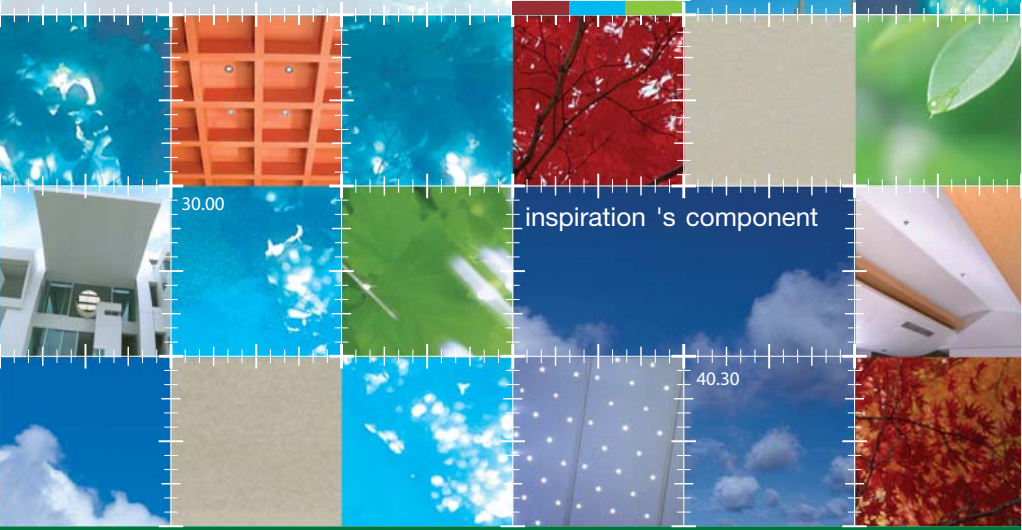




00.00

40.10

# ceiling collection




30.00

inspiration 's component

40.30

INSTALLATION GUIDE

**SHERA** NON  
ASBESTOS



*With the living philosophy of working on dreams & innovation SHERA has successfully developed a range of products to suit idealistic living. SHERA's creativity helps you live modern life with the nature in the nature.*

as far as...your imagination can go

### Boundless Envision

Imagination is set free to design with SHERA. No matter whether a new construction or renovation works, SHERA provides fuel for creation. Unique architectural styles with arches and aesthetically rounded structures blend best with SHERA's products.

### Spectacular Design

SHERA Collection's distinctive design elegantly dresses-up the building in the latest trend. SHERA Siding Collection ,Ceiling Collection ,Flooring Collection and Roofing Collection are offered in a variety of colors, textures, and profiles. These sidings can also be furnished with most of other decorative materials such as ceramic tiles, color paints, laminates, wall papers etc.

### Speedy Fabrication

SHERA's ease of handling, preparation, workability and installation has ensured the speed of fabrication matches with the speed of thinking.

### Environmental Friendliness

SHERA products are made from natural and recycled cellulose fibers. The product contains NON ASBESTOS rendering it as environmental friendly & harmless product. SHERA Plank's impeccable wood texture brings us close to nature without disturbing the nature.

### Superlative Attribute

SHERA's unique cement based composite material is specially designed for both interior and exterior usage. Its superior performance in terms of high durability, material stability, moisture and fire resistance offers hassle-free quality for lifetime.

inspiration 's component

## Product Port

*Flexy Board / Strip / Lining Board / Accessories*

07

## Framing and fixing

*General / Timber & Steel Frame / Jointing*

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## False Ceiling & False Ceiling with T-Bar

*False Ceiling / False Ceiling with T-Bar*

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## Curved Ceiling

*General, Fixing & Framing / Jointing*

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*Moisture Management / Control Joint / Surface Finishing*

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## Work Instruction

*Tungsten Tipped Score and Snap Knife / Other cutting tools / Hole Forming*

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## Handling and Storage

*Handling and Storage / Technical Data Sheet*

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## Product Feature



Weather Resistance

SHERA products are manufactured to withstand cyclic weather changes. These products have been tested for durability according to EN 12467 : 2000 and ASTM C 1185 standards & confirm stability in testing cycles of freezing - thawing, heating - raining & soaking - drying. They also pass the test for warm water resistance.



Non-Asbestos

SHERA is environmental friendly product, made from eco-friendly non-forestry plantations and recycled fiber and does not contain asbestos which is harmful for human life.



Immune to Water Damage

SHERA's cement based material renders SHERA with an excellent resistance against water damage. SHERA provides an exceptional product for both interior and exterior applications.



Sound Insulation

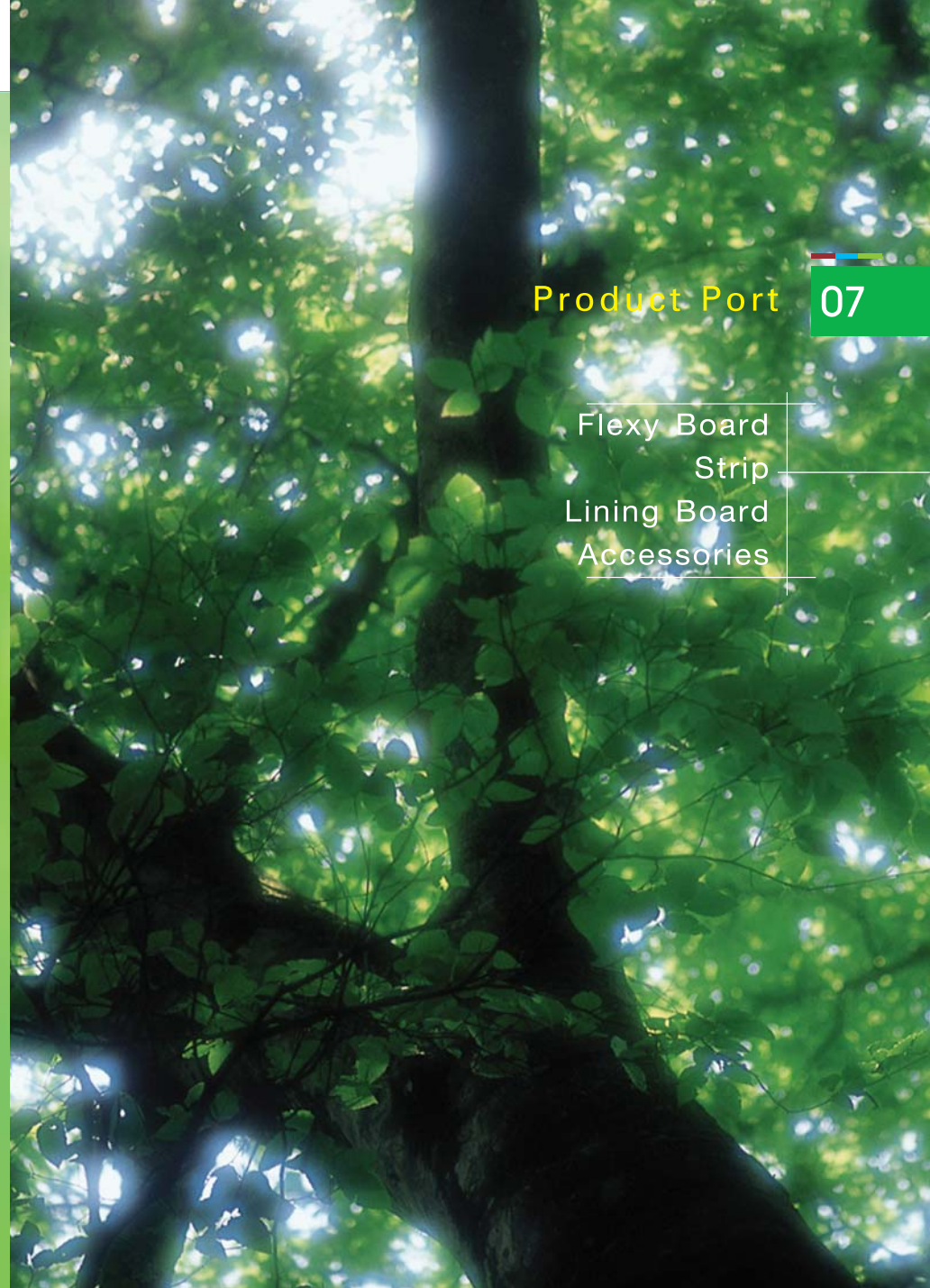
SHERA board has been tested for sound insulation properties according to ASTM E90-99 standard. Optimum STC value obtained by SHERA ensures the satisfactory level of sound prevention in SHERA Board cladded wall & ceiling systems.



