

Render

1. Materials

1.1. Cement

1.1.1.Type GP (general purpose) or Type GB (general purpose blended) cement in accordance with AS 3972 shall be used

1.1.2.For light-coloured render applications, ensure use of an off-white cement

1.2. Lime

1.2.1.Hydrated lime in compliance with AS 1672.1

1.2.2.Lime may be added to provide a more workable mix to assist in application, provided this remains within the recommended mix ratios noted below

1.2.3.Lime to be soaked in an equal volume of water for 24 hours prior to use

1.3. Sand

1.3.1.Sand in accordance with AS 2758.1

1.3.2.Coarsely graded sands to be used for undercoat applications only, unless agreed otherwise

1.3.3.Finely graded sands to be used for finishing coat, unless agreed otherwise

1.4. Water

1.4.1.Water shall be clean and free of all impurities (water from mains supply generally adequate)

1.5. Admixtures

1.5.1.Admixtures to comply with AS 1478 as applicable

1.5.2.Admixtures to be added in strict accordance with the manufacturer's instructions

1.5.3.Should manufacturer' instructions appear to deviate from the aforementioned standard, contractor to contact Architect and Façade Engineer (where applicable) for further instruction

1.5.4.Air-entraining agents may be used to improve workability, provided this is added in strict accordance with manufacturer's instructions relative to the specific mix proportions applicable to the Project

1.5.5.Particular care to be taken to ensure that any admixture added does not exceed the recommended volume, which may lead to loss in strength and bond

1.6. Pigments

1.6.1.Pigments to comply with BS 1014

1.6.2.Pigment quantity shall not exceed 10% of cement mass within the Project specific mix

1.6.3.Samples of render to be prepared for all differing applicable substrate materials for Architectural review and approval

1.6.4.Sample renders shall be dried completely by the time of inspection

1.6.5.Light coloured render applications to use off-white cement

2. Mixes and applications

2.1. Render material shall be formed to suit the material ratios shown in Table 1:

Table 1: Material ratios for various render mixes (mix proportions)			
Mix type	Cement	Lime	Volume of aggregate per sum of volume of cement plus lime
(-)	(-)	(-)	(-)
A	1	0 to 3/4	2 1/2 to 4
B	1	0 to 3/4	3 to 5
C	1	3/4 to 1 1/2	2 1/2 to 4
D	1	3/4 to 1 1/2	3 to 5

2.2. Render mix proportions shall be formed to suit the substrate material as per Table 2:

Table 2: Mix types for various backgrounds and applications			
Substrate material		Application	Mix type
Type	Example	(-)	(-)
Low absorption background	Dense smooth clay bricks; concrete	1 <sup>st</sup> coat (undercoat)	A
		2 <sup>nd</sup> coat (final)	A or D
High absorption background	Absorptive clay bricks; concrete masonry	1 <sup>st</sup> coat (undercoat)	C
		2 <sup>nd</sup> coat (final)	D
Metal plaster base		1 <sup>st</sup> coat (undercoat)	A or C
		2 <sup>nd</sup> coat (final)	B or D

3. Site-mixed renders

3.1. Site mixed rendering applications may be carried out using a mechanical or manual (hand) mixing methods

3.2. For improved finish, it is recommended to use mechanical mixing method for large scale application to improve consistency

3.3. Mixing methods

3.3.1.Mechanical mixer

3.3.1.1. Measure all required material volumes to suit the proposed mix

3.3.1.2. Turn on mixer and prime the bowl with a known quantity of clean water (e.g. 1 litre)

3.3.1.3. Add the sand, pigment (if applicable) and then cement

3.3.1.4. Blend until a uniform colour is observed

3.3.1.5. Add remainder of water slowly and sparingly until a mix which will sit up on a trowel is achieved

3.3.1.6. Continue mixing for at least 2 minutes further

3.3.1.7. Discharge mixer and repeat until required render volume has been produced

3.3.2.Mixing by hand

3.3.2.1. Measure all required material volumes to suit the proposed mix

3.3.2.2. Mix dry materials until a uniform colour is observed

3.3.2.3. Mound the material and form a crater in the centre

3.3.2.4. Add water slowly whilst turning the material in to the water

3.3.2.5. Re-mound and repeat the process until a stiff mix that will sit up on a trowel is achieved

3.3.2.6. Continue turning and mixing material for at least 2 minutes further to ensure all the sand is uniformly coated with paste

