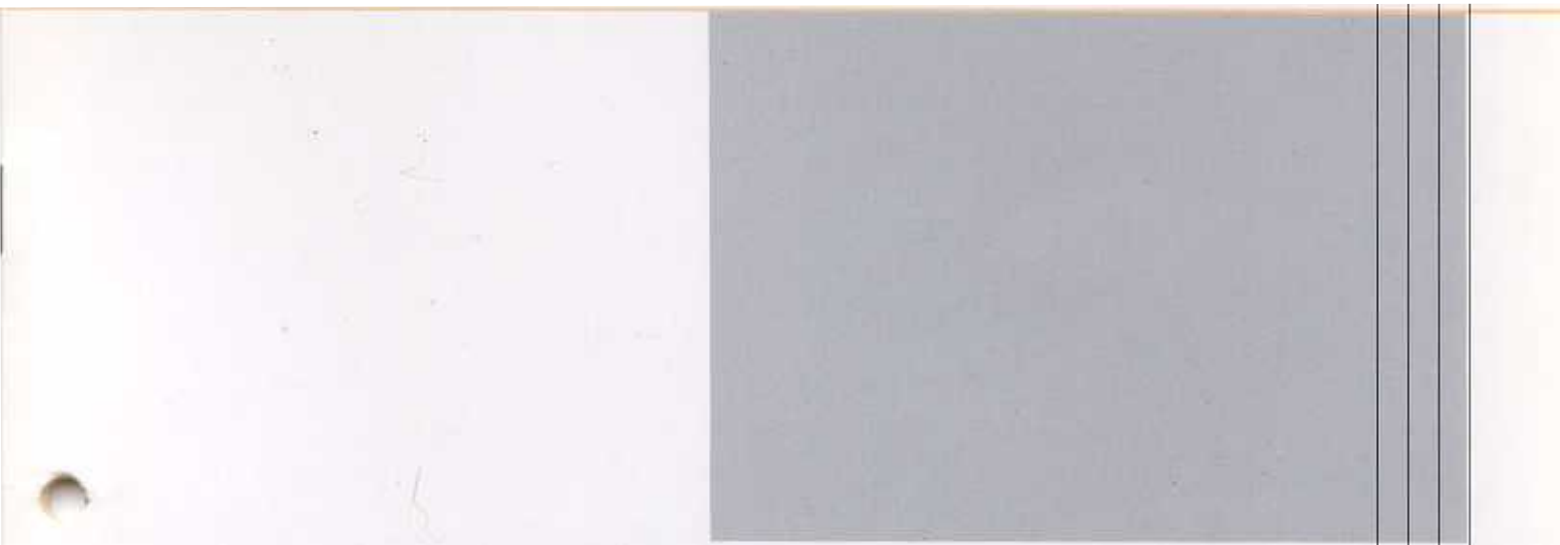


TECHNICAL INFORMATION

# HARDITEX

## EXTERIOR CLADDING SYSTEM



**HARDIES**  
fibre cement  
building products

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# INTRODUCTION



Textured exterior finishes are a major architectural trend in today's market. Strong, bold statements are being made in both the residential and commercial fields.

Developed especially for this style of architecture, Harditex is the preferred exterior cladding substrate. When comparing the

benefits, Harditex is an exterior cladding in its own right and does not rely solely on the textured coating for its performance as do many other systems.

The special Harditex base sheets provide a suitable base for textured coatings. The recessed edge of the Harditex sheet is



designed to accommodate flexible jointing tape systems to achieve a monolithic flush finish. All the texture exterior finishes recommended in this brochure for use with Harditex have met the rigorous Hardies testing criteria.

The versatility of Harditex is unsurpassed for new homes and townhouses, extensions and recladding of established homes, and commercial and industrial buildings.

Design flexibility is further enhanced with the introduction of three-dimensional polystyrene shapes which provide a wide range of options for architectural detail.

Offering the durability and peace of mind of fibre cement, Harditex is the complete cladding system for today's architectural trends.



# THE HARDITEX SYSTEM

In conjunction with the Harditex cladding sheets, proven exterior finishing systems are available that are ideal for residential and light commercial projects.

The Harditex system is comprised of four basic components:

- Harditex sheets
- jointing systems
- architectural shapes
- coating systems

will not rot or burn. This sheet is securely fixed to the timber framing by nailing.

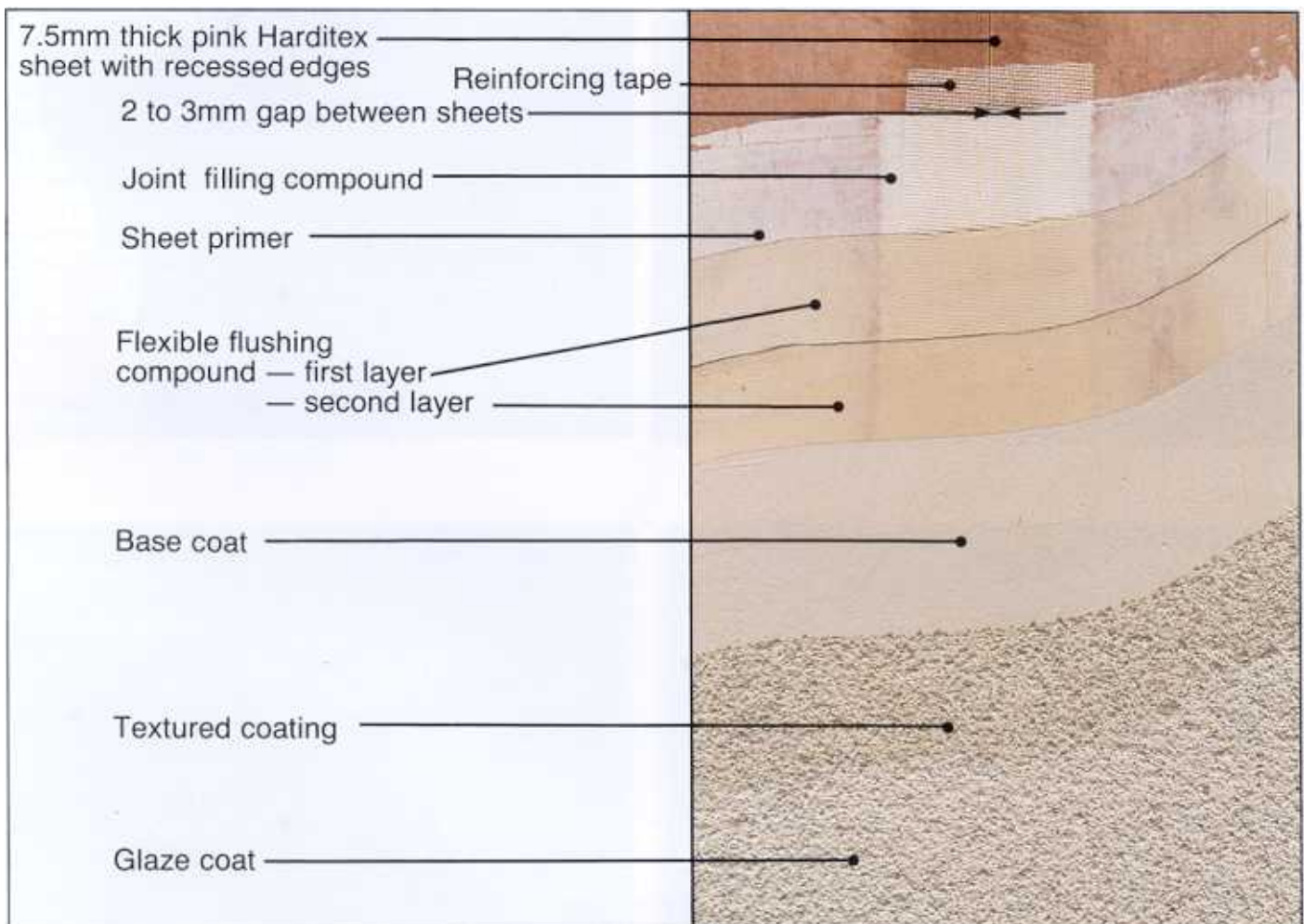
Harditex base sheets are a light pink fibre cement sheet. The required nail fixing positions are marked on the face side while the name 'Harditex' is printed on the reverse side.

