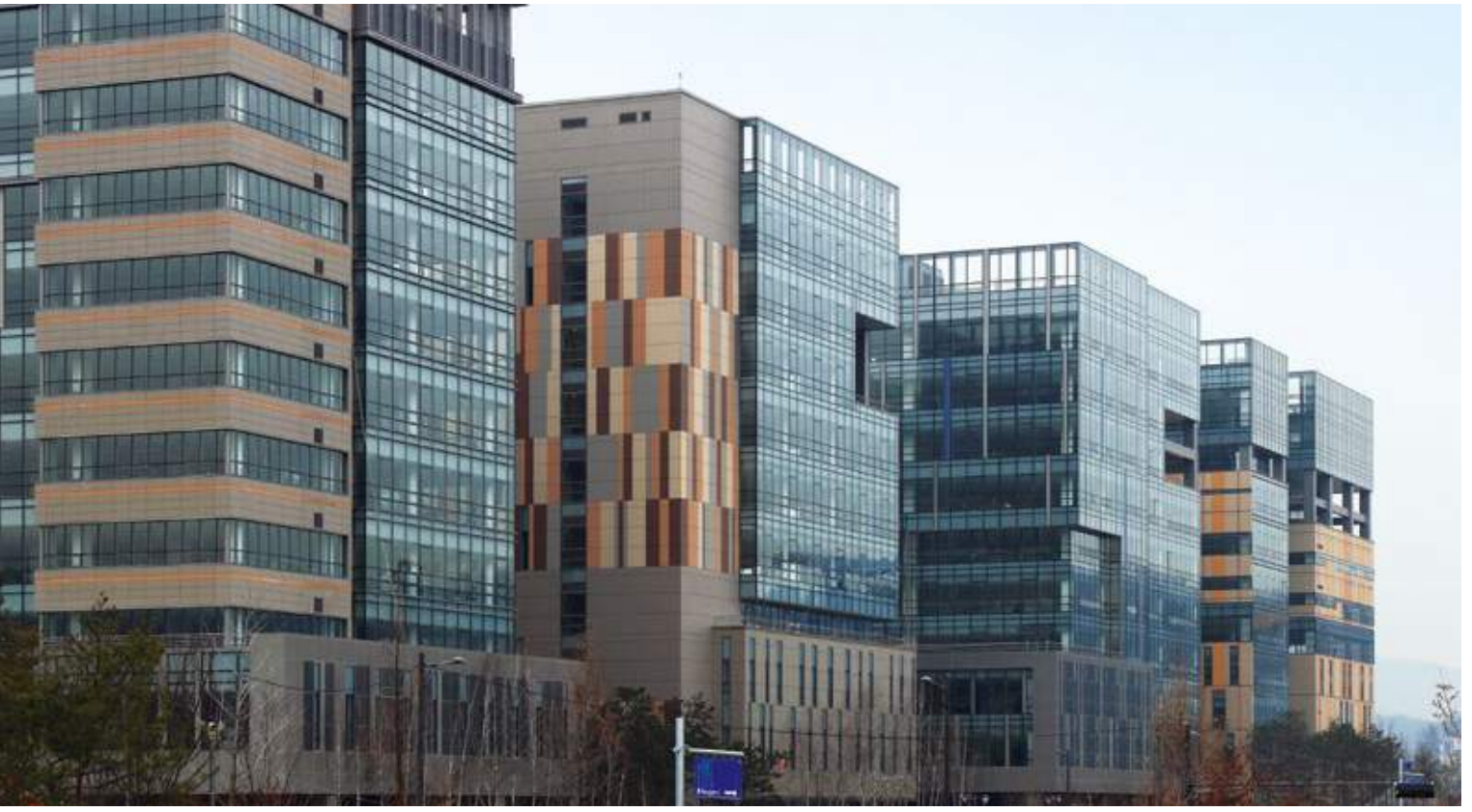
Article 650 / 652 / 654
External angle profile
Square / Sword / Negative
Material: AlMg3 H22
(EN AW-5754),
painted black,
RAL-colour-painted on request

* legally protected

Profile lengths available: Grid of 20 cm, 25 cm, 30 cm, 37.5 cm, 50 cm: 2992 mm · Grid of 22.5 cm, 32.5 cm: 2917 mm Grid of 27.5 cm: 3017 mm · Grid of 35 cm, 40 cm: 2792 mm Grid of 45 cm: 2692 mm. Profile depths: 20 and 50 mm

Max. profile length: 320 cm, lengths < 260 cm only available on request. Omega profiles available for panel grids of 20 cm - 22.5 cm - 25 cm - 27.5 cm - 30 cm - 32.5 cm - 35 cm - 37.5 cm - 40 cm - 45 cm - 50 cm. Other grids on request. Profile depth: 20 mm or 50 mm

Important: The use of silicone caoutchoucs must be absolutely avoided, because silicone fluids segregate and effect sticky surfaces on which dirt adheres. Therefore, only use the system components mentioned (foamed pieces, EDPM rubber profile, neoprene rubber washer) and pointing, bonding and sealing materials recommended by us. We will be pleased to inform you in detail. The usual final cleaning after completion of the construction works is still required. A warranty for the system KeraTwin® K20 in the scope of the general approval no. Z-33.1-1175 of the construction supervisory authority only applies if the system components shown on these pages are used.

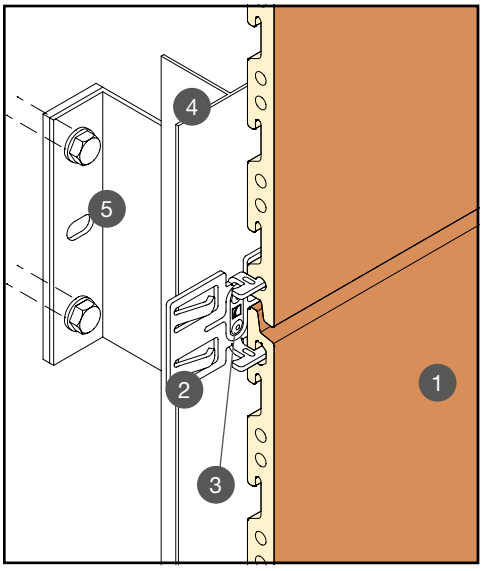


KeraTwin® K20 – Fastening with clamp system K20

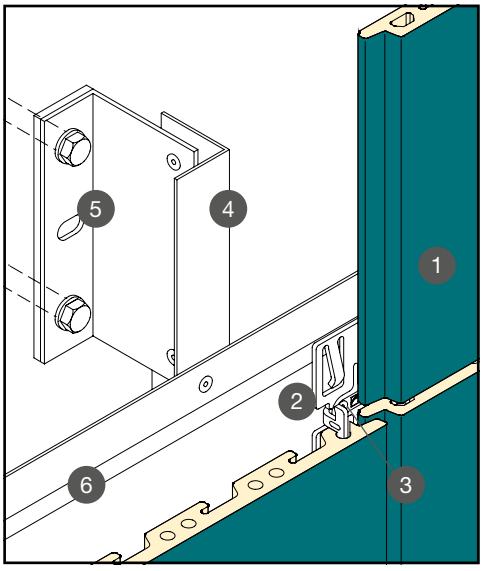
System description

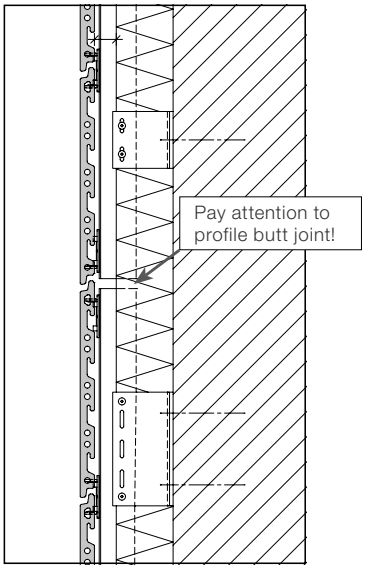
The KeraTwin® K20 facade panels with a maximum panel length of 135 cm are fixed by means of the clamps K20, which laterally engage with the channels of the facade panel. The compression spring integrated in the clamps prevents clattering and constraining forces in the case of alternating wind loads.

Horizontal installation



Vertical installation





1. Facade panel KeraTwin® K20, max. panel length: 135 cm
2. Twin-clamp K20, article 680
3. Stainless steel blind rivet, article 675
4. Vertical bearing profile (basic substructure)
5. Wall bracket (basic substructure)
6. Horizontal bearing profile (basic substructure)

! A profile butt joint of the vertical bearing profiles behind a panel is not allowed! For UK-Market: horizontal installation – cavity ≥ 38 mm; vertical installation – cavity ≥ 50 mm. See standard technical detail drawings.

Essential system advantages

+ Rapid and proven panel installation with well thought-out system components
+ The low panel weight of 32 kg / m² facilitates transport and handling and also permits the use in case of a statically demanding building structure
+ Horizontal and vertical installation is possible
+ Execution with joint profile is possible
+ Panel installation on ceilings is possible
+ Great design scope thanks to a wide variety of colours, surfaces and sizes with standard panel thickness
+ General approval of the construction supervisory authority by “Deutsches Institut für Bautechnik”, Berlin: no. Z-33.1-1175
+ BBA certificate 13 - 4980

Mounting instructions for KeraTwin® K20 – Fastening with clamp system K20

Mounting instructions as video film:
www.agrob-buchtal.de

Substructure

The mounting of the substructure must be carried out according to project-specific, static calculation. The general approval Z-33.1-1175 of the construction supervisory authority serves as basis.

- The profiles of the basic substructure have to be mounted perpendicularly and in a flush way.
- The distance of the bearing profiles (profile width ≥ 60 mm) in horizontal direction must correspond to the longitudinal grid of the panels.
- The length of the vertical profiles must be divisible by the height of the panel format and should not exceed the height of a storey of the building.
- A profile butt joint behind a panel is not allowed.
- In the vertical joints, the black joint tape (Art. no. 506) can be applied.
- The clamps (Art. no. 680, 681, 682, 683, 684) must be fastened with at least 2 rivets (Art. no. 675).
- For the processing of the rivets (Art. no. 675), an extended rivetting tool (25 mm) is required.
- In the area of the clamp fastening, the joints can be closed with the joint profile (Art. no. 688) and one holding clip for joint profile (Art. no. 689) per panel.

Basic substructure

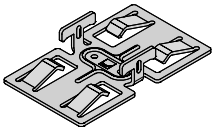
Apply joint tape on vertical bearing profiles

Fasten edge-clamps with stainless steel blind rivet (Art. no. 675)

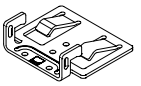
Mount the KeraTwin® panels in vertical rows

Termination with edge-clamps

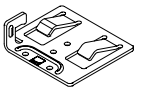
Accessories: KeraTwin® K20 – Fastening by means of clamp system K20



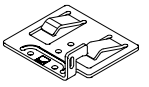
Article 680
Twin-clamp K20*
Weight: 45 kg / 1,000 pieces
Perforation: 2 x 3.3 mm Ø
Material: AlMg3 H22
(EN AW-5754),
painted black



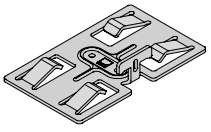
Article 681
Edge-clamp K20*
Weight: 24 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Material: AlMg3 H22
(EN AW-5754),
painted black



Article 682
Edge-clamp K20, left
Weight: 24 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Material: AlMg3 H22
(EN AW-5754),
painted black



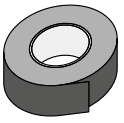
Article 683
Edge-clamp K20, right
Weight: 24 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Material: AlMg3 H22
(EN AW-5754),
painted black



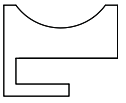
Article 684
Single-clamp K20
Weight: 45 kg / 1,000 pieces
Perforation: 2 x 3.3 mm Ø
Material: AlMg3 H22
(EN AW-5754),
painted black

Clamp delivery:
– Twin- and single-clamps: 7 pieces/string
– Edge-clamps: 13 pieces/string

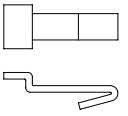
Article 675
Stainless steel blind rivet, black
Weight: 1.05 kg / box
Nominal dimensions: 3.2 x 9.5 mm
Box contents: 500 pieces
extended mandrel (58 mm)



Article 506
Joint tape, black
Weight: 0.5 kg / roll
Nominal dimensions:
40 mm wide, 50 m
self-adhesive, weather-resistant



Article 688
Joint profile
Material: EN AW 6063 T66
painted black
RAL-colour-painted
on request
Length: 1496 mm



Article 689
Holding clip for joint profile
Material: AlMg1
(EN AW 5005 A)
unpainted
Box contents: 100 pieces

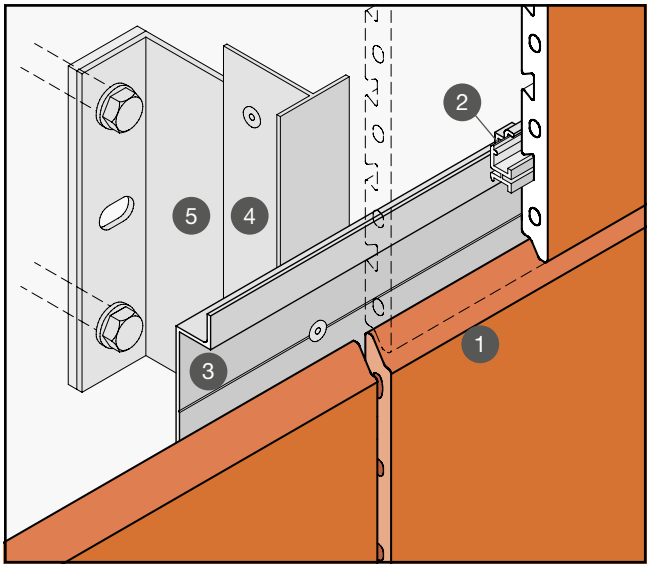
* legally protected

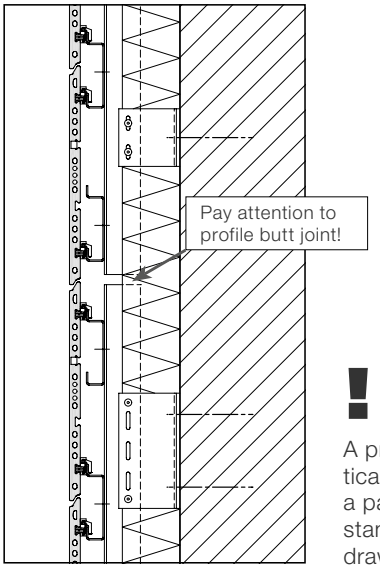
Important: The use of silicone caoutchoucs must be absolutely avoided, because silicone fluids segregate and effect sticky surfaces on which dirt adheres. Therefore, only use the system components mentioned (foamed pieces, EDPM rubber profile, neoprene rubber washer) and pointing, bonding and sealing materials recommended by us. We will be pleased to inform you in detail. The usual final cleaning after completion of the construction works is still required. A warranty for the system KeraTwin® K20 in the scope of the general approval no. Z-33.1-1175 of the construction supervisory authority only applies if the system components shown on these pages are used.

KeraTwin® K18 – with adapter fastening

System description

The facade panels KeraTwin® K18 have dovetail grooves on the back into which at least four adapters per panel are pushed (symmetrical arrangement). The position of the adapters in the panel depends on the static requirements. The KeraTwin® K18 panel is hung in horizontally installed supporting rails by means of these adapters. The stainless steel springs inserted in the adapters serve for the nonrigid installation. A spacer put in the grooves, which is adjusted to the joint width, secures the position of the panels.





