TILE-INSTALLATION

OBJECT STONE floor tiles are suitable for practically every installation on almost all surfaces if properly installed. Thepreparation and installation recommendations of the respective adhesive manufacturers have to be taken into account;if necessary, a test installation should be carried out. During all building phases, preventative measures should be takento ensure that installed floor tiles are suitably covered to protect them, from exposure to mechanical and chemicalwear.Floor tiles from OBJECT STONE are supplied in ready to install condition. The cutting of matching pieces must be doneusing a suitable wet construction saw. After cutting to size, the tiles must be completely dried before installation inthe bed of adhesive. The use of OBJECT STONE floor tiles is restricted to internal use on moisture free surfaces.The climatic conditions (room humidity status, substrate temperatures) should be kept at a minimum of 15° C and≤ 70% relative air humidity before and during the tile application and up to the complete hardening and drying outof all installation materials. The engineered stone panels which are to be installed should be stored on site for asufficient period of time to allow acclimatization under these conditions.

Prior testing of the surface area

The area designated for installation must be checked to ensure of suitability before installation. The substrate mustmeet the requirements set down by the pertinent technical regulations; and penetrating moisture from the backsidemust be avoided. Due to the enormous variety of regulations which are dependent upon type of use and dependantupon the type of field application, we cannot offer a long list of complete international regulations and sets of rules.The substrate should be checked for levelness and must correspond in accordance with DIN 18 202 pre-defineddimensional tolerances.In every case the specifications for the finished floor tile surface, must be observed for the substrate as well. Compensationwith self-levelling filler and compensation layer is generally required. The following criteria are to be observed in regardsto installation maturity respectively residual moisture:

Concrete:
Concrete must correspond to the requirements set out in DIN EN 206-1 and DIN 1045-2 and be sufficiently dry. Thesurface adhesive tensile strength should be at least 1.0 N/mm^2 Pressure, bend and adhesion tensile strength is to besynchronized with the load to be expected from the planned use. The Installation of the engineered stone tiles canbe done at the earliest after 6 months after installation of the concrete slab. Existing structural expansion joints areto be identically congruent with the tiles of OBJECT STONE.Effects of rising moisture on the back side of the stone tiles, even as diffusion processes are to be excluded.

Cement screed:
The composition of the screed must correspond in quality to the requirements set out in DIN 18 560 (April 2004). Thesurface adhesive tensile strength should be at least 0.7 N/mm^2 Screed thickness, pressure, bending resistance andadhesive tensile strength are to be in accordance with the expected load criteria for the intended type of use. Theregulations of the actual works for screed work are to be observed. The installation work of engineered stone tiles can begin in accordance with the acknowledged rules of the trade at the earliest after 28 days and with a maximumresidual humidity of ≤ 2 CM-%. The maximum field size of 40 m^2 and the maximum side length of 8 m must not beexceeded. The grouts are to be shaped as room grouts. The minimum grout width is dependent on the type of screed.By compound screeds the minimum width is at least 5 mm, by separation layer screed 5–10 mm and by screeds withinsulation the width must be between 8 and 10 mm. Edge connection grouts are to be set with a minimum widthof 10 mm vertically to all permanent construction components.

Calcium sulphate screed:
Calcium sulphate screeds must correspond in quality to the regulations set out in DIN 18560 (April 2004). The surfaceadhesive tensile strength should be at least 0.7 N/mm^2 Calcium sulphate screeds are generally to be abraded priorto the Installation of the engineered stone tiles with a floor grinder using a 16 grain pad. Screed thickness, pressure,bending resistance and adhesive tensile strength are to be in accordance with the expected load criteria for the intendedtype of use. The Installation of the work of engineered stone tiles on unheated screeded floors can begin as soon asthe laying substrate shows humidity content of ≤ 0.5 CM-% in the full cross-section view. By heated floor constructions,maximum residual moisture ≤ 0.3 CM-% is to be observed. It must be certain, that long term protection against effectsfrom moisture build-up from the substrate and/or through condensation is given. In addition to the requirements forgrout layout in the screed construction as set out in the ZDB leaflet “Ceramic tiles and panels, engineered stone tiles and concrete pressed tiles on calcium sulphate composed screeds” attention is to be paid to a maximum side lengthof 8 m expansion joint limitations..

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Heated floor constructions:
For heated screed constructions is the specialized information "Interface coordination by heated floor constructions" and the DIN EN 1264-4 "Floor Heating; Systems and components" to be observed in their valid versions. The surfaces to be installed should be appropriately heated up and heated down before begin of installation work. A Protocol documenting this process of the functional heating is to be completed and to be handed over to the installer before works begin.

Mastic asphalt screed:
The installation of the OBJECT STONE tiles can begin after cooling of the mastic asphalt to room temperature. The composition of the screed must correspond in quality to the requirements set out in DIN 18 560 (April 2004). In particular the screed must show a dull, with sand rubbed off surface. Surfaces which have not been properly prepared through a rubbing off with sand and before the installation of a levelling compound the mastic asphalt screed should be coated with a suitable primer coat based on epoxy resin basis. The fresh primer coat is to be spread with a 0.7 – 1.2 mm grain quartz sand. Quartz sand particles which are not bonded are to be removed carefully after the curing of the primer coat.
Eventually required applications of levelling compounds using cement-bonded filler materials should be performed using a maximum layer thickness of 5 mm.
The application of thicker layers should be performed using low-contraction-hardening, calcium sulphate bonded filler material.

