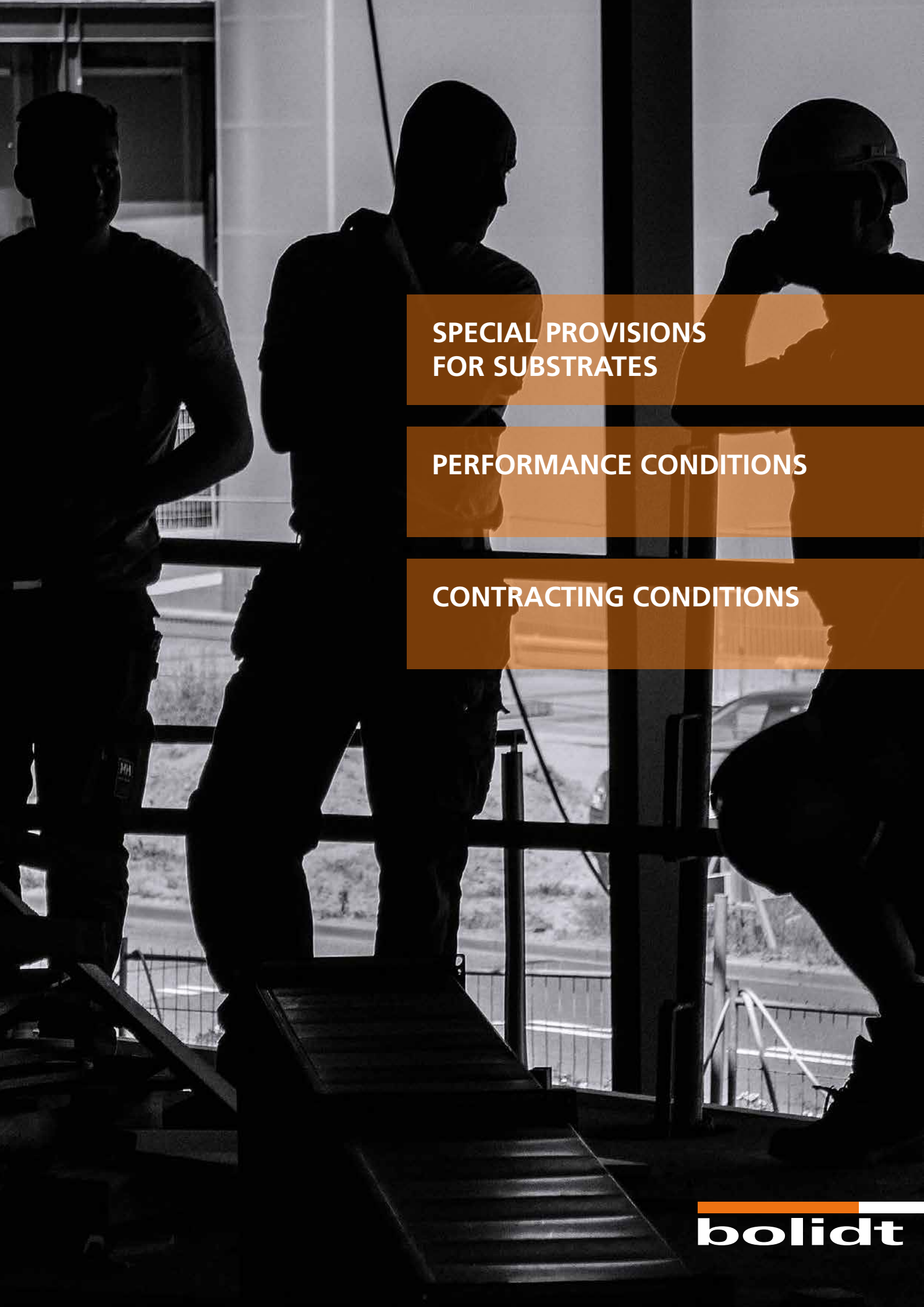

SPECIAL PROVISIONS FOR SUBSTRATES

PERFORMANCE CONDITIONS

CONTRACTING CONDITIONS

bolidt

This is how we work together to realize the perfect synthetic flooring, wearing course or ship deck

At Bolidt, advice on the right system is always tailored to your specific situation, so that the synthetic floor, wearing course or ship deck is always durable and remains so. We have translated our broad experience in various industries and your wishes and requirements for the floor, wearing course or ship deck into a floor recommendation. You will find this advice in the order confirmation.