Termite Resistance

SHERA products are unaffected by termites and insects.

Flexy Board  
Strip  
Lining Board  
Accessories



# product portfolio



**SHERA**  
flexy board



**SHERA**  
strip



**SHERA**  
strip



**SHERA**  
strip

**profile**

Square-Cut	Square-Cut	Square-Cut	V-Cut
------------	------------	------------	-------

**surface texture**

Unsanded Smooth	Smooth	Teak	Smooth
-----------------	--------	------	--------

**size (mm.)**

4.0 x 1200 x 2400	8.0 x 75 x 3000	8.0 x 50 x 3000	10.0 x 75 x 3000
4.0 x 1220 x 2440	8.0 x 100 x 3000	8.0 x 75 x 3000	10.0 x 100 x 3000
4.5 x 1200 x 2400			
4.5 x 1220 x 2440			
6.0 x 1200 x 2400			
6.0 x 1220 x 2440			
8.0 x 1200 x 2400			
8.0 x 1220 x 2440			



**SHERA**  
lining board

**profile**

Recessed Edge

**surface texture**

Sanded Smooth

**size (mm.)**

6.0 x 1200 x 2400

6.0 x 1220 x 2440



**SHERA**  
**FIX-B**

for fixing SHERA  
with light gauge  
steel frame  
thickness 0.55 –  
1.00 mm.

**finished class**

1

**length (mm.)**

20 / 30

**diameter**

10 G

**package size**

500 pcs./Box



**SHERA**  
**FIX-W**

for fixing SHERA  
with steel frame,  
thickness more  
than 1.00 mm.

**finished class**

1

**length (mm.)**

32 / 40

**diameter**

10 G

**package size**

200 pcs./Box



**SHERA**  
acrylic coating

100% pure acrylic  
emulsion with  
excellent resistance  
against fungus and  
alkali

**package size**

0.946 liter

**coverage**

35-40 sq.m./US.gallon  
(25-30 micron)



**SHERA**  
sealant PU25

Polyurethane joint  
sealant used for  
jointing SHERA  
sheets.

**package size**

310 / 600 ml.



**SHERA**  
barrel gun

15" aluminium barrel  
gun used for applying  
both cartridge and  
sausage types of  
SHERA Sealant PU 25

## Product Feature



Low Shrinkage

SHERA's Autoclave's Technology has enhanced product's dimensional stability. This property makes SHERA products suitable for a wide range of applications including exteriors , underlayment , and etc.



High Workability

SHERA products are easy to handle, easy to work with and easy to install. SHERA requires no special skills or tools other than those used in normal working practice.



Fire Resistance

SHERA products provide excellent fire resistance properties in terms of non-ignition, non-smoke creation, and non-fire propagation. SHERA's fire resistance complies with BS 476 part 5, 6 and 7 standards.



Not Brittle

SHERA offers exceptional property of higher strength with flexibility in comparison with other cladding materials such as ceramic tiles, asbestos cement sheets etc. The flexibility within the standard limit can create contemporary curved structures. SHERA can be easily drilled and nailed by simple tools eliminating time consumption & pre-drill operation.

Framing and fixing

13

General  
Timber & Steel Frame  
Jointing



- SHERA ceiling products can be fixed with either steel or timber frame. Frame and method of framing must comply with relevant building regulations and standards in each country, as well as SHERA Ceiling Installation manual.
- When used in severe weather, class 3 or 4 screw or nail should be used to avoid corrosion and damage. Contact your local fastener producers for more information on these types of fasteners.
- Battens and fasteners spacing for each degree of wind load must be installed according to the following table 1.



Table 1

Maximum Stud &amp; Fastener Spacing for SHERA Ceiling (mm.)

**STANDARD: For non-cyclonic & cyclonic (AS 4055-1992)**

Wind Classification	N1	N2	N3/C1	N4/C2	N5/C3	N6/c4
Permissible Wind Speed (m/s)	28	33	41	50	60	70
Permissible Stress Pressure (Pa.)	500	700	1000	1500	2200	3000

**SHERA Flexy Board - 4 and 4.5 mm.**

Maximum Batten Spacing	400	400	350	300	n/a	n/a
Maximum Fastener Spacing	300	250	200	150	n/a	n/a

**SHERA Flexy Board - 6 mm.**

Maximum Batten Spacing	600	600	600	450	300	300
Maximum Fastener Spacing	300	250	200	150	150	100

**SHERA Flexy Board - 8 mm.**

Maximum Batten Spacing	600	600	600	450	450	300
Maximum Fastener Spacing	300	300	200	200	150	100

**SHERA Strip**

Maximum Batten and Fastener Spacing	400	400	350	350	n/a	n/a
-------------------------------------	-----	-----	-----	-----	-----	-----

**Remarks :** Less than 8 mm. board are not recommended for used in the wet area or external area where board is prone to moisture movement.

- Timber for framing must have the level of properties and durability in accordance with their desired service life.
- Nail should be used when fixing SHERA siding with timber frame. Contact your local nail supplier for more information.
- Nails should not be over or under driven as it will reduce holding strength of the sheet. See figure 1 for recommended application.

- Thickness of steel frame must be more than 0.55 mm. Minimum flange widths at sheet joints must be 38 mm.
- SHERA's screws Fix-B or Fix-W, details in page 10, should be used when fixing with steel frame.
- Screw should not be over or under driven as it will reduce holding strength of the sheet. See figure 2 for recommended application.

