IBS
SUSTAINABLE BUILDING PRODUCTS

CD Structural Ply
Installation Guide

THREE GREEN TICK APPROVED

pass

AUGUST 2021

Contents

NZBN 9429000097253

L x W x Thickness (mm)	Weight (kg)	IBS Product Code	GTIN
CD Structural Untreated Ply Product Details			
2400 x 1200 x 7	11.0	CDAU072412	09421028761765
2400 x 1200 x 9	14.0	CDAU092412	09421028761772
2400 x 1200 x 12	18.7	CDAU122412	09421028761796
2400 x 1200 x 15	23.3	CDAU152412	09421028761802
2400 x 1200 x 18	28.0	CDAU182412	09421028761819
2400 x 1200 x 21	32.7	CDAU212412	09421028761826
2400 x 1200 x 25	38.9	CDAU252412	09421028769082
CD Structural H3.2 Ply Product Details			
2400 x 1200 x 12	18.9	CDAT122412	09421028761987
2400 x 1200 x 15	23.6	CDAT152412	09421028761994
2400 x 1200 x 18	28.3	CDAT182412	09421028762007
2400 x 1200 x 21	33.0	CDAT212412	09421028762014
2400 x 1200 x 25	39.3	CDAT252412	09421028762021

Contact us for more information or to talk to our team.

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1. Introduction

This guide provides advice on handling, installing and maintaining IBS CD Structural Ply (CD Structural Ply).

1.1 What is CD Structural Ply?

CD Structural Ply is manufactured to AS/NZS 2269:2012 with the veneers being glued with an exterior phenol-formaldehyde resin. The sheets are supplied with a clean face and with solid knots and minor filling.

Sheets are supplied untreated or treated to Hazard Class, H3.2 (CCA) in 2400 mm x 1200 mm sheets with the following thicknesses (mm): 7, 9, 12, 15, 18, 21, 25.

1.2 Benefits of CD Structural Ply

IBS Structural Ply is fully in line certified to New Zealand standards by SAI Global.

IBS Structural Ply has been manufactured by Arauco and tested to meet all requirements of Plywood Structural Standard AS/NZS 2269 in products that are stamped and labeled accordingly.

It is a certified “A” bond using an exterior phenol-formaldehyde resin and is a low formaldehyde emissions (LFE) panel.

A CD Grade is primarily used where the end use is visual. A clean solid face that may have solid knots and splits with a minor filling. Finished with a 150 grit three-step sanding process and 100 grit on the back veneer.

1.3 CD Structural Intended Use

For full scope, limitations and assurance refer to the IBS CD Structural pass™ and the IBS CD Structural Ply Cladding pass™.

IBS supply CD Structural Ply for use as:

- a wall bracing element
- floor or roof diaphragm
- external cladding
- flooring
- deck or roof substrate
- internal wall panelling
- ceiling and soffit linings
- crafts, general construction and formwork.

1.4 Important Documents

This guide must be read in conjunction with the:

- IBS CD Structural Ply pass™
- IBS CD Structural Ply cladding pass™
- IBS CD Structural Ply warranty.

2. Best Practice

2.1 Skills Required

To install CD Structural Ply, the installer must, at a minimum, be a competent DIYer.

Where CD Structural Ply is specified by a designer, the designer shall have the appropriate skills, knowledge of the product and access to all CD Structural Ply technical information (refer to www.ibs.co.nz).

Where Restricted Building Work (RBW) applies the designer or installer must either be a Licensed Building Practitioner (LBP) or be supervised by an LBP with the applicable licence.

2.2 For More Help

Technical assistance is available at info@ibs.co.nz. While all reasonable efforts have been made to ensure the accuracy of information provided, this is a guide only, and it may be subject to change.

2.3 For Our Warranty

Refer to www.ibs.co.nz.

2.4 Health & Safety

Take all necessary steps to ensure your safety and the safety of others:

- ensure adequate ventilation or mechanical dust extraction when cutting or drilling
- ensure the sheets are well supported when cutting
- wear appropriate safety equipment, including clothing, footwear and safety glasses
- use all tools in accordance with the relevant instruction manuals
- clear the work area of any obstructions before work starts
- ensure edge protection and/or appropriate scaffold is installed where working at height.

