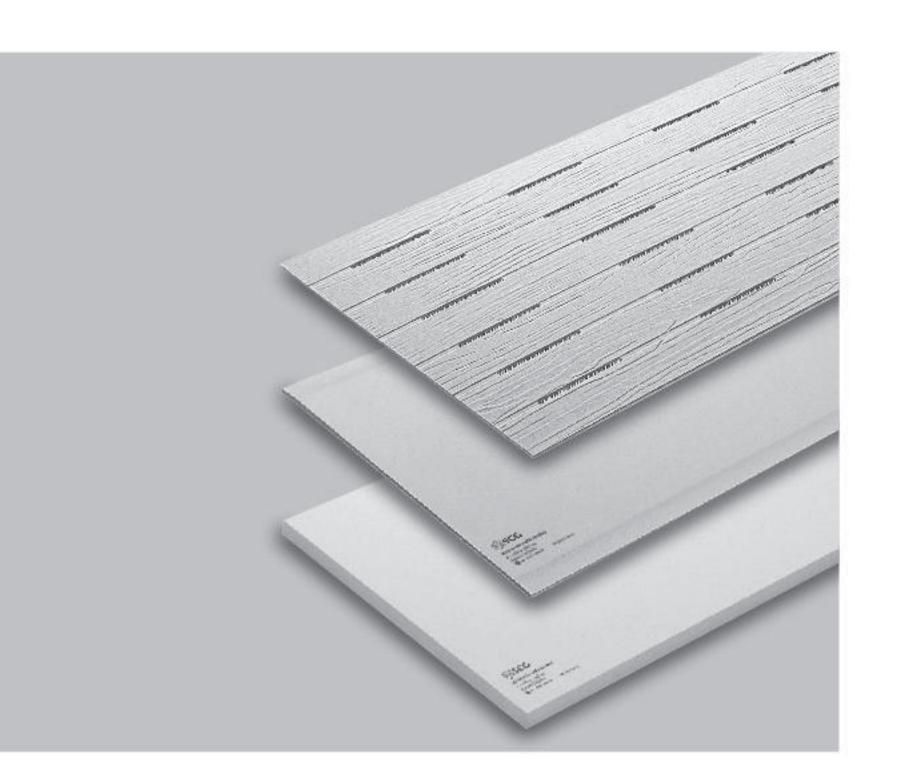
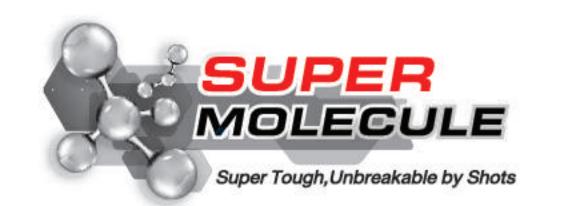


# Installation Manual SCG Smartboard - Ceiling, Wall and Floor



# Fiber Cement Board

















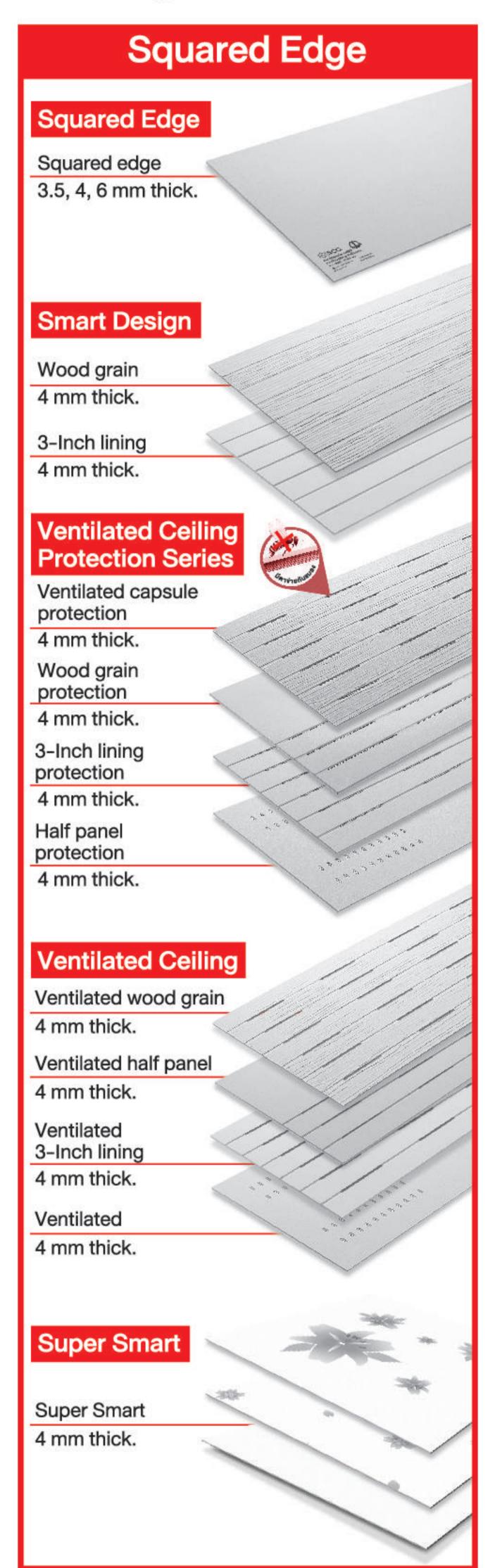






# SCG Smartboard - Ceiling, Wall and Floor

SCG Smartboard, fiber cement board is asbestos-free, tough and durable with a special structure made from FIRM &FLEX technology, which combines the structure of SCG Portland cement with silica and a special type of cellulose fiber along with a high-temperature and high-pressure autoclaving process. Therefore, you can have confidence in the quality standards of SCG Smartboard, which can be used for ceilings, walls, floors or backer boards for various coverings, for both indoors and outdoors.





| SCG Decorative                                       | e Materials |
|--|-------------|
| Grooved Board  |             |
| 4-Inch lining  |             |
| 8-mm thick.  |             |
| Rustic Board   |             |
| 3-Inch lining,<br>wood grain                         |             |
| 6.8 mm thick. *6 mm boards are only for decorations. |             |
|  |             |

| SCG Smartboa                             | rd Floor |
|--|----------|
| Squared Edge                             |          |
| Squared edge<br>15, 16, 18, 20 mm thick. | 100 mm   |

| Special Properties of SCG Smartboard |   |   |  |  |  |
|--------------------------------------|---|---|--|--|--|
|                                      | Strong, high impact resistance.             | Superior with special ingredients to ensure strength and toughness without brittleness.   |  |  |  |
| FIRM                                 | Resistant to water and sunlight.            | No bulging or decay (in compliance with AS/NZS 2908.2)  |  |  |  |
|                                      | Durable, termite-proof.                     | The material does not serve as a food source for termites.  |  |  |  |
| Tough, yet highly flexible.          |   | Highly flexible due to special molecular structure technology that makes them bendable without requiring any water to be applied. Curve radiuses differ according to thickness as  Radius=1.2 m  Radius=1.8 m  Radius=3 m  Curve radius (R):1.8 m  Curve radius (R):3 m   |  |  |  |
|                                      | Easy for area modifications and extensions. | SCG Smartboard can be used to partition any room as desired. Because they are 6 times lighter than brick walls, they do not require beam support.  • Plastered brick wall : Approximate weight : 180 kg/m²  • SCG Smartboard (with frame) : Approximate weight : 30 kg/m² |  |  |  |
|                                      | Reduces heat for a cooler home.             | The SCG Smartboard material has half as much heat conductivity as flat tiles (pursuant to ASTM C 518 standard), thus reducing heat from the attic from entering the home to keep the home cool and cut electricity cost.  |  |  |  |

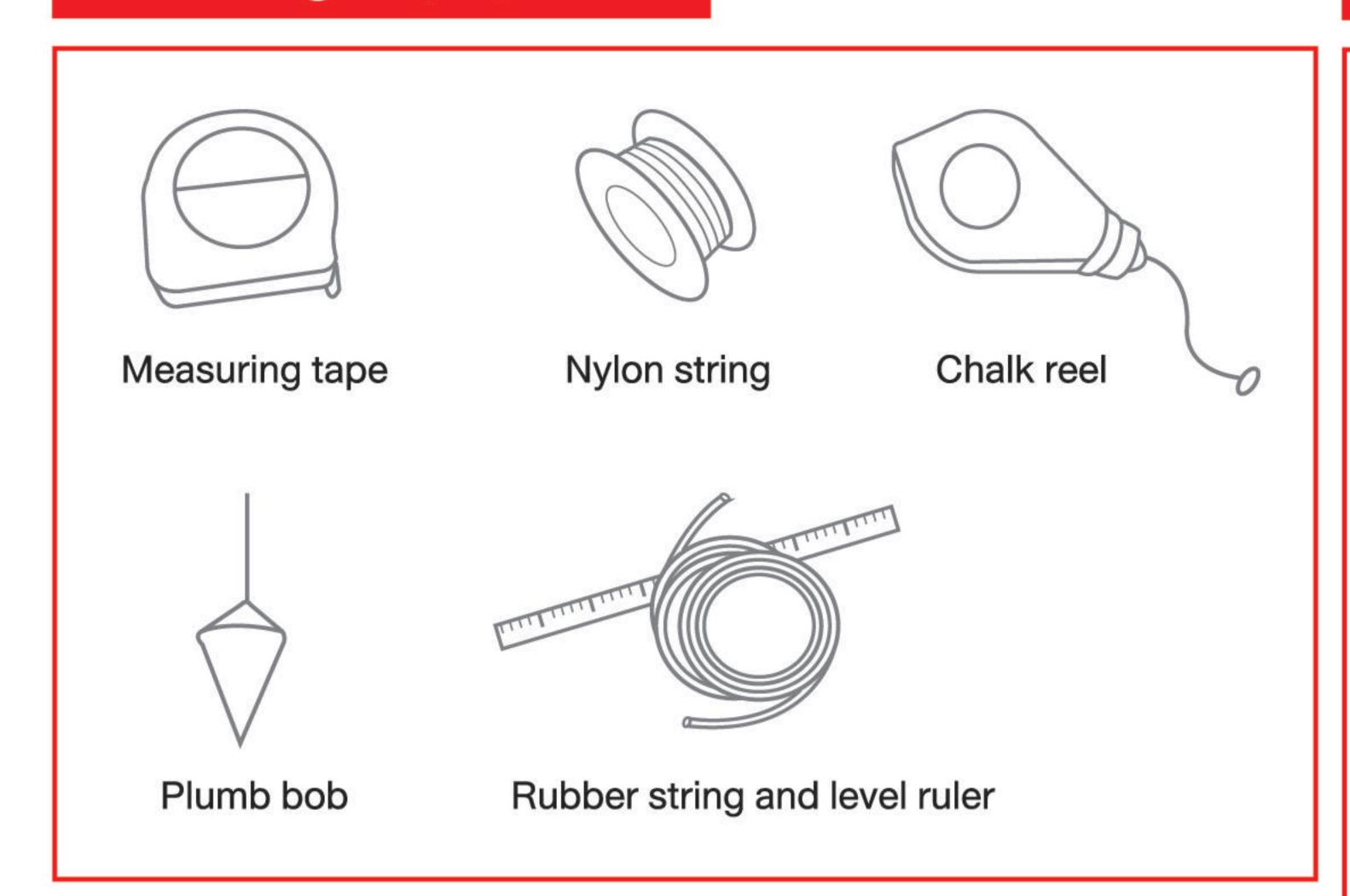
| Usage   | SCG Smartboard Usage Area   | Recommended<br>Thickness   | Recommended Product   | Surface                                      | Installation                           |  |
|---|---|----------------------------|---|--|--|--|
|   |   | 3.5-6 mm                   | SCG Smartboard square edge  | Smooth                                       |  |  |
| Indoor Ceiling  | Rooms that need to be termite-proof   | 4 mm                       | SCG Smartboard wood grain   | Wood grain with 3-inch lining                | T-Bar, Spaced lining, Concealed        |  |
| (Internal   | while having effective resistance to water and moisture such as bathrooms,  | 7 111111                   | SCG Smartboard 3" lining  | Smooth with 3-inch lining                    | ili ili ig, concealed                  |  |
| Ceiling)  | kitchens, storage rooms, etc.   | 6 mm                       | SCG Smartboard Rustic Board   | Wood splinter with<br>3-inch lining          | Spaced lining<br>Concealed             |  |
|   |   | 3.5-6 mm                   | SCG Smartboard square edge  | Smooth                                       |  |  |
|   |   |                            | SCG Smartboard Ventilation/<br>Capsule Protection                       | Perforated and smooth                        |  |  |
| Eaves Ceiling<br>Balcony Ceiling  | Areas regularly exposed to sun and rain:  |                            | SCG Smartboard Ventilated<br>Wood grain / Wood grain protection         | Perforated with wood grain and 3-inch lining | Spaced lining,                         |  |
| (External Ceiling)  | Eaves of homes/buildings.     Balconies of homes/buildings.   | 4 mm                       | SCG Smartboard Ventilated 3" lining / 3" lining protection              | Perforated with smooth and<br>3-inch lining  | Concealed                              |  |
|   | 3. Ceilings of garages, pavilions).   |                            | SCG Smartboard Ventilated Extra long half panel / Half panel protection | Half panel perforated and<br>3-inch lining   |  |  |
|   |   | 4 mm                       | SCG Smartboard wood grain   | Wood grain with 3-inch lining                |  |  |
|   |   | 4 111111                   | SCG Smartboard 3" lining  | Smooth with 3-inch lining                    |  |  |
|   |   | 6 mm                       | SCG Smartboard Rustic Board   | Wood splinter with 3-inch lining             |  |  |
| Light Weight Indoor Wall (Light Weight Walls)  (Light Weight Weight Wall)  Areas that need light-weight walls without beams instead of plastered brick walls:  - Strong with high impact resistance.  - Easy for partitioning rooms and | 8-12 mm   | SCG Smartboard square edge | Smooth  | Spaced lining                                |  |  |
|   | brick walls:  | 8 mm                       | SCG Smartboard 2-sided tapered edge                                     | Smooth                                       | Smooth-plastere                        |  |
| 820   | dividing areas Fast and convenient.   |                            | SCG Smartboard Groove board   | Smooth with 4-inch lining                    | Spaced lining                          |  |
|   | - Termite-proof.  | 9 CHI                      | SCG Smartboard Rustic Board   | Wood splinter with 3-inch lining             |  |  |
| Decorative  | Install on existing walls for decoration  | 8 mm                       | SCG Smartboard Groove board   | Smooth with 4-inch lining                    | Spaced lining                          |  |
| Wall  | with attractive patterns.   | 6, 8 mm                    | SCG Smartboard Rustic Board   | Wood splinter with 3-inch lining             |  |  |
| Outdoor Wall<br>(External Wall)   | Install as actual walls that are resistant to prolonged exposure to sun and rain instead of plastered brick walls due to                                    | 8-16 mm                    | SCG Smartboard square edge  | Smooth                                       | Spaced lining equal to board thickness |  |
|   | requiring fast work with reduced labor and expenses.  | 8 mm                       | SCG Smartboard Groove board   | Smooth with 4-inch lining                    | Spaced lining                          |  |
|   | and expended.   | 0 111111                   | SCG Smartboard Rustic Board   | Wood splinter with 3-inch lining             | Spaced lining                          |  |
| Backer Board<br>for Ceramic<br>Surface  | Areas where strong, moisture-resistant and termite-proof SCG Smartboard are desired to function as backer boards to support ceramic coverings.              | 8-20 mm                    | SCG Smartboard square edge  | Smooth                                       | Spaced lining                          |  |
| Floor<br>Underlay   | Floors or walls inside buildings that require underlying materials for parquet, laminates, actual wood with fast work speed and reduced labor and expenses. | 8-12 mm                    | SCG Smartboard square edge  | Smooth                                       | 10 mm.<br>Spaced lining                |  |
| Floor   | Indoor and outdoor building floors not directly and constantly exposed to water such as house/building floors.  | 15-20 mm                   | SCG Smartboard square edge  | Smooth                                       | Concealed                              |  |

# **Table of Contents**

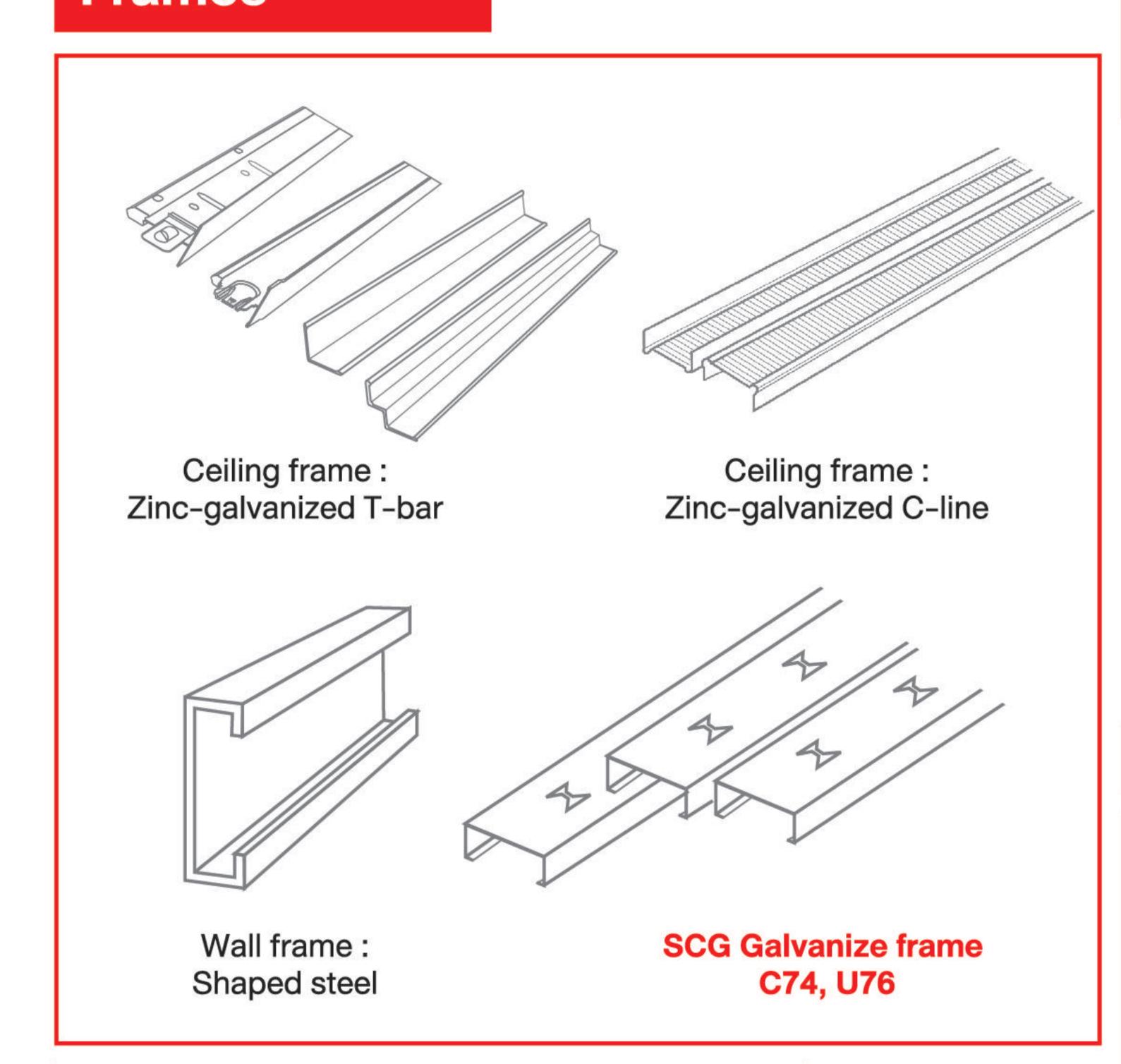
|   | Tools  | 1  |    |
|---|--------|--|----|
|   | How t  | o Cut and Drill SCG Smartboard               | 3  |
| 1 | Ceilin | g Installation                               | 4  |
|   | 1.1    | Spaced Lining Outdoor Ceiling Installation   | 4  |
|   | 1.2    | Spaced Lining Indoor Ceiling Installation    | 5  |
|   | 1.3    | T-Bar Ceiling Installation                   | 6  |
|   | 1.4    | Curved Ceiling Installation                  | 7  |
| 2 | Wall I | nstallation                                  | 8  |
|   | 2.1    | Spaced Lining Outdoor Wall Installation      | 8  |
|   | 2.2    | Spaced Lining Indoor Wall Installation       | 10 |
|   | 2.3    | Concealed Indoor Wall Installation           | 12 |
|   | 2.4    | Curved Wall Board Installation               | 13 |
|   | 2.5    | Board-on-Concrete Installation               | 13 |
| 3 | Floor  | Installation                                 | 14 |
| 4 | Floor  | Underlay Installation                        | 16 |
| 5 | Hangi  | ng Device Installation and Repair Techniques | 17 |
|   | 5.1    | Hanging Device Installation                  | 17 |
|   | 5.2    | SCG Smartboard Repair Techniques             | 18 |
| 6 | SCG S  | Smartboard Backer Board for Ceramic          | 19 |

# Tools and Equipment for Installing SCG Smartboard

# Leveling Equipment



## Frames



# Drilling, Cutting and Hammering Equipment



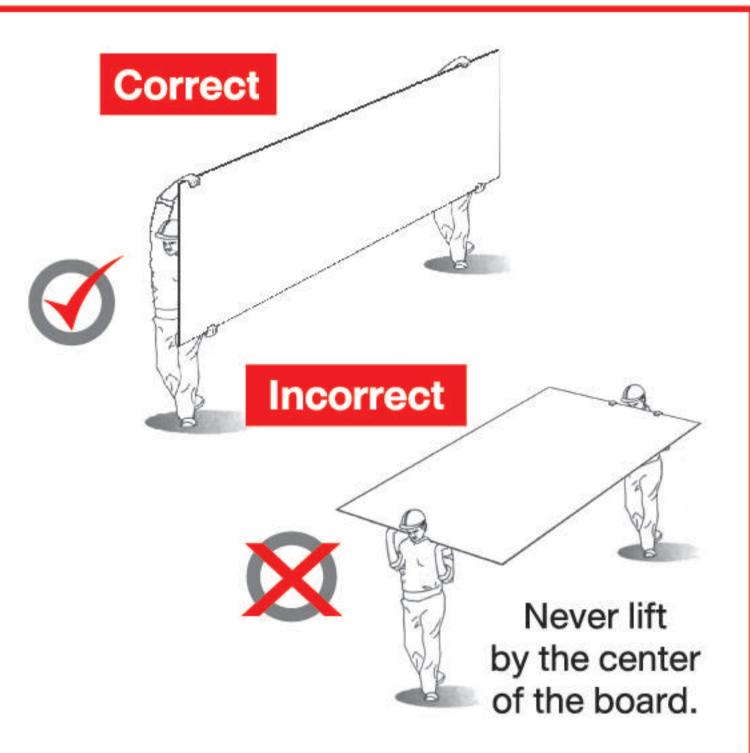
# Joint-sealing and Finishing Materials and Equipment



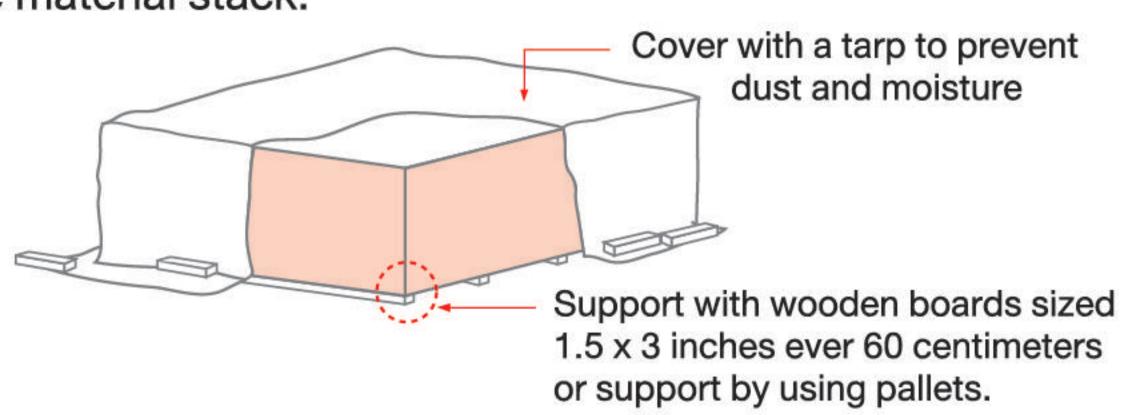
## Personal Protective Equipment



- Lift or move products with caution and avoid working for a prolonged period of time in order to prevent injuries and fatigue
- For every lifting, bend down, get a firm grip and then lift by using the strength of the legs. You should have a grip that extends at least 30 centimeters from the edge of the SCG Smartboard.



 Store in a shaded, flat and dry area by using pallets or wooden boards 1.5 x 3 inches wide placed about 60 centimeters apart to support the bottom of the material stack.



# Tools and Equipment for Installing SCG Smartboard

#### SCG Needle point screw 10 mm

- Use to attach SCG Smartboard galvanized frames C74 with U76 or to attach SCG Smartboard galvanized frames C74 with C74 to create frames at door and window sills.
- Easy to install. They can be drilled to firmly attach to two or three layers of steel frames with a thickness of 0.55 mm.
- They are rust resistant because they are made from high-quality steel wire and can be used both indoors and outdoors.
- Packing size : 500 pieces/box



#### SCG Needle point screw 23 mm

- Specifically designed for their use to ensure safe, durable and attractive fiber cement work.
- Longer rust protection due to being made from high-quality steel wires and effective for both indoor and outdoor use.
- Designed with screw head fins to ensure automatic embedding of screw heads for a smooth and attractive work surface.
- Packing size : 500 pieces/box



#### SCG Needle point screw 38 mm

- Use to attach SCG wooden lathes or moldings or to attach SCG Smartboard with zinc - galvanized steel frames No. 24.
- Use with wall boards and lathes or attaching with zinc-galvanized steel frames No. 24 with 0.55 - mm. thickness. Pilot-drilling is not necessary.
- Packing size: 250 pieces/box



#### SCG Plastic anchor 37 mm

- Use to attach SCG brackets to brick walls alongside SCG Needle point screw 38 mm.
- Use to attach SCG moldings to brick walls alongside SCG Needle point screw 38 mm.
- Packing size: 250 pieces/box

#### SCG Self drilling screw 18 mm

- Made specifically for attaching fiber cement ceiling boards. They were designed to have the screw heads embed and lock with boards automatically, causing the heads to be concealed and for the work surface to be smooth and attractive.
- Special self drilling design makes it unnecessary to drill pilot holes while making
  it easy to work and fast to drill steel. Moreover, the wings can gouge boards to
  ensure that screw heads are attractively embedded within the boards.
  The wings break off automatically after drilling
  through steel frames.
- Prolonged rust resistance due to being made from high-quality steel wires with a coating up to 25 microns thick. They can be used both indoors and outdoors, can support weight well and are durable.
- Packing size: 500 pieces/box

#### SCG Self drilling wing screw 32 mm

- Specifically designed for their use to ensure safe, durable and attractive fiber cement work.
- Longer rust protection due to being made from high-quality steel wires and effective for both indoor and outdoor use.
- Special self drilling design makes it unnecessary to drill pilot holes while
  making it easy to work and fast to drill steel.
  The wings can gouge boards to ensure that
  screw heads are attractively embedded within
  the boards. The wings break off automatically
  after drilling through steel frames.
- Packing size: 500 pieces/box



#### **SCG Smart joint polymer**

- For use to plaster fiber cement wall joints or tapered SCG Smartboard.
- The cement is made from a special formula that contains polymer compounds that make the cement texture fine and easy to mix for smooth plastering without shrinking or cracking because of its high bonding capacity.
- Save cost and time by not having to use a primer solution before plastering.
- For indoor walls only.
- Packing size : 20 kg./bag
- 1 bag contains 5 small bags.



#### SCG Galvanize frame C74, U76

- Thick, robust, safe steel manufactured in compliance with TIS-863-2532 with 0.55-mm total thickness.
- Cost-saving with wide structural surface at 45, 47 mm, making it unnecessary to reinforce SCG Smartboard joints while saving time and labor cost in installation. It is robust and rust-proof.
- Hot-dip galvanized steel Z22 coating. The especially thick anti-rust coating makes it very difficult for rust to occur. Therefore, it is suitable for the highly humid environment of Thailand.



#### SCG Polyurethane sealant

- Polyurethane sealant material that is easy for use and has good bonding on SCG Smartboard surfaces and standard construction materials such a fiber cement, concrete, stone, bricks, roof tiles, ceramic tiles, aluminum, wood and glass.
- Use the sealant to effectively prevent leaks.
   It can be used indoors and outdoors while being resistant to climate conditions and paintable without causing color changes.
- Packing size: 310 ml./tube.

# SCG Acrylic sealant Made specifically for sealing

- Made specifically for sealing the joints of all types of synthetic wood and sealing nail heads without sinkage.
- Highly resistant to heat and moisture.
- Effective for indoor and outdoor use.
- Packing size: 310 ml./tube.



#### **SCG Gumcrete**

 A concrete adhesive (epoxy) for joining or sealing cracks in materials such as concrete, roof tiles, pipes, bricks, wood, metal, ceramic glazed tiles, glass, leather and plastic.



# **Cutting and Drilling SCG Smartboard**

## **Tools and Equipment**

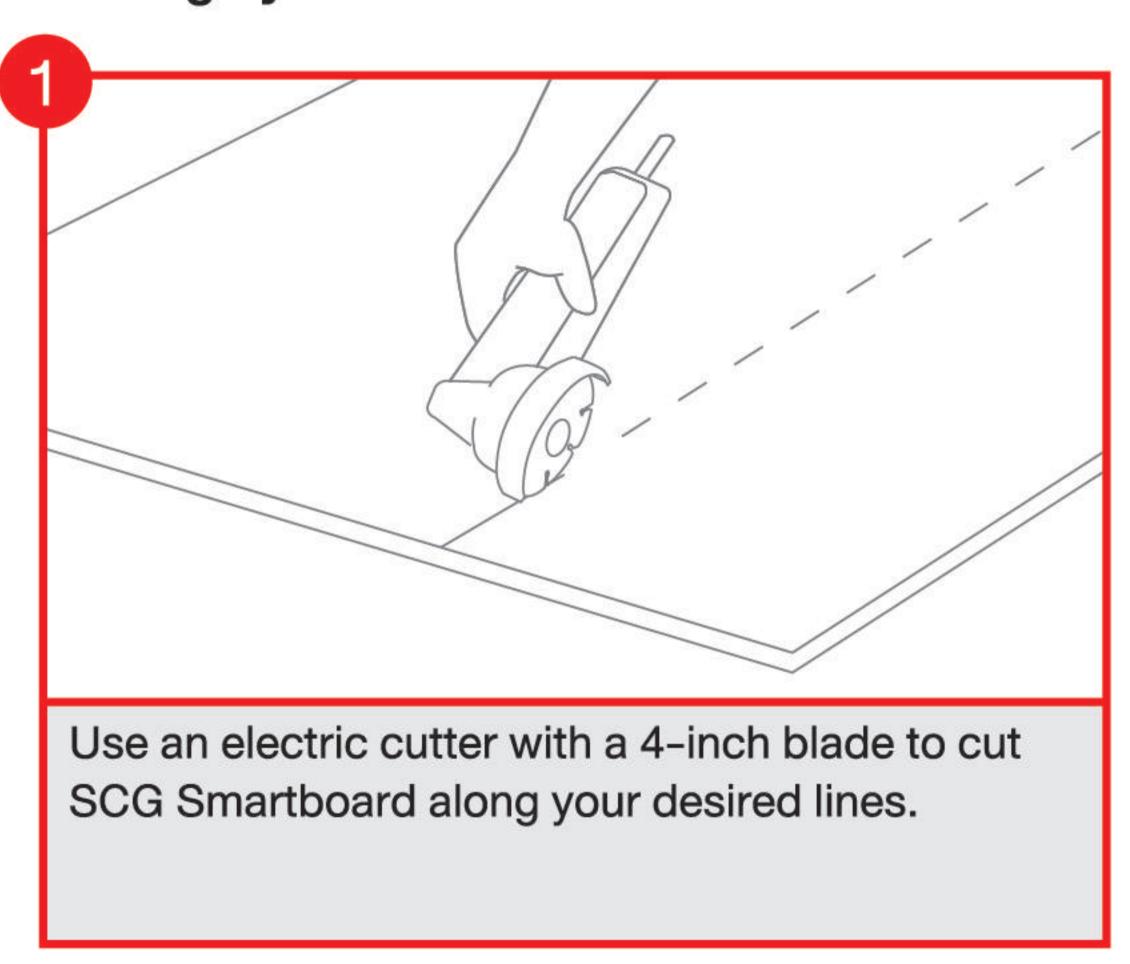
Cutting equipment : Electric cutter with blade for cutting concrete or fiber cement sized 4 inches or cutter with 1 - inch blade.

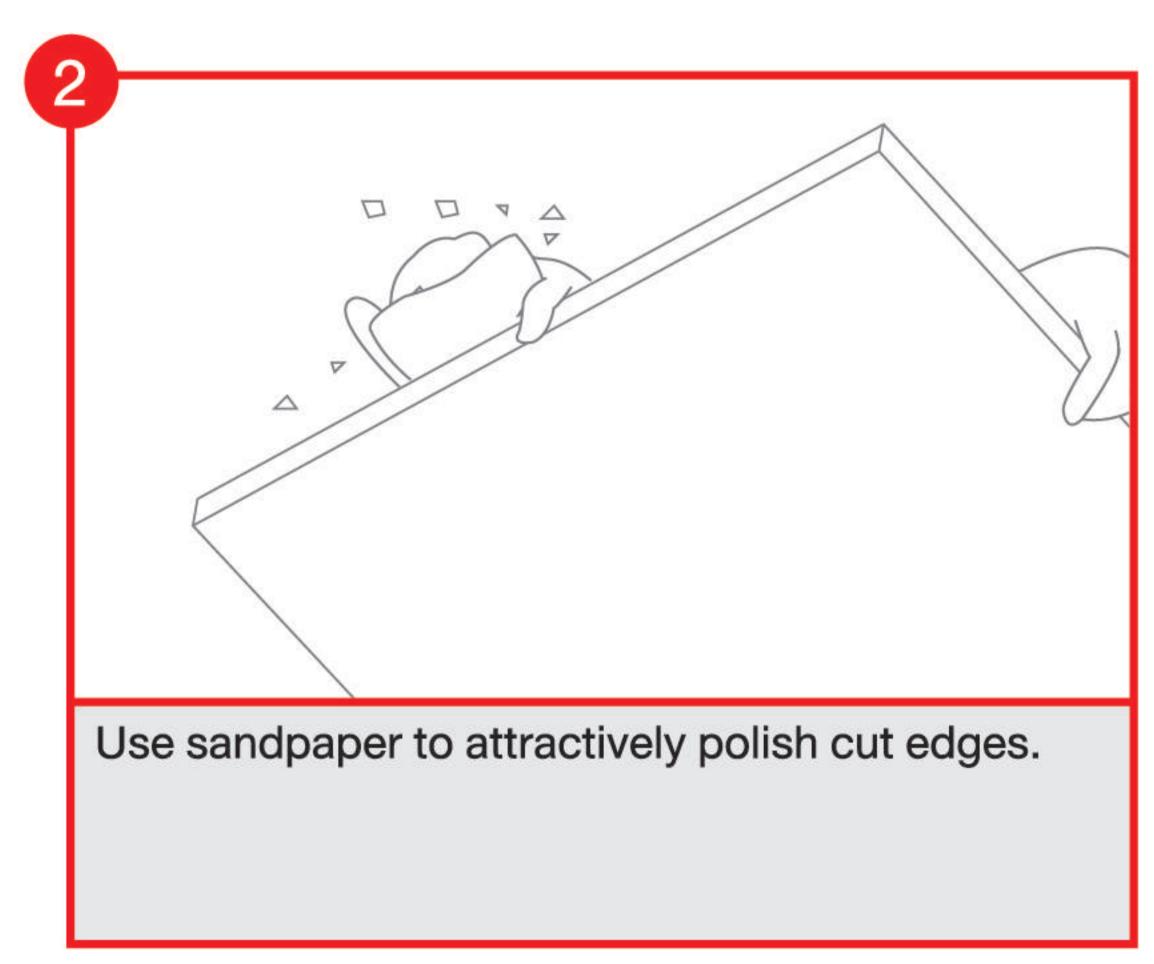
Drilling equipment : Electric drill.