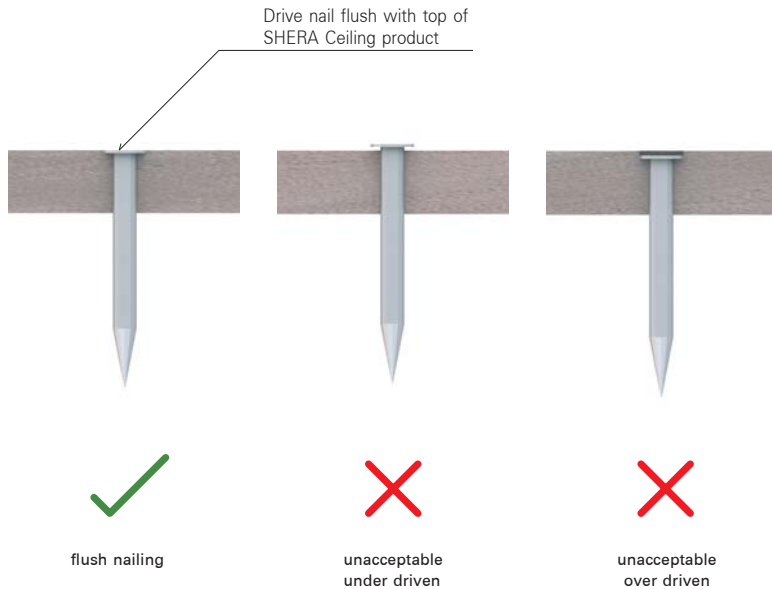


Figure 1 : Nail Fastener

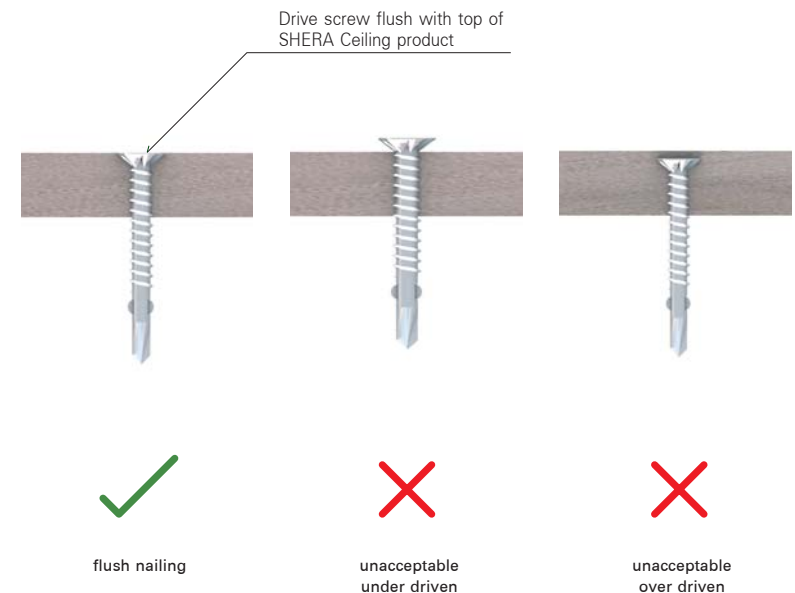


Figure 2 : Screw Fastener

# timber & steel frame jointing

- Minimum stud width at sheet joint is 38 mm.

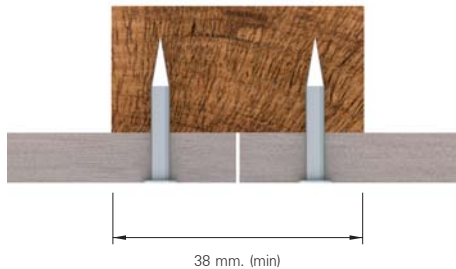
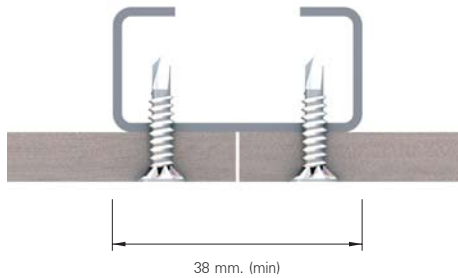


Figure 3 : Fastening at Joint

- When width of stud at the joint is less than minimum requirement (38 mm.), additional stud or steel angle must be attached to ensure that the sheets are adequately supported. See figure 8 and 9 for correct joint details.



Figure 4 : Jointing with two studs



Figure 5 : Jointing with stud and angle

- Butt Joint

Butt joint can be used in dry ceiling area and where an exposed joint appearance is acceptable. See figure 6 for details.

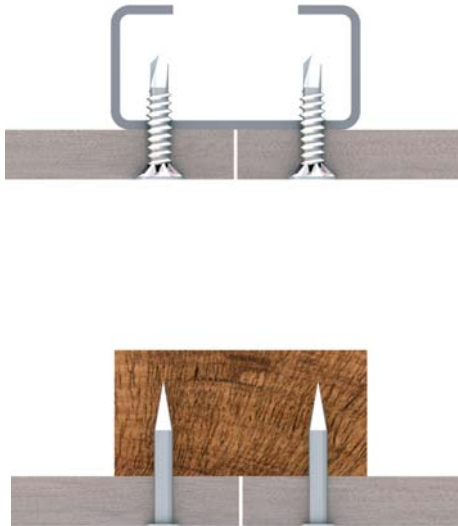


Figure 6 : Butt Joint

- Exposed Joint

When large grid line appearance of sheet is desirable, joints can be treated by leaving a gap of desired width between square-cut sheet edges. The gap can either be painted with color or backed with self adhesive plastic tape to cover framing member.

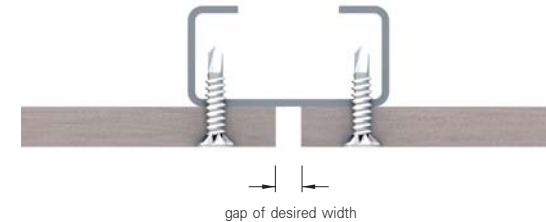


Figure 7 : Exposed Joint

- Polyurethane Joint

In wet or external wall area, polyurethane based sealant such as SHERA PU25 should be used to seal the joint between two sheets. For PU Joint, joint gap between the edges of sheet should not be less than 3 mm. See figure 8 for details.

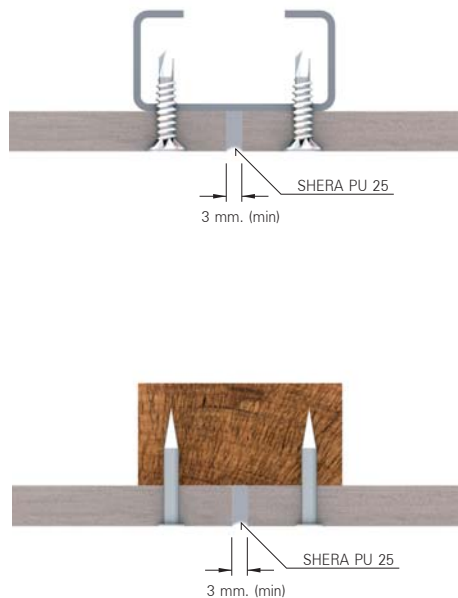


Figure 8 : Polyurethane Joint

- Before putting sealant into the gap between the sheets, cover the edge of sheet with easily removable masking tape. Fill the gap with sealant in an upward motion until it was completed full. Immediately remove the masking tape after complete sealant application. Refer to figure 9 for application method.

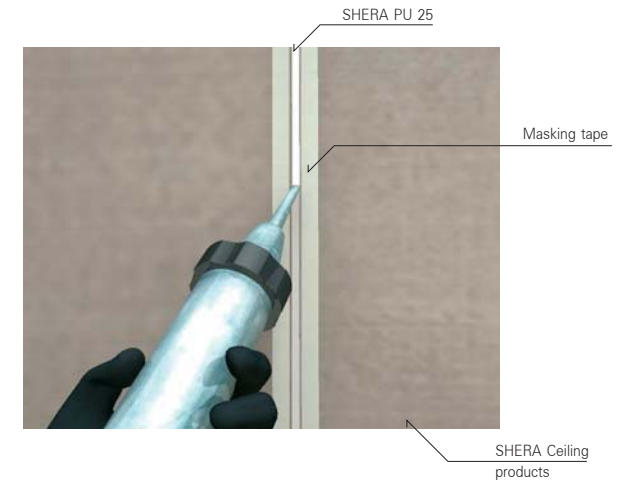


Figure 9 : Polyurethane Sealant Application

- Flush Joint (for recessed edge sheet)

1. First Coat

- 1.1 Fill the recessed area of two boards to the face of sheet by using jointing compound with 150 mm. broad knife.
- 1.2 Embed the perforated reinforcing paper tape or self-adhering fiberglass mesh tape available in the market into the joint using broad knife.
- 1.3 Squeeze out the excess above, below, and to the sides of the tapes. Then apply a thin coat on top to prevent wrinkling.
- 1.4 Allow it to dry before applying a second coat.

2. Second Coat

- 2.1 Scrape off any lumps or bumps of first coat with a taping knife.
- 2.2 Apply second coat at approximately 200 mm. wide. Then level the compound using broad knife with continuous motion from end to end.
- 2.3 Allow it to dry thoroughly as before.

3. Finishing Coat

- 3.1 Scrape off excess compound. Then apply the third coat at approximately 300 mm. wide.
- 3.2 Allow it to dry completely before sanding, which usually took 24 hours.

