

## ARCHITECTURAL STONEWORK TEMPLE FLOORING

### Temple Flooring

Available for Balustraded, Small Classical and Large Classical Temples. Stepped Temple Floors are available for Small and Large Classical Temples. Produced in TecStone cast stone as standard.

TS Tech Sheet No. T25 for Stepped Flooring

TS Tech Sheet No. T35 for Flooring



## ARCHITECTURAL STONEWORK PERGOLA

### Pergola L900

Designed for the M7 Tuscan Column range. Can be supplied for column spacings of up to 1829mm (72") centres. Construct by in-filling Pergola U-beam with concrete and reinforcing rods before positioning T470 Pergola Copings.

TS Tech Sheet No. PG10

TS CAD1 Column Assembly Details



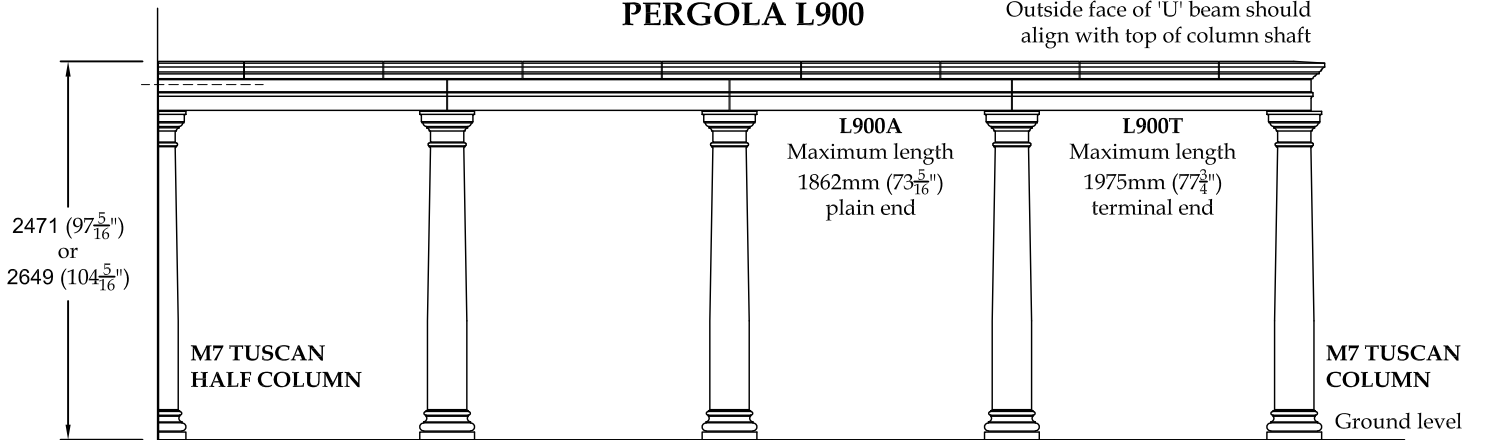
Timber not supplied



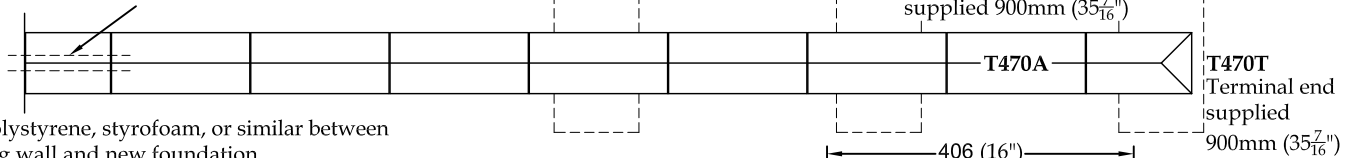


### PERGOLA L900

Outside face of 'U' beam should align with top of column shaft



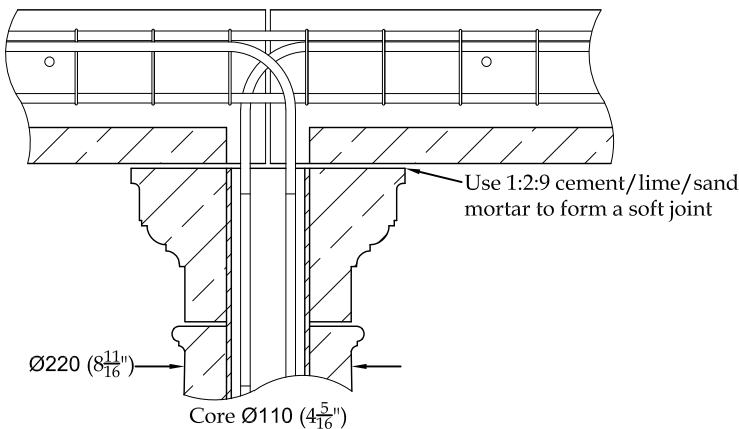
Securing to wall - 2 No. Rebars  $\varnothing$  12mm ( $\frac{1}{2}$ ") 600mm (23 $\frac{5}{8}$ ") long to be secured in the wall by means of resin cartridge or similar as per manufacturers instructions.  
Flexible material to be tied above rebars (16 ( $\frac{5}{8}$ ") x 10mm ( $\frac{3}{8}$ ") strip of polystyrene, styrofoam, or similar).



