

Planning documents
Balcony waterproofing system with marble gravel

# **Triflex Stone Design**



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## **Applications**



**Triflex Stone Design** is used above occupied rooms or surfaces that are particularly appealing to look at and can withstand high mechanical loads. The structure is provided with long-lasting protection in conjunction with the full-surface fleece-reinforced waterproofing Triflex ProTerra.

#### High-quality surfaces for balconies and terraces

Triflex Stone Design is a brilliant combination of natural marble gravel or granite grit and UV-resistant polyurethane resin. The high-quality surface can be applied quickly and easily to Triflex waterproofing on balconies and terraces. In addition to providing the building structure with long-lasting protection against damp and moisture, it has excellent aesthetic value.

Marble gravel or granite grit gives balconies and terraces an exclusive and unique appearance, with a wide range of natural colours available. The striking blend of different-coloured stones makes for an effective feature, tailored to the client's lifestyle and style of furnishing.









### Advantages at a glance

#### Lasting shine with no discolouration

The innovative, moisture-curing polyurethane resin used in Triflex Stone Design has a defining qualitative edge over conventional stone surfaces, which tend to discolour over time. It ensures that the surface is UV stable, durable and frost-resistant. Other advantages of the Triflex liquid applied waterproofing include its quick and easy application. The surface is rainproof after just 2 hours!

#### No standing water or puddles

The marble gravel or granite grit surface offers outstanding drainage properties. Rainwater immediately drains into the gravel layer, so no standing water or puddles form on the surface of balconies and terraces. The building structure is protected by the integrated Triflex waterproofing. Thus Triflex Stone Design is both functional and aesthetic.

#### Quickly applied

Triflex uses only trained contractors, which ensures the high-quality application of Triflex systems. Because it is quick and easy to apply, Triflex Stone Design can be installed within a very short period of time. The new decorative and durable balcony or terrace surface is then usable within 36 hours.

### And this is how it's done ...



 Prime wall junction and surface.



2. Prepare Triflex Special Fleece cut-outs.



3. First, the details are waterproofed using Triflex ProDetail.



**4.** Triflex Special Fleece is applied across the entire surface ensuring there are no air bubbles.



5. A second layer of Triflex ProDetail is applied.



6. The details are completely waterproofed.



7. Triflex ProTerra is applied generously to the surface.



**8.** Triflex Special Fleece is applied across the entire surface ensuring there are no air bubbles.



**9.** A second layer of Triflex ProTerra is applied.



**10.** Bond in profile rails with Triflex Cryl Paste.



**11.** Apply the finish Triflex Cryl Finish 205 and dress with quartz sand.



12. Mix Triflex Stone Design S and Triflex Stone Design R 1K.



**13**. First the upstands are created, then the surface.



**14.** Compact with a Venetian trowel and smooth with a smoothing trowel.



15. That's the Triflex Stone Design surface complete.



# Compatible system components

All the Triflex products mentioned in this system are carefully coordinated on the basis of laboratory testing and years of experience. This standard of quality ensures optimum results during both application and use.

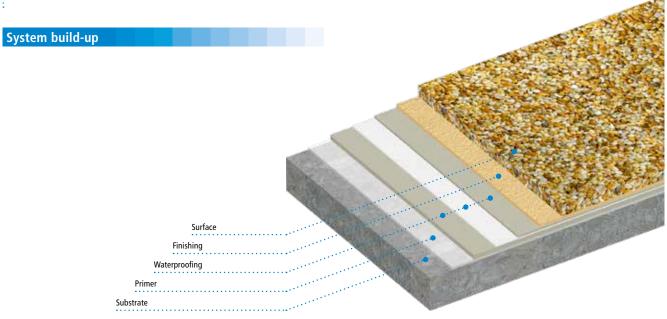
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## System description