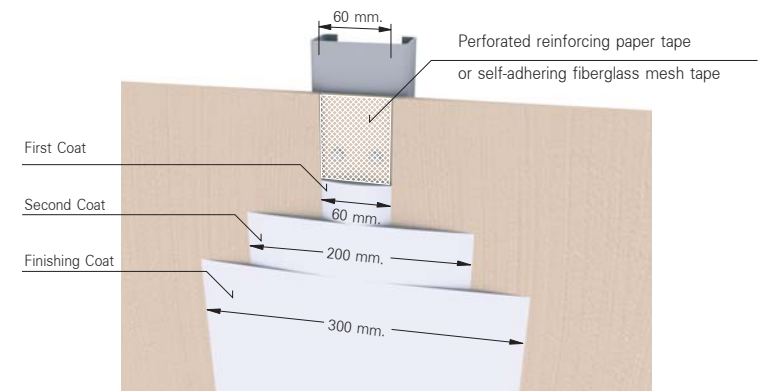


Figure 10 : Flush Joint ( Recessed edge sheet )

# jointing

- Flush Joint (for square - cut edge sheet)

Joint should be treated on the same way as flush joint for recessed edge sheet. However, in order to have smooth and flat finish, each coat must be widened. The first layer should be 200 mm. wide, second coat and finishing coat should be 300 mm. and 500 mm. wide, consecutively. Please refer to figure 11 for illustration.

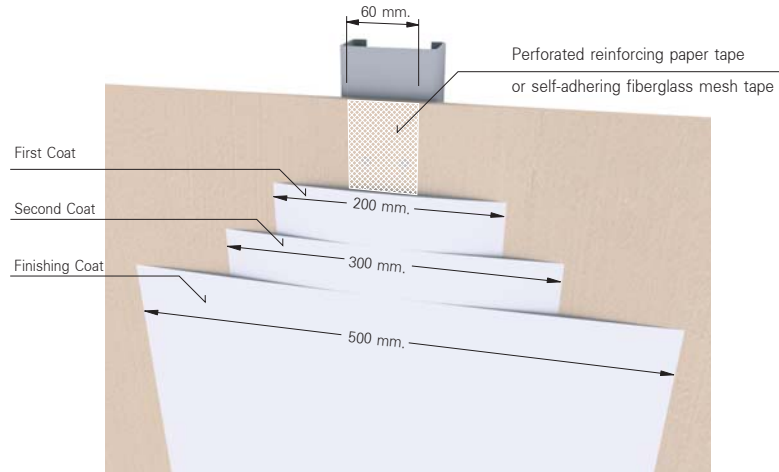


Figure 11 : Flush Joint (Square-cut edge sheet)

False Ceiling & False Ceiling with T-Bar

False Ceiling  
False Ceiling with T-Bar

# e Ceiling with T-Bar

## false ceiling

- General

For general information on framing, fixing, and jointing please refer to page13-28. For other special installation details and work instruction, see page45-56. Control joints may be necessary for this type of ceiling, please refer to details in page 47-49.

- Fixing

- Fasteners must be located at more than 12 mm. from board edges and 50 mm. from board corners. Maximum fastener spacing is 300 mm. and maximum batten spacing is 600 mm. Please also check with table 1 in page 16-17 for exact batten and fastener spacing.

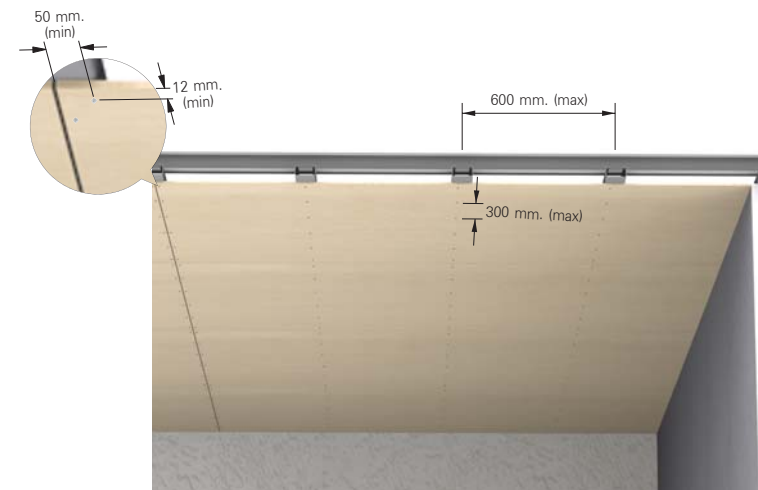


Figure 12 : False ceiling fixing details



# False Ceiling False Ceiling with T-Bar false ceiling

● Sheet Layout

When butted joint is used, all sheet edges must be supported on the framing. Make sure that the batten width are wide enough to support the joint.

● When flush joint is used, sheets must be laid in staggered pattern so that adjacent butted joints are not located on the same framing member. Flush the joints with jointing compound using the method in page 26-28.

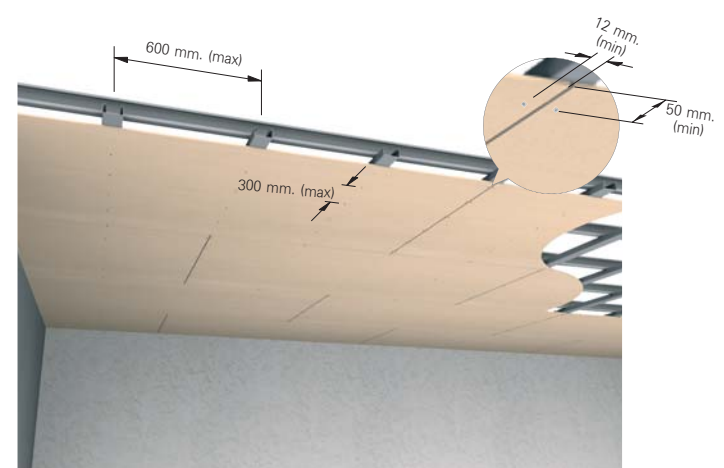
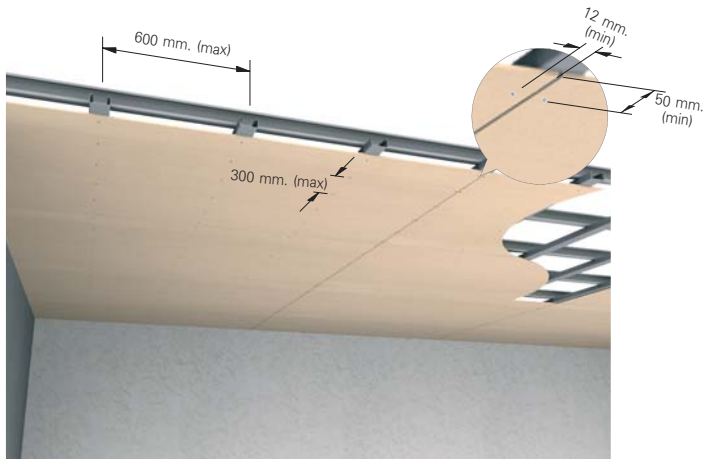


Figure 13 : Sheet layout for false ceiling (butted joint)

Figure 14 : Sheet layout for false ceiling (flush joint)