Use polystyrene, styrofoam, or similar between existing wall and new foundation  
Foundations designed by others to suit site conditions

#### 'U' BEAM REINFORCING RECOMMENDATIONS

- 1) Minimum reinforcement to be 2 No.  $\varnothing$  12mm ( $\frac{1}{2}$ ") high yield bars
- 2)  $\varnothing$  6mm ( $\frac{1}{4}$ ") Mild steel stirrups type 33 at 100mm (3 $\frac{1}{2}$ ") centres
- 3) Top and bottom cover 25mm (1") to stirrups and 50mm (2") end cover



#### CONCRETE RECOMMENDATIONS

1. Use  $\varnothing$  10mm ( $\frac{3}{8}$ ") rounded gravel aggregate
2. Concrete to have a minimum strength of 25 Mpa [N/mm<sup>2</sup>] (3500 psi) at 28 days
3. Concrete to be hand compacted
4. Top surface to be protected against frost damage and the ingress of water at the in situ concrete interface during construction

POINTING - Joints should be pointed using our proprietary dry mix pointing material in accordance with the recommended instructions.

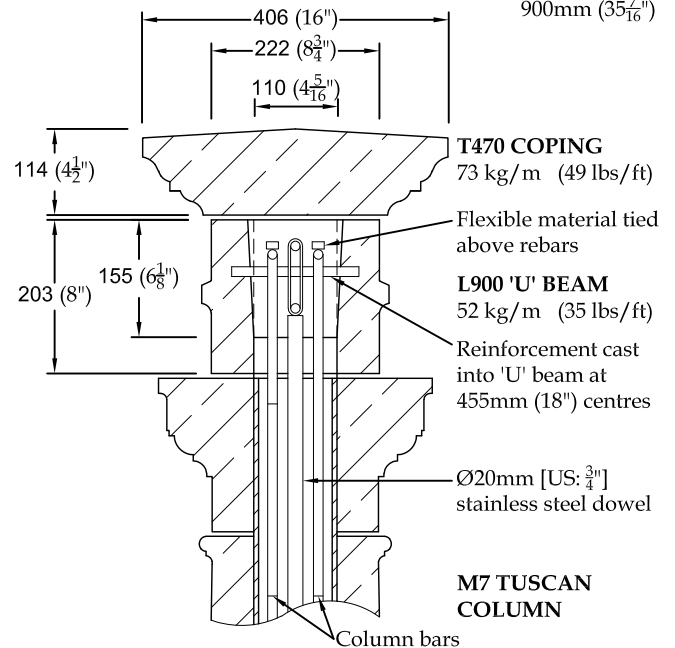
Or use 1:1:6 cement/lime/sand colour-toned to suit (white cement may be necessary)

BEDDING JOINTS - Use 1:1:6 cement/lime/sand mortar

Read in conjunction with Tech Sheet CAD1

All dimensions exclude joints - allow 6mm ( $\frac{1}{4}$ ") for vertical and bedding joints

Unless otherwise stated, all materials other than stonework to be supplied by others