## HARDITEX SHEETS

The Harditex cladding sheet is a lightweight fibre cement substrate which is immune to permanent water damage, and which

## JOINTING SYSTEM

The sheets are jointed by approved applicators with tape reinforced flexible compounds to give a long term durable jointing system. (Refer Fig. 1)



**Fig. 1 The recessed edge sheet jointing system**

**NOTE**

- The details of the tape reinforcing flexible compounds vary depending on the proprietary finishing system used.
- Maximum dimensions between relief joints is 5400mm and control joints 3600mm.
- Recessed edge joints are required at all sheet joints.

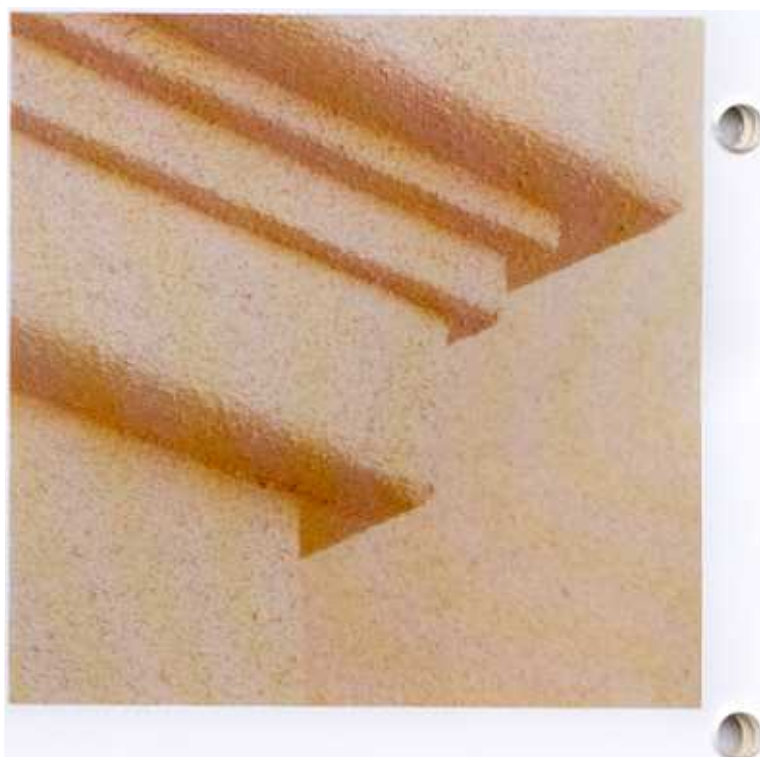


## ARCHITECTURAL SHAPES

Three-dimensional shapes of expanded polystyrene (E.P.S.) can be incorporated directly onto Harditex base sheets quickly and easily, giving greater design flexibility. These polystyrene shapes produce a wide range of architectural trim details: for windows, arches, cornices and columns.

Instead of constructing costly shapes of wood, or wire lath, aesthetic detail can be achieved at a fraction of the normal cost. Sculptured architectural shapes can be cut to a range of designs or thicknesses, accurately, time after time.

The shaped polystyrene is adhered to the Harditex, covered with fibreglass mesh, plastered and primed, ready for coating. Refer page 20.



## COATING SYSTEM

The coating system is to be applied only by approved applicators. The systems suitable for use with Harditex are 100% pure elastomeric high build texture coatings or flexibly modified plasters. These are fade-resistant, water-resistant and together with the tape reinforced joints are flexible enough to accommodate thermal expansion and contraction that will occur in the framing and the Harditex sheets.

The approved finishing systems offer a variety of colours and textures; from earthy terracotta shades, through to fresh light pastels. The design possibilities of the Harditex cladding sheets and the finishing systems are limited only by the imagination. Smooth finishes should be avoided and a minimum of a medium texture specified. The medium to heavy textures chosen will vary with the approved applicator and the finishing system used.

Finishes can be pre-mixed in the colour of your choice, shades are fade-resistant and uniformly matched. These synthetic elastomeric coatings can be sprayed or trowel-applied to achieve the desired texture.

The selected finish coat provides another dimension of weatherability providing a tougher, harder-cured surface which is still flexible enough to withstand the thermal expansions and contractions of your building. The approved coating systems are highly resistant to ultraviolet light, salinity, alkali and chemical attack contributing to a long lasting, peel, fade and stain-resistant exterior.

For full technical details of the selected coating system refer to the appropriate applicator listed on page 18.



## SYSTEM GUIDELINES

When horizontal recessed edge joints are installed the framing and floor joists must be thoroughly dry before jointing and coating is undertaken. Failure to comply with this will result in downward shrinkage of the framing and joists which can result in sheet joint pouting.

Jointing, architectural shapes and finish coatings are to be undertaken only by approved applicators using the tested systems of companies listed on page 18 of this brochure.

The framing and the Harditex sheets will expand and contract a small amount due to climatic variations. Therefore only jointing and finishing systems proven by test to resist these movements are to be used.

Only quality high build elastomeric coatings or flexibly modified plasters are recommended for use with Harditex. Ordinary low build acrylics are NOT SUITABLE.

Do not use dark colours for the Harditex coating system. Use only light to medium colours.



# STRUCTURAL DETAILS

## APPLICATIONS

Harditex cladding systems are suitable for both commercial and domestic applications. These should be limited to two storeys in height unless specific design is undertaken for the attachment of the Harditex sheets to the structure. This is because the Harditex sheets form a very rigid element and can act as a structural diaphragm. If a high wall is incorrectly designed the lateral forces on the building may be absorbed by the Harditex sheets before the structural bracing systems. This could lead to serious damage to the sheet fixings and jointing. This aspect must be structurally considered by an engineer before work of greater than two storeys is undertaken. Harditex does have substantial sheet bracing performance. Refer Bracing Performance page 12.

When the wall height exceeds the sheet length and horizontal joints need to be introduced, all timber framing must be thoroughly dry to minimise vertical shrinkage. **ONLY KILN DRIED OR THOROUGHLY AIR DRIED TIMBER IS TO BE USED FOR THESE APPLICATIONS.**

**UNLESS KILN DRIED TIMBER IS UTILISED FOR THE FLOOR JOISTS AND WALL FRAMING IN A TWO STOREY CONSTRUCTION, A HORIZONTAL CONTROL JOINT WILL BE REQUIRED.** Deep floor joists can shrink significantly therefore this aspect must be considered in the design of applications with two or more storeys.

All sheets should be installed vertically as this method gives the best overall performance.

Sheets may however be laid horizontally when a depth of cladding not more than 1200mm high is required (one width of sheet). Examples are fascias, spandrels or narrow bands of cladding along the building.

Harditex should not be used in full pole house construction where excessive structural movement could be encountered. It can be used on the upper level of pole platform construction where the poles terminate at the underside of the floor level.

## CURVED APPLICATIONS

- Harditex can be used for curved applications and the following is the minimum recommended radius for convex fitted sheets. The sheets must be bent only along the length.

7.5mm thickness

4000mm radius

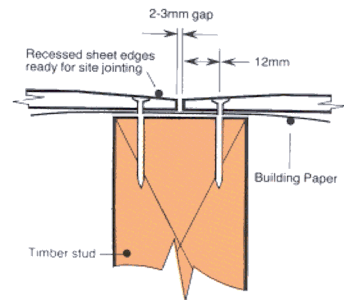
### NOTE

- The framing is to be closed up to 400mm centres for curved applications to give extra support to the curve.
- Only commence fixing from the centre of the sheet and work outwards to avoid any possibility of drumminess.

## JOINTING PROCEDURES

The recessed edge sheet joint is formed between each sheet of Harditex (Refer Fig. 2) and at internal and external corners.

- The panel sizes must be limited in size by the use of vertical and horizontal relief and control joints.



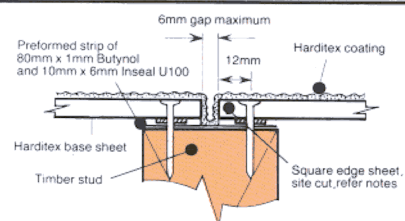
**Fig. 2 Recessed edge sheet joint detail**

### NOTE

- The recessed edge of the Harditex sheet is designed to accommodate a tape-reinforced flexible jointing system, to achieve a monolithic flush finish with textured coatings. Refer also Fig. 1.
- When the sheet recessed edge is cut away, site grinding of the edge to form a recessed joint is recommended before the sheet is fixed. (Refer Fig. 16)

## RELIEF JOINTS

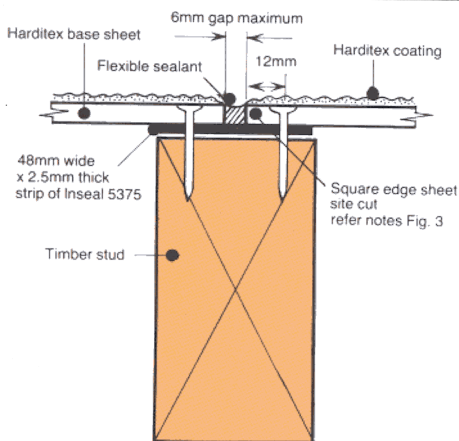
- Vertical and horizontal relief joints must be provided to limit the monolithic cladding area to 25m<sup>2</sup>. Vertical relief joints must be provided at 5400mm maximum centres. Provide a maximum 6.0mm gap between the sheets.
- Horizontal relief joints are to be provided at a maximum of 5400mm centres.
- For details of alternative vertical relief joints refer Figs 3, 4 and 5.