# false ceiling with T- bar

- General

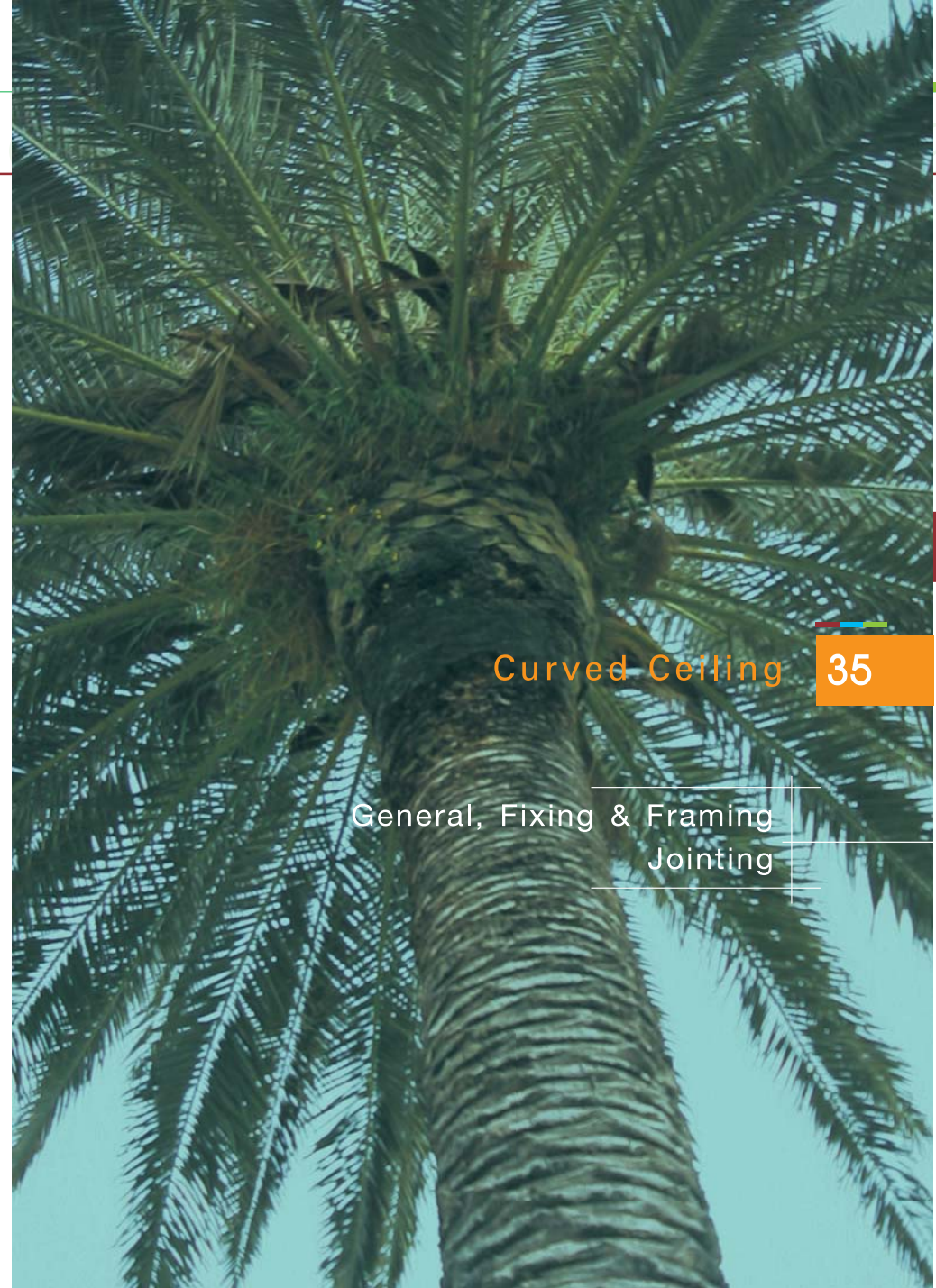
For work instruction please refer to page 51-56. General framing and fixing information in page 13-28 is not applicable for this kind of false ceiling. Please contact your local suspended ceiling system for more information on their fitting system and its wind load resistance

- Fixing

For internal ceiling suspended on aluminum framework, usually only 4 mm. board is recommended. However, if thicker board is needed, please contact your local suspended ceiling system for more details on load bearing capacity of their system.



Figure 15 : False ceiling with T-Bar



# general, fixing & framing

● General

For general information on fixing please refer to page 13-28. Minimum bending radius for each thickness of SHERA sheet are shown in the table 2. For other special installation details and work instruction, see page 45-56

**Table 2** Curve ceiling minimum bending radius (mm.)

Horizontal Sheet Fixing	
4 mm. Board	1,200
6 mm. Board	1,800
8 mm. Board / Strip	3,000
Vertical Sheet Fixing	
4 mm. Board	1,800
6 mm. Board	2,400
8 mm. Board / Strip	4,000

● Framing

Both timber and steel stud can be used for curve ceiling framing. In order to maintain smoothness of the curve, maximum recommended studs and fasteners spacing are shown in table 3

**Table 3** Curve ceiling studs and fasteners spacing (mm.)

Bending Radius	1,200-1,800	Above 1,800	Above 3,000
Stud Spacing	200	300	400
Fastener Spacing	200	200	200



# jointing

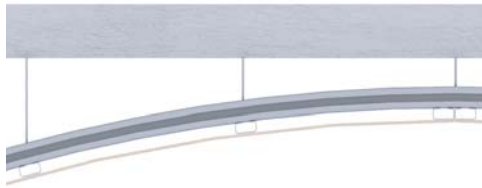


Figure 16 : Curve Ceiling with SHERA (1)

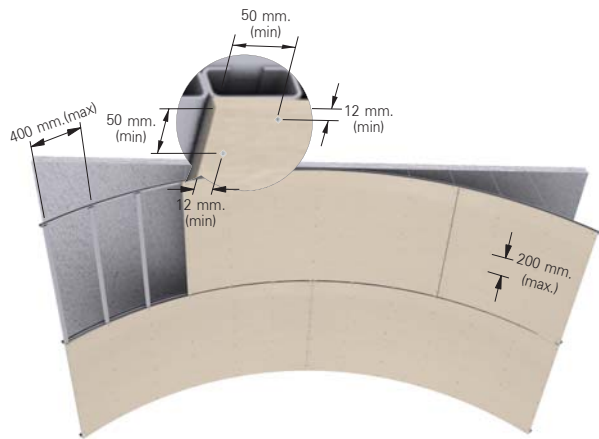
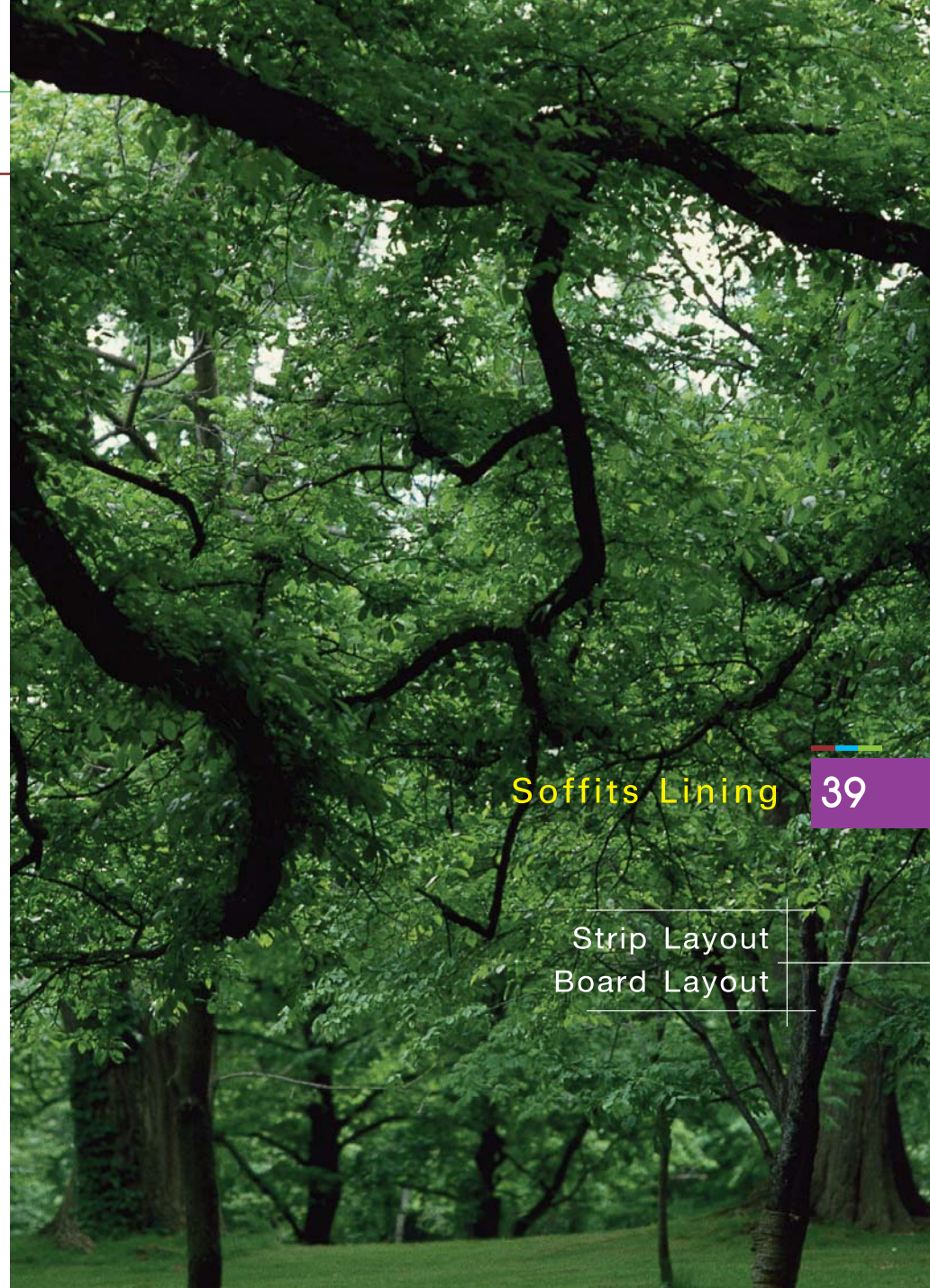


