

## External & Internal Finishing

### External plaster and coatings

The beauty of a Litecrete home is that it requires far less work on the part of the homeowner to keep it looking like new. Some Litecrete homes have a plaster system on the exterior while others have a hi-build paint system. Litecrete walls breathe, allowing water vapour (condensation) to move through the wall to the outside. Therefore, vapour-permeable plaster and paint systems are recommended. All of this translates into a Litecrete home costing a little more to purchase than a timber-frame home, but a lot less to maintain over the long term. Part of maintaining a home over the course of its lifetime involves repair of damage from such elements of nature as rain and high winds. This doesn't happen with Litecrete homes, which are also able to cope with the destructive forces of earthquakes. Dry rot is actually a disease, common to timber and caused by fungi. Dry rot does not affect lightweight concrete and is therefore not a worry for the owners of a Litecrete home. You will never, ever, experience "Leaky Home Syndrome" with a Litecrete home.

Litecrete external walls offer the designer a range of finishing options. The smooth exterior surface of the panel (F5) is produced off a steel casting bed. This means that once installed the panels are ready to be painted. In this instance the V-joints between the panels are "expressed" and become a feature. If a plaster-type finish is specified only a minimal plaster thickness (1-2 mm) is required before being painted. The joints in this case would be filled in during the plastering process, rather than being "expressed" and should be treated as "control joints", to cope with any structural movement in an earthquake, etc (*see detail D18*). However, vapour-permeable coatings (paint) or plaster systems should be used. We recommend systems that have been BRANZ appraised and/or meet the NZBC requirements. There are numerous proprietary exterior plaster/paint systems available.

Any exterior plaster/coating systems must comply with the relevant clauses of the NZBC. In all cases the manufacturers' application and maintenance instructions must be followed, with particular attention given to the following areas:

- Weathering, flashing and sealing systems at door and window openings, junctions with other materials and any other penetrations of the exterior envelope. The ground/foundation/floor/wall interface. Particular care needs to be given to ensure that minimum distances between ground and floor level, as stated in NZS 3604:2011, are met.
- External plaster systems are installed and cured within the temperature limitations, climatic and curing conditions set by the manufacturer. The finished external plaster system is sealed and protected from the weather with a vapour-permeable coating system.



**sand float is a popular plaster finish**

### "Clear" Concrete External Finish

A clear, natural concrete external finish can be used for Litecrete panels in residential construction. However, the following aspects must be considered:

1. The pumice aggregate contains minerals which can sometimes result in heavier surface figuring than is the case with normal precast. Photo on next page shows an example of this.
2. Any transit or site damage (chips) to panels can be repaired but the remedial material, being of a different composition, is usually apparent, particularly if a clear sealer is being used.
3. As with all precast concrete with cast-in openings, there is a propensity for hairline cracking to occur from the corners of any openings during craneage in the plant, transportation or during installation on site. Even when temporary steel bracing is installed in panels with large openings, prior to leaving the factory, surface cracks from corners of openings may occur despite all precautions being taken to prevent them. While

these cracks are not a structural problem they are often a concern to the client and remedial work will in most cases be visible.

4. If a consistent, blemish-free surface is required, then a vapour-permeable masonry paint or stain should be considered. We strongly recommend that designers and their clients visit the Wilco factory and view typical Litecrete panel surface finishes prior to the start of panel manufacture.
5. We also recommend that a clear matt-finish sealer is applied after installation to prevent airborne grime sticking to the natural concrete surface and allow for easy cleaning down by hosing at least once a year.



### Bandsawn Timber External Finish

This is achieved by placing band-sawn pine planks in the casting beds prior to casting the panels, resulting in the texture from the timber being imparted in the concrete surface.

### Honed External Finish

The panels have about 1mm ground off the exterior face, or interior exposing the pumice aggregate. This is achieved using a manually-operated concrete grinder. The surface requires sealing after the process is completed.