Once the choice for the right floor, wearing course or ship deck has been made, Bolidt, with its own trained teams of production employees, work planners, project managers, laboratory technicians and applicators, ensures that the promise of a high-quality floor finish, wearing course or ship deck tailored to your needs is actually realized. This always involves looking at all the conditions and circumstances that influence the result.

Bolidt synthetic systems are laid in situ. Achieving the best result for the synthetic systems means that the substrate, environmental and performance conditions are closely monitored and coordinated with the parties involved prior to installation. Bolidt thinks along even to the smallest details in order to achieve the perfect end result.

In this document Special Provisions Substrates, Performance & Contracting Conditions you will find the checklist of actions and precautions you must take to properly prepare the installation of your floor.

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A.1 GENERAL SUBSTRATE PROVISIONS

The quality of the substrate on which Bolidt synthetic floor finishes are installed is essential. Bolidt always advises on the starting points that the various substrates must meet in order to achieve optimum adhesion of the synthetic floors, wear layers and ship decks, thus guaranteeing a robust and durable system. Below are the general provisions for the substrates.

1.1 FLOORING

We point out that the floor finishing follows the substrate without substantially affecting its flatness. We therefore assume that the subfloor meets the final flatness requirement required by/for the user. With regard to the flatness standard, we refer you to the NEN 2747 standard. We expressly point out that Bolidt no longer checks the flatness, except for 'eye-catching', conspicuous, visual imperfections, and assumes that it meets the end user's requirements.

1.2 GROUTING

The required expansion and/or false joints must be present in the substrate. We seamlessly cover apparent joints with the synthetic floor finish, assuming that no cracking or movement will occur at these apparent joints. If movement occurs in these false joints, the synthetic floor finish may also crack. Cracks in the synthetic floor finish caused by deformation of the substrate/construction cannot be blamed on Bolidt. Dilatation profiles are not finished; the synthetic floor finish comes up against them. These profiles must be set at the height suitable for the synthetic floor finish to be applied.

1.3 DRAWINGS

Any slopes must be set into the substrate. With cast floors, a limited slope can be achieved. With trowel floors, a greater slope can be achieved more easily. Due in part to the tolerances of manual processing of the plastic floor finish, a small amount of water may still remain on the floor.

1.4 EDGE JOINTS

Edge joints should be provided with edge strips of sufficient height so that the plastic floor finish can be connected to these edge strips. After completion of our work, the edge strips must be cut by and at the expense of third parties and finished if necessary.

1.5 PROCESSING

1.5.1 The substrate must be and remain sufficiently dry, during and after curing of the synthetic floor finish.

1.5.2 The substrates/rooms 'inside' to be treated by us must be made available to us wind and watertight. As a rule, we can only carry out our work at ambient and substrate temperatures of at least 15°C (day and night) and a humidity of no more than 60%. (These values deviate from what is stated in our General Terms and Conditions). Processing and curing of the materials "outside" should take place during a period of dry weather, a minimum temperature of 10°C, a minimum substrate temperature of 3°C above the dew point and a maximum relative humidity of 80%. In connection with the specific factors involved in various systems this can/may only be deviated from in specific cases in consultation with Bolidt.