#### COLUMN REINFORCEMENT RECOMMENDATIONS

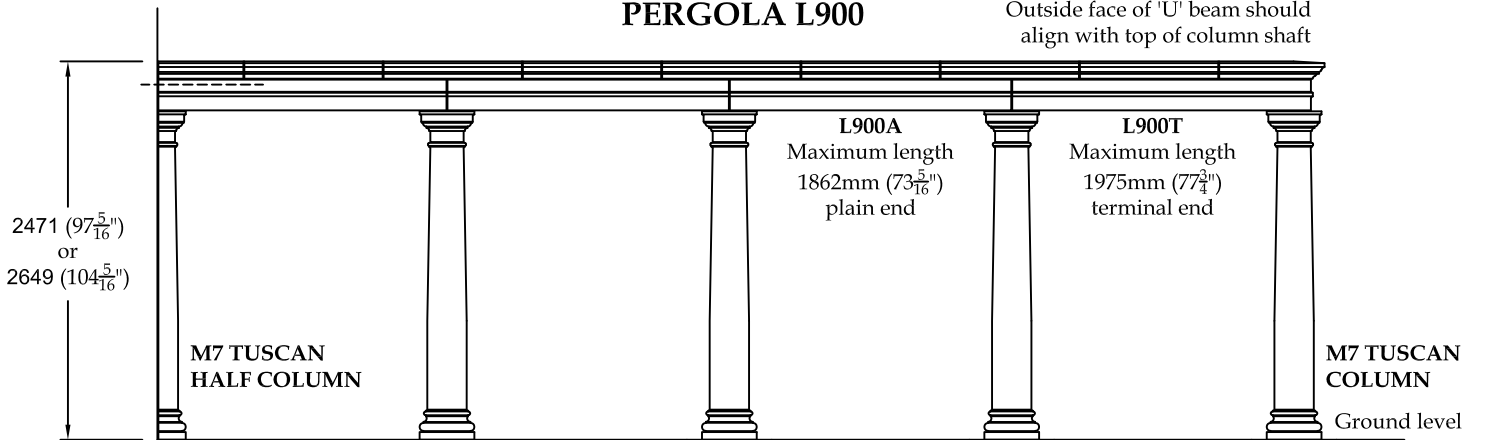
- 1) 2 No  $\varnothing$  12mm ( $\frac{1}{2}$ ") starter bars with 600mm (23 $\frac{5}{8}$ ") lap
- 2) 2 No  $\varnothing$  12mm ( $\frac{1}{2}$ ") column bars
- 3)  $\varnothing$  20mm ( $\frac{13}{16}$ ") stainless steel dowel 600mm (23 $\frac{5}{8}$ ") long to be positioned in the top of core
- 4) Top cover to be 50mm (2") minimum and 20mm ( $\frac{13}{16}$ ") side cover
- 5) The shaft sections should be lined with polystyrene, styrofoam, or similar, to act as an isolating medium when column cores are infilled

When drilling stonework, use suitable masonry drill on rotary setting (not hammer action)



## PERGOLA L900

Outside face of 'U' beam should align with top of column shaft

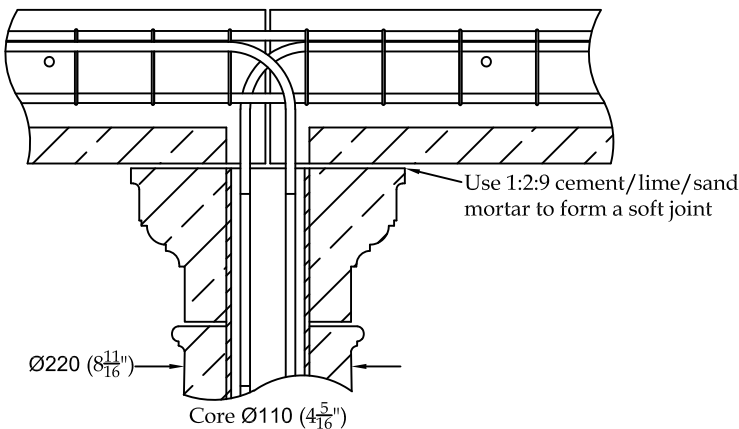


Securing to wall - 2 No. Rebars  $\varnothing 12\text{mm}$  ( $\frac{1}{2}"$ ) 600mm ( $23\frac{5}{8}"$ ) long to be secured in the wall by means of resin cartridge or similar as per manufacturers instructions. Flexible material to be tied above rebars ( $16$  ( $\frac{5}{8}"$ ) x  $10\text{mm}$  ( $\frac{3}{8}"$ ) strip of polystyrene, styrofoam, or similar).

Use polystyrene, styrofoam, or similar between existing wall and new foundation  
Foundations designed by others to suit site conditions

## 'U' BEAM REINFORCING RECOMMENDATIONS

- 1) Minimum reinforcement to be 2 No.  $\varnothing 12\text{mm}$  ( $\frac{1}{2}"$ ) high yield bars
- 2)  $\varnothing 6\text{mm}$  ( $\frac{1}{4}"$ ) Mild steel stirrups type 33 at  $100\text{mm}$  ( $3\frac{1}{2}"$ ) centres
- 3) Top and bottom cover  $25\text{mm}$  ( $1"$ ) to stirrups and  $50\text{mm}$  ( $2"$ ) end cover



## CONCRETE RECOMMENDATIONS

1. Use  $\varnothing 10\text{mm}$  ( $\frac{3}{8}"$ ) rounded gravel aggregate
2. Concrete to have a minimum strength of  $25\text{ Mpa}$  [ $\text{N/mm}^2$ ] ( $3500\text{ psi}$ ) at 28 days
3. Concrete to be hand compacted
4. Top surface to be protected against frost damage and the ingress of water at the in situ concrete interface during construction

POINTING - Joints should be pointed using our proprietary dry mix pointing material in accordance with the recommended instructions.