!

A profile butt joint of the vertical bearing profiles behind a panel is not allowed! See standard technical detail drawings.

1. Facade panel KeraTwin® K18
2. Complete adapter, article 596
3. Horizontal supporting rail, article 597
4. Vertical bearing profile (basic substructure)
5. Wall bracket (basic substructure)

Essential system advantages

+ Rapid panel installation with well thought-out system components
+ The low panel weight of 32 kg/m² facilitates transport and handling and also permits the use in case of a statically demanding building structure
+ Installation in semi-bond or irregular bond is possible
+ Great design scope thanks to a wide variety of sizes with a panel thickness of 18 mm

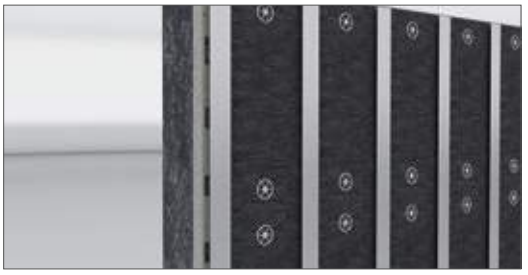
Mounting instructions for KeraTwin® K18 – with adapter fastening

Mounting instructions as video film:
www.agrob-buchtal.de

Substructure

The mounting of the substructure must be carried out according to project-specific, static calculation.

- The profiles of the basic substructure have to be mounted perpendicularly and in a flush way.
- The horizontal supporting rails (Art. no. 597) are installed according to the vertical grid of the panels.
- For securing the position of the panels, insert one spacer (Art. no. 645) per panel in a centric extrusion hole.



Basic substructure

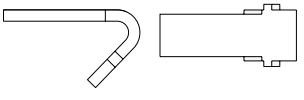
Mount the horizontal supporting rail with approved fastening means

Push the adapters (Art. no. 596) in the grooves on the back – at least 4 adapters per panel

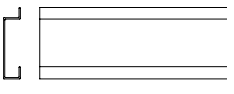
Hang the KeraTwin® panels with the adapters in the horizontal rails – for securing the position of the panels, use joint spacers (Art. no. 645)

Accessories: KeraTwin® K18 with adapter fastening

Article 596
Complete adapter
Weight: 15 kg / box
Material: EN AW 6063 T66
Box contents: 1,000 pieces



Article 645
Joint spacer K20/8
Weight: 0.5 kg / box
Material: AlMg3 H22 (EN AW-5754)
Box contents: 250 pieces,
painted black



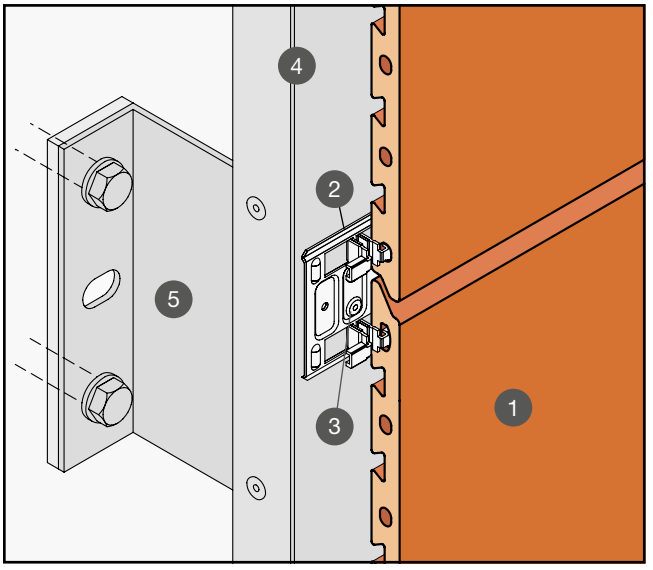
Article 597
Horizontal supporting rail
Standard length: 2995 mm
Nominal dimensions: 105/90x25mm
Material: EN AW 6063 T66
unpainted

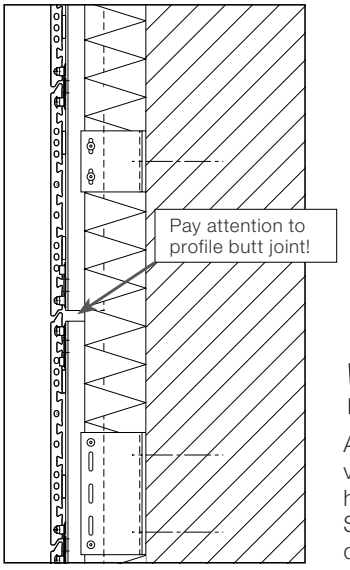
Important: The use of silicone caoutchoucs must be absolutely avoided, because silicone fluids segregate and effect sticky surfaces on which dirt adheres. Therefore, only use the system components mentioned (foamed pieces, EDPM rubber profile, neoprene rubber washer) and pointing, bonding and sealing materials recommended by us. We will be pleased to inform you in detail. The usual final cleaning after completion of the construction works is still required.

KeraTwin® K18 – with clamp fastening

System description

The facade panels KeraTwin® K18 are fixed laterally in the channels of the facade panels by means of the stainless steel clamps of system KT. To prevent clattering and constraining forces in the case of alternating wind loads, the facade panels are installed on the substructure in a nonrigid way by using foamed pieces or alternatively with polyurethane.





!

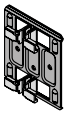
A profile butt joint of the vertical bearing profiles behind a panel is not allowed! See standard technical detail drawings.

1. Facade panel KeraTwin® K18
2. Twin-clamp KT, article 360
3. Stainless steel blind rivet, article 675
4. Vertical bearing profile (basic substructure)
5. Wall bracket (basic substructure)

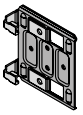
Essential system advantages

+ Rapid and proven panel installation with well thought-out system components
+ The low panel weight of 32 kg/m² facilitates transport and handling and also permits the use in case of a statically demanding building structure
+ Horizontal and vertical installation is possible
+ Panel installation on ceilings is possible
+ Great design scope thanks to a wide variety of sizes

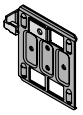
Accessories: KeraTwin® K18 with clamp fastening



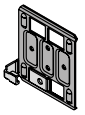
Article 360
Twin-clamp KT
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted black
Material: 1.4571



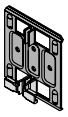
Article 361
Edge-clamp KT
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted black
Material: 1.4571



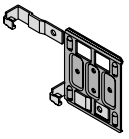
Article 362
Edge-clamp KT, left
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted black
Material: 1.4571



Article 363
Edge-clamp KT, right
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted black
Material: 1.4571



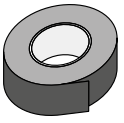
Article 364
Single-clamp KT
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted black
Material: 1.4571



Article 365
Terminal-clamp KT
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted black
Material: 1.4571

Article 675
Stainless steel blind rivet, black
Weight: 1.05 kg / box
Nominal dimensions: 3.2 x 9.5 mm
Box contents: 500 pieces
extended mandrel (58 mm)

Article 347-01
Foamed piece*
Weight: 1.80 kg / roll
Nominal dimensions: 20 x 30 x 8 mm
Roll: 1,380 pieces / roll
self-adhesive



Article 506
Joint tape, black
Weight: 0.5 kg / roll
Nominal dimensions: 40 mm wide, 50 m
self-adhesive,
weather-resistant

* Alternatively, the nonrigid installation of the panels is also possible with PUR or MS polymer bonding materials. Suitable products on request.

Important: The use of silicone caoutchoucs must be absolutely avoided, because silicone fluids segregate and effect sticky surfaces on which dirt adheres. Therefore, only use the system components mentioned (foamed pieces, EDPM rubber profile, neoprene rubber washer) and pointing, bonding and sealing materials recommended by us. We will be pleased to inform you in detail. The usual final cleaning after completion of the construction works is still required.

Pauley Pavilion, UCLA University of California, Los Angeles, USA /
Architect: NBBJ, Los Angeles, USA / Completion: 2012 /
KeraTwin® (K20), vertical system rail, special colour cream-beige

Versatile: KeraTwin®

The strong points of KeraTwin® are an enormous variety of formats, colours and surfaces with different fastening systems, which permit an efficient and safe laying even on difficult bases, the unique HT coating for permanent cleanliness and a relatively low weight per unit area. Thanks to these advantages, the system meets the requirements of the most diverse architectural design concepts in different culture areas and climate zones.

This versatility is shown by the reference projects on the following pages. The architects and planners have one thing in common: they use KeraTwin® for realizing their individual ideas with regard to technical and aesthetic aspects. And they do it all over the world: from the north of Sweden to South Africa, from Canada to China. The spectrum of projects extends from hotels, office buildings and clinics to schools, residential buildings and sports facilities such as the Pauley Pavilion in Los Angeles, which was awarded the Green Building Seal LEED Gold in 2012.

In harmony with nature

The Orchard Hotel is situated in a spacious park with an old tree population and fruit orchards. The essential idea of the planning concept was to integrate the hotel with 200 beds in the landscape as harmoniously as possible. It was realized with more than 2,500 m² of KeraTwin® facade ceramics in 180 variants.

Project:	Orchard Hotel, Nottingham, Great Britain
Architect:	RHWL Architects, London
Year:	2013
Products:	KeraTwin® (K20), special colours, clamp fastening

Working with a view

The building with a height of more than 100 m is one of the highest office blocks in Latin America. On its facade, more than 6,000 m^2 of KeraTwin® ceramic facade elements were installed, which are permanently resistant to the damp climate thanks to the HT coating.

Project:	Centro Empresarial Senado, Rio de Janeiro, Brazil
Architect:	Edo Rocha, Sao Paulo
Year:	2012
Products:	KeraTwin® (K20), system rail

Snakeskin

The speciality of NIO Architecten is to lend ordinary projects a particular poetry. This has also been successfully realized with the design concept of a wall at Hoofddorp near the Schiphol airport. The snakeskin look also shows the contemporary interest in ornaments – executed with square KeraTwin® panels in different colours and structures.

Project:	Slangenwand, Hoofddorp, Netherlands
Architect:	NIO Architecten, Rotterdam
Year:	2012
Products:	KeraTwin®, individual substructure

Colourful everyday life

A spectacular example for everyday architecture is the housing complex “Ting 1” at Örnsköldsvik in the north of Sweden. The architect Gert Wingårdh contrasted the rough concrete block of the old town hall with a playful apartment building with a precisely defined colour range. Glazed facade panels of the series KeraTwin® were used.

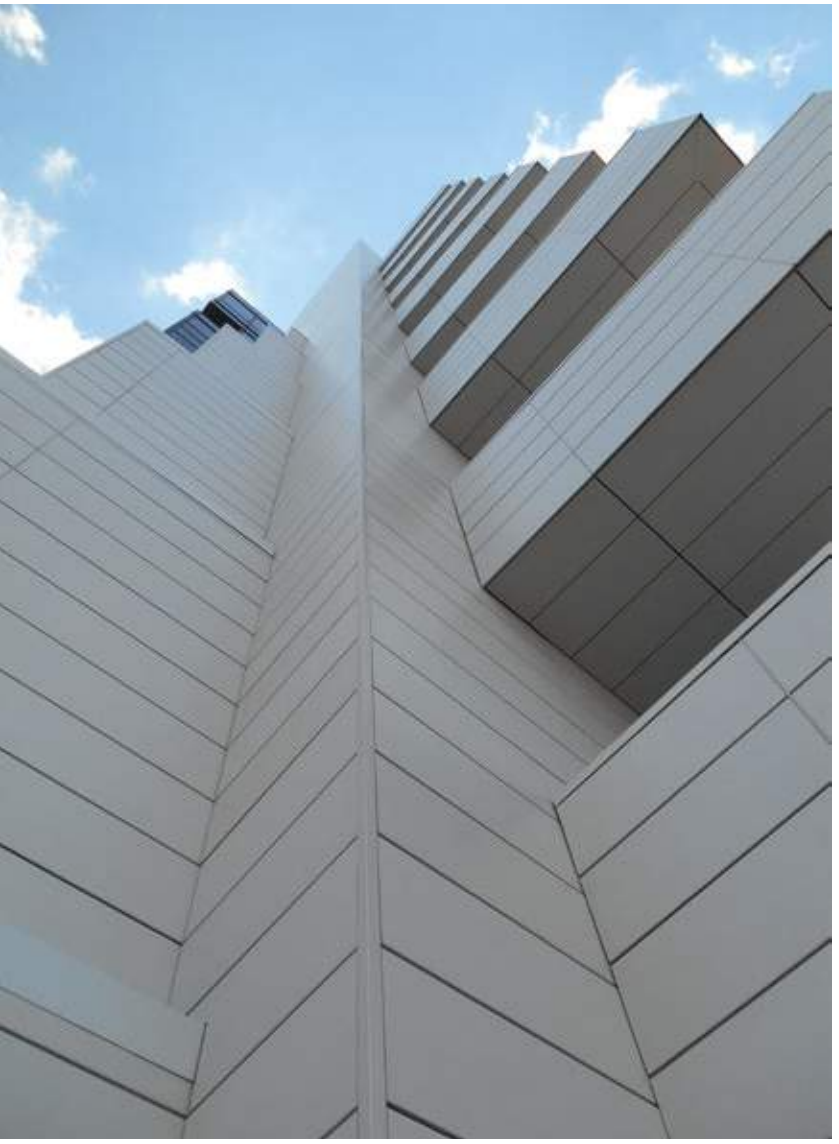
Project:	Ting 1, Örnsköldsvik, Sweden
Architect:	Wingårdh Arkitektkontor AB, Göteborg/Stockholm/Malmö
Year:	2013
Products:	KeraTwin® (K20), special colours

The state before the renovation

Landmark with a new appearance

The building formerly known as “Volkskas Building” is one of the most striking landmarks of Pretoria. A restoration of the old facade was not possible any more. The architects decided to use KeraTwin®, whose colour was adapted to the ancient look as closely as possible in order to conserve the monument character of the historic building. AGROB BUCHTAL supplied 31,000 m² of facade cladding.

Project:	Pretoria Tower, Pretoria, South Africa
Architect:	Boogertman + Partners, Pretoria
Year:	2014
Products:	KeraTwin® (K20)



The new building shell

Theory of colours

For the extension of the Garching West primary school, the architects decided in favour of a colourful facade in eight specifically defined special colours exclusively produced for this project. Thus, already the school building picks up the motto of the school: “a place to enjoy learning”.

Project:	Grundschule Garching West (primary school), Garching, Germany
Architect:	Coplan AG, Garching
Year:	2013
Products:	KeraTwin® (K20), system rail, special colours

Striking arena

Glass, metal and ceramics form the material mix of the company headquarters of the Pay-TV network Sky at München-Unterföhring. The colour of the tile body was adapted to the dark-grey glaze in order to prevent the unwanted shining through of the normally light supporting material even despite the significant bend of the facade.

Project:	Sky, Munich, Germany
Architect:	Ute-Maria Kranz, construction management division of Commerz Real AG
Year:	2011
Products:	KeraTwin® (K18)

Glacier-white eye-catcher

The building, which houses a medical facility as well as a pharmacy and a fitness centre, is the new eye-catcher of the small town of Chicoutimi. The pure look of the white glossy large formats will permanently retain its effect thanks to the HT surface. The Omega profile was the optimal solution for the installation on a metal post construction.