1.5.3 Before applying the synthetic floor finish any underfloor heating incorporated in the substrate must be gradually switched on to its full capacity, as well as taken out of service again. This will reduce the risk of shrinkage cracks in the subfloor after application of the synthetic flooring system. Shrinkage cracks can lead to pull-through cracks and or cracking in the plastic floor finish. During the installation and curing of the plastic floor finish, the underfloor heating must be switched off and the supply of hot water, through pipes in the substrate and or through conduits, to the radiators must be stopped. Complete chemical curing takes place after 7 days, assuming a temperature of 20°C. During this time, no moisture exposure should occur and we do not recommend covering the flooring system.

1.6 ACCEPTATION

The substrate must be "seen" and optically approved by us beforehand. Bolidt makes no observations with regard to the construction and flatness; these aspects are not our responsibility. Before execution it will be checked whether no changes have occurred that have negatively influenced the condition of the substrate and the residual moisture percentage will be measured by our execution department. In addition, the contractor will check the working conditions on site against the execution conditions set by us. If approved, final scheduling and execution of the project can begin. Acceptance of your order is subject to the approval by our execution department of the available execution conditions, the work planning and the subsurface conditions.

1.7 FINAL PROVISIONS

All substrates on which work has to be carried out by Bolidt must comply with the requirements concerning substrates as stated in the most recent version of this sheet, without Bolidt intending to be exhaustive in this and without Bolidt accepting any responsibility in this respect. Substrate preparation as mentioned above is not included in our work. Delivery and execution shall take place in compliance with our General Conditions.

A.2 SPECIFIC PROVISIONS FOR CEMENTITIOUS SUBSTRATES

CONCRETE / SAND CEMENT SCREED / ANHYDRITE SCREED (CALCIUM SULFATE BONDED)

2.1 QUALITY OF MORTAR
With regard to the quality of the mortar with which the substrate is made, we refer you to standard NEN EN 13813:2002 and standard NEN-EN 206-1 for concrete.

We emphasize that quality (compressive strength, flexural strength and bond strength) of the substrate must be suitable for the application of the floor board to be finished. We expressly point out that Bolidt no longer checks the quality.

2.2 QUALITY OF THE FLOOR SURFACE
The average bond strength of the substrate must be at least 1.0 N/mm^2 measured according to CUR 20. Pour holes, pour holes, gravel nests, pour seams, formwork seams, etc. must not be present.

2.3 CLEANNESS
Concrete substrates and sand cement screeds shall be free of cement scale and/or contaminants. There must be no post-powdering with cement powder.

Anhydrite screeds should be free of any formed (calcium carbonate) skin and/or contaminants. Any formed (calcium carbonate) skin, which jeopardizes the adhesion of our synthetic floor finish, should be removed by the supplier of the mortar by sanding after the substrate has hardened. The anhydrite screed must be presented to us ready for application. The anhydrite screed must be compacted to such an extent that it does not have a porous surface; a porous surface necessitates the use of a scraper layer or an additional sealing layer, at the associated additional cost.

2.4 PRETREATMENT
Concrete floors should be mechanically pretreated in advance by (low dust) blasting, and/or (diamond) sanding.

Any protruding plastic and/or steel fibers in the sand-cement screeds or concrete substrates which have become visible before or after blasting must be removed.

2.4 RESIDUAL MOISTURE PERCENTAGE
The residual moisture percentage of concrete floors and sand cement screeds may not exceed 2.5% when using a vapor-tight plastic floor finish, for a vapor-open plastic floor finish a percentage of 4% applies, which is measured at a depth of 2 cm according to the calcium carbide method. This is usually achieved on new concrete and sand cement substrates after an aging period of at least 28 days. This percentage can be achieved earlier, by installing electric heaters and dehumidifiers in the room.

The residual moisture percentage of the anhydrite screed may not exceed 0.5% if a vapor-tight plastic floor finish is used; for a vapor-open plastic floor finish, a percentage of 1% applies, measured according to the calcium carbide method. When this percentage is reached depends on the drying time. The drying time depends on the thickness of the substrate and proper drying conditions. In practice, a drying time, without forced drying, of one centimeter per week for the first four centimeters generally applies, above that (from the fifth centimeter on) a drying time of one centimeter every two weeks.