For further information refer to:

- WorkSafe, Small Construction Sites, The Absolutely Essential Health and Safety Toolkit.
- WorkSafe, Health and Safety at Work, Quick Reference Guide.

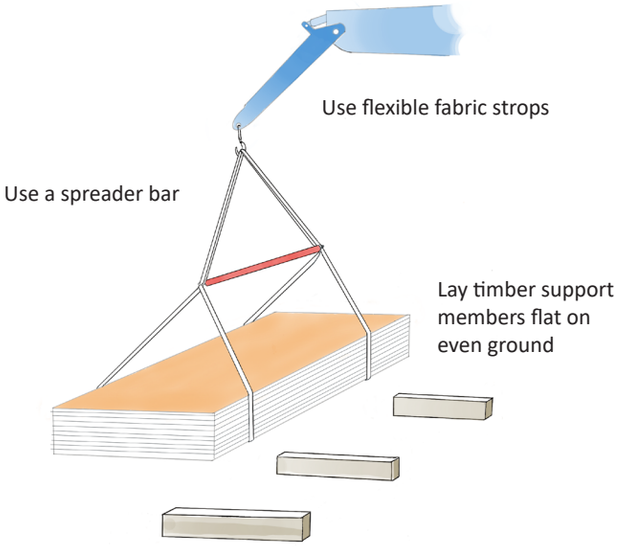
2.5 Handling & Storage

Take care when transporting, handling and storing CD Structural Ply to avoid damaging the sheets.

Unload sheets by hand and carry on edge. If unloading mechanically, ensure there is a minimum of two well-spaced supports or supported with a pallet to avoid excessive bending or sagging. A spreader bar may be needed when using a crane.

If stored on-site, stack sheets flat on a dry surface and at least 150 mm off the ground. Cover the sheets.

Ensure the area where the sheets are stored is dry, well-ventilated, out of direct sunlight and away from any heat source.



3. Design

3.1 Design Considerations

Confirm scope

Ensure the project falls within the allowed scope and limitations for the intended use, in particular suitability of the building, treatment requirements and the structural framing support.

Establish substrate suitability

Where used as a wall bracing element, external cladding, ceiling diaphragm, flooring and deck or roof substrate the designer must ensure that the substrate to which the CD Structural Ply is to be fixed is suitable for the intended building work. CD structural ply is intended to be used as external cladding, bracing element, ceiling diaphragm, flooring or deck or roof substrate.

3.2 External Cladding

As an external cladding, CD Structural Ply must be specified and designed in accordance with E2/AS1.

Specification must be in accordance with the pass™; the board must be a minimum of 12 mm, treated to H3.2 (CCA) and must be coated with a paint finish that has a minimum light reflectance value (LRV) of 40.

All panels MUST be installed vertically. Failure to meet the requirements of paint finish - installation orientation or not following fixing instructions will void any warranty.

3.3 Bracing Element

As a wall bracing element, the following applies:

- Sheets are fixed on one face only; sheet height 2400 mm.
- Sheets must be fixed vertically. Fix using nails or screws at 150 mm centres around the perimeter of each panel and 300 mm centres on the middle studs. Ensure nails and screws are fixed at the centre point of the studs. There is no need for nails or screws on nogs or dwangs.
- Install appropriate hold downs such as Gib Handibrac on each corner of your bracing element.

3.4 Ceiling Diaphragm

For ceilings of large rooms, where bracing lines exceed 5.0 m, a ceiling diaphragm can be installed, provided no less than 100 bracing units exist in each wall.

Specification must be in accordance with NZS 3604 (refer to section 13, paragraph 5.6) or specifically designed to NZS 3603:1993.

The length of the diaphragm must not exceed twice the width measurement between braced walls and must be CD Ply over the entire area specified as a diaphragm.

