TECHNICAL INFORMATION







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INTRODUCTION

Innovative design challenges the performance of structural materials, extending their application beyond traditional realms. The use of solid plaster is a fashionable and flexible method of exerting individuality on building design.

Hardibacker not only provides the ideal backing sheet for solid plaster but also gives excellent bracing performance.

Dimensional stability is a key benefit as Hardibacker has a high level of tolerance to moisture movement, esistance to shrinkage and swelling, essential for exterior cladding. Hardibacker comes in two standard sheet sizes. The product can be identified by its pale blue colouring and the Hardibacker name imprinted in the sheet surface.

Hardibacker's BRANZ appraisal certificate confirms its exceptional resistance to wind and earthquake forces. By providing the architect with a sound structural environment, Hardibacker acts as the basis for creating visually compelling designs.

Hardibacker meets the performance requirements necessary for 50 years serviceable life. Hardibacker can be expected to meet the design life of the building while protecting the owner's investment.

The Hardibacker system presents the solution for all solid plaster substrate requirements.

Hardibacker is used as a bracing sheet for solid plaster and will also provide bracing to timber framed walls. Bracing ratings have all been determined by BRANZ tests and are suitable for use in conjunction with NZS 3604:1990.





DESCRIPTION

Hardibacker is a sheet material manufactured of fibre cement which is a composition of treated cellulose fibre, Portland cement and finely ground sand. After forming into sheets the product is cured by high pressure steam autoclaving.

The product is identified by its name 'Hardibacker' on the face of the sheets and by a blue colour tint.

Hardibacker is nominally 4.5mm thick and in sheet sizes of 2400mm x 1200mm and 2700mm x 1200mm.

NEW ZEALAND BUILDING CODE (NZBC)

Hardibacker, when used in accordance with this specification and the statements and conditions of the BRANZ Appraisal Nos 229 and 240, will meet the provisions of:

NZBC Clause B1 Structure B2 Durability and will contribute towards the provisions of: E2 External Moisture.

DURABILITY

Hardibacker meets the performance requirements of NZBC Clause B2.3.(a) of 50 years.

SERVICEABLE LIFE

Hardibacker will have a life compatible with solid plaster systems, which in some cases, could be in excess of 50 years.

Where Hardlbacker is being used for bracing performance it is imperative that the solid plaster system is maintained in waterproof condition.

BRANZ APPRAISALS

Hardibacker has received the following appraisals: BRANZ Appraisal Certificate Nos 229 and 240 (1993).

FRAMING

The timber framing must be built in accordance with the Building Regulations 1992 and conform with NZS 3604: 1990 Code of Practice for light timber frame buildings or be as for a specific design in accordance with NZS 4203: 1992.

The studs may be spaced at up to 600mm centres with nogs or blocking at 1200mm maximum centres.

Where bracing sheets are stopped below the level of the top plate refer to Fig 8 for strengthening detail.

FIXING

Hardibacker sheets may be fixed vertically or horizontally (must be vertical for bracing applications) with all sheet edges on framing. Sheet joints must be avoided at the corners of openings (except for control joints).

Fix all Hardibacker sheets to the timber framing with 40 x 2.5mm hot dipped galvanised Hardiflex nails.

Nail at 200mm centres to sheet edges and intermediate framing and nogs. Nails are driven a minimum of 12mm from the sheet edges and 50mm from corners. The sheets must be held hard against the framing during nailing to minimise nail break out.

Drive all nails flush with the Hardibacker sheet surface. Do not punch as this can weaken the nails holding.

Fix all Hardibacker sheets from the centre working towards the outside to avoid drumminess.

Certain bracing applications require the use of straps or fixings. These must be recessed into the framing behind the sheets. (Refer Table 1 and Figs 1 and 2).

CONTROL JOINTS

Control joints must be located so the maximum distance between joints is 4 metres vertically or horizontally as required by NZS 3604:1990.

Where possible full height openings should be used to panelise the plasterwork.

The distance between a window and a corner or between two openings must not exceed 4 metres (10 sq m at 2.4 metre stud height). Control joints should also be used to cater for movement of timber and plaster.

Horizontal PVC flashing control joints should be provided at intermediate timber floor level with building paper and metal lath overlapping the upper leg of the flashing. (The final plaster coat should just cover (hide) the outer edge of the flashing.)

The position of vertical control joints shown on drawings should be checked and the best positions determined with the designer or owner, e.g. short joints in line with jambs of openings or hidden, if possible, by down pipes, vent pipes or other features, should cracking occur.

Vertical control joints should be cut or formed in the plaster base coats. These should be primed and filled with a suitable sealant in accordance with the manufacturers instructions. They should then be protected with the plaster finish over the sealant, or alternatively the sealant joint may be left exposed.