**Fig. 3 Vertical Butynol Inseal relief joint alternative 1**

### NOTE

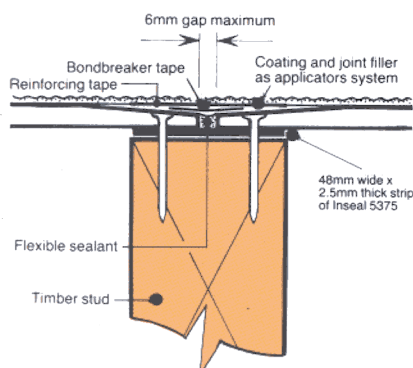
- Butynol Inseal strip is available in 12 metre rolls from James Hardie stockists.
- This alternative can be left open to give an expressed joint appearance.
- The finish coating can be sprayed into the joint to give a complete seal to the Butynol and the sheet edge.
- The sheet edge is to be site cut to give a square edge as shown in Figs. 3 and 4. Refer also to the site cutting recommendations on page 11. The frame set out and joint positioning in the wall will need to allow for this reduced sheet width.



**Fig. 4 Vertical sealant relief joint alternative 2**

**NOTE**

- Mask out the sheet both sides of the joint to apply the flexible sealant.
- Use only a good quality paintable silicone sealant such as Expandite Silaflex MS, Nuplex HE 300 or similar.
- The finish coating preferably should be stopped each side of the flexible sealant to avoid rippling of the textured surface.
- In some cases the sealant can colour match the finish coating.
- Joint preparation and primers to be carried out as per the manufacturers instructions.

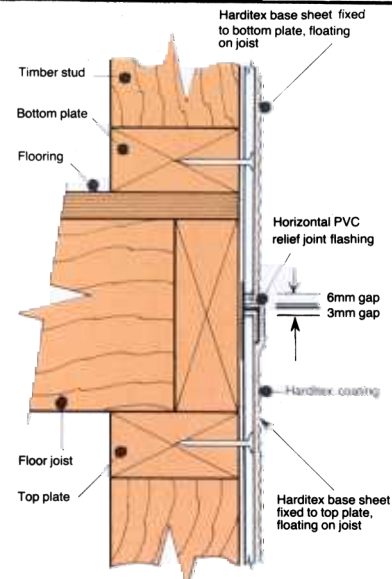


**Fig. 5 Vertical flexible compound relief joint alternative 3**

**NOTE**

- This joint is designed to maintain the monolithic appearance and to give movement control between jointed panels. The following points need to be considered during the design stage:
  - The design and finishing of this detail will vary depending on the coating contractor selected.
  - A rippling of the coated surface can occur with this detail due to any long term joint movement.
  - Use only solvent free flexible sealants such as Expandite Silaflex MS, Nuplex HE 300 or similar to avoid solvent migration onto the surface coating.

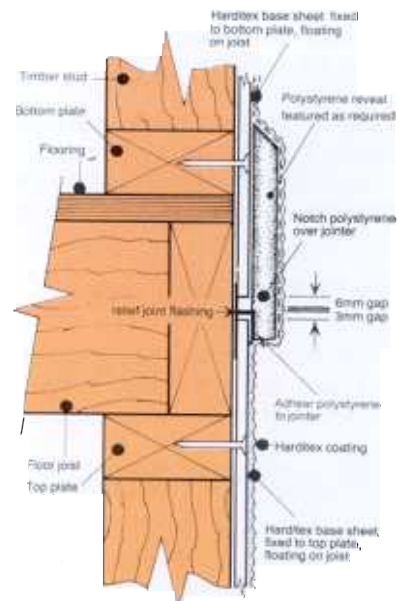
- For details of alternative horizontal relief joints refer figs. 6, 7 and 8.



**Fig. 6 Horizontal flashing relief joint alternative 1**

**NOTE**

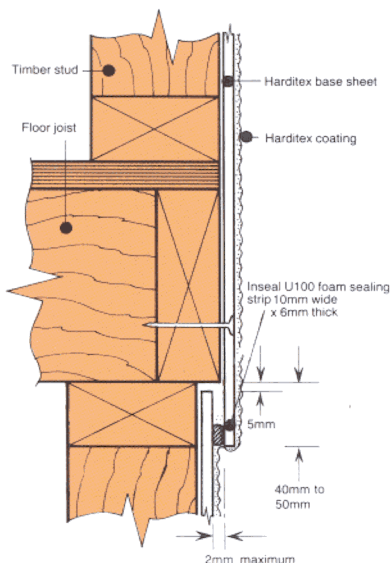
- The PVC horizontal jointer is available from James Hardie stockists.
- The jointer colour is off white.
- The horizontal jointer is to be tacked into place before the top sheet is installed.



**Fig. 7 Horizontal reveal relief joint alternative 2**

**NOTE**

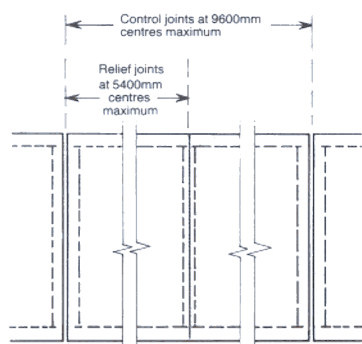
- Dimensions of polystyrene reveal to be to the specifiers choice.
- For methods of adhering and finishing the polystyrene reveal refer to the architectural shapes section page 20.



**Fig. 8 Horizontal overlap relief joint detail alternative 3**

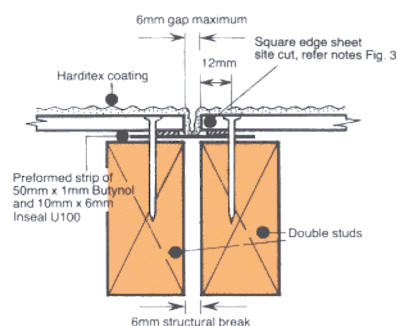
## CONTROL JOINTS

Vertical structural control joints are to be provided where walls exceed 9600mm in length. These control joints are to be correctly designed structural joints. They must have total framing, including top and bottom plate, lining and cladding separation to allow for the structural framing expansion and contraction that can occur. A well designed long wall will therefore have full control joints at 9600mm centres with intermediate relief joints at 5400mm centres maximum from a control joint. (Refer Fig. 9).



**Fig. 9 Relief joint and control joint set out**

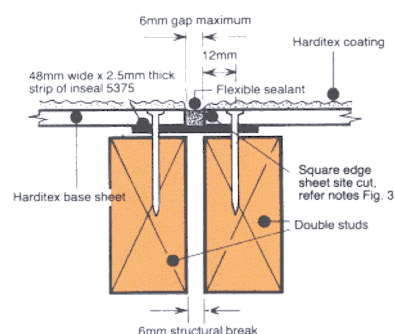
For details of alternative vertical control joint refer Figs. 10 and 11.



**Fig. 10 Vertical Butynol Inseal control joint alternative 1**

### NOTE

- Refer to Fig. 3 for general notes relating to this as the details are similar except for the double studs.



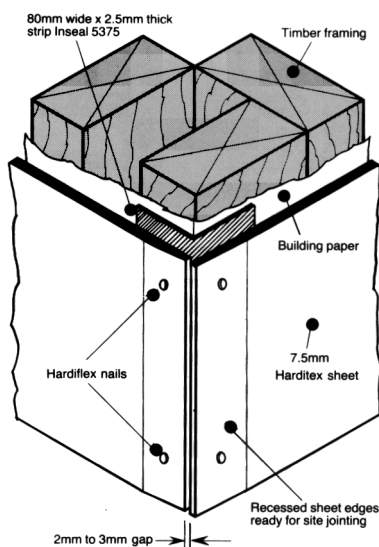
**Fig. 11 Vertical sealant control joint alternative 2**

### NOTE

- Refer to Fig. 4 for general notes relating to this as the details are similar except for the double studs.
- After all Harditex sheets are securely and correctly fixed to the framework the recessed joint between sheets is ready to accept the jointing procedures of the selected coating contractor. (Refer Figs. 1 and 2). The detail is the same for vertical and horizontal sheet joints. With the horizontal joint, dry framing must be used, refer page 7.