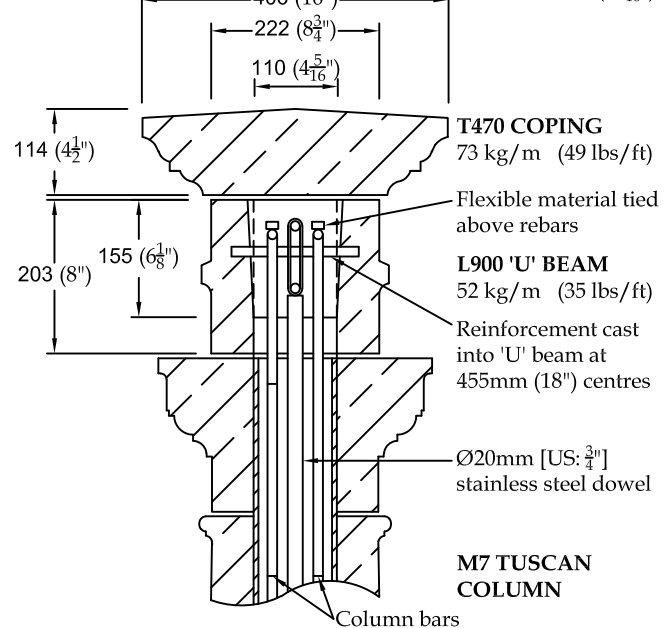
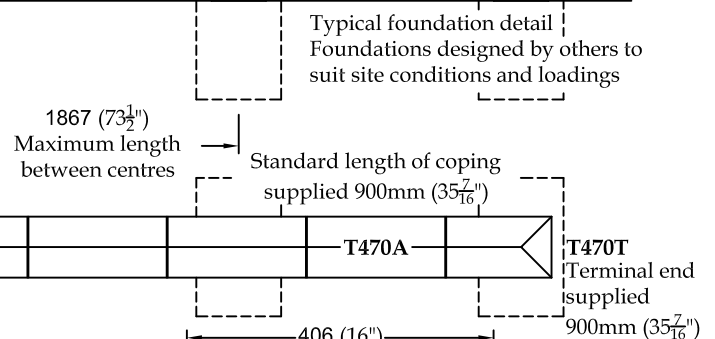
Or use 1:1:6 cement/lime/sand colour-toned to suit (white cement may be necessary)

BEDDING JOINTS - Use 1:1:6 cement/lime/sand mortar

Read in conjunction with Tech Sheet CAD1

All dimensions exclude joints - allow  $6\text{mm}$  ( $\frac{1}{4}"$ ) for vertical and bedding joints

Unless otherwise stated, all materials other than stonework to be supplied by others



## COLUMN REINFORCEMENT RECOMMENDATIONS

- 1) 2 No  $\varnothing 12\text{mm}$  ( $\frac{1}{2}"$ ) starter bars with  $600\text{mm}$  ( $23\frac{5}{8}"$ ) lap
- 2) 2 No  $\varnothing 12\text{mm}$  ( $\frac{1}{2}"$ ) column bars
- 3)  $\varnothing 20\text{mm}$  ( $\frac{1}{2}"$ ) stainless steel dowel  $600\text{mm}$  ( $23\frac{5}{8}"$ ) long to be positioned in the top of core
- 4) Top cover to be  $50\text{mm}$  ( $2"$ ) minimum and  $20\text{mm}$  ( $\frac{1}{2}"$ ) side cover
- 5) The shaft sections should be lined with polystyrene, styrofoam, or similar, to act as an isolating medium when column cores are infilled

When drilling stonework, use suitable masonry drill on rotary setting (not hammer action)





To be read in conjunction with Tech Sheet CAD1/TS,  
appropriate column Tech Sheet and Pointing Recommendations.

The column is supplied in component form: ie capital, shaft, base, plinth and pedestal. Depending on column type, each column shaft is supplied in either one piece or multiple drum sections as detailed on the relevant Tech Sheets. Unless otherwise stated, all materials other than the stonework are to be supplied by others. Consult a qualified builder or installer to ensure all relevant Building Regulations/Codes are adhered to prior to installation of columns.



The column should be erected on a suitable foundation. Foundation, concrete and steel reinforcement to be designed by others to suit loadings and ground conditions. Shown is a suitable steel starter bar set into a concrete foundation.