Polishing equipment: Sandpaper and files.

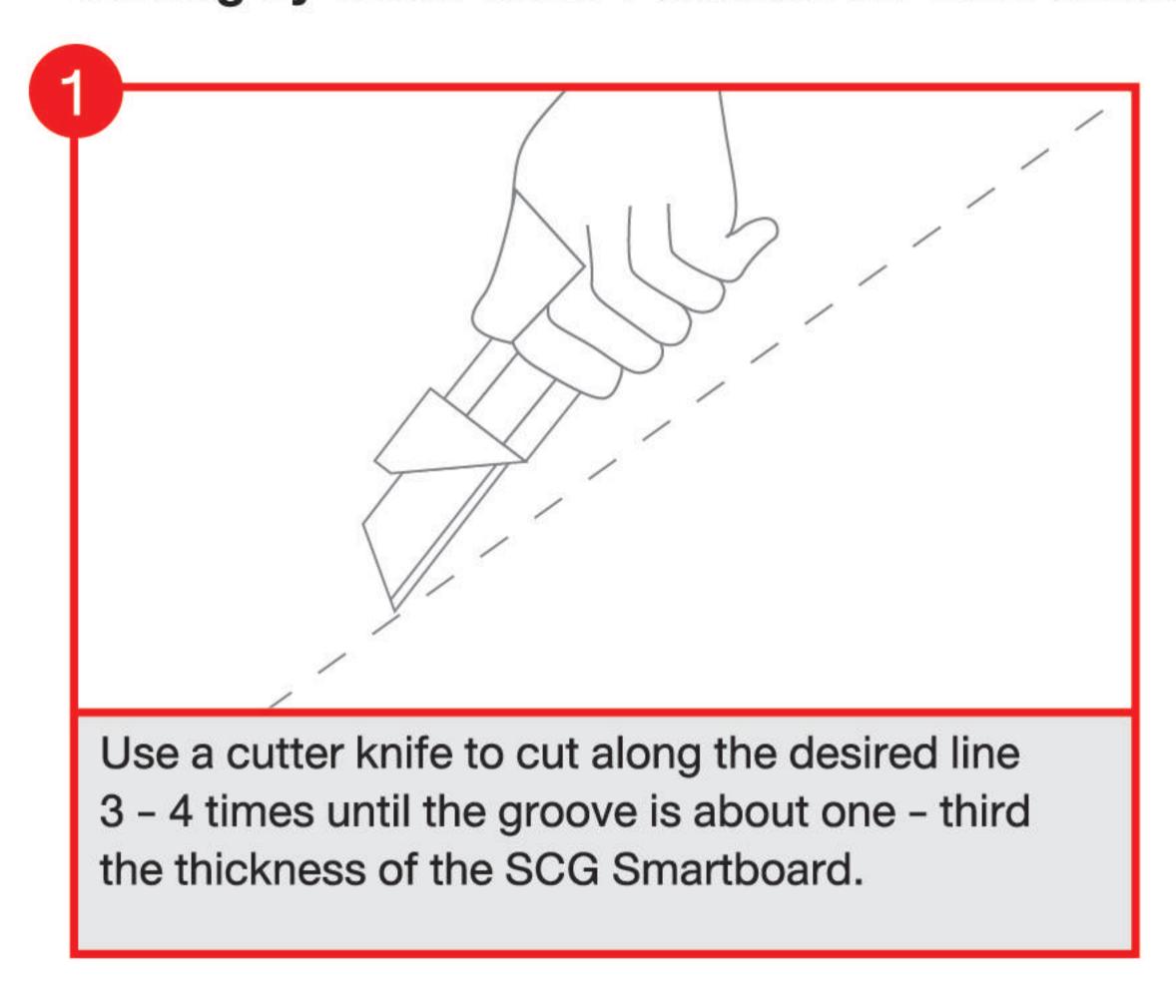
#### **Work Procedures**

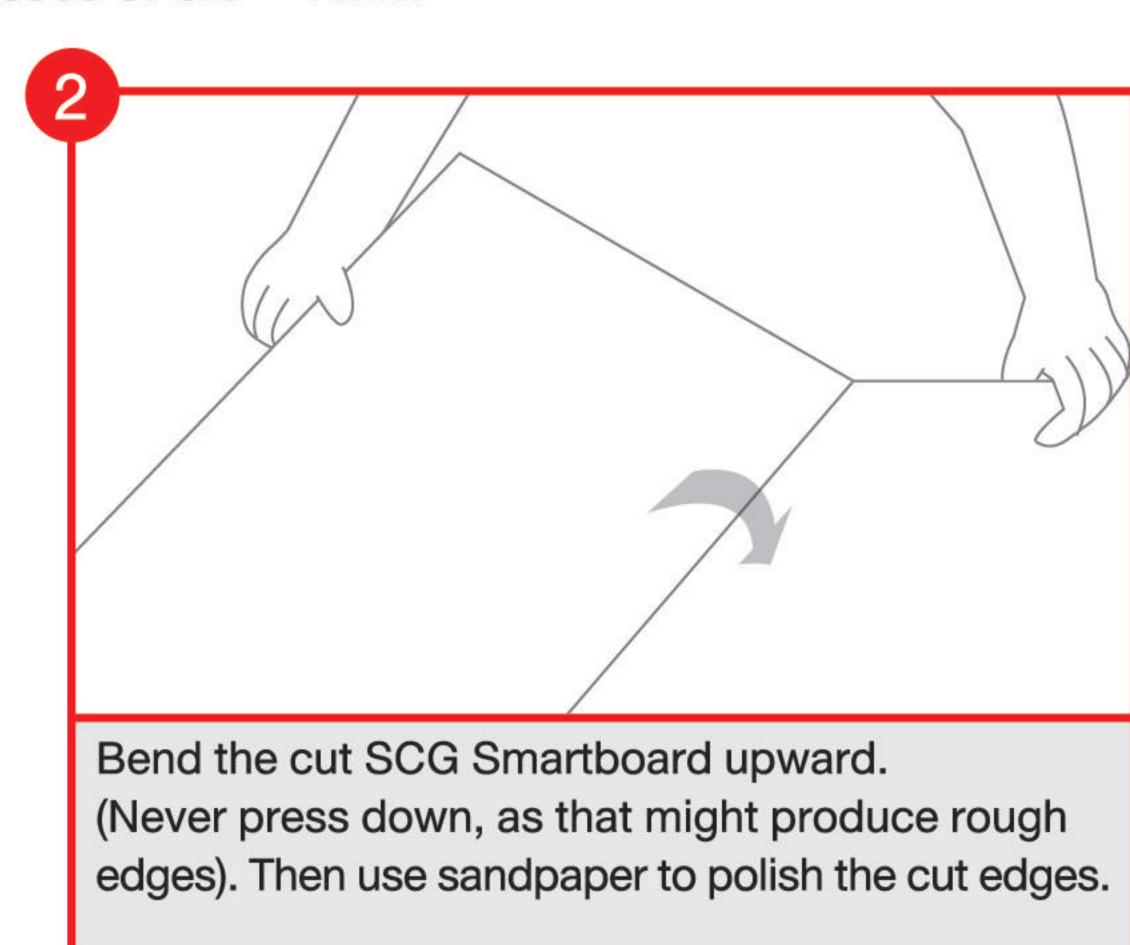
Cutting by electric cutter: Suitable for SCG Smartboard of every thickness from 3.5 - 20 mm.



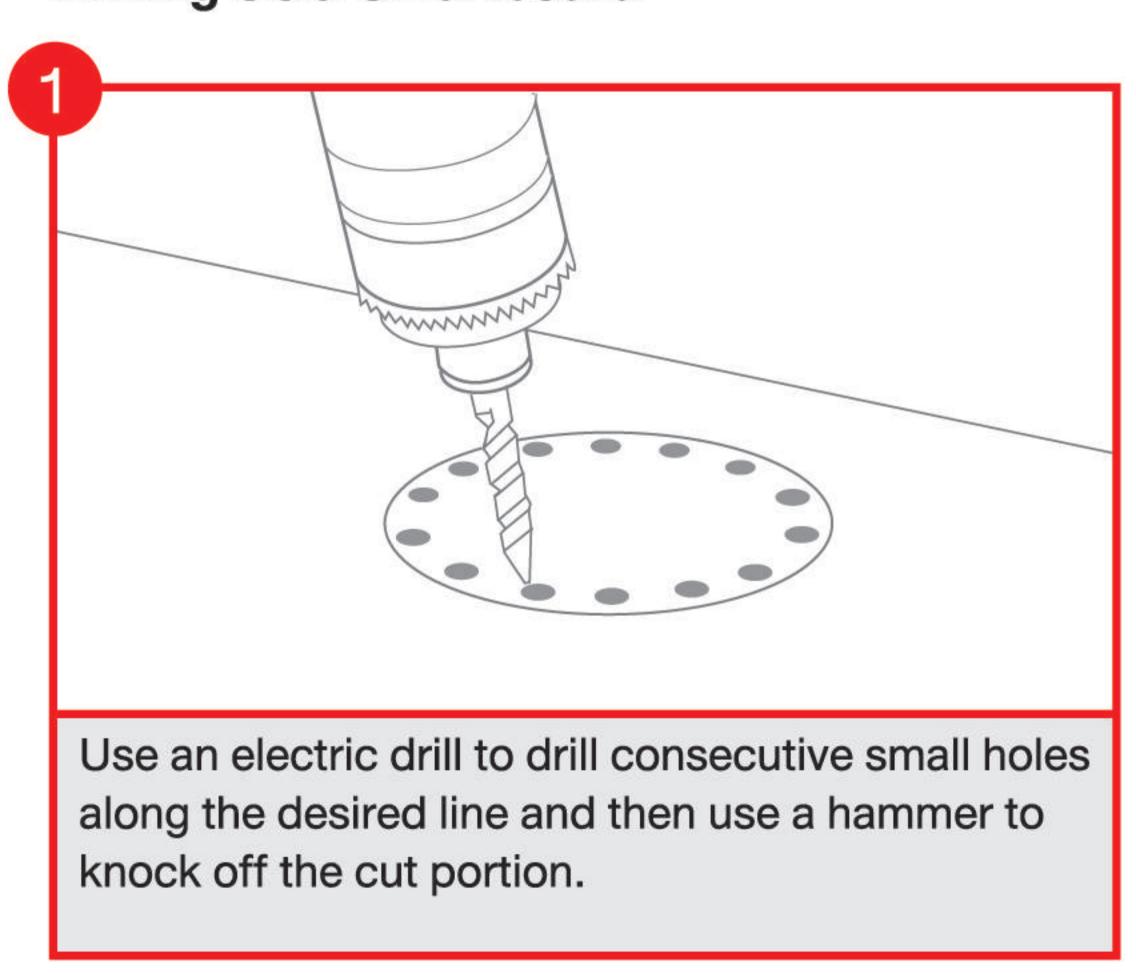


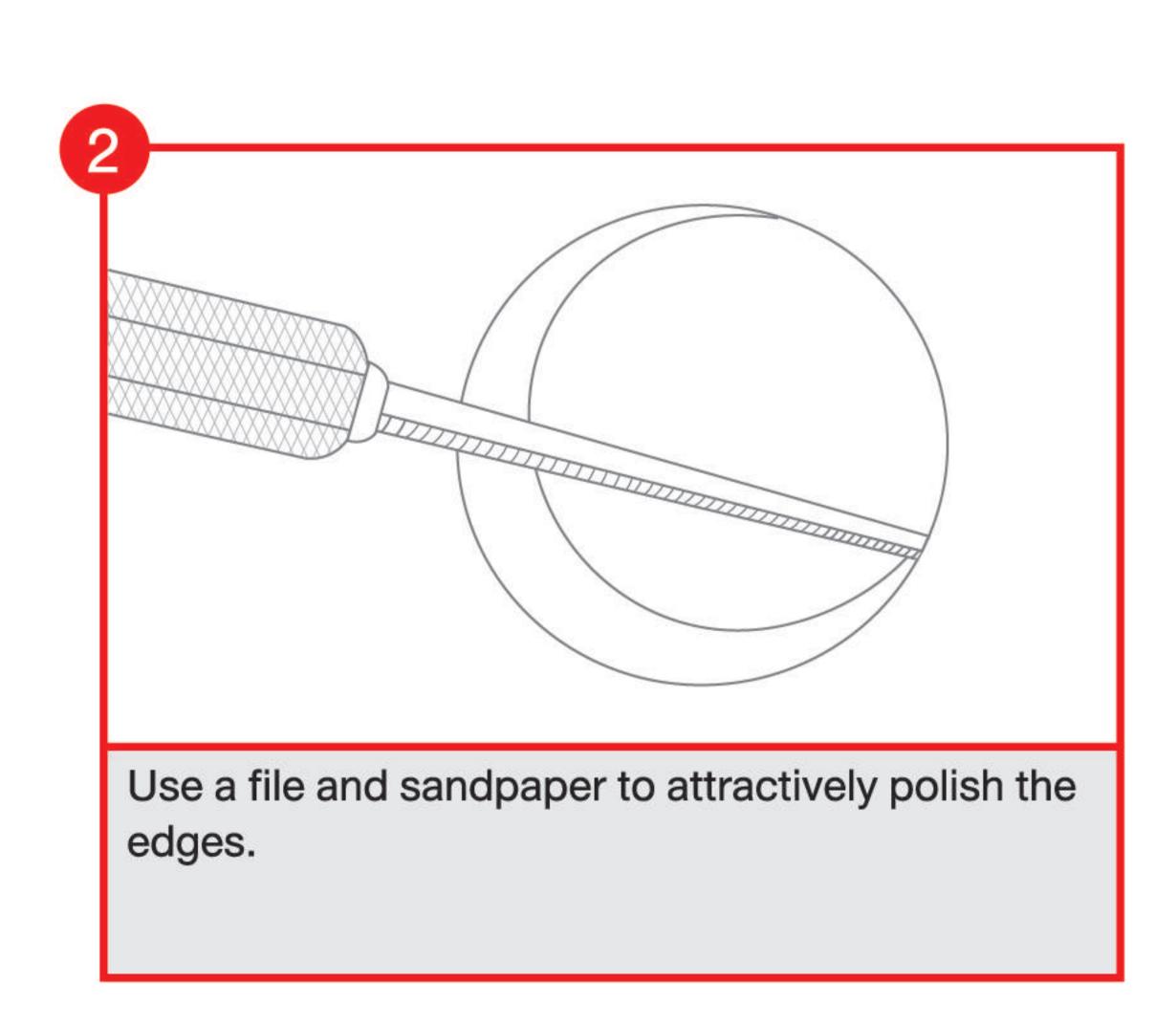
Cutting by cutter knife: Suitable for SCG Smartboard with thicknesses of 3.5 - 4 mm





#### **Drilling SCG Smartboard**





#### 1.1 Spaced Lining Outdoor Ceiling Installation

#### Frames and Equipment

: Frames made from hard wood or box steel sized 1.5 x 3 inches. Frames

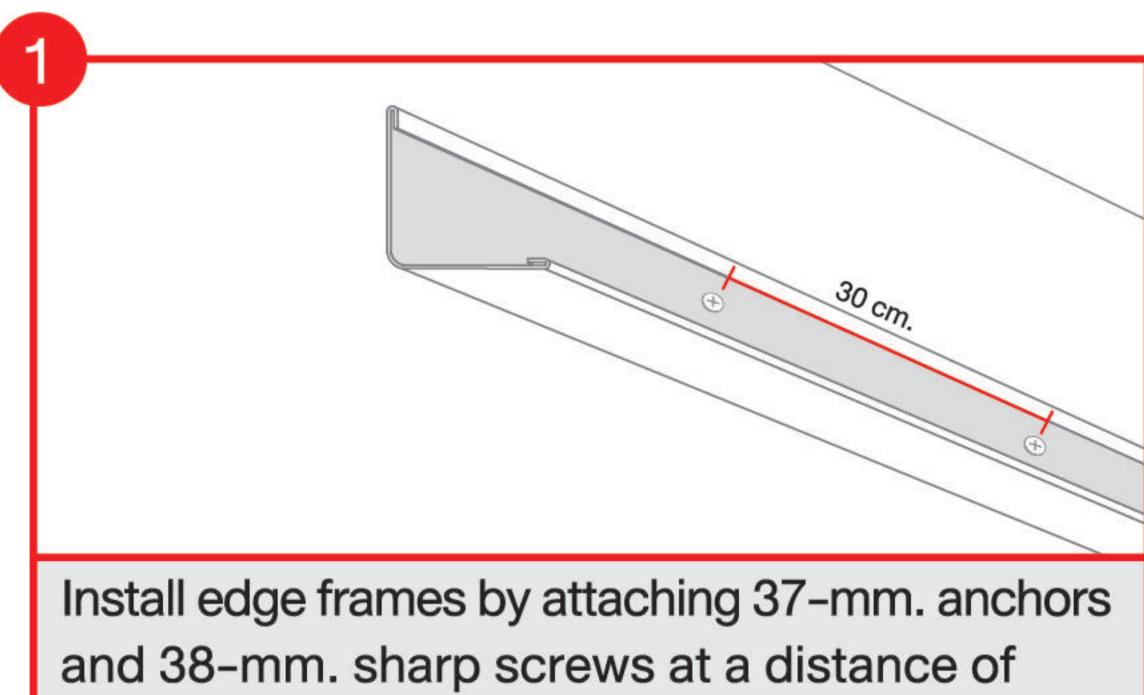
C-line zinc-galvanized steel frames No. 24.

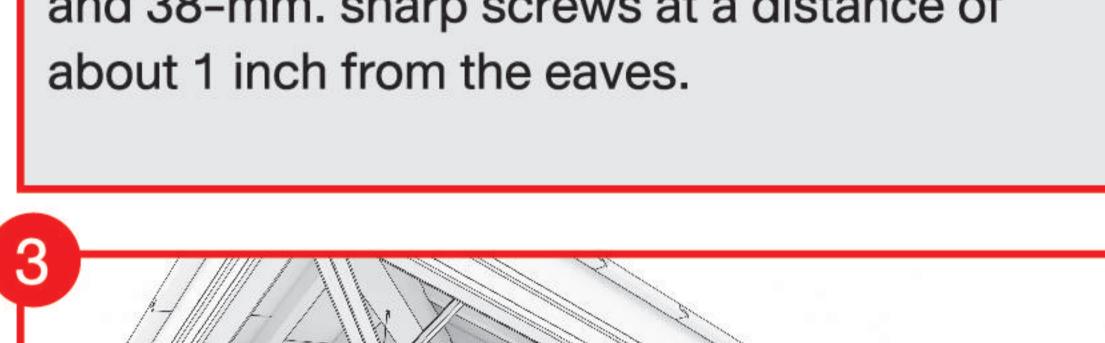
: SCG Needle point screw 23 mm or 1-inch nails for wood (wooden frames). Attachments

SCG Self drilling screw 18 mm (for steel structures and C-line zinc-galvanized steel frames No. 24)

: SCG Polyurethane sealant. Joint sealant : SCG Acrylic sealant. Screw sealant SCG Smartboard : 3.5-6-mm thick.

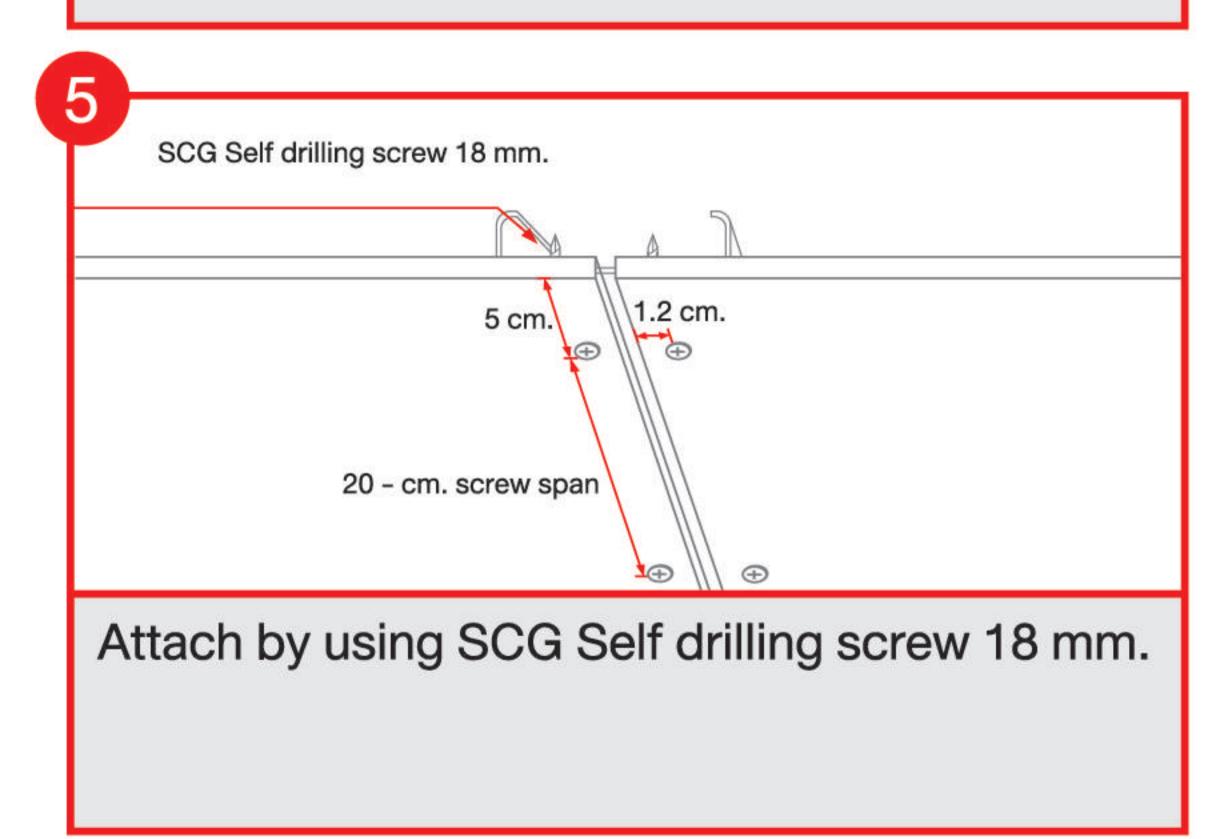
nstal ation Procedures (Frame installation procedures are to follow the frame manufacturer's recommendations.)

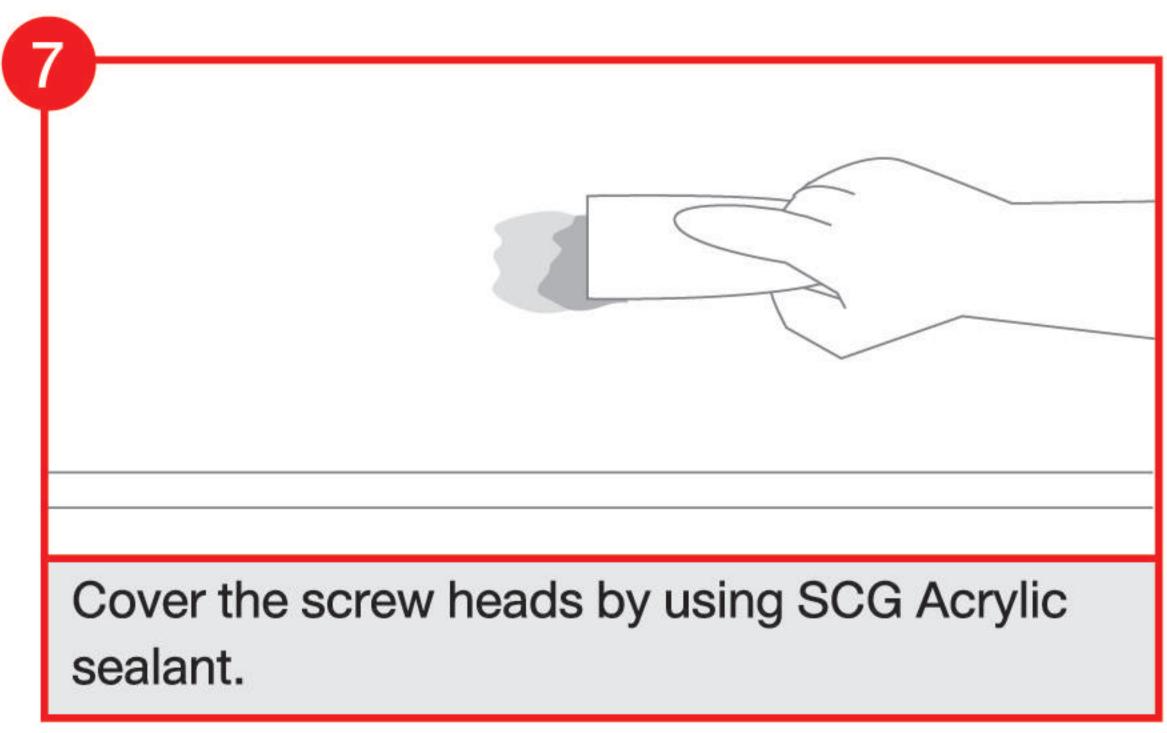


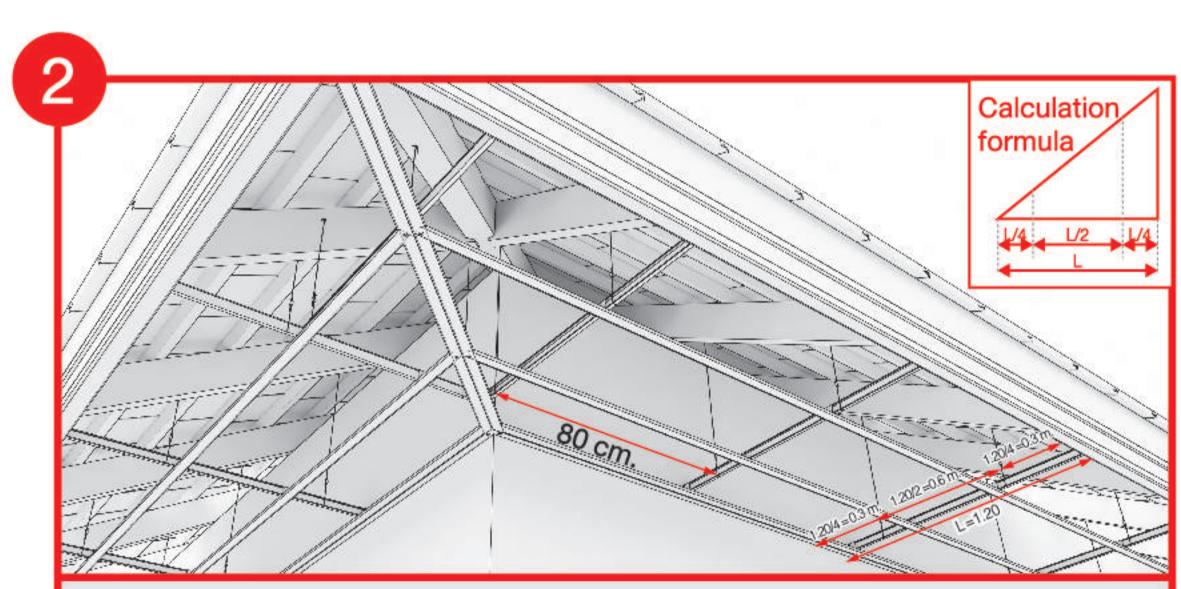




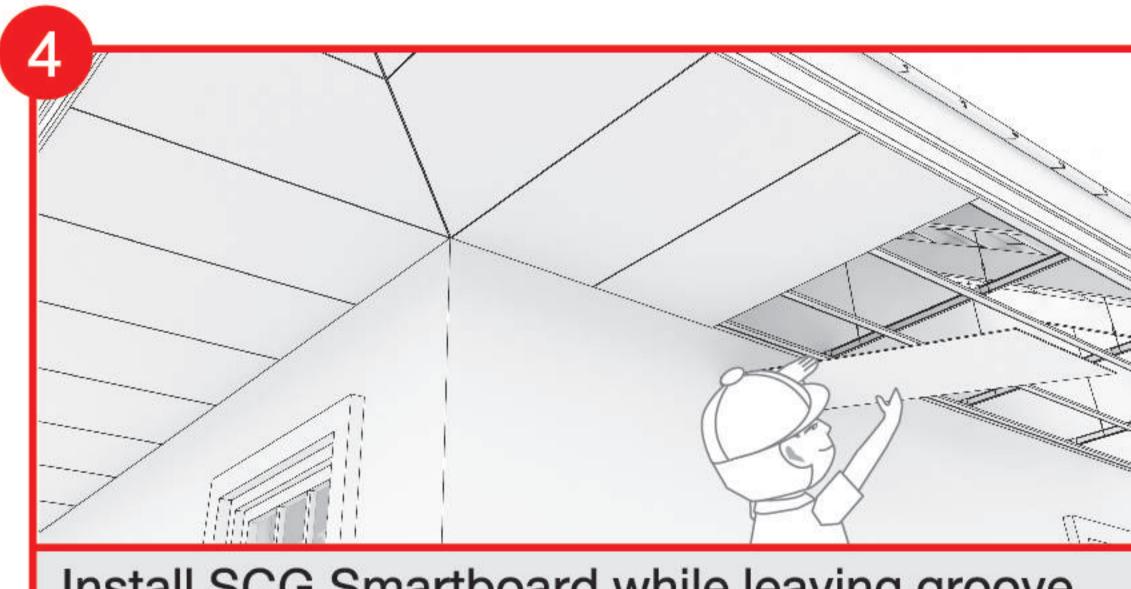
Install sub frames at a span not exceeding 40 cm.



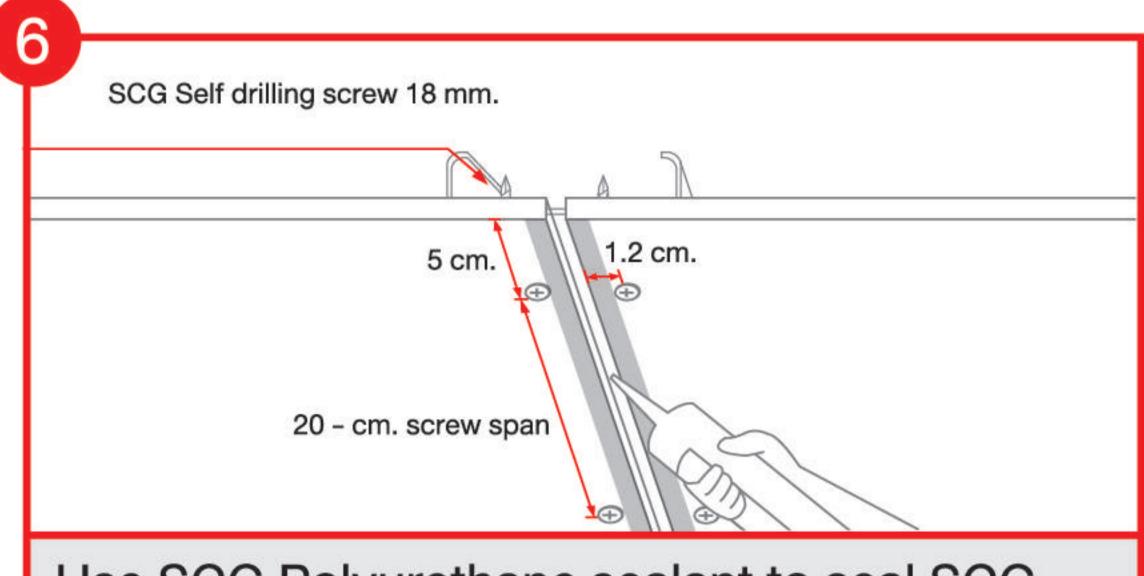




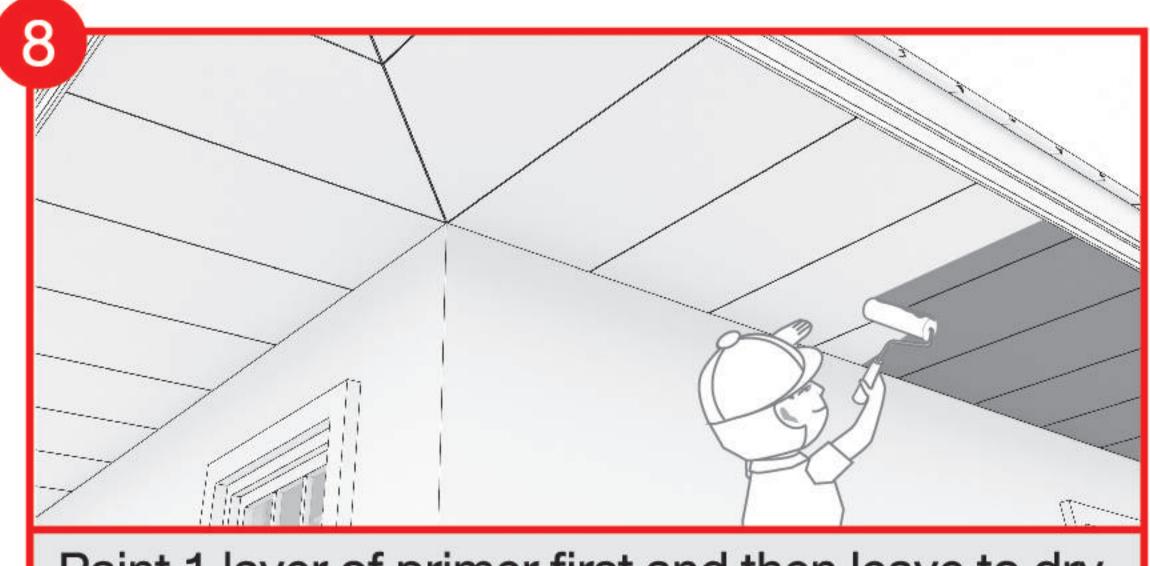
Specify the attachment points for the main frame structure by having the main frame structure have a distance of no more than 80 cm. and the hanging set to have a distance of no more than 80 cm.



Install SCG Smartboard while leaving groove gaps equal to the thickness of the boards.



Use SCG Polyurethane sealant to seal SCG Smartboard joints. (An adhesive tape should be used to cover the joints before sealing.



Paint 1 layer of primer first and then leave to dry. Then paint 2 layers of SCG Acrylic sealant.

Remarks: For concealed jointing, use frame with at least 38 mm width. If it is less, double frames are required. For spaced lining jointing, use frame with at least 42 mm width. If it is less, double frames are required.

#### 1.2 Spaced Lining Indoor Ceiling Installation

#### **Frames and Equipment**

Frames : Frames made from hard wood or box steel sized 1.5 x 3 inches.

C-line zinc-galvanized steel frames No. 24.

Attachments: SCG Needle point screw 23 mm. or 1-inch nails for wood (wooden frames).