#### **Properties**

- · Marble gravel or granite grit surface for balconies and terraces
- Use of a tried-and tested, fully reinforced waterproofing with a polymethyl methacrylate (PMMA) base
- Withstands mechanical loads
- Seamless
- Joint-bridging
- Fully bonded
- Elastic
- Dynamic crack-bridging properties
- Cold-applied
- Alkali-resistant

- Hydrolysis-resistant
- Fast-curing
- · Vapour-permeable
- Chemical-resistant
- Weather-resistant (UV, IR etc.)
- Surface design to specification
- European Technical Approval (ETA) with CE mark in the highest usage categories (W3, M and S, P1 to P4, S1 to S4, TL4, TH4)
- Conforms to DIN 18531 and the ZVDH technical rule for waterproofing (German Flat Roof Guidelines)



#### System components

#### Prime

Triflex Primer for sealing the substrate and ensuring substrate adhesion. (see Substrate pre-treatment table if necessary)

#### Waterproofing

Triflex ProTerra waterproof membrane, fully reinforced with a sturdy Triflex Special Fleece made of polyester.

#### **Finishing**

Triflex Cryl Finish 205 with quartz sand dressing for protection of the waterproofing.

#### Surface

Triflex Stone Design, decorative and wear-resistant marble gravel or granite grit surface

#### Substrate

The suitability of the specific substrate should always be tested. The substrate must be clean, dry and free of cement bloom, dust, oil, grease and other adhesion-inhibiting substances.

#### Important:

Prolonged standing water on the waterproofing must be avoided. For this purpose, a sufficient gradient must be taken into account.

**Moisture:** When carrying out coating work, the substrate moisture must not exceed 6 % by weight. Ensure that structural measures are taken to prevent moisture penetration of the coating from underneath.

**Dew point:** During application, the surface temperature must be at least 3 °C above the dew point temperature. Below this temperature, a separating film of moisture can form on the surface.

**Hardness:** Mineral substrates should usually have reached the required standard strength in relation to the building project after 28 days.

Adhesion: The following tensile strengths must be verified on pretreated test surfaces:

Concrete: on average, at least 1.5 N/mm², individual value not less than 1.0 N/mm². Screed: on average, at least 1.0 N/mm², individual value not less than 0.7 N/mm².

### System description

#### Substrate pre-treatment

Substrate	Pre-treatment	Primer
Aluminium	Abrade with Triflex Cleaner	Triflex Metal Primer <sup>(1)</sup>
Asphalt	Grinding	Triflex Cryl Primer 222
Composite thermal insulation systems	Remove any loose material	Triflex Pox R 100
Concrete	Grinding	Triflex Cryl Primer 276
Copper	Abrade with Triflex Cleaner	Triflex Metal Primer <sup>(1)</sup>
Epoxy resin coating	Roughen surface and test adhesive strength and compatibility	No primer
Glass	Abrade with Triflex Glass Cleaner, adhesive strength test	Triflex Glass Primer
Lightweight concrete	Remove any loose material	Triflex Cryl Primer 276
Mortar, resin-modified	Grind, adhesive strength and compatibility test	Triflex Pox R 100
Paint	Completely grind off	See substrate
Plaster/masonry	Remove any loose material	Triflex Cryl Primer 276
PU coating	Roughen surface and test adhesive strength and compatibility	No primer
PVC mouldings, rigid	Abrade with Triflex Cleaner, roughen surface	No primer
Screeds	Grinding	Triflex Cryl Primer 276
Stainless steel	Abrade with Triflex Cleaner	Triflex Metal Primer <sup>(1)</sup>
Steel, galvanised	Abrade with Triflex Cleaner	Triflex Metal Primer <sup>(1)</sup>
Tiles	Mechanically remove glaze	Triflex Cryl Primer 276
Wood	Remove any paint	Triflex Cryl Primer 276
Zinc	Abrade with Triflex Cleaner	Triflex Metal Primer <sup>(1)</sup>

<sup>(1)</sup> Alternative to priming: Abrade with Triflex Cleaner and roughen surface. Information on other substrates is available on request (technik@triflex.de).

