

## TECHNICAL SUPPLEMENT

### Lining an Indoor Swimming Pool Area



The information in this supplement and James Hardie's technical literature is only intended for use in relation to the relevant James Hardie products.



#### INTRODUCTION

Indoor pools can create an environment which could cause deleterious corrosive and damaging effects to building materials.

This technical supplement has been designed to assist using James Hardie products to line internal wall and ceilings in indoor swimming pool applications.

Always refer to the relevant installation manual unless otherwise stated in this published scope. James Hardie product installation manuals are available at [www.accel.com.au](http://www.accel.com.au)



#### DESIGN - GENERAL

It is the responsibility of designer or specifier to ensure detailing is appropriate for the intended application and to identify moisture related risks associated with any particular building design.

Wall construction design must effectively manage moisture, accounting for both the interior and exterior environments of the building, particularly in buildings that are artificially heated or cooled.

In addition all wall openings, penetrations, junctions, connections, window sills, heads and jambs must incorporate appropriate flashing and waterproofing. Materials, components and their installation that are used to manage moisture in framed wall construction must, at a minimum, comply with the requirements of relevant standards and the BCA.

#### HEALTH & WELLBEING - VENTILATION

Indoor swimming pools are subjected to large quantities of corrosive water vapour through the process of pool water evaporation. The building must be designed to encompass a means of regulating the indoor environment to reduce moisture, heat and chemicals.

Some suggested ways of achieving this are:

- Natural and mechanical ventilation
- Mechanical dehumidification
- Ventilating ceiling space
- Using a non chlorine pool

High humidity that cannot escape could lead to mould, mildew, bacteria and fungi and may impact on staff and the general public's health.

#### WALLS

The recommended product for walls is James Hardie's Villaboard® lining installed vertically.

Villaboard lining is a premium sanded fibre cement sheet with recessed edges for flush jointing. Villaboard lining is an ideal internal lining for high traffic abuse areas and commercial internal wall applications. 6mm Villaboard lining is suitable for residential applications and 9mm Villaboard lining is suitable for commercial applications.

#### SHEET JOINTS

The Villaboard lining joints must be set with the James Hardie Base Coat and James Hardie Top coat reinforced with a perforated paper tape. The Villaboard sheet joints must be dampened with cold clean water before applying first layer of base coat.

#### FRAMING

##### Steel

The minimum size for steel stud framing should be 64mm deep x 0.55mm base metal thickness (BMT). Steel framing must be designed in accordance with NASH Standard for Residential and Low-Rise Steel framing Part 1: Design Criteria Steel sections must be a minimum BMT of 0.55mm and a maximum BMT of 1.60mm and of suitable corrosion resistant materials. Studs must not be less than 38mm wide.

##### Timber

Use only seasoned timber. The minimum size for timber wall stud framing should be 70mm deep. The minimum stud width must be 38mm.

#### OPENINGS

Internal linings that are installed around openings must not be butted hard to the opening. A 2mm relief joint around the perimeter of any opening is required to allow for anticipated movement.

#### EXTERNAL AND INTERNAL CORNERS

All external and internal corners must have the James Hardie 75x75mm Colorbond Corner Flashing installed behind the Villaboard lining sheets for reinforcement of the corner.

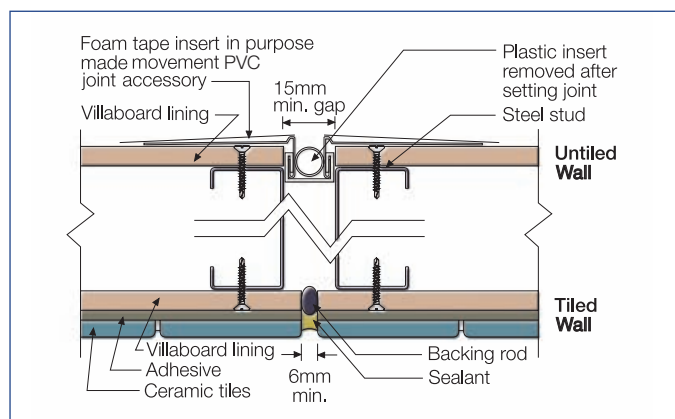
#### CONTROL JOINTS

Sheet control joints are required in long runs of Villaboard lining walls in both directions. Control joints should also be provided at frame junctions/joints such as wall intersections.

Refer to the table below for maximum vertical control joint spacing's.

MAXIMUM SPACING FOR CONTROL JOINTS (M)		
	STEEL FRAMING 0.55 - 1.6mm BMT	TIMBER FRAMING
General	6.0	7.2
Tiled walls	4.8	4.2

Horizontal control joints in walls are required at each sheet height.