We assume that moisture will not enter during application, curing and during the lifetime of our synthetic floor finish. Bolidt is not liable for damage to the synthetic floor finish caused by moisture penetration. By damage we mean for example blisters/ blisters, crack formation in and/or loosening of the synthetic floor finish.

A.3 SPECIFIC PROVISIONS FOR CEMENTITIOUS FLOOR ELEMENTS

3.1 CEMENTITIOUS FLOOR ELEMENTS

3.2 QUALITY OF THE ELEMENTS
Regarding the quality of the floor elements, please refer to the supplier's data. The maximum bond strength of the plastic floor finish on the floor elements is 0.2 N/mm^2.

3.3 QUALITY OF THE FLOOR SURFACE
The floor elements must be double-layered, with an ample overlap at the seams of the first layer. The floor elements must be fully interconnected and lip-sealed using the adhesive prescribed by the supplier, and secured with a screw or staple joint.
The floor elements must be fully supported. This can be achieved with leveling materials specified by the supplier.

3.4 CLEANNESS
The substrate must be dry, dust-free and free of contaminants at the start of the work. After curing, the excess assembly adhesive foamed out of the joints must be dusted off with a paint scraper or spatula. Plaster and mortar splashes should be removed. All floor elements, joints and any levelling compounds must be dry before starting.

3.5. PRE-TREATMENT
Cementitious floor elements are already primed at the factory. Therefore, in many areas of application, an additional primer need not be applied. However, if an adhesive manufacturer prescribes a primer in an adhesive system, it must be applied according to his guidelines. Bolidt prescribes pretreatment with BOLIDTOP® UNIVERSAL PRIMER.

3.6. GROUTING
Cement-bound floor elements have a certain expansion behavior with changes in humidity or temperature. Therefore, expansion joints must be installed in accordance with the supplier's specifications. The required expansion joints must be present in the substrate. Dilatation profiles are not finished; the plastic floor finish comes against them. We assume that these profiles are set at the height suitable for the plastic floor finish to be applied. Expansion and/or deformation can lead to marking and/or cracking in the plastic floor finish. Crack formation in the synthetic floor finish caused by crack formation and/or deformation of the substrate/construction cannot be blamed on Bolidt.

3.7 FINISHING
When finishing with a vapor-tight synthetic floor finish a low-water adhesive must have been used. Cement-bound floor elements cannot be finished with water-based coatings.

A.4 SPECIFIC PROVISIONS FOR STEEL, ALUMINUM AND STAINLESS STEEL SUBSTRATES

4.1 QUALITY OF SUBSTRATE

Regarding the quality of steel / aluminum / stainless steel substrate, please refer to the requirements for application of this construction material. The construction must have sufficient bearing capacity. The thickness of the substrate must be at least approx. 5 mm. Thin substrates will deflect during the work. The plastic floor finish has very limited influence on the bending stiffness of the substrate.

4.2 CLEANABILITY

The substrate should be cleaned, i.e. blasted, free of rust, moisture, dirt and any algae, before finishing the plastic floor finish. Steel substrates should be blasted to standard SA 2.5 (ISO 8501-01) with sharp-edged mineral abrasive. Aluminum and stainless steel substrates should be sanded with a coarse grit (P40/P80).

4.3. ROUGHNESS

Roughness shall comply with RUGOtest 3, N10Ba.

4.4. PRETREATMENT

Within 4 hours after blasting, a coat of BOLIDT PRIMER PU/LP 2581 should be applied to steel substrates, a coat of BOLIDT PRIMER EM to aluminum and stainless steel substrates. The plastic floor finish should be applied within 7 days after the application of the primer coat. If this period is exceeded lightly sand the primed surface, dust and apply a new coat of primer.

4.5. NEADS

Any welds should preferably be ground flat. If this is not possible, it is possible to smooth out the welds on both sides.