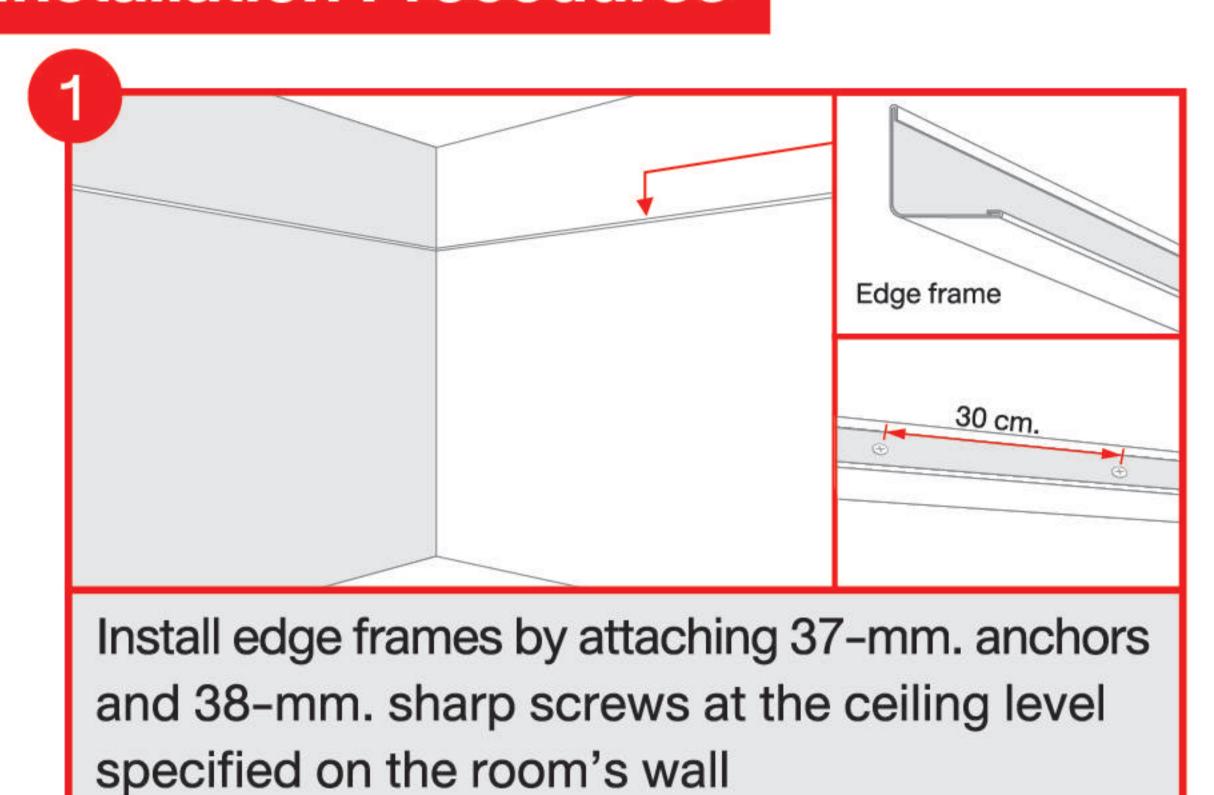
SCG Self drilling screw 18 mm. (for steel structures and C-line zinc-galvanized steel frames No. 24)

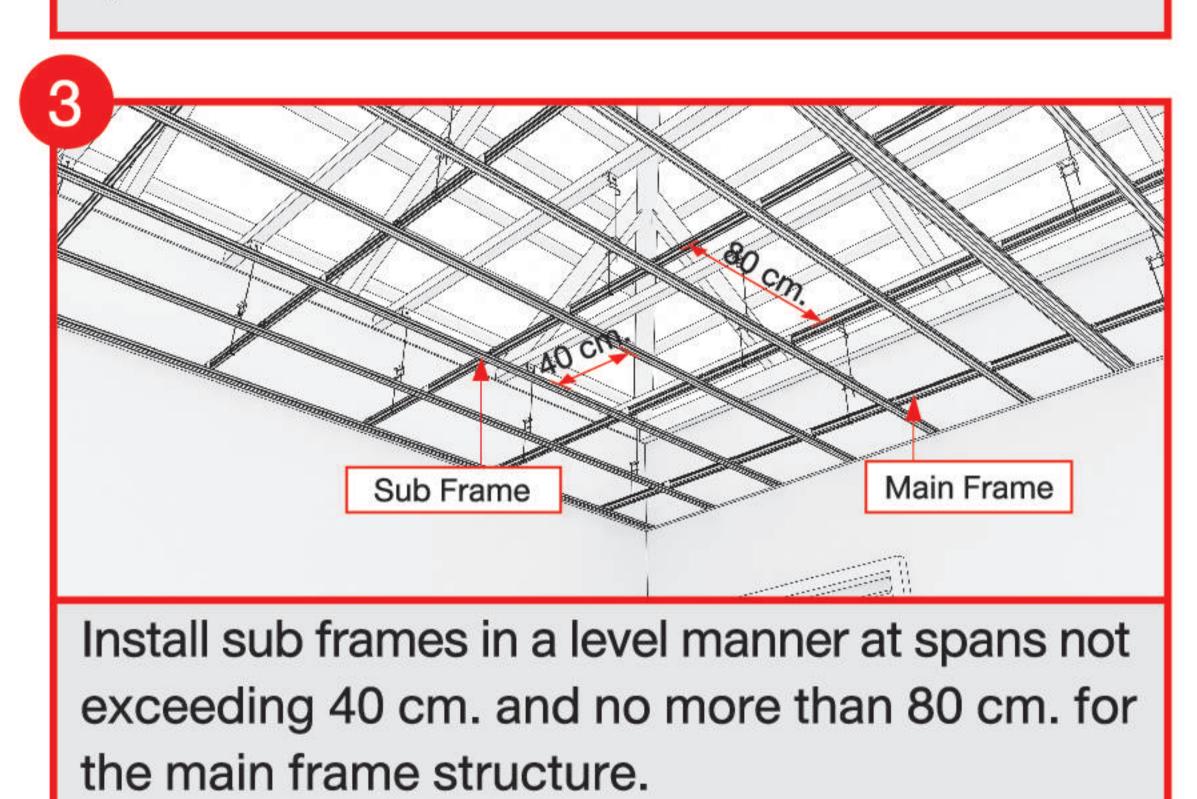
Joint sealant : SCG Polyurethane sealant.

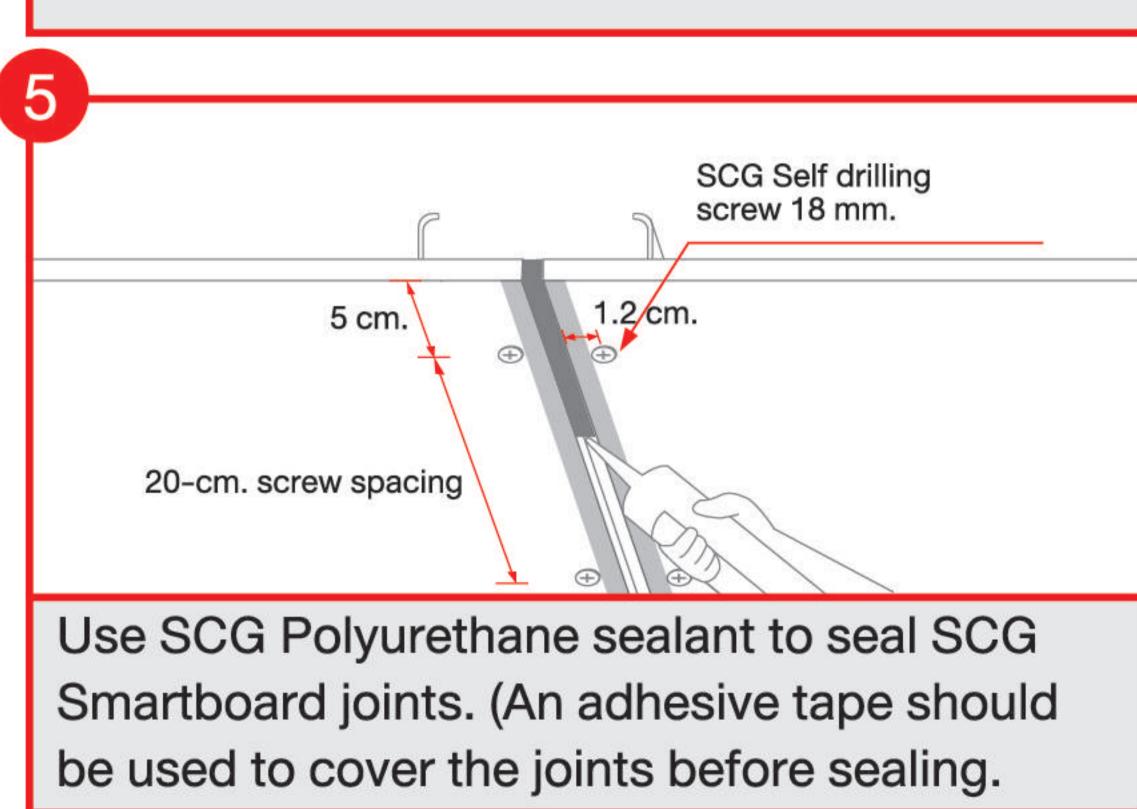
Screw sealant : SCG Acrylic sealant.

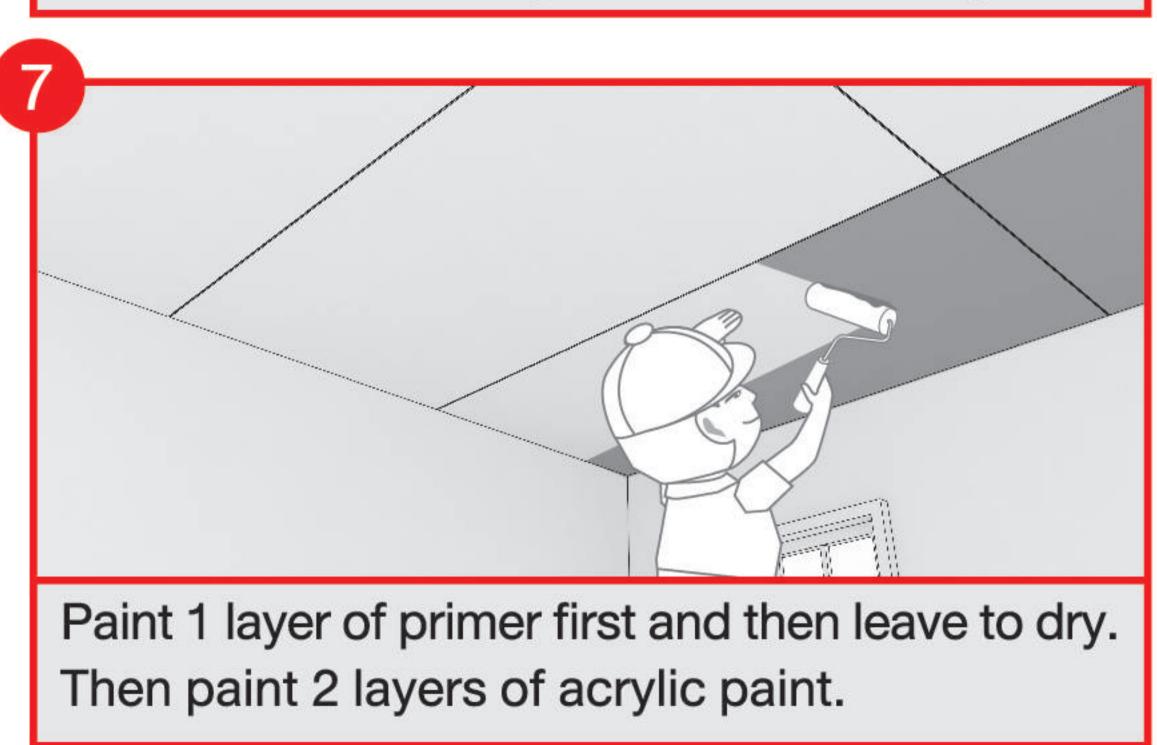
SCG Smartboard : 3.5 - 6 mm. thick.

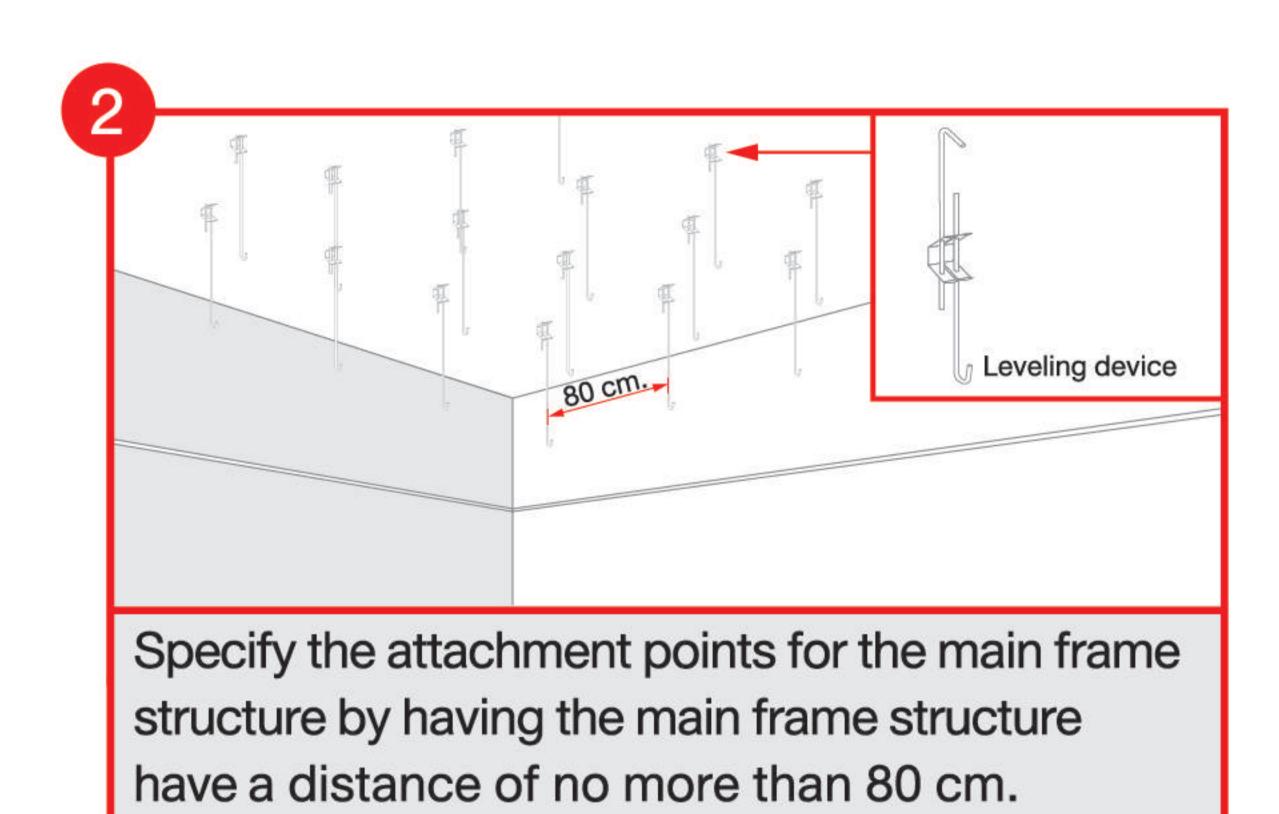
#### **Installation Procedures**

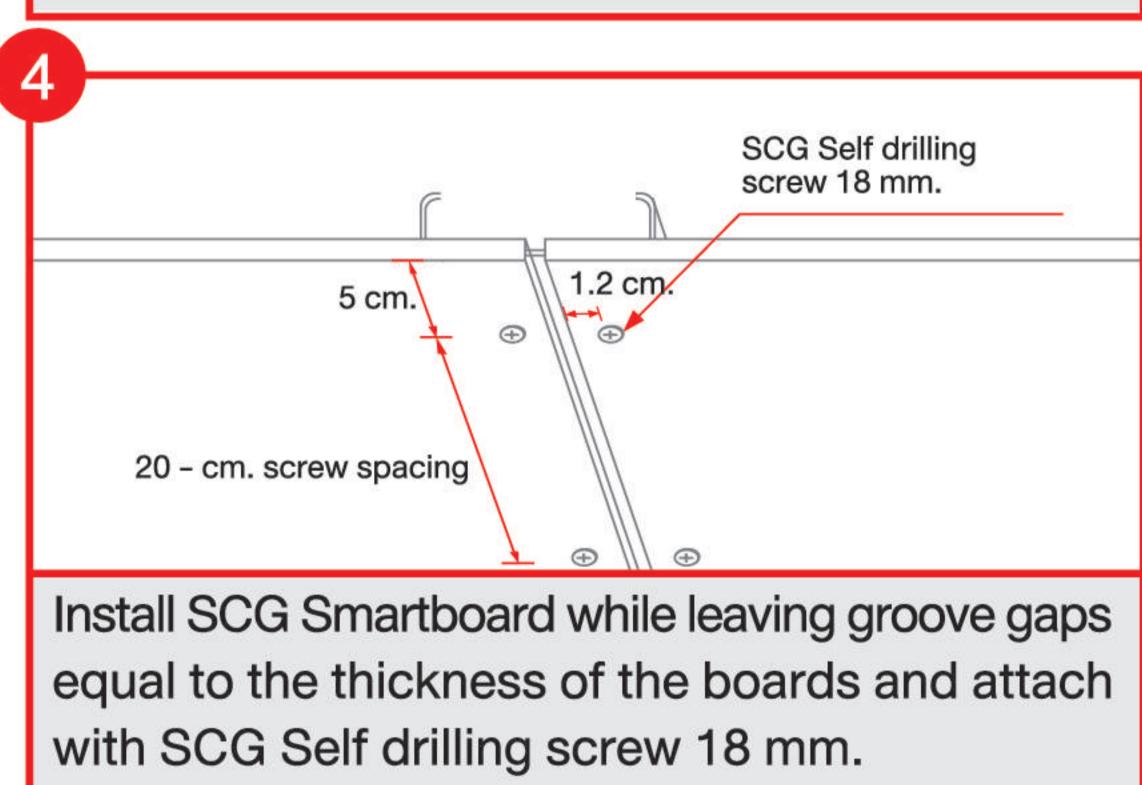


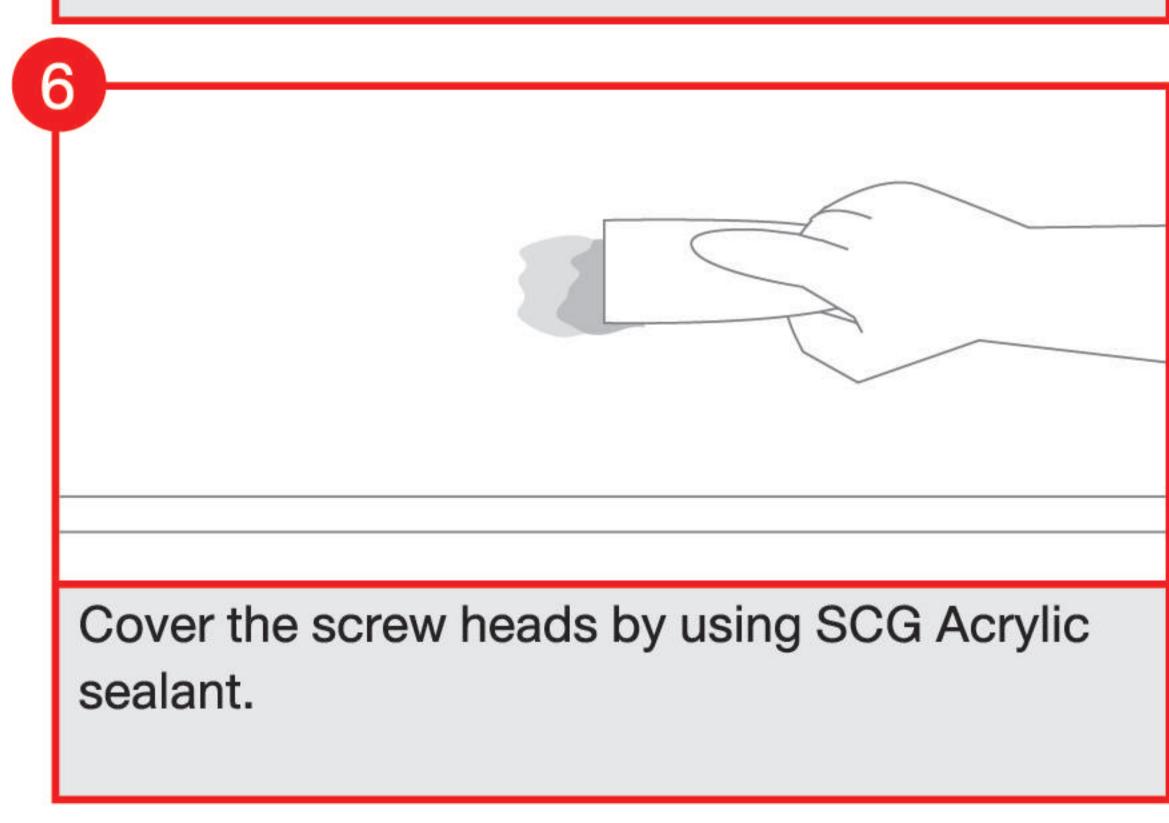












Remarks: For concealed jointing, use frame with at least 38 mm. width. If it is less, double frames are required. For space lining jointing, use frame with at least

#### 1.3 T - Bar Ceiling Installation

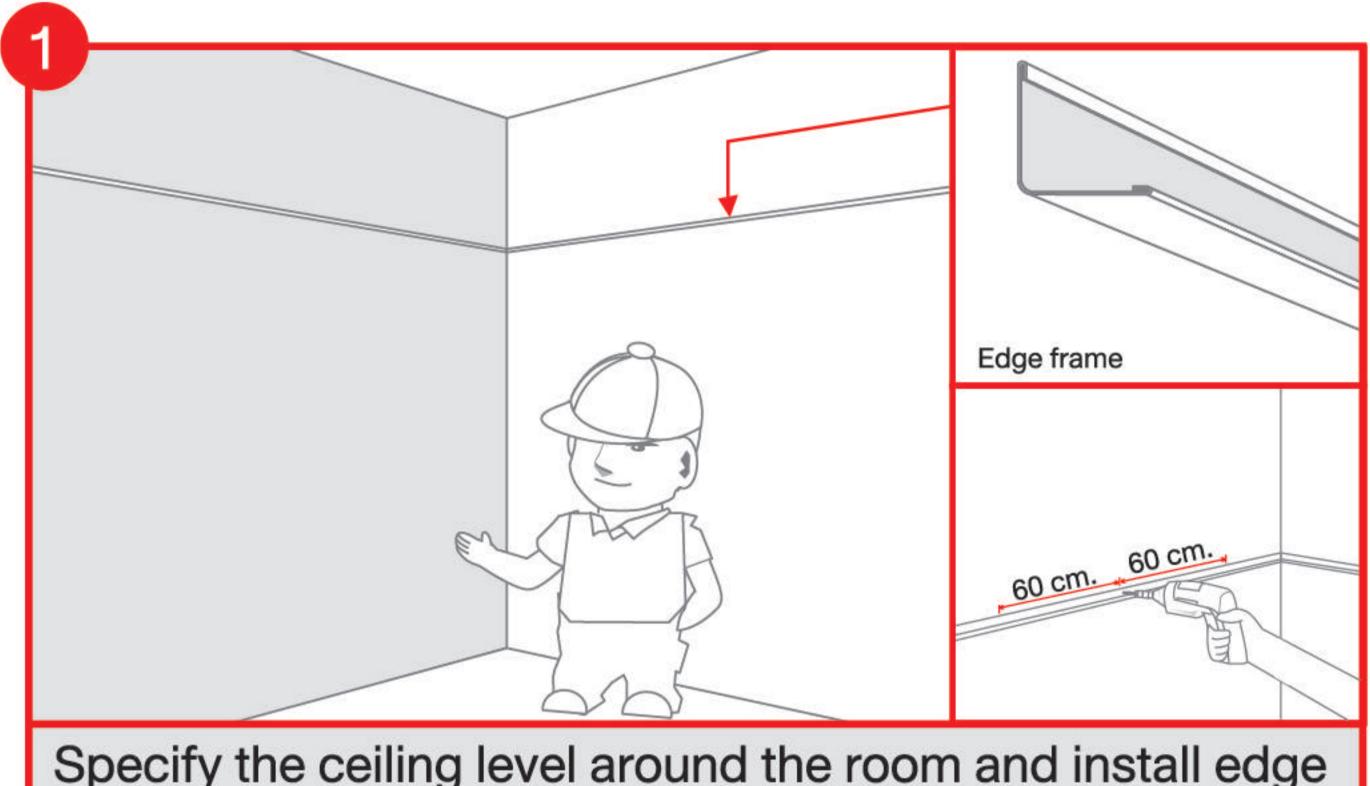
#### **Frames and Equipment**

: T-bar zinc-galvanized steel with 32-mm ridge height. Frames

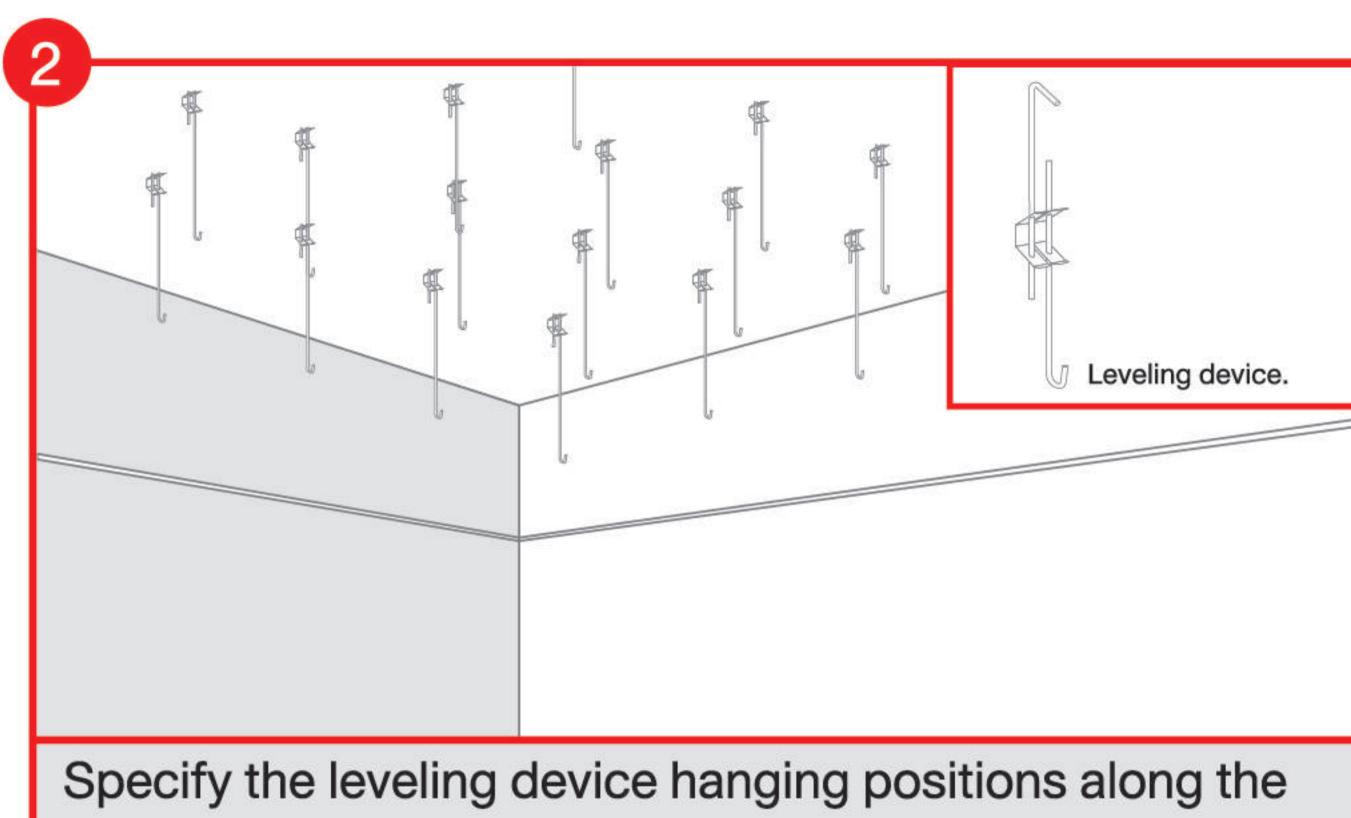
: SCG Plastic anchor 37 mm and SCG Needle point screw 38 mm Attachments

: Super Smart or squared edge model with thickness at 3.5, 4, and 6 mm sized 60 x 60 cm SCG Smartboard

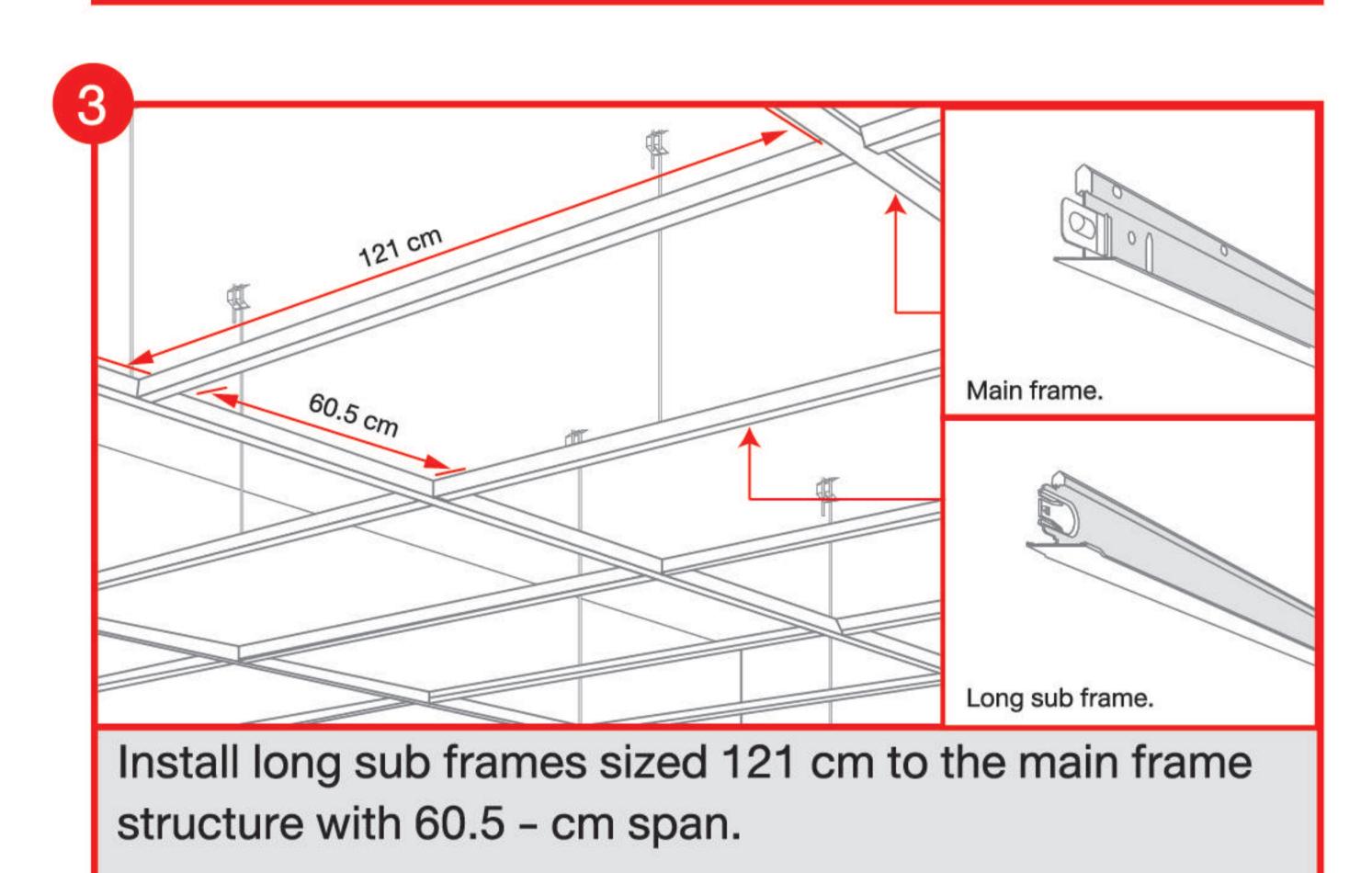
Installation Procedures (Frame installation procedures are to follow the frame manufacturer's recommendations.)