3.5 Flooring

The floor framing must be designed to NZS 3604:2011, (refer to section 7) or specifically designed to NZS 3603:1993. Account shall be taken in consideration of the floor loads of 1.5 kPa, 2 kPa and 3 kPa as described in NZS 3604:2011, (refer to section 1).

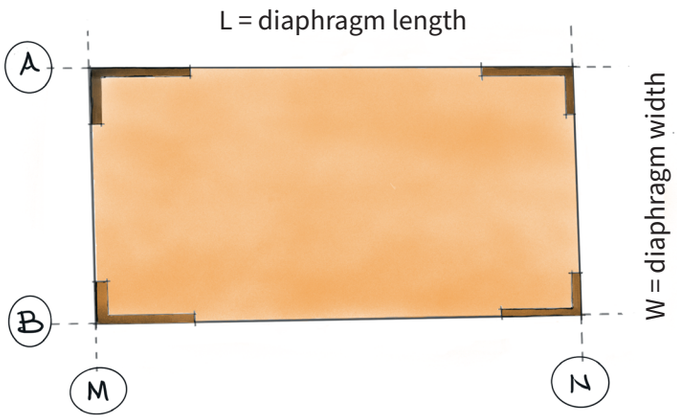
Maximum joist spacings (18 mm thickness and 2 kPa load) 400 mm centres. All other options require specific design.

CD Structural Ply can be used as a structural floor diaphragm when specified in accordance with NZS 3604:2011 (section 7).

3.6 Deck or Roof Substrate

Specification must be in accordance with E2/AS1 with all fixings (materials and spacings) in accordance with NZS 3604:2011.

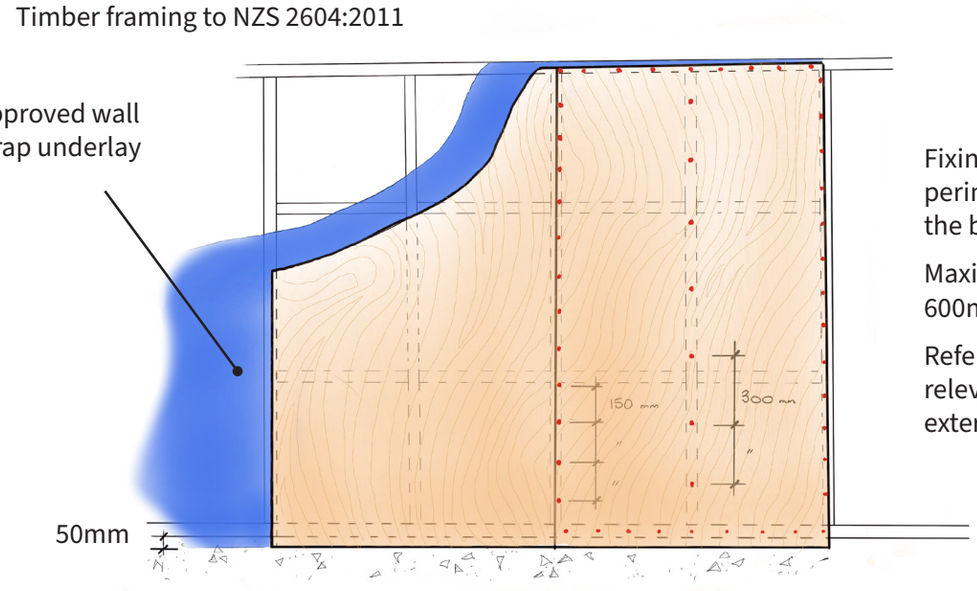
3.7 Diaphragm Layout



Line A and Line B shall each have no less than the greater of 15 x W x 100 BUs.

Line M and Line N shall each have no less than the greater of 15 x L x 100 BUs.

3.8 CD Ply Wall Layout



Fixing at 150 mm around perimeter and 300 mm through the body of the sheet.

Maximum stud spacings of 600mm.

Refer to E2/AS1 Section 9.8 for relevant details when used as an external cladding.