#### Important:

Adhesion must always be tested on the specific substrate!

#### **Priming**

#### **Triflex Cryl Primer 222**

Apply evenly and cross-coat using a Triflex Universal Roller. Consumption: at least 0.40 kg/m<sup>2</sup>. Can be recoated after approx. 45 mins.

#### **Triflex Cryl Primer 276**

Apply evenly and cross-coat using a Triflex Universal Roller. Consumption: at least 0.40 kg/m<sup>2</sup>. Can be recoated after approx. 45 mins.

#### **Triflex Glass Primer**

Wipe on GP evenly with a cleaning cloth. Consumption: approx. 50 ml/m<sup>2</sup>. Can be recoated after approx. 15 min. to max. 3 hrs.

#### **Triflex Metal Primer**

Apply a thin coat with a short-pile roller (e.g. MP roller) or alternatively, apply a thin coat with a spray can. Consumption: approx. 80 ml/m<sup>2</sup>.

Can be recoated after approx. 30 to 60 mins.

#### Triflex Pox R 100

Apply evenly with a Triflex universal roller. Dress the fresh primer with a surplus of quartz sand. Consumption: of Triflex Pox R 100: at least 0.30 kg/m<sup>2</sup>, Consumption: of quartz sand 0.2–0.6 mm: at least 2.00 kg/m $^2$ . Can be recoated after approx. 12 hr.

#### Repairing

#### Triflex Cryl Level 215+

Mortar for making sloping screeds with layer thicknesses of 10 mm to 50 mm. Consumption with a minimum layer thickness of 10 mm: approx. 22 kg/m<sup>2</sup>. Can be recoated after approx. 45 min.

Joints resulting from work interruptions or from division into work areas are to be designed as construction joints.

#### Triflex Cryl RS 240

Mortar for repairing mineral substrates with roughness depths of  $R_t > 10$  mm. Consumption: at least 2.20 kg/m<sup>2</sup> per mm layer thickness. Can be recoated after approx. 45 mins.

#### **Triflex Crvl Paste**

Paste for filling in shrinkage cracks, smaller areas of damage and for levelling out uneven areas and fleece overlaps.

Consumption: approx. 1.40 kg/m<sup>2</sup> per mm layer thickness. Can be recoated after approx. 1 hr.

#### **Triflex ProFloor**

Scratch coat for repairing mineral substrates with the addition of up to 10.00 kg of quartz sand, 0.2-0.6 mm<sup>(1)</sup> per 33.00 kg of Triflex ProFloor (3K) or 4.50 kg of quartz sand, 0.2–0.6 mm<sup>(1)</sup> per 15.00 kg of Triflex ProFloor RS 2K Consumption: at least 2.00 kg/m<sup>2</sup> per mm layer thickness. Can be recoated after approx. 1 hr.

<sup>(1)</sup> The quartz sand grading curve must be adjusted on site, if necessary.

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## System description

#### **Detail waterproofing**

Triflex ProDetail must be applied to all junctions, transitions and other detail solutions before surface waterproofing.

Application is wet-on-wet.

#### 1. Triflex ProDetail

Apply evenly with a radiator roller. Consumption: at least 2.00 kg/m<sup>2</sup>.

#### 2. Triflex Special Fleece/Triflex Special Fleece PF \*

Lay strips with no air bubble.

Overlap the fleece strips by at least 5 cm.

#### 3. Triflex ProDetail

Apply until the Triflex Special Fleece is fully saturated. Consumption: at least 1.00 kg/m².

Total consumption of Triflex ProDetail: at least 3.00 kg/m².

Can be recoated after approx. 45 mins.

For dimensions, see Triflex Stone Design system drawings.

#### Joint waterproofing

All joints must be treated with Triflex ProDetail before applying the surface waterproofing.

