

AS 4773 Masonry in small buildings.
 4773.1 Design.
 4772.2 Construction.
 Comply throughout with the current edition of the NCC.

105 Submissions

Submit samples, provide control panel and provide shop drawings for each brickwork wall type.
 Obtain approval prior to commencing work.
 Samples:
 Provide four brick samples for each of the listed brickwork types. Provide samples of all accessories for this trade section such as flashings and DPC's.
 Shop drawings:
 Provide shop drawings for location of weep holes and show on the control panel and technical data sheets for provision of treatment for brickwork if and where required.
 Structural components:
 Coordinate the brickwork trade with installation of structural steel components such as lintels and wall stiffeners as listed on structural engineer's documentation.
 Efflorescence control:
 Provide method statement for efflorescence control for each of the listed face work types. Obtain approval from the architect on adequacy of the efflorescence control measures.

ADD OR REMOVE BELOW AS RELEVANT TO YOUR PROJECT.

- A. Submissions required prior to ordering:
 - 1. Name of proposed manufacturer of bricks.
 - 2. Product data: showing the following information where appropriate:
 - a. Manufacturer's name and product details including a designation of proposed types and sizes.
 - b. Cement type and composition with sand and water sources and purity details.
 - 3. Samples: submit if requested by the architect.
- B. Submissions required prior to delivery:
 - 1. Four of each type of face brick to represent the range of colours, textures and surface, arris and shape irregularities.
 - 2. Other.

106 Delivery, Handling and Storage

Coordination: reach agreement with the architect about site provision for storage of sand, cement and other materials and for mixing of mortar.
 Deliver, handle and store products in accordance with manufacturer's recommendations and prevent damage, deterioration or loss.

PART II MATERIALS AND COMPONENTS

**201 Bricks
 Schedule**

Brickwork type	Requirements	Comments
Structural brickwork		Refer to structural engineer's documentation
Face brickwork		
Rendered brickwork		
Efflorescence control additive		
Others		

Structural Brickwork

Refer to structural engineer's specification for structural components to this type of brickwork and to the Finishes Schedule for the type of brickwork for designated locations.
 The brickwork standard is to be provided by constructing approved size control panel(s) in an agreed location for inclusion in the works once approved with the following shown and approved by the architect:
 Provide brickwork of the listed type and to an approved colour variation.
 Brickwork joint type and grout colour
 Brickwork weephole configuration
 Structural components such as lintels and steel structural supports where appropriate.

Face Brickwork

Provide to an approved control panel and incorporate into the works once approved.

Rendered Brickwork

Provide to an approved control panel and incorporate into the works once approved.

IDENTIFY REQUIREMENTS.

202 Mortar and Grout Materials and Types

- A. Materials: comply with AS 3700 as follows:
1. Mortar: restrict the amount of fine aggregate passing a 75 micron test sieve to 5% maximum.
 2. Grout:
 3. Pigment: powdered metallic oxides used in accordance with the manufacturer's instructions.
 4. Refractory mortar: approved refractory mortar, treated as recommended by the manufacturer.
- B. Types: comply with AS 3700, providing materials in the proportions described below:
1. Mortar:

AMEND CEMENT SPECIFIED IN TABLE BELOW AS REQUIRED BY STRUCTURAL ENGINEER

Classification	Mix Proportions (by volume) Type GP Portland Cement	Building Lime	Sand
M1	0	1	3
M2	1	2	9
	1	2	8
M3	1	1	6
	1	0	5
M4	1	0.5	4.5

SEE TABLE 10.1 IN AS 3700 FOR ADDITIONAL OPTIONS. REVIEW AND SELECT BELOW. PLEASE NOTE THAT THE BRACKETS INDICATE ALTERNATES, LEAVE ONLY YOUR SELECTION IN YOUR SPEC.

Mortar for load bearing brickwork: M3 (M4) (M2)

Mortar for grouted and reinforced brickwork: M3 (M4)

Mortar for non-load bearing brickwork: M3 (M4) (M2)

Mortar for repair of lime mortar brickwork: M1 (M2)

Mortar for bagging: **SPECIFIER SELECT FROM:**

Same mortar as used for laying.

APPROPRIATE WHEN THE WORK IS TO BE BAGGED AS BRICKLAYING PROCEEDS.

M3 mortar. APPROPRIATE WHEN THE WHOLE OF THE BAGGING IS TO BE CARRIED OUT AS A SEPARATE OPERATION.