Figure 17 : Curve Ceiling with SHERA (2)



Soffits Lining

Strip Layout  
Board Layout

# general & strip layout

- General

For general information on framing, fixing, and jointing please refer to page 13-28 For other special installation details and work instruction, see page 45-56.

- Fixing

Fasteners must locate at more than 12 mm. from strip edges and 20 mm. from strip corners. Strip should be fixed to the batten with one fastener at every batten along the length of the strip. Maximum fastener and batten spacing is 400 mm. Please also check with table 1 in page 16-17 for exact batten and fastener spacing.

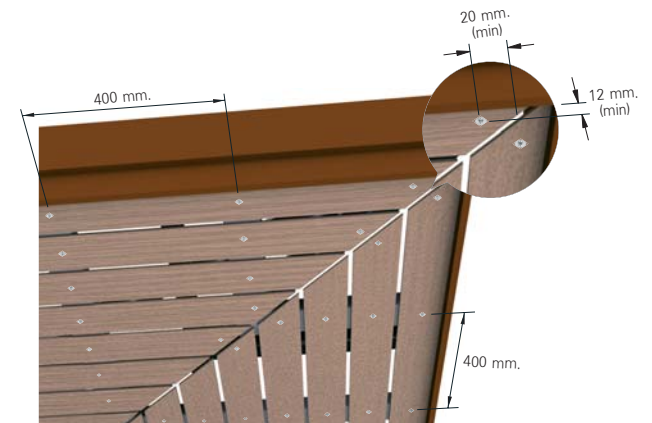


Figure 18 : Strip fixing detail

# strip layout

# board layout

● Strip Layout

Please refer to figure 19-20 for details relevant to strip lining fixed to battens on the underside of roof

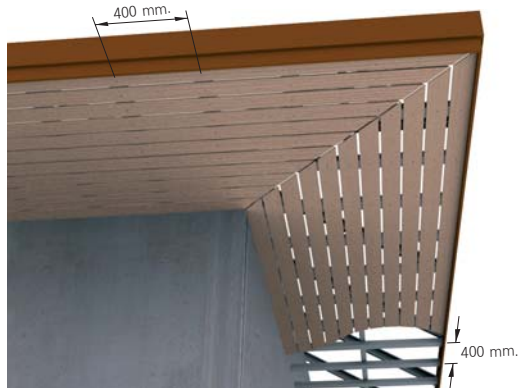


Figure 19 : Strip Layout for soffit Lining (1)

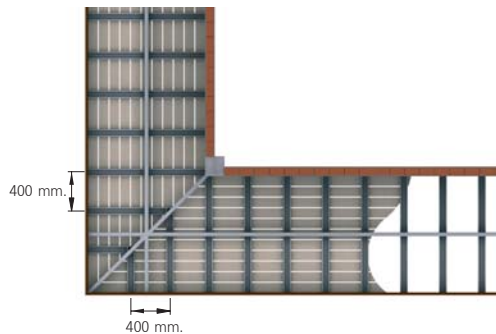


Figure 20 : Strip Layout for soffit Lining (2)

● General

For general information on framing, fixing, and jointing please refer to page 13-28 For other special installation details and work instruction, see page 45-56.

● Fixing

Fasteners must locate at more than 12 mm. from board edges and 50 mm. from board corners. Maximum fastener spacing is 300 mm. and maximum batten spacing is 600 mm. Please also check with table 1 in page 16-17 for exact batten and fastener spacing.

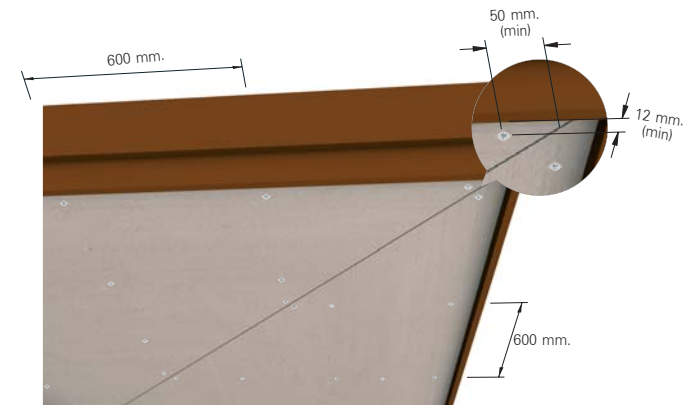


Figure 21 : Board fixing details

# board layout

## ● Board Layout

Please refer to figure 22-23 for details relevant to board lining fixed to battens on the underside of roof



Figure 22 : Board layout for soffit Lining (1)

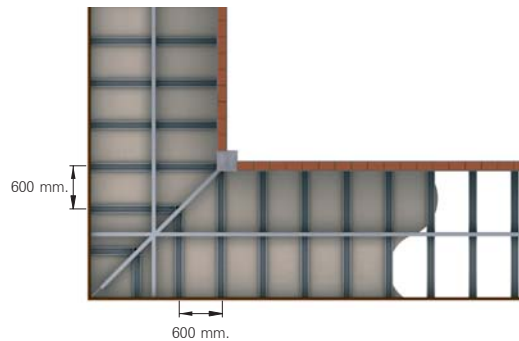


Figure 23 : Board layout for soffit Lining (2)

Moisture Management  
Control Joint  
Surface Finishing

Special Installation Details

- Moisture Management

For ceiling in high moisture area, SHERA should be primed with a color coat on all side of surfaces before installing SHERA in place

- Control Joint

Structural movement between the sheets and building frame must be treated by providing control joint. Gap between the edges of sheets at control joint should not be less than 6 mm. and control joint must be supported by double studs only.