The pedestal is then bedded on 1:1:6 cement/ lime/sand mortar. All joints would normally be 6mm (¼") with the mortar slightly recessed from the surface of the stonework to allow for pointing after the column is erected.



The column base is bedded on the pedestal as previously described.



It is important that polystyrene/Styrofoam (or similar) is used to act as an isolating medium between the stone and infill concrete. This is inserted into the core of the pedestal and base. Care should be taken to ensure sufficient overlap at both vertical and horizontal joints with continuous contact between the isolating material and the inner stonework core.



The pedestal and base are then infilled with concrete. The coarse aggregate of the concrete being rounded gravel of maximum 10mm (¾"). All subsequent concrete pours should only take place after the concrete in the preceding section has reached its initial set.



The steel main bar reinforcement is tied to the starter bar insuring sufficient overlap. The concrete is then carefully compacted by hand.



The bottom shaft section is then bedded and the isolating medium inserted as previously described. The concrete is again infilled.



The concrete is then hand compacted. The second and third shaft sections being installed in the same way (unless a single shaft unit).



The capital is then bedded. The isolating medium is inserted into the core. The core is then partly infilled with concrete as previously described



The isolating medium is then trimmed flush. Continue concrete infill until level with top of joint around the structural core between the capital. The capital is now ready for the next stage, either (11) or (12).



Column ~ Entablature or Structure above: the joint around the structural core between the capital and the entablature or structure above should be formed using a compressible filler, or a weak mortar mix, to form a 6mm (1/4") soft joint. This ensures that any loading is carried by the central structural core and not by the stonework.



Column ~ Freestanding or timber pergola: the top of the capital will need to be waterproofed, as a minimum, with bituminous paint (applied in accordance with manufacturers instructions) to approximately 25mm (1") from the edge of the stone.

### **Haddonstone Ltd**

The Forge House, East Haddon, Northampton NN6 8DB, England  
Telephone: 01604 770711 Fax: 01604 770027 [info@haddonstone.co.uk](mailto:info@haddonstone.co.uk)

### **Haddonstone (USA) Ltd**

32207 United Avenue, Pueblo, CO 81001, USA  
Telephone: 719 948 4554 Fax: 719 948 4285 [stone@haddonstone.com](mailto:stone@haddonstone.com)

**[www.haddonstone.com](http://www.haddonstone.com)**

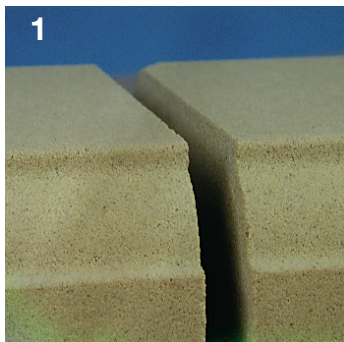




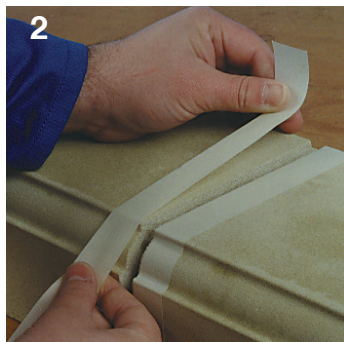
# HADDONSTONE

## HADDONSTONE POINTING RECOMMENDATIONS

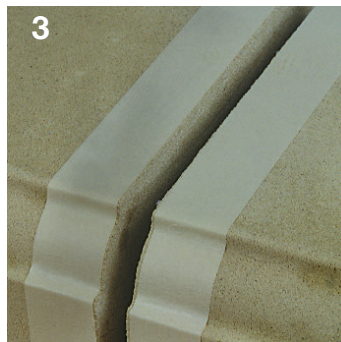
Required: pointing mix, pointing trowel, masking tape, mixing bowl, water, mist sprayer.  
Please note: all text and photographs relate to Haddonstone semi-dry pointing mix.



**1**  
Before pointing ensure each 6mm (1/4") joint is free from loose particles. Avoid pointing in extreme conditions, particularly wet and cold.



**2**  
Apply masking tape to both sides of the joint, keeping the tape approximately 1mm (1/16") from the edge of the joint.



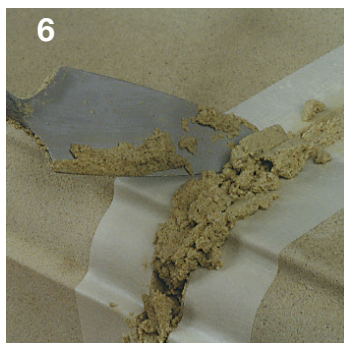
**3**  
The joint is now ready to start pointing.