## CORNERS

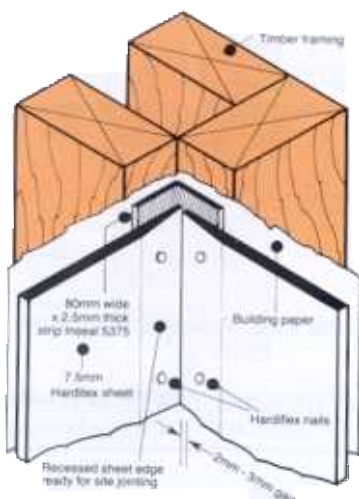
- At external and internal corners adhere a strip of Inseal 5375 in position before fixing sheets. (Refer Figs. 12 and 13). The sheets can then be finished with the standard tape reinforced flexible jointing system. (Refer Fig. 1).



**Fig. 12 Recessed edge external corner detail**

**NOTE**

- Refer Fig. 2 for general notes.
- A galvanised slim line angle can be used for alignment and finishing of this external corner. Slimline angle to be of exterior quality galvanising.



**Fig. 13 Recessed edge internal corner detail**

**NOTE**

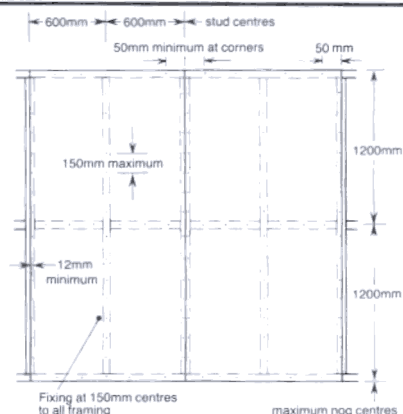
- Refer Fig. 2 for general notes.

Alternative methods for internal and external corners are to use the expressed joint and the sealant joint. Refer Figs. 3 and 4 for similar details. Note that sheets are to be site cut to give a square edge for these two details.

## FRAMING AND FIXING REQUIREMENTS

Correct design of the framework and careful consideration of the sheet set out to minimise joints will significantly contribute to the long term success of all flush jointed wall systems. Allowance must be made for the provision of both horizontal and vertical relief joints and control joints at the design stage.

- All timber framing should be in accordance with NZS 3604:1990 'Code of Practice for Light Timber Frame Buildings'.
- Harditex should not be fixed to timber framing with a moisture content in excess of 24% and for fully air conditioned buildings moisture content must not exceed 18% in accordance with NZS 3602:1975. KILN DRIED TIMBER IS REQUIRED TO MINIMISE SHRINKAGE. THIS IS PARTICULARLY IMPORTANT FOR MULTI STOREY BUILDINGS AND APPLICATIONS WHICH ARE MORE THAN ONE SHEET IN HEIGHT. Refer also to "Applications" page 7 for further information.
- Studs and noggings are to be a minimum of ex. 50mm wide to give sufficient width to fix sheets at joints. Studs shall be at maximum 600mm centres and nogs at 1200mm centres. (Refer Fig. 14)

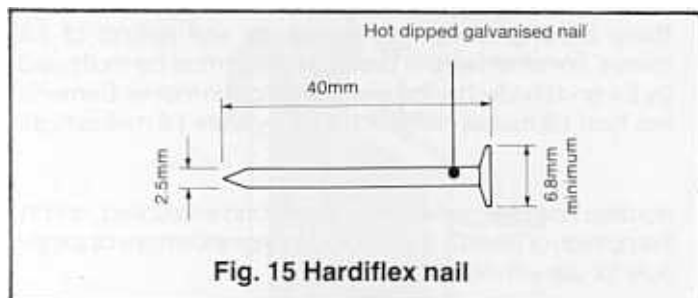


**Fig. 14 Vertical sheet fixing**

- All Harditex sheet edges must be fully supported by the framing. Framing must be rigid and not rely on the Harditex for stability.
- All studs and nogs are to be checked with a long straight edge before the Harditex is fixed for line and face accuracy to ensure the timber stud wall has a true and accurate outside face to fix the sheet.
- A breather type building paper is to be fixed to the outside face of the framing before fixing the Harditex sheet. Note that for clarity building paper is not shown in the drawings for this brochure.
- Sheets must be thoroughly dry before fixing is commenced. Refer Page 15.
- The sheet is to be held firmly against the stud when nailing to minimise nail break out at the back of the sheet.

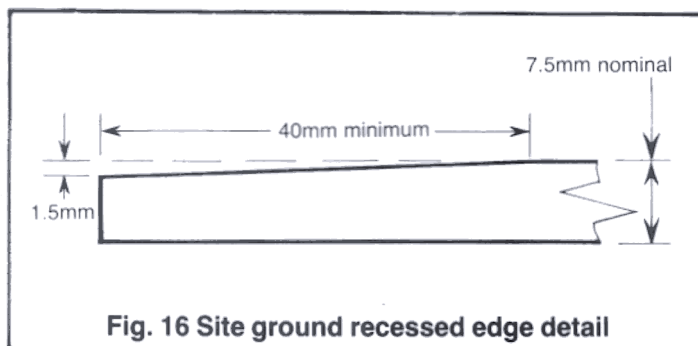


- Commence fixing from the centre of all sheets and work outwards to ensure they are hard against the framing to eliminate any 'drumminess'.
- Fix in conjunction with the dot pattern on the sheet which is set out for normal vertical sheet fixing. Use 40mm x 2.5mm galvanised flat head Hardiflex nails (Refer Fig. 15).

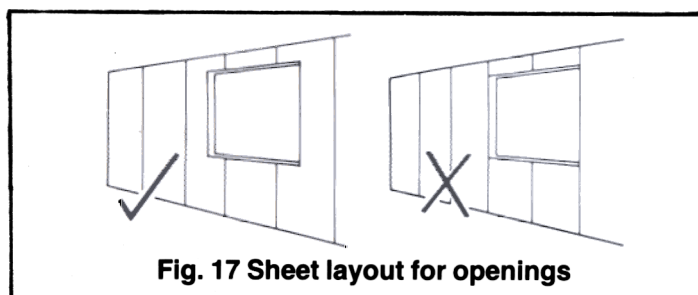


Nail at 150mm centres to the perimeter of sheets and intermediate studs and nogs. Nails must be hammer driven flush with the sheet surface. Do not fix closer than 12mm to the sheet edge or 50mm to the corner of the sheet. Do not over-drive the nails below the sheet surface as this can lower the nail holding.

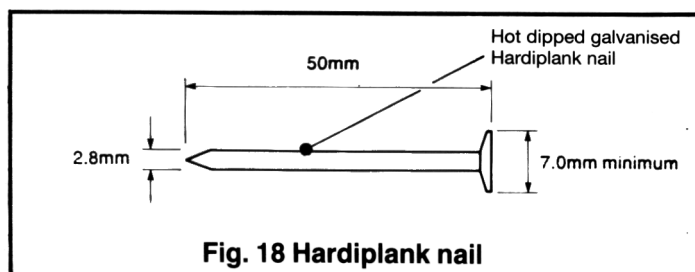
- Where it is necessary to produce a tapered edge on site, use a portable angle grinder fitted with a strong, thick carborundum blade or similar. Run down the edge at an acute angle to the face to produce a taper approximately 40mm wide but not exceeding 1.5mm at its deepest point. (Refer Fig. 16).



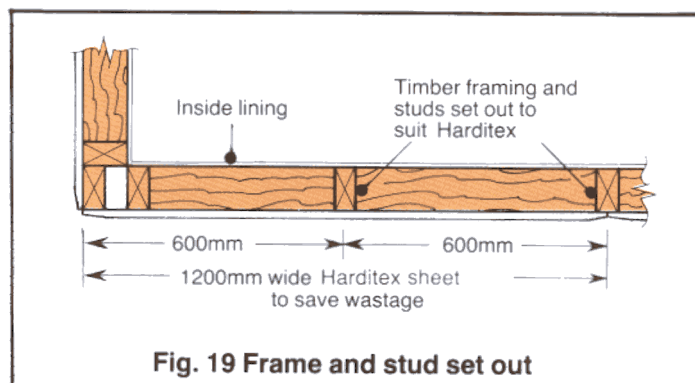
Where sheet end joints are above and below door or window lines, joints may crack due to structural movement. Fix sheets across door and window openings so sheet edges do not coincide with the sides of the window or door, then cut away waste. (Refer Fig. 17).



