

TECHNICAL BASICS FOR OFFERS OF STEULER-KCH GmbH

(KNOWN BY GERMAN ACRONYM TAG)

REQUIREMENTS FOR CONCRETE STRUCTURES AND CEMENT-BONDED SUBSTRATES WHEN APPLYING SEALING AND TILING TO SWIMMING POOLS AND SURROUNDING AREAS

1. Basic technical data, prerequisites and general conditions

1.1 Prerequisites required for client's in-situ substrate

The structure of the substrate itself and all other detailed substructures has to meet the recognized rules as stated in the present state of technology and be suitable for the planned use and for execution of the impending services to be rendered upon them. Any unavoidable tears that may appear, e.g. due to shrinkage, bending or thermal loads, must be kept to a minimum in accordance with DIN 28052-2 and by using the structural static methods and means of technical execution stipulated in DIN 1045.

Concrete, screed or plaster must not contain any foreign matter that could impair adhesion of the sealing. Any additives (e.g. accelerants) used for the concrete or screeds must be agreed upon separately prior to starting work, otherwise additional services and costs could be required as a result of the prevailing technical conditions. Plaster must be made from pure cement mortar.

The following parameters for the substrate must be ascertained in-situ before we can start our work:

Adhesive pull strength after pre-treatment of the substrate (e.g. abrasion, ball or sandblasting, etc.):

Cement plaster PIIIb, DIN 18550	> 0.5 N/mm ²
Cement screed ZE30, DIN 18560	> 1.0 N/mm ²
Compressive strength	> 20 N/mm ²
Relative residual moisture	< 4 %
Substrate temperature	> 10 °C
Ambient temperature	> 10 °C

Surfaces must be clean and free of materials that have separating effects (oil, silicon, etc.) as well as free of such hollow areas as bubbles and voids from gravel.

Plaster and screed surfaces must be wood-disc rough.

Heated structures have to be warmed to temperature and clearly stipulated as such before Steuler can begin work.

See to it that concrete floors and walls are sealed against moisture ingress from below and/or water or steam pressure from behind (DIN 18195).

A coat of bitumen is usually not sufficient to counteract effects from water that is present either continuously or over a longer period. The installation of water-impermeable concrete may also be insufficient in certain cases to prevent moisture ingress into the structure from behind.

Special attention must also be paid to the tight (i.e. leakproof) structure of working joints, e.g. between concrete floors and rising walls.

Any uneven or sloping surfaces either required or planned for in the structure must be constructed into the substrate itself (levelling plaster, screed).

To determine tolerances for unevenness, use DIN 18 202 Table 3, Line 3 as a basis using increased requirements (half the values).

Tolerances in mm at intervals of measuring points

0.1	1	4	10	15	M
1	2	5	6	8	mm

A ready-to-apply substrate (e.g. plaster and/or screed, etc.) must be applied properly and suitable to the conditions (in accordance with plans and dimensions) and be free of any damage (open spaces, tears, etc.). Create sloping surfaces in conformity with DIN 18195-5 and/or KOK guidelines.

Making joints: Joints in the substrate will be taken over by us and must be straight and a maximum of 5 mm wide.

The client must see to the proper array of joints on site.

For joints on structural components, make sure that there is a 5 mm deep overlap on both sides when laying the screed to prevent rises in the top coat caused by the increased thickness of the sealant system or on transition places to it.

The allowable residual moisture of the substrate must not exceed in conformity with DIN 28052, part 2 a value of 4%, detected in 2 mm depth.

1.2 Prerequisites for the environment around client's structure

Air temperature (constant)	> 10°C
Max. humidity	< 65%
Difference from dew point	min. 3 °K

Air must be free of vapours from oil, bitumen or other chemical media.

1.3 Requirements for built-in parts

All built-in parts and components, especially the basic structural shell, have to be provided and installed by the client.