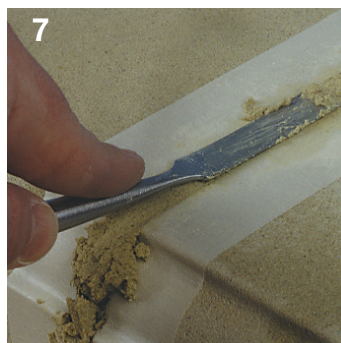
**4**  
Carefully add small quantities of water to the Haddonstone pointing mix, mixing thoroughly to ensure the water is fully dispersed. \*See note below.



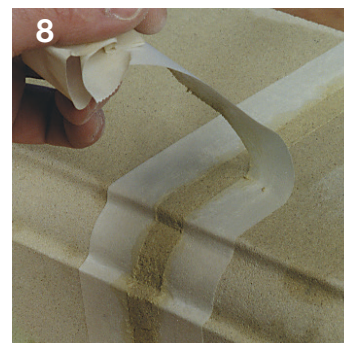
**5**  
The Haddonstone pointing mix is ready to use when it has the consistency of damp sand. \*See note below.



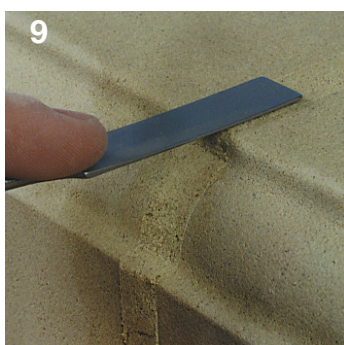
**6**  
Scoop the mix into the joint, pressing with a trowel to ensure an even fill.



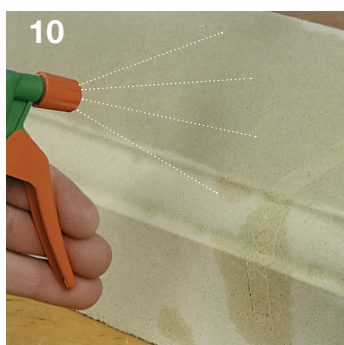
**7**  
Smooth the pointing mix to the profile of the stone, removing any excess pointing mix.



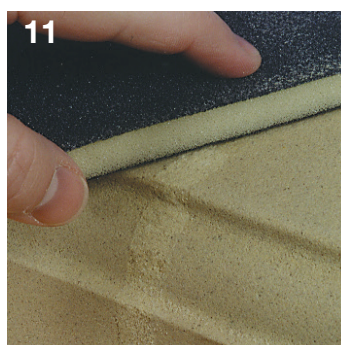
**8**  
Carefully remove the masking tape.



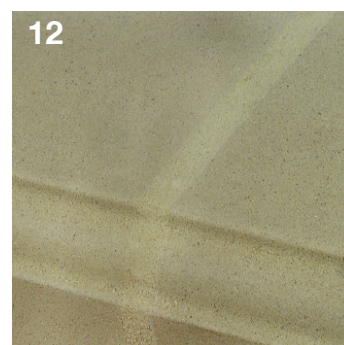
**9**  
If necessary trowel over the joint once more to ensure a flush finish.



**10**  
Apply a fine and even mist of water to the joint to prevent drying out.



**11**  
Any mix residue may be rubbed away with fine abrasive paper 2-3 days after completion.



**12**  
The finished joint.

\* NOTE: It would be advantageous to use a waterproofing additive in the mixing water (SBR or other proprietary mortar admixture). The use of too much water can lead to the pointing mix colour and texture becoming unsightly, and the possibility of the mix bleeding into the adjacent cast stone.

### Haddonstone Ltd

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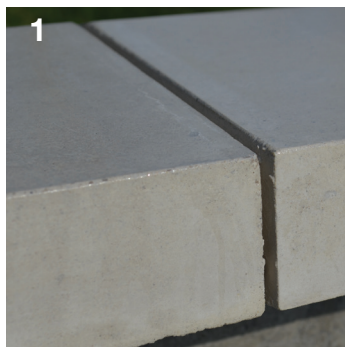


# HADDONSTONE

## TECSTONE POINTING RECOMMENDATIONS

Required: pointing mix, pointing trowel, masking tape (if required), mixing bowl, water, sponge.

Please note: all text and photographs relate to TecStone pointing mix.