Project:	80 Racine St., Chicoutimi, Québec, Canada
Architect:	Hovington & Gauthier Architectes, Chicoutimi, Québec
Year:	2012
Products:	KeraTwin® K20, Omega profile, white, glossy

Modern Stockholm

In co-operation with the facade specialist Staticus, the existing building was renovated and partly extended. The double-skin facade of transparent and opaque elements presents a timeless material mix of glass, metal and ceramic elements.

Project:	Kv. Uarda, Solna, Stockholm, Sweden
Architect:	Anders Arfvidsson, White arkitekter AB Facade contractor Staticus
Year:	2012
Products:	KeraTwin® (K18), special colours and formats

A school with a view

The school for sea, energy and production engineering (ZEP) is situated in one of the most beautiful places of Delfzijl: next to the sea lock of the old Ems Canal with panoramic view over the harbour and the Ems. As new landmark of the harbour region, the ceramic facade with HT coating will resist wind and weather also in future and will permanently retain its glossy white.

Project:	ZEP School, Farmsum/Delfzijl, Netherlands
Architect:	Jongsma Dijkhuis Architektenbureau, Delfzijl
Year:	2012
Products:	KeraTwin®, white, glossy

Modern apartment buildings

On the former premises of a film-studio, a modern apartment complex was created up to 2011. The excellent energy efficiency of the construction and the variable apartment sizes make the Antakalnio Terraces a living experience in a preferred residential area, which is affordable for many people.

Project:	Antakalnio terasos, Vilnius, Lithuania
Architect:	JP Architecture, Vilnius
Year:	2011
Products:	KeraTwin® (K20), clamp fastening, black

Sports centre with ecological seal

The Edwin W. Pauley Pavilion on the campus of the University of California was inaugurated in 1965 and can receive 13,000 spectators today. Besides the home matches of the university's basketball team UCLA Bruins and sports meetings, other events and concerts also take place there. From 2010 to 2012, the building was extensively renovated and was awarded the Green Building Seal LEED Gold.

Project:	Pauley Pavilion, UCLA University of California, Los Angeles, USA
Architect:	NBBJ, Los Angeles
Year:	2012
Products:	KeraTwin® (K20), vertical system rail, special colour cream-beige

KerAion®
A classic in modern design

Used world-wide for decades, the KerAion® facade system also offers – besides low weight and special fastening technique – alternatives to the otherwise quite usual board formats. In addition to rectangular panels, square panels in the large formats of 60 x 60 cm, 90 x 90 cm and 120 x 120 cm are also available, which are particularly suitable for the facade design of big buildings. All versions and formats received the general approval of the construction supervisory authority and also prove themselves in case of a statically demanding building structure.

A high degree of creative freedom is ensured by the colour range. It is based on SpectraView, the range of nine colour families matched to each other and several contrasting colours, which was developed by the colour designer Peter Zoernack. It is completed by the "Design glazed" colours.

The KerAion® panels can be installed both with visible and invisible fastening. KerAion® Quadro with a weight per unit area of 18.5 kg/m² and a thickness of 8 mm is mounted either by means of clasps (in case of the standard dimensions of 60 x 60 cm and 60 x 90 cm) or bearing profile (formats 60 x 120 cm, 90 x 90 cm, 90 x 120 cm and 120 x 120 cm). KerAion® K8 (standard dimensions of 60 x 60 cm, 60 x 90 cm, 90 x 90 cm), also 8 mm thin and with a weight of 18 kg/m², is designed for the fastening by means of clamps. Optionally, safety tapes are available for all formats, which are applied to the panel reverse side already in-plant and prevent larger pieces from falling down if a panel is damaged.

Architects attaching importance to a particularly uniform joint pattern decide in favour of KerAion® Quadro with invisible fastening by means of clasps or bearing profiles (depending on the panel size). In addition, the system offers the advantage that a weakening of the facade panels by undercut anchors is avoided. KerAion® K8 with visible clamp fastening – with the colour of the clamp lips being matched to the design of the ceramic panel – offers other advantages: above all the rapid installation with well thought-out system components, both on metal and wooden substructure.

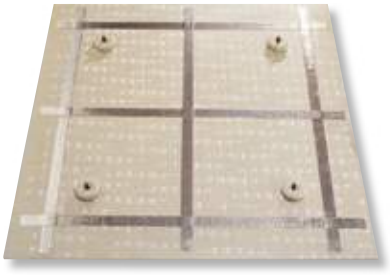
Baarcity, Baar, Switzerland /
Theo Holz Partner AG, Zurich
Completion: 2010

Surfaces for KerAion®

Elegant look

With their smooth, silky-matt surface, KerAion® panels lend every facade an elegant look. Individual design concepts are supported by the wide colour range.

KerAion® Quadro / KerAion® K8



KerAion® Quadro with safety tape

KerAion® K8 with safety tape

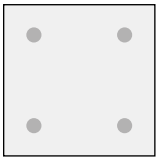
Safety tapes

With the safety tapes, AGROB BUCHTAL optionally offers a safety system specially matched to the KerAion® facade panels. The safety tapes applied to the panel reverse side in-plant prevent larger pieces from falling down if panels are damaged mechanically.

Formats for KerAion® Quadro

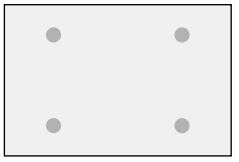
Extruded Ceramic Panels, Precision, DIN EN 14411, group AI_b,
glazed (GL), (large-size stoneware panels), 8 mm thick, 18.5 kg/m²

Standard sizes (grid size / work size)	invisible fastening with clasps: 60 x 60 cm / 592 x 592 mm, 60 x 90 cm / 592 x 892 mm invisible fastening with bearing profile: 60 x 120 cm / 592 x 1192 mm, 90 x 90 cm / 892 x 892 mm, 90 x 120 cm / 892 x 1192 mm, 120 x 120 cm / 1192 x 1192 mm Other sizes available on request.



Fastening with clasps

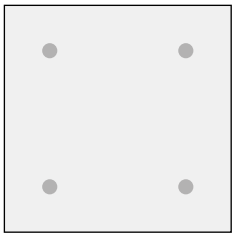
Article Q100HK
60 x 60 cm



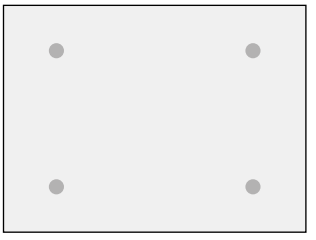
Article Q104HK
60 x 90 cm

Fastening with bearing profile

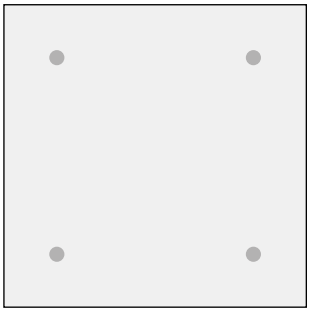
Article Q418HK
60 x 120 cm



Article Q416HK
90 x 90 cm



Article Q414HK
90 x 120 cm

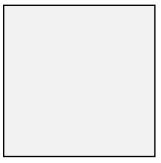


Article Q422HK
120 x 120 cm

Formats for KerAion® K8

Extruded Ceramic Panels, Precision, DIN EN 14411, group AI_b,
glazed (GL), (large-size stoneware panels), 8 mm thick, 18 kg/m²

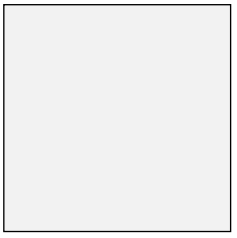
Standard sizes: (grid size / work size)	60 x 60 cm / 592 x 592 mm, 60 x 90 cm / 592 x 892 mm, 90 x 90 cm / 892 x 892 mm, 60 x 120 cm / 592 x 1192 mm Other sizes available on request.



Clamp fastening

Article K100HK
60 x 60 cm

Article K104HK
60 x 90 cm



Article K416HK
90 x 90 cm

Article K418HK
60 x 120 cm

Colours and glazes for KerAion®

SpectraView (glazed, silky-matt)


6201 cream 1 H


6202 cream 2 H


6203 cream 3 H


6204 cream 4 H

6205 cream 5 H


6211 yellow 1 H


6212 yellow 2 H


6213 yellow 3 H


6214 yellow 4 H

6215 yellow 5 H


6221 apricot 1 H


6222 apricot 2 H


6223 apricot 3 H


6224 apricot 4 H


6225 apricot 5 H


6231 salmon-red 1 H


6232 salmon-red 2 H


6233 salmon-red 3 H


6234 salmon-red 4 H


6235 salmon-red 5 H


6241 pink 1 H


6242 pink 2 H


6243 pink 3 H


6244 pink 4 H


6245 pink 5 H

Contrasting colours (glazed, glossy)

150 lemon-yellow H


151 orange H


152 apple-green H


153 violet H


154 contrasting red H

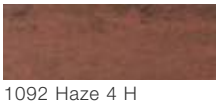
Design (glazed)

Haze


1090 Haze 1 H

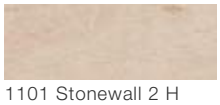

1091 Haze 2 H


1093 Haze 3 H


1092 Haze 4 H

Stonewall

1100 Stonewall 1 H


1101 Stonewall 2 H


1102 Stonewall 3 H


1103 Stonewall 4 H

Mega

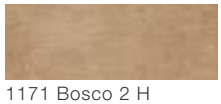
1110 Mega 1 H


1111 Mega 2 H


1112 Mega 3 H

Bosco


1170 Bosco 1 H


1171 Bosco 2 H


1172 Bosco 3 H

Rockface


1115 Rockface 1 H


1116 Rockface 2 H


1117 Rockface 3 H


6251 neutral-grey 1 H


6252 neutral-grey 2 H


6253 neutral-grey 3 H


6254 neutral-grey 4 H

6255 neutral-grey 5 H


6261 grey 1 H


6262 grey 2 H


6263 grey 3 H


6264 grey 4 H

6265 grey 5 H


6271 blue 1 H


6272 blue 2 H


6273 blue 3 H


6274 blue 4 H


6275 blue 5 H


6281 green 1 H


6282 green 2 H


6283 green 3 H


6284 green 4 H


6285 green 5 H

4230 glacier-white, glossy H

4234 chalk-white, matt H


4530 black, glossy H


4534 black, matt H


144 intense blue H

Metal


1180 Metal 1 H


1181 Metal 2 H


1182 Metal 3 H

Construct


1140 Construct 1 H


1141 Construct 2 H

The colours “Design glazed” can be supplied for the system KerAion® up to a panel width of 60 cm. In addition to the variants shown, the production of individual articles is also possible. After a short check of the individual case for technical and economical feasibility, we will be pleased to provide you with project-specific information.

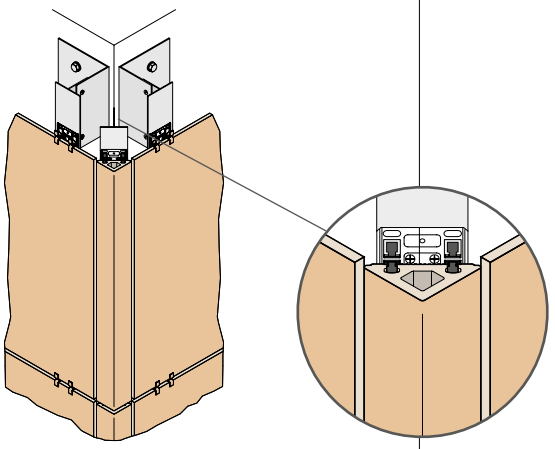
H = HT coating

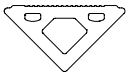
KerAion® detail solutions

Critical corners and terminations of all types can also be perfectly executed with KerAion® with regard to aesthetics and building physics. Rectangular corner profiles, 3D profiles and radial corner pieces offer safety and design freedom at the same time.

For window and door reveals, special solutions with invisible fastening by means of clasps are available. All detail solutions are adapted to the project-specific requirements as special production if required.

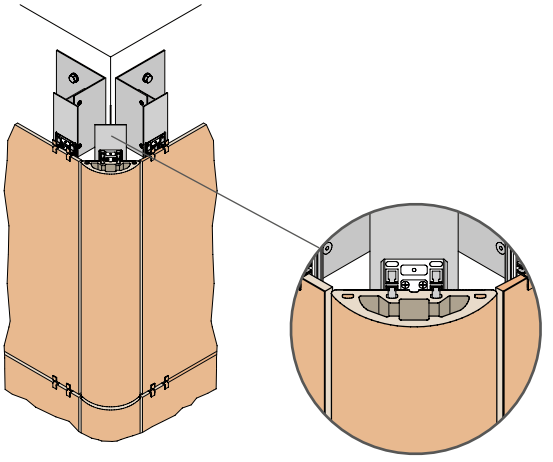
Corner profile 55 *

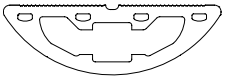




Cross-section of corner profile 55

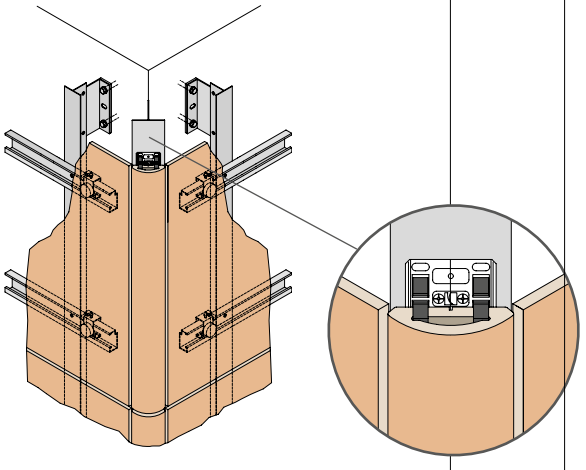
3D profile *





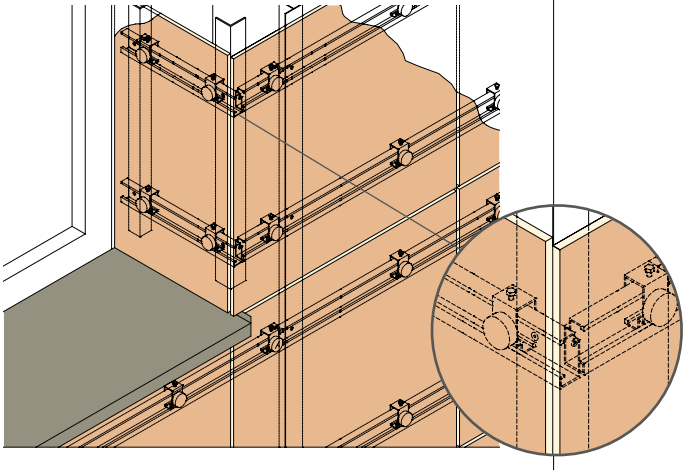
Cross-section of 3D profile

Radial corner piece *



Cross-section of radial corner piece

Reveal Quadro clasp



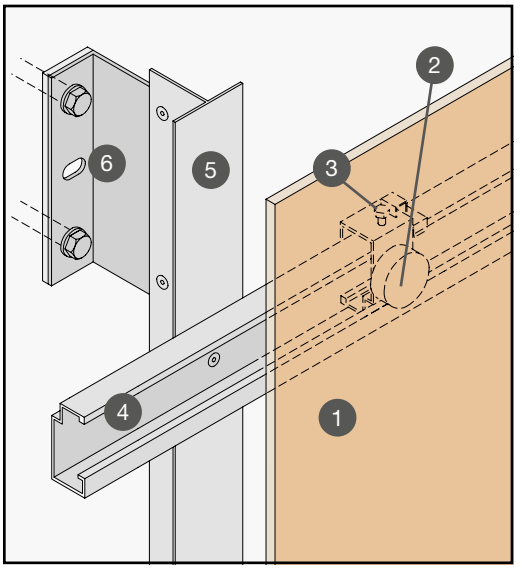
KerAion®

* product-specific details, project-related on request.