Brace Code	Thickness (mm)	Brace Width (mm)	BU/m (wind)	BU/m (EQ)	Hold-down Method	Sheet Fastenings
CDS-12	12	1200	123	132	M12 hold down bolts and 50 x 50mm washers. 25 x 0.9 mm bottom plate straps	60 x 2.5 mm annular grooved nails @ 150 mm centres around the perimeter
CDS-7	7.0	1200	130	132	M12 hold down bolts and 50 x 50mm washers. 25 x 0.9 mm bottom plate straps	30 x 2.5 mm galvanised clouts @ 150 mm centres around the perimeter
CDS-7 (a)	7.0	1200	94	95	M12 Hold down bolts to GIB HandiBrac® bottom plate brackets	40 x 2.5 mm stainless steel nails @ 150 mm centres around the perimeter
CDS-7 (b)	7.0	600	68	47	M12 Hold down bolts to Gib Handibrac bottom plate brackets	40 x 2.5 mm stainless steel nails @ 150 mm centres around the perimeter
CDS-7 (c)	7.0	400	61	72	M12 Hold down bolts to GIB HandiBrac® bottom plate brackets	40 x 2.5 mm stainless steel nails @ 150 mm centres around the perimeter

Note: Table compiled based on Scion P21 testing. BU/m value as limited by the ultimate load capacity.

For details refer to Page 8 5.1 Specific use Installation requirements.

3.9 Support Centres

For timber-framed walls, the sheets must be supported by the timber framing, in accordance with the specified spacing.

Support Centres (wall and ceiling lining)	
Wall Lining	
Stud centres (mm)	Nogging or dwang centres (mm)
400	1200
450	1200
600	800
Ceiling Lining	
Joint/truss centres (mm)	Nogging or dwang centres (mm)
450	800
600	600
900	480
1200	480

4. Installation

4.1 Key Documents

Refer to the building consent documentation where applicable and the relevant pass™ and this document.

4.2 Tools And Other Product Requirements

Tools

- Fine-tooth hand saw or power saw
- jig saw
- plane
- drill
- pin gun
- sandpaper
- hole saw and speed bits
- moisture meter (where exposed to moist conditions).

Other products

- adhesives (compatible with the specified treatment hazard class)
- fixings (refer to section 5.5)
- fillers.

4.3 Confirm Scope

Ensure the project falls within the allowed scope and limitations for the intended use, in particular suitability of the building, treatment requirements and the structural framing support.

4.4 Check Building And Substrates

- Ensure that the timber framing, to which the CD Ply is to be fixed has an 18 % mc or less.
- Where installed as an internal lining, establish the building is fully weathertight.
- Where installed as roof and deck substrate, ensure the joists and rafters are spaced correctly, and the specified slope is in accordance with E2/AS1.
- Where providing wall bracing, ensure studs are plumb, true and spaced correctly.
- Where used as an external wall cladding, ensure all flashings, rigid air barriers such as IBS RigidRAP or IBS RigidRAP-XT building wrap and cavity battens have been installed in accordance with E2/AS1.
- Ensure that all sheet edges will have continuous support.

4.5 Cut Sheets

Cut sheets using a fine-tooth hand or power skill saw. Arase the edge using a plane or 120-150 grit sandpaper. Retreat any cut edges of H3.2 treated product.

4.6 Predrill Pilot Holes

Where sheets are to be fixed with screws, predrill 2.4 mm pilot holes to prevent splitting the sheets.

Drill the holes approximately 2-3 mm deeper than the screw depth. Do not overtighten screws as it will reduce their holding strength. Retreat any cut outs in H3.2 treated product.

4.7 Specific Use Installation

Requirements

Install wall bracing

Refer to plans and specifications for brace type (table 1), location and installation requirements.

- Sheets are fixed on one face only; sheet height 2400 mm.
- Sheets must be fixed vertically.
- Fix using nails or screws at 150 mm centres around the perimeter of each panel and 300 mm centres on the middle studs. Ensure nails and screws are fixed at the centre point of the studs. There is no need for nails or screws on nogs or dwangs.
- Ensure the GIB HandiBrac®® is placed in the corner of each bracing sheet.