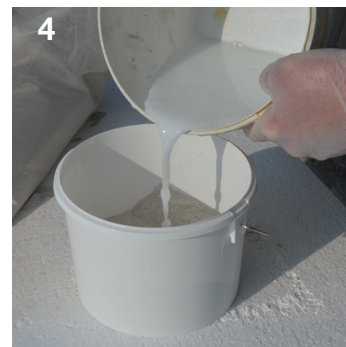
1  
Before pointing ensure each 6mm ( $\frac{1}{4}$ " joint is free from loose particles. Avoid pointing in extreme conditions, particularly wet and cold.



2  
The TecStone pointing mix is supplied as separately bagged cement and aggregate with an information leaflet.



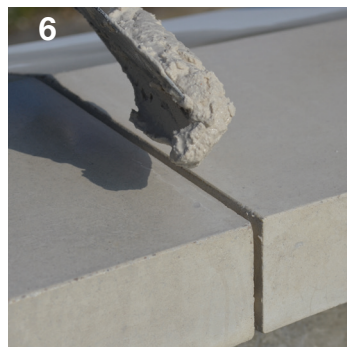
3  
The cement and aggregate should first be mixed together dry in the ratio of 1 part cement to 4.5-6.5 parts aggregate.



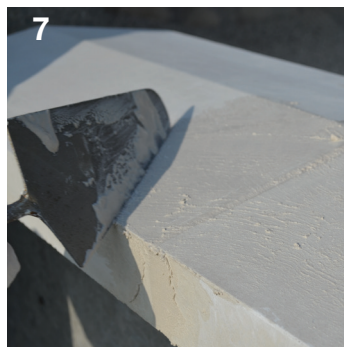
4  
Carefully add small quantities of water to the TecStone pointing mix, mixing thoroughly to ensure the water is fully dispersed. \*See note below.



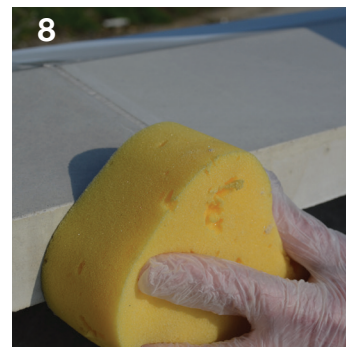
5  
The TecStone pointing mix is ready to use when it has the consistency of putty. \*See note below.



6  
Scoop the mix into the joint, pressing with a trowel to ensure an even fill.



7  
Smooth the pointing mix to the profile of the stone, removing any excess pointing mix.



8  
Wipe over the surface of the joint and surrounding area with a dampened sponge to remove all surplus pointing material off the surrounding areas and ensure a flush finish to the joint.



9  
If necessary trowel over the joint once more to ensure a flush finish.



10  
Any mix residue may be rubbed away with fine abrasive paper 2-3 days after completion.



11  
The finished joint.

\* NOTE: It would be advantageous to use a waterproofing additive in the mixing water (SBR or other proprietary mortar admixture). The use of too much water can lead to the pointing mix colour and texture becoming unsightly, and the possibility of the mix bleeding into the adjacent cast stone.

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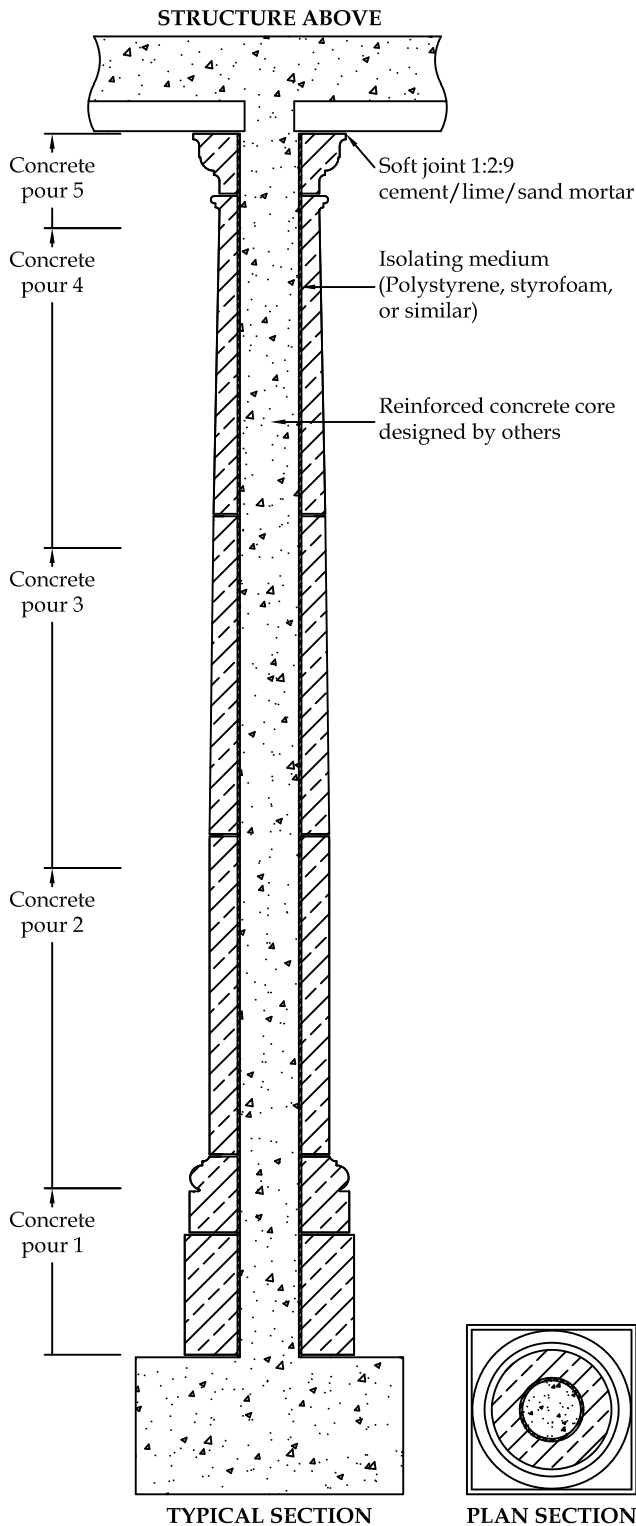
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## COLUMN ASSEMBLY DETAIL (M4 COLUMN ILLUSTRATED)