When an opening is in the vicinity of a control joint, the edge of the opening is the ideal location for the control joint.

At all internal and external corners, the mesh and plaster should be continuous around the corner.

BRACING

Hardibacker will provide bracing for buildings designed and constructed in accordance with NZS 3604. For details of this aspect of the product refer to BRANZ Appraisal Certificate No. 220 (1993) "Hardies Wall Bracing Systems".

Hardibacker is to be used as the required bracing with the appropriate fixings as set out in Table 1.

Hardibacker meets the wall bracing element requirements of NZS 3604. (NZS 3604 is cited in Approved Document B1/AS1 Clause 4.0.)

SOLID PLASTER

Apply solid plaster after all framing and internal linings have been completed.

An approved plastering system is to be applied which is either proprietary or in accordance with NZS 4251.



For successful plastering a sound knowledge of materials is essential. Of particular importance is the selection and fixing of reinforcement, the selection of plaster mixes, the location of control joints, and curing.

The solid plaster must be finished and detailed to be waterproof. Useful guidance can be found in BS 5262.

MAINTENANCE

The solid plaster must be maintained in weatherproof condition. Damage must be repaired and regular checks made and maintenance carried out to ensure water is not penetrating cracks, coatings, joints, flashings and trims.

LOADS

The total cladding system with nominal 21mm plaster weighs approximately 55-60 kg/m²

IMPACT

Solid plaster wall cladding has good resistance to hard and soft body impacts.

HANDLING AND STORAGE

The product should be stacked on a smooth level surface. Edges and corners should be protected from damage. Storage should be under cover and the sheets kept dry prior to fixing. The sheets should be carried on edge.

TEMPORARY WEATHERING

Hardibacker can be used to provide temporary weather protection of the walls allowing internal work and finishing to be undertaken before the completion of the solid plaster. The building paper must be erected over the Hardibacker during this temporary weathering period.

The plaster must be finished and coated within 3 months of the Hardibacker sheet being erected.

BUILDING PAPER

Used in accordance with Acceptable Solution E2/AS Paragraph 2.3, Hardibacker is an alternative to the 'rigid backings' specified in Paragraph 2.3,3 of the NZBC, i.e. building paper over the face of the sheets must be fixed before the mesh and plaster is applied. Note: an additional layer of building paper is not required under the sheet.

A suitable building paper must comply with NZS 2295. The building paper must be run horizontally and lapped 75mm at joints, with the direction of lap ensuring water is shed to the outer face of the paper.

The position of the framing lines must be adequately marked on the face of the building paper to later assist the reinforcement fixing.

Some proprietary plaster systems require the plaster to adhere to the Hardibacker. In these cases, fix the building paper under the Hardibacker before fixing.

REINFORCEMENT

Fix reinforcement for solid plaster in accordance with NZS 3604: 1990 and NZS 4251: 1974 Code of Practice for solid plaster. Alternatively proprietary solid systems can be used



NOTE

- 1. Straps to be 25mm x 1mm galvanised steel or
- a proprietary system of 6kn capacity.
- 2. Nails to be 30mm x 3.15mm diam galvanised.



Fig. 2. End Fixing Strap to Timber Floor

NOTE

- 1. Straps to be 25mm x 1mm galvanised steel or
- a proprietary system of 6kn capacity.
- 2. Nails to be 30mm x 3.15mm diam galvanised.



Fig. 3. Hardibacker to Concrete Slab with and without Straps

NOTE

- 1. For Hardibacker bracing ratings refer Table 1.
- Systems without end straps HBK1, HBK2 and HBK3 refer Table 1.
- 3. Systems with end straps HBK4 refer Table 1.



Fig. 4. Hardibacker to Timber Floor with and without Straps

NOTE

- 1. All fixings centres to be similar to Fig. 3.
- Systems without end straps HBK1, HBK2 and HBK3 refer Table 1.
- 3. Systems with end straps HBK4 refer Table 1.



Fig. 5. Vertical Solid Plaster Control Joint

NOTE

- Seal control joints with good quality flexible paintable silicone sealant such as "EXPANDITE SILAFLEX MS".
- Clean and prime the joints and apply strictly in accordance with the sealant manufacturer's instructions.

System Number	Bracing Element Length	Figure Reference	NZS 3604: 1990 Rating in bracing units per metre of element length	
			Wind	Earthquake
HBK1 HBK2 HBK3	1200mm) 1800mm) 2400mm) or more	Refer Figs, 3 and 4 End straps not required.	85 90 105	70 75 80
HBK4	900mm) or more	Refer Figs. 3 and 4 End straps required. Refer Figs. 1 and 2.	110	85



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