A.5 SPECIFIC PROVISIONS FOR WOOD SUBSTRATES & TILE FLOORS

WOODEN SUBSTRATES

5.1 SUITABILITY
In general, this substrate should be completely rigid with no suspension. The construction should consist of two layers of underlayment, plywood o.g. of at least 18 mm thickness each. The layers should be glued and screwed over seamlessly keeping the seams closed as much as possible. The seams should be sealed. Please note that seams may show through after the plastic floor finish has been applied.

TILE FLOORING

5.2 SUITABILITY
In general, depending on the type, quality and porosity, a tile floor is suitable for finishing with a plastic floor finish. As a rule, a double-hard baked tile floor is not porous enough so that the plastic floor finish cannot adhere sufficiently and must therefore be provided with expanded metal reinforcement.

5.3. FLOOR SURFACE QUALITY.
The average adhesion strength of the surface must be at least 1.0 N/mm^2 measured according to CUR 20. Loose parts / tiles must be removed before starting, after which the substrate must be levelled.

5.4 CLEANABILITY
The substrate must be dry, dust-free and free of contaminants at the start of the work.

5.5 PRE-TREATMENT
Tile floors must be mechanically pretreated beforehand by (low dust) blasting and/or (diamond) grinding. The surface structure created by this pretreatment promotes optimal adhesion of the synthetic floor finish. After this, the joints must be filled with an appropriate synthetic material.

A.6 SPECIFIC PROVISIONS FOR BOLIDTOP® 801

Bolidtop 801 is a robust and aesthetically sound floor finishing system and is unique in its kind. Owing to the high-quality composition of this synthetic flooring system this flooring system is characterised in comparison with other Bolidtop flooring systems by its extremely high impact and shock resistance combined with very good chemical resistance. This makes Bolidtop 801 very suitable for environments in which very high mechanical, chemical and thermal loads are the order of the day. Apart from the composition and excellent performance of this flooring system, the way in which it is applied is also unique of its kind. Bolidtop 801 is the strongest industrial floor that consists of one system layer and can be installed on damp, wind-dried substrates. Efficiency, very short application lead times and minimizing downtime of production environments are the result of this flooring system.

Below you will find the specific provisions for the Bolidtop 801 floor system

6.1 QUALITY OF THE CONCRETE
As far as the quality of the concrete used to make the substrate is concerned, we refer you to the NEN-EN 206-1 standard.

We emphasize that the quality (compressive strength, flexural strength and adhesive strength) of the substrate must be suitable for the application of the floor board to be finished. We expressly point out that Bolidt no longer checks the quality.

6.2 QUALITY OF THE FLOOR SURFACE
The average bond strength of the substrate must be at least 1.5 N/mm^2 measured according to NEN-EN 1542: 1999. Pour holes, pour holes, gravel nests, pour seams, formwork seams, etc. must not be present.

6.3 CLEANNESS
The concrete substrate shall be free of cement scale and/or contaminants. There must be no post-powdering with cement powder.

6.4 PRE-TREATMENT
Concrete floors must be mechanically pretreated beforehand by (low dust) blasting and/or grinding. Sanding as pretreatment is insufficient.

Protruding plastic and/or steel fibers in the concrete substrate which have become visible before or after blasting must be removed.

6.5 ASSESSMENT OF SUBSTRATE MOISTURE
Bolidtop 801 can be installed as soon as the concrete substrate is visually wind dry. A concrete floor is wind-dry if the color is light grey and shows no dark moisture stains. The concrete is wet inside, but the surface is dry: it feels dry to the touch. This can be achieved faster, by installing electric heaters and dehumidifiers in the room.

How does concrete dry?

i. from very wet: dark gray in color with a shiny surface, no texture visible
ii. to superficially wet: dark in color but matt, fine texture of the material is visible
iii. to wind dry: light in color and matte

In the images below the phases are visualized. Bolidtop 801 can only be applied to a wind-dry substrate, as shown in Figure 3.

