

Tech-Dry[®] Masonry

Specification for Designers and Architects

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Pre-sealing technology used in the manufacture of the masonry achieves the following characteristics:

- (i) Natural stone appearance
- (ii) Elimination of efflorescence
- (iii) Water repellency
- (iv) Colour retention
- (v) Durability
- (vi) Environmentally sustainable, no maintenance of structures.

NOTE:

The purpose of this specification is to provide information where “water repellent” concrete masonry blockwork is required; that are set out as 'additional clauses' to be added to that normally incorporated into a project specific building specification.

Information is in three separate clauses that may be added to a project specification in the appropriate locations:

- (i) Block manufacturing requirements
- (ii) Mortar mix requirements
- (iii) Construction requirements

01. MATERIALS & COMPONENTS

01.01 WATER REPELLENT CONCRETE MASONRY BLOCKS

Standards:

AS 2758.1-1998	Aggregates and rock for engineering purposes	Concrete aggregates
AS 3700-2001	Masonry structures	
AS 3972-1997	Portland and blended cements	
AS/NZS 4455-1997	Masonry units and segmented pavers	
ASTM E514.90	Standard test method for water penetration and leakage through masonry	

Manufacturer:

Requirement: Obtain water repellent concrete masonry blocks from an approved manufacturer that has in place facilities for supplying water repellent blocks that meets this specification and supplies certification that blocks supplied for the project have been manufactured in the correct manner with the TECH-DRY water repellent admixture specified.

Water repellent admixture:

Proprietary item: TECH-DRY Block Emulsion, product code RPBE; being a silane/siloxane emulsion. Manufacture of blocks shall be in accordance with TECH-DRY specifications that includes the following requirements.

Dosage: Add one litre of TECH-DRY Block Emulsion to every 1000kg of mixed cement and aggregate.

Mixing: Pre-mix TECH-DRY Block Emulsion at the ratio of 1 part emulsion to 10 parts water, which is then incorporated into the water line as the water enters the production line mixer.

Drying: Manufacturers shall not use high pressure autoclaving when drying water repellent blocks. Use low-pressure steam curing using as little water as possible. Keep blocks away from water and sun for a period of at least 10 days after manufacture.

01.02 WATER REPELLENT MORTAR MIX

Mortar materials:

Sand: Fine aggregate with low clay content (Brickie Sand) and free from efflorescing salts, selected for colour and grading.

Colour: Sand shall be selected for colour where used in face work; obtained from the same pit.

Cement type to AS 3972: GP (Portland Cement).

Water: Clean and fresh.

Water repellent admixture: As specified below.

Mixing: For consistency of strength and colour batch mix mortar.

Water repellent admixture:

Proprietary item: TECH-DRY Techdryad Mortar Additive, product code RPTDADMA; being an approved water repellent admixture.

Dosage: Add one litre of TECH-DRY Techdryad Mortar Additive with two shovels of cement (approximately 12 kg) and 10 shovels of sand (approximately 60kg); do not exceed cement to sand ratio of 1 part cement to 5 parts sand.

Mixing: The mortar admixture improves workability of the mortar which may necessitate less water being added to the mix. Due to the variation of masonry materials, it is strongly recommended that a pilot test on a small scale on site should be conducted prior to application to find out the most suitable mixing ratio under different conditions.

02. EXECUTION

02.01 CONSTRUCTION OF WATER REPELLENT BLOCKWORK

Water repellent blockwork:

Standard: All water repellent blocks must be laid with TECH-DRY Mortar Additive at the correct dosage levels in accordance with AS 3700 and the manufacturer's recommendations.

Supervision: The Contractor must supervise the construction of water repellent blockwork to ensure correct procedures are followed.

Weep holes: Walls must incorporate horizontal weep holes at the floor joint in each block to drain away any water that may become trapped inside the blocks.

Drainage: Partially fill the bottom course block cores with clean 20mm crushed blue metal or other similar drainage material. This is to help prevent mortar from the following courses blocking the weep holes.

Movement joints: Ensure that control joints and articulated joints are designed to prevent water penetration.

Reinforcement: Partial reinforcement and core filling must be used in a single skin wall to control wall cracking. When core filling water repellent blocks some seepage will occur, make sure it is cleaned off before it dries.

Perpends: Ensure that perpends are buttered on each side with a void in the middle. The mortar joints shall be well ruled inside and outside to provide a tightly sealed joint.

Webs: Do not put mortar in the web of the blocks.

Cleaning blockwork: Clean masonry progressively as the work proceeds as recommended by the manufacturer. Clean face work to remove mortar smears, stains and discolouration. DO NOT USE ACID.

Retaining walls: When backfilling behind retaining walls it is essential to have a good draining system in place behind the wall in accordance with good building practice and standards.