BUILDING TRUST

FACADE MORTARS GUIDELINES

POINTING OF BRICK CLADDING SYSTEMS

Please refer to the Sika Technical Data Sheet for mixing instructions and general data. As with any mortar, its use is dependent on weather conditions including temperature, wind, humidity and sunshine. The mortar should be installed at 5°C and rising for a minimum of 48 hours. If temperatures fall below 5°C while the mortar is curing, these areas should be protected during the cure time. Do not install the mortar while it is raining.

Care should be taken at all steps to ensure proper mixing, installation and tooling. The mortar is a moisture cure and is dependent on the extraction of water from the mix. There is no 'initial set' as with cement-based mortars, therefore the curing can be affected by the weather as noted above.

Some small cracking is possible, as with any mortar. Mortar that is not properly applied, unfilled joint areas, gaps in the mortar and premature tooling can exhibit cracks during or after curing. If cracks do form they should be inspected to determine if they are surface cracks or through cracks. Surface cracks of less than 2-3mm can be keyed off and repaired. Through areas around severe cracks should be dug out and repointed.

Preparation

Surfaces to be pointed should be clean and dry and joints should be of a relatively constant minimum depth of 10mm.

The pointing of brick slips with very little suction, or alternatively high suction, will greatly affect the point at which the mortar may be tooled off and this factor needs to be considered from an operational perspective. This effect is even more marked at low temperatures or unusually high temperatures. Spraying a panel with water before pointing will give a good indication of the suction rate and provide valuable information for planning the mortar installation and subsequent tooling operations.

Mixing

As a guide, one 25kg bag of mortar should be added to water quantity specified on the mortar bag label or as specified under the 'mixing' instructions on the appropriate product 'Technical Data Sheet'. Actual water addition levels will vary with conditions and mortar colour, but it is important to keep water addition to the minimum level required to achieve a pumpable mix and not to overwater. Excessive overwatering may lead to colour variation. Added water will also affect cure times and the lapse time between application and tooling off. Importantly, the addition of excessive water in the system isn't needed for hydration. As it evaporates the mortar shrinks during curing and can become friable. Consequently, as water content rises durability and strength decrease.

Dry powder mortar should be added gradually to water while mixing with a slow speed drill and blender (typical example shown in photo 1) until a consistency similar to stiff cream is achieved (see photo 2).

Photo 1

Photo 2

After mixing, allow the mortar to stand for approximately 5 minutes and briefly remix. Consistency can be checked by filling a tube. The mortar should be easily pumpable but not be lost from the gun unless pumped. To check that the right consistency has been achieved, fill the tube and give it a shake, the mortar should hang from the tube in lengths of 10mm-15mm before falling off as shown in photo 3.

Photo 3

Mixed mortar may be kept for up to one hour before use. Depending on weather conditions it may be necessary to cover the bucket/hopper with either damp hessian or polythene sheeting.

Mortar should be applied through a suitable mortar tube and applicator gun.

Fill the mortar tube to within 20mm of the top and shake to dispel air pockets. Full tubes may be stored upright in a bucket with 20-25 mm of water in the bottom to prevent the mortar in the nozzle from stiffening. In hot weather the bucket and tubes should be covered.

The tube should be placed in a gun so that it is supported on the three bars of the frame and the chamfer of the nozzle tip can be comfortably kept parallel to the joint in use, as shown in photo 4.

Photo 4

The gun works by fingertip pressure on the trigger. If greater pressure is needed, then either the gun is blocked or the washer is too tight and needs adjusting or cleaning.

Filling Joints

Divide the wall into workable grids so the mortar can be methodically applied in both vertical and horizontal joints. This will ensure each area cures evenly. Attention should be paid to complete and continuous filling of the joints to be sure that the mortar fills the voids and no gaps are visible. This is also true for corners, etc. so that weak points and cracks are avoided. It is recommended that the joint is filled by running the nozzle around the corner rather than up to and away from the corner at each side as shown in photo 5.

Photo 5
Correct complete bead around corner

Photo 6
Incorrect mortar stops at the corner

Full penetration can be measured by periodically removing a small section of mortar from a joint with a small narrow spoon or spatula for a visual inspection.

Pointing should commence at the highest part of one end of the wall and proceed in horizontal bands downwards convenient to scaffolding arrangements.

The horizontal bands should be completed in areas approximating to the extent of the joint that can be filled with one tube. The depth of the horizontal band should relate to comfortable working heights and convenient scaffolding lifts, say about 1m or 12-13 courses of brickwork.

Hold the gun with the barrel tilted down to the nozzle to help the mortar flow and keep the nozzle just clear of lightly resting on the wall.