- An alternative method to accommodate this possibility is to provide an expressed joint flashed with Inseal or a sealant filled joint. (Refer Figs. 3 and 4).
- For fire rated applications, sheets can be fixed directly over gypsum plaster boards. Building paper must be placed directly over the gypsum board before fixing the Harditex sheets. Care must be taken with this method to ensure the gypsum board is kept dry during the construction period before final coating of the Harditex. Longer 50mm Hardiplank nails may be required to give a minimum of 25mm penetration into the timber framing. (Refer Fig. 18).



- Timber battens for fixing the Harditex are required when:
  - The gypsum board exceeds 16mm in thickness.
  - Sheets are to be fixed over softboard, polystyrene or similar sheets.
  - Where sheets are to be fixed over concrete, masonry block or brick walls.
- Battening is to be a minimum of ex 50mm wide x 40mm gauged timber to give adequate sheet nail penetration. All battening centres and sheet fixing is to be strictly in accordance with the framing and fixing specifications required for Harditex. Care is to be taken to ensure the battens are packed and aligned to give a true even surface for the sheets to be fixed. Check the face of the battens with a long straight edge before fixing sheets.
- IT WILL BE MORE ECONOMICAL WHEN THE TIMBER FRAMING IS PRE-CUT OR SET OUT TO SUIT THE EXTERIOR CLADDING RATHER THAN THE INTERIOR GIB BOARD LINING OR SIMILAR. FOR A TYPICAL EXAMPLE OF THIS REFER FIG. 19.



## BRACING PERFORMANCE Bracing Performance

Harditex sheets (7.5mm thick) fixed as an external cladding system give excellent sheet bracing ratings and performance. They have been tested by BRANZ to technical paper P21 and are suitable for use in conjunction with either NZS 3604:1990 or NZS 3604:1984. The bracing ratings given are specific for Harditex claddings only.

- When construction is in accordance with NZS 3604:1984 or NZS 3604:1990, the bracing ratings given in Table 1 apply.
- These bracing ratings are based on wall heights of 2.4 metres. For other heights bracing ratings must be multiplied by 2.4 and divided by the element height in metres. Elements less than 1.8 metres are rated as if they were 1.8 metres high.

### Fixings

Harditex has been tested as sheet bracing fixed with 40mm x 2.5mm Hardiflex nails at standard 150mm centres to all framing. For nail fixing refer Fig. 14.

- Harditex has been extensively tested and evaluated, and in the opinion of BRANZ, the bracing ratings shown are appropriate for use with NZS 3604:1990.

### End Stud Fixings

The end studs for 1200mm to 2400mm wide panels require holding down with end straps of 6kN capacity as given in Table 1.

### Specific Design – NZS 4203

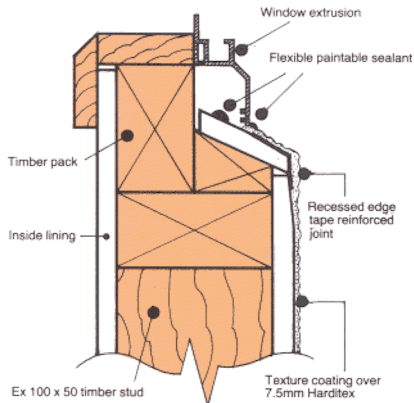
- When specific design is in accordance with the 'alternative method' outlined in NZS 4203, allowable design racking loads (kN) shall be taken as the NZS 3604:1984 bracing rating divided by a factor of 20.

**TABLE 1. HARDITEX BRACING RATINGS**

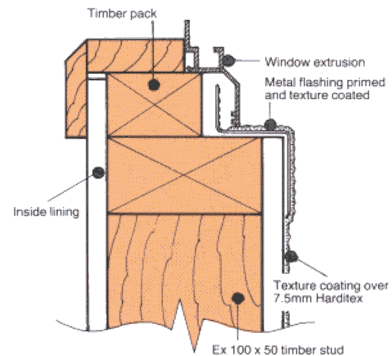
| Product Application  | NZS 3604:1990   |   |            | NZS 3604:1984  |   |
|--|---|---|------------|--|---|
|  | End-stud Fixing   | Rating in bracing Units per metre of element length |            | End-stud Fixing  | Rating in bracing units per metre of element length |
|  |   | Wind  | Earthquake |  |   |
| Harditex cladding on outside face<br>Length 2400mm and longer        | End straps not required for timber framing. For concrete slabs fix as clause E13.2 and Fig. E8 NZS 3604:1990                                      | 107   | 91         | Steel strap as clause 6.9.4.5 (Fig 47) or fixing as clause E13.2 (Fig. 67) | 56  |
| Harditex cladding on outside face<br>Length 1200mm to 2400mm maximum | End straps required as clause K4.5 and Fig. K1 NZS 3604:1990 for timber floors. For concrete slabs fix as clause E13.2 and Fig. E8 NZS 3604:1990. | 121   | 118        | Steel strap as clause 6.9.4.5. (Fig 47) or fixing as clause E13.2 (Fig 67) | 67  |

## WINDOWS AND CORNERS

The following are suggested details for deep reveal windows. (Refer Figs. 20 to 25)



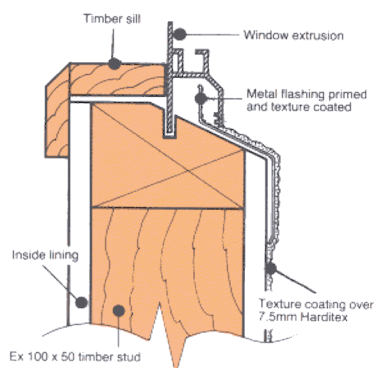
**Fig. 20 Sill detail alternative 1**



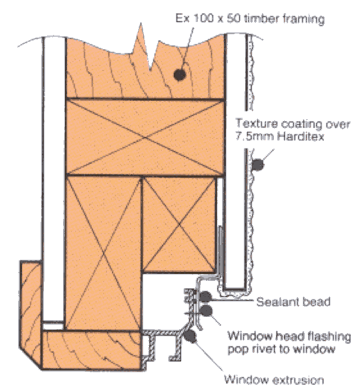
**Fig. 23 Jamb detail**

### NOTE

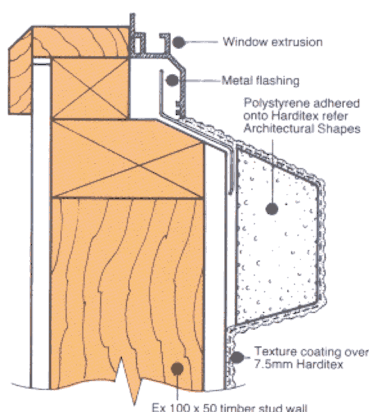
- The jamb detail can also be formed using a Harditex return similar to Fig. 20.
- The planted polystyrene detail can also be used refer Fig. 22.



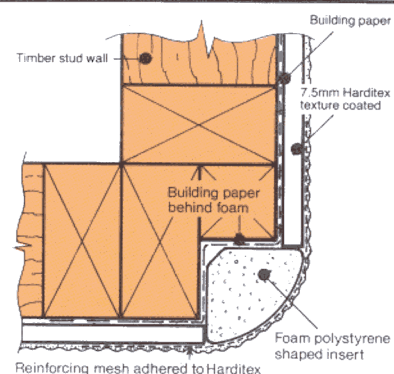
**Fig. 21 Sill detail alternative 2**



**Fig. 24 Jamb detail alternative 2**



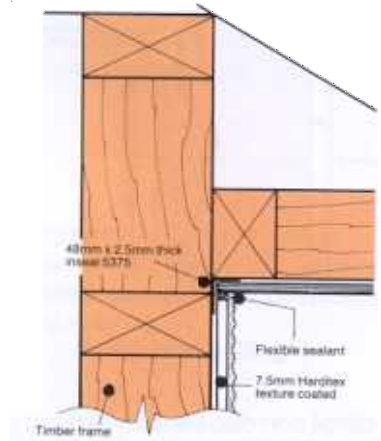
**Fig. 22 Sill detail alternative 3**



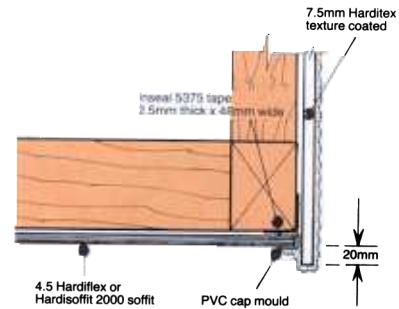
**Fig. 25 Rounded corner detail**

## TRANSITIONS

The following transition details are suggested for various Harditex cladding applications. (Refer Figs. 26 to 31).