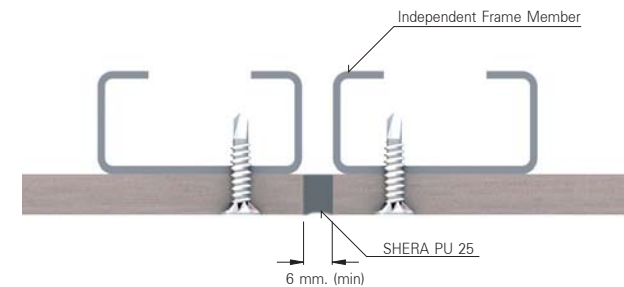


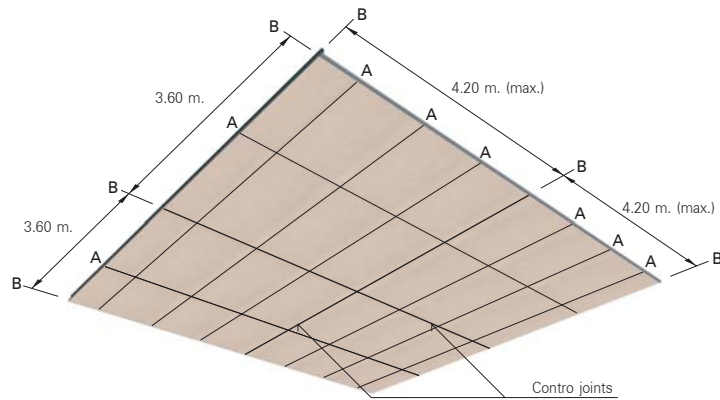
Figure 24 : Control Joint details



# Special Installation Details

## control joint

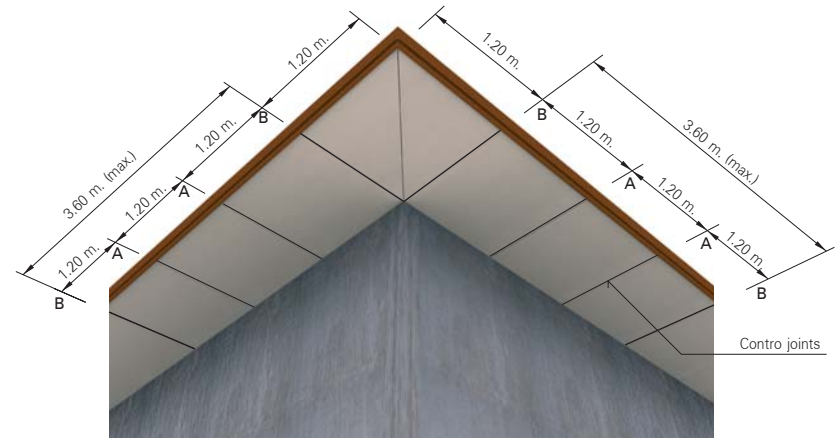
- Maximum spacing for a control joint is 4.2 m. for internal ceiling. Please refer to figure 24 for details.



A : set joint  
B : Control joint

Figure 25 : Control joint for internal Ceiling

- For soffits installed directly under roof area, maximum spacing for a control joint must be reduced to 3.6 m. for insulated roof, and 2.4 m. for uninsulated roof.

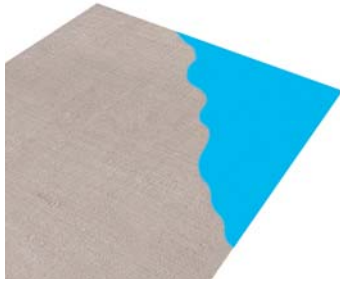


A : set joint  
B : Control joint

Figure 26 : Control joint for soffit lining

# surface finishing

- SHERA ceiling collection can be furnished with water based acrylic paint. Please contact your paint manufacturers for more details about application recommendation.



Painted

Figure 27 : Surface Finishing

Tungsten Tipped Score and Snap Knife  
Other cutting tools  
Hole Forming

## tungsten tipped score and snap knife

- General

SHERA sheets can be easily cut and prepared on site by using proper tools and methods.

- Tungsten Tipped Score and Snap Knife

Score surface of sheet against straight edge for approximately 4 - 5 times to obtain the depth around 1/3 of sheet thickness. Support the scored edge with straight edge and snap the sheet upward to break.



Figure 28 : Score and Snap Cut

● Hand Saw



Figure 29 : Hand Saw

● Power Saw

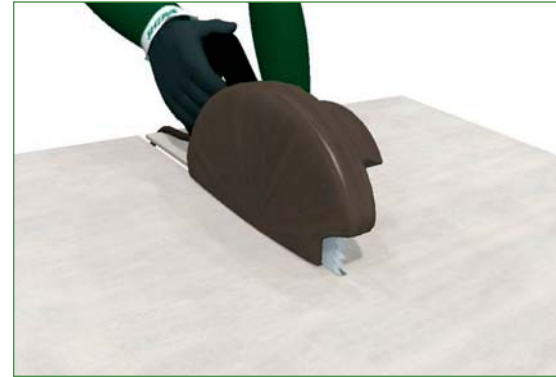


Figure 31 : Power Saw

● Hand Guillotine



Figure 30 : Hand Guillotine

● Fiber Cut



Figure 32 : Fiber Cut

# hole forming

- Pre-drill series of small hole around the perimeter of the hole, then use the hammer to tap out the circle piece from the sheet.
- For a large hole opening, open small hole around the center and then saw-cut from that hole towards corners of the opening. Score and snap away the rest of desired opening area.