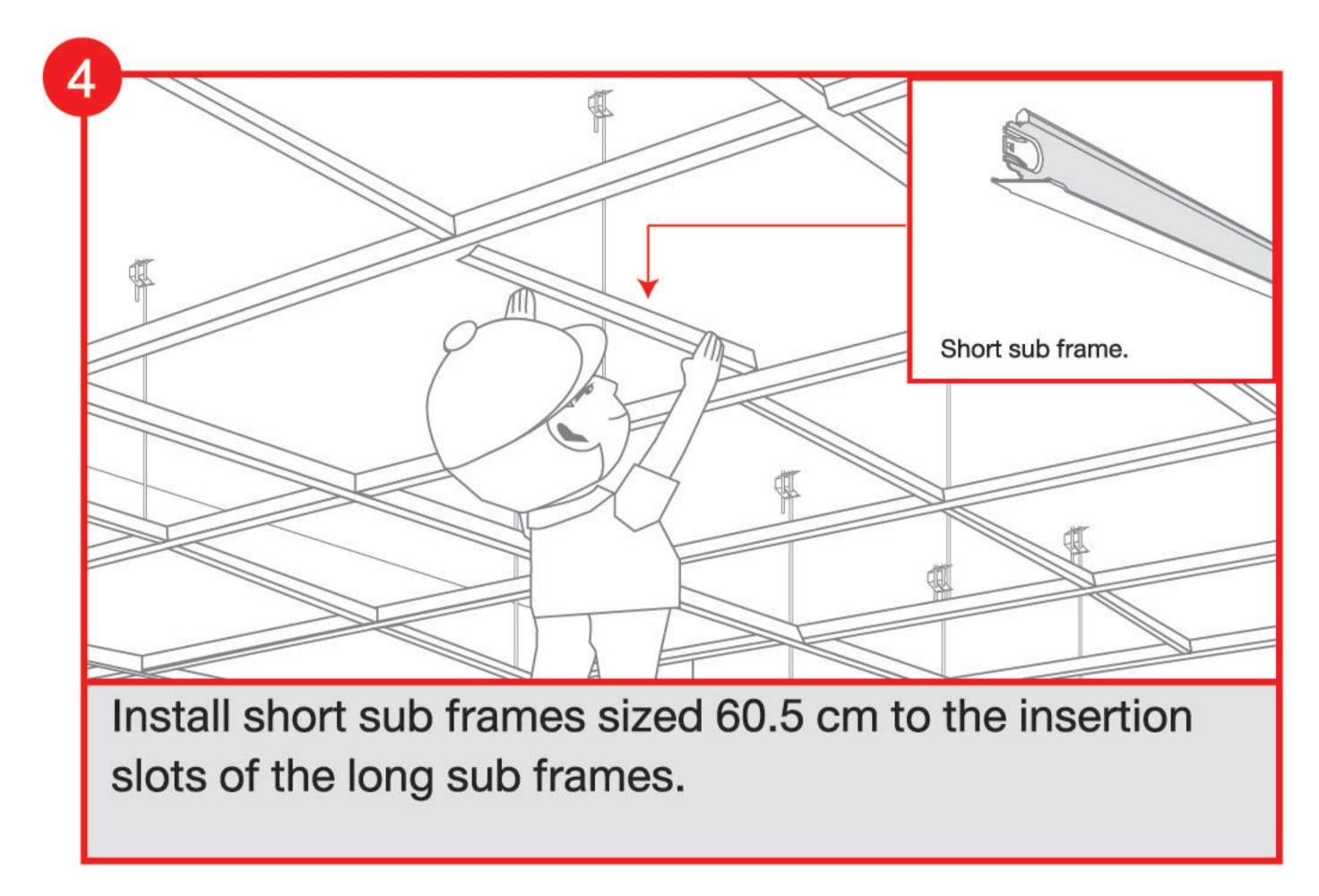


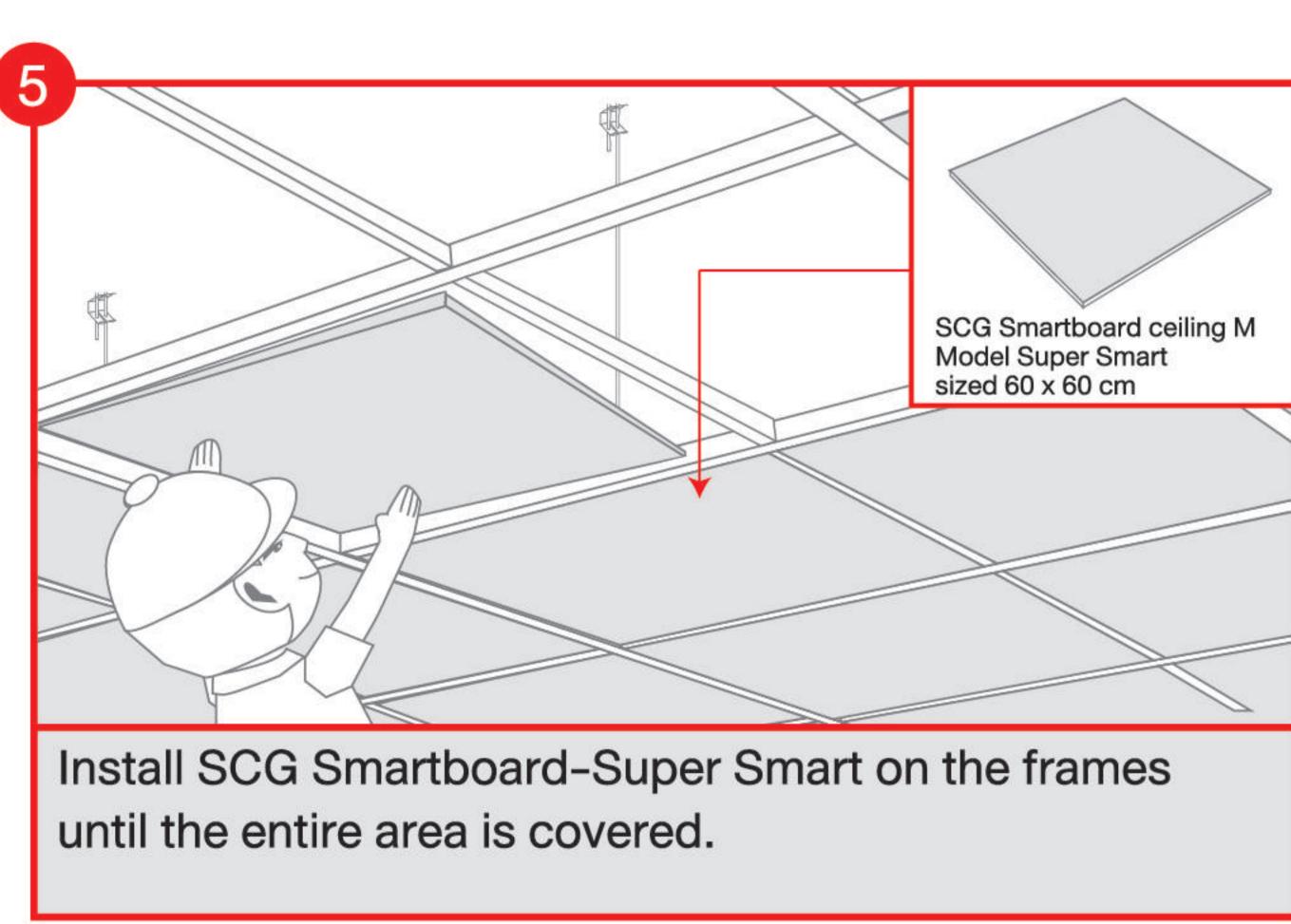
Specify the ceiling level around the room and install edge frames to the walls at a span of about 60 cm

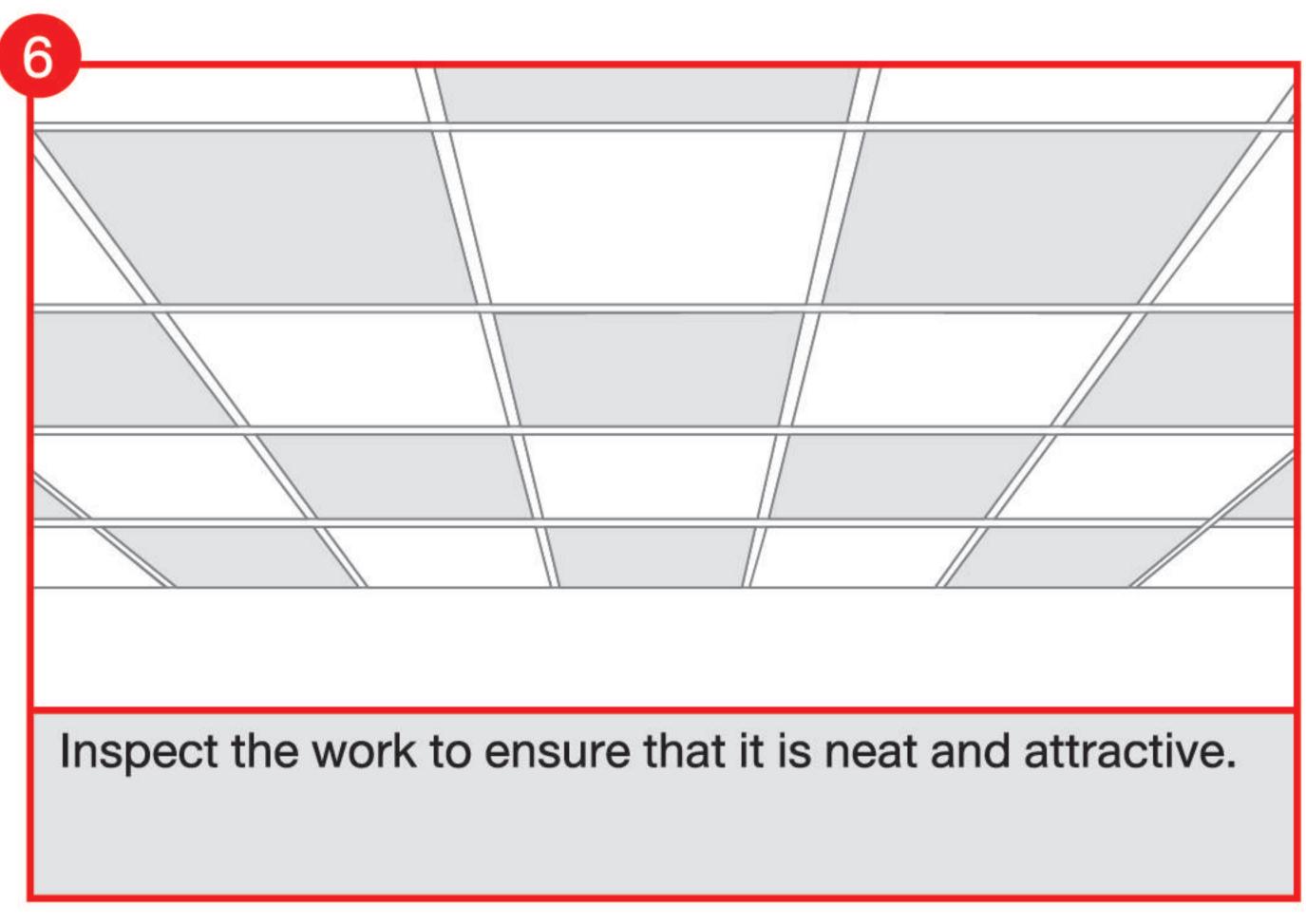


main frame structure with span not exceeding 121 cm









#### Recommendations

- T-bar installation should begin from the center of the room to ensure that ceiling panel remainders are even on each side and that the positions of lights and other devices are balanced.
- Install utility systems such as electricity, plumbing and telephone lines before beginning T-bar ceiling installation.
- If you want to hang other heavy materials such as chandeliers, swinging fans, etc., install separate support sets and avoid directly transferring load on to the ceiling panels.
- Frame installation procedures are to follow the recommendations of the frame manufacturer. We recommend using zinc-galvanized steel frames with a ridge height of 32 mm. for the main frame) and with a ridge height of 28 mm. (for sub frames) along with leveling devices to ensure strength and attractiveness.

## 1.4 Curved Ceiling Installation

#### **Frames and Equipment**

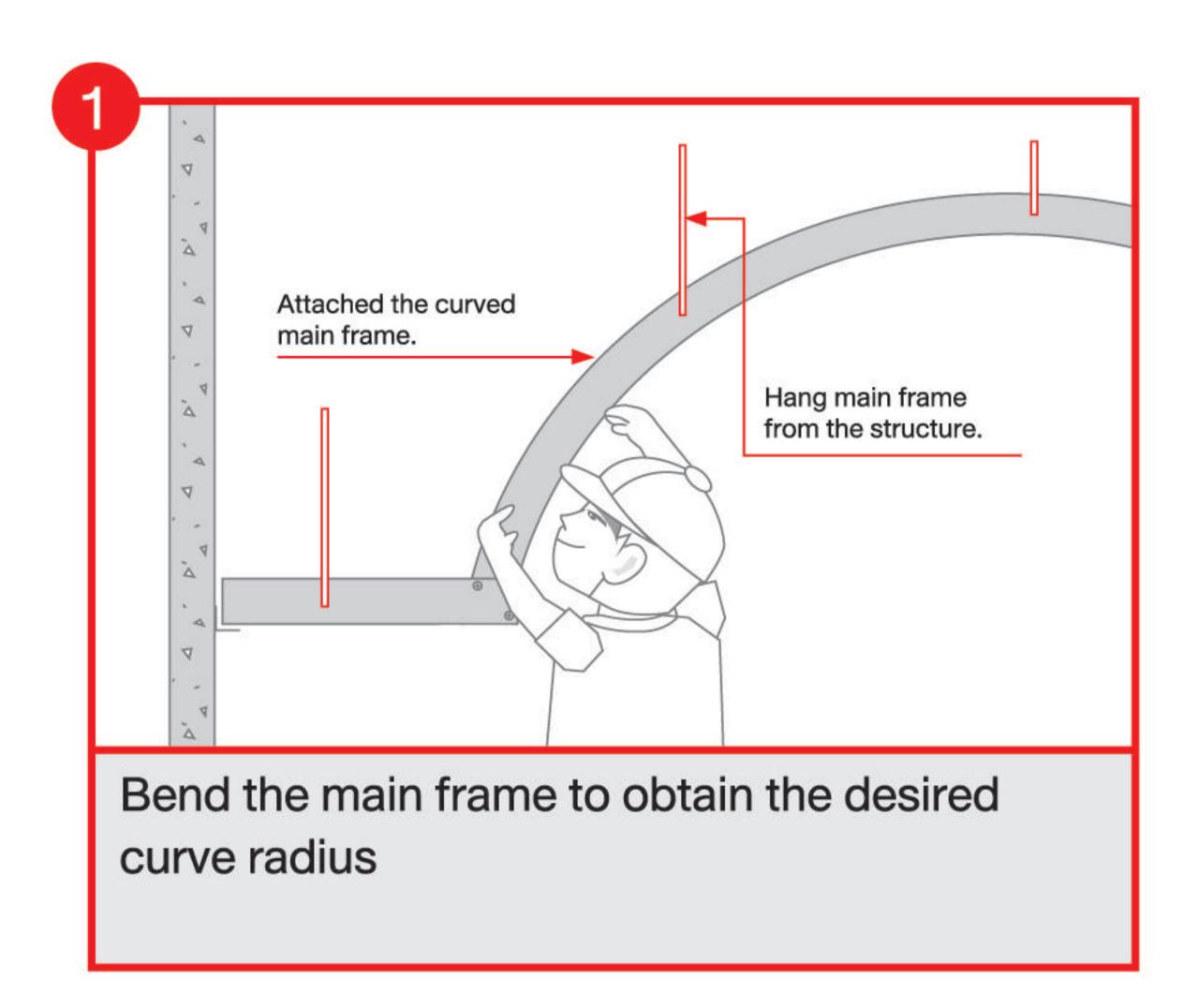
Frames : C-line zinc-galvanized steel frames No. 24.

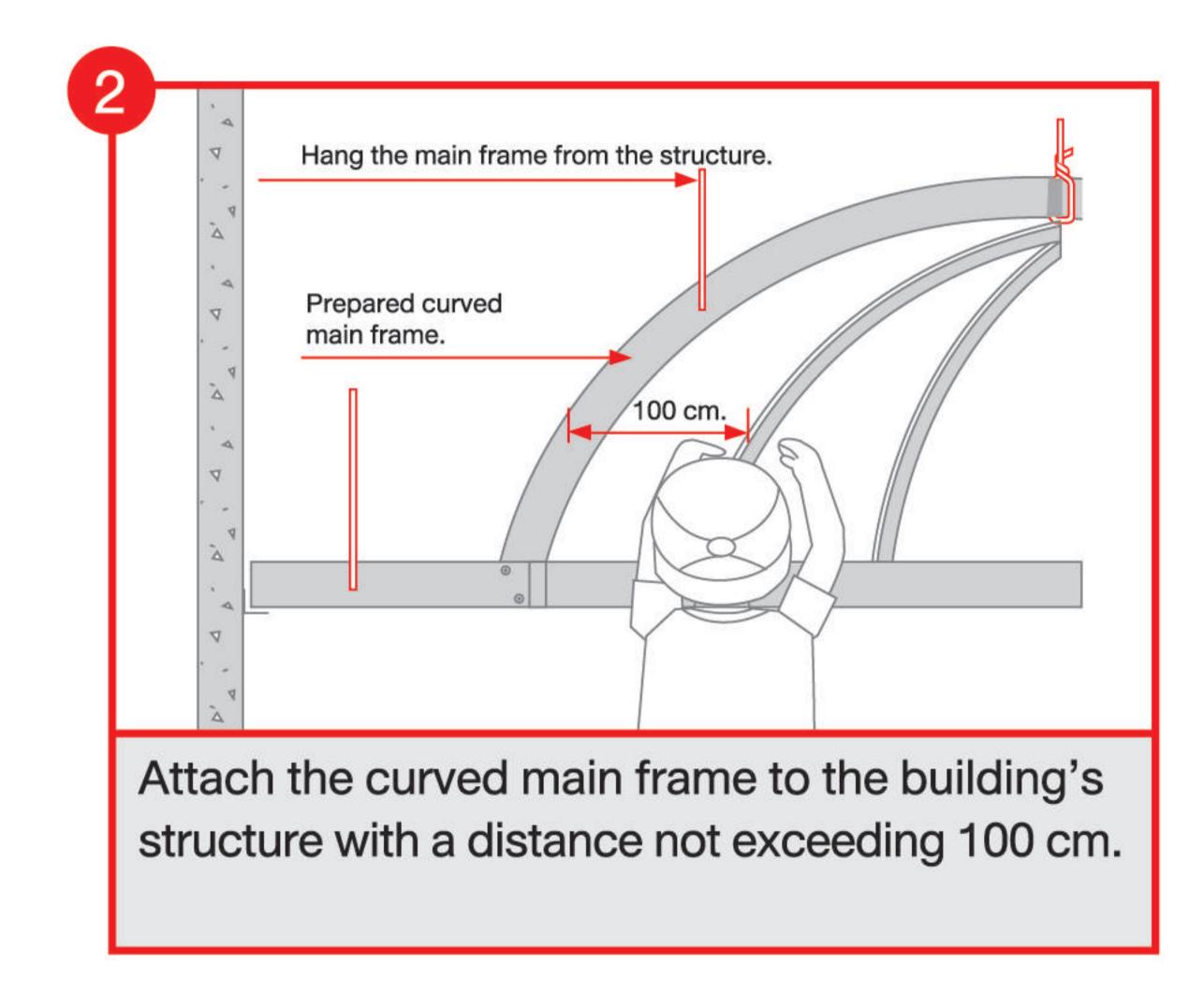
Attachments : SCG Needle point screw 23 mm

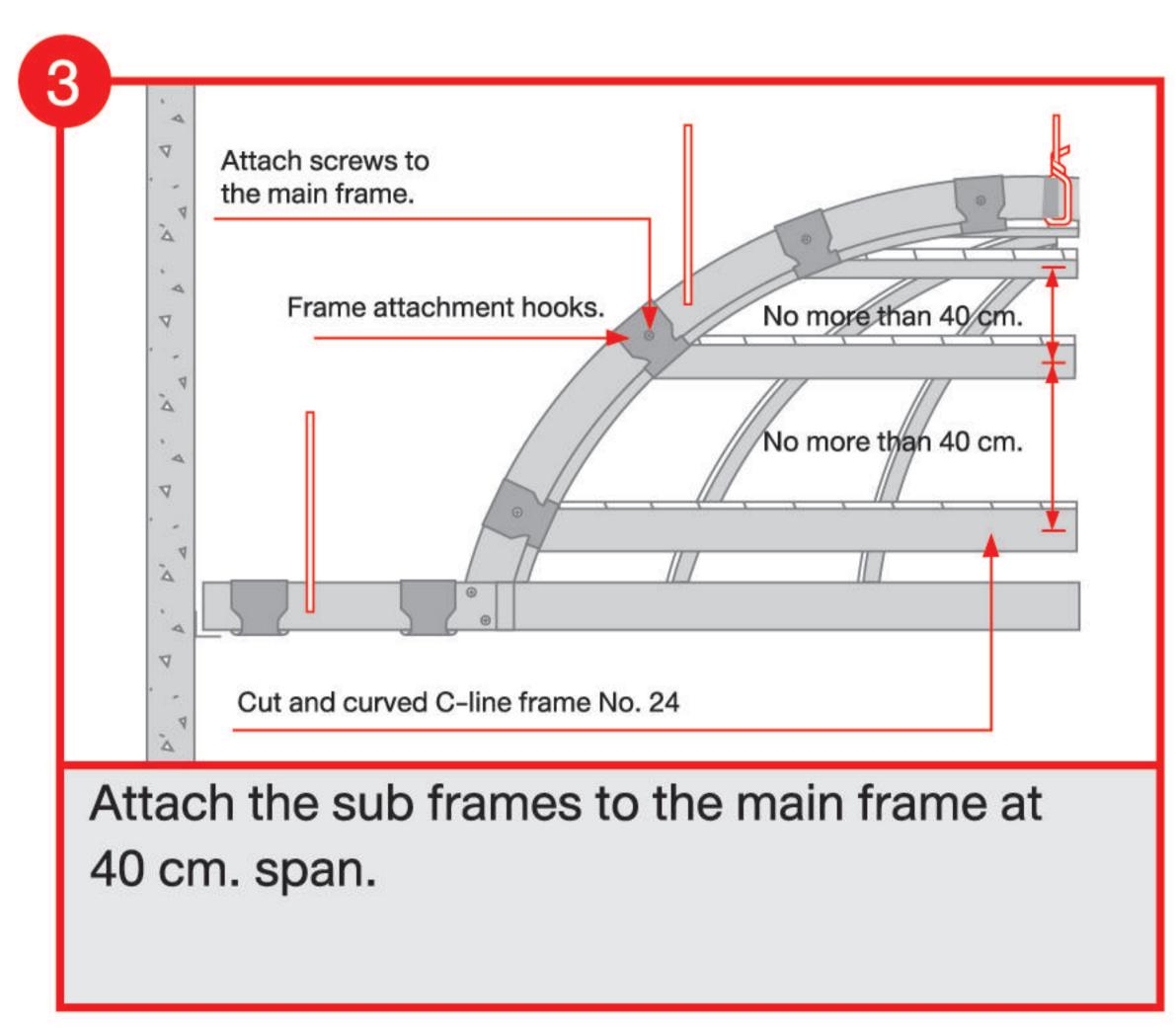
SCG Smartboard: Square-edged with 4-mm or 6-mm thickness.

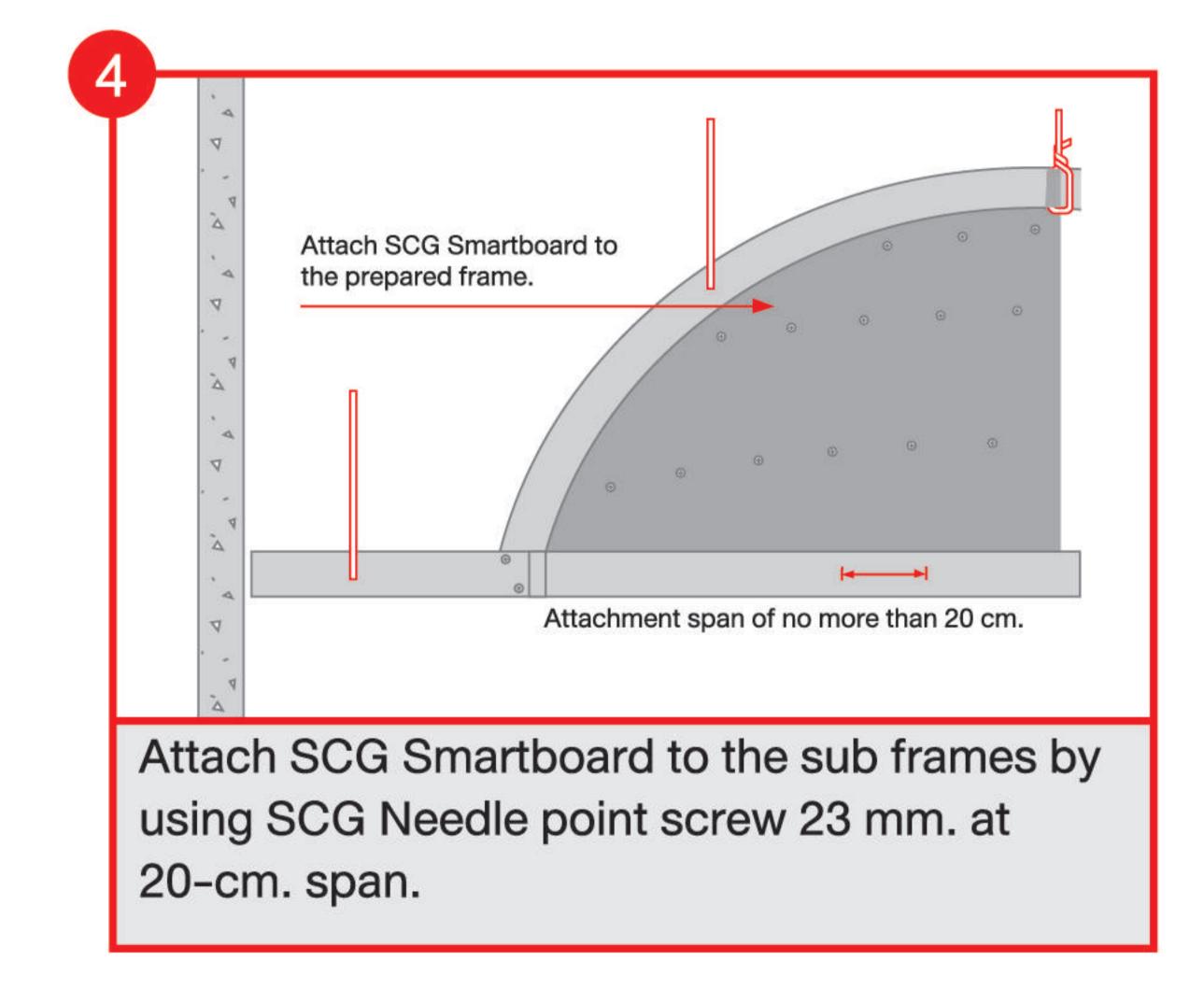
#### Installation Procedures

(Frame installation procedures are to follow the frame manufacturer's recommendations.)









#### Recommendations

SCG Smartboard ceiling panels can be installed in a curved manner by installing them to frames with the following curve radiuses:

| Recommendations        | Thickness | Minimum Suitable<br>Curve Radius | Sub Frame Span | Attachment<br>Span |
|------------------------|-----------|----------------------------------|----------------|--------------------|
| SCG Smartboard Ceiling | 4 mm      | 1.20 m                           | 40 cm          | 20 cm              |
|                        | 6 mm      | 1.80 m                           |                | 20011              |

#### Recommendations

The curve radiuses in the above table are the curve radiuses along the length of SCG Smartboard.

# 2. Tools and Equipment for Installing SCG Smartboard

#### 2.1 Spaced Lining Outdoor Wall Installation

#### Frames and Equipment

: C-shaped steel sized 75 x 45 x 15 x 23 mm or boxed steel sized 75 x 38 x 2.3 mm Frames

: SCG Self drilling wing screw 32 mm Attachments

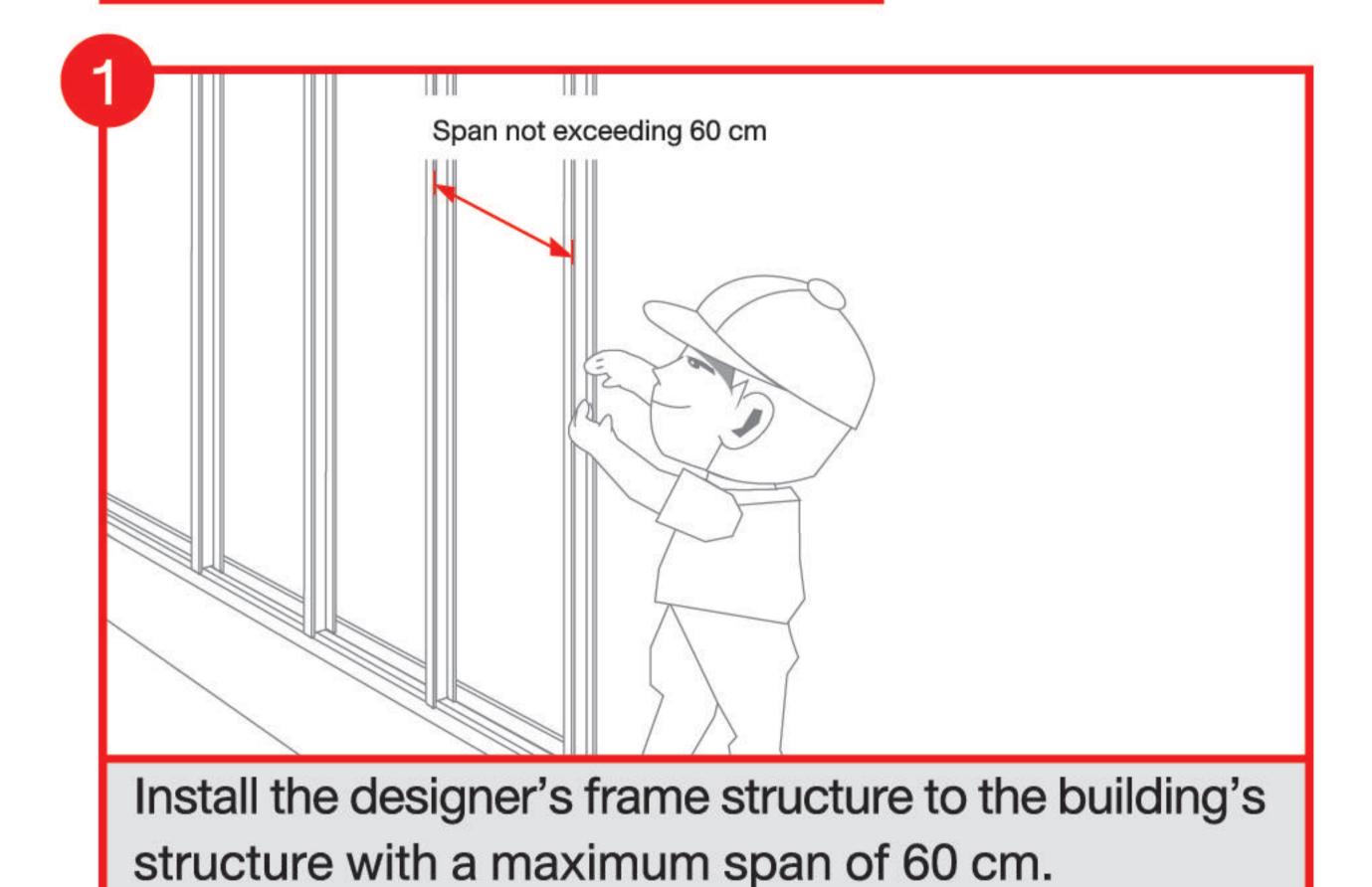
SCG Self drilling wing screw 45 mm (for 16-mm-thick SCG Smartboard).

: SCG Polyurethane sealant. Joint sealants Corner sealing device : SCG corner sealing panels.

: Square-edged with 8-16 mm thickness. SCG Smartboard

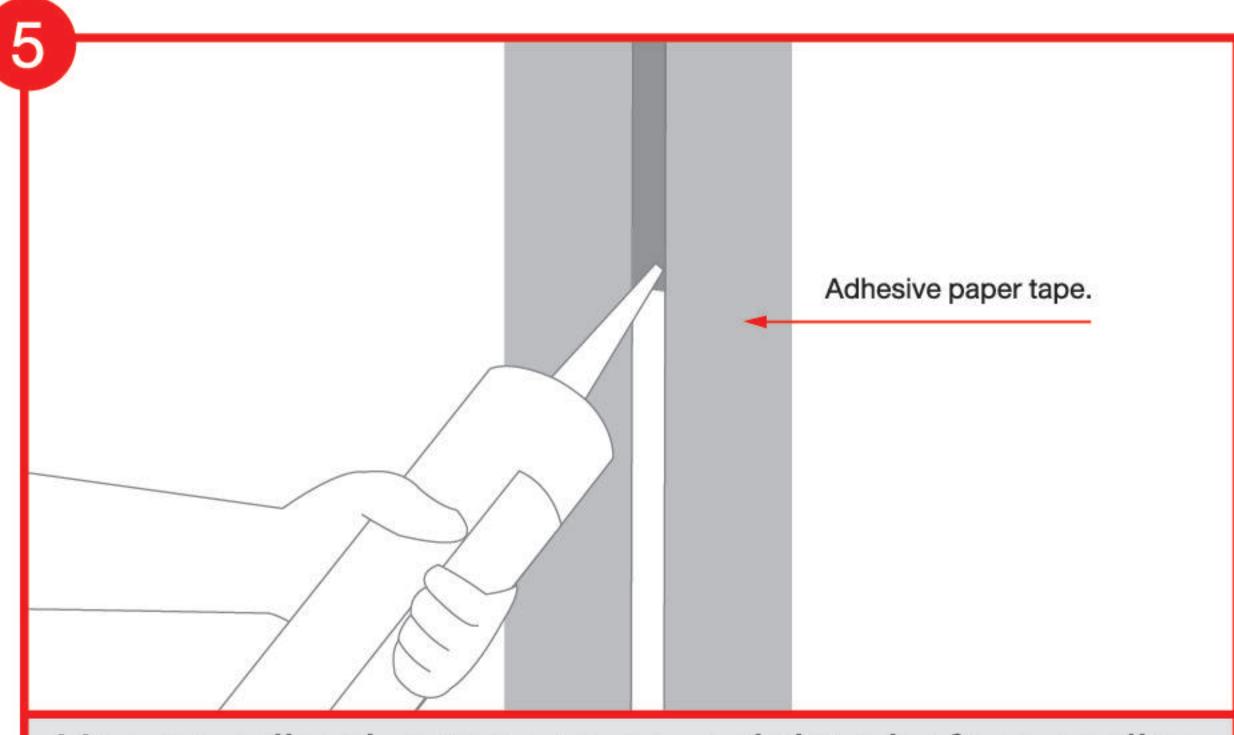
Tapered with 8 mm thickness.

#### **Installation Procedures**

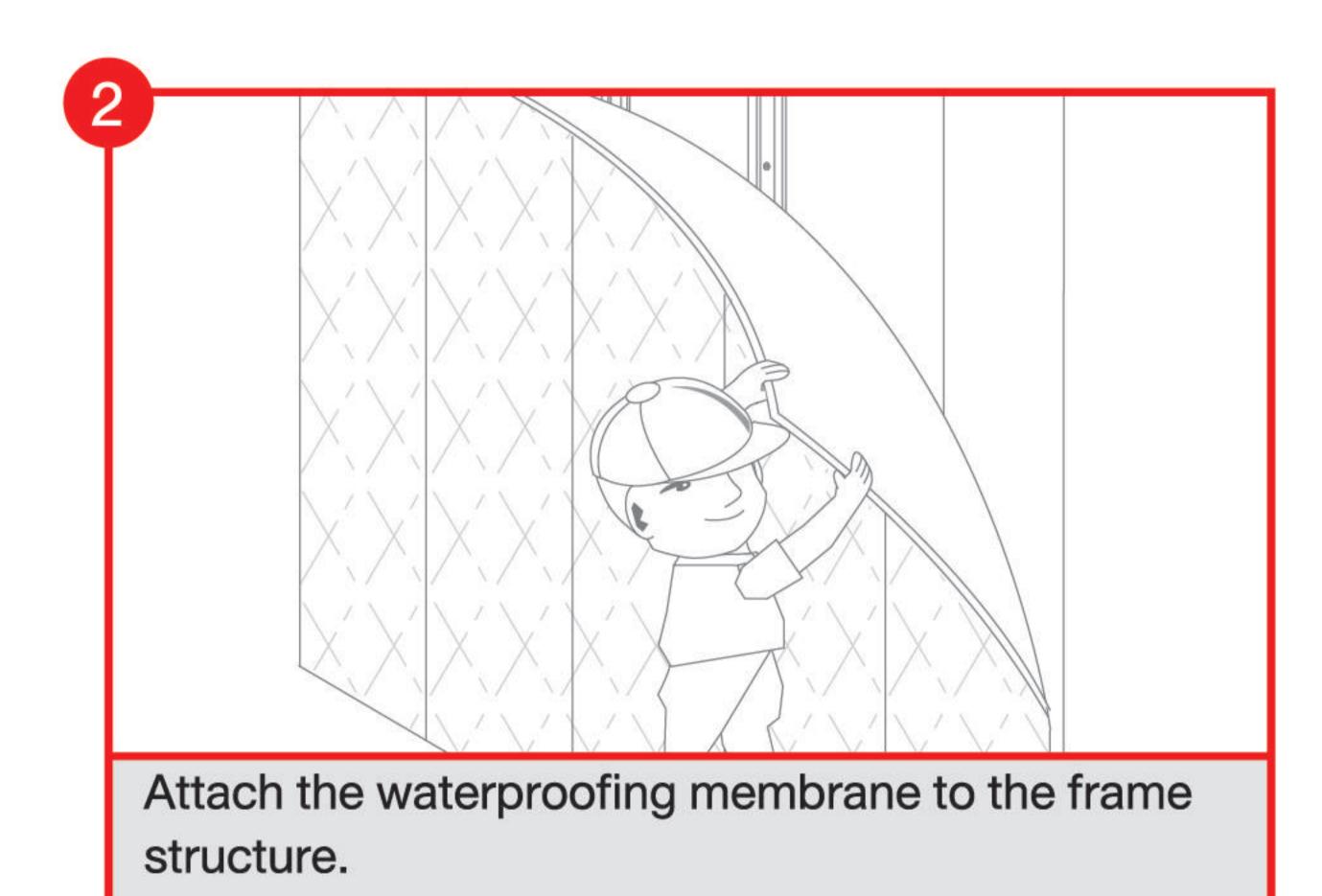


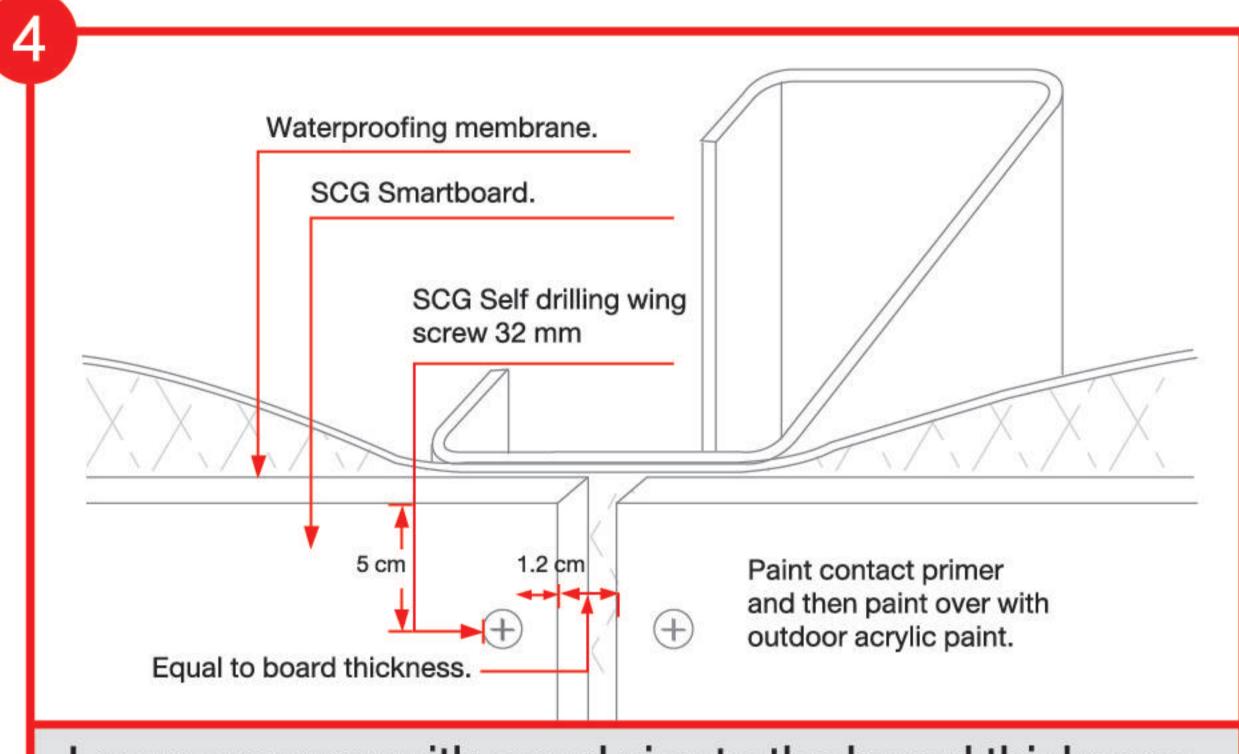
20 cm 20-30 cm

Attach SCG Smartboard 8-12-mm thick by using SCG Self drilling wing screw 32 mm at a distance of 1.2 cmfrom the edges of the board and with a span of 30 cm in the middle of the board. For SCG Smartboard 15-16 mm-thick, attach by using SCG Self drilling wing screw 45 mm

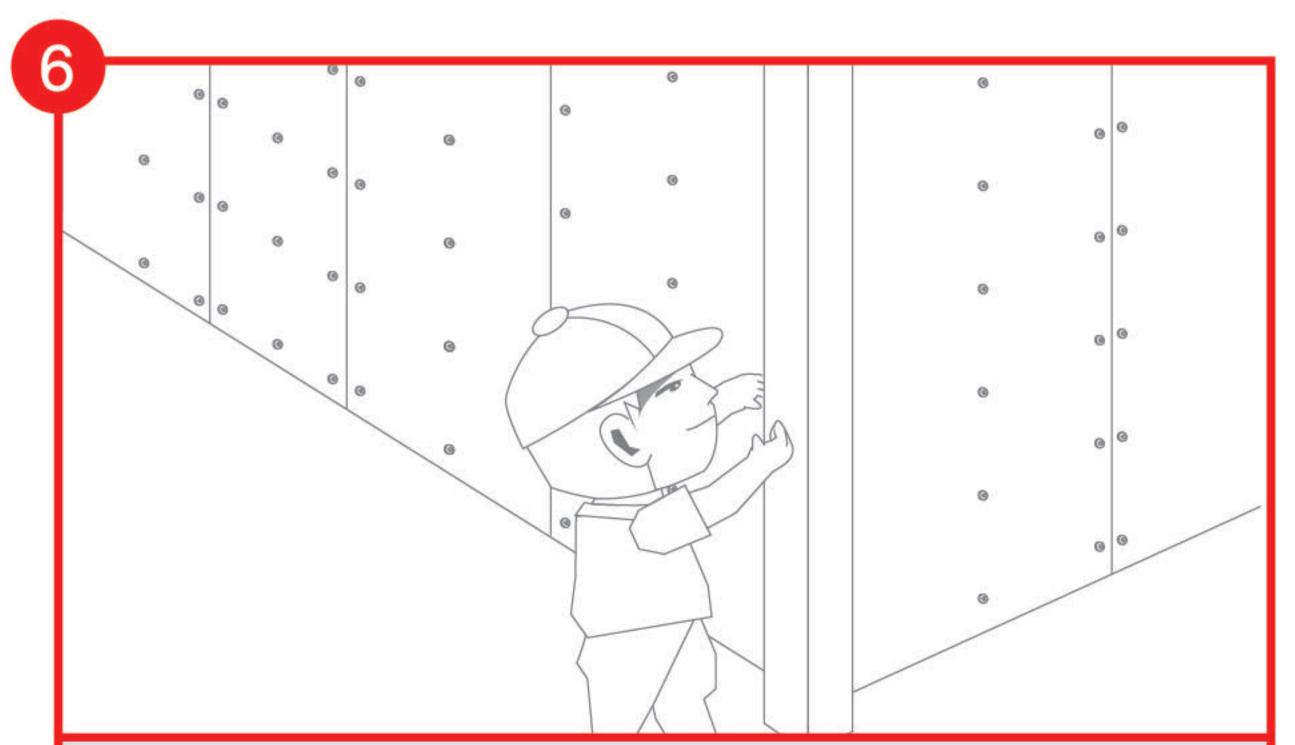


Use an adhesive tape to cover joints before sealing with SCG Polyurethane sealant and then scrape the joint line with a trowel (wet with soap water). Upon finishing, remove the adhesive paper tape and then leave to dry.