M3 mortar, with powdered metallic oxide pigment added to achieve a dry colour approved by the architect.

PLEASE NOTE:

SAME MORTAR AS USED FOR LAYING: APPROPRIATE WHEN THE WORK IS TO BE BAGGED AS BLOCKLAYING PROCEEDS.

M3 MORTAR: APPROPRIATE WHEN THE WHOLE OF THE BAGGING IS TO BE CARRIED OUT AS A SEPARATE OPERATION.

M3 MORTAR, WITH POWDERED METALLIC OXIDE PIGMENT ADDED TO ACHIEVE A DRY COLOUR APPROVED BY THE ARCHITECT: APPROPRIATE WHEN THE WHOLE OF THE BAGGING IS TO BE CARRIED OUT AS A SEPARATE OPERATION AND A UNIFORM TEXTURED COLOURED MORTAR IS TO BE THE PERMANENT FINISH.

2. Grout: f'c not less than 12 MPa AS 3700.

203 Miscellaneous Materials **CHECK THAT DETAILS EXIST ON THE STRUCTURAL OR ARCHITECTURAL DRAWINGS, SEE CLAUSE 204 BELOW.**

Comply with AS 3700 as follows:

- A. Wall ties and accessories:
Where building is to be located within 10 kilometres of the coast wall ties: **SELECT FROM STAINLESS STEEL OR PLASTIC.**
- B. [Reinforcement:
- C. Lintels and other steel in brickwork:
Extend lintels 230mm minimum past each jamb of openings.
- D. [Caulking: elastomeric sealing compound, coloured to match mortar; for general caulking including movement control joints:
[Liquid polysulphide polymer.
[Neutral silicone
- E. [Damp proof courses:
- F. [Flashings:
Note: both to comply with AS/NZS 2904.
- G. [Expansion joint material:
- H. [Control joint material:

204 Steel Lintels

- A. Where brickwork is to be supported over openings and no special lintels are detailed, build in mild steel lintels, in accordance with the NCC.
- B. Set angles with the major dimension vertical.
- C. Hot dip galvanise steel lintels in exterior openings.
- D. Fix angles to concrete columns or beams with the bearing leg cut and bent to the height of the vertical leg and bolted to concrete with 2 no. 16mm masonry anchors or as detailed in structural drawings.

PART III EXECUTION

301 Mortar Mixing

Measure materials to ensure that the specified mix proportions are maintained as per AS 3700.
Mix in a suitable mixing machine until a uniform blending of the components is achieved.
Add water to create a mix that is as wet as can be conveniently used by the bricklayer.
Except for the previously specified methyl cellulose water thickener, use no chemical to affect the plastic or other properties of mortar or as a substitute for lime without the architect's permission.

302 Mortar Life

Re-temper to replace water lost by evaporation only until initial set begins. Reject mortar which has begun its initial set and do not re-temper.

303 Preparation

ENSURE THAT THE ITEMS LISTED BELOW ARE RELEVANT TO YOUR PROJECT.

Ensure scaffolding, when provided is heavy duty type and compliant with the scaffolding Code of Practice and Australian Standards.

Review the project with other trades in relation to ducts, piping, conduits, thimbles, sleeves, etc. or other item penetrating or to be built into brickwork and coordinate their installation.

Obtain built-in items from their suppliers prior to starting brickwork.

Clean the surface of concrete before laying bricks thereon.

Set up pressed metal door frames plumb and level and brace as required. Maintain bracing until walls are at least 1000 high and frame grouting has set.

304 Laying

ENSURE THAT THE ITEMS LISTED BELOW ARE RELEVANT TO YOUR PROJECT.

General: comply with applicable provisions of AS 3700. Set out brickwork so as to reduce cutting to a minimum and, in facework, to avoid irregular or broken bond. Ensure all perpend are in line vertically with perpend below.

Make cuts in facework with a masonry saw.

Carefully position openings for other trades to eliminate cutting.

Build in accordance with the dimensions, thicknesses and heights shown on drawings, plumb, level and in the designated position within the tolerances of AS 3700.

Allow no part to rise more than 1000mm above adjacent unfinished work. Rake back advanced work, build brickwork in bond and avoid toothing wherever possible.

Build in as necessary reinforcements, arch bars, lintels, frames, straps, bolts, lugs, wall ties, metalwork, damp proof courses and flashings, etc.

