

STRUCTURAL DESIGN OF *mortarless* WALLS to AS 3600:2009

DESIGN MANUAL - Part 1

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Mortarless walls are built with dry-stack concrete blocks that are filled with concrete, the dry-stack concrete blocks being precision made hollow concrete blocks that are laid without the use of mortar in either the bed joints or the perpends. The term **mortarless** masonry refers specifically to the masonry system manufactured under license from Mortarless Pty Ltd, an Australian company that holds the worldwide license for the system. In **mortarless** construction hollow concrete blocks are interconnected by means of plastic connectors that have the following functions:

- they firmly secure blocks to each other end to end,
- they help correctly position the blocks in the overlying courses, and
- they accurately support horizontal and vertical reinforcement in its correct location.

There are quite a number of dry-stack masonry systems on the market, however they all vary in the way the blocks interlock and in the way (if any) reinforcement is located and held in position. Not all systems make use of plastic connectors.

Mortarless load bearing walls use specially shaped hollow concrete blocks to construct solid concrete walls. The blocks are essentially used as permanent shuttering that contributes just a little to the strength of the finished wall. All **mortarless** walls are reinforced and core filled with concrete.

Part 1 of the design manual summarises the provisions of AS 3600:2009 that apply to the design of **mortarless**, outlines how it has been applied to the design of **mortarless** walls when preparing the design aids, and provides guidance on all aspects of the structural design.

Parts 2 and 3 of the design manual contain design tables and charts for walls constructed out of each of the products in the **mortarless** range. The design aids have been specifically prepared for **mortarless** walls and will not generally be applicable to walls constructed with alternative products.

DISCLAIMER:

This *mortarless* design manual has been compiled to assist structural engineers quickly and efficiently prepare designs and details of load-bearing *mortarless* wall structures and elements. Numerous design aids are provided and these cover a broad range of typical design applications. While every care has been taken to ensure the information provided is accurate and complete for the design situations and actions covered, the information should only be used by experienced practicing structural engineers, and all engineers should familiarise themselves with the full contents of the applicable Standards to ensure no requirement is overlooked. Mortarless Pty Ltd, its licensees and the author accept no liability whatsoever arising out of the use or misuse of the information provided in this design manual.

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