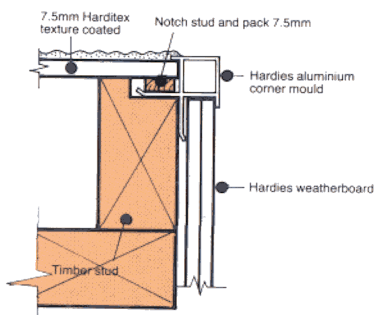
**Fig. 26 Harditex to soffit detail**



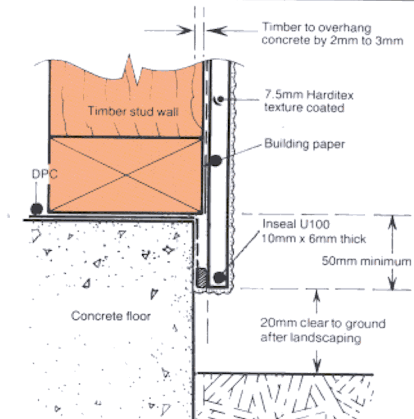
### NOTE

**Fig. 29 Soffit drip edge detail**

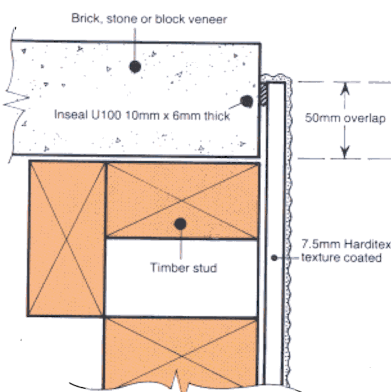
- The recommended masking tapes for use with Hardisoffitt 2000 are Sellotape Vinyl Blue Tape and 3M Scotch brand 2090 long mask. These tapes must only be left on the soffit 2000 for 7 days maximum otherwise tape removal may cause paint loss.



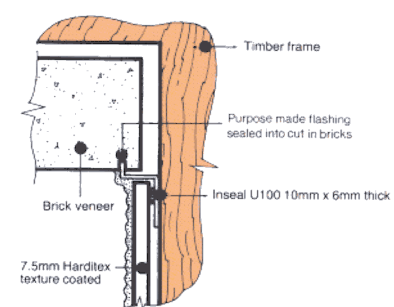
**Fig. 27 Corner detail Hardies Weatherboard to Harditex**



**Fig. 30 Harditex overhang detail in concrete or blockwork base.**



**Fig. 28 Brick veneer to Harditex external corner detail**



**Fig. 31 Brick veneer to Harditex internal corner detail**

# HARDITEX SHEETS

## PRODUCT INFORMATION

### MATERIAL

The composition of Harditex is treated cellulose fibres bound in a matrix of cement and finely ground sand – cured by high pressure steam autoclaving.

Harditex sheets are immune to permanent water damage and will not rot.

Within the normal range of applications the life of the product is limited only by the durability of the supporting structure and the materials used in the fixing.

Any special conditions or unusual applications should be referred to the technical staff of James Hardie & Coy Pty Limited.

### SHEET EDGE FINISH

The sheets are recessed on both sides and one end to take a reinforced bedded joint detail applied by the coating contractor. This allows for a monolithic finish at both the vertical and horizontal joint detail.

### NOMINAL SHEET DIMENSIONS

|                 |                 |
|-----------------|-----------------|
| Length & Width: | 1800mm x 1200mm |
|                 | 2400mm x 1200mm |
|                 | 2700mm x 1200mm |
|                 | 3000mm x 1200mm |
|                 | 2700mm x 900mm  |
| Thickness:      | 7.5mm           |

### MASS

The approximate mass of 7.5mm Harditex at Equilibrium Moisture Content is 10.7kg/m<sup>2</sup>.

Where values are quoted at Equilibrium Moisture Content (EMC) the conditions of the environment are nominally 23°C and 50% relative humidity.

|                                |     |
|--------------------------------|-----|
| Moisture content at EMC        | 7%  |
| Moisture content at saturation | 33% |

### FIRE PROPERTIES

Harditex will not burn and has the following 'Early Fire Hazard Indices' (tested to AS1530 Part 3 1982).

|                       |   |
|-----------------------|---|
| Ignition Index        | 0 |
| Flame Spread Index    | 0 |
| Heat Evolved Index    | 0 |
| Smoke Developed Index | 0 |

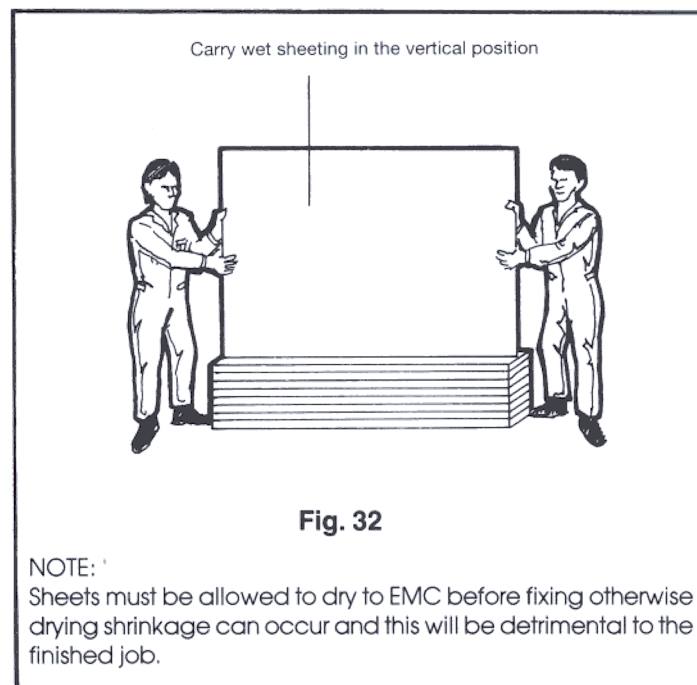
In terms of the Building Code of Australia, Harditex is deemed to be non-combustible.

## HANDLING AND STORAGE

Harditex sheets are to be stacked on a smooth, level surface. Edges and corners are to be protected from damage. Carry sheets on edge. Store under cover and keep dry prior to fixing, jointing and coating.

### NOTE

When sheets become wet they should be lifted into the vertical position on the stack and then carried on edge. (Refer Fig. 32)



## WORKING INSTRUCTIONS

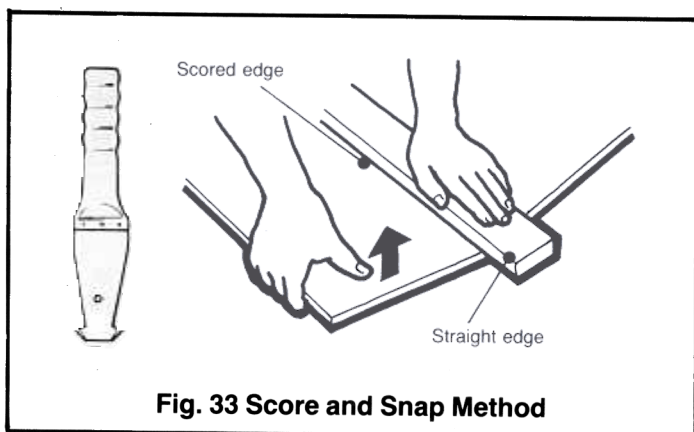
### CUTTING

Suitable cutting methods are 'score-and-snap', hand guillotine, hand sawing, power sawing and the Hardishear powercutter.