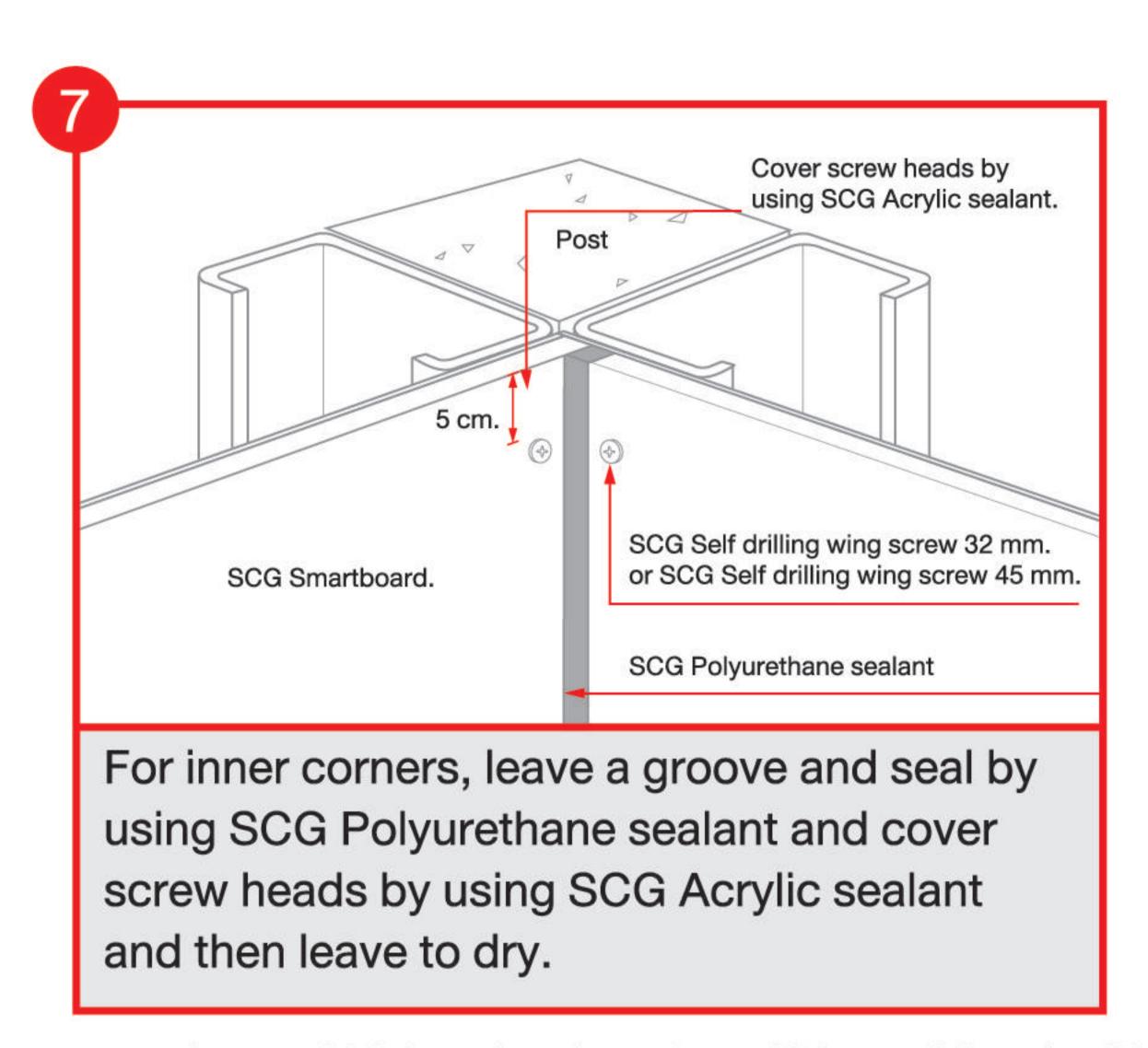


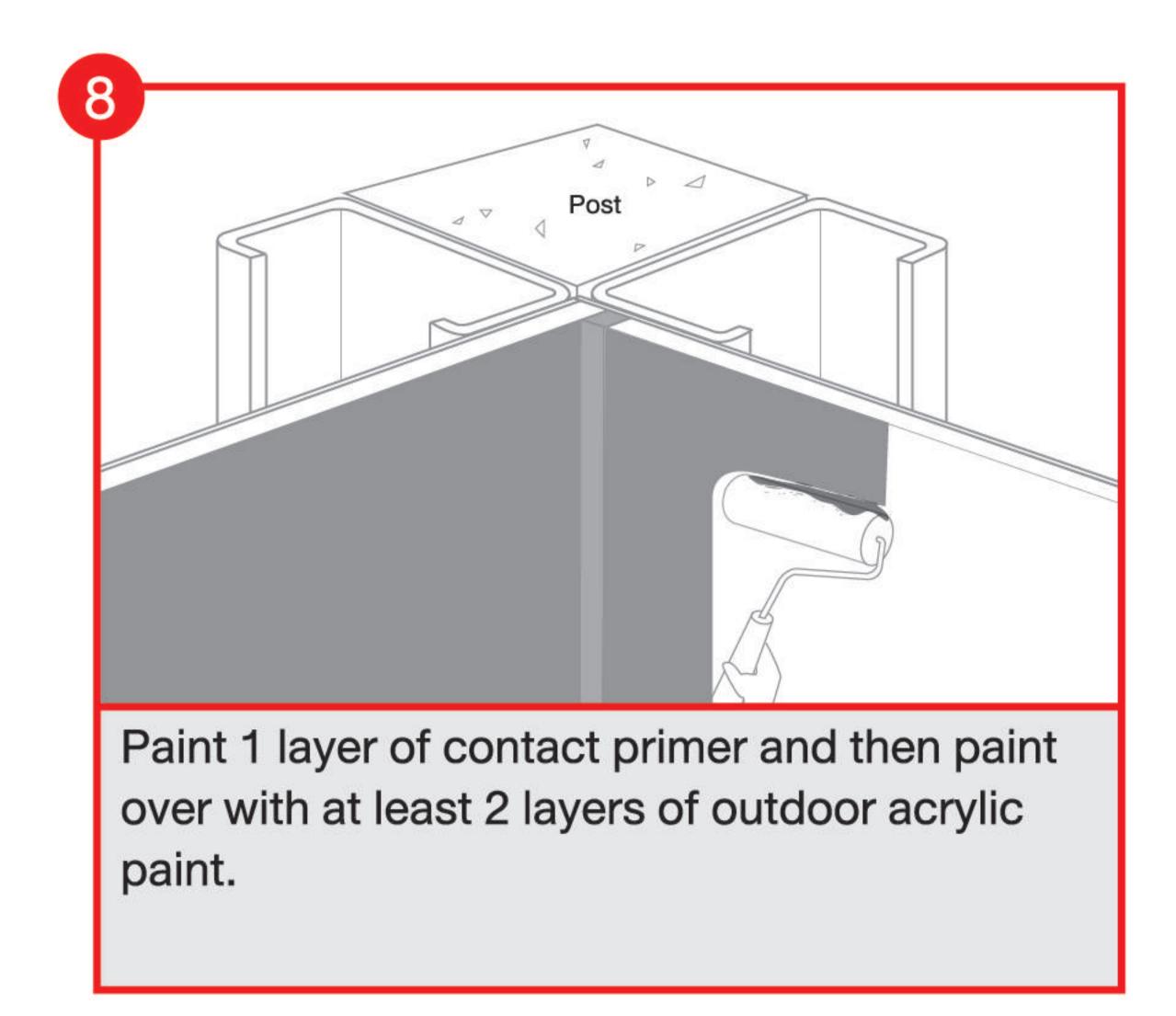


Leave grooves with equal size to the board thickness.



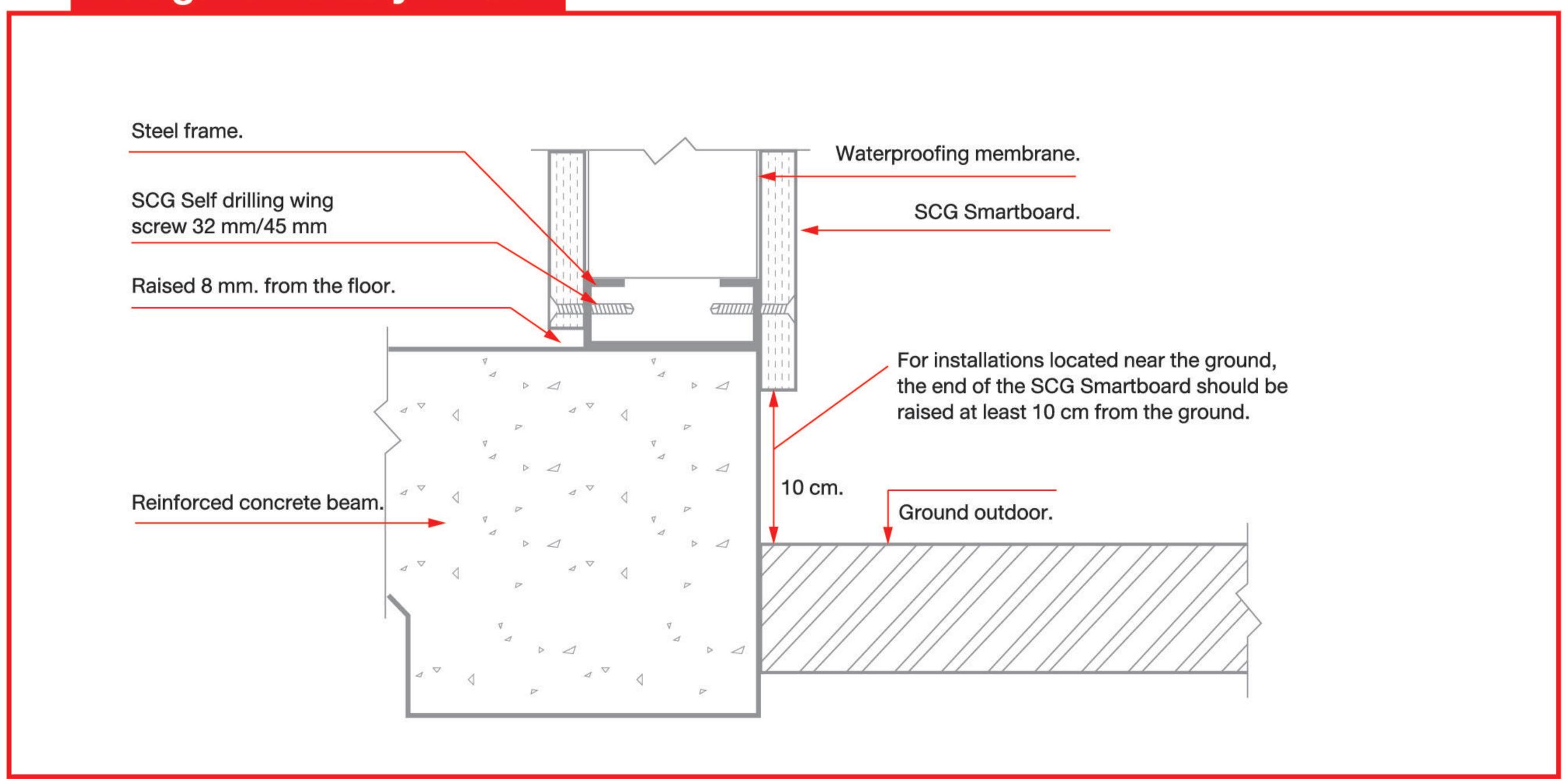
For outer corners attach SCG corner sealing panels. For concrete posts, attach by using SCG Needle point screw 38 mm and SCG Plastic anchor 37-mm, and for steel posts, attach by using SCG Self drilling wing screw 45 mm at 50-cm span.





Remarks: For SCG Smartboard 15-16 mm thick, attach by using SCG Self drilling screw 45 mm

## Design Assembly Details



#### Recommendations

For outdoor installations of SCG Smartboard, wind and other impact forces have to be taken into consideration. Accordingly, the recommended frame spans are as follows:

|                           | VA/in al Enven                     | Frai                     | ne Spacing (centimeters) |                  |  |  |
|---------------------------|------------------------------------|--------------------------|--------------------------|------------------|--|--|
| Reinforced concrete beam. | Wind Force<br>(kg/m <sup>2</sup> ) | SCG Smartboard Thickness |                          |                  |  |  |
|                           |                                    | 8 mm                     | 10 mm                    | 12 mm            |  |  |
| Not exceeding 10          | 50                                 | 40                       | 60                       | 60               |  |  |
| 10-20                     | 80                                 | Not recommended.         | 40                       | 40               |  |  |
| 20-30                     | 120                                | Not recommended.         | Not recommended.         | 40               |  |  |
| Exceeding 30              | 160                                | Not recommended.         | Not recommended.         | Not recommended. |  |  |

Remarks: - If the wall is taller than 3 meters per floor, the manufacturer's consultation is advised.

<sup>-</sup> The spacing and thickness of SCG Smartboard chosen are to primarily be based on the specifications of the engineer designing the building.

#### 2.2 Spaced Lining Indoor Wall Installation

#### **Frames and Equipment**

Frames : SCG Galvanize frame C74, U76.

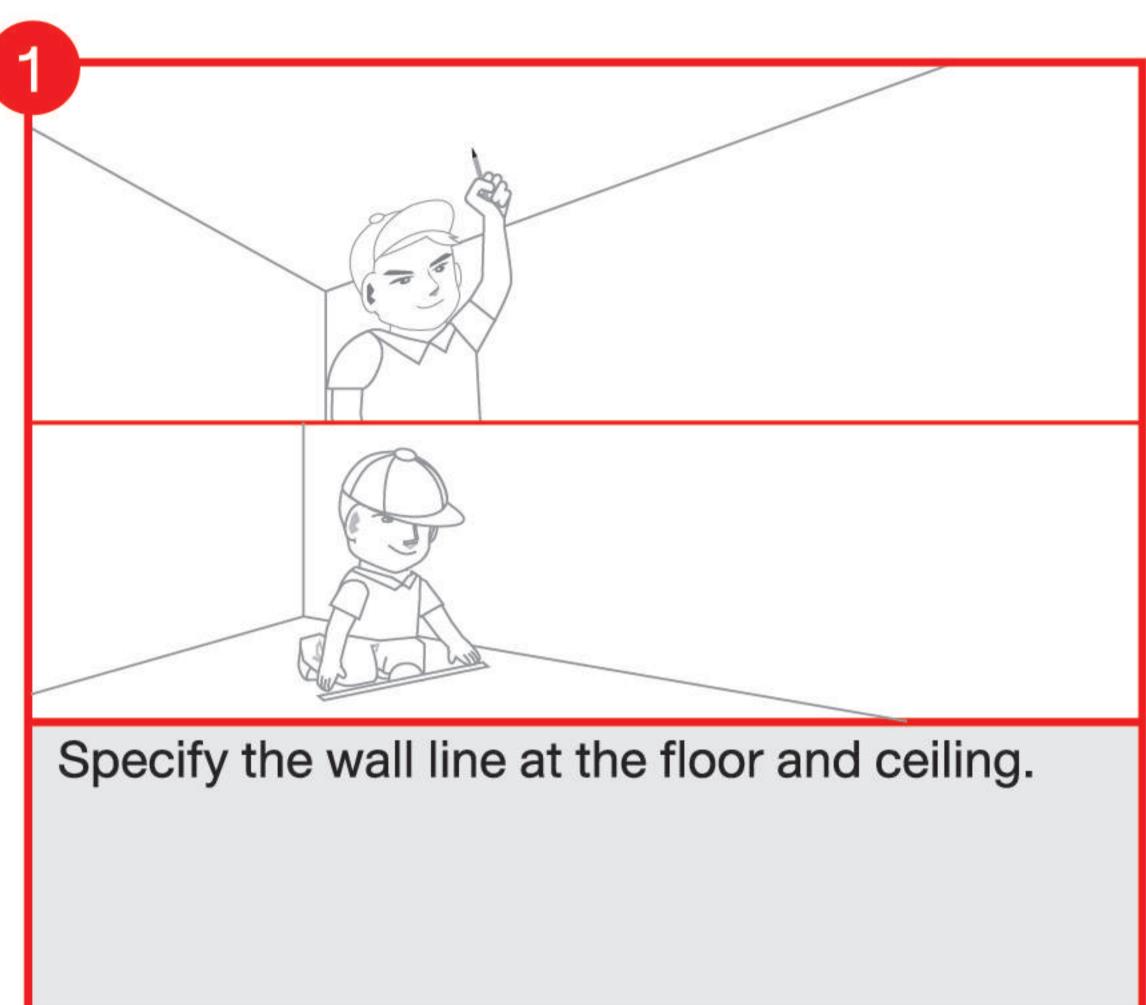
Attachments : SCG Needle point screw 23 mm

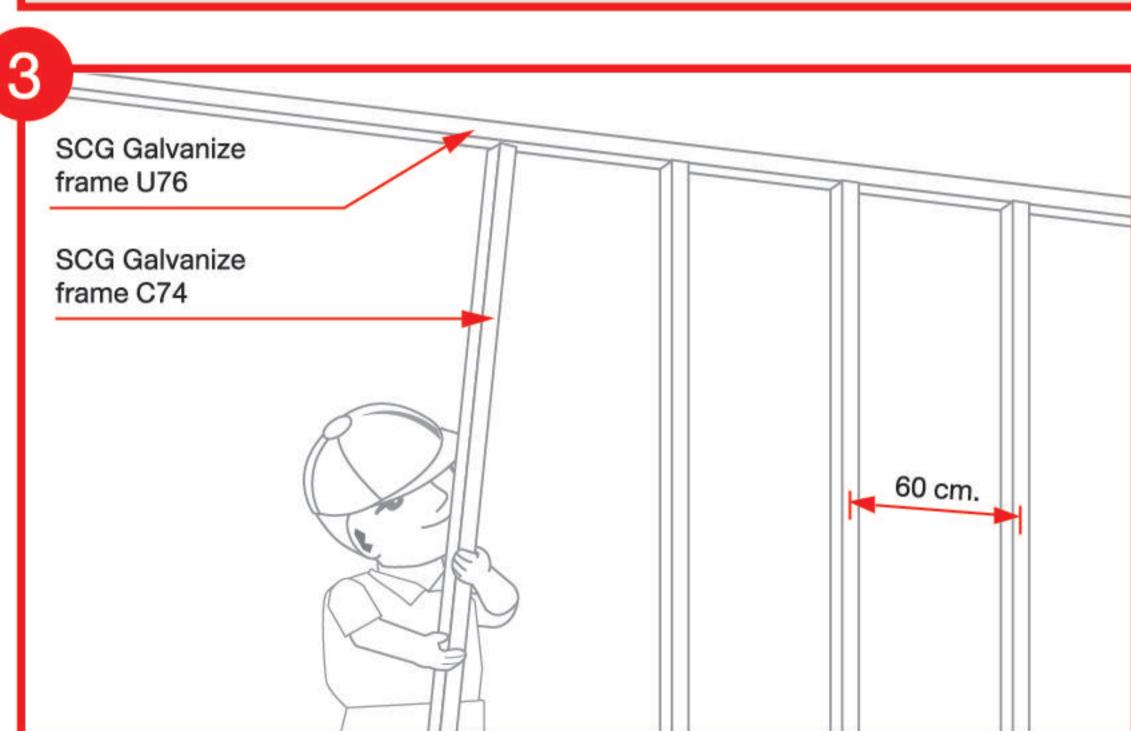
Joint sealants : SCG Polyurethane sealant

SCG Smartboard: Square-edged with 8-12 mm thickness.

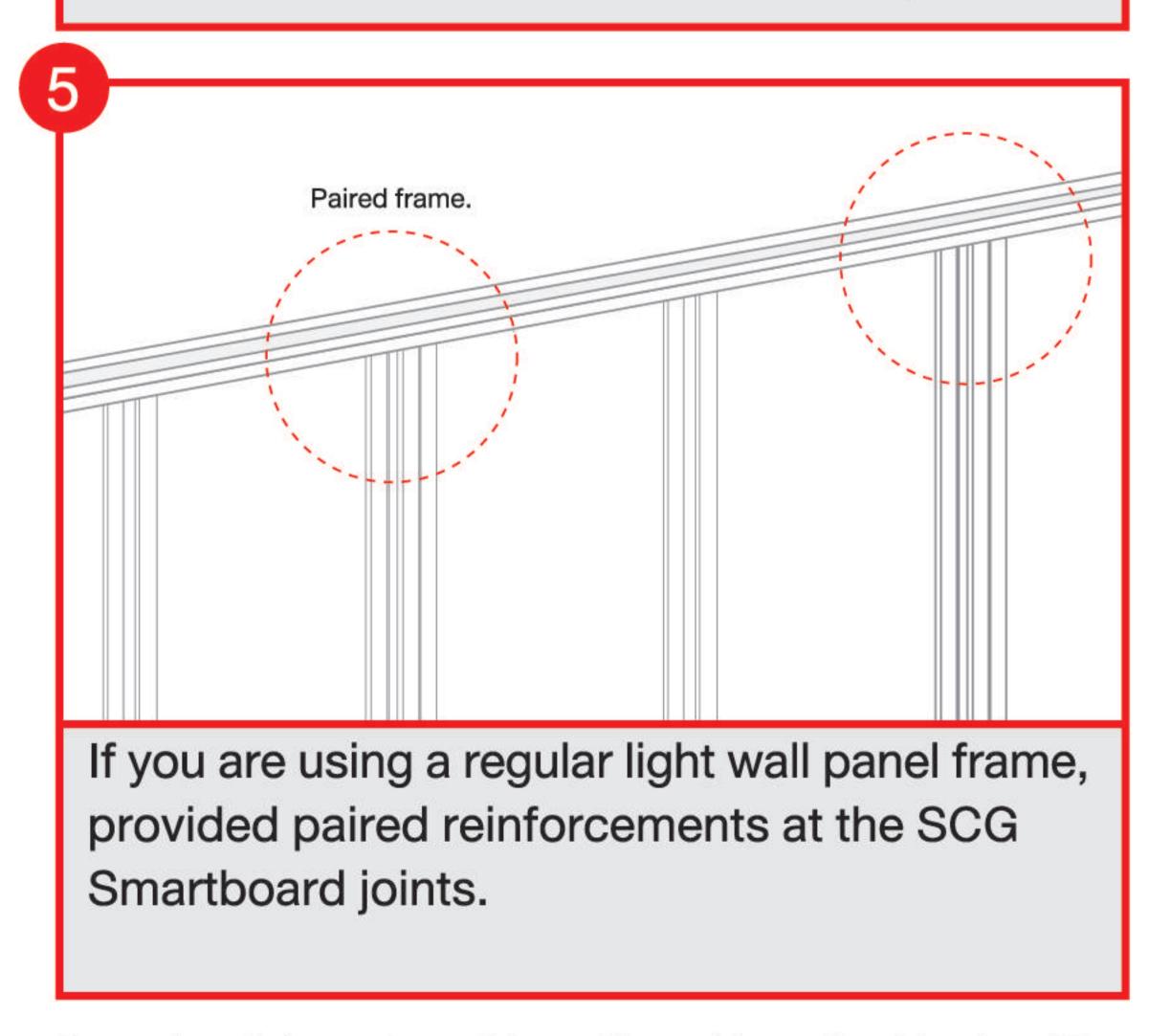
Tapered with 8 mm thickness. Rustic with 6 - 8 mm thickness.

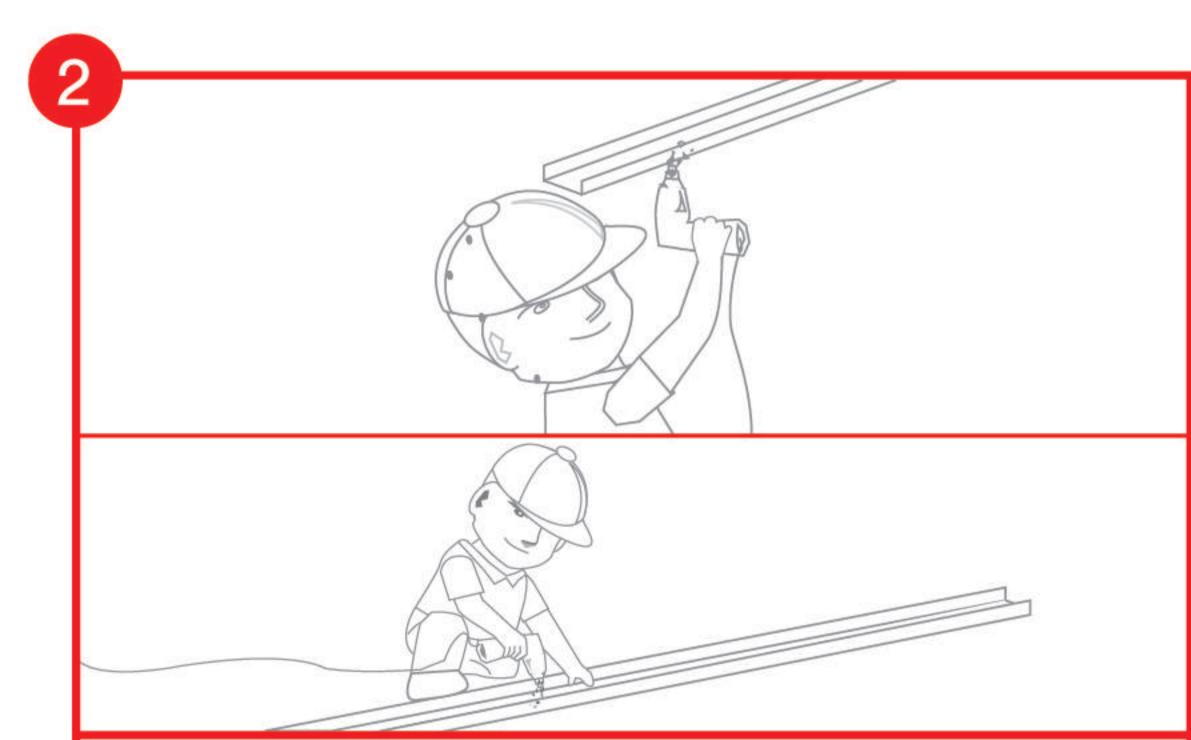
#### **Installation Procedures**



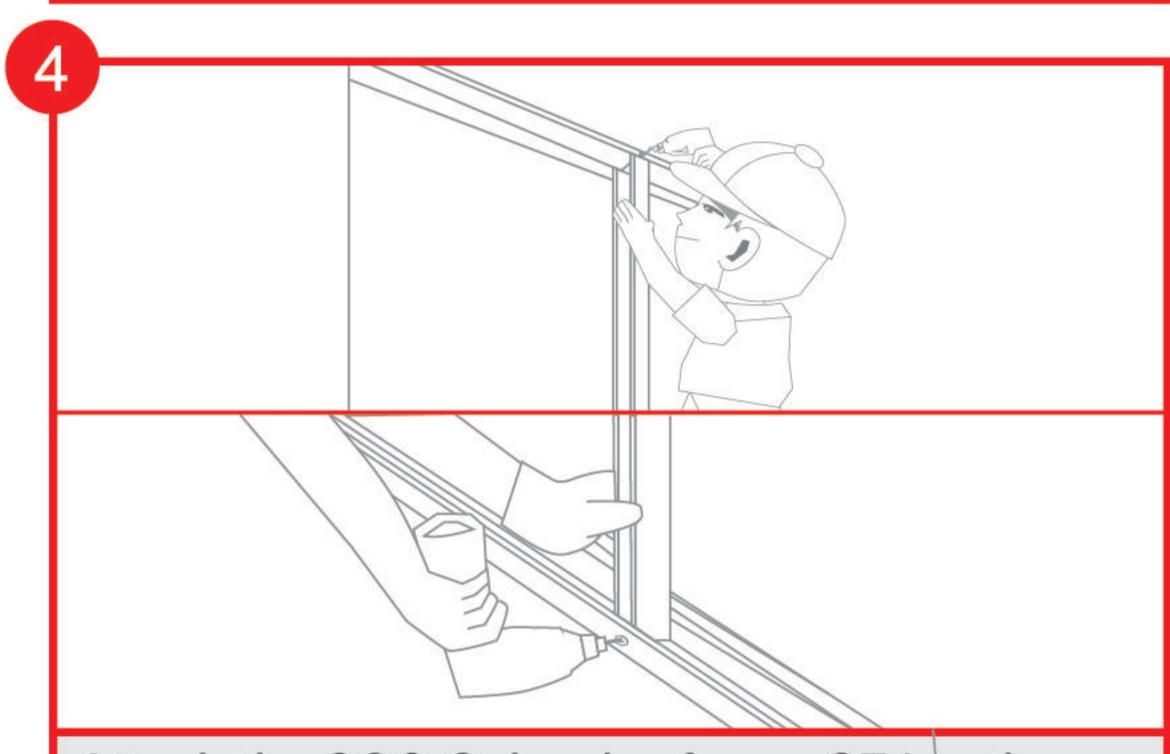


Install and attach SCG Galvanize frame C74 to the SCG Galvanize frame U76 by making insertions and twisting them to be perpendicular to the SCG Galvanize frame U76 at 60-cm span.

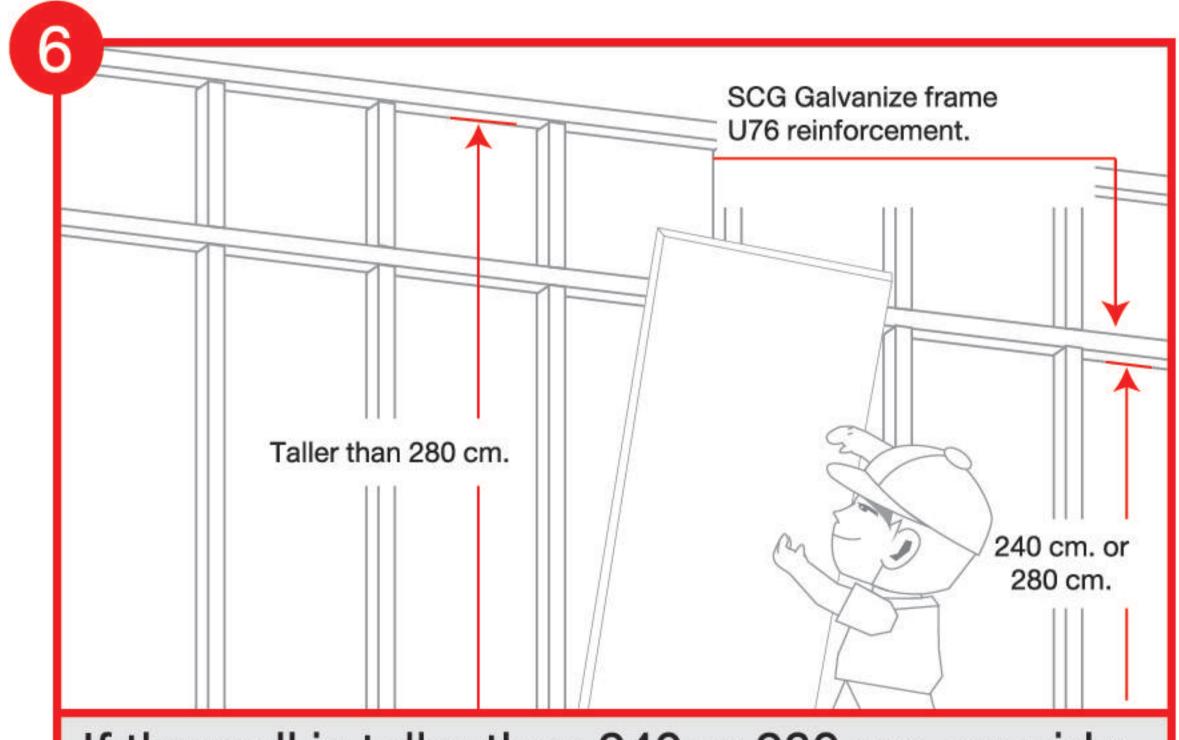




Install SCG Galvanize frame U76 on the floor and ceiling along the desired line by using SCG Plastic anchor 37 mm and SCG Needle point screw 38 mm at 60-cm span.