## SPLASHZONE

The area of the wall and floor that is within the pool splash zone will require the application of a suitable waterproofing system. The waterproofing membrane will need to be resilient to the pool water, compatible with the Villaboard lining and the final paint finish. Refer to a waterproofing manufacturer for their recommendations on a suitable product.

The designer needs to assess how the pool and surrounding area will be cleaned. If it will involve being hosed down, this should be treated as a splash zone and fully waterproofed as mentioned above.

The floor to wall junction should be appropriately treated to stop moisture ingress. It would be suggested to waterproof this junction as well. The floor should fall away from any wall and floor junction and to a floor waste. A 1:100 fall in the floor is recommended.

## CEILINGS

6mm Versilux lining is recommended for residential applications and 9mm Versilux lining is recommended for commercial applications.

6mm Versilux lining is a flat sheet, where the two short edges are square for a butt joint and the two long edges have a chamfer to create a decorative Vee joint. 9mm Versilux has four square edges for butt joints.

Versilux lining can be fixed to either timber or light gauge domestic type steel framing. The framing used must comply with the relevant building regulations and standards and the requirements of this scope and the relevant installation manual.

## FRAMING

Do not fix sheets directly to the bottom chord of roof trusses. Batten these out first with treated timber battens or metal furring channels. Any suspended systems, hanging frames, treated timber battens or metal furring channels should be of suitable corrosion resistance material. All metal framing must be within 0.55 – 1.6 BMT. An engineer is responsible for specifying the connection between suspended system, hanging frame, treated timber battens or metal furring channels and the substrate.

## SHEET JOINTING OPTIONS

Versilux is the preferred ceiling lining and can create an expressed or butt joint look, see Options 1 and 2. 9mm Villaboard lining can be used to create a seamless joint but will not accommodate for excessive frame movement, see option 3.

### Option 1



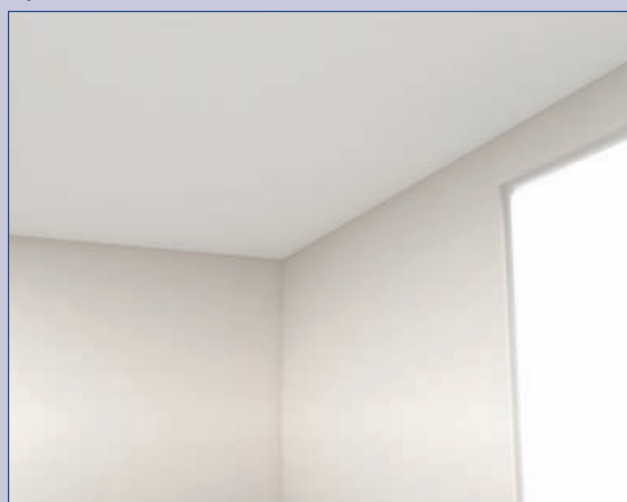
EXPRESSED JOINT WITH VERSILUX LINING

### Option 2



BUTT JOINT/DECORATIVE VEE JOINT WITH VERSILUX LINING

### Option 3



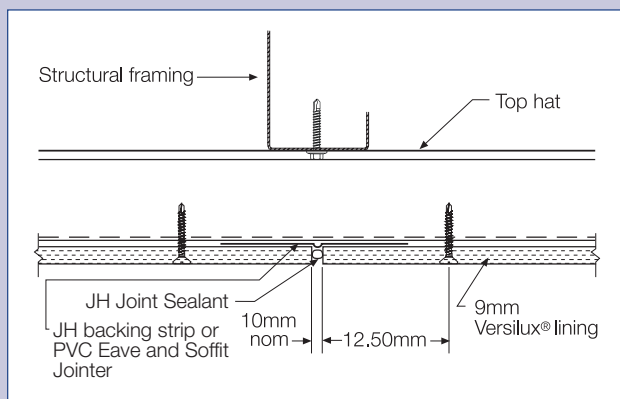
SEAMLESS LOOK WITH VILLABOARD LINING  
(CONTROL JOINTS ARE REQUIRED)

### Option 1: Expressed joint with Versilux lining

Versilux Lining can be installed to achieve an express joint look. The sheets are installed to separate framing members to allow for movement. Sheets should be fixed in accordance with the current Versilux lining installation manual and a suitable corrosion resistant flashing should be installed behind the express joint with sealant. Alternatively, the James Hardie 6mm PVC Eave & Soffit jointer can be used in this application.

The flashing must be suitable to withstand high temperatures and be suitable for the intended application. The designer is responsible to ensure that all components and accessories are of a suitable corrosion resistance for the intended environment, refer to the corrosive environment section below for further information.

Refer to the current Versilux Lining installation manual in relation to maximum fastener locations.

