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a.b.e.[®] Construction Chemicals

METHODOLOGY

Grouting of bases using dura.grout cementitious grouting

how to with a.b.e.[®]

All the relevant product data sheets are to be read for additional information like pot life, mixing instructions, surface preparation, ventilation, temperature application limitations, etc.

SUGGESTIONS ON PREPARATION

Prepare surface to receive the grout. Remove dirt, oil, grease and unsound concrete. Saturate surface with water for 24 hours.

Set bearing plate or steel column over anchor bolts, plumb and adjust nuts and shims to required elevation. Pre-cast concrete columns are generally moved into position and aligned **immediately after** the bolt holes have been filled with grout, but before the grout stiffens.

Forms, as required, to receive grout and to facilitate placement. Caulk the form to prevent leakage and loss of bearing. Forms should be saturated at the time grout is placed or made non-absorbent by coating with oil or other suitable sealer.

Whenever possible, holes should be grouted first to prevent water from being trapped in them and rising after grouting is completed to form voids under the item being supported.

In cases where bond is not required, concrete surfaces may be coated with a resin base curing compound to prevent absorption of the water from the grout by the concrete.

SHUTTERING

The method of shuttering should be compatible with the method of placing the grout. Both should facilitate rapid, continuous and complete filling of the space to be grouted. Use methods that will enable the grout to flow by gravity between the surfaces from one side to another...and keep the plastic grout in full contact with these surfaces until the grout has hardened.

Always ensure that the "head" of the shutter on one side is sufficient to allow the grout to flow over the entire distance required.

TEMPERATURE CONTROL

Temperature affects setting time of the grout and the rate of increase in strength. A temperature of 21 °C for the structural member foundation and grout is desired for normal grouting procedures. A high temperature reduces setting time and requires more rapid placement of the grout. Low temperature delays set and can cause bleeding that will result in loss of bearing. For successful grouting, do what is necessary to maintain a temperature of 16 °C to 24 °C of both the grout and all the concrete and steel in contact with the grout in place, prior to, during and for at least 48 hours after grouting. Grout temperatures below 16 °C are not recommended because setting and strength gain will be retarded and bleeding might occur.

PREDETERMINING "WORKING TIME" OF THE GROUT

For large jobs or where difficult placing is involved, it is helpful to know the approximate time available for placing and working the grout. Factors affecting working time are the consistency, temperature of the grout and the size and volume of the area to be grouted.

Prepare a small non-absorbent shutter that will hold grout of the proposed thickness. Seal the joints between the shutter and surfaces of the prepared foundation or structural member.

If the "working time" is short in relation to the time expected, take steps necessary to speed up the mixing and placing of the grout. Consider lowering the temperature of the grout to delay the stiffening while maintaining agitation of the grout in place by slow, continuous strapping until the area to be grouted is filled. If free water bleeds to the surface before stiffening, reduce the amount of mixing water and or raise the temperature of the grout, structural member and foundation. Do not use grout at a consistency or under job or climatic conditions which results in grout bleeding free water. Never retemper grout, discard the batch and mix a new batch.

MIXING THE GROUT

For producing a grout of a given consistency, paddle-type mortar mixers or revolving drum concrete mixers can be used. **Do not mix by hand.**

Use one or mixers of size and capacity that permits mixing and placing operations to proceed simultaneously and without interruption in either operation. Mix the grout as close as possible to the structure being grouted. Have sufficient material, manpower and equipment to make the placement rapid and continuous.

Measure the required water accurately so each batch has the same consistency. To avoid lumping, especially when using drum mixers, add all the water to the mixer then add the grout, sifting it slowly into the mixer while the blades or drum revolves. Do not let large quantities of material drop in at one time as balling will result. Mix the grout for 3 minutes after all the material is added and place the grout immediately. Do not mix more grout at one time than can be placed in approximately 10 minutes and never retemper by adding water and remixing the grout. Continuous agitation will extend the fluid life of the grout but do not use any grout that has thickened severely due to delay in placing. Where grout must travel over 1.5 metres horizontally or for special shuttering and placing suggestions, contact your local **a.b.e.[®] Construction Chemicals** branch.

SUGGESTIONS ON PLACING GROUT

Saturate prepared surface for 24 hours, then remove free water from surface and bolt holes. Grout bolt holes first if possible. Place grout rapidly, continuously, and in a manner that assures filling the space being grouted. Work the grout, if necessary, to help it flow beneath the plate.

Vibration from nearby machines can be transmitted into the foundation of the structure being grouted. Consider shutting down such machines until after the grout takes its final set. Vibration can cause bleeding and settlement and can affect setting time and early strength gain. Vibration can be detected by observing any disturbances of the surface water in a shallow pan set on the structure to be grouted.

Place the grout quickly and continuously to avoid the undesirable effects of overworking which may cause segregation, bleeding and change in the final set. Do not use vibrators in the grout at any time. See the individual product data sheets for specific details like strength, yield, water content and application thicknesses etc. Some grouts state that they can be placed at thicknesses of 25 mm beware, do not attempt these thickness where large areas are concerned for difficulty of achieving easy material flow over larger distances. It is recommended that a minimum of 50 mm vertical gap be provided in these circumstances, the grout "head" must be sufficient to achieve the desired flow distance and complete filling of the void intended. For additional information consult your local **a.b.e.[®]** branch for suggestions.

CURING, FINISHING OR TRIMMING OF GROUT SHOULDERS

Grouts must be fully wet cured. Grout shoulders may be finished and left in place. If desired, grout shoulders may be cut or trimmed flush or at an angle at the proper time.

Timing of both intermediate curing (ponding) and long term curing (membrane) is very important.

Trimming, regardless of the shoulder treatment selected, never remove shutters or cut grout below the level of the underside of the grouted structure until the grout has hardened sufficiently that it cannot be penetrated by a masons (pointed) trowel. Removing shutters or cutting grout too early can result in "sagging" of the unhardened grout causing loss of bearing between the grout and structural member.

Immediate prevention of rapid water loss from the grout is necessary and should be accomplished by carefully pouring water (ponding) over the exposed grout in shutters etc as soon as the grout thickens and turns dull (about 20 minutes). Under exposure to sun, low humidity or at above normal temperatures, ponding water should be replenished as necessary until the grout is to be finished or trimmed. Grout shoulders should never exceed 50 mm beyond the member horizontally.

after the grout has been ponded for several hours, remove the ponding water as well as the spilled or excess grout from the structural member and shutters and at the appropriate time finish the edges. As soon as the grout will not be marred apply the recommended curing membrane to the exposed surfaces of the grout for long term curing.

IMPORTANT NOTE

This data sheet is issued as a guide to the use of the product(s) concerned. Whilst **a.b.e.® Construction Chemicals** endeavours to ensure that any advice, recommendation, specification or information is accurate and correct, the company cannot – because **a.b.e.®** has no direct or continuous control over where and how **a.b.e.®** products are applied – accept any liability either directly or indirectly arising from the use of **a.b.e.®** products, whether or not in accordance with any advice, specification, recommendation, or information given by the company.

FURTHER INFORMATION

Where other products are to be used in conjunction with this material, the relevant technical data sheets should be consulted to determine total requirements.

PRODUCTS REQUIRED

- **dura.grout**

EQUIPMENT NEEDED

- Festo mixer with a helical coil mixing head.
- Steel float.
- Steel trowel.
- 150 mm paint brush for curing compound.
- Suitable 25 litre steel can for mixing.

OR

- 50 litre Pan mixer.

GRAVITY GROUTING WITH FLOWABLE OR FLUID NON-SHRINK GROUT