### Exterior maintenance

External coating systems must be maintained in accordance with the respective manufacturer's instructions and all damage repaired promptly to ensure the ongoing weathertight properties of the coating system and thermal performance of the Litecrete wall. In addition to these system-specific requirements, the following general maintenance procedures must also be implemented:

- Any dirt accumulation or organic growth that may occur should be regularly removed from the external surface by cleaning with warm water and detergent and a soft bristled broom.
- Solvent-based cleaners must not be used.
- The external cladding system should be checked yearly for damage to the system itself, deterioration of seals and possible water entry at junctions and joints.
- Any damage to the coatings which does occur must be repaired in accordance with the manufacturer's instructions. Where exterior plaster finish systems are used, it may be necessary to recoat the top paint coating, after 8-15 years, in accordance with the manufacturer's instructions, to restore the visual appearance.

### Internal Surface finishing

Some designers specify Litecrete panels in their natural state (clear internal finish) as the finished interior wall surface, to achieve an industrial or "honest" ambiance. Be aware that the interior face of the panel has a rougher, trowelled finish (U3) as opposed to the exterior face, which is off a smooth steel mould Litecrete recommend that the trowelled exposed interior panel surface has a 1-2 mm thick cementitious skim coat (eg Mapei Planitop 200) applied as the base, which can then be finished with paint or plaster systems. If the internal wall surfaces are to be plastered, control joints should be installed over each vertical panel joint so that they can cope with any seismic or structural movements without fracturing the plaster (*see detail D18*). We strongly recommend that designers and their clients visit the Wilco factory and view typical Litecrete panel surface finishes prior to the start of panel manufacture. Because Litecrete is manufactured from natural materials no one panel is exactly the same colour and variations must be accepted from one batch of concrete to another. If leaving walls as bare concrete, a sealer should be applied to prevent dusting.

## Weld Plates

Weld plates are often specified by the engineer to connect panels at corners or to attach suspended panels, such as garage door lintels, between walls. They are installed on the internal face of the panels and in most cases are hidden by ceilings, etc. However, sometimes for structural design reasons they will be visible. If requested, the weld plates can be rebated 20mm deep into the surface of the Litecrete panel so that they can be plastered over after being welded together. See detail *D21 Typical Cast-in Weld Plates – Flush and Recessed*.

## Internal Linings

### Plasterboard

Plasterboard can be glue-fixed direct to Litecrete wall panels using Sikacil C or Selleys Liquid Nails adhesive in beads at 250mm centres. Lining materials can be screw fixed into 40 x 20 mm vertical timber battens attached to Litecrete panels at 600 mm centres. The battens provide a cavity for the installation of through services. Coarse thread screws 32mm x 6mm are required at max 300mm centres around the sheet edges and at max 450mm centres horizontally and vertically within the body of the sheet. Typical sheet edge distance is a minimum of 12mm. Installation and finishing of the plasterboard is in accordance with the specific manufacturers' technical literature.

### Insulating board

Aerated phenolic resin-based insulating board (Kingspan), with a plasterboard panel already attached, can be glue-fixed to the Litecrete walls. After joints are stopped the surface is painted or decorated to suit. This can be used where the 150 mm panel system is designed as a "Non Solid" wall, to achieve the required R-value. Note that in placing insulation on the inside face of an external concrete wall the benefits of thermal mass are negated.

### Adhesives

Adhesives used for the fixing of internal linings must be suitable for use on concrete surfaces, such as:

- Sikacil C
- Fullers Maxbond
- Holdfast Gorilla Glue
- Selleys Liquid Nails

### Ceramic tiles

Litecrete provides an excellent surface for the direct adhesion of ceramic tiles for wet area linings, etc.

### Attaching Fittings/Cabinets to Walls

When attaching such items as mirrors, towel rails, picture supports, shelves or light fittings to any Litecrete wall, mechanical fasteners should be used. Do not use nails. We suggest Mungo brand (or similar) MN10 x 50 mm long, metric screw, from Powers Fasteners. For heavier objects, such as kitchen cabinets, M10 Ramset Chemset Anchors or similar should be used. These fixings should be installed strictly in accordance with the respective manufacturers' recommendations.



**Mungo fastener**