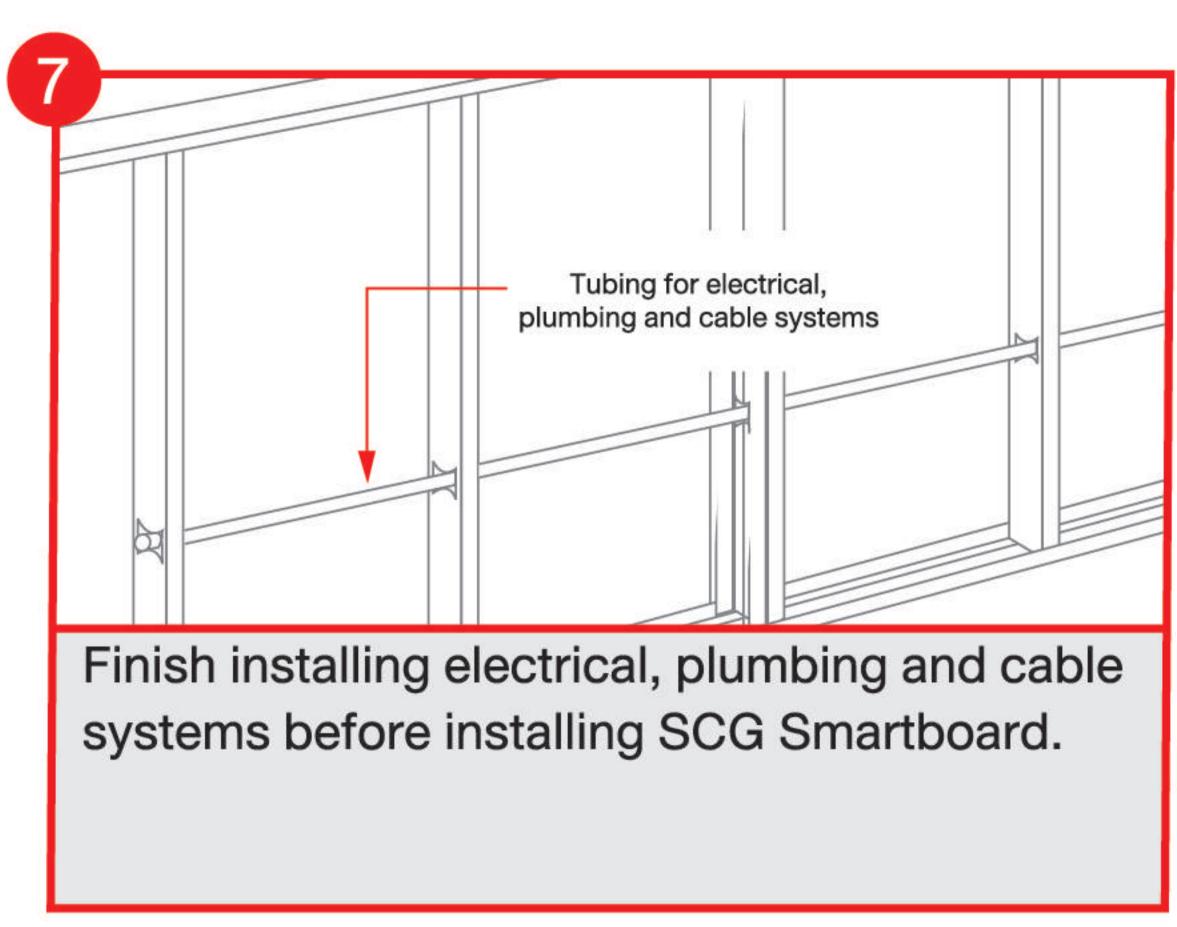


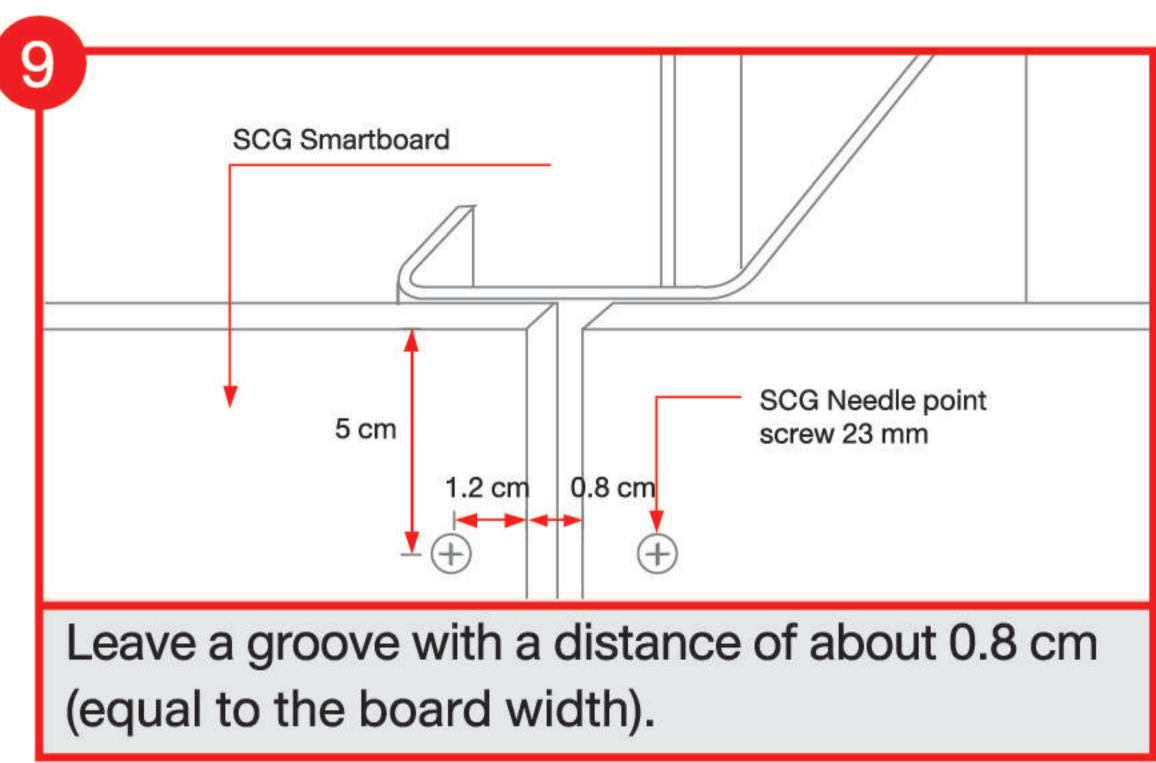
Attach the SCG Galvanize frame C74 to the SCG Galvanize frame U76 by using SCG Needle point screw 10 mm

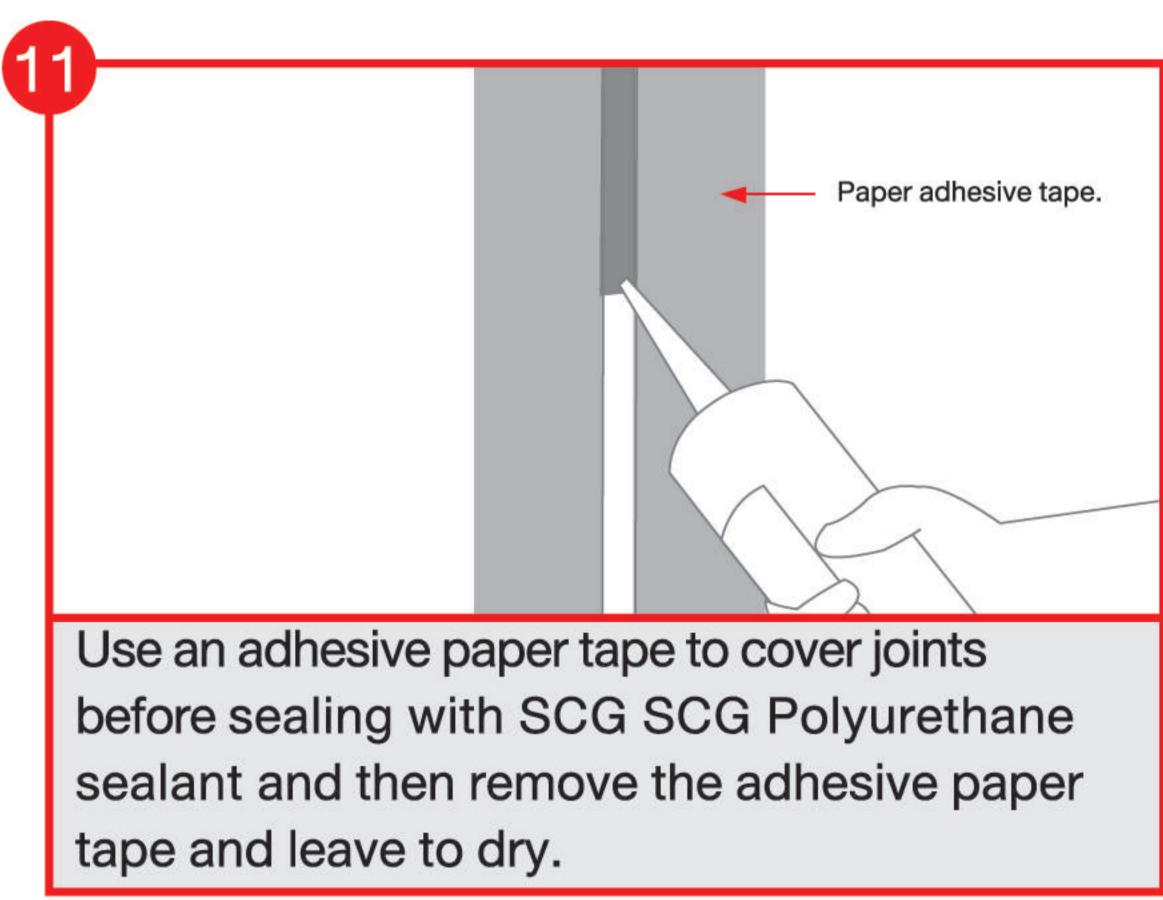


If the wall is taller than 240 or 280 cm, provide SCG Galvanize frame U76 horizontally on the upper side at the height of the boards (240–280 cm) to support board attachments.

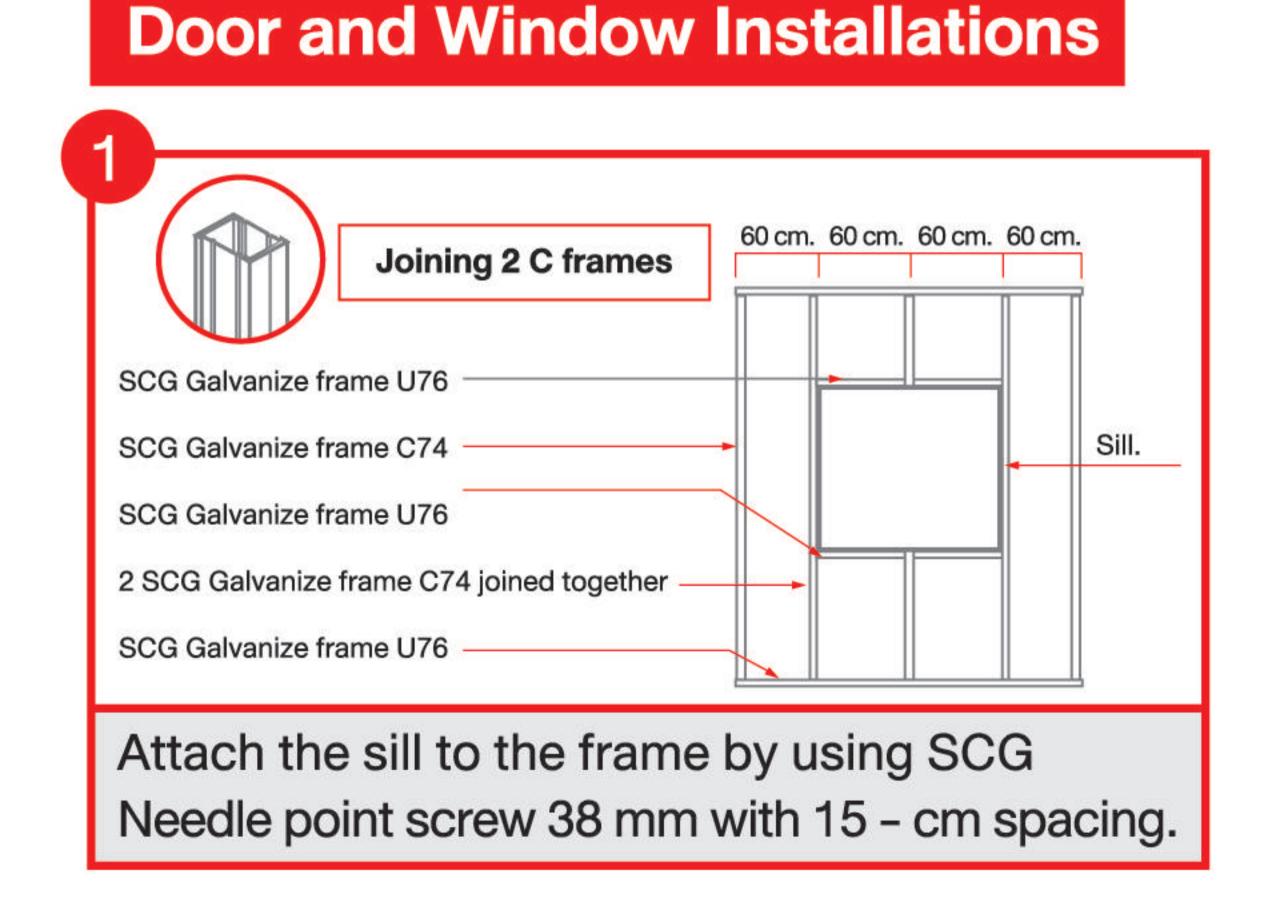
Remarks: If the surface of the wall panel frame is wider than 45 mm, no paired frame reinforcement, such as SCG Galvanize frame, is necessary. SCG Smartboard 6-mm thick that are used for decorative walls are to be installed with frame span not exceeding 40 cm.

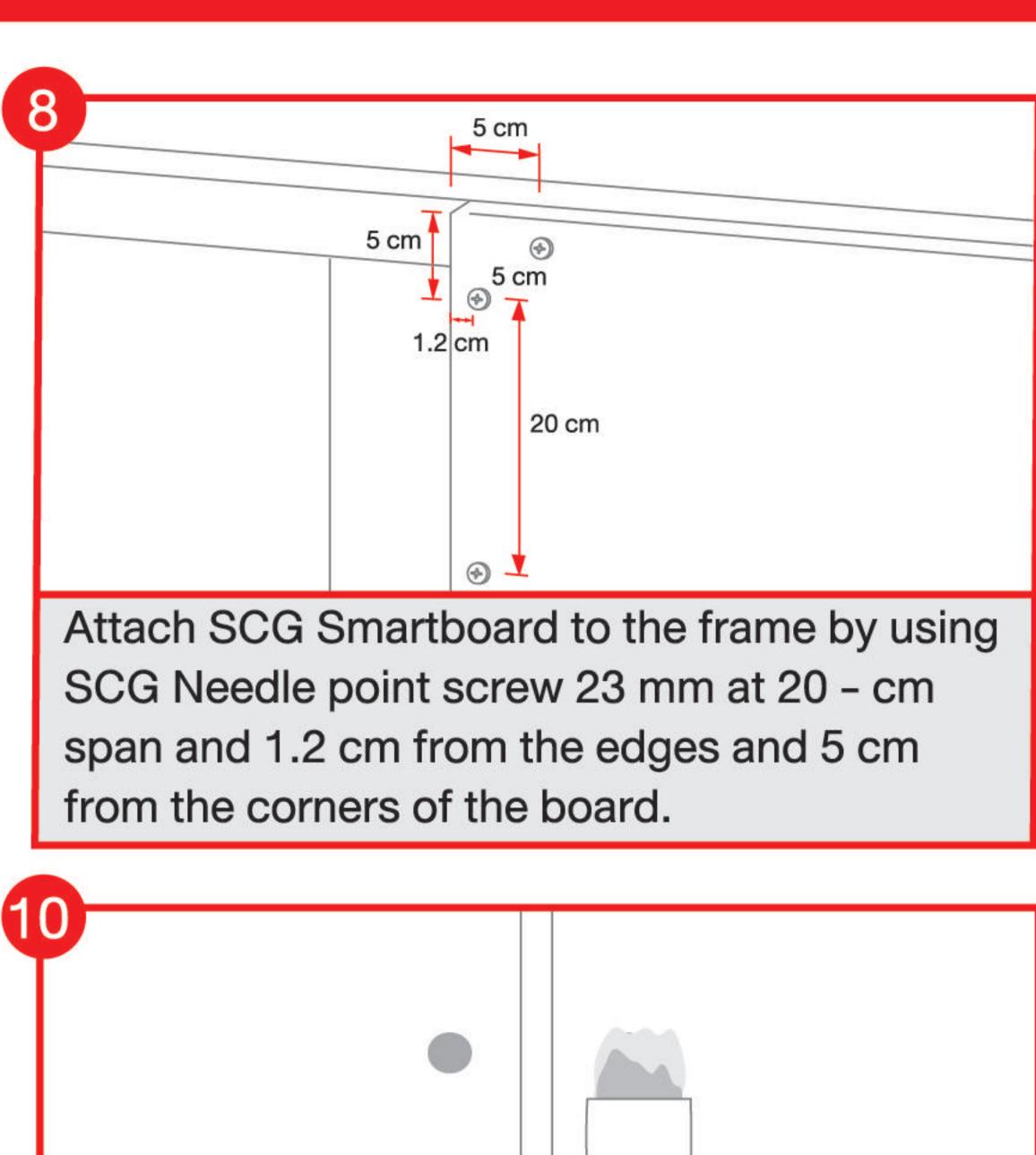


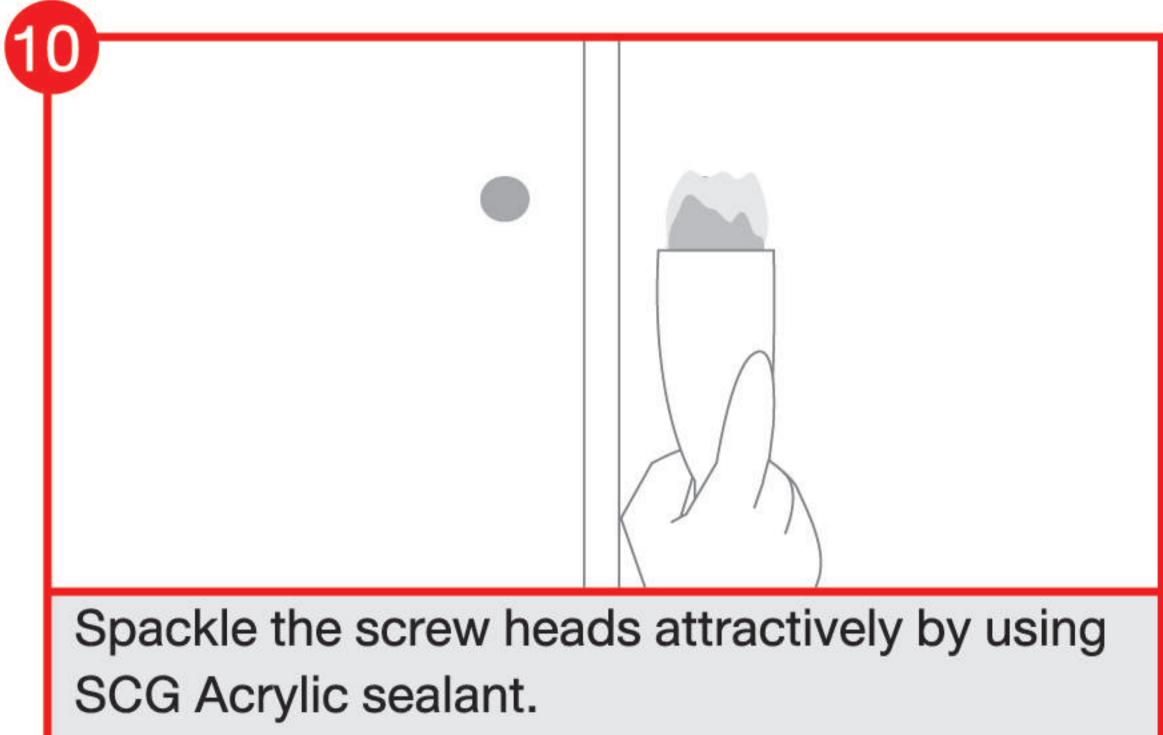


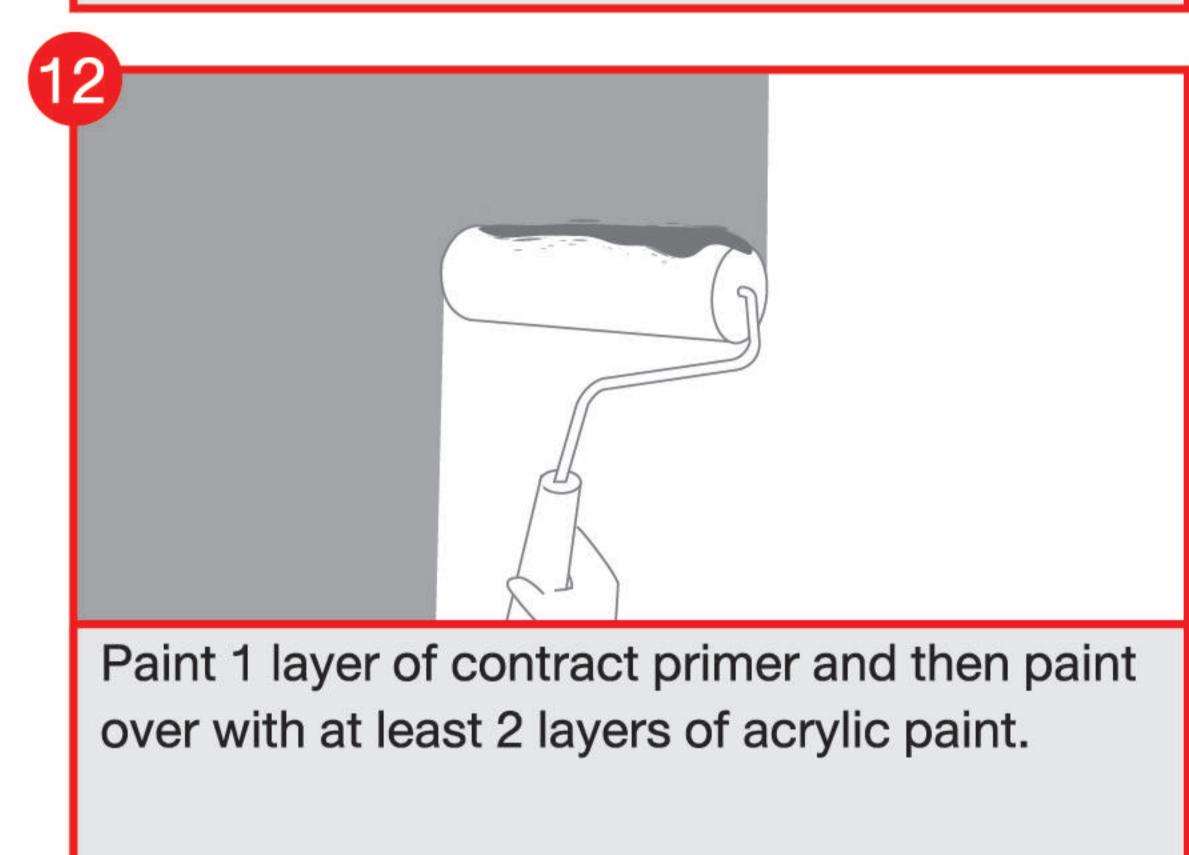


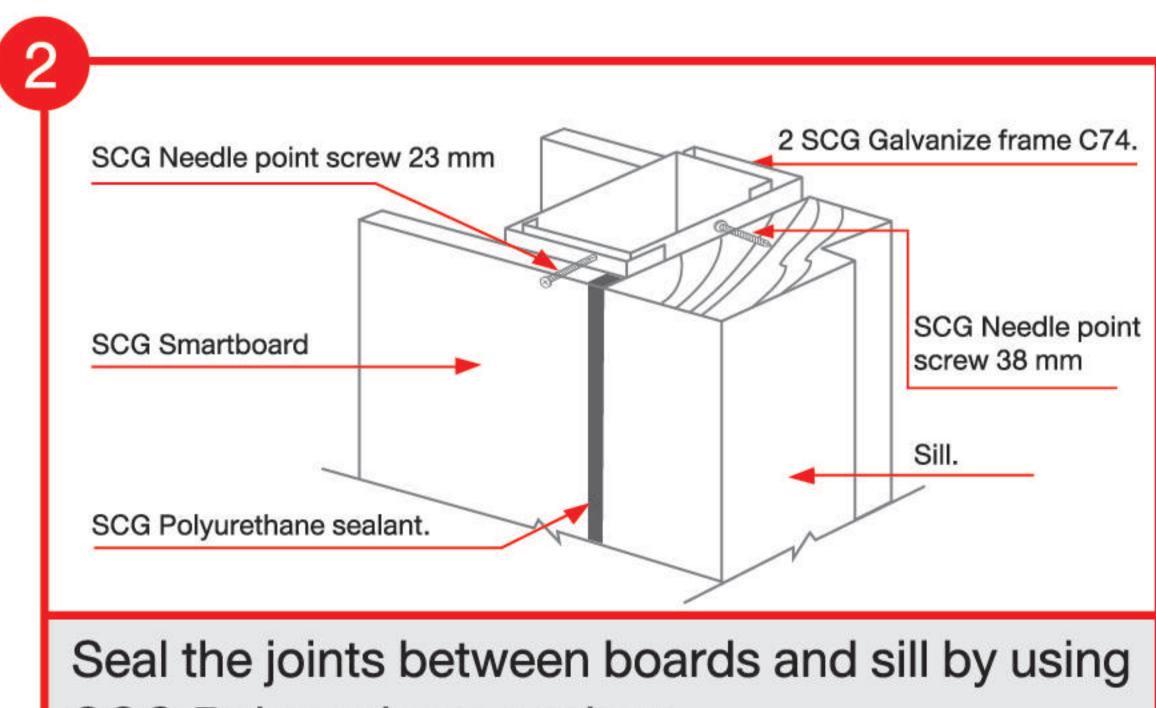
\*Remarks: If SCG Smartboard are installed horizontally, you should install subframes at every joint along the length of the boards to allow joint sealing by SCG Polyurethane sealant.





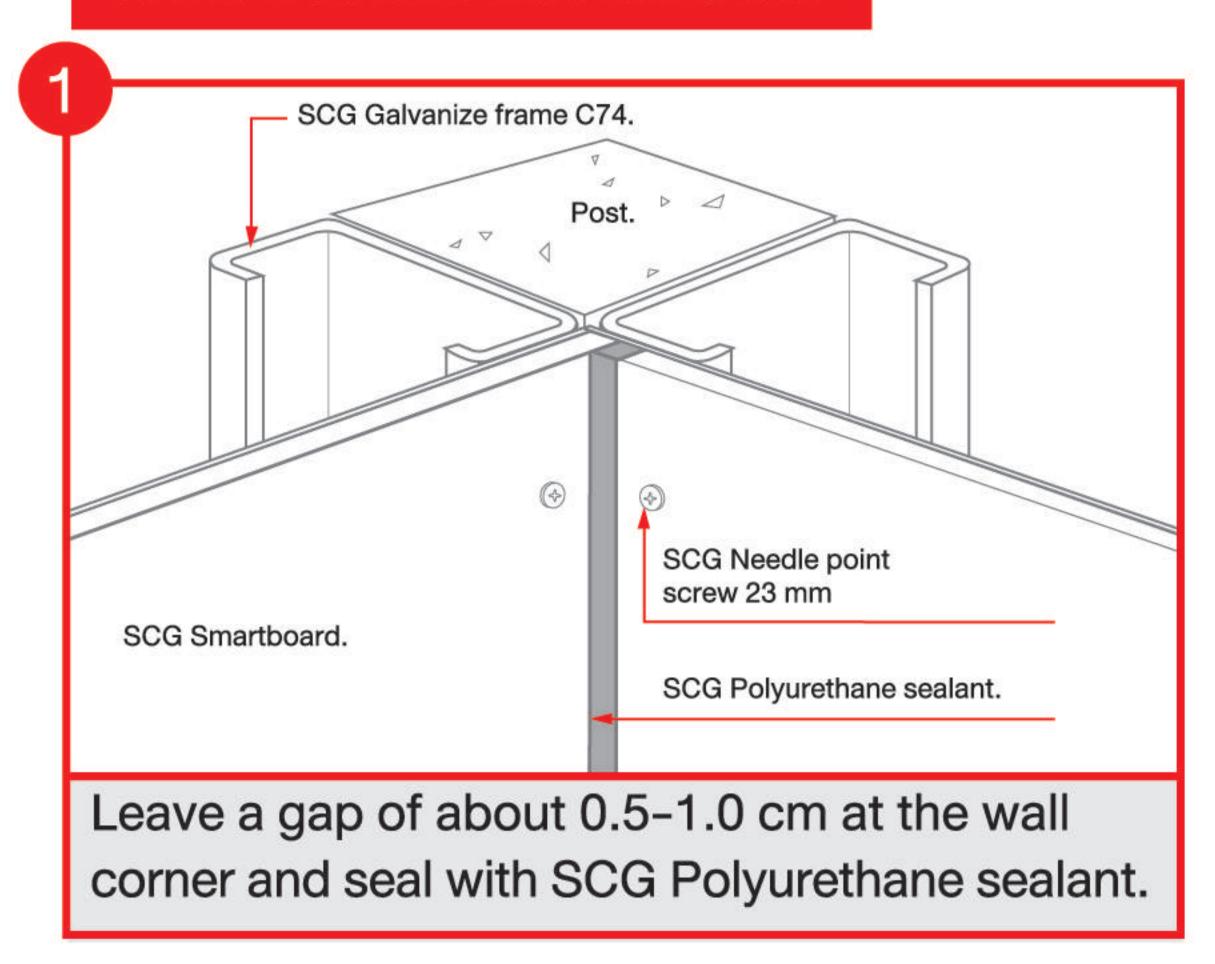






SCG Polyurethane sealant.

#### Wall Corner Installation



#### 2.3 Concealed Indoor Wall Installation

#### **Frames and Equipment**

Frames : SCG Galvanize frame C74, U76.

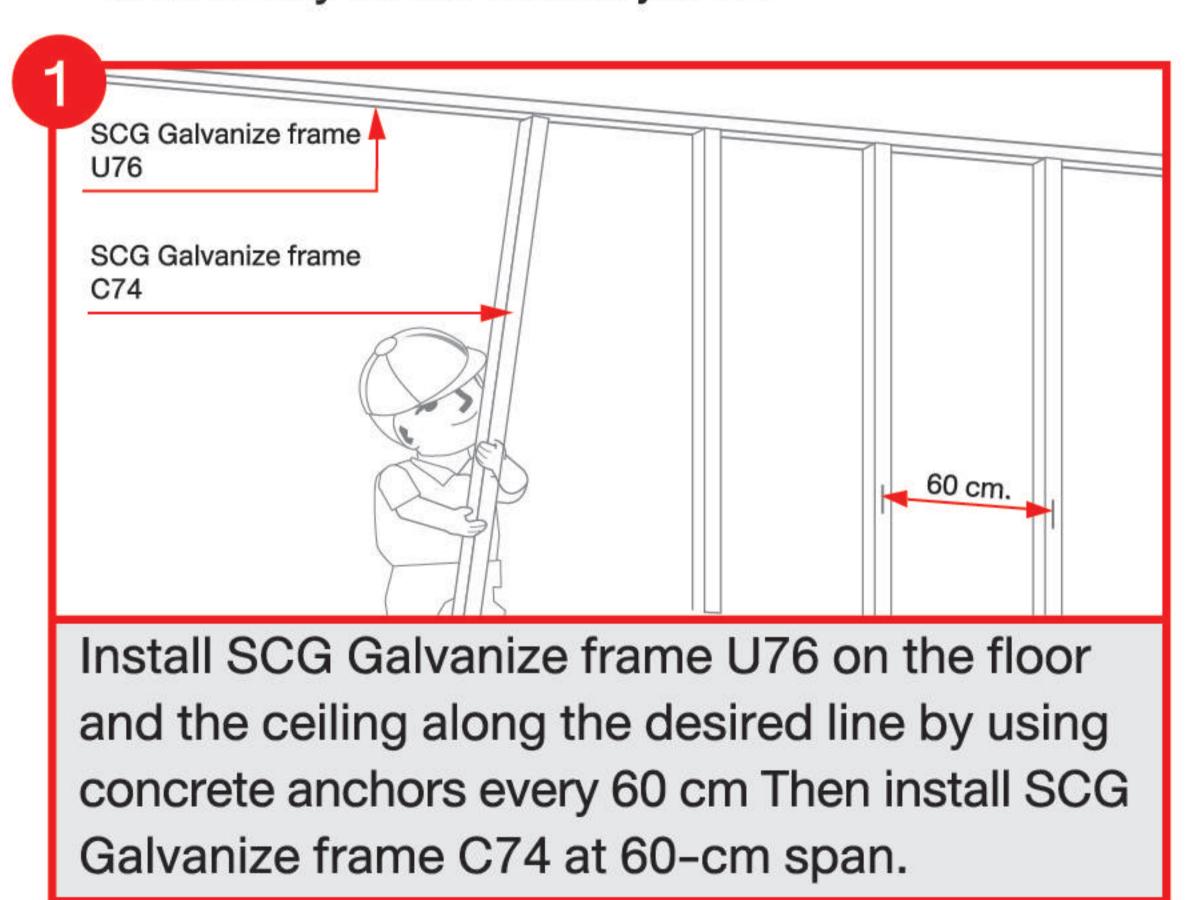
Attachments : SCG Needle point screw 23 mm., SCG Needle point screw 10 mm

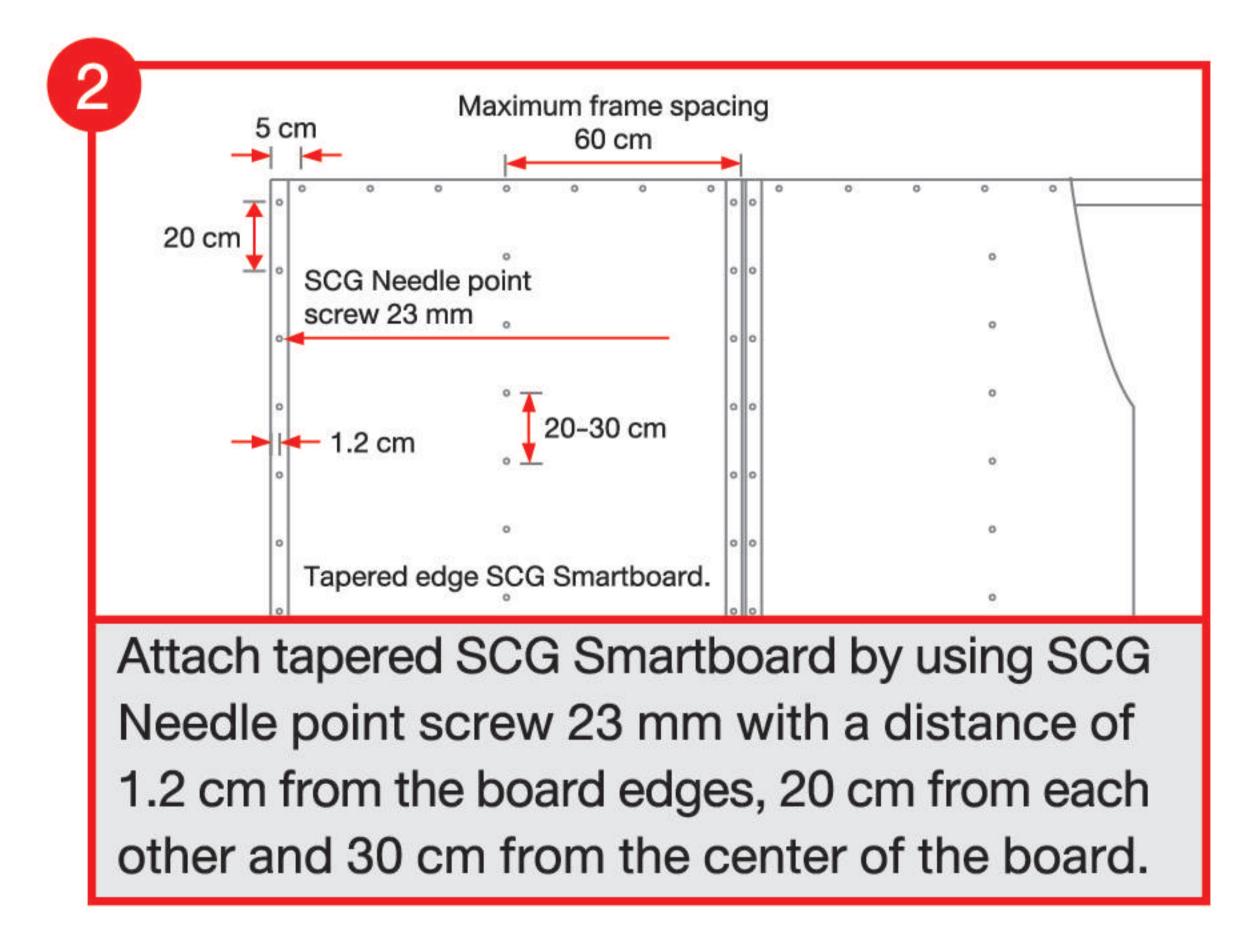
Plastering equipment: SCG Polyurethane sealant.

