

A PRACTICAL GUIDE FOR THE INSTALLATION AND LAYING OF URBANSTONE SEGMENTAL PAVING UNITS IN A RIGID PAVEMENT APPLICATION

This Guide Specification is not intended to be used as a contract document and it is not appropriate to include a copy of it in a project specification, nor to refer to it as a standard specification, since each section needs to be reviewed for relevance to particular situations or projects.

Procedures and methods applicable to one project may not be technically or economically relevant elsewhere.

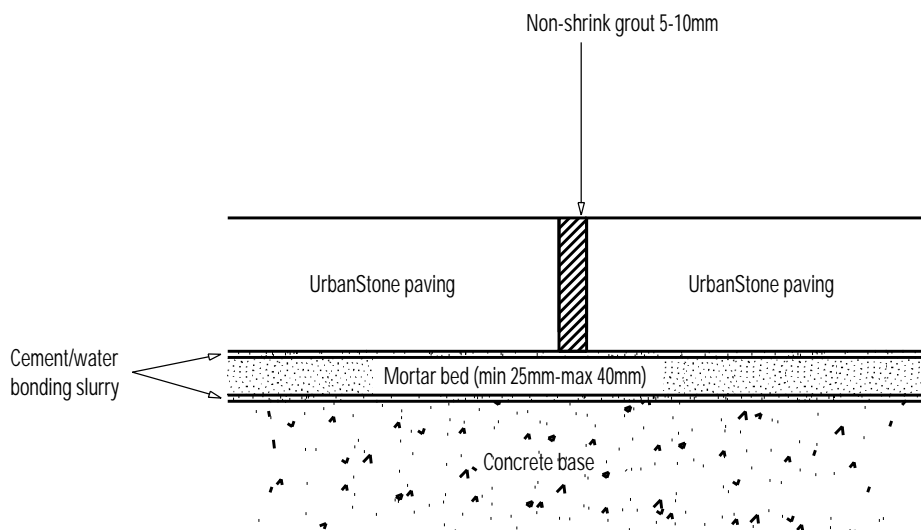
Clauses and selected commentaries have been prepared to cover a probable range of paving situations.

As the information provided is intended for general guidance only and in no way replaces the service of professional consultants on particular projects, no liability can be accepted by UrbanStone for its use in part or wholly.

This Guide Specification cannot by itself ensure good results.

Proper design, detailing and the use of sound construction materials and techniques are equally important.

This guide relates to the installation of UrbanStone paving products in a rigid pavement application.



CROSS SECTION

Typical UrbanStone rigid pavement system

PAVING UNITS.

Concrete paving units shall comply with the requirements of UrbanStone's Paving Specification.

FINISHED PAVING SURFACE.

A finished paved surface, which is uniform and even can easily be achieved using this rigid installation system.

Lipping should be minimised to a maximum of 2mm and the deviation from a 2 metre long straight edge, placed on the finished paving surface should not be greater than 4mm.

RIGID PAVEMENT SYSTEM.

A rigid pavement system will generally comprise of the following components.

1. Concrete Base.

Minimum 20Mpa compacted reinforced concrete (as per engineer detail).

2. Bonding Slurry.

This is applied at the interface of the insitu concrete base and the bedding mortar and at the interface of the bedding mortar and the UrbanStone paving.

3. Mortar Bed.

UrbanStone paving shall be fully bedded into a sand/cement mortar mix of a minimum thickness of 25mm and a maximum thickness of 40mm. The pavers are to be fully supported by the mortar bed with no air voids in the mortar bed.

4. Jointing Material.

UrbanStone paving can be grouted to the full depth of the paving slab using a non-shrink cementitious grout, or joints of less than 4mm in width, may be sand filled.

MATERIALS.

The following raw materials should comply with the relevant Australian Standards:

1. Cement.

Portland Type GP Cement

AS3972 - 1991

2. Sand.

Concrete Aggregates

AS2758 Pt1 - 1985

3. Water:

Shall be free from contaminants

4. Elasticiser:

An approved mortar additive which improves workability, elasticity, adhesion and strength.

BONDING SLURRY COMPONENTS

AND MIXING PROCEDURES.

The bonding slurry should consist of:

- a. 1 part fine washed sand by volume.
- b. 6 parts Portland Type GP Cement by volume.
- c. Sufficient water to form a slurry of workable consistency.

