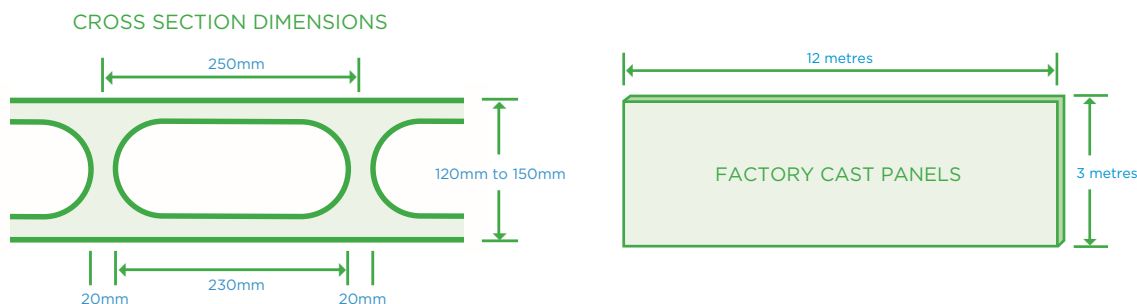


Walls



General

Ozwall is a lightweight, hollow fibrous plaster shell with significant load bearing and flexural properties without the addition of concrete.

Typically, Ozwall at 120mm thick can be used in three (3) storey domestic construction with timber floors.

In multi-storey construction, Ozwall is easily used with conventional formed concrete floors. Concrete filling of the Ozwall occurs off the formwork prior to slab reinforcement and slab pouring. Laying of reinforcement can generally occur a few hours after Ozwall filling has commenced.

Concept Design

The conservative approach is to use Ozwall as a vertical load bearing element only allowing lateral loads arising from wind and earthquake to be taken by reinforced concrete elements such as lift shafts and stairwells. In more slender buildings it may be necessary to strategically place additional concrete shear walls to provide the required lateral resistance.

This design philosophy allows Ozwall walls to be easily filled with a minimum 32MPa concrete and achieve a well compacted high strength concrete core. Localised high loads can be accommodated by strategically removing webs at pre-determined locations and creating reinforced blade walls within the Ozwall thickness. This is generally only achievable in the 150mm Ozwall panel.

An alternative is to form up blade walls, again within the 150mm wall thickness but in such a way as to allow filling of the blade and adjacent Ozwall to occur simultaneously.

Design Capacity

In reality, concrete filled Ozwall acts as a composite panel. The concrete cores take the vertical load and the Ozwall shell provides significant flexural capacity and stability to the cores. Further testing will allow Ozwall to provide to quantify this additional capacity.

A conservative approach is to ignore the benefit of the Ozwall shell and design to AS3600 section 11.4.

Reinforcement

Full height reinforcement is generally avoided as it makes concrete filling significantly more difficult. Nominal, local reinforcement can be placed if structurally necessary for tensile continuity through the slab. There is no real benefit in adding reinforcement to increase vertical load capacity. In fact it impairs concrete placement and compaction.

Nominal N12 dowells at 1.0m centres are placed top and bottom. Refer typical details.

Acoustic

General

The following table summarises the acoustic properties of commonly used Ozwall applications:-

Please contact Ozwall Pty Ltd if copies of test reports are required.

NB: All details to be approved by the project's acoustic consultant.

ACOUSTIC PROPERTIES	
CONFIGURATION	ACOUSTIC RATING
120mm hollow	STC 28
Concrete filled 120mm	STC 46
Concrete filled, 120mm plus 15mm gap, 64mm stud, 13mm plasterboard and TSB3 blanket	Meets current BCA ie RW & CTR>50 with impact

Walls

Standard Wall Configuration

Ozwall wall assemblies which meet the requirements of the current BCA are shown in the standard details. The most common assembly party walls is 120mm concrete filled Ozwall, 20mm gap, 64mm steel stud, TSB4 Blanket and 13mm plasterboard - (Total wall thickness is approximately 217mm).

An economical alternative where impact is not required is shown in detail SK3B (Total wall thickness is approximately 173mm).

Fire Rating

General

The fire rating properties of both concrete and plaster are well understood. In fact, plaster is used in various forms to increase the fire resistance of both concrete and steelwork. The addition of 20mm of plaster to a concrete element is significantly more beneficial than another 20mm of concrete. Ozwall as a concrete plaster composite has a very high fire-rating for its relevant thickness.

CSIRO Opinion FCO- 1580 (Revision)

Reference is made to opinion FCO- 1580 (Revision) which indicates a minimum fire rating of FRL 120/120/120 for a load bearing concrete filled plaster wall. (120mm). Ratings of 4hrs are achieved with 120mm Ozwall under lower loads. Clearly FRL's for 150mm Ozwall are higher.

Alternatively, the deemed to comply provisions for concrete elements can be used as a lower bound fire-rating. Contact Ozwall Pty Ltd for copies of detailed test reports.

Services

General

It is important that the introduction of services within the Ozwall thickness of 120mm in particular does not impede the successful placement of concrete without the formation of voids.

Electrical services consisting of prefabricated conduits/gpo's are placed in the Ozwall prior to slab formwork and concrete filling. Under no circumstances are back to back gpo's allowed within the same cell.

Reference should be made to the Ozwall Standard Details regarding placement of gpo's etc within cells.

Conduits should be configured to allow the successful placement of concrete. Walls which are load bearing only and not fire-rated or sound rated can have zones of conduits provided this wall section is assumed not to be structural.

Plumbing is not permitted in walls which are fire-rated or sound rated. Plumbing is generally surface mounted within the furring channel/stud lining applied to the Ozwall face. This takes plumbing out of the structural critical path. Whilst not recommended, plumbing can be placed within the Ozwall where the correct placement of concrete is not critical.

Plumbing can be chased where walls are not fire-rated/acoustic rated and subject to the structural engineer's approval.

Finishing

Finishing Ozwall is similar to plasterboard. The same materials are used and the work is easily carried out by Gyprockers.

Plasterboard junctions to Ozwall are made in the same way as plasterboard to plasterboard. Damage and deep scratches are patched with Base Coat and then the entire wall is skimmed with Top Coat to provide a high quality plaster finish.

Standard paint systems for a Top Coat finish are used.

FOR FURTHER INFORMATION

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