### Score and Snap

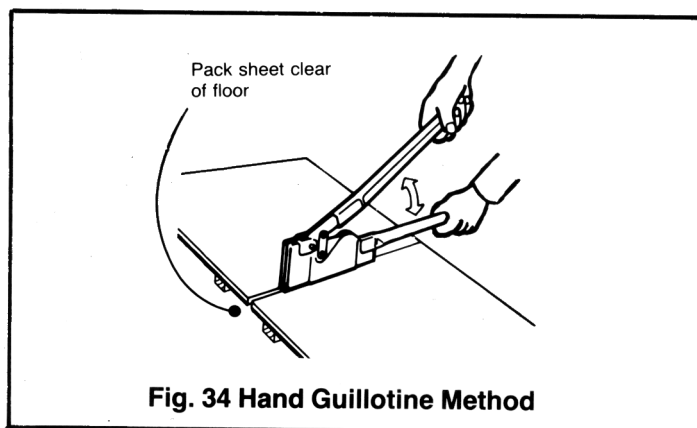
'Score-and-Snap' is a fast and efficient method of cutting using Hardies special tungsten tipped 'score-and-snap' knife. (Refer Fig. 33)

- Preferably score from the face side of the sheet.
- Position straight edge along line of the cut.
- Score against straight edge and repeat the action to obtain adequate depth for a clean break – normally one-third of the sheet thickness.
- Snap upwards to achieve break.
- Clean up edges with a rasp if necessary.



## Hand Guillotine

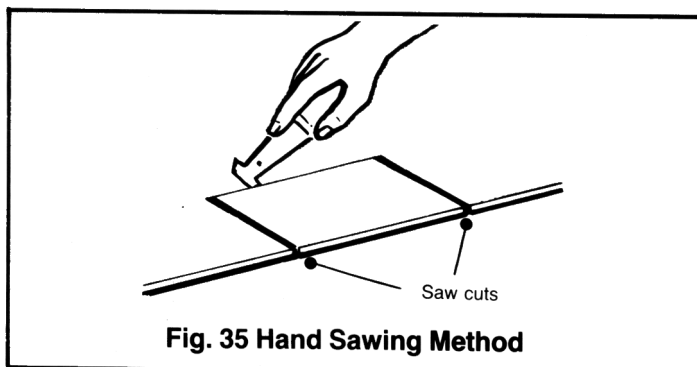
The 'Jiffy' brand hand guillotine produces clean, straight edges. Make the guillotine cut on the off-cut side of line to allow for thickness of blade. (Refer Fig. 34)



## Hand Sawing

Hand sawing is suitable for general cutting operations and for small cuts, notchings or small penetrations. Preferably use an old handsaw. A quick forward jabbing action is best.

For neatness, mark out the cuts to be made on the face side of the sheet. Where small notches are to be made, cut the two sides with the handsaw or hand guillotine, score along the back with the 'score-and-snap' knife and snap upwards. (Refer Fig. 35).



## Power Sawing

The recommended method for Power Sawing Harditex is a dry diamond blade fitted to a 100mm diameter circular saw. A dry carborundum blade can also be used however this is a much slower cutting alternative than the dry diamond blade.

It is advisable to cut in a well ventilated area and a suitable mask should be worn because of the fine dust generated.

Clamp a straight edge to the sheet and run the saw base plate along the straight edge when making the cut.

## Hardishear Power Cutter

A Hardishear cutting head is available for fitting to 10mm power drills.

For details and availability of the Hardishear, enquire at a James Hardie sales office.

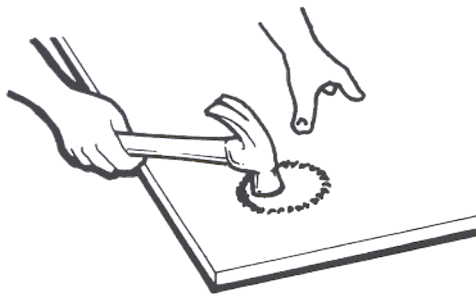


## HOLE FORMING

Small rectangular or circular holes can be achieved by drilling a series of small holes around the perimeter of the hole then tapping out the waste piece from the sheet face. Tap carefully to avoid damage to sheets and clean rough edges with rasp. (Refer Fig. 37).

Large rectangular openings, such as for wall ventilators, can be made by the following method.

- Mark out the hole on the face side of sheet.
- Drill a hole in each corner as shown in Fig. 38.
- Score to the outside of the holes to half the sheet depth.



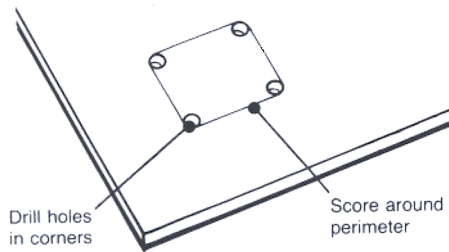
**Fig. 37 Circular Hole Forming**

**NOTE:**

- Do not form holes through sheets with cold chisels, heavy hammers or any other 'aggressive' methods. Such forceful methods will damage sheets and may cause other problems at a later date.

Turn sheet over and score the reverse face to half the depth using the drilled holes as a reference.

- Knock out the scored material to form the hole. (Refer Fig. 38)



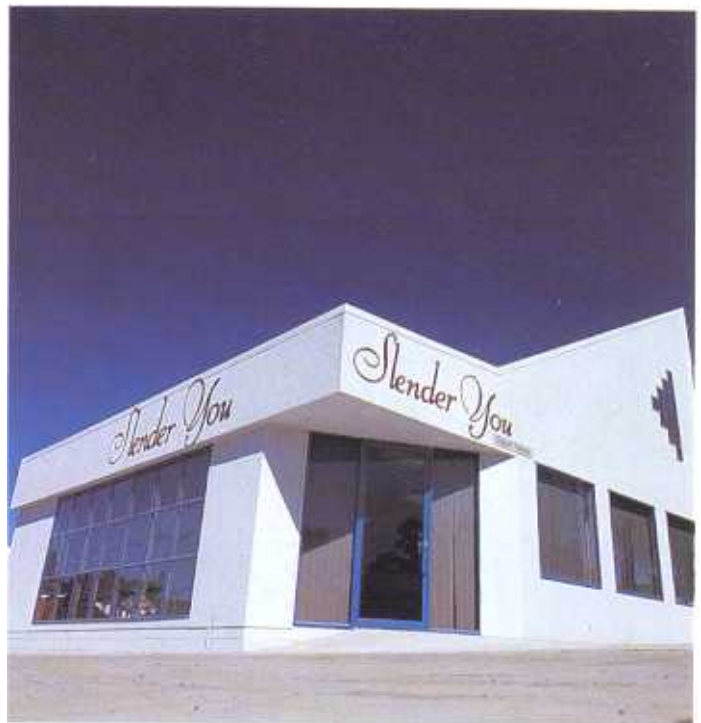
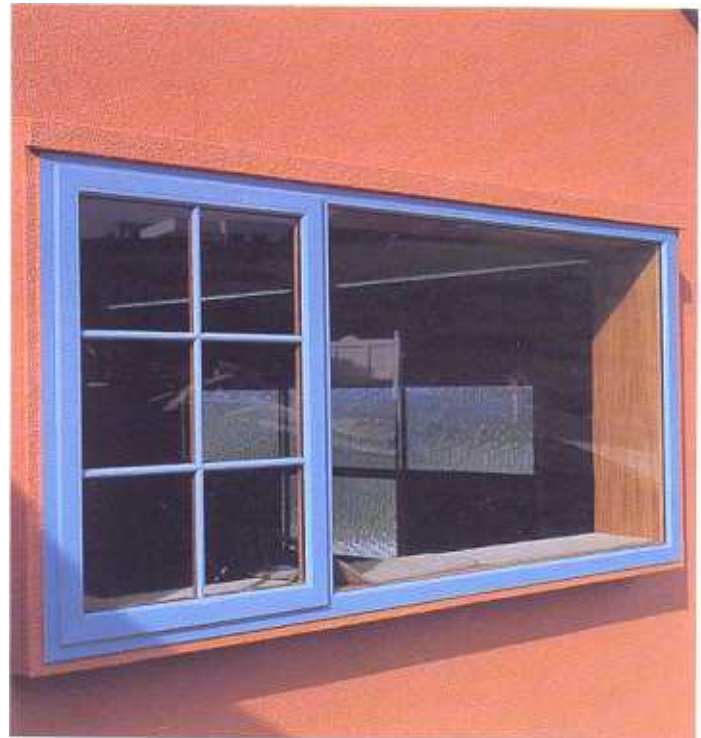
**Fig. 38 Rectangular Hole Forming**

For smooth, clean cut circular holes:

Mark the centre of the hole on the sheet

Pre-drill a 'pilot' hole

Using the pilot hole as a guide, cut the hole to the appropriate diameter with a tungsten tipped ring cutter fitted to a heavy duty electric drill. Sandvik ring cutting kits or similar are available for this purpose.



# JOINTING AND FINISHING SYSTEMS

## APPROVED SYSTEMS

To achieve a high standard monolithic surface finish, the Harditex external cladding sheets have been developed to receive proven proprietary high-build flexible acrylic surface coatings.