To prevent abutting edges, joints should always be embedded in the substrate (see system drawings).

#### Construction joint:

Application is wet-on-wet.

#### 1. Triflex ProDetail

Apply a width of 16 cm with a radiator roller. Consumption: at least 0.30 kg/m.

#### 2. Triflex Special Fleece/Triflex Special Fleece PF

Lay a 15 cm wide strip with no air bubble. Overlap the ends of the fleece by at least 5 cm.

#### 3. Triflex ProDetail

Apply until the Triflex Special Fleece is fully saturated. Consumption: at least 0.30 kg/m.

Total consumption of Triflex ProDetail: at least 0.60 kg/m.

Can be recoated after approx. 45 mins.

For dimensions, see Triflex Stone Design system drawings

#### **Expansion joint:**

#### 1. Triflex Cryl Paste

Apply a width of approx. 4 cm to both sides of the joint to bond the Triflex Support Strip.

#### 2. Triflex Support Strip

Lay in the joint as a loop.

Can be recoated after approx. 1 hr.

#### 3. Triflex Special Fleece/Triflex Special Fleece PF

Insert two strips, each at least 26 cm wide, saturated with Triflex ProDetail as a double loop with no air bubble.

The width of the fleece depends on the joint construction.

Can be recoated after approx. 45 mins.

#### 4. PE Round Sealing Band

Place in the joint.

#### 5. Triflex ProDetail

Seal the joint so it is flush with the surface.

Total consumption of Triflex ProDetail: at least 1.20 kg/m.

Can be recoated after approx. 45 mins.

For dimensions, see Triflex Stone Design system drawings.

#### Important:

- In the area of the expansion joint, adhesive tape is used to cover a width of at least 5 cm for the surface waterproofing and the finish. After applying the surface finish, the joint is levelled flush with Triflex ProDetail.
- 2. For surface areas greater than 30 m², Triflex Stone Design must be divided up using a expansion joint. The Schlüter DILEX-BWB 60 profile, for example, can be used for this purpose, or two Schlüter Schiene Basic profiles can be placed against one another.

#### **Surface waterproofing**

Application is wet-on-wet.

#### 1. Triflex ProTerra

Apply evenly with a Triflex universal roller. Consumption: at least 2.00 kg/m<sup>2</sup>.

#### 2. Triflex Special Fleece/Triflex Special Fleece PF

Lay with no air bubble. Overlap the strips of fleece by at least 5 cm.

#### 3. Triflex ProTerra

Apply until the Triflex Special Fleece is fully saturated. Consumption: at least 1.00 kg/m².

Total consumption of Triflex ProTerra: at least 3.00 kg/m<sup>2</sup>.

Can be recoated after approx. 1 hr.

#### Important:

In the area of the expansion joint, tape over the surface waterproofing with at least 5 cm wide adhesive tape.

<sup>\*</sup> if necessary, Triflex Special Fleece mouldings.

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## System description

#### **Finishing**

The sealing of all vertical junctions, transitions and details must be carried out prior to the surface finishing with thixotropic Triflex Cryl Finish 205. The product is thickened by the in-situ addition of 1 wt.-% Triflex Liquid Thixo.

#### **Important**

If Triflex Stone Design is also applied to the upstands, the fresh finish Triflex Cryl Finish 205 is dressed with quartz sand as in the surface.

#### 1. Triflex Cryl Finish 205

Apply evenly and cross-coat using a Triflex Finish Roller. Consumption: at least 0.50 kg/m<sup>2</sup>.

#### 2. Quartz sand, size 0.2-0.6 mm

Dress the fresh finish in excess. Once the finish is cured, vacuum away any surplus.

Consumption: approx. 1.00 kg/m<sup>2</sup>.

Can be recoated after approx. 2 hrs.

#### Important:

In the area of the settlement joint, adhesive tape is used to cover a width of at least 5 cm for the finish. Once the finish is cured, the joint is levelled flush with Triflex ProDetail.