Provide weepholes 1200 mm apart over damp proof course and flashings where these span across cavities.

Install fire ember screens to weepholes (e.g. Weepa) to comply with BAL assessment requirements.

Re-lay, in fresh mortar, bricks accidentally moved after initial laying.

Keep mortar stains to a minimum and protect horizontal ledges, finished sills and the like from mortar droppings as work proceeds. Prevent mortar dropping into cavity by use of a cavity batten cleaned and lifted frequently.

Before mortar sets hard, remove excess mortar. Scrub brickwork within 24 hours of laying using a bristle brush plus detergent if necessary.

Protect new and incomplete brickwork with coverings, temporary bracing or the like - AS 3700.

305 Jointing and Finishing

ENSURE THAT THE ITEMS LISTED BELOW ARE RELEVANT TO YOUR PROJECT.

Joint thickness: 10mm within the tolerances given in AS 3700.

Joint finish brickwork for plaster: cut off flush.

Face brickwork: **DESCRIBE RAKING, STRIKING AND TOOLING ABOVE TO ELIMINATE WATER ENTRY.**

Bagged finish: spread the mortar on exposed external/internal surfaces with a brush, sponge float, rough cloth or other suitable device and then rub to achieve a uniform texture approved by the architect.

Protect adjacent surfaces as necessary and promptly remove bagging mortar spilt, splashed or otherwise lodged on them.

[Carry out bagging as the work proceeds.

[Carry out bagging as a separate operation after bricklaying has been completed.

306 Bonding and Tying

ENSURE THAT THE ITEMS LISTED BELOW ARE RELEVANT TO YOUR PROJECT

Build work in stretcher bond.

Space wall ties in accordance with AS 3700.

Keep cavities clean and free from mortar droppings using a cavity batten.

Fix to concrete or steel columns and at junction with concrete walls with frame ties built at least 250mm into brick joint and fix to the structure as close as possible to the course line.

307 Door Frames

Build in door frames as the work proceeds. Generally allow for lugs at 400 to 450mm centres except FU door frames which have lugs to sizes and centres required by the fire test report pertaining to the particular type of door. Grout solid cavities behind frames.

308 Incidental Work

Chases: refer to AS 3700, and, as far as possible, provide for chases to be made as the work rises. No horizontal chase may exceed 1200mm in length and no vertical chase may be closer than 600mm to an element providing lateral support. No chase may be more than 1/3 of the thickness of the wall. Perform miscellaneous incidental brickwork as required throughout and for other trades. Make good after other trades.

309 Field Quality Control

NOTE: FEW, IF ANY, OF THESE TESTS WILL BE ROUTINELY NEEDED. COMPRESSIVE AND BOND STRENGTH TESTS ON BRICKWORK WILL BE REQUIRED WHEN THE BRICKWORK IS ENGINEER DESIGNED AS SPECIAL MASONRY ON THE BASIS OF AS 3700.

A. [Tests.

Have the following tests performed in a laboratory NATA registered for the particular test. Supply copies of the resulting test certificates to the architect.

TEST:	TEST METHOD:
For mortar: sampling method	Refer structural engineer
Chemical composition	
Other	
For brickwork: compressive strength	See AS 3700
Bond strength	
Characteristic strength	See AS 3700
Other	

B. [Test frequency.

For mortar:

For special masonry: **DESCRIBE; EG. AT A RATE OF ONE TEST PER 10,000 BRICKS LAID. DESCRIBE ON THE BASIS OF: THE GREATEST OF ONE SAMPLE PER STOREY HEIGHT OF BRICKWORK; ONE SAMPLE PER 400 M2 OF WALL AREA AND TWO SAMPLES - FROM AS 3700.**

For other masonry: **DESCRIBE; EG. AT A RATE OF ONE TEST PER 10,000 BRICKS LAID.**

310 Cleaning of Facework

Take care to keep walls clean constantly. Should further cleaning be necessary, use hydrochloric acid not stronger than 5%, treating only a small area at one time. Wet the wall prior to applying the acid, work from the top down and thoroughly wash off after brushing. Do not leave acid solution on wall at stoppage of work.

311 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the architect.

On completion, clean up mortar droppings, debris, etc., remove scaffolding, make good put-log holes and blemishes and leave work in a first class condition.

Protect facework surfaces where necessary to avoid damage during other building operations.

Protect top of work from water ingress until roofing is installed, then remove.

END OF SECTION