As the sheet jointing, bonding of architectural shapes, sealing and coating is an integral part of the texture coating manufacturers' system and its warranty, the work should only be undertaken by the licensed applicators of the approved coating systems.

James Hardie & Coy Pty Limited have developed Harditex as the most suitable cladding substrate for textured coating systems. The successful performance of the textured coating systems depends on numerous factors outside the company's control and therefore James Hardie & Coy Pty Limited accepts no responsibility for the jointing and coating performance.

The approved coating companies offer their own warranties to cover the jointing, architectural shapes and the coating. The extent and conditions of these warranties should be checked with each individual company.

The coating systems which have been tested by Hardies and which are approved for use with Harditex sheets are listed on this page.

These textured coating companies have a network of more than 180 approved applicators throughout New Zealand.

## Approved Jointing and Coating Systems

Coastal Coatings Limited – Mt Maunganui

- Acryltex
- Tel: 0-7-5757 266

Equus Industries Limited – Blenheim

- Chevaline; Arcutextx, Spraytextx & Covertextx
- Tel: 0-3-578 0214

Expandite Limited – Auckland, Wellington

- Esterno
- Tel: 0-9-273 9292 or 0-4-568 8046

Granosite Sales New Zealand Limited – Auckland

- Granoskin
- Tel 0-9-525 1040

Hitchins Gunac Limited – Auckland

- Formuwal Varitex
- Tel: 0-9-579 2046

Nuplex Industries – Auckland

- Flexicote
- Tel: 0-9-579 2029

Plaster Systems Ltd

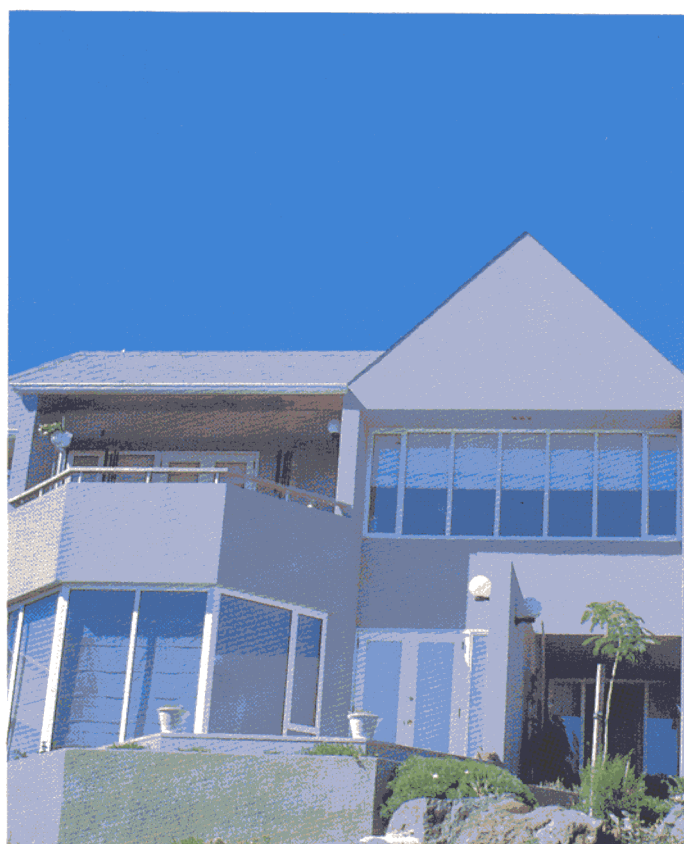
- Multiplast, Colorplast
- Tel: 0-9-444 6440

Resene Paints Limited – Wellington

- Resene Resitex
- Tel: 0-4-568 4319

Taubmans (New Zealand) Limited – Auckland

- Armawall
- Tel: 0-9-828 3009





## TESTING PROGRAMME

The Harditex sheets are specially formulated to ensure minimal moisture movement. The sheets have tapered edges to accommodate the textured coating companies' proprietary flexible, reinforced jointing systems. Every sheet is printed with the required nail positions to ensure the correct fixing centres are used. The composition of Harditex provides a very stable substrate for textured coatings.

Hardies insist on high standards for any textured coating manufacturer recommended for use on Harditex. Such recommendations are made only for those coatings which pass Hardies rigorous standard testing procedure at its Research and Development laboratories in Sydney.

Accelerated durability testing is undertaken on the Harditex external cladding system to ensure that each texture coating system tested has sufficient flexibility to accommodate sheet frame movement.

Two test frames of 3.0 metres in length x 2.4 metres in height are constructed for each texture coating test using ex 100 x 50 New Zealand Pinus Radiata timber at 600mm centres. Harditex sheets are fixed by Hardiflex nails at 150mm centres to all timber framing.

On one frame sheets are fastened horizontally producing horizontal joints 3.0 metres in length and on the other frame sheets are fastened vertically and joined on stud producing four joints 2.4 metres in length.

Each texture coating company is then directly involved in the application of their system to the test frames at the Research and Development laboratories in Sydney.

On completion of a 14 day drying and curing time for the coatings the test frames are then mounted on a durability test machine and subjected to alternative wet/dry cycling. Each cycle of two hours consists of one hour under wet conditions and one hour of dry conditions. The surface temperature of the boards on the drying cycle is 67°C.

Regular visual inspection is conducted during the test programme and any changes noted and recorded against the cycle number. The test duration is 100 cycles.

This harsh test is designed to mirror the varying climatic conditions that can occur in New Zealand. Hardies is therefore very confident about the performance of those proprietary coating systems which pass.

# ARCHITECTURAL SHAPES

## DESIGN AND PRODUCT INFORMATION

All polystyrene is to be manufactured to the Australian standard AS1366 part 3. For the majority of standard applications, 'S' grade polystyrene is satisfactory. For greater impact or other structural considerations, the higher density 'H' grade can be used.

A range of shapes can be readily factory cut to order. For details and costing contact:

Bondor NZ Limited  
51 Buchanans Road  
P.O. Box 11-106  
Sockburn  
**Christchurch**  
Tel: 0-3-428 890  
Fax: 0-3-426 176

Bondor NZ Limited  
13 Polaris Place  
East Tamaki  
Private Bag  
Papatoetoe  
**Auckland**  
Tel: 0-9-274 5639  
Fax: 0-9-274 7656

- Complex shapes should be avoided and for advice on cutting and pricing aspects, contact Bondor NZ Limited in Auckland or Christchurch.
- The polystyrene shapes must be adhered only when all the Harditex is completely and securely fixed to the framing.
- The polystyrene system is to be undertaken only as part of the coating contractors jointing and finishing work. Only registered applicators of the approved coating systems should be selected for this work.
- The maximum length of the polystyrene panel available is 1200mm and the maximum width is 1200mm.
- The polystyrene panels can be readily cut or mitred on site, with hand saws.
- Each approved coating system has the individual method and materials for adhering and finishing the polystyrene. Check with the selected coating system for specific details of the system to be used.



[illegible]

## TECHNICAL INFORMATION

# THE FIBRE CEMENT STORY

*Continues...*

### WON'T ROT LASTING ENDURANCE WON'T BURN LOW MAINTENANCE

When you use Hardie's Fibre Cement building products, Hardie's beauty and endurance goes on and on.

Not only do Fibre Cement building products look superb and have design flexibility, their inherent qualities and benefits give you great looks that last a lifetime.

Hardie's Fibre Cement withstands extreme conditions, from blistering sun, salt laden air and pelting rain to moist steamy conditions in bathrooms and kitchens. Fibre Cement is unaffected by water. It never rots or decays.

A tough match for timber, Fibre Cement won't burn. In fact, it's one of the safest building materials you can use.

With Hardies, great looks are made to last.

So when it's a question of building or renovating, Hardies has the answer, with a range of quality building products for both the interior and exterior of your home.

## 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 construction procedures. However, the Brochure is not intended to be an exhaustive statement 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 responsibility 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.



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P.O. Box 12-070  
AUCKLAND  
Telephone: 0-9-579 9919  
Fax: 0-9-579 7210

#### WELLINGTON

11-19 Downer Street  
Lower Hutt  
Postal Address:  
P.O. Box 30-482  
LOWER HUTT  
Telephone: 0-4-569 3254  
Fax: 0-4-569 3252

#### CHRISTCHURCH

272 Tuam Street  
Christchurch  
Postal Address:  
P.O. Box 325  
CHRISTCHURCH  
Telephone: 0-3-366 1209  
Fax: 0-3-366 1205



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PHONE 8.30AM TO 6.00PM MONDAY—FRIDAY