Install flooring

Where used as a flooring, the CD Structural Ply must be a minimum of 18 mm thick.

Ensure the sheets are laid perpendicular to the joists in a staggered pattern. Allow 2-3 mm expansion gap between sheet joints allowing for movement.

All edges must be supported.

Maximum joist spacings (18 mm thickness and 2 kPa load) 400 mm centres. All other options require specific design.

Fixings are required at 150 mm centres, no less than 7 mm from the sheet edge around the perimeter and a maximum of 300 mm centres through the body of the sheet.

Install external cladding

Where installed as an external cladding ensure H3.2 treated CD Structural Ply is used. The sheets must be installed with the grain running vertically up the face of the wall. Minimum thickness for an external cladding is 12 mm.

All installation requirements are as per E2/AS1 Section 8.5.3 and Section 9.8.

Install ceiling diaphragm

Install in accordance with NZS 3604 (section 13, paragraph 5.6) or as per the specific design documented in the building consent documentation.

Install roof or deck substrate

Refer to plans and specifications where applicable.

For a roof substrate ensure the sheets are laid perpendicular to the joists in a staggered pattern and the sheet ends are supported over timber. Allow 2-3 mm gap between sheet joints for movement. Maximum rafter spacings will depend on the selected thickness of the CD Structural Ply.

For membrane roofs and decks, all fixings to be flush or countersunk with the CD Structural Ply surface. Remove all sharp sheet edges that could damage the membrane. Membrane installer to ensure the moisture content of the CD Structural Ply meets the membrane manufacturer's specification prior to installation. The maximum spacing of support timbers shall be no less than 400 mm. Sheet edges must have a minimum chamfer of 5 mm.

Check the surface for joist deflection and adjust or pack where possible to maintain a flat, even surface.

Install as an internal wall lining

Sheets may be fixed horizontally or vertically. Leave a 5 mm gap at the end of each wall. If the wall length is more than five sheets wide (6.0 m), leave an expansion joint of at least 3 mm for each 6 m length and fill with a flexible sealant.

4.8 Finishing

Once installed, fill all visible screw, nail or staple holes with a flexible grade wood filler and then lightly sand.

Finish the sheets with polyurethane or paint. Use three coats: a primer and two topcoats. Ensure that the Light Reflective Value (LRV) is not less than 40 as this will result in a level of surface veneer checking that is unacceptable. Failure to meet this LRV value will void your warranty on the product. Sand the surface after each coat with 280-320 grit sandpaper

Some surface checking will occur over time, but this will not result in loss of building code compliance.

As a deck substrate, prior to the installation of the waterproof layer, the CD Ply must be prepared in accordance with the relevant waterproof supplier's requirements and E2/AS1.

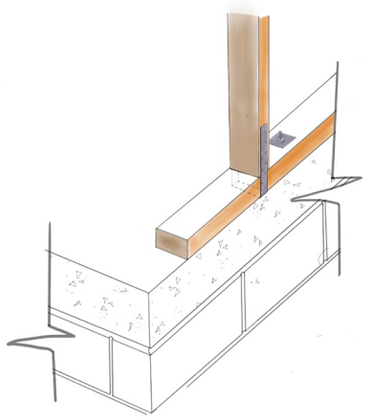
4.9 Moisture Impact

Where CD Structural Ply has been installed and has been allowed to get wet, bubbling may occur. Bubbling is where the face veneer is separated from the 2nd veneer only. This has no impact on the structural integrity or performance of CD Structural Ply. A smooth surface can be created by removing the loosened area with a chisel or a router and filling the indentation with a filler such as a 2-pot epoxy resin or a builders bog. Where the 'bubbled' area is greater than 10% of the board, replacement of the sheet is recommended.