#### **Recommendation:**

The colour of Triflex Cryl Finish 205 should be matched to the colour of the Triflex Stone Design surface. Other colour combinations are possible to allow for individual designs.

Triflex Stone Design	Triflex Cryl Finish 205
Colour of Triflex Stone Design S	Finish as substrate colour
S100 Giallo Sienna	2053 Amber 02
S200 Breccia Pernice	2053 Amber 02
S300 Rosso Verona	8054 Agate 04
S700 Bardiglio	7035 Quartz 01
S800 Marrone	3091 Ruby 04
S900 Ice Blue A	7037 Slate 02
GS153 Tuscany	2053 Amber 02
GS753 Iceland	7043 Slate 03
GS853 Brittany	3091 Ruby 04

#### **Surface**

The Triflex Stone Design R 1K and two non-slip class R 10 Triflex Stone Design S special aggregates are applied to the Triflex Stone Design surface:

Type A: Marble gravel with grain size 1–4 mm Type C: Granite grit with grain size 2–4 mm The individual products Triflex Stone Design R 1K (resin) and Triflex Stone Design S (special aggregate) are uniformly mixed in the mixing ratio 1.3:25 for the surface and 1.3:12.5 for the upstands, in order to prepare a Triflex Stone Design coating.

Suitable hand mixer: e.g. Collomix Xo 55 R duo or a positive mixer.

Optionally, luminescent aggregate Triflex Stone Design Galaxy with approx. 3 % by weight can be added to the special aggregate.

#### Consumption:

Triflex Stone Design R 1K approx. 0.80 kg/m²
Triflex Stone Design S approx. 14.40 kg/m²
Triflex Stone Design Galaxy approx. 0.40 kg/m²

The consumption can vary depending on compaction.

Up to 10 % more material should be included in the plan as a result.

#### Important:

Triflex Stone Design S is a natural product which can vary in terms of colour and grain size. For large surfaces, it is advisable to mix the quantity of Triflex Stone Design S well.

As with the surface, Triflex Stone Design can also be applied to all vertical junctions, transitions and details if desired, rather than just a finish. The upstands are created before coating the surface.

#### Upstands with thixotropic Triflex Stone Design R 1K:

Application is wet-on-wet.

#### 1. Triflex Stone Design R 1K

Fill all details with the resin with the addition of up to 10 % by weight Triflex Thixo SD.

#### 2. Triflex Stone Design

Mix the resin with approx. 10 % by weight thixotropic Triflex Thixo SD and special aggregate to create a coating that has been mixed and is ready to use. Spread with a smoothing trowel on the upstand.

#### Alternative upstands with prefabricated mouldings:

#### 1. Formwork

Create from wood or sheet metal on PE sheet.

#### 2. Triflex ProMesh

Lay out the alternative CTIS Fabric Mesh in the formwork.

#### 3. Triflex Stone Design

Fill the mixture evenly into the formwork with a smoothing trowel and remove after approx. 3 hrs.

#### 4. Moulding

Cut to length on site

#### 5. Triflex Cryl Spachtel

Apply to the upstand and bond the Triflex Stone Design mouldings.

#### Surface coating:

#### **Triflex Stone Design**

When the coating has been mixed and is ready to use, apply evenly with a smoothing trowel and compact with a Venetian trowel.

Consumption: see above.

Can be walked on after approx. 18 hrs. Resistant after approx. 36 hrs.

<sup>\*</sup> if necessary, Triflex Special Fleece mouldings.

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### System description

#### **Surface subdivision:**

Surface borders must always be finished with profiles or strips. Surfaces larger than 30 m<sup>2</sup> should be divided up with settlement joints.

