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
– CE marking and Declaration of Performance according to EN 14411

KeraTwin® -Fastening systems
– General approval of the construction supervisory authority: Z-10.3-844
– Test reports and expert opinions for system K20
– BBA Agrément Certificate 13/4980
– Avis Technique 2.2/16-1719_V2
– Avis Technique 2.2/16-1720_V2
– Avis Technique 2/16-1750
– DIT N° 631/17
– ASTM, No. AS-00365-A; No. AS-00365-B

KerAion®-Approvals
– Z-10.3-776
– Avis Technique 02/15-1702

Impact
– VINCI C5882cot24575rev2
– CWCT-Tests
– MPA Stuttgart, Nr. 9004689000-F
– MPA Stuttgart, Nr. 903 7304 000-3 according to DIN EN 13501-1 Shatter protection SPS
– Avis Technique

Earthquake
– KeraTwin® K20: BETC-QC1-2009-298D, (A), (B), (C), (D), (E), (F)
– KerAion®:, BETC-QC1-2004-505D, Avis Technique 2/15-1702

Immission values
– Certificate: NLBSB, IKOBKB

ANTIGRAFFITI
– Test reports: Laboratory Dr. Kupfer

HYTECT
– Test reports:
Fraunhofer IGB
ISEGA
Instituto Giordano

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 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.

DEUTSCHE STEINZEUG AGROB BUCHTAL

Technical values and characteristics of facade ceramics

KeraTwin®

– Extruded ceramic panels, Precision DIN EN 14411, group AII_a, Extruded ceramic panels, Precision, DIN EN 14411. group AII_b
– Thickness: K20: 20 mm
– Weight: K20: 32 kg/m²
– Bending strength: average minimum value 20N/mm², Minimum individual value18 N/mm² (nach DIN EN ISO 10545-4)
– Low water absorption (3% < E ≤ 6% group AII_a) or (6%<E<10% group AII_b)
– Frostproof
– Light- and colour-fast, resistant to UV light
– Resistant to aggressive environmental effects
– Building material class A1, non-combustible;
– Building material class A2-s1, d0 with shatter-protection film

Dimensional tolerances:
Length <135 cm: +/- 1 mm, Length >135 cm <180 cm: +/-1.5 mm
Height < 505 mm +/- 2 mm, Height >505 mm < 605 mm: +/- 3 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
– 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, Length and width +/- 0.5 mm
120 x 120 cm: Straightness of edges +/- 0.5 mm
Thickness +/- 0.5 mm
Surface flatness/curvature at the edges +/- 3 mm
Rectangularity

Deutsches Institut für Bautechnik DIBt
AVIS TECHNIQUE CC FAT
BBA APPROVAL INSPECTION TESTING CERTIFICATION
CSIC DIT 631/17

Non-combustible, building material class A1

Frostproof

Resistant to acids and alkalis

Light- and color-fast, resistant to UV light

hytect® clever clean

DEUTSCHE STEINZEUG AGROB BUCHTAL

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
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

Verordnung über einergiesparenden Wärmeschutz und energieRegulation for energy saving in buildings and building systems (GEG)
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. 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 scaf folding

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