

# MORTAR MIXES for Masonry

## SCOPE

This data sheet sets out how to choose the appropriate 'salt-attack resistance' grade of masonry unit and mortar type for a project. For advice on mixing mortar see data sheet '**Mixing Mortar for Masonry**'.

## INTRODUCTION

Mortar has three primary functions:

- To provide an even bed, so that the loads on the masonry member will be distributed evenly over the whole bearing area of the bricks or blocks.
- To bond the bricks or blocks together so that they will resist the loads applied to the wall.
- To seal the joints and give weather-tight walls.

In addition, the mortar must be durable, sufficiently resilient to accommodate minor movements and self-healing so small cracks do not become permanent leakage paths.

## MIXES AND APPLICATIONS

In choosing the appropriate mortar mix proportions for your project you need to first determine the following:

- The type of masonry unit you are going to use, ie clay, concrete or calcium silicate. It is important that the mortar mix and the unit type are matched. Of the mixes shown

in **Table 1**, all are suitable for clay masonry; all M4 and M3 mixes, but not M2, are suitable for concrete masonry; while only those with water thickener are suitable for calcium silicate masonry.

**IMPORTANT NOTE** Autoclaved aerated concrete (AAC) units are laid in a proprietary thin-bed mortar and the mortars described in this data sheet are not suitable for use with them.

- The exposure environment of the wall, eg the prevailing weather conditions and the nature of the environment.

The exposure conditions also determine the 'salt-attack resistance' grade required for the masonry units. The appropriate grade for masonry units in the given environments is also listed in **Table 1**.



**IT IS IMPORTANT that the mortar mix and the unit type are matched**

**TABLE 1** Mortar mixes and grade of masonry units for common exposure environments (based on Tables 5.1 and 10.1 in AS 3700—2001 and Amendment No. 1—2002)

Exposure environment of masonry	Mortar type	Mix proportions (parts by volume)				Minimum salt-attack resistance grade of masonry units	
		Cement Type GP/Type GB	Building lime	Masonry cement	Sand		
<ul style="list-style-type: none"> <li>■ Located within 100 m of non-surf coast or 1 km of surf coast and above dpc</li> </ul>	M4	1	0–0.25	–	3	Exposure	
		1	0.5	–	4.5		
		1+water thickener	–	–	4		
<ul style="list-style-type: none"> <li>■ In contact with ground in aggressive soils</li> </ul>		–	–	1	3		
<ul style="list-style-type: none"> <li>■ In tidal and splash zones</li> </ul>							
<ul style="list-style-type: none"> <li>■ Located within 100 m to 1 km of non-surf coast or 1 km to 10 km of surf coast and above dpc</li> </ul>	M3	1	1	–	6	General purpose	
		1+water thickener	–	–	5		
		–	–	1	4		
<ul style="list-style-type: none"> <li>■ In contact with ground in non-aggressive soils</li> <li>■ In fresh water</li> <li>■ In domestic barbeques and incinerators</li> </ul>							
<ul style="list-style-type: none"> <li>■ In interior environments not subject to wetting and drying</li> <li>■ Above dpc in other than marine environments defined above</li> <li>■ Above dpc and protected by a waterproof coating, flashed junctions and top covering</li> <li>■ Below dpc or in contact with ground but protected from water ingress by waterproof coating</li> </ul>	M2	1	2	–	9	Protected	

Further information on good concreting practices can be downloaded from the Cement Concrete and Aggregates Australia website at [www.concrete.net.au](http://www.concrete.net.au).

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