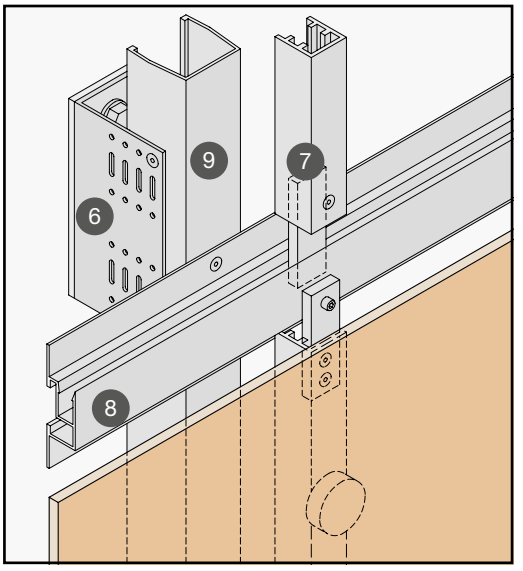
KerAion® Quadro with invisible fastening (clasps / bearing profile)

System description

Quadro fastening points (ceramic composite element) with integral stainless steel screw are sinter-fused on the reverse side of the KerAion® Quadro facade panels in a special firing process. On these fastening points, clasps (up to the size of 60 x 90 cm) or a bearing profile (up to the size of 120 x 120 cm) can be screwed by means of which the facade panels are hung in the substructure.



KerAion® Quadro, clasp fastening



KerAion® Quadro fastening with bearing profile

1. Facade panel KerAion® Quadro
2. Quadro fastening point
3. Clasp with adjusting screw
4. Horizontal bearing profile for clasp fastening (basic substructure)
5. Vertical bearing profile (basic substructure)
6. Wall bracket (basic substructure)
7. Bearing profile (basic substructure)
8. Horizontal bearing profile for fastening with bearing profile (basic substructure)
9. Vertical bearing profile (basic substructure)

Essential system advantages

+ No visible fastening means
+ No weakening of the facade panels by undercut anchors
+ The low panel weight of 18.5 kg/m² facilitates transport and handling and also permits the use in case of a statically demanding building structure
+ Great design scope thanks to a wide variety of sizes up to 120 x 120 cm
+ Excellent look of the facade thanks to a particularly uniform joint structure
+ General approval of the supervisory authority by “Deutsches Institut für Bautechnik”, Berlin: no. Z-33.1-21 Fastening with clasps, no. Z-33.1-27 Fastening with bearing profiles

Mounting instructions for KerAion® Quadro – with invisible fastening (clasps / bearing profile)

Mounting instructions as video film:
www.agrob-buchtal.de

Substructure

The mounting of the substructure must be carried out according to project-specific, static calculation. The general approvals Z-33.1-21 (clasps) and Z-33.1-27 (bearing profile) of the construction supervisory authority serve as basis.

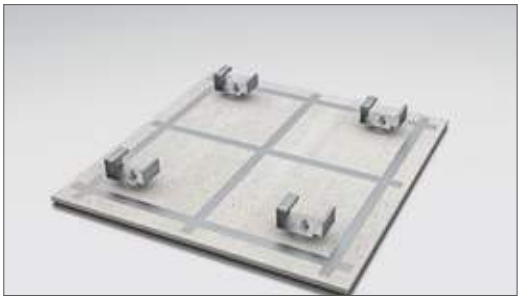
Quadro clasp

- The vertical profiles have to be mounted perpendicularly and in a flush way.
- The distance of the horizontal “clasp profiles“ depends on the Quadro fastening points on the reverse side of the panels.
- Use neoprene rubber washer (Art. no. 371) between clasps and Quadro.
- Fasten clasps with self-locking stainless steel nuts (Art. no. 370) with 2.5 Nm.

Quadro bearing profile

- The bearing profiles must have fixed and sliding points, see approval Z-33.1-27.
- Fastening: Fasten Quadro – neoprene rubber washers (Art. no. 371) – bearing profile – with self-locking stainless steel nut (Art. no. 370) with 2.5 Nm.

Basic substructure



Screw clasps with rubber washer (Art. no. 371) and stainless steel nut (Art. no. 370) on the Quadro fastening points on the reverse side of the panels

Hang the KerAion® panels with the clasps on the reverse side in the horizontal rails

Align panel with screw and fix one clasp with clip

Accessories: KerAion® Quadro – with invisible fastening (clasps / bearing profile)

Article 370
Stainless steel nut,
self-locking,
Weight: 2 kg / 1,000 pieces
Nom. dimen.: M6

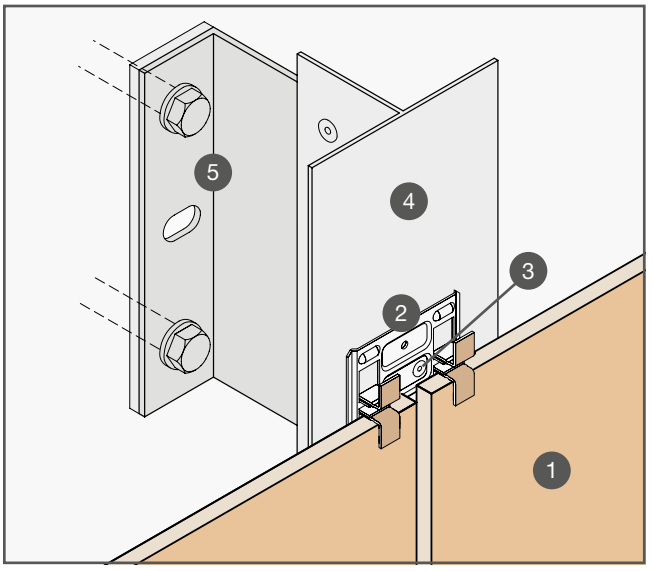
Article 371
Rubber washer, neoprene
Weight: 1 kg / 1,000 pieces
Nom. dimen.: 30 x 1.5 mm

Important: The use of silicone caoutchoucs must be absolutely avoided, because silicone fluids segregate and effect sticky surfaces on which dirt adheres. Therefore, only use the system components mentioned (foamed pieces, EDPM rubber profile, neoprene rubber washer) and pointing, bonding and sealing materials recommended by us. We will be pleased to inform you in detail. The usual final cleaning after completion of the construction works is still required.

KerAion® K8 with visible clamp fastening

System description

The KerAion® facade panels are fixed on the substructure by means of the stainless steel clamps K8. The colour of the clamp lips is matched to the panel design. To prevent clattering and constraining forces in the case of alternating wind loads, the facade panels are installed on the substructure in a nonrigid way by means of foamed pieces or alternatively with polyurethane.



KerAion® with clamp fastening K8

1. Facade panel KerAion® K8
2. Twin-clamp K8, article 545
3. Stainless steel blind rivet, article 675
4. Vertical bearing profile (basic substructure)
5. Wall bracket (basic substructure)

Essential system advantages

+ Rapid and proven panel installation with well thought-out system components
+ The low panel weight of 18 kg/m² facilitates transport and handling and also permits the use in case of a statically demanding building structure
+ Suitable for use both on metal and wooden substructure
+ Great design scope thanks to a wide variety of sizes up to 90 x 90 cm
+ General approval of the supervisory authority by “Deutsches Institut für Bautechnik”, Berlin: no. Z-33.1-18

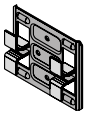
Mounting instructions for KerAion® K8 with visible clamp fastening

Substructure

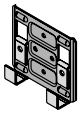
The mounting of the substructure must be carried out according to project-specific, static calculation. The general approval Z-33.1-18 of the construction supervisory authority serves as basis.

- The profiles have to be mounted perpendicularly and in a flush way.
- The length of the profiles must be divisible by the height of the panel format and should not exceed the height of a storey of the building (approx. 3 m).
- A profile butt joint of the vertical profiles behind a panel is not allowed.
- The stainless steel clamps K8 (Art. no. 545, 546, 547, 548, 549) must be fastened with stainless steel rivets (Art. no. 675).
- For the nonrigid installation of the panels, foamed pieces (Art. no. 347) or, alternatively, polyurethane have to be used.

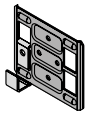
Accessories for KerAion® K8 with visible clamp fastening



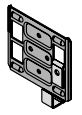
Article 545
Twin-clamp K8
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted similar to panel colour
Material: 1.4571



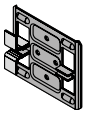
Article 546
Edge-clamp K8
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted similar to panel colour
Material: 1.4571



Article 547
Edge-clamp K8, left
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted similar to panel colour
Material: 1.4571



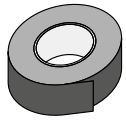
Article 548
Edge-clamp K8, right
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted similar to panel colour
Material: 1.4571



Article 549
Single-clamp K8
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted similar to panel colour
Material: 1.4571

Article 675
Stainless steel blind rivet, black
Weight: 1.05 kg / box
Nominal dimensions: 3.2 x 9.5 mm
Box contents: 500 pieces
extended mandrel (58 mm)

Article 347-01
Foamed piece*
Weight: 1.80 kg / roll
Nominal dimensions:
20 x 30 x 8 mm
Roll: 1,380 pieces / roll
self-adhesive



Article 506
Joint tape, black
Weight: 0.5 kg / roll
Nominal dimensions:
40 mm wide, 50 m
self-adhesive, weather-resistant

* Alternatively, nonrigid installation is also possible with PUR or MS polymer bonding materials. Suitable products on request.

Important: The use of silicone caoutchoucs must be absolutely avoided, because silicone fluids segregate and effect sticky surfaces on which dirt adheres. Therefore, only use the system components mentioned (foamed pieces, EDPM rubber profile, neoprene rubber washer) and pointing, bonding and sealing materials recommended by us. We will be pleased to inform you in detail. The usual final cleaning after completion of the construction works is still required.

Generous: KerAion®

As an alternative to the widely used board formats, the product range of the classic KerAion® also comprises square large formats, which are suitable above all for facades of big buildings. The KerAion® panels can be alternatively installed with visible or invisible fastening and also prove themselves in case of a statically demanding building structure. They can be used both on metal and wooden substructure. The varied SpectraView colour range with silky-matt surface ensures a high degree of individual design freedom.

The KerAion® system shows its qualities above all as cladding of buildings with large surfaces. The reference projects on the following pages prove this. Whether museum, power station or company headquarters – architects all over the world use this system proven for decades for realizing their design concepts. Special colours (Muhammad Ali Center) and special formats (Technical University Brno) offer additional creative possibilities.

Groningen Museum, Groningen, Netherlands /
Architect: Alessandro Mendini, Milan / Italy /
Completion: 1994/2010 (renovation)
KerAion® - clamp fastening

Lecture hall in the dome

The new complex of the Faculty of Electrical Engineering and Communication consists of an ensemble of several buildings. The most striking construction is a lecture hall for more than 300 students in a dome. KerAion® ceramic panels are mounted on a steel substructure, which – due to the building shell – partly have to be trapezoidal.

Project:	Technical University Brno, Brünn, Czech Republic
Architect:	Hexaplan International S.r.o.
Year:	2012
Products:	KerAion® in special format (trapezoidal), KeraTwin® K20

Beautiful architecture for daily use

Besides a large Migros branch, the multi-purpose building ensemble also houses restaurants, offices and flats of various sizes. The KerAion® elements in different formats lend the buildings a timeless look, which becomes visible above all at close range in interesting details.

Project:	Baarcity, Baar, Switzerland
Architect:	Theo Holz Partner AG, Zurich
Year:	2010
Products:	KerAion® Quadro

Pixel picture in XXL

Already the facade points to the purpose of the building: the Data-Center of the Shinhan Financial Group at Seoul shows an oversize pixel picture of a colour gradient from dark-blue to white.

Project:	Shinhan Data Centre, Seoul, South Korea
Architect:	Samoo Architects & Engineers, Seoul
Year:	2013
Products:	KerAion® Quadro, KeraTwin® K20

Minimalist power station

Like a gigantic sculpture, the power station marks the transition between urban life and nature. 4,200 m^2 of KerAion® ceramic panels protect the interior zone against overheating and create a striking effect: the sky, light and shadow are reflected in the glazed surface and integrate the building in the environment.

Project:	Thermal power station, Viborg, Denmark
Architect:	Peter Kjelgaard & Thomas Pedersen M.A.A
Year:	1996
Products:	KerAion®

Ceramic mega-puzzle

Standing right in front of it, the colourful facade conveys the impression of a huge puzzle of individual panels. Only from a distance, the overall picture and the typical poses of the boxing legend Muhammad Ali are visible. After only a few years, the educational centre and meeting place has become a landmark of Louisville.

Project:	Muhammad Ali Center, Louisville, USA
Architect:	Lee H. Skolnick Architecture + Design Partnership / Beyer Blinder Belle Architects & Planners LLP
Year:	2005
Products:	KerAion® Quadro

3D Facade Ceramics
for individual accents

With its great variety, “3D Facade Ceramics” was developed above all for setting accents and supporting architects at the realization of individual concepts. Besides their function as an element of architectural design, however, the special pieces also serve quite practical purposes: as protection against the sun and view.

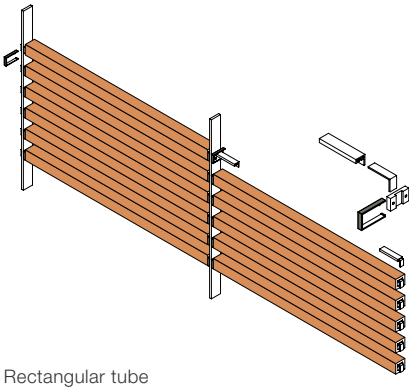
The standard range comprises rectangular tubes with the cross-sections of 50 x 60 mm and 60 x 60 mm in lengths of up to 1,800 mm and with the cross-section of 50 x 100 mm in lengths of up to 1,500 mm. Rounded lamellar elements in the format of 140 x 60 mm with a maximum length of 1,200 mm are also available. By means of special fastening sets, the individual elements can be joined together to make compact units or extended practically without limitation.

Already these standard articles, which are perfectly matched to the other facade systems of AGROB BUCHTAL, permit numerous design variants. In addition, project-specific special forms and dimensions are possible. After a short check of the individual case, the experts of AGROB BUCHTAL will be pleased to inform you about the technical and economical feasibility. This also applies to individual fastening concepts, which differ from the standard fastening variants.

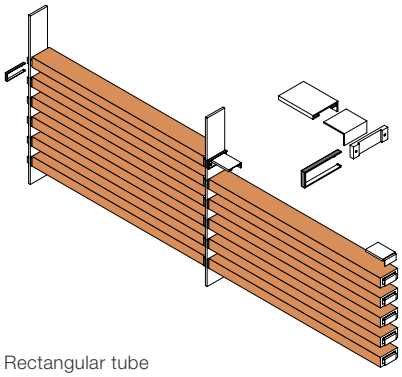
As the special pieces, glazed or unglazed, are supplied in almost all the shades which are also available for the facade panels, a design tone in tone is no problem. Contrasting colours, however, are also a frequently chosen option, as they offer numerous possibilities for making the look of large-size facades less monotonous. By the way, this also applies to the special pieces themselves if they are used for giving the facade a visual rhythm.