#### Important:

When working with profile strips (e.g. Schlüter Schiene Basic or DILEX-BWB), the side height of the profile must match the grading curve of the Stone Design: Triflex Stone Design Type A + Type C = Side height: 8 mm The strips are bonded to the surface waterproofing with Triflex Cryl Paste.

#### Leading edge finishing:

For drainage via the leading edge, the Triflex Stone Design balcony edge finishing profile is used. This facilitates better drainage of the stone surface. The edge finishing profile is bonded with Triflex Cryl Paste to the primer. The connector can also be attached with Triflex Cryl Paste.

#### Important:

Before applying the Triflex Stone Design surface, the outside of the drainage holes in the edge finishing profile must be sealed with Triflex Duct Tape.

#### **Work interruptions**

#### Waterproofing:

If work is interrupted for more than 12 hrs, or if soiled by rain etc., the intersection must be activated with Triflex Cleaner.

Airing time at least 20 mins. Transitions to subsequent detail waterproofing must overlap including Triflex Special Fleece by a minimum of 10 cm. This also applies to junctions, transitions and detail solutions with Triflex ProDetail.

#### Surface:

If work has to be interrupted when applying Triflex Stone Design or if construction joints are required, the mixed fresh Stone Design should be gathered up with a smoothing trowel or a suitable rail to form as straight an edge as possible. You can then continue on with the next section. There may be visible differences between these sections! Individual sections can be finished beforehand; for instance, using a suitable profile (e.g. Schlüter Schiene Basic).

#### System components

For information on applications, conditions of use and instructions for mixing, see product information (request if necessary):

Triflex Cleaner
Triflex Cryl Finish 205
Triflex Cryl Level 215+
Triflex Cryl Primer 222
Triflex Cryl Primer 276
Triflex Cryl RS 240
Triflex Cryl Paste
Triflex Glass Primer
Triflex Metal Primer
Triflex Pox R 100
Triflex ProDetail

Triflex ProMesh
Triflex ProTerra
Triflex Special Fleece
Triflex Special Fleece PF
Triflex Stone Design Balcony Edge Finishing Profile
Triflex Stone Design Galaxy
Triflex Stone Design R 1K
Triflex Stone Design S
Triflex Support Strip
Triflex Thixo SD

#### **Quality standard**

All Triflex products are manufactured in accordance with the standards defined in ISO 9001. To ensure quality of workmanship, Triflex products are only installed by fully trained and qualified specialist contractors.

#### **Gradient / Evenness**

Before applying the pattern or decoration, and during application, always ensure the correct gradient and evenness of the substrate. In order to ensure the drainage of rainwater and to avoid puddles, we recommend a gradient of at least 1.5% on balconies in accordance with DIN 18531-5 and of at least 2.0% on used roof areas in accordance with DIN 18531-1 and the technical rules for waterproofing systems. Any corrections required must be taken into account during this work.

#### **Pinholes**

Air pockets in concrete or screed go on to cause "pinholes". The mechanical substrate pre-treatment causes the air pockets to open on the surface. The subsequent coating closes the access to the air spaces. The warming of the air inside the pockets as a result of the reaction and ambient temperature causes the volume to expand and the pressure to increase. The air then rises up through the coating to the surface.

This is a purely physical process and is not triggered by the coating material itself. In order to prevent the formation of pinholes in the coating, it is recommended that processing be performed when temperatures are falling.

#### **Dimensional tolerances**

When carrying out the work, always ensure compliance with the permissible tolerances for building construction (DIN 18202, Table 3, line 4).

#### Safety tips / Accident prevention

Read the safety data sheets before using the products.

#### Required consumptions / Waiting times

The volumes required apply only to smooth, even substrates with a maximum roughness of  $R_t = 0.5$  mm.

Special allowance must be made for unevenness, roughness and porosity. Specified flash times and waiting times apply to a substrate and ambient temperature of  $+20\,^{\circ}\text{C}$ .