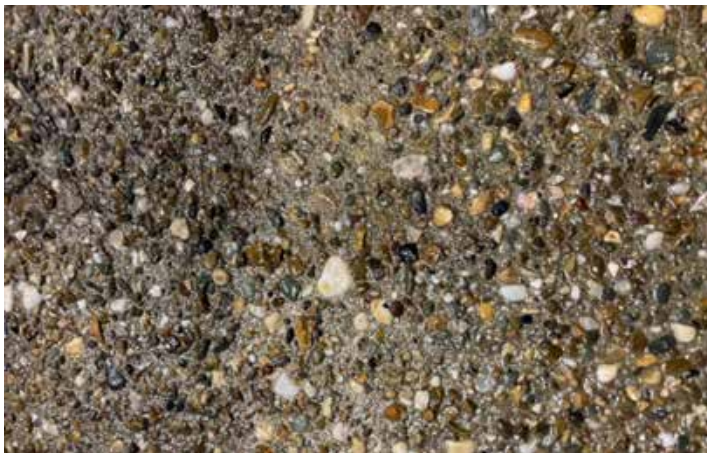

Figure 1: a shiny wet surface

Figure 2: a mat wet surface

Figure 3: A wind-dried surface

Before the Bolidtop 801 is installed, an inspection will take place on site by a Bolidt project manager. During this inspection all checks will be gone through together with the client. In a new construction situation this inspection takes place after pouring the concrete and making the spaces to be treated wind and watertight. In the case of a renovation, Bolidt's project manager will schedule a suitable time to carry out the inspection in consultation with the client.

We assume that moisture will not enter during application, curing and during the service life of our synthetic floor finish. Bolidt is not liable for damage to the synthetic floor finish caused by moisture penetration. By damage we mean for example blisters/ blisters, crack formation in and/or loosening of the synthetic floor finish.

B.7 BOLIDT GENERAL CONDITIONS OF EXECUTION

7.1 GENERAL

- The subfloor must be and remain sufficiently dry during and after hardening of our synthetic floor finish.
- If the edging strips have already been cut off and there are also recesses in the subfloor around penetrations and at corners etc., these edging strips on the one side must be sufficiently sealed with sealant and recesses sufficiently filled with non-shrink mortar or the like, in order to achieve a neat finish with our floor finish, without our (liquid!) material flowing into it.
- We point out that at the place where our floor finish is connected to rising building elements (walls, window frames, etc.) where no skirting board finish is provided after the installation of our finish on the building side, a crack or gap may occur between the floor (including floor finish) and the rising building element. If this is not acceptable these connections must be provided with a sealant seam finish by third parties in order to obtain a tight connection; this work is not performed by Bolidt and is therefore not provided for (also financially) in our contracting.
- Water, electricity (220/380 V) as well as sufficient lighting are at our disposal free of charge.
- For any vertical transport of materials, persons and machines safe scaffolding or hoisting equipment (goods elevator) will be provided by you. These must have a minimum size of 2 x 1.5 x 1.5 meters (l x w x h) and a lifting capacity of 600 kg.
- The areas to be treated by us must be made available to us free of obstacles from the agreed execution date and for the duration of the work. No other work must then take place that could negatively affect the quality of our work, for example through dust formation. Air movements via air conditioning or machinery must also be avoided in view of dust hazards.
- The building site and the areas to be treated are always directly accessible to Bolidt for the delivery of materials and machines. You give us the opportunity to store the materials supplied by us in the immediate vicinity of our workplace, safe from theft and/or damage, dry and frost-free. Mixing work is possible in the immediate vicinity of the areas to be treated.
- Any masking, covering or protection of persons, objects, machines, rooms, etc. against possible influences (e.g. dust formation, leaks, splashes) of our work is your responsibility.
- In order to achieve a smooth execution, it is important that we can start on the agreed start date and that no stagnations occur due to reasons beyond our control. We will otherwise charge you for such stagnations. This may also jeopardize the scheduled completion date of our work, as any backlogs cannot be made up without delay.
- We may have all or part of our work performed by third parties (subcontractors).
- For days and/or times outside our normal working days/times we charge the following surcharges:
  - evening work Mon/Fri 17.00-22.00 € 13.75 per man-hour
  - night work Mon/Fri 22.00-07.00 € 27,50 per man-hour
  - Saturday work 07.00-17.00 € 27.50 per man-hour
  - Saturday night work 17.00-22.00 € 55.00 per man-hour
  - Saturday night work 22.00-07.00 € 55.00 per man-hour
  - Sunday working from 07.00-17.00 € 55.00 per man-hour
  - Sunday night work 17.00-22.00 € 55.00 per man-hour
  - Sunday night work 22.00-07.00 € 55.00 per man-hour