Eden Business Park Grotte Portella, Rome-Frascati, Italy /
Architect: Daniela Capulli, Rome / Completion: 2012

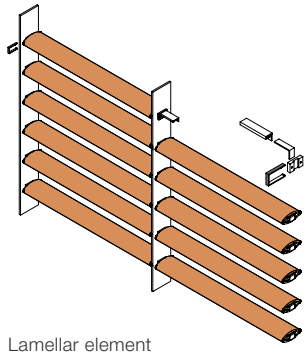
Forms and formats of 3D Facade Ceramics



Rectangular tube

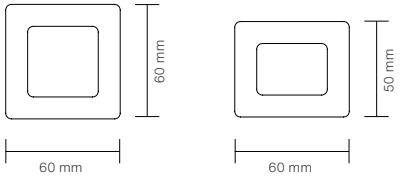


Rectangular tube

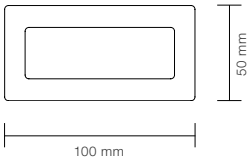


Lamellar element

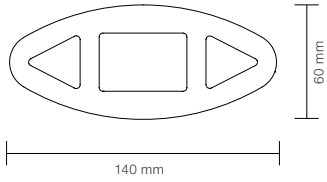
Cross-section of rectangular tube

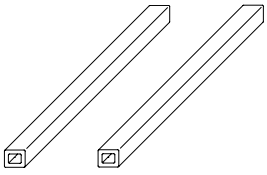


Cross-section of rectangular tube

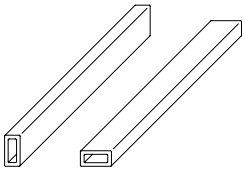


Cross-section of lamellar element

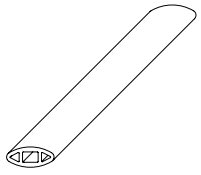




Rectangular tube
50 x 60 mm / 60 x 60 mm
Work size: 50 x 60 mm / 60 x 60 mm
Weight: 50 x 60 mm: 4.29 kg / lin. m.
60 x 60 mm: 4.49 kg / lin. m.
available unglazed as well as with
3 and 4 glazed sides. Possible up to a
length of 1,800 mm on request



Rectangular tube
50 x 100 mm*
Work size: 50 x 100 mm
Weight: 6.84 kg / lin. m.
available unglazed as well as with
3 and 4 glazed sides. Possible up
to a length of 1,500 mm on request



Lamellar element
Work size: 140 x 60 mm
Weight: 9.00 kg / lin. m
possible up to a length
of 1,200 mm,
available only unglazed

In addition to the variants shown, the production of individual articles is also possible. After a short check of the individual case for technical and economical feasibility, we will be pleased to provide you with project-specific information.

Matching rubber spacers available on request.

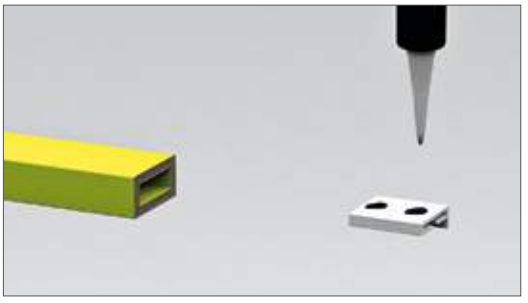
Mounting instructions for 3D Facade Ceramics

Mounting instructions as video film:
www.agrob-buchtal.de

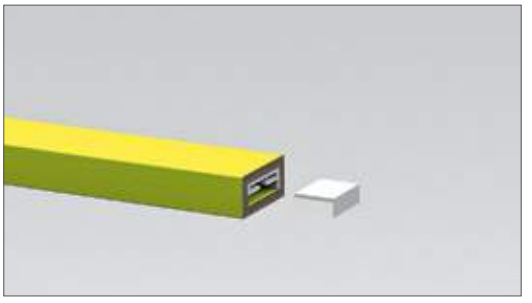
Substructure

The mounting of the substructure must be carried out according to project-specific, static calculation.

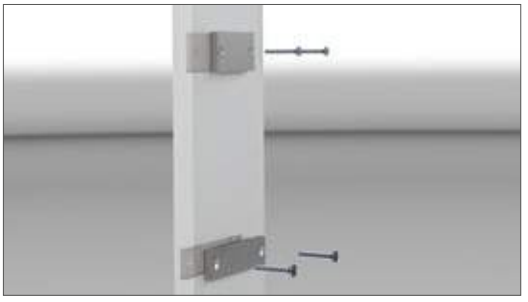
- For horizontal laying, the mounting sets (Art. no. 606, 607) can be used.
- One has to decide whether only base plates with hole and counterbore or also with M5 thread in addition have to be used.
- The “supports for mounting parts” must be fixed in the special pieces by means of polyurethane adhesive.
- For vertical laying, the clamps (Art. no. 685, 686, 687 and 685R, 686R, 687R respectively) can be used.
- The clamps can be fastened with stainless steel screws (Art. no. 659).



Punctually glue the support for mounting part in place with polyurethane adhesive



Slide angular insert in support for mounting part



Fix base plate at the basic substructure

Hang the 3D Facade Ceramics with the angular insert in the base plate

Slide securing clip on the base plate

Colours and glazes for 3D Facade Ceramics

SpectraView (glazed, silky-matt)


6201 cream 1 H


6202 cream 2 H


6203 cream 3 H


6204 cream 4 H

6205 cream 5 H


6211 yellow 1 H


6212 yellow 2 H


6213 yellow 3 H


6214 yellow 4 H

6215 yellow 5 H


6221 apricot 1 H


6222 apricot 2 H


6223 apricot 3 H


6224 apricot 4 H


6225 apricot 5 H


6231 salmon-red 1 H


6232 salmon-red 2 H


6233 salmon-red 3 H


6234 salmon-red 4 H


6235 salmon-red 5 H


6241 pink 1 H


6242 pink 2 H


6243 pink 3 H

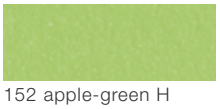

6244 pink 4 H


6245 pink 5 H

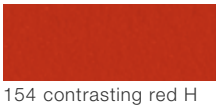
Contrasting colours (glazed, glossy)


150 lemon-yellow H


151 orange H


152 apple-green H


153 violet H


154 contrasting red H

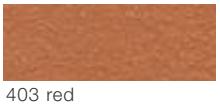
Natura (unglazed)

407 white* NEW

410 cream
410 cream H

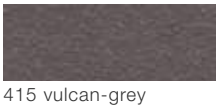

411 ochre
411 ochre H

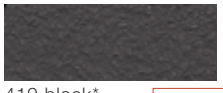

412 salmon
412 salmon H

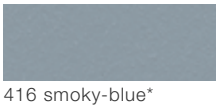

403 red
403 red H


414 light-grey
414 light-grey H


409 iron-grey NEW


415 vulcan-grey
415 vulcan-grey H


419 black* NEW


416 smoky-blue*
416 smoky-blue H

* Not available as lamellar element special piece.


6251 neutral-grey 1 H


6252 neutral-grey 2 H


6253 neutral-grey 3 H


6254 neutral-grey 4 H

6255 neutral-grey 5 H


6261 grey 1 H


6262 grey 2 H


6263 grey 3 H


6264 grey 4 H

6265 grey 5 H


6271 blue 1 H


6272 blue 2 H


6273 blue 3 H


6274 blue 4 H


6275 blue 5 H


6281 green 1 H


6282 green 2 H


6283 green 3 H


6284 green 4 H

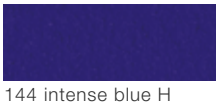

6285 green 5 H

4230 glacier-white, glossy H

4234 chalk-white, matt H

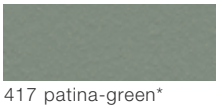

4530 black, glossy H


4534 black, matt H


144 intense blue H


408 red-brown NEW


418 brown*
418 brown H

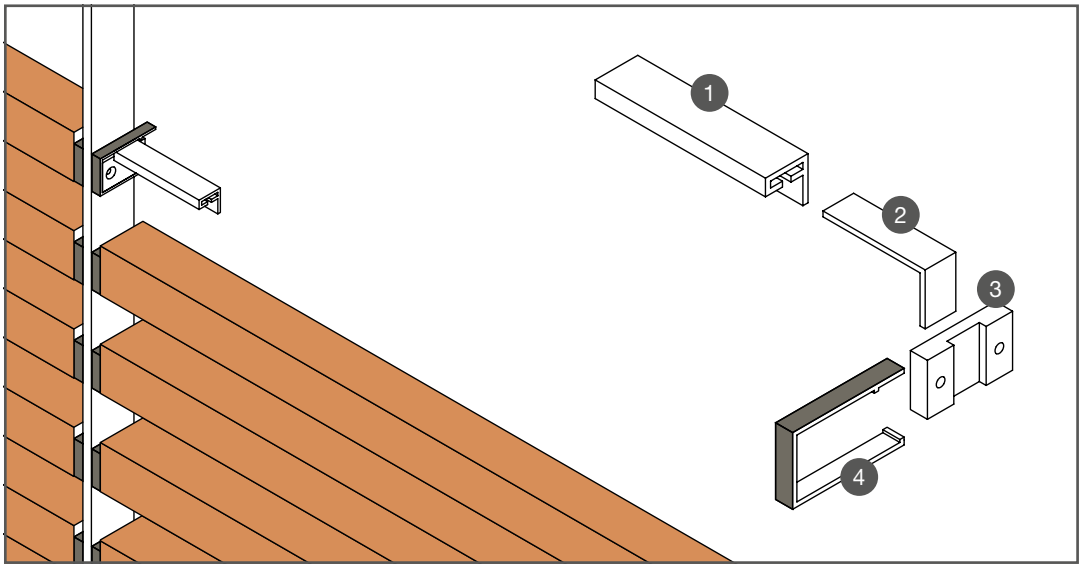

417 patina-green*
417 patina-green H

H = HT coating

3D Facade Ceramics with horizontal laying

System description

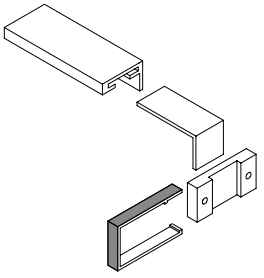
Three-dimensional ceramic special pieces in natural colours or also in glazed version are used for making large facade surfaces less monotonous or for producing shade at buildings. For developing individual, project-related fastening proposals, please contact us. Information about the standard fastening systems is to be found in the respective technical details. Fastening sets are available for the horizontal laying.



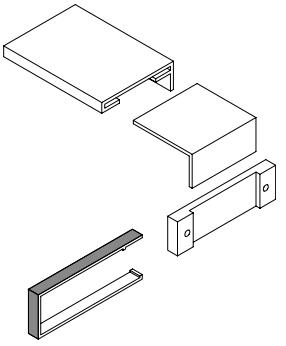
1. Built-in unit
2. Angular insert
3. Base plate
4. Securing clip

Accessories: 3D Facade Ceramics with horizontal laying Fastening sets:

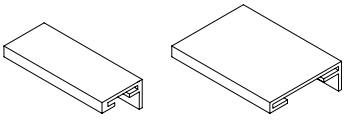
The sets comprise: 1 built-in unit, 1 angular insert, 1 base plate, 1 securing clip (black)



Article 606
For rectangular tube 60 x 50, 60 x 60 and lamellar element
Securing clip (black)
Base plate optionally available with M5 thread
Weight: 0.14 kg / set



Article 607
For rectangular tube 50 x 100
Securing clip (black)
Base plate optionally available with M5 thread
Weight: 0.21 kg / set

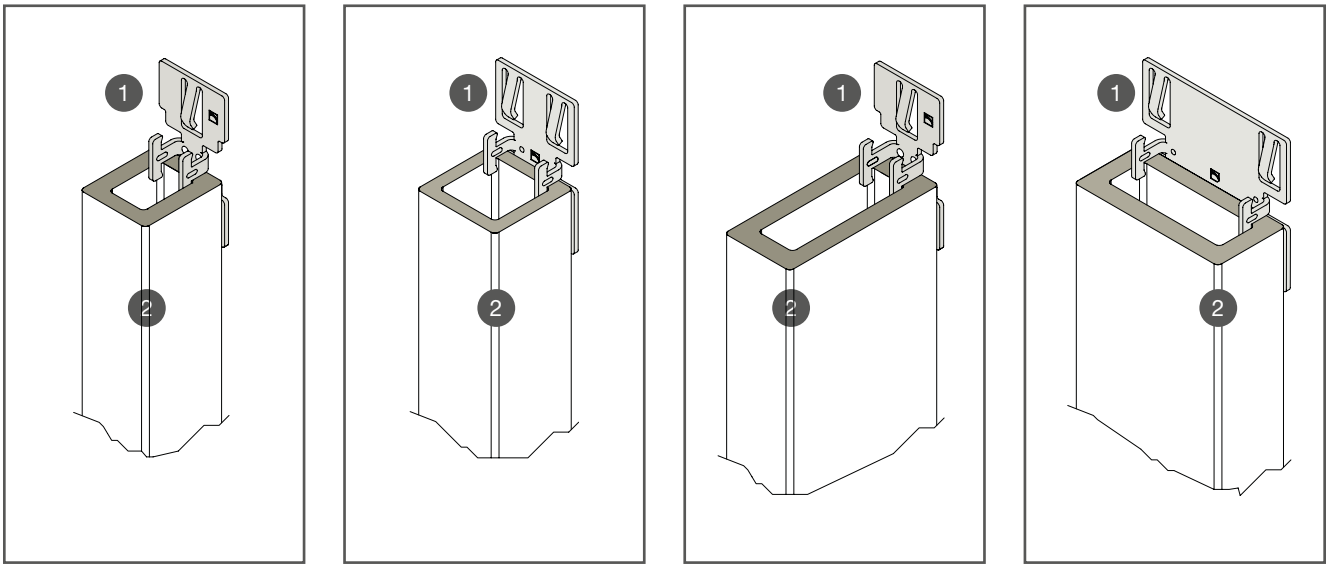


Built-in unit
also available as continuous profile on request

3D Facade Ceramics with vertical laying

System description

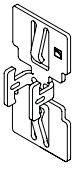
Rectangular tubes in various dimensions and colours in unglazed or glazed version can also be vertically installed. For developing individual, project-related fastening proposals, please contact us. Special fastening clamps are available for all standard variants of the ceramic rectangular tubes.



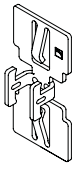
1 Fastening clamp

2 Rectangular tube

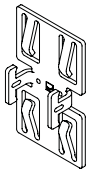
Accessories: 3D Facade Ceramics with vertical laying
Fastening clamps:



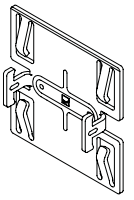
Article 685-50100
Twin-clamp
for 50 mm width in case of rectangular tube 50 x 100
Perforation: 2 x 4.9 mm
Material:
AlMg3 H22 (EN AW-5754) painted black
Weight: 35 kg / 1,000 pcs.



Article 685-5060
Twin-clamp
for 50 mm width in case of rectangular tube 50 x 60
Perforation: 2 x 4.9 mm
Material:
AlMg3 H22 (EN AW-5754) painted black
Weight: 35 kg / 1,000 pcs.