#### Information about tools

The Triflex tools mentioned in the system description are a guideline for correct application of the individual functional layers with the respective volumes of product. The use of Triflex tools is not mandatory as long as correct application of the Triflex products is assured.

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## System description

#### **General notes**

The system descriptions, system drawings and product information sheets form the basis for using Triflex products, and it is essential to follow these when planning and carrying out your building project. Any deviation from the technical information provided by Triflex GmbH & Co. KG that is current at the time the work is carried out may invalidate the warranty. Any project-related deviations require written approval from Triflex.

All the information is based on general regulations, directives and other technical rules. The general regulations applicable in the particular country of use must be respected.

Since the parameters can vary from case to case, the contractor is required to test the suitability, e.q. of the substrate.

Non-Triflex products must not be used in combination with Triflex systems. Triflex reserves the right to make modifications in the interest of technical enhancement or optimisation of Triflex products.

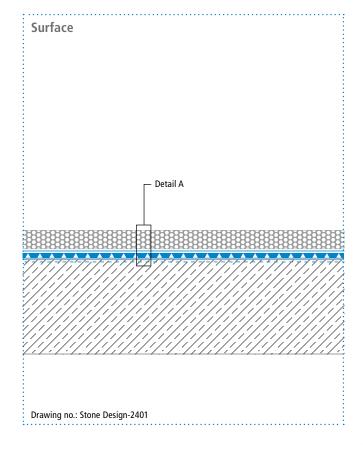
#### **Tender texts**

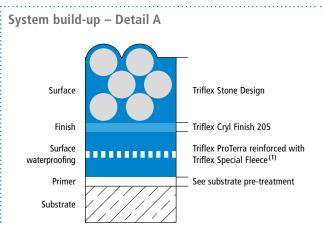
Please visit the Download section of the Triflex website at www.triflex.com to obtain the current standard specifications, which are available in a range of different file formats. Alternatively, visit the website www.ausschreiben.de or www.heinze.de.

#### **CAD drawings**

All CAD system drawings can be downloaded free of charge from the Download section of the Triflex website www.triflex.com. Contact us at technik@triflex.de to request further true-to-scale CAD drawings.