Each Haddonstone column is supplied as a non-structural decorative cladding with a hollow central core. For structural use the hollow core can be used to accommodate a reinforced concrete, or structural steel, member. The column is supplied in component form: i.e. capital, shaft, base, plinth and pedestal. Depending on the column type, each column shaft is supplied in either one piece (M7, M8), multiple drum sections (M2, M4, M5, M9) or multiple half drum sections (M1, M3). Generally the other column components are one piece except where detailed on the relevant Tech Sheets.

Please note M1, M2, M3 and M9 columns have spigot and socket joints in shaft sections.

### FOUNDATIONS

A column should be erected on a suitable foundation, designed to suit loadings and ground conditions. We strongly recommend that professional advice is taken to ensure that any proposal meets building regulations and is designed to be structurally sound.

### BEDDING AND JOINTING

All components should be bedded and jointed using 1:1:6 cement/lime/sand mortar or similar. Joints should be approximately 6mm ( $\frac{1}{4}$ ") wide to allow for any irregularities in the mating surfaces, and to provide for a full bedding and pointing joint. The jointing mortar should be left slightly recessed from the surface of the stonework or subsequently raked out, leaving a rebated joint. Pointing should be carried out using Haddonstone's colour-matched dry mix in accordance with the instructions printed on bags. Alternatively use the bedding mix, colour matched to suit, in which case white cement may be necessary. The joint between the capital stonework and the structure above should be formed using a compressible filler or a weak mortar mix, to form a soft joint and ensure that any load is carried by the central structural core and not by the reconstructed stonework.

### INFILLING TECHNIQUES

It is important that the hollow core of each column section is lined with polystyrene, styrofoam, or similar (not supplied), to act as an isolating medium when column cores are infilled with concrete. This will accommodate any possible differential movement between the stonework and the concrete core. The isolating material, when inserted, should make continuous contact with the inner core surface. Care should be taken to ensure sufficient overlap of material at both vertical and horizontal joints.

Concrete used to infill the cores should ideally have a rounded gravel aggregate of 10mm ( $\frac{3}{8}$ ") maximum size. The concrete should be of medium to high workability to assist core filling whilst minimising the effort required during hand compaction. The use of proprietary concrete plasticising admixtures can assist this operation. All columns with shaft drum sections should be concreted one section at a time. Subsequent concrete pours should only take place after the concrete in the preceding section has reached its initial set. If the column is used to sleeve a structural steel member, the resultant void between the stone and steelwork can be left as a void or grouted up. If grouting up is carried out an isolating medium must be incorporated adjacent to the stonework.

### FREESTANDING OR TIMBER PERGOLA COLUMNS

The top of the capital will need to be waterproofed, as a minimum, with bituminous paint (applied strictly in accordance with manufacturers instructions) to approximately 25mm (1") from the edge of the stone.

Foundations, concrete and steel reinforcement to be designed by others to suit site conditions and loadings

Allow 6mm ( $\frac{1}{4}$ ") for vertical and bedding joints

Unless otherwise stated, all materials other than stonework to be supplied by others

A: Revised Feb 2015