3.3.2.7. Discharge mixer and repeat until required render volume has been produced

4. Pre-mixed renders

4.1. Pre-mixed renders to be factory-blended and ready for use

4.2. Mix specification to adhere to those listed in Table 1

4.3. Render to be prepared and applied in accordance with manufacturer's instructions

5. Render application

5.1. Render application to comply with requirements of AS/NZS 2311 and AS/NZS 4548

5.2. Surface preparation

5.2.1.Substrate surface to be free from laitance, paint, oil, dust and any dirt or loose material that may reduce the bond formed between the render and substrate material

5.2.2.Proprietary bonding agents to be used in accordance with manufacturer's instructions to improve adhesion

5.2.3.Renders to be applied within 30 minutes of commencing mix preparation (mixing)

5.2.4.Substrate to be prepared in accordance with Table 3:

Table 3: Substrate preparation		
Substrate	Examples	Treatment
Smooth, strong	High-strength concrete, fibre cement sheeting	Scabble surface and apply dash coat or fix metal lath clear of surface
Strong/porous	Standard bricks, concrete blocks, concrete	Rake joints where appropriate and apply dash coat
Weak/porous	Lightweight concrete, render undercoat	Dampen surface

5.3. Surface dampening

5.3.1.Following initial preparation, substrate to be dampened and allowed to dry back to surface dry condition immediately prior to applying render

5.4. Dash coats

5.4.1.Dash coats to be used to form bond between substrate and render material

5.4.2.Dash coats to have mix ratio of 1 part cement to 2 parts sand

5.4.3.Dash coat to be flicked/'splattered' over the substrate to produce a rough finish for subsequent render application

5.4.4.Dash coat shall not be trowelled level or smoothed out following application

5.5. Number of coats

5.5.1.Sufficient coats to provided to counter any surface deviation or unevenness to form an aligned surface

5.5.2.Coat number to be appropriate for the proposed site exposure and finish type

5.5.3.Minimum of 3 days between coat applications

5.6. Types of coats

5.6.1.Undercoat

5.6.1.1. Undercoats to generally be applied using a trowel or similar

5.6.1.2. Thickness shall be between 10mm (min.) to 15mm (max.)

5.6.1.3. Once render firm, it shall be raked/scratched to provide sufficient key for the next coat

5.6.2.Final coat

5.6.2.1. Final coats to generally be applied using a trowel or similar

5.6.2.2. Thickness shall not exceed 10mm (max.) over the undercoat (behind)

5.7. Decorative finishes

5.7.1.Decorative finishes shall be formed where required in accordance with the Architect's specification

5.7.2.Decorative finishes may include the following: -

5.7.2.1. Trowelled: Achieved through skimming the final coat w/ a wood float (or similar) to achieve a smooth, dense surface or using alternative trowels to produce a variety of textured finishes

5.7.2.2. Bagged: Achieved through rubbing a ball of damp hessian into the surface w/ different patterns as required

5.7.2.3. Sponge: Achieved by mopping/'sponging' the unhardened surface using a damp sponge. Note – water must not be allowed to run down the wall

5.7.2.4. Rough cast: The final coat to be thrown and flicked on to the surface (no retouching)

5.7.2.5. Textured: Final coat to include coarser aggregate suitably mixed, as required

5.7.2.6. Any final paint finish to be vapour permeable to prevent blistering

6. Crack control

6.1. Control joints

6.1.1.To be provided to suit the location of all movement joints forming part of the substrate material

6.1.2.To be provided where additional movement can reasonably be anticipated

6.1.3.Under no circumstances shall the substrate movement joints be infilled in part or in full by the proposed rendering material

6.1.4.Render to be formed around weep holes to substrate material (weep holes carried through)

6.1.5.Control joints to be taken through the full depth of the render

6.1.6. Render should be able to bridge cracks of a specified width. For ACC substrate render to comply with AS 5146.3

7. Curing and protection

7.1. Rendering in direct sunlight or exposed, windy areas should be avoided where possible

7.2. Architect to be notified should environmental conditions at time of rendering application be considered be as per those conditions noted above

7.3. Render to be allowed to dry out quickly

7.4. All render coats to be kept damp for 3 days or until next coat is applied

7.5. For external or exposed internal render applications, clear or lightly-coloured plastic sheeting to be used to protect fresh render for the 3 days following application

7.6. Plastic sheeting to be installed without direct contact with the damp render over the 3 day period to avoid discolouration

## NOTES:

TITLE	MATERIAL SPECIFICATION
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CLADDING	RENDER
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SUBSTRATE	MASONRY	Rev
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DWG NUMBER	000-AC-GF-DWG-1010	5
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