Other:
Upon enquiry

Sub-floor preparation

Eventually existing, adhesion reducing component parts, e.g. binder enrichment, oils, greases, old paints or coatings must be removed completely by a suitable procedure. Existing fissures in the floor have to be closed. The sub-surface is to be primered with a first coat which corresponds with the installation mortar and the screed.

Installation procedure for thin- and middle bed:

In order to maintain dimensional stability by the installation of OBJECT STONE floor tiles it should be observed that a highly flexible, quick hardening and quick drying thin bed mortar be used, which has the ability to fully bind the mixing water crystalline within itself and meets the grade C2F according to DIN EN 12004 respectively S1 in accordance with DIN EN 12002. Hereby the use of 2-component adhesive systems, whereby the liquid plastics are added manually is preferred.
To ensure a lasting adhesion and damage-free use as intended traffic loads' are directed onto the surface, the engineered stone tiles are to be installed in a cavity-free form using the buttering- floating procedure.

Joint alignment:

The width of joints is dependent upon the dimension of the floor tiles to be installed: By a side length of < 50 cm the minimum width is 3 mm; by side lengths ≥ 50 cm a grout width of minimum 5 mm is required. An installation without joints is not permissible.

Material expansion joints must have at least 5 mm minimum width. Outer-edge spacing must have at least 10 mm. The maximum field parameter should not exceed 40 m^2 within a maximum length of the edges from 8 m. By mechanical heavily frequented surfaces it is recommended to install grout profiles as edge nosing protection. The grout spacing width is to be determined dependent upon the expected temperature expansion, the engineered stone tile to be installed and the identified wear load criteria.
Particular consideration should be given to partial temperature increases caused by solar radiation exposure near large front windows. A plan should be prepared showing the placement of all expansion joints in the screeded substrate and the joints for the engineered stone surface from which the type and location of the grout can be identified. The plan to be created by the project planner and implemented as an integral component part of the performance specification. Corner, connection and movement joints are to be closed with sufficient, neutral cross-netting grout sealant material.

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Grouting of the OBJECT STONE tiles

The selection of the grout mortar to be used is dependent on the kind of the demand and the grout width. The grouting of the surface can not occur before complete hardening and drying of the adhesive mortar. The use of 2- component epoxy resin grout mortars is required for the production of chemical-resistant and extreme wear grouts.

After installation and grouting of the OBJECT STONE floor tiles, eventual rest material left on the surface such as adhesive or grouting mortar should be removed using special cleaning agents only after complete hardening. The specialized retail trade can supply the appropriate product for this purpose. Prior to use on the floor surface, a cleaning test in an inconspicuous area should be carried out to exclude any irreversible damage being done to the engineered stone tiles.

Installation in thick bed

OBJECT STONE floor tiles can be influenced by alkaline humidity dependant upon the type of product, and can be affected more or less strongly in its form. The chance of dimensional change increases by a lower material thickness or the greater the total dimension of the individual tile element. In order to prevent an uplifting of tiles, caused by the appearance of tension, an increased interlocking adhesion of tiles to the substrate is necessary. Due to the reasons previously mentioned and the relatively high potential of moisture which is found in a thick bed installation, the use of OBJECT STONE engineered stone tiles is not recommended. If a high build-up is required, we recommend the installation of a surface equalising layer achieved by the use of a compound levelling screed or suitable level compounds. The installation of tiles in a thin bed or middle bed installation procedure, with a suitable adhesion mortar can be carried out on the compensated area, as soon as this material has set appropriately.

Installation of stairs, with material thickness' 2.0 and 3.0 cm

OBJECT STONE stair treads are to be laid into a full coverage and stress-free bed of mortar. Use installation mortar with effective crystalline water binding. With use of a suitable adhesion agent and considering a professional installation a sufficient bond will occur, after hardening of the mortar bed, between the mortar bed and subsurface on the one hand and underside of the engineered stone element on the other hand. The stair treads are to be pre-treated with
a water blocking coat and after the stipulated setting time, with use of a contact thickener or a suitable thin bed mortar, coated on the reverse side, should be installed in a "fresh in fresh" method. Wall connections should not be filled with mortar to prevent sound transfer or transfer of material tension. Filling of the joints should first be done after complete drying of the mortar bed has been accomplished.

A special specification text for the preparation of the suitable substrates is available for architects and planners for the invitations to tender of floor coverings with OBJECT STONE tiles. These are available by OBJECT STONE GmbH, Schützenhof 1, D-36157 Ebersburg, Germany.
This installation recommendation is only a recommendation. We cannot accept any liability for correctness nor completeness. By new printing of this recommendation the current form looses its validity.

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