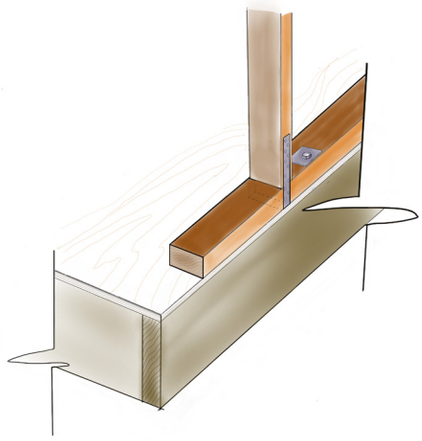
If a high-quality polyurethane finish is required, ensure the installed floor is fully protected.

Bracing Bottom Plate Fixing Details

Strap/M12 Fixing to Concrete



Strap/M12 Bolt Connection to Timber



Handibrac to Timber Subfloor

Handibrac placed at each stud end of the bracing element in accordance with GIB HandiBrac® installation requirements

Handibrac to Concrete

Handibrac placed at each stud end of the bracing element in accordance with GIB HandiBrac® installation requirements

4.10 Select Fixings and Fasteners

All uses	All fasteners must be a minimum of hot-dipped galvanised, stainless steel or silicon bronze when used in conjunction with H3.2 CCA treated CD Ply. Material selection in accordance with NZS 3604:2011, section 4. Embedment of fastenings and fixings should not exceed 1 veneer.
Internal lining	Fixings to be: • 40 x 2.0 mm jolt head nails with panel adhesive • mechanical gun-driven pins with panel adhesive (recommended) • 6 g x 32 mm, countersunk, coarse thread wood screws.
Flooring	Joist fixings to be: • 60 x 2.8 mm flat head nails (annular groove for stainless steel) with panel adhesive • 65 x 2.87 mm ring shank mechanical gun nails (set depth to one veneer) • 10 g x 45 mm countersunk, course thread woodscrews (stainless steel for wet areas).
Roof and deck substrate	Rafter and joist fixings to be: • 60 x 2.8 mm flat head nails (annular groove for stainless steel) with panel adhesive • 65 x 2.87 mm ring shank mechanical gun nails (set countersink depth to one veneer) • 8 g x 40 mm countersunk, course thread wood screws (stainless steel).
External wall cladding (12-15mm sheet thickness)	Stud fixings to be: • 60 x 2.8 mm flat head nails (annular groove for stainless steel) with panel adhesive • 65 x 2.87 mm ring shank mechanical gun nails (set countersink depth to one veneer) • 8 g x 40mm countersunk, course thread wood screws (stainless steel).
Ceiling diaphragm	Fastenings to the perimeter must be 140 mm x 35 mm top capping fixed on top of plate.

5. Maintenance

5.1 Internal Use

Under normal conditions, CD Structural Ply will need no maintenance as long as the protective finished layer has been maintained.

If water damage does occur to an area where CD Structural Ply has been used, first remove the protective layer. Then make sure the area is allowed to dry thoroughly before you replace any protection.

Maintaining the protective layer will depend on the specific finish manufacturer's requirements. But, typically it will include:

- Regularly washing and/or wiping clean protective surfaces to remove mould, scale and/or soap deposits.
- Checking the sealant joints around fixtures.
- Regular inspections should be carried out to check the sheets are not damaged by humidity or moisture. If there is evidence of swelling to bracing sheets, they must be removed and replaced with new ones.