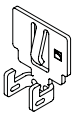


Article 686-6060
Twin-clamp
for 60 mm width in case of rectangular tube 60 x 60
Perforation: 2 x 4.9 mm
Material:
AlMg3 H22 (EN AW-5754) painted black
Weight: 45 kg / 1,000 pcs.

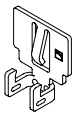


Article 687-10050
Twin-clamp
for 100 mm width in case of rectangular tube 50 x 100
Perforation: 2 x 4.9 mm
Material:
AlMg3 H22 (EN AW-5754) painted black
Weight: 90 kg / 1,000 pcs.

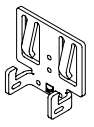
Article 659
A4 stainless steel screw, bright
Weight: 2.8 kg / box
Nominal dimensions: 4.8 x 16 mm
Box contents: 1,000 pieces + 1 bit



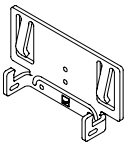
Article 685R-50100
Terminal-clamp
for 50 mm width in case of rectangular tube 50 x 100
Perforation: 2 x 4.9 mm
Material:
AlMg3 H22 (EN AW-5754) painted black
Weight: 20 kg / 1,000 pcs.



Article 685R-5060
Terminal-clamp
for 50 mm width in case of rectangular tube 50 x 60
Perforation: 2 x 4.9 mm
Material:
AlMg3 H22 (EN AW-5754) painted black
Weight: 20 kg / 1,000 pcs.



Article 686R-6060
Terminal-clamp
for 60 mm width in case of rectangular tube 60 x 60
Perforation: 2 x 4.9 mm
Material:
AlMg3 H22 (EN AW-5754) painted black
Weight: 24 kg / 1,000 pcs.



Article 687R-10050
Terminal-clamp
for 100 mm width in case of rectangular tube 50 x 100
Perforation: 2 x 4.9 mm
Material:
AlMg3 H22 (EN AW-5754) painted black
Weight: 48 kg / 1,000 pcs.

Variable: 3D Facade Ceramics

Aesthetic and practical at the same time: 3D Facade Ceramics underlines individual design ideas by visual accents. However, it also proves itself as protection against view and sun. Already the standard range comprising rectangular tubes and rounded lamellar elements permits numerous architectural variants. In addition, individual special forms and dimensions as well as project-related fastening concepts are also possible. Thanks to their great variety of shades, the special pieces can either harmonize with the colour of the facade panels or create striking contrasts.

Whether horizontally or vertically laid – 3D Facade Ceramics lends a building its distinctive character in varied ways, as the following reference projects show. The elements can be used to set specific accents or contribute to giving large facade surfaces a rhythm and thus making them less monotonous. In addition, a sophisticated play of colours (Finchley Memorial Hospital) may serve the integration of the building in its environment. The achievement of objectives with regard to energy efficiency is facilitated thanks to the shade-producing effect of the elements (Eden Business Park).

Finchley Memorial Hospital, Finchley, London,
Great Britain / Murphey Philipps Architects /
Completion: 2012

Convincing realization of a colour concept

In order to visually integrate the new three-storey clinic building with a usable floor space of 10,000 m² in its environment characterized by small-sized housing units and green areas, Murphy Philipps Architects in co-operation with the colour designer Frances Tobin developed an own colour concept taking into account the psychological effect of colours. An integral part of this concept is approximately 3,500 ceramic panels and 2,000 ceramic rectangular tubes glazed on all four sides with a cross-section of 60 x 60 mm and lengths of up to 1,200 mm, which were vertically installed in front of the curved glass facades of the access areas like a filigree curtain. The six green and blue shades exactly defined by the planners were specially developed for this project in the glaze laboratory of AGROB BUCHTAL after extensive test series.

Project:	Finchley Memorial Hospital, Finchley, London, Great Britain
Architect:	Murphey Philipps Architects
Year:	2012
Products:	3D Facade Ceramics

Breathing building

The Eden Business Park in the Via Grotte Portella was planned and realized according to strict targets set with regard to energy efficiency. A part of the concept also was the curtain-type, rear-ventilated facade as well as the shade-producing elements in front of the window areas, for which a total of eleven kilometres of rectangular tubes were installed.

Project:	Eden Business Park Grotte Portella, Rome-Frascati, Italy
Architect:	Daniela Capulli, Rome
Year:	2012
Products:	KeraTwin® K20, system rail, 3D Facade Ceramics

Business Forum

Besides branches of major banks, the 45,000 m² large multi-functional complex of four buildings also houses office space for small business enterprises and also includes flats. The effect of the size of the ensemble, which is more spacious than high, is counteracted by the facade in warm colours.

Project:	Forum Brescia, Brescia, Italy
Architect:	Piero Stabiumi & Massimo Guerrato
Year:	2008
Products:	KeraTwin®, 3D Facade Ceramics

Modern China

Project:	Handan Administration Building, Handan, China
Architect:	Tianjin Architecture Design Institute
Year:	2007
Products:	3D Facade Ceramics

Less monotonous parking

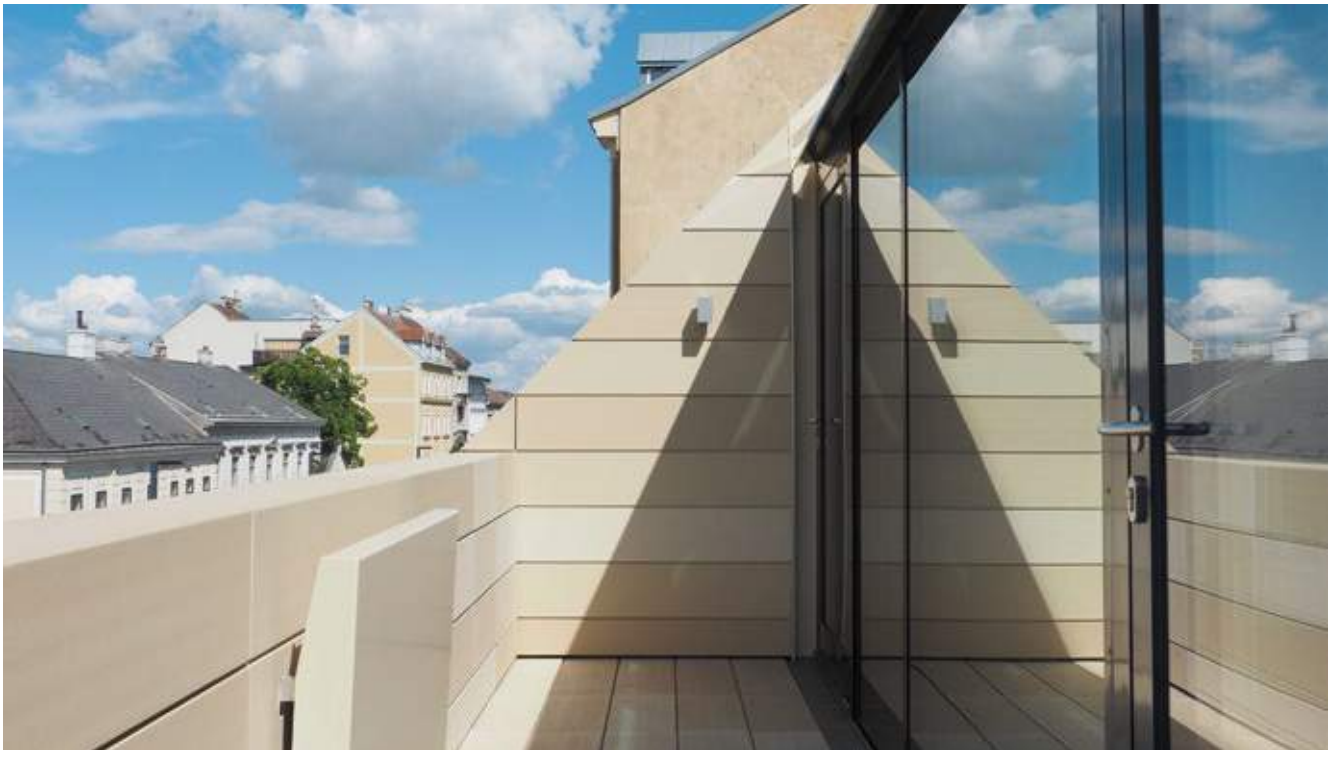
Car parks can also be unusually designed. This one at Lappeenranta, Finland, permits views from inside, but no viewing from the outside. The semi-permeable facade was almost completely built with rectangular tubes, which were mainly horizontally mounted, but partly also vertically by means of the clamp system.

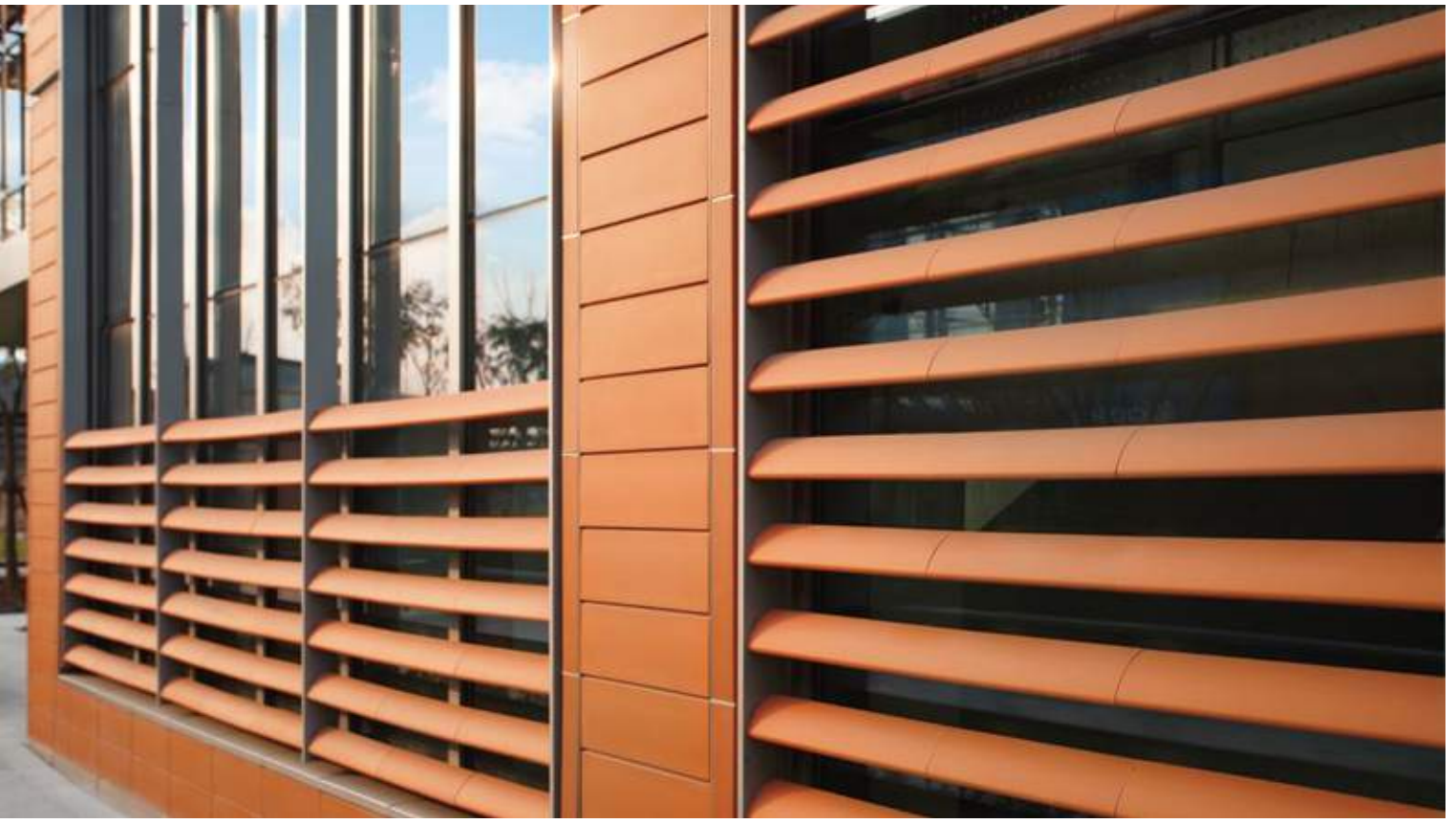
Project:	Lappeenranta Sairaalaparkki, Lappeenranta, Finland
Architect:	Arkkitektuuritoimisto Ovaskainen Oy, Lappeenranta
Year:	2012
Products:	KeraTwin® K20, Omega profile, 3D Facade Ceramics, rectangular tube

A bank with style

With its ceramic facade in warm sand shades, the new “Raiffeisenforum” at Mödling harmoniously fits in the row of houses of the main street. However, the architects decided in favour of a ceramic facade not only for aesthetic reasons. It also satisfied their requirements with regard to sustainability. After all, ceramics is a natural product and completely (100%) recyclable.

Project:	Raiffeisen Forum, Mödling, Austria
Architect:	arge X42, Vienna
Year:	2014
Products:	KeraTwin® K20, 3D Facade Ceramics, rectangular tube





Think Tank

The 9.6 hectares large area was planned by Microsoft China as campus for research and development and supports the open communication among the employees. Around a large park-like area, four L-shaped office buildings are arranged, which are connected with one another by shaded paths. The ceramic facade cladding made an essential contribution to the excellent sustainability concept.

Project:	Microsoft Zizhu Campus, Shanghai, China
Architect:	B + H Architects, Toronto
Year:	2001
Products:	KeraTwin®, 3D Facade Ceramics

Big Business

Project:	Huaku V-Park, Taipei, Taiwan
Architect:	nbbj, Peking / Shanghai
Year:	2012
Products:	3D Facade Ceramics


YLÖJÄRVEN URH

AGROB BUCHTAL
Competence by tradition

Arising from the merger of Deutsche Steinzeug Cremer & Breuer AG and AGROB Wessel Servais AG, two companies rich in tradition, AGROB BUCHTAL continues a history which already started in the middle of the 18th century. Back then just as today, the most important corporate objective is to support architects and building owners at the realization of their ideas: by the variety and the quality of the products, by contemporary design and by a service which permits planners, decision-makers and users to benefit from the great competence in the sector of ceramic building materials developed over many generations.

The starting point for all services is the identification with the goals and ideas of the architect. That is why the company shows its strong points especially if these goals cannot be realized with products from the series production: in a co-operation as partners, individual, project-specific special solutions are developed, which exactly correspond to the ideas of the planner with regard to forms and formats, colours and surfaces and support it at the unrestricted development of its creative freedom.

The exoneration from routine tasks may also strengthen this freedom. That is why the In-House Planning Department of AGROB BUCHTAL not only offers extensive advice from the choice of the products up to questions regarding building physics – upon request also on location at the construction site. Experienced experts also take care of texts for bidding purposes, determinations of quantities and laying plans, so that the architect can exclusively concentrate on the realization of its creative concepts. This goal is also pursued by the field staff of the company, which contributes to the problem-free project handling with great commitment and competence.

Since the term “sustainability” has established itself in the public awareness, more and more building owners – not only internationally operating corporate groups or real estate investment companies – demand building certifications as “Green Building”. AGROB BUCHTAL supports the certification process by providing auditors with extensive information for the current certification systems and by a product whose sustainability can hardly be surpassed and which therefore ensures bonus points already in advance: ceramics.

Ylöjärven urheilutalo, Ylöjärvi, Finland /
Architect: FCG Suunnittelu ja tekniikka Oy /
Completion: 2013

Hale Village Housing, London, Great Britain /
Cartwright Pickard Architects / Completion: 2012

Individual production for unlimited creativity

AGROB BUCHTAL sees its most important task in offering architects and planners the design scope which they need for the realization of their creative ideas.

