TECHNICAL INFORMATION 2

HARD BACKER FOR SOLID PLASTER EXTERIOR CLADDING





HARDIES fibre cement building products

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, resisting 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 backing 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. Following 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 also 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 No.s 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 Hardibacker 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 & 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 edge 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. A control joint must be on at least one side of all openings, at each floor level and at changes in direction of the supporting frame. Control joints must pass through the Hardibacker and the solid plaster.

Form vertical joints as shown by Figure 5.

Form horizontal joints with PVC "h" flashings. (Refer Fig. 6).

Form and seal internal and external corner joints similar to Figure 5 using 80mm x 2.5mm Inseal tape 5375.

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. 229 (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 system 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 wall cladding.

BUILDING PAPER

Used in accordance with Acceptable Solution E2/AS1 Paragraph 2.3 Hardibarker is an alternative to the 'rigid backings' specified in Paragraph 2.3.3. i.e. put building paper over the face of the sheets before the plaster is applied.

Hardibacker has a good capacity to temporarily store moisture therefore additional building paper behind the Hardibacker sheet to perform this function is unnecessary.

The finished coating system must restrict moisture uptake of the solid plaster.

REINFORCEMENT

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



Fig. 1. End Fixing Strap to Concrete Slab

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.
- 2. 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.
- 2. 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

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

TABLE 1: Bracing Ratings for HARDIBACKER 4.5mm thick				
System Number	Bracing Element Length	Figure Reference	NZS 3604: 1990 Rating in bracing units per metre of element length	
			Wind	Earthquake
НВК 1 НВК2 НВК3	1200mm) 1800mm) 2400mm) or more	Refer Figs. 3 and 4 End straps not required.	85 90 105	70 75 80
НВК4	900mm) or more	Refer Figs. 3 and 4 End straps required. Refer Figs. 1 and 2.	110	85







Fig. 8. Detail When Sheet Stopped Below **Top Plate**

NOTE

- 1. All sheet nailing to be as shown for the various bracing systems.
- 2. The full bracing values for full height sheets for each system can be used when this detail is followed.
- 3. This detail is to be used instead of the detail shown in Fig. K1 NZS 3604:1990.

SYSTEM WARRANTY

The systems recommended in this Brochure are formulated along the lines of good building practice and are intended to assist experienced tradespeople in construc-tion procedures. However, the Brochure is not intended to be an exhaustive state-ment of all relevant data. Further, as the successful installation of these systems depends on numerous factors outside the Company's control (e.g. quality of workmanship, particular design requirements, etc.) the Company accepts no re-sponsibility for an encompanding with the quility of the particular design requirements. sponsibility for or in connection with the quality of the systems, or their suitability for any purpose when installed

All conditions, warranties, obligations and liabilities of any kind which are or may be implied or imposed to the contrary by any statute, rule or regulation or under the general law and whether arising from the negligence of the company, its servants or agents or otherwise are hereby excluded except to the extent that the Company may be prevented by any statute, rule or regulation from doing so.

Hardie's reserve the right to revise without notice information and specification herein



In the opinion of BRANZ, Hardibacker - Backing for Solid Plaster is suitable for the appraised use. This opinion is conditional on the statements and conditions within Appraisal Certificates 229 & 240.



Petone

AUCKLAND

Head Office and Works: 50 O'Rorke Road Penrose Auckland Postal Address: P.O. Box 12-070 AUCKLAND Telephone: 0-9-579 9919 Fax: 0-9-579 7210

WELLINGTON

45 Hutt Road Postal Address: P.O. Box 30-482 LOWER HUTT Telephone: 0-4-568 2233 Fax: 0-4-568 2226

CHRISTCHURCH 51 Buchanans Road Sockburn Postal Address: P.O. Box 325 CHRISTCHURCH Telephone: 0-3-342 6384 Fax: 0-3-342 6391



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00 808 PHONE 8.30AM TO 6.00PM MONDAY-FRIDAY