The transition area between the structural shell and built-in parts must be made by means of adhesive/flat-face flange (width > 50mm) and/or as a clamp flange system. Synchronized to Steuler's work progress, clamp flanges must be mounted by client's installers and/or hydro-technicians.

All materials and constructions should be agreed upon and be accepted by Steuler in advance in order to avoid increased costs and waiting times.

(Polyethylene (PE) or polypropylene (PP) is only possible in a clamp flange system).

Floor outlets have to be properly offset in terms of position and height, be free of damage and also firmly affixed.

Client's installers shall make all connections and see to the finished assembly of any components.

1.4 Other prerequisites

Planning, execution and operation of water-technical installations shall be done in conformity with the most recent valid version of DIN 19643.

Constant disinfection shall be done with chlorine/chlorine compounds.

If water is treated in a chlorine-free process, the inner surfaces of the pool must be optically inspected regularly and if there is the slightest sign of micro-organisms the water must be shock-chlorine treated.

The client must assure adherence to the requirements/prerequisites/values stipulated above and protocol such to Steuler as inspected and accepted prior to start of work. Waiting times or other complications that may develop for us by this will be invoiced on the basis of valid hourly wages.

As soon as Steuler starts work, the surfaces being applied shall be regarded as blocked for any other work until commissioning. Exceptions must be agreed upon with Steuler's construction management.

2. Services to be performed by the client prior to Steuler starting work

- Freely accessible delivery and transport ways as well as work surfaces
- Availability of lifting equipment, lifts, etc. as required
- Sufficient, properly installed electrical connections, 230V and 400V (16A, 32A, and/or 63A for ball-blasting and milling) in direct proximity (max. 50 m) – electrical supply free-of-charge for Steuler
- Surfaces for application emptied and broom-clean when work begins, interfering components removed.
- Free water supply
- Lighting for all surfaces
- Climate-control for work areas in acc. with technical stipulations
- Weatherproof, climatized shelter of any outside surfaces being applied, as required
- Dust walls, coverings, etc. as required
- Non-visible wiring and piping as well as components must be clearly labelled prior to start of work.
- Norm-conformity of climbing aids, anti-fall safety equipment and/or scaffolding in acc. with UVV as required.
- Lockable, climatized storage room for our materials as well as suitable mixing vessels immediately adjacent to the surfaces being applied
- Availability of debris containers to a sufficient extent for proper disposal of debris and waste materials, abrasion dust, waste material from blasting and milling.
- Creation and maintenance for a diffusion-open, clean protective covering in conformity with requirements as needed for the final surface – after acceptance and release by Steuler.

3. Caution for application

The creation of dust and noise is inevitable while we are rendering our services. No liability shall be accepted for this.

The application of reactive plastic resins can create odours that will, however, dissipate after the reaction period.

4. Instructions for use

- 4.1 Use and handle cleaners in conformity with our separate instructions and tips for cleaning.
- 4.2 Curing times and filling the swimming pool must be done on the basis of our filling instructions.
- 4.3 Protective coverings must not be applied until a minimum of 7 days (done as stipulated in point 2). Steuler shall not accept liability for damage caused by exposing the surface to loads too rapidly.
- 4.4 Final cleaning as required.
- 4.5 Disinfect the surface of the basin gutter prior to first filling.
- 4.6 Surface facings made of small glass or ceramic mosaics tend to become contaminated more easily due to the large number of jointed seams in them and are thus more cleaning intensive in operation than large-surface ceramic facings.
- 4.7 Flexible joints must be maintained and are subject to no warranty.

5. General information

Our offer is based on the assumption that our services can be carried out in their totality without any delay in one stroke without any interruption caused by the client and also, as part of the agreed installation schedule, that the stipulated preconditions for the offer are adhered to in-situ by the client.

Any additional work caused or cost incurred by any interruption and/or delay on site caused by the client (e.g. additional travel, transport, standstills, etc.) shall be borne by the client on the basis of the actual work done or cost incurred.