Start each area by filling vertical joints from the lowest course to the highest. Fill each joint from the bottom of the joint to the top. When the joint is full, release the gun pressure by clicking the tab at the rear of the gun. This will ensure no pressurised mortar is expelled onto the face of the brick immediately opposite the vertical joint just pointed.

Fill the bed joints by drawing the gun along the joint. The gun should be kept at a constant angle with the nozzle chamfer parallel to the joint to promote an even fill. Squeeze the trigger with confidence so that mortar is injected to the back of the joint. Ensure the joint is slightly overfilled as shown in photo 7 and 8.

Photo 7

Photo 8

Tooling-Off

Applicator Gun, Jointing Tools and Finishing Brush.

The tooling-off process is designed to further compress the mortar deep into the joints and fill the void between the brick slips and the base of the channel.

The most effective joint profile is the half round or “bucket handle”. Using the heal of the tool on the first pass allows the operative to apply more pressure and results in a small wave of mortar being carried along the joint filling in low points whilst compressing the mortar more effectively into the joint. During this process excess mortar is simultaneously cut from the arises either side

Photo 9

Photo 10

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Photo 11

of the joint as shown in photo's 9 to 11.
Other joint profiles may be achieved using a pointing trowel or a proprietary pointing tool. Joint profiles which expose the joint to the weather such as "recessed" or "raked back" joints should be avoided as with any type of pointing system they are prone to water penetration.

The mortar must be tooled off after it has formed a semi-dry surface skin, the texture of a 'stiff putty', but before it is too stiff to work. The time the mortar takes to dry to this state varies with the dampness and absorbency of the brick and the weather conditions i.e. colder climates, coupled with dense brick slips, which can be as much as 1-2 hours. Alternatively, on warm dry days where very porous brick slips exhibiting excessive suction properties are being pointed, jointing may be carried out in as little as 15-30 minutes after placing the mortar. In these cases it may be necessary to damp down the wall after the jointing process with a suitable mist sprayer or fine hose. This will reduce the risk of rapid mortar dry-out which increases the risk of leaving the mortar friable. Striking of the joints too early, however, while the mortar is still moist can also lead to shrinkage, cracking and colour variation, which must be avoided.

Corners, details and reveals should be tooled off so that mortar is pushed or pressed into all the corners rather than pulled away from them. The jointing tool may be "rocked" around external corners to avoid pushing the mortar out.

Finishing-Off

Excess mortar may be brushed off with a suitable hand brush when the mortar has dried enough to be brushed hard without discolouring the face of the surrounding brick slips. The brush should be tilted at 45 degrees to the horizontal brick face and sweeping should be completed diagonally across the joints (see photo's 12 to 14).

This operation must also be completed before the mortar has fully cured. After tooling or brushing off, on very dry days it may be necessary to "mist spray" the joint to avoid excessively fast drying which could result in micro-

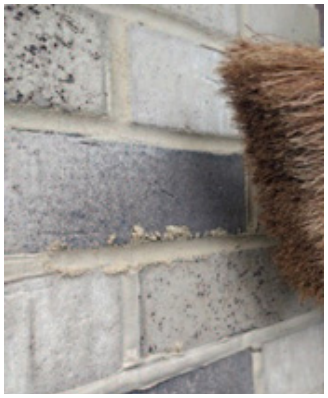

Photo 12

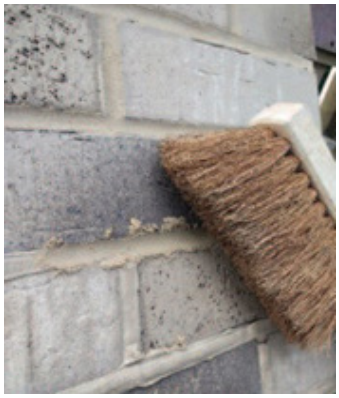

Photo 13

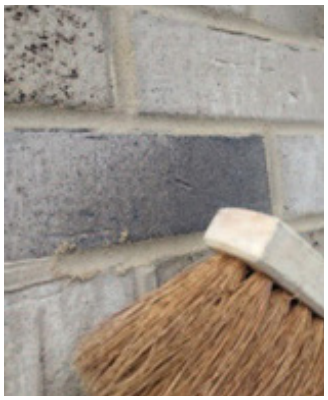

Photo 14

cracks or fissures.

Reviewing Completed Work

On completion of pointed sections, it is necessary to check for minor cracks between the mortar and the brick slip arises. These cracks can occur when there is deformation of the cladding system either by accident or pressure applied whilst carrying out the pointing work. These cracks should be ironed out before the mortar has time to fully cure (ideally within 24 hours of the initial pointing application).

Curing

Protect during curing in line with accepted best practices in respect of new brickwork, including the provision of protection from rain, frost, direct hot sun and drying winds.

For additional information or other Technical Information Sheets, please visit our website gbr.sika.com.

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