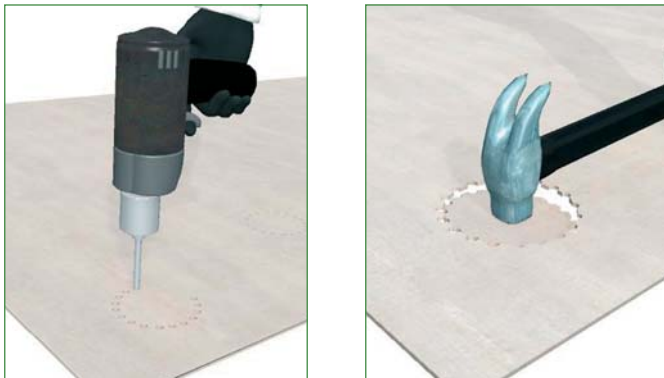


Figure 33 : Small Hole Forming

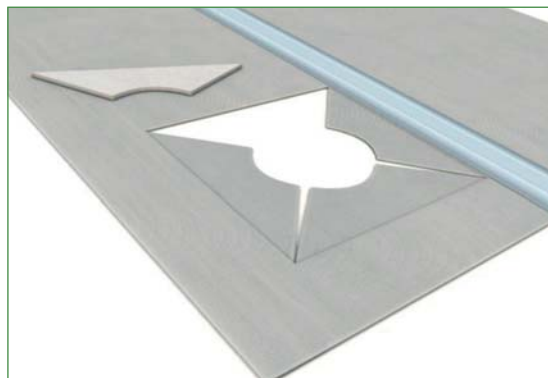
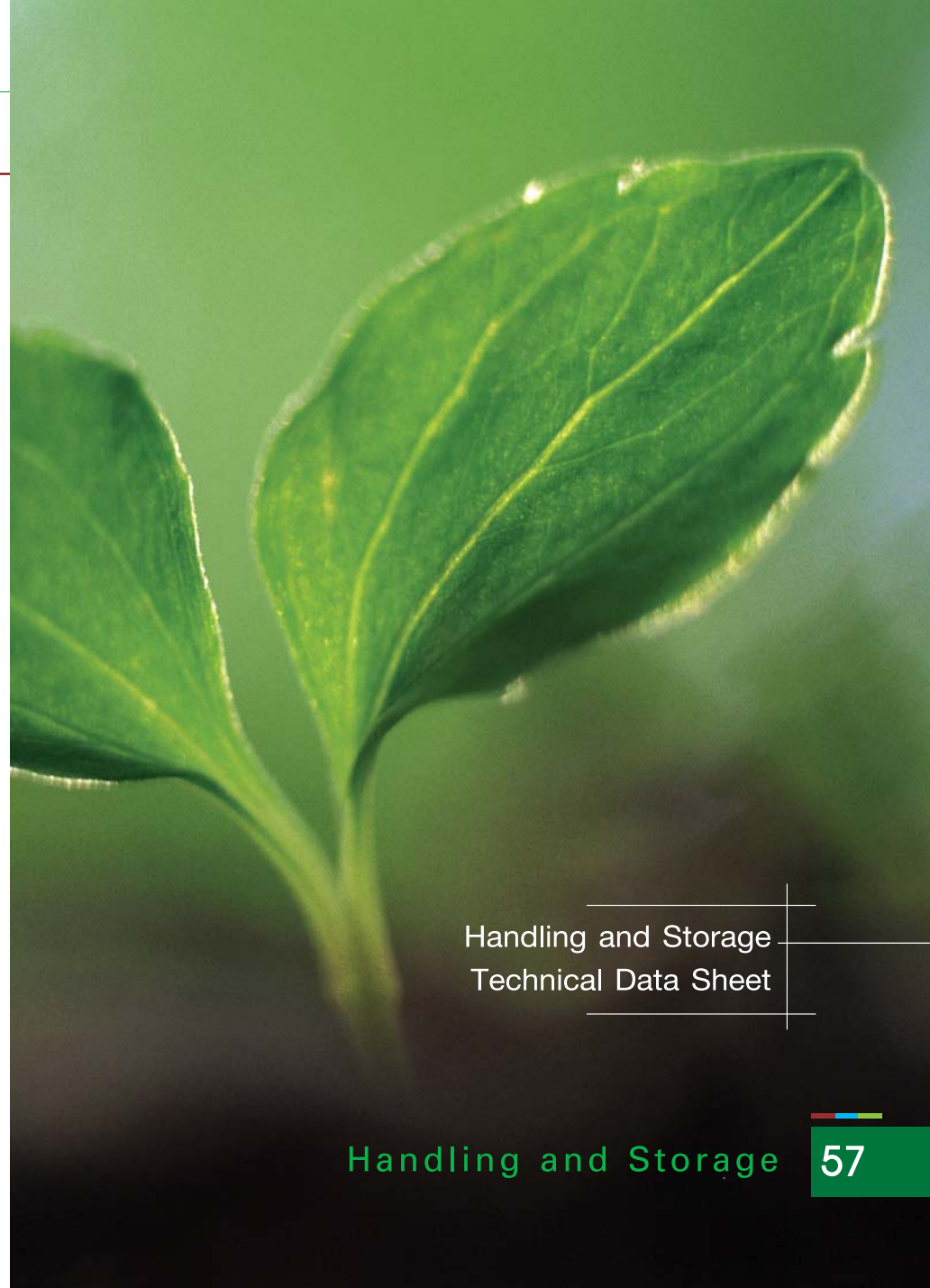


Figure 34 : Large Hole Forming



Handling and Storage  
Technical Data Sheet

- SHERA products should be handled at both ends, at around 50 cm. from the ends. They should always be lifted by letting the width of products perpendicular to the floor.



Figure 35 : Board Handling

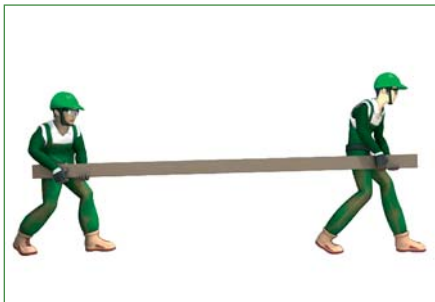


Figure 36 : Plank Handling

- SHERA should be handled and stacked carefully to avoid damages to the edges and corners. The maximum height of stack should not be higher than 1 meter and it should be supported by timber bearers at 50 cm. spacing.
- SHERA should be stacked on dry and leveled ground. It is always recommended to store SHERA under cover in order to ensure that they will be in equilibrium moisture content condition prior to fixing and finishing. Installing SHERA when they are in wet or saturated condition may result in shrinkage or crack at joint or fitting

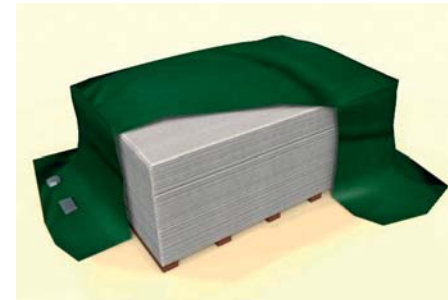


Figure 37 : Board Storage

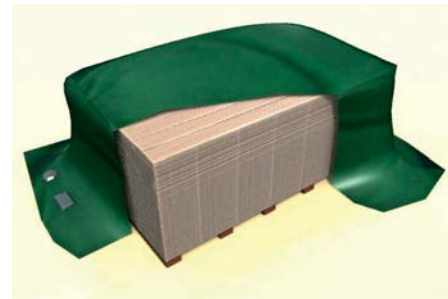


Figure 38 : Plank Storage

Table 4

Technical Data Sheet

	Standard	Unit	SHERA Strip	SHERA Flexy Board	SHERA Lining Board
<b>Physical Information</b>					
Thickness Tolerance		mm.	±0.5	±0.3	±0.2
Density	ASTM C 1185	kg. / m. <sup>3</sup>	1300 ± 50	1300 ± 50	1300 ± 50
MOR	ASTM C 1185	MPa	> 13.00 (WET)	> 7.00 (WET)	> 7.00 (WET)
MOE	ASTM C 1185	MPa		5500 ± 500 (WET)	5500 ± 500 (WET)
Water Absorbtion	ASTM C 1185	%	≤ 30 %	≤ 35 %	≤ 35 %
Moisture Content	ASTM C 1185	%	≤ 12 %	≤ 12 %	≤ 12 %
Water Tightness	ASTM C 1185		Pass	Pass	Pass
PH Value			7 - 8	7 - 8	7 - 8
Thermal Conductivity	ASTM C 177	W/m. <sup>°k</sup>		0.150	0.150
Acoustic Insulation	ASTM E 80	dB		STC = 28 dB (6 mm.)	STC = 28 dB (6 mm.)
		dB		STC = 30 dB (12 mm.)	STC = 30 dB (12 mm.)
<b>Fire Resistance Properties</b>					
Ignitibility	BS 476 Part 5		P	P	P
Fire Propagation Index	BS 476 Part 6		I = 0	I = 0	I = 0
Surface Spread of Flame	BS 476 Part 7		Class 1	Class 1	Class 1
<b>Durability Properties</b>					
Freeze / Thaw Resistance	ASTM C 1185		Pass	Pass	Pass
Warm Water Resistance	ASTM C 1185		Pass	Pass	Pass
Heat / Rain Resistance	ASTM C 1185		Pass	Pass	Pass
Soak / Dry Resistance	ISO : 8336 Part (E)		Pass	Pass	Pass



**SHERA** MAHAPHANT GROUP

## Green Spirit

Our R&D team's dedicated work on the quest of New GREEN Products from GREEN Technology for GREEN Living has resulted into unprecedented & fabulous range of environmental friendly products. We, MAHAPHANT Group, are proud to present SHERA as a demonstration of human respect for nature.

**SHERA** Product Collection, articulated from green concept, is offered from insightful understanding about our consumer requirement.

**SHERA** offers the best substitution to natural wood with a contemporary range of green products suitable for all modern & classical constructions.

**SHERA's** embedded beauty with added resistance against fire, termite, and moisture makes it an apt material for various applications in flooring, siding, ceiling and roofing.

## Green Fiber-Cement Product & Technology for Green Living

### Green Products

- Non asbestos products.
- Water based (Oil-free) color.
- Use recycled fibres as raw material.
- Farm shrubs (non-forest) used as raw material

### Green Technology

- Reduce production energy consumption.
- Reduce production Waste.
- Use recycled energy in production.

### Green Living

- Reduce waste from construction.
- Promote clean & speedy construction.
- Energy saving residence.
- Non-toxic material.
- Substitute to wood- saves nature.



**SHERA** NON  
ASBESTOS  
[www.mahaphant.com](http://www.mahaphant.com)



**THE THAI OLYMPIC FIBRE - CEMENT CO.,LTD.**

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