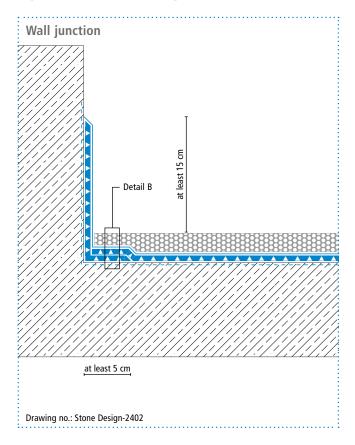
### System drawings

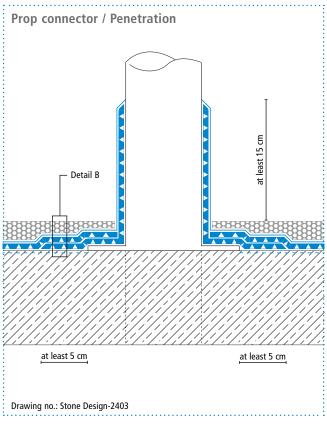


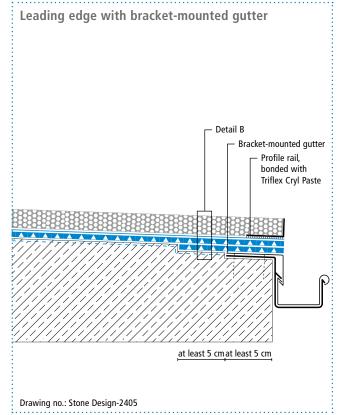


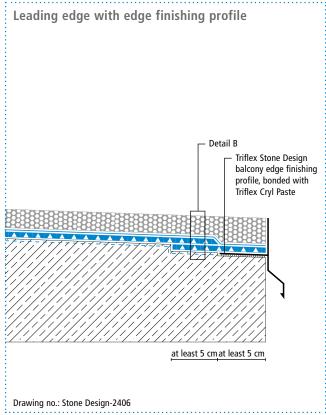


## System drawings





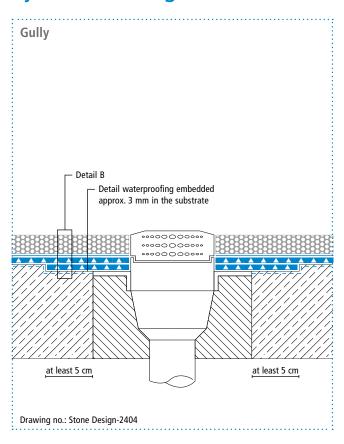


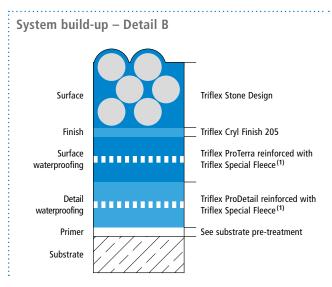


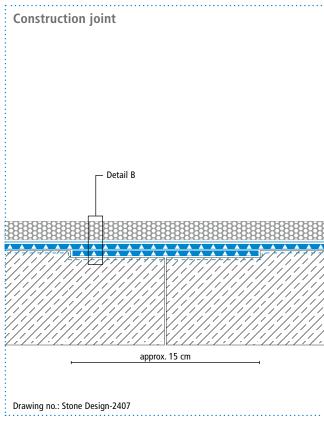
 $\label{thm:continuous} \mbox{Height differences where the fleece overlaps are exaggerated.}$ 



## System drawings



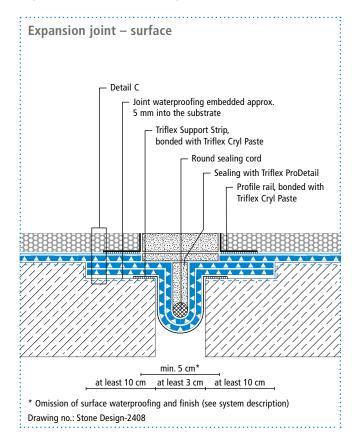


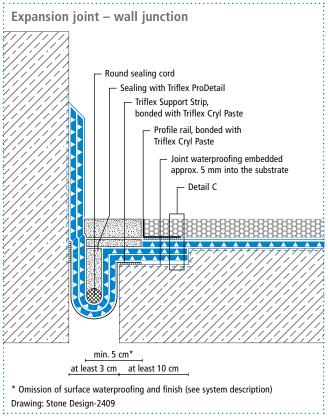


Height differences where the fleece overlaps are exaggerated.



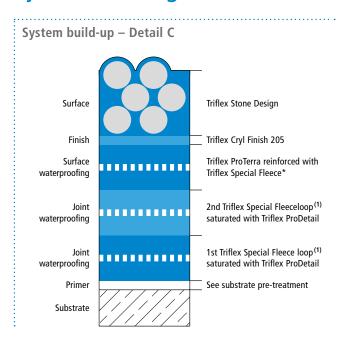
## System drawings





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## System drawings





## Marble gravel surfaces + substrate colours

Triflex Stone Design Type A	Triflex Cryl Finish 205
S100 Giallo Sienna A	2053 Amber 02
S200 Breccia Pernice A	2053 Amber 02
S300 Rosso Verona A	8054 Agate 04
S700 Bardiglio A	7035 Quartz 01
S900 Ice Blue A	7037 Slate 02
S800 Marrone A	3091 Ruby 01
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## Granite grit surfaces + substrate colours

Triflex Stone Design Type C Triflex Cryl Finish 205



#### Please note:

All surfaces are displayed on a scale of 1:2. Minor variations between the colour shown here and the actual colour are due to printing technology and the materials used.