1. Mixing.

Mixing should be performed either by hand, using a clean container and mixing tool, or in a cement mixer by adding sand and cement to water, whilst mixing continuously to ensure a smooth, homogenous consistency which is free of lumps.

The volume of mix made at any one time shall not exceed the amount required to lay the quantity of UrbanStone pavers within 45-60 minutes, from the initial mixing time, and is dependent on climatic conditions.

MORTAR BED COMPONENTS AND PREPARATION.

The mortar bed mix should consist of:

- a. Three parts blended washed sand by volume.
- b. 1 part Portland Type GP Cement by volume.
- c. 1 part water / elasticiser mix - (more than 1 part may be added during mixing to achieve the correct consistency).

1. Mixing

Mixing shall be performed in a cement mixer, free of fresh or loose mortar residues, by adding the aggregates to the water / elasticiser mix (which shall initially be proportioned as one part by volume) whilst mixing continuously to ensure a homogenous consistency which is free of lumps. All components shall be measured by means of calibrated containers.

Water / elasticiser mix may be added in the specified proportions to impart to the mix a consistency such that it may be loosely hand shaped into a cricket ball which will remain whole when released whilst leaving hands slightly moist but not wet.

The volume of mix shall not exceed the amount required to lay the quantity of UrbanStone pavers within 45-60 minutes, from the initial mixing time, and is dependent on upon climatic conditions.

GROUT COMPONENTS AND PREPARATION.

1. Components.

The grouting mix should be a dry-bagged, proprietary brand, fine aggregate / cement / admixtures type grout, with high flow and shrinkage properties, non-staining in the course of its application and of a compressive strength in excess of 20Mpa.

2. Mixing.

Mixing shall be in accordance with the manufacturer's specification.

INSTALLATION.

1. Sweep clean the concrete base and remove all foreign materials.
2. Prepare mortar mix.
3. Prepare slurry mix.
4. Dampen concrete base with clean water.
5. Using a hand broom, apply slurry mix to concrete base evenly and thoroughly (approx 1mm thick) to an area which will not exceed the extent of UrbanStone paving to be immediately laid. (Slurry must be wet to assist the next step.)
6. Shovel prepared mortar mix into position and loosely screed so that combined bed and paver thickness is higher than desired finished surface level by 5mm.
7. Bed down dry paver (moist is acceptable but not soaked) and gently tap the paver into position with a rubber mallet to within a level of approximately 2mm higher than the desired finished surface level.
8. Remove paver, fill voids with additional mortar and then loosen up bed lightly by criss-crossing hand trowel through bed.
9. Sprinkle dry cement evenly to the prepared bedding at the rate of 4 standard cupfuls per square metre. Dampen the cement by misting with water.
10. Apply coating of slurry to underside of paver, ensuring that the initial application is stiffly brushed into the paver in a rotating motion, and build up the slurry thickness to approximately 1mm.
11. Bed down paver as per step (7) to finished surface level. A small amount of bedding material may come part way up into the joints.
12. Trowel fill any voids with mortar at front edge and/or front corners of paver.
13. Discard excess mortar.
14. On completion of the area, cover UrbanStone with hessian sheets and spray with water mist. Allow to remain moist for 12 hours minimum. To the satisfaction of the Engineer, place wooden boards or similar over paver which is subject to pedestrian traffic within the first 12 hours of curing.
15. After a minimum of 12 hours of curing, the joints may be grouted. Where necessary remove residual material from within joints prior to commencing the joint filling operation.
16. Prepare grout mix.
17. Dampen joints with sponge and apply grout mix into joints ensuring full penetration for the thickness of the paving slab by lightly tamping down a trowel edge into the grouting mix. Use a rubber squeegee to spread grout evenly into all joints until filled flush with the top of the pavers. Remove excess grout with a trowel. Allow initial set and lightly broom off remaining excess perpendicular to joints.
18. Wipe pavers clean with a damp sponge continually rinsing the sponge in clean, fresh water. Remove all traces of grout and cement from the surfaces of UrbanStone paver. After 12 hours check for any remaining cement or grout residue and remove using clean water and stiff scrubbing brush.

CONTROL JOINTS.

Control joints to UrbanStone paving should be placed at spacings and positioned as recommended by the project or design engineer.

All control joints in the concrete base slab should follow with a control joint of the same width in the UrbanStone pavement filled and treated to the appropriate engineers details.