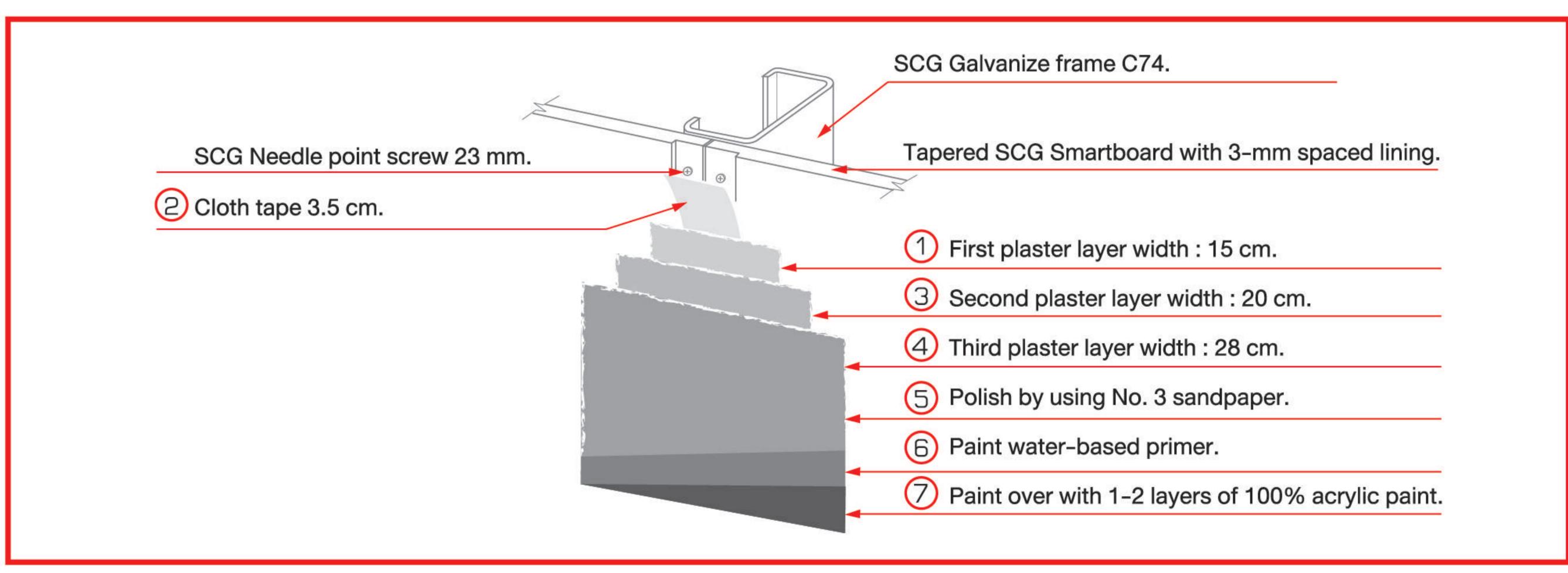
SCG Smartboard : 2-side tapered with 8-mm thickness sized 120 x 280 cm

#### **Installation Procedures**

The installation procedures are the same as for indoor spaced lining boards, but no additional frame reinforcements are necessary at the board joints.







#### Recommendations

- We recommend smooth-plastered walls for indoor use in areas not in direct contact with water.
- If the wall has a contiguous area larger than 6 meters, separate the joints of the SCG Smartboard from the frames.

#### 2.4 Curved Wall Installation

#### Frames and Equipment

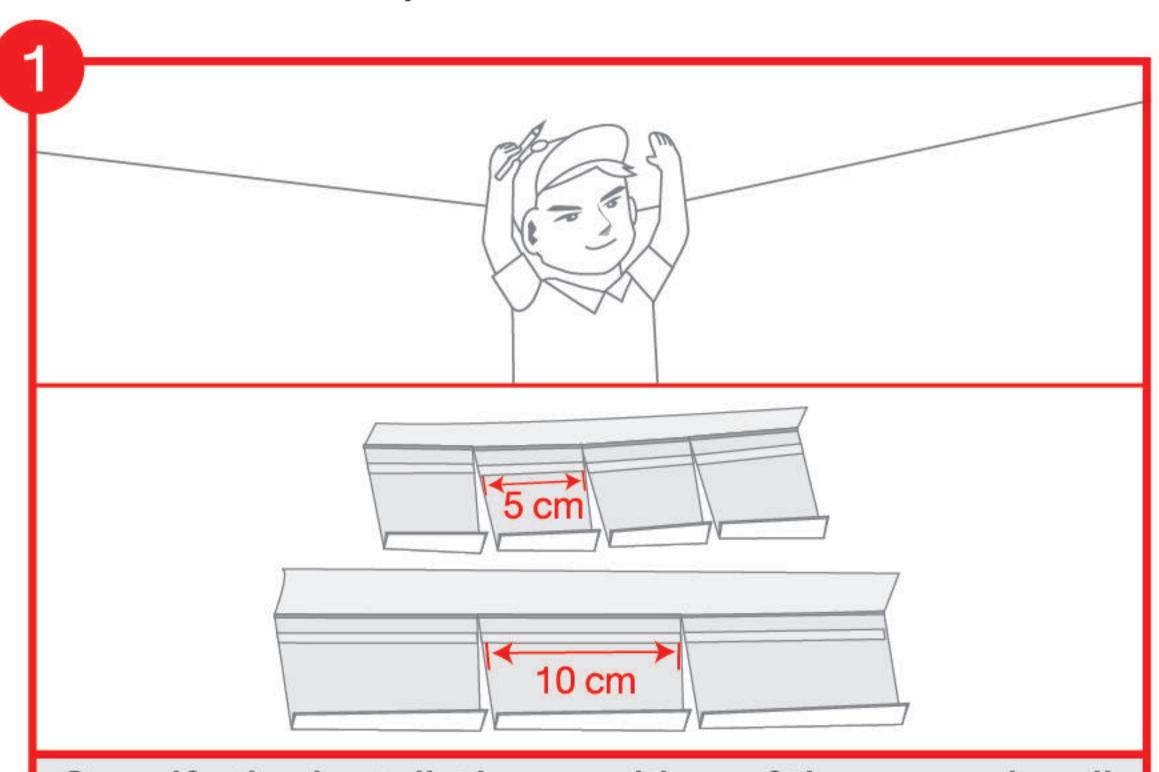
Frames : SCG Galvanize frame C74, U76.

Attachments : SCG Needle point screw 23 mm

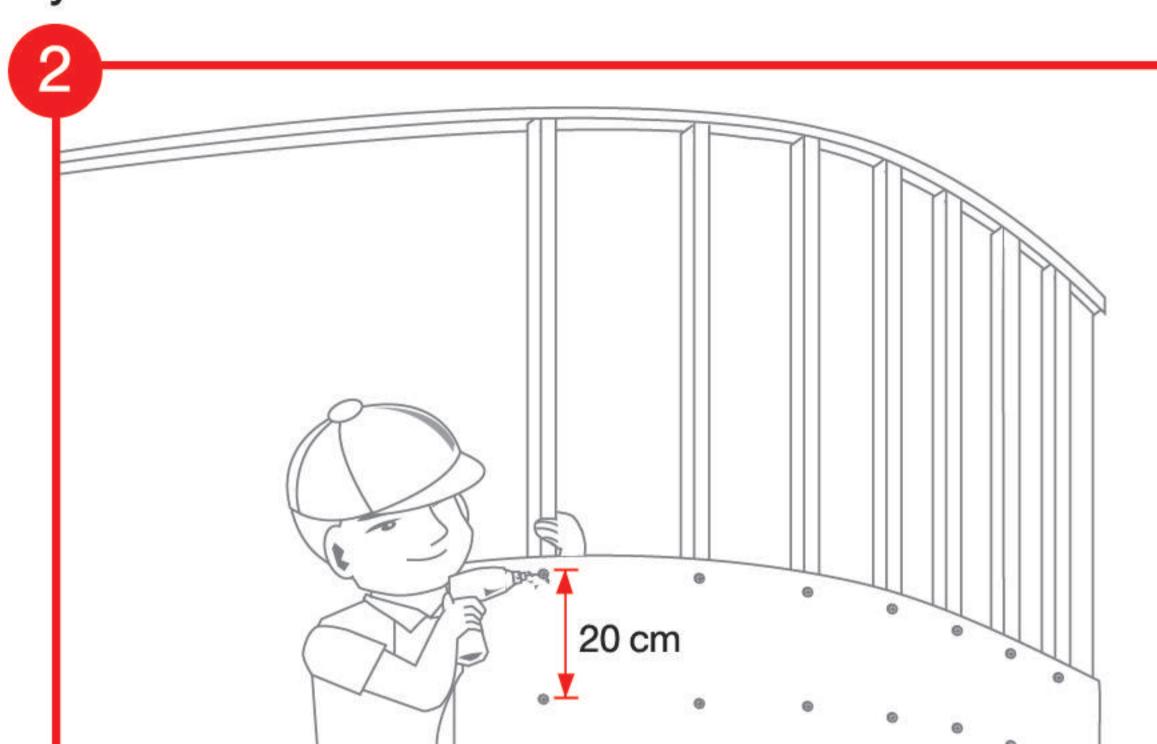
SCG Smartboard : Square-edged with 8 mm thickness.

#### Installation Procedures

SCG Smartboard panels are flexible and can be bent without applying any water and are installed to curved frames as follows:



Specify the installation position of the curved wall on the floor and ceiling. Install SCG Galvanize frame U76 crosswise at with a span of 5–10 cm. to the floor and ceiling by using concrete anchors to attach at 30-cm span.



Install SCG Galvanize frame C74 along the curvature at 30-cm intervals and attach SCG Galvanize frame C74 lengthwise by using SCG Needle point screw 23 mm at 20-cm span and spaced 1.2 cm away from the edges.

Recommendations: SCG Smartboard can be installed in a curved manner by installing them to frames with the following curve radiuses:

| Product                   | Thickness | Minimum Suitable<br>Curve Radius | Frame Span | Attachment Span |
|---------------------------|-----------|----------------------------------|------------|-----------------|
| SCG Smartboard wall panel | 8         | 3.00 m                           | 30 cm      | 20 cm           |

Remarks: The curve radius in the table above is the curve radius along the length of an SCG Smartboard.

#### 2.5 Wall-on-Concrete Installation

#### **Frames and Equipment**

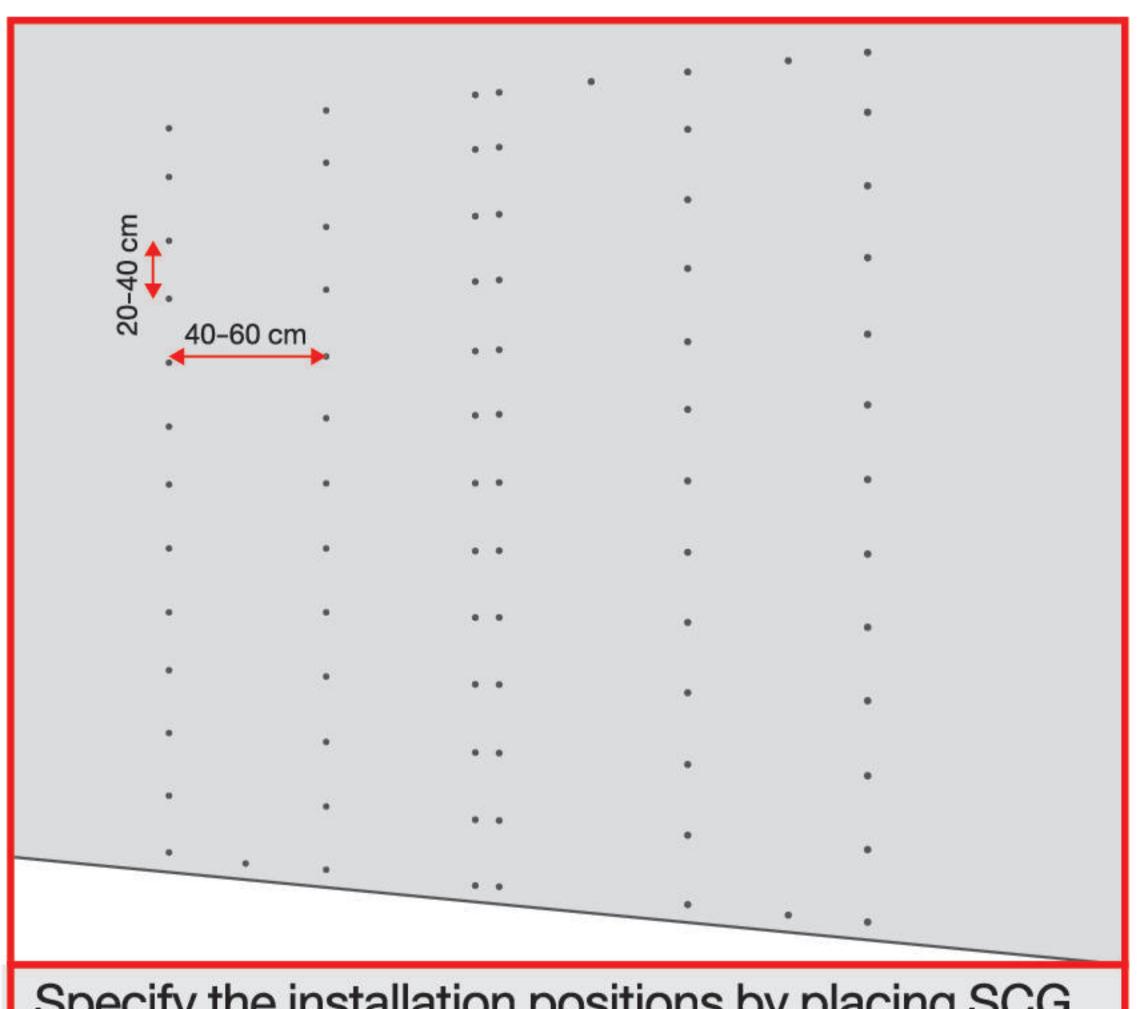
Frames : Smooth and level concrete wall.

Attachments : SCG Plastic anchor 37 mm and SCG Needle point screw 38 mm

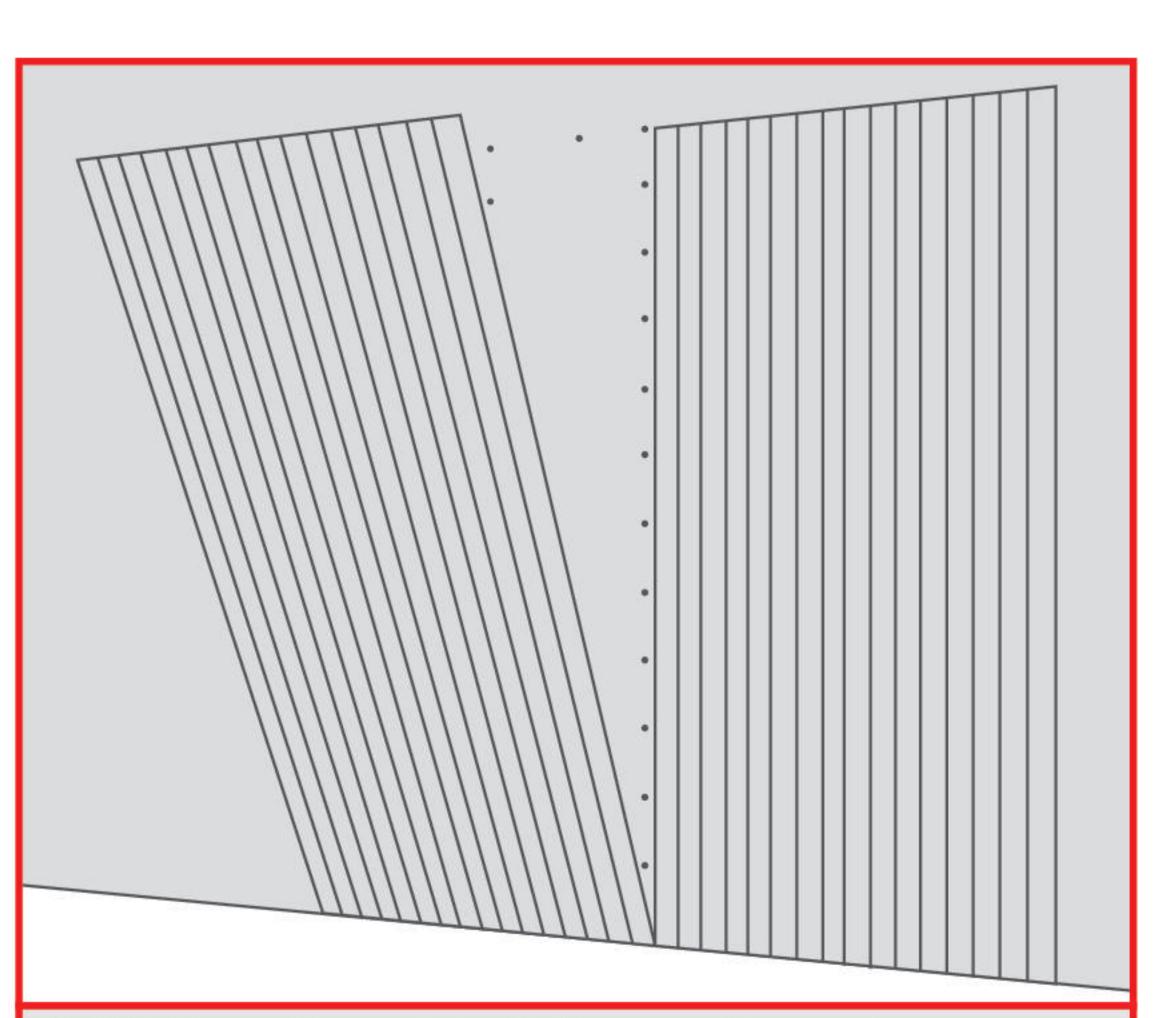
Joint sealant : SCG Polyurethane sealant.

SCG Smartboard : Square - edged with 8 mm thickness.

Tapered with 8 mm thickness. Rustic with 6 - 8 mm thickness.



Specify the installation positions by placing SCG Smartboard and drilling holes to the concrete surface and then drilling the concrete to embed 37-mm plastic anchors at the specified span.



SCG Smartboard installed on the wall where anchors have already been embedded are to be attached by using SCG Needle point screw 38 mm

# 3. Floor Installation

#### **Frames and Equipment**

Frames : Shaped steel joists.

Attachments : SCG Self drilling screw 45 mm

Joint sealant : SCG Gumcrete.

SCG Smartboard: Square-edged with 15-20 mm thickness.

## **Work Preparations**

1. Prepare the structure to support SCG Smartboard by ensuring that the size and spacing of the frames can safely support weight primarily in accordance with the specifications of the designing engineer or by choosing frame size and spacing specifications from the table.

#### Joist Spacings for Maximum Acceptable Loads

|                    | SCG Smartboard Floor Usage                    |  |   |  |  |  |  |  |
|--------------------|---|--|---|--|--|--|--|--|
| Thickness<br>(cm.) | Load pursuant<br>to Municipal Laws<br>(kg/m²) | Building Type  | *Remarks  |  |  |  |  |  |
| 1.5                | 150   | House/residence.   | Install Smartboard lengthwise in a perpendicular                                  |  |  |  |  |  |
| 1.6                | 200   | Office/dormitory/condominium building.                   | manner to steel joists.  • Never use in areas with risk of contact with water and |  |  |  |  |  |
| 1.8                | 250 - 400                                     | Public building/department store/convention hall/school. | moisture.  • Never use to support more than 100 kg of load per area               |  |  |  |  |  |
| 2.0                | 500   | Industrial factory/warehouse/museum/stadium.             | (area size at least 10 cm²).  |  |  |  |  |  |

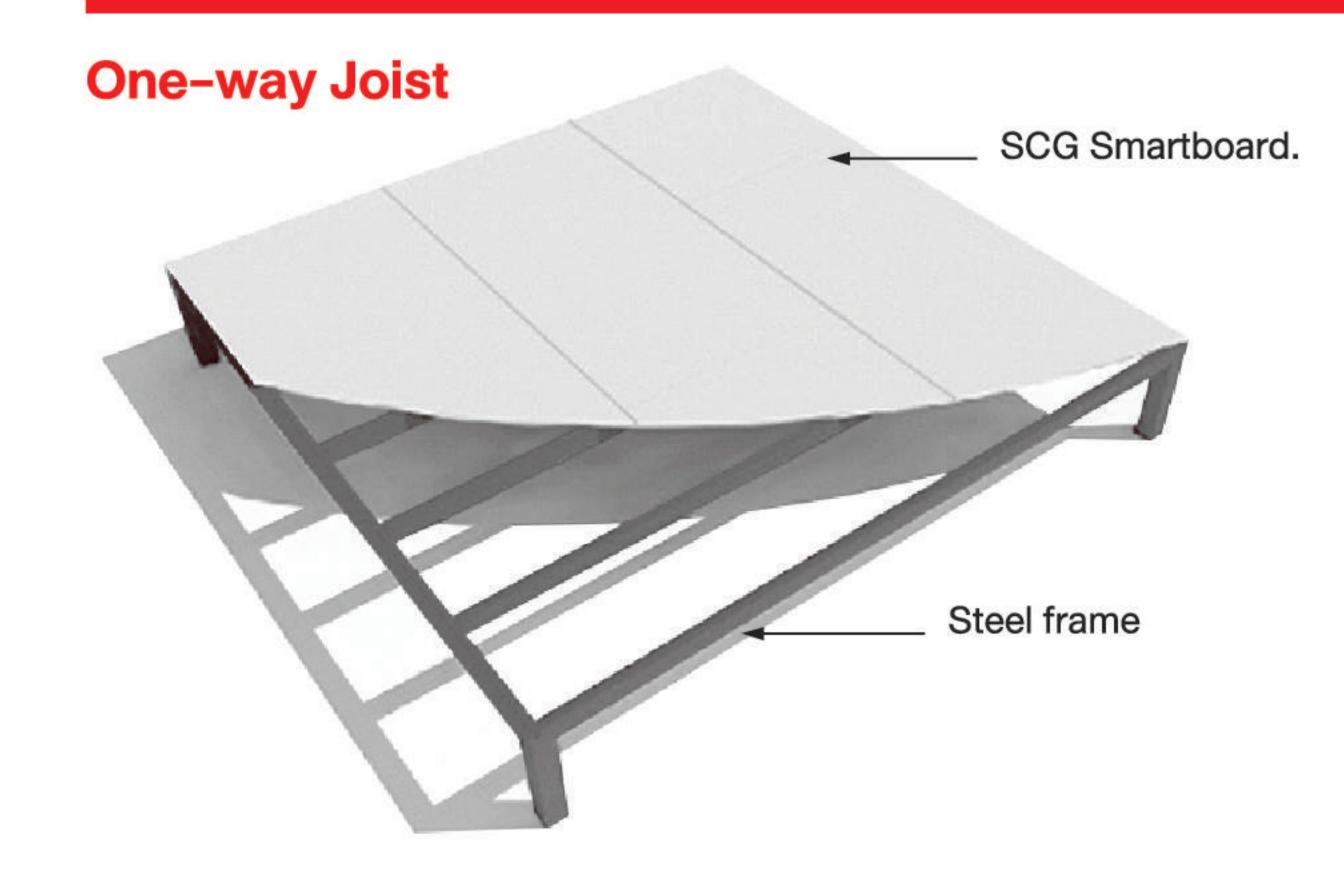
| SCG Smartboard Floor Load-bearing Table                  |               |       |       |       |  |  |
|--|---------------|-------|-------|-------|--|--|
|  | One-way Joist |       |       |       |  |  |
| One-way Joist Span with Safety Margin Value at 2.5 Times |               |       |       |       |  |  |
| SCG Smartboard Floor Thickness (cm.)                     | 30 cm         | 40 cm | 50 cm | 60 cm |  |  |
| 1.5  | 900           | 500   | 350   | 250   |  |  |
| 1.6  | 1,000         | 600   | 450   | 300   |  |  |
| 1.8  | 1,300         | 750   | 550   | 350   |  |  |
| 2.0  | 1,500         | 1,050 | 700   | 450   |  |  |

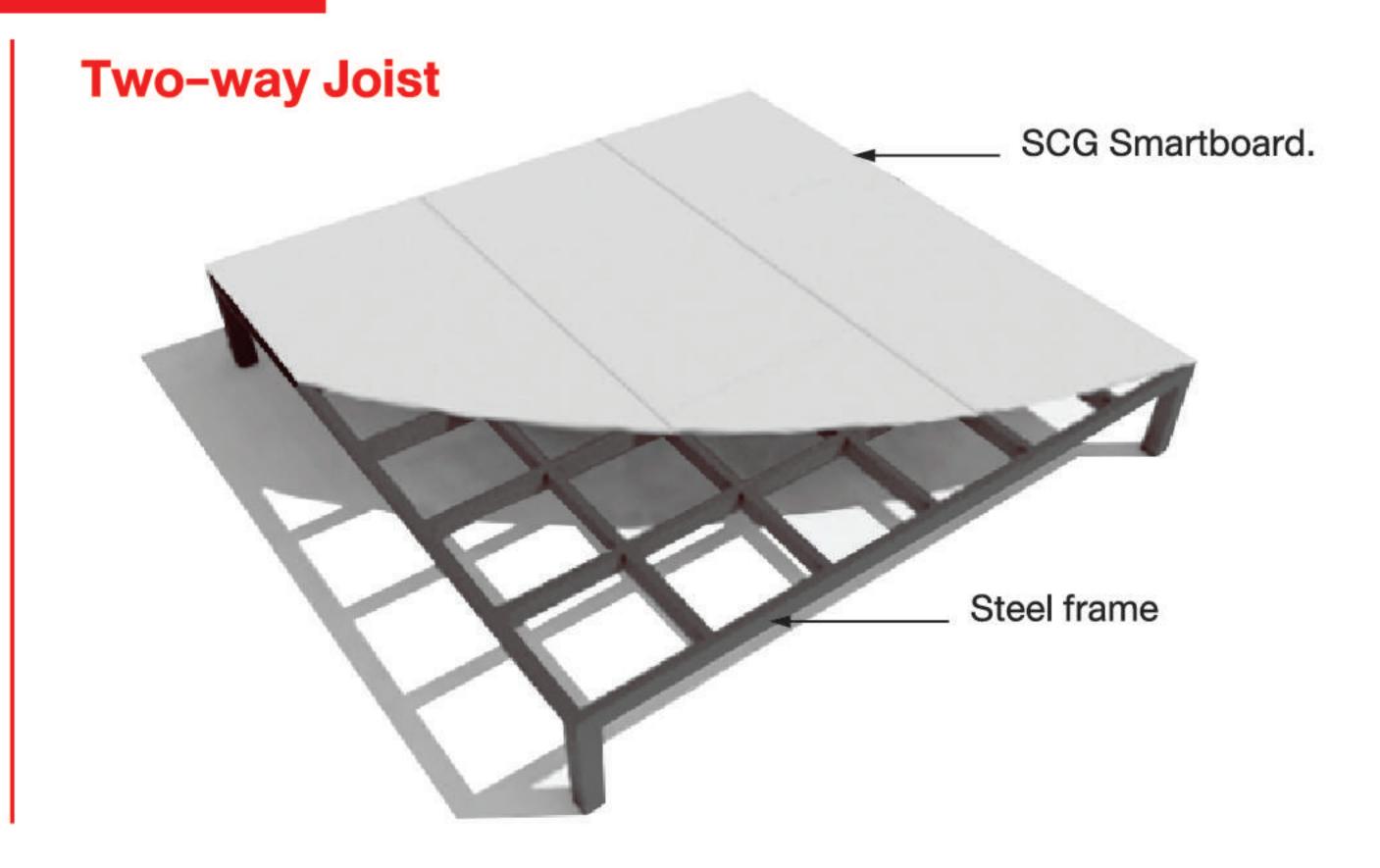
| Two-way Joist                           |  |       |       |       |       |     |
|---|--|-------|-------|-------|-------|-----|
| SCG Smartboard Floor Thickness (cm.)    | Two-way Joist Span with Safety Margin Value at 2.5 Times |       |       |       |       |     |
| Sod Sinariboard Floor Thickness (cili.) | 30x30 cm 30x40 cm 30x60 cm 40x40 cm 40x60 cm 60x         |       |       |       |       |     |
| 1.5                                     | 2,600  | 1,800 | 1,100 | 1,300 | 750   | 450 |
| 1.6                                     | 3,300  | 2,100 | 1,300 | 1,500 | 800   | 500 |
| 1.8                                     | 4,300  | 2,500 | 1,700 | 1,800 | 1,000 | 650 |
| 2.0                                     | 4,500  | 2,900 | 1,800 | 2,000 | 1,200 | 750 |

#### Recommendations

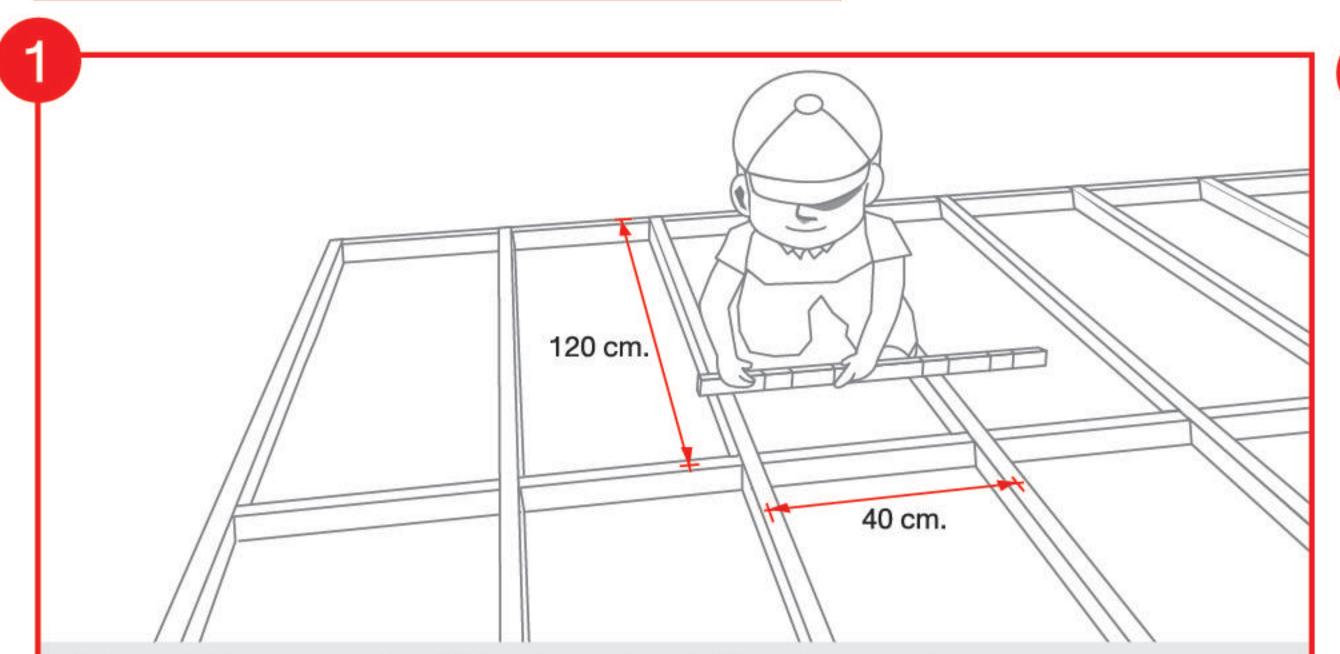
- SCG Smartboard floors should not bear localized load exceeding 100 kilograms per 10 cm<sup>2</sup> of area.
- Never use in areas moist and wet at all times.
- 2. The frame width has to be at least 4.5 cm, and, if a steel frame is used, rust prevention has to be provided appropriately to the usage environment.
- 3. For installations of floor panels over a contiguous area larger than 6 m., joint gaps should be left at both the floor panels and ceramic tiles and sealed by using SCG Polyurethane sealant.