7.2 INDOOR WORK

- The rooms to be treated by us must be made available to us wind and waterproof. We can only carry out our work at ambient and subsurface temperatures of at least 15° C (day and night) and a humidity of no more than 60%. (These values differ from those specified in our General Terms and Conditions due to the specific factors involved in the system(s) mentioned). Any necessary heating and/or dehumidifiers will be provided to us free of charge
- Edge joints shall be provided with edge strips of sufficient height so that the plastic floor finish can be connected to these edge strips.
- After completion of our work, the edge strips must be cut by and at the expense of third parties and finished if necessary.
- Prior to the application of the plastic floor finish, any underfloor heating incorporated in the substrate must be gradually switched on to its full capacity, as well as taken out of service again. This will reduce the risk of shrinkage cracks in the subfloor after application of the plastic floor finish. Shrinkage cracks can lead to pull-through cracks and or cracking in the plastic floor finish. During installation and curing of the plastic floor finish, the underfloor heating must be switched off and the supply of hot water, through pipes in the substrate and or through conduits, to the radiators must be stopped.
- Complete chemical curing takes place after 7 days, assuming a temperature of 20°C. During this time there must be no moisture exposure and we do not recommend covering the floor finish.

7.3 OUTDOOR WORK

- Processing and curing of the materials should take place during a period of dry weather, a minimum temperature of 10° C, a minimum substrate temperature of 3° C above the dew point and a maximum relative humidity of 80%. (These values differ from those mentioned in our General Conditions due to the specific factors involved in the system(s) mentioned). Any necessary heating, work-through facilities and/or dehumidifiers will be provided to us free of charge.

C.8 BOLIDT GENERAL CONTRACTING CONDITIONS

8.1 GENERAL

- Delivery and performance of our work shall take place in compliance with our General Conditions, a copy of which you will find enclosed. Your conditions and any other conditions we expressly reject.
- Delivery and execution of accepted projects shall take place within one year of assignment, unless otherwise stated. At the expiry of this period we are entitled to apply to our prices the price indexation according to the Risk Regulation of Residential and Non-Residential Building 1991. We shall use the date of assignment as the reference date for indexation.
- For the timely delivery of the required materials and the scheduling of the application, we require at least 3 weeks between the time of your valued order confirmation and the time of the scheduled start of the work.
- Therefore, the exact quantities to be carried out (m^2/m^1) and the colors of the desired systems must also be confirmed to us no later than 3 weeks before the start of the work.
- If the principal cancels the order in whole or in part, Bolidt shall be entitled to the contract sum, less the savings involved in cancellation.
- In the event of a deviation in the number of m^2 to be finished of more than 10% you must bear in mind that the price will have to be adjusted to this new situation.
- The quantities mentioned are our yardstick for the production of our materials. If more m^2/m^1 are to be realized, we will have to reproduce, which may lead to color differences compared to the original production.
- Unless notified to the contrary we assume that, for work we carry out in subcontracting, in the event of damage related to Bolidt work and/or products, access exists or is provided to the main contractor's umbrella CAR policy.

bolidt

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