With approximately 20,000 glaze colour recipes and an enormous variety of formats and surface structures, the company meets this requirement in most of all cases. However, AGROB BUCHTAL shows its true strength whenever innovative architectural concepts require an individual production. For the Design Department, the Product Management and the In-House Planning Department, the development of project-specific special solutions in co-operation with architects as partners is part of the core business.

This not only applies to special formats or colours corresponding to the ideas of the planner – or the CD specifications of a company. Innovative techniques such as the precise water-jet cutting as well as photographic and screen printing methods, which permit the transfer of complex artworks onto ceramics, open up new horizons for creative facade design. Artists which – in agreement with the architect – wish to actively participate in the realization of their creations are welcome at AGROB BUCHTAL. And also special solutions which have not been mentioned here (so far) are checked for their feasibility in an unbureaucratic manner – as soon as the creative concept of an architect requires new solutions.

New paths in architecture

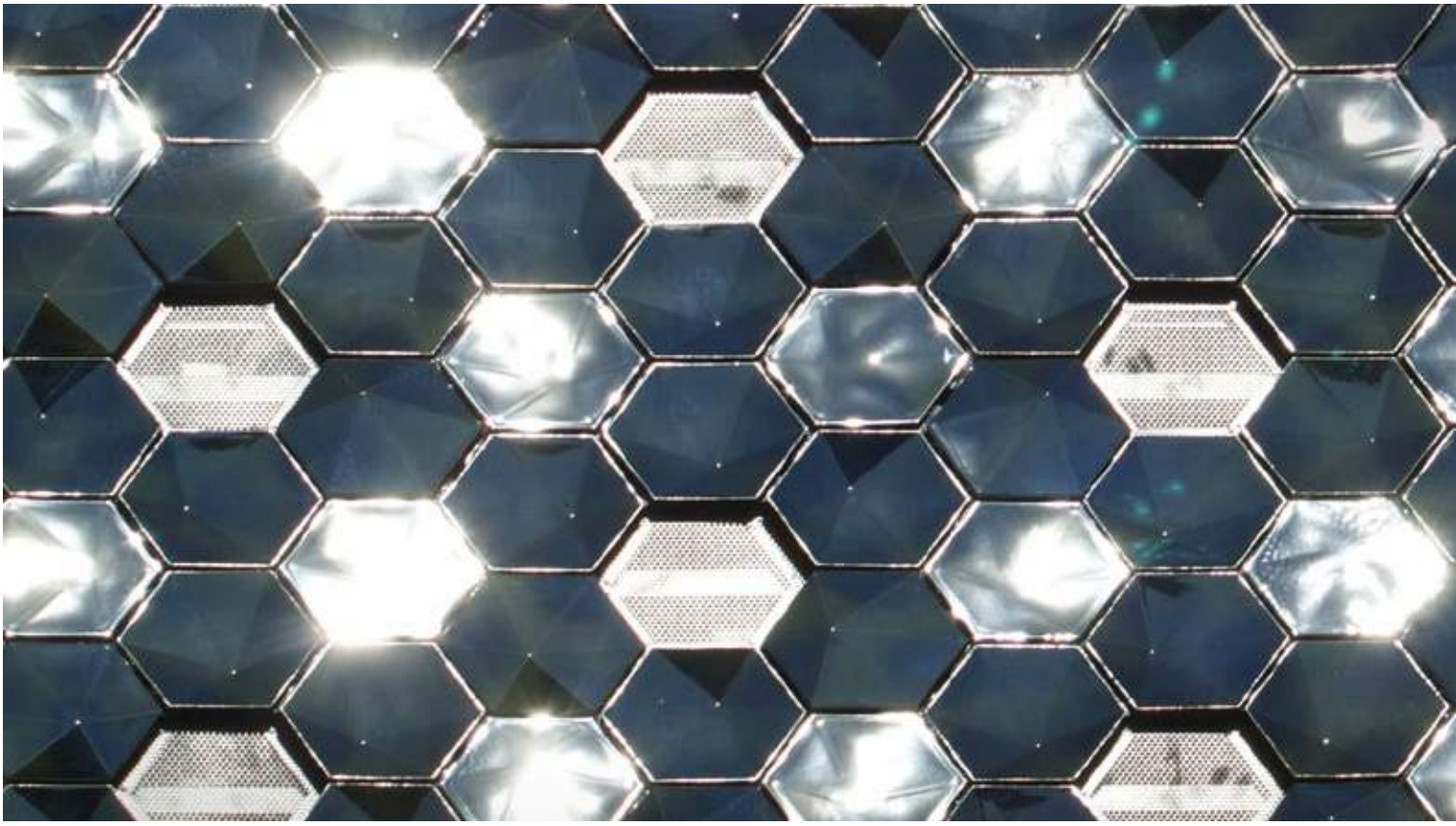
The dome of the first Imax cinema at Berlin visible from far away stands for new paths in architecture – and in the production of ceramics. For the spectacular project planned by Renzo Piano, AGROB BUCHTAL supplied facade panels in an exactly specified spheric form.

Project:	Bluemax-Theatre, Berlin, Germany
Architect:	Renzo Piano
Year:	1998
Products:	KerAion® Quadro, individual production

Dialogue of old and new

Hexagonal ceramic elements in a blackish-greenish shade integrate the irregularly folded roof on top of the extension of the Museum of Cultures at Basel planned by Herzog & de Meuron in the overall picture of the roofs of the old town and at the same time set an example of modernization.

Project:	Museum of Cultures, Basel, Switzerland
Architect:	Herzog & de Meuron
Year:	2011
Products:	Individual production

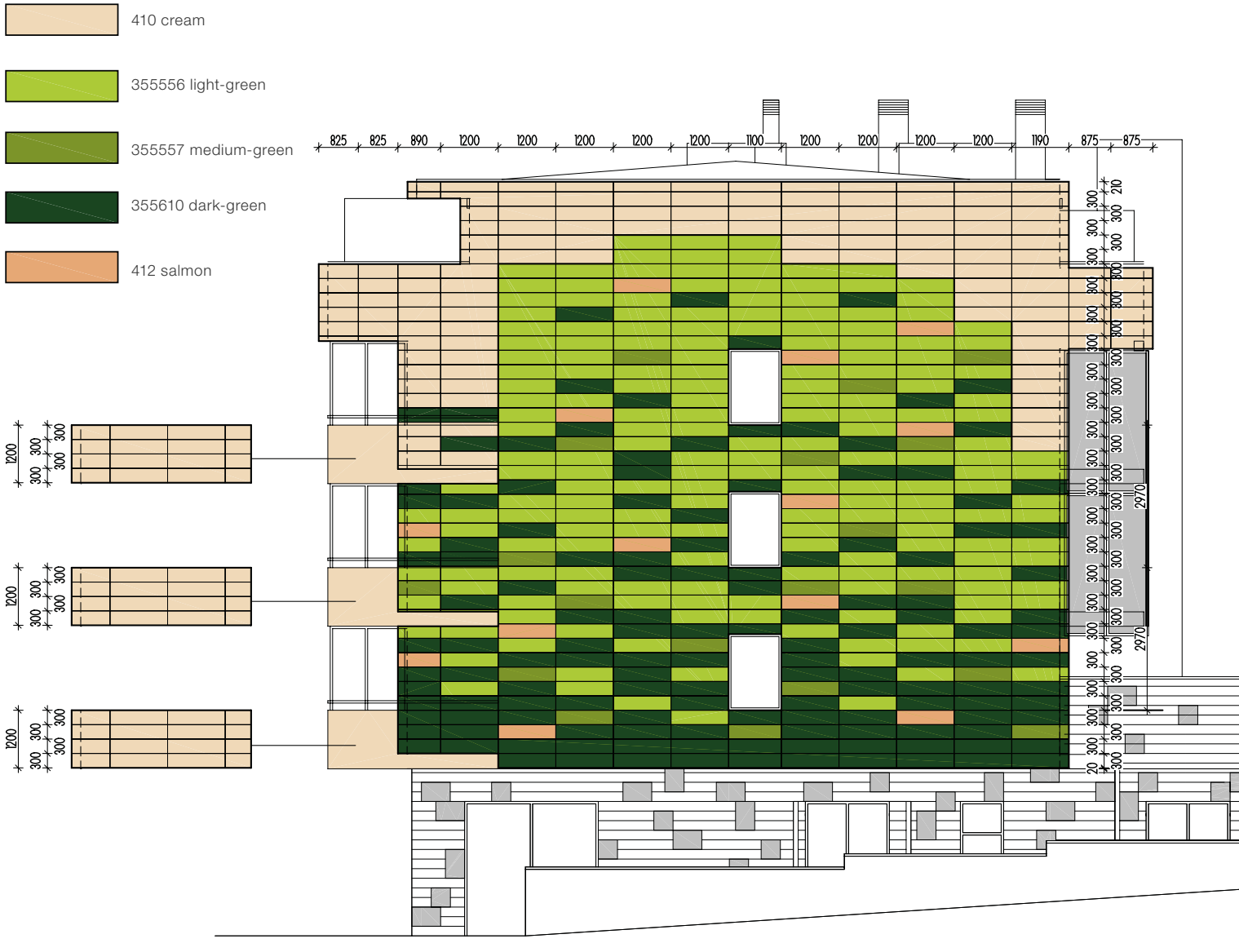


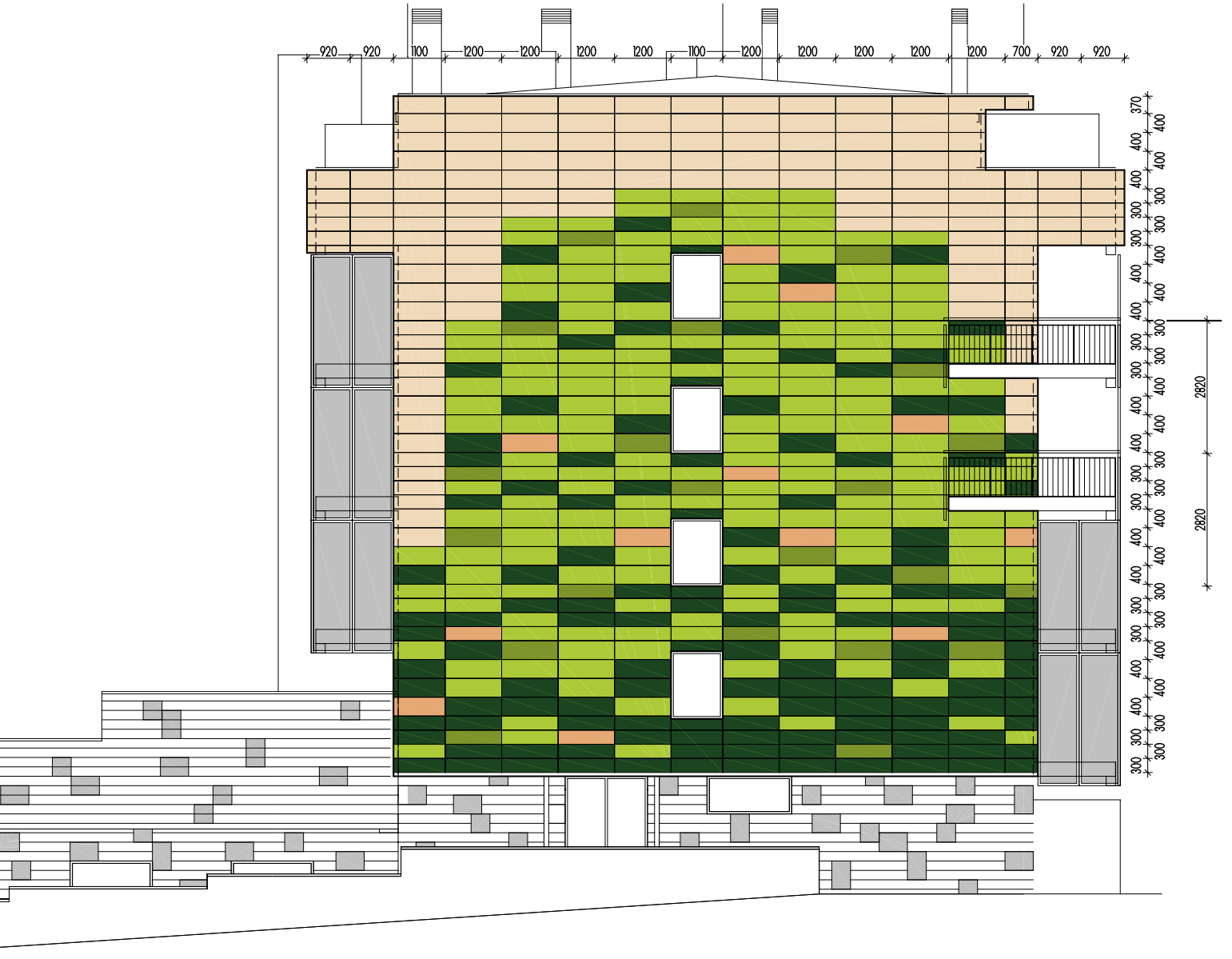
From professionals for professionals: the In-House Planning Department

Facade design is a complex challenge which besides aesthetic aspects also raises many technical and physical questions – in addition to the unavoidable bureaucracy. The In-House Planning Department of AGROB BUCHTAL, which was already established more than 60 years ago, offers professional support, so that architects can exclusively concentrate on their creative ideas.

As AGROB BUCHTAL supplies high-quality products and competent services, planners and architects using the products can benefit from the know-how of a committed team of qualified technicians, engineers, designers and colour experts, which ensure a quick and problem-free realization of individual concepts. This also includes the concrete advice regarding application techniques, upon request on location.

In addition to their advisory capacity, these experts also carry out routine tasks, which would only be disturbing at the development of architectural visions. They include laying plans, determinations of quantities, detailed estimates and also the preparation of texts for bidding purposes or the specific support at the application for sustainability certificates such as LEED, BREEAM or DGNB.

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Green Buildings: certification without loss of time

The certification of buildings is a complex procedure. AGROB BUCHTAL purposefully supports the certification process by making available specific product information.