#### SCG Smartboard Floor Installation Characteristics

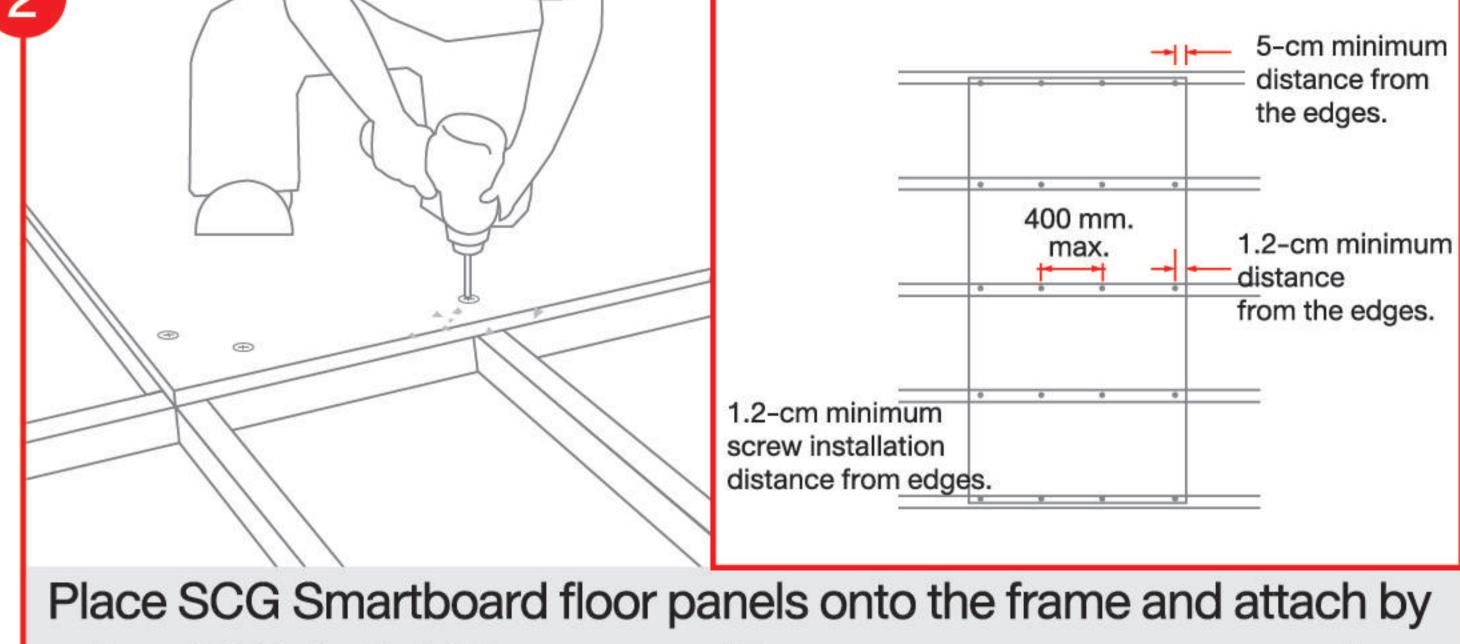




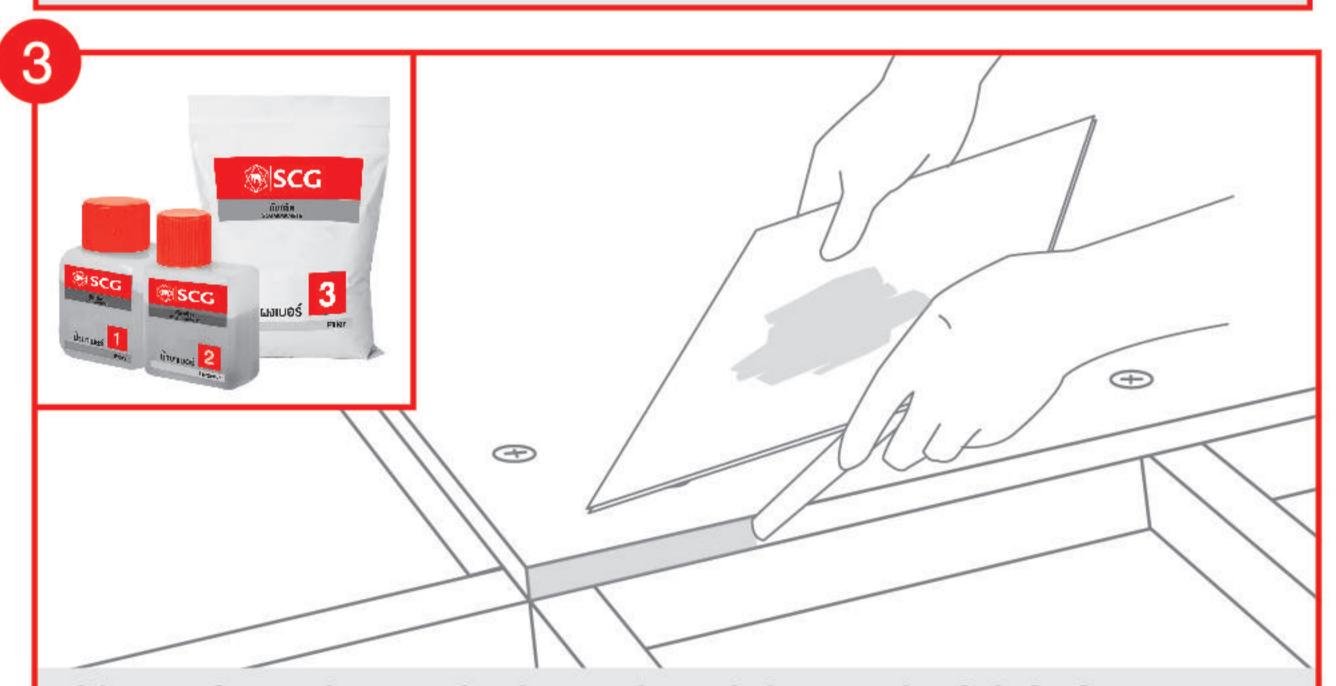
#### **Installation Procedures**



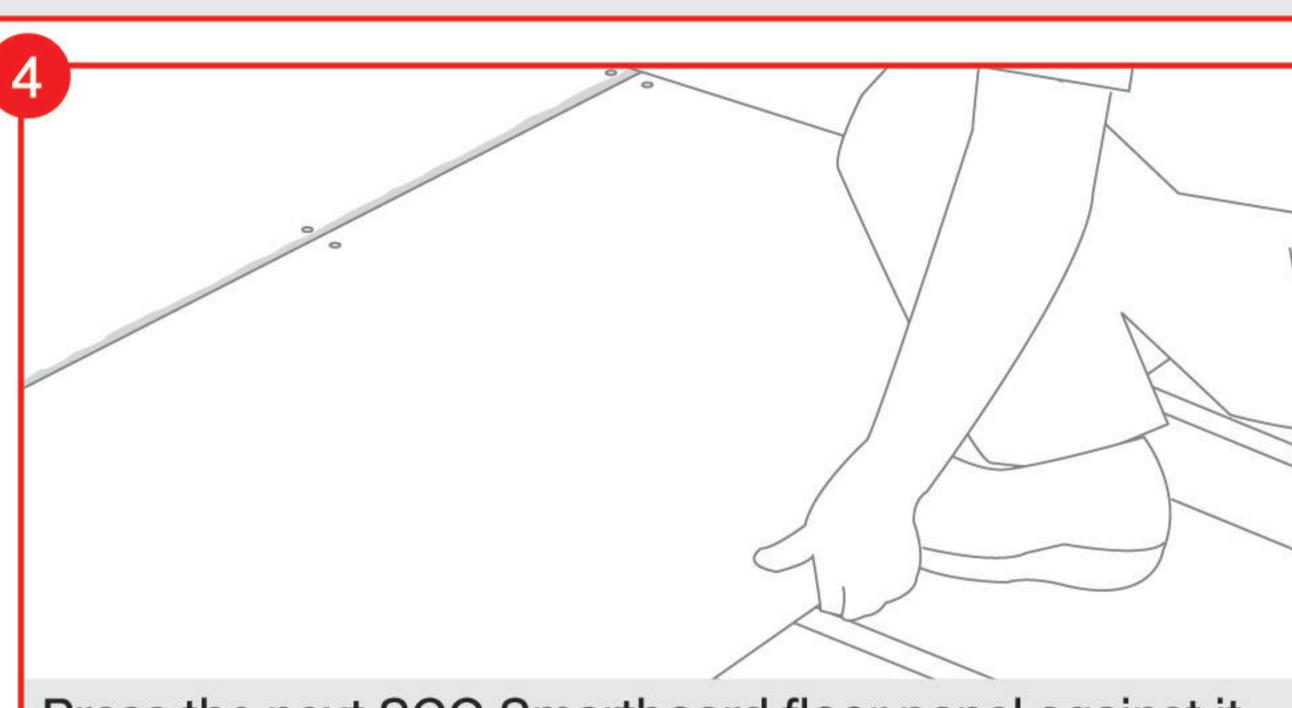
Check the level of the back of the frame by using a water level ruler, and the frame's spacing must not deviate from the design.



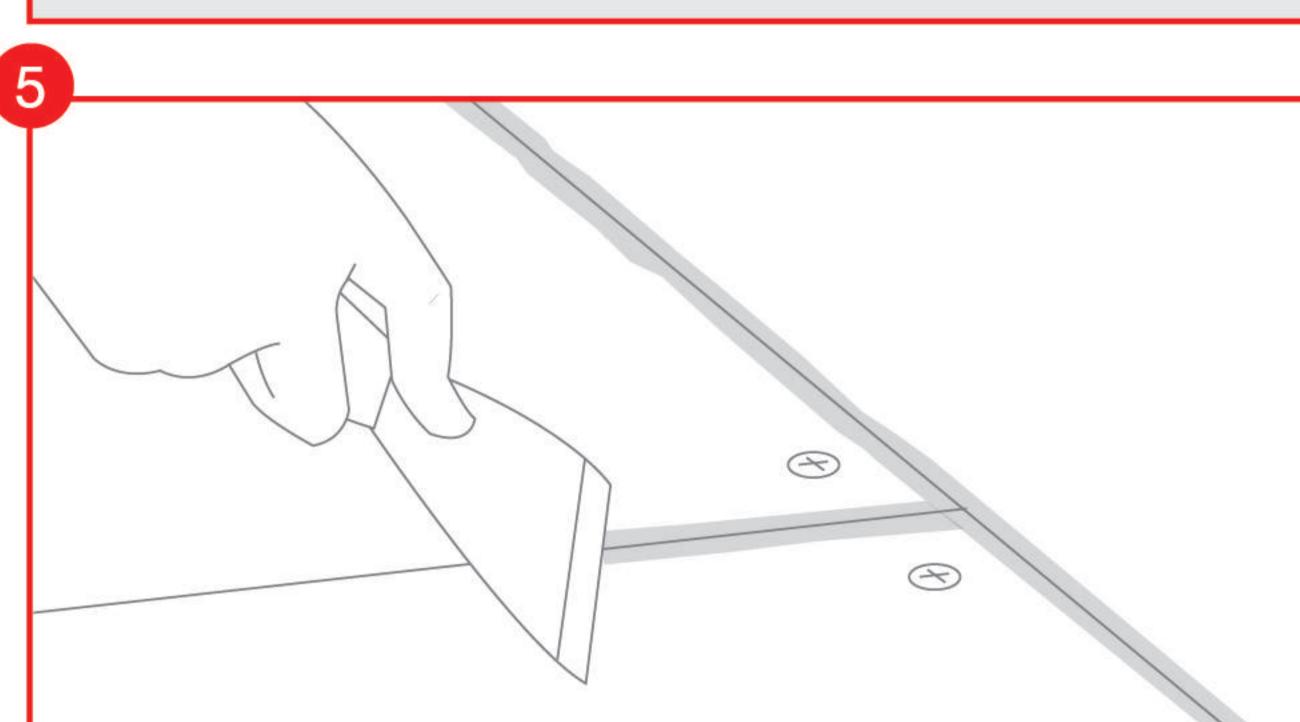
Place SCG Smartboard floor panels onto the frame and attach by using SCG Self drilling screw 45 mm. at a span not exceeding 40 cm with a distance of about 1.2 cm from the edges of each board.



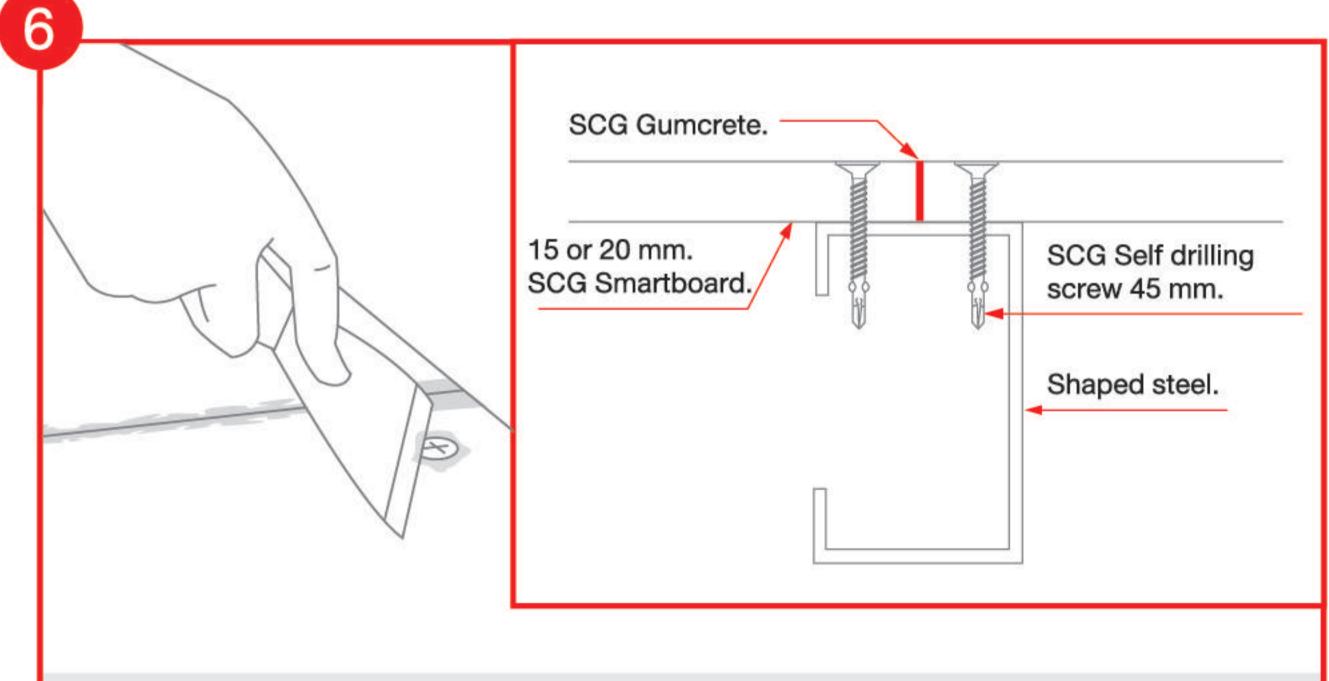
Clean the edges of a board and then mix SCG Gumcrete according to the ratio specified at the side of the package and then apply SCG Gumcrete on the edges of the SCG Smartboard.



Press the next SCG Smartboard floor panel against it.



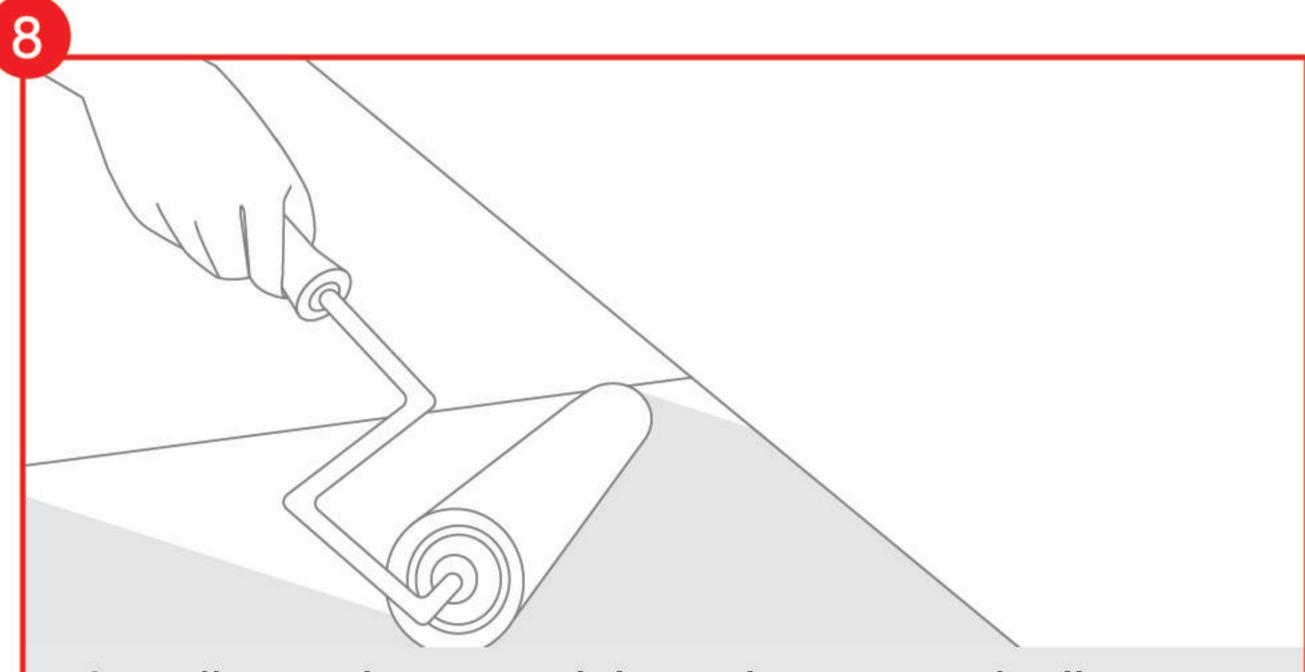
Scrape off excess SCG Gumcrete and attach by using SCG Self drilling screw 45 mm and install boards alternatingly to keep joints from matching each other.



Spackle over screw heads by using SCG Gumcrete.



Keep installing subsequent SCG Smartboard floor panels until the work is finish. Then clean the floor surface to be free of dust and oil stains by using a damp cloth.



- Install covering materials such as ceramic tiles, laminates, parquet, etc. (according to procedures).
- If no covering materials are installed, clean the floor surface and paint with contact primer and then plaint 2 layers of epoxy paint (according to manufacturer recommendations) to prevent surface scratches.



# Floor Underlay Installation

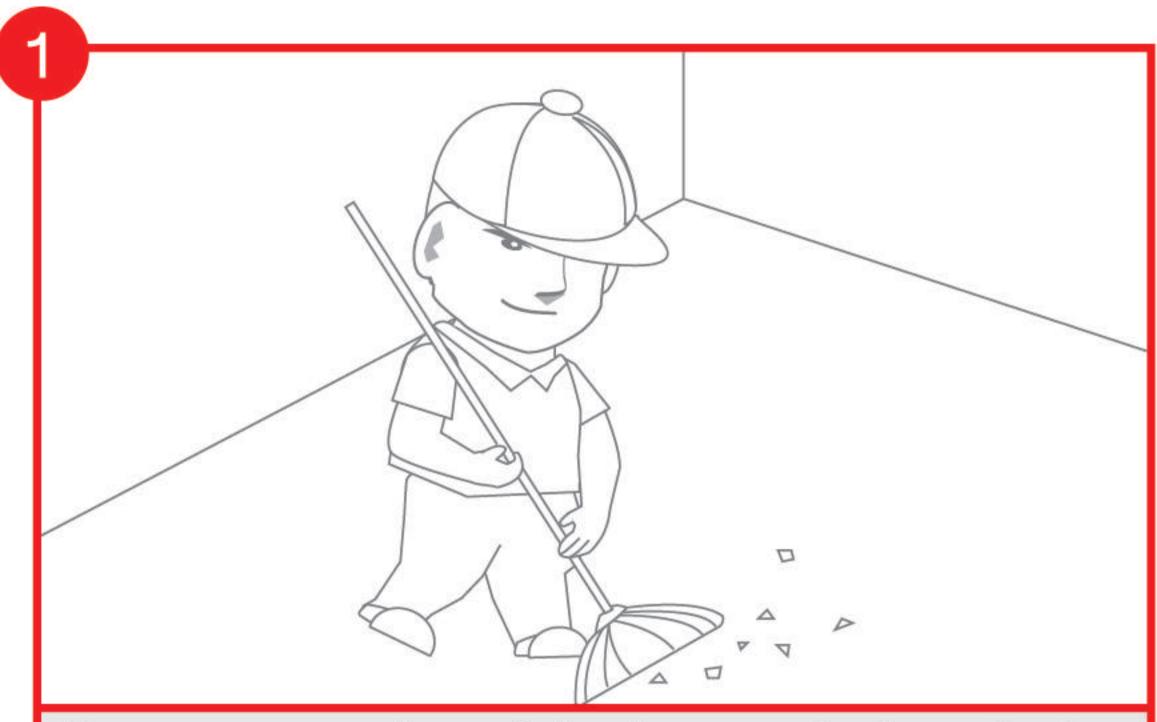
#### **Tools and Equipment**

Attachments: 1-inch concrete nails for SCG Smartboard with 8 mm thickness and 1.5-inch concrete nails

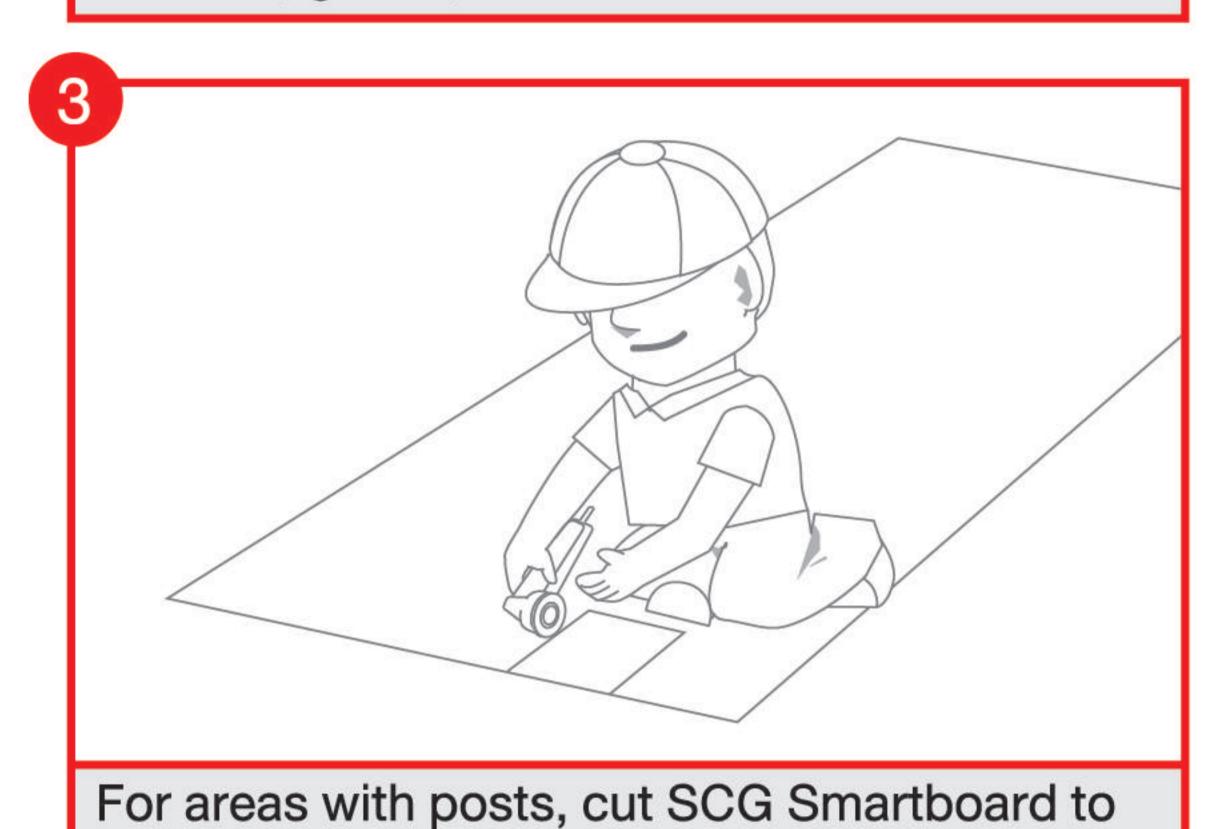
for SCG Smartboard with 10 mm. thickness or greater, latex adhesive.

SCG Smartboard: Square-edged with 8-12 mm thickness.

#### **Installation Procedures**



Prepare a rough-polished concrete floor that has already been leveled and then leave it to dry for about 7 days. Then clean the surface of rocks, gravel, cement and sand.



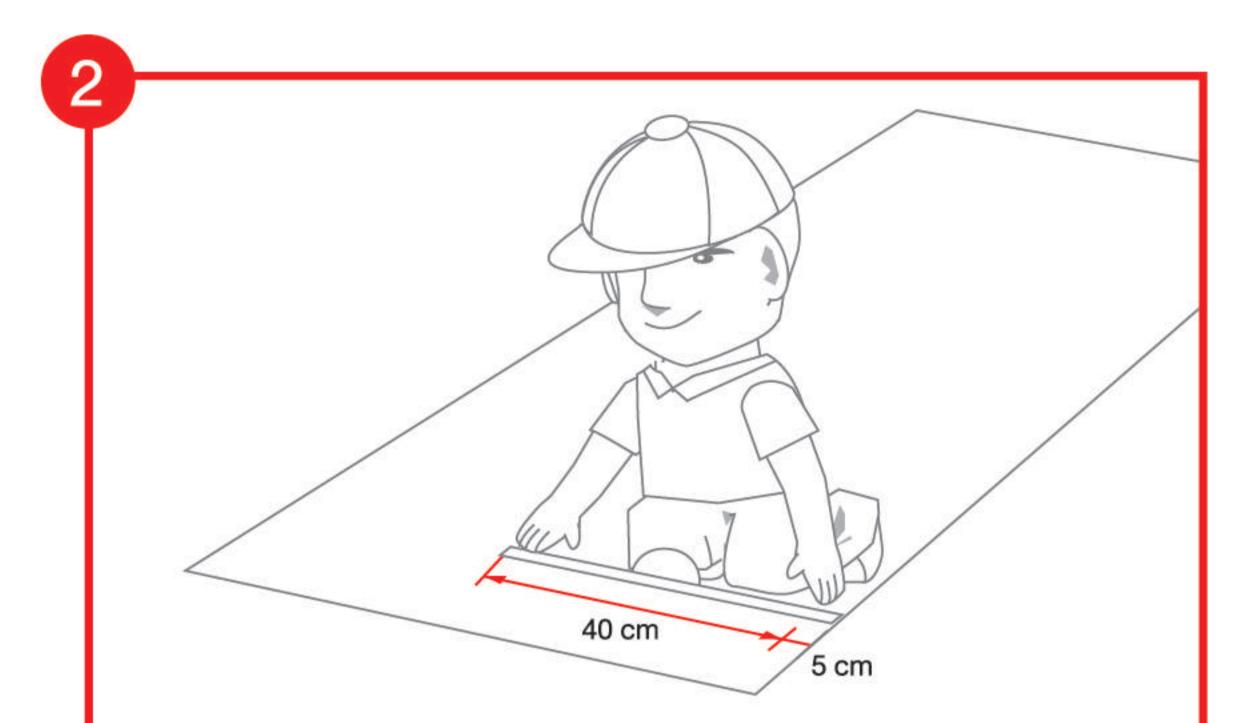
SCG Smartboard edges spaced 1 cm apart.

SCG Smartboard attachment span to not exceed 50 cm.

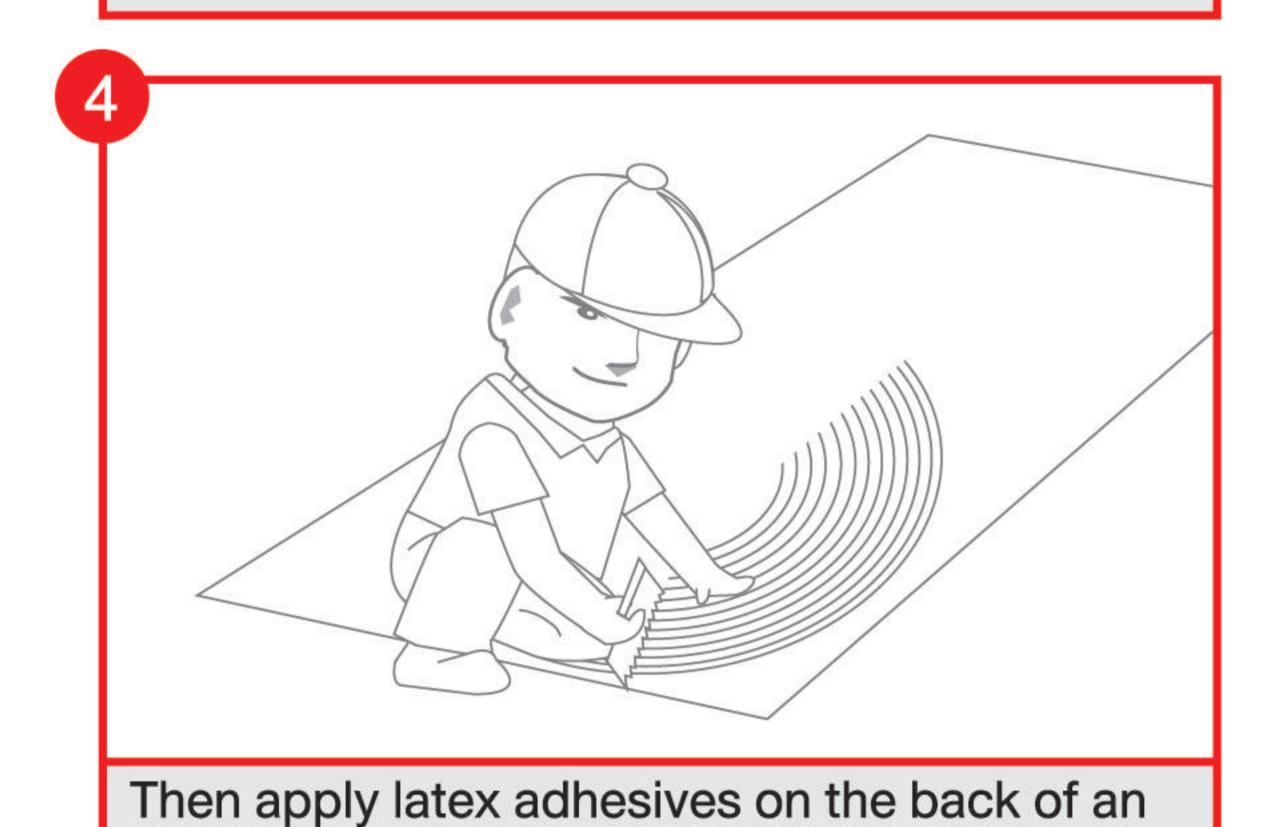
5-cm distance from the edge of the board.

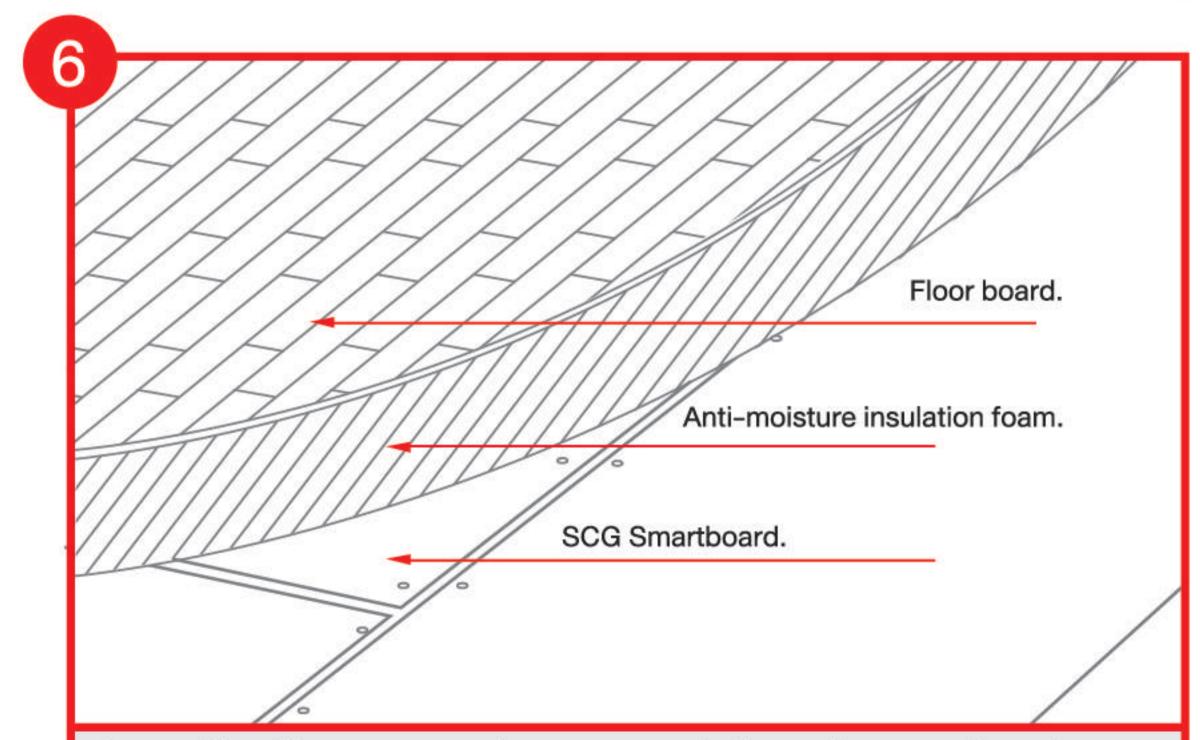
exactly fit with the posts.

Attach the SCG Smartboard by using a hammer to hammer 1-inch nails at the specified locations, leaving a space of about 1 cm of between SCG Smartboard, and install boards in an alternating pattern.



Specify the nail installation lines with the spacing between points being about 40 cm and about 5 cm away from SCG Smartboard corners.





entire SCG Smartboard.

Install a floor covering material such as a laminate throughout the entire room (according to the manufacturer's procedures).

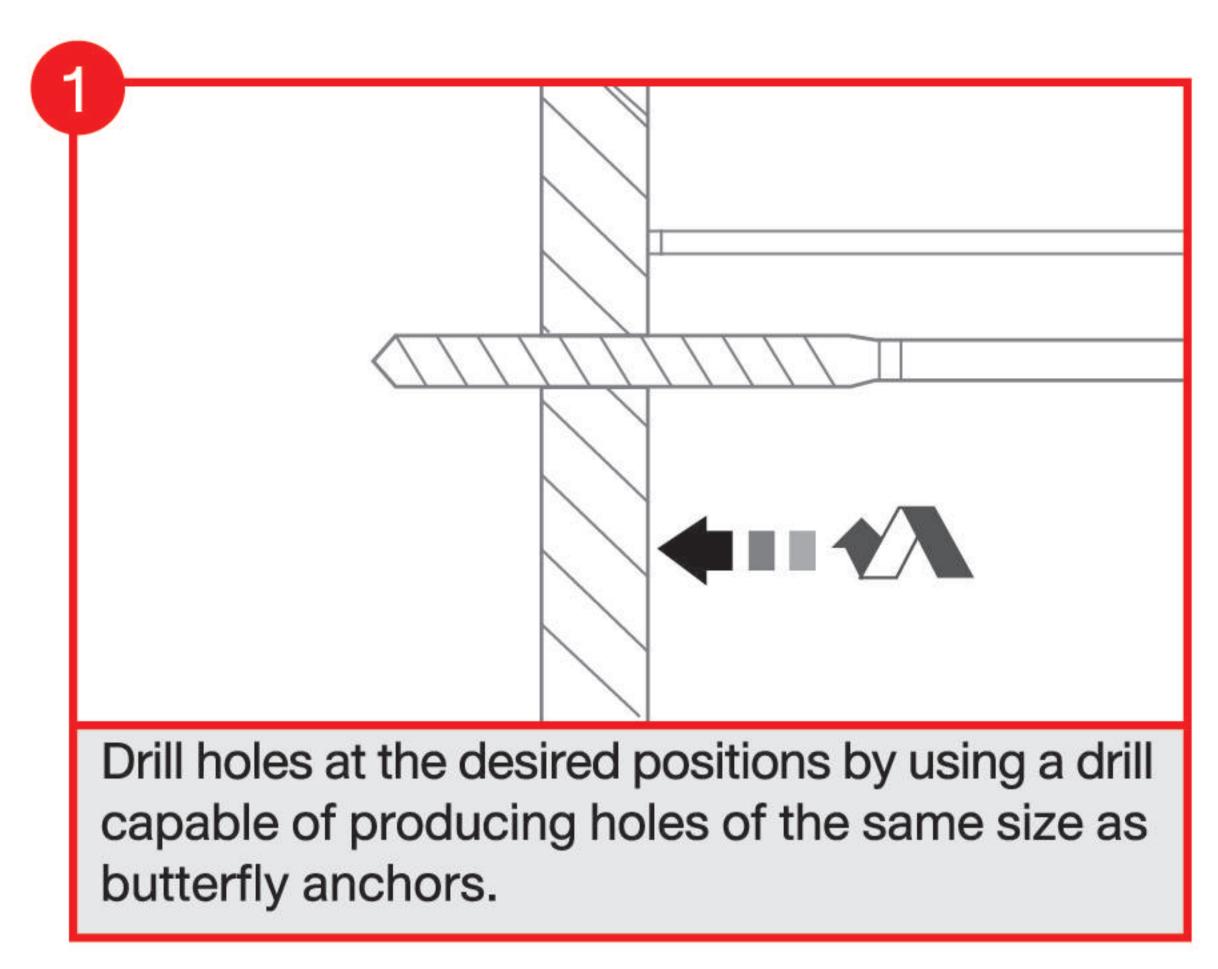
#### Recommendations