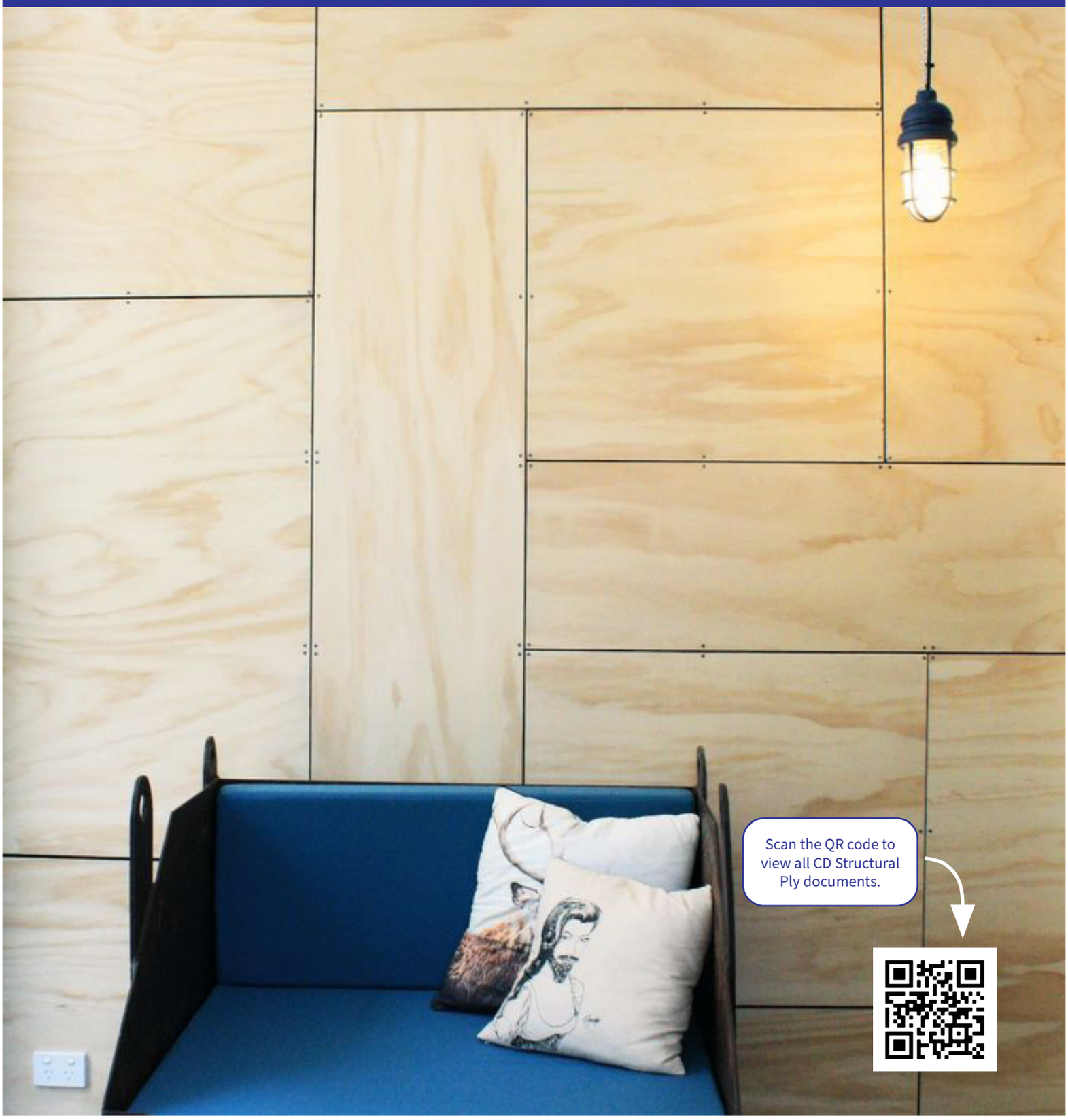
Small holes up to 90 mm x 90 mm can be repaired by patching or stopping with a suitable interior grade filler. If the holes are larger than 90 mm square, within 90 mm of any bracing element, or if the bracing elements themselves are damaged, seek advice from a Licensed Building Practitioner.

5.2 External Use

Continued performance of the CD Structural Ply relies on the ongoing performance of the protective coating.

Maintain as for internal use and clean sheets at least once a year, with mild detergent and a fine brush to remove dirt, mould, lichen and salt deposits. A water blaster should not be used on the sheets. Re-coating of the selected surface coating will be required as the need arises or in accordance with the supplier's recommendations for the selected surface coating.

For more information on maintaining an external cladding go to www.maintainingmyhome.org.nz/maintenance-guides/exterior-wallmaintenance-guide/.



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1/7 Fraser Road, Panmure, Auckland, New Zealand
0800 367 759 | info@ibs.co.nz
www.ibs.co.nz