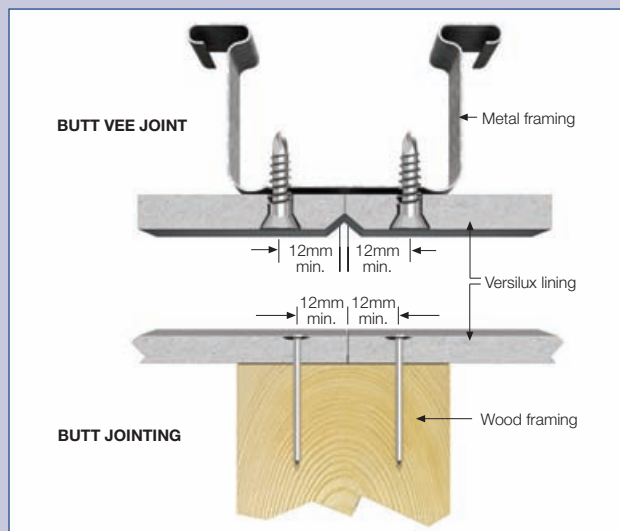


OPTION 1: EXPRESSED JOINT WITH VERSILUX LINING

### Option 2: Butt Joint / Decorative Vee joint with Versilux lining

Versilux Lining can be installed to achieve either a butt joint or decorative Vee joint. 6mm Versilux lining will create a butt joint along the short edges and a decorative Vee joint along the long edges of the sheet. 9mm Versilux lining has four square edges, which means that each sheet joint will achieve a butt joint look. The sheets should be installed in accordance with the current Versilux Lining installation manual, which outlines the maximum fastener spacing locations.

#### Option 2



DECORATIVE JOINT WITH VERSILUX LINING

### Option 3: Seamless look with Villaboard lining

If the designer decides to use Villaboard lining for a seamless look above an indoor pool area, there are strict requirements to adhere to:

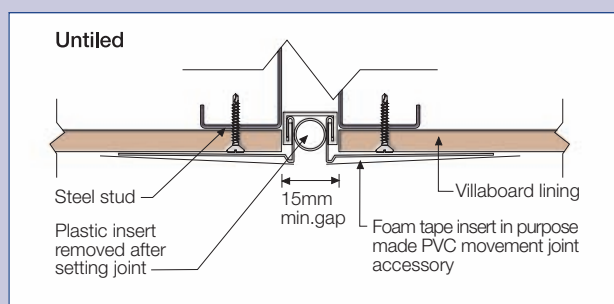
The James Hardie Villaboard lining must be installed and maintained as per the current Villaboard lining installation manual and this published scope.

It is recommended that the roof/ceiling space is ventilated to the outside air to remove heat build-up. It is recommended that the ceiling space is insulated with a minimum R3 batt to help reduce heat buildup. The designer is responsible to manage condensation and moisture build up in the roof space.

Ceiling control joints are installed to take up the structural movement between the sheets and the building frame.

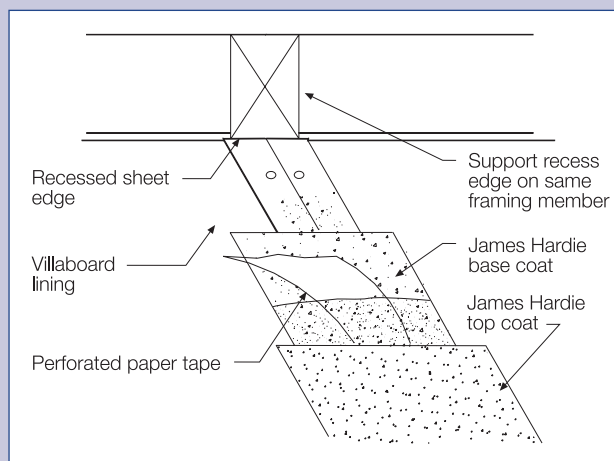
- Control joints are required at 2400 x 2400mm where no bulk insulation is used.
- Control joints are required at 2400 x 3600mm where bulk insulation is used.

Villaboard joints are to be set using only James Hardie base and top coat.



CEILING CONTROL JOINT

The Villaboard lining joints are to be set with the James Hardie Base and Top coat reinforced with a perforated paper tape. The Villaboard sheet joints must be dampened with cold clean water before the first layer of base coat.





## CORROSIVE ENVIRONMENT

The designer is responsible to ensure that all components and accessories are of a suitable corrosion resistance for the intended environment including but not limited to metal, paints, fasteners etc.

All components must be fully compatible with one another. The designer should refer to the specific manufacturer of these products to find discuss their suitability for the intended application.

## FINISHES

The Villaboard lining or Versilux lining must be finished with a minimum of 3 coats of an exterior grade low sheen acrylic paint due to the additional protection required in this environment due to high humidity, chlorination, steam etc. In glancing light areas skim coating the entire wall may be required before painting wall.

For further information contact ACCEL™ on 13 11 03.

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[www.accel.com.au](http://www.accel.com.au)



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