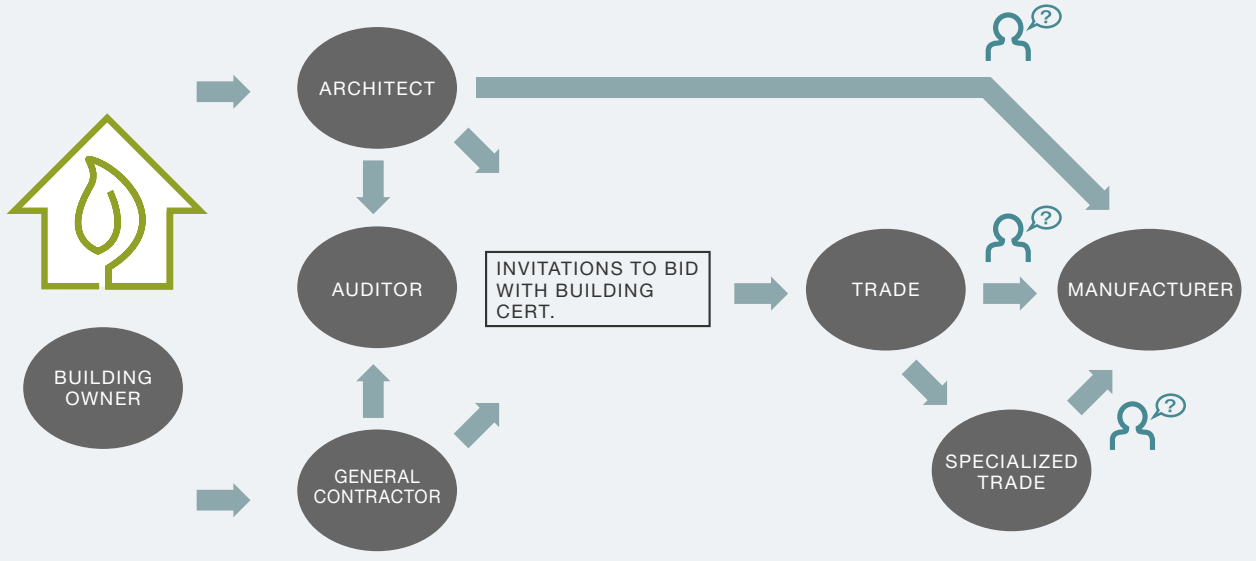
Since the British Building Research Establishment (BRE) had analyzed and assessed the environmental compatibility of buildings in 1990 for the first time, more than 60 Green Building labels have been established world-wide. However, only a few of them are of international importance. Internationally operating big companies and funds, for example, prefer the LEED certificate from the USA in order to be able to make investment decisions on a globally uniform basis. The certificate of Deutsche Gesellschaft für Nachhaltiges Bauen (German association for sustainable building) e. V. (DGNB) is considered as particularly demanding. It's true that no individual products are assessed at the certification of buildings, but the overall performance of the building. However, the properties of the products used with regard to criteria such as the conservation of resources, environmental influences, pollutants, cleaning effort and useful life are included in the overall assessment. To support architects in this complex process, AGROB BUCHTAL published an EPD (Environmental Product

DGNB
Deutsche Gesellschaft für Nachhaltiges Bauen
German Sustainable Building Council

Institut Bauen und Umwelt e.V.

GREEN BUILDING COUNCIL S.A.
MEMBER ORGANISATION

Communication relating to building certifications – the principle



Source: Consulting Donath, sustainability consulting

Orchard Hotel, Nottingham, Great Britain / RHWL Architects
Ivory House, St. Katharine Dock, London / Completion: 2012

Declaration) according to ISO 14025 with verified data for ceramic tiles from German production already a longer time ago, which makes time-consuming investigations in this respect superfluous. In addition, the company provides the architect with specialized product information which is tailored to the requirements of the most important certification systems world-wide, i.e. LEED, BREEAM and DGNB. This product information is useful above all for the respective auditors and contains all relevant data together with comments. In this way, the annoying looking for information is not required, as all necessary, competently prepared details are available, and the certification procedure is considerably simplified.

Product information for DGNB auditors: Sustainable Building today

Test Certificates/Test Reports

Our products are permanently controlled in acknowledged material testing institutions in Germany and abroad. Copies of the certificates and approvals mentioned below are available on request.

Ceramics

– Works' test certificates according to DIN EN 14411
– Test certificate according to DIN EN 14411: Prüflabor Keramik & Stein

KeraTwin® -Fastening systems

– Test report for KT clamp: CRP Berlin, no. VR 1517, MPA Stuttgart, no. 9004689000-C/D
– Test report for system K18: MPA Stuttgart, no. 9004689000-G
– Test report for system K20: IFBT Leipzig, no. 11-030, 11-031, 11-032, 11-033
– CWCT-test K18: Taylor Woodrow, no. N950/08/14073, N950/08/14074
– CWCT-test K20: Wintech, no. D-09/2264, D-09/2339
– AIR-INS inc., no. AS-00365-A; no. AS-00365-B
– Istituto Giordano, no. 285883
– Approval: Z-33.1-1175
Avis Technique 2/09-1348
BBA certificate 13-4980

CeraVent®

– Approval Z-33.2-1102
– Test report: CRP, Berlin, S326/06.5

KerAion-Approvals

– Z-33.1-18
– Avis Technique 02/12-1496
– Z-33.1-21
– Z-33.1-27

Test reports

– MPA Stuttgart, no. 23-10032-S-900
– MPA Stuttgart, no. 23-10032-Kla-900
– MPA Stuttgart, no. 23-15151-2
– MPA Stuttgart, no. 23-15151-1
– MPA Stuttgart, no. 23-15151-1E
– MPA Stuttgart, no. 23-15151-1F

Impact

– CWCT-tests
– Avis Technique
– MPA Stuttgart, no. 9004689000-F

Earthquake

– KeraTwin® K18: BETC-QC1-2008-83D (A), (B), (C), (D), (E), (F), (G), (H), (I), (J), Avis Technique 2/09-1348
– KeraTwin® K20: BETC-QC1-2009-298D, (A), (B), (C), (D), (E), (F)
– KerAion: BETC-QC1-2004-501D, BETC-QC1-2004-502D, BETC-QC1-2004-505D, BETC-QC1-2008-83D (F), Avis Technique 2/09-1347

Immission values

– Certificaat: NL BSB no. IKB 1441/06
– Test report: TCKI, no. 06/999bk.EvO

HT

– HT-Technology
– Guarantee Certificate
– Purification Mechanism
– Test report: Fraunhofer IGB

Construction Techniques and Construction Physics: Design Loads

General

Forces and loads acting on the facade, which result from the own weight, atmospheric and climatic influences, must be taken into account at the construction to ensure stability. The regulations in force of the respective country have to be complied with (e.g. DIN 18516-1 in Germany).

Own Weight

DIN 18516 Part 1 · Design Loads
If the characteristic own weight of a building material can not be taken from Eurocode 9, its own weight – taking into account a possible absorption of humidity – must be proved by a test certificate of an official material testing institute. The own weight also has to be taken into consideration at the dimensioning of the fastening, the substructure and its anchorage. The calculated weight (see page 111) of the facade panel is indicated in the respective approval decisions. The material properties of the ceramics are proved by test certificates.

Wind Load

The absorption of the wind loads must be proved for all parts of the outside wall cladding. Forces of different strength resulting from the wind load act on the outside wall cladding. Both wind suction and wind pressure loads occur. The wind design loads are specified in the regulations in force of the respective country.

Snow and Ice Loads

Snow and ice loads have to be taken into consideration in the case of special climatic conditions as well as in the case of a possible deposition at or on the cladding. In general, these additional loads only occur at inclined facade areas. Depending on the respective angle of inclination, it has to be examined to what extent snow and wind loads are expected to occur simultaneously.

Special Loads

Special loads, e.g. from neon signs, devices for the protection against the sun or scaffold anchors, must be carried by the wall independent of the outside wall cladding or have to be taken into account at the stability check.

Technical values and characteristics of facade ceramics

KeraTwin®

– Extruded ceramic panels, Precision, DIN EN 14411, group AII_a
– Thickness: K20: 20 mm K18: 18 mm
– Weight: K20: 32 kg/m² K18: 32 kg/m²
– Breaking strength: K18 / K20: ≥ 3300 N (according to DIN EN ISO 10545-4)
– Low water absorption (3% < E ≤ 6%)
– Frostproof
– Light- and colour-fast, resistant to UV light
– Resistant to aggressive environmental effects
– Building material class A1, non-combustible

Dimensional tolerances:

K18 / K20:	Length:	+/- 1 mm
	Height:	+/- 2 mm
	Thickness:	+/- 1 mm
	Straightness of edges:	+/- 0.15 %
	Surface flatness:	+/- 0.4 %
	Rectangularity:	+/- 0.3 %

KerAion

– Extruded ceramic panels, Precision, DIN EN 14411, group AI_b
– Thickness 8 mm
– Weight 18 kg/m² (Quadro: 18.5 kg/m²)
– Flexural/tensile strength ≥ 30 N/mm²
– Low water absorption (E ≤ 3%)
– Frostproof
– Light- and colour-fast, resistant to UV light
– Resistant to aggressive environmental effects
– Building material class A1, non-combustible

Dimensional tolerances (rectified):

60 x 60 cm:	Length and width	+/- 0.5 mm
	Straightness of edges	+/- 0.5 mm
	Thickness	+/- 0.5 mm
	Surface flatness/curvature at the edges	+/- 2 mm
	Rectangularity	+/- 1.2 mm
60 x 90, 90 x 90 cm:	Length and width	+/- 0.5 mm
	Straightness of edges	+/- 0.5 mm
	Thickness	+/- 0.5 mm
	Surface flatness/curvature at the edges	+/- 3 mm
	Rectangularity	+/- 1.8 mm
60 x 120, 90 x 120, 120 x 120 cm:	Length and width	+/- 0.5 mm
	Straightness of edges	+/- 0.5 mm
	Thickness	+/- 0.5 mm
	Surface flatness/curvature at the edges	+/- 3 mm
	Rectangularity	+/- 2 mm

Deutsches Institut für Bautechnik DIBt

CERTIFIÉ CSTB CERTIFIED

BBA APPROVAL INSPECTION TESTING CERTIFICATION

Non-combustible, building material class A1

Frostproof

Resistant to acids and alkalis

Light-and colour-fast, resistant to UV light

Clean-Air-Ceramics HT AGROB BUCHTAL

Antibacterial, odour-eliminating, easy to clean

Standards and Regulations for Facade Claddings with Ceramic Panels

Invitation to bid

Book of standard works for building Works area 038, curtain-type, rear-ventilated facades
VOB C ATV General rules for DIN 18299 Construction works of any type VOB C ATV DIN 18351 Curtain-type, rear-ventilated facades

Construction

DIN 18515-1, part 1: Tiles fixed with mortar; principles of design and application
DIN 18516-1, part 1: Cladding for external walls, rear-ventilated, requirements, principles of testing
DIN EN 1999-1-1 Eurocode 9: Design of aluminium structures – Part 1-1: General structural rules; German version EN 1999-1-1:2007 + A1:2009 + A2:2013-02 NA available
DIN 6800-1 Wood preservation – Part 1: General
DIN 68800-2, Wood preservation – Preventive constructional measures in buildings
DIN 68800-3, Wood preservation – Preventive protection of wood with wood preservatives
FVHF-FOCUS® Damage-free building with curtain-type, rear-ventilated facades

Design loads

Eurocode 9

Tolerances

DIN 18202, Tolerances in building construction; buildings

Ceramic tiles

DIN EN 14411, Ceramic tiles – Definitions, classification, characteristics and marking: Extruded ceramic tiles according to Appendix A (normative) and Appendix B (normative)
Part II of the List of Technical Building Regulations, application rules for building products and modular systems … and harmonized standards according to the directive on building products: 5.6, Ceramic tiles and panels, and annex 5/6
List of Building Regulations C, special issue no. 34, 2007-08: 2.1: Facade elements for outside wall claddings

Protection against lightning

DIN EN 62305-3; part 3: Physical damage to structures and life hazard
DIN EN 62305-4; part 4: Electrical and electronic systems within structures
FVHF-Focus® Highly effective protection of buildings against lightning

Fire protection

DIN 4102-1, Fire behaviour of building materials and building components – Part 1: Building materials; definitions, requirements and tests
DIN 4102-2, Fire behaviour of building materials and building components – Part 2: Building components; definitions, requirements and tests
DIN 4102-4, Fire behaviour of building materials and building components – Part 4: Synopsis and application of classified building materials, components and special components, and amendment A1
DIN EN 13501-1, Fire classification of construction products and building elements – Part 1: Classification using test data from fire reaction to fire tests
List of Building Regulations B, special issue no. 34, 2007-08, 1.9.3: Ceramic tiles and panels, Annex 01

Thermal protection and protection against moisture

Regulation for energy saving in buildings and building systems (EnEV)
DIN 4108-2, Thermal protection and energy economy in buildings; minimum requirements to thermal insulation
DIN 4108-3, Thermal protection and energy economy in buildings; protection against moisture subject to climate conditions; requirements, calculation methods and directions for design and construction
DIN 4108-4, Thermal insulation and energy economy in buildings; hygrothermal design values
DIN 4108-7, Thermal insulation and energy economy in buildings; air tightness of buildings, requirements, recommendations and examples for planning and performance
DIN 4108, supplement 2 Thermal protection and energy economy in buildings – thermal bridges – examples for planning and performance
DIN EN 13187, Thermal performance of buildings; qualitative detection of thermal irregularities in building envelopes – infrared method
Directive, Determination of the thermal influences of thermal bridges in the case of curtain-type, rear-ventilated facades
FVHF-FOCUS®, Protection of outside walls with curtain-type, rear-ventilated facades against thaw water and rain

Insulation

DIN EN 13162, Thermal insulation products for buildings – Factory made mineral wool (MW) products – Specification
WAB T3 WI.[P]
FVHF-Focus® Mineral thermal insulation with added value
Directive, Determination of the thermal influences of thermal bridges in the case of curtain-type, rear-ventilated facades

Sound insulation

DIN 4109, Sound insulation in buildings; requirements and verification
Supplement 1, Sound insulation in buildings; examples for execution and calculation methods
Supplement 2, Sound insulation in buildings; guidelines for planning and execution; proposals for increased sound insulation, recommendations for sound insulation in personal living and working areas
FVHF- FOCUS® The sound insulation with VHF

Certificates of suitability

Non-regulated construction products or building elements require a certificate of suitability according to the building regulations of the country concerned. For plugs and facade building elements, as a rule, a general approval of the construction supervisory authority is required as far as they are no construction products (building elements) specified in list C of the "List of building regulations".
VOB (Contract procedures for building works),
VOB Part B, General conditions of contract for the execution of building works, DIN 1961,
VOB Part C, General technical specifications for building works (ATV), roof covering and roof sealing works. – DIN 18338, only for the use of small-size cladding elements with test certificate according to DIN 18516-1,
VOB Part C, General technical specifications for building works (ATV), tiling works – DIN 18352, only for the laying of outside wall claddings (see DIN 18515-1).

Erection of scaffolding

DIN 4420-1, part 1: Service scaffolds – Performance requirements, general design, structural design
DIN 4420-2, part 2: Ladder scaffolds; safety requirements
DIN 4420-3, part 3: Selected types of scaffolding constructions and their basic versions
DIN 4426 Equipment for building maintenance – Safety requirements for workplaces and accesses – Design and execution
DIN EN 12810-1 Facade scaffolds made of prefabricated components – Part 1: Products specifications; German version EN 12810-1:2003
DIN EN 12810-2 Facade scaffolds made of prefabricated components – Part 2: Particular methods of structural design; German version EN 12810-2:2003
DIN EN 12811-1 Temporary works equipment - Part 1: Scaffolds – Performance requirements and general design; German version EN 12811-1:2003
DIN EN 12811-2 Temporary works equipment – Part 2: Information on materials; German version EN 12811-2:2004
DIN EN 12811-3 Temporary works equipment – Part 3: Load testing; German version EN 12811-3:2002
DIN EN 12811-4 Temporary works equipment – Part 4: Protection fans for scaffolds – Performance requirements and product design; German version EN 12811-4:2013
DIN 18451, Scaffolding works VOB Part C, edition 2012

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Internet: www.agrob-buchtal.de

You will find contact names for
other countries on the internet at:

www.agrob-buchtal.de

www.assenmacher.net

valid as of November 1, 2014, subject to modifications

DEUTSCHE FLIESE
Qualität Design Service

DGNB
Deutsche Gesellschaft für nachhaltiges Bauen e.V.
German Sustainable Building Council

Institut Bauen
und Umwelt e.V.

GREEN BUILDING COUNCIL
MEMBER ORGANISATION

FVHF

DEUTSCHE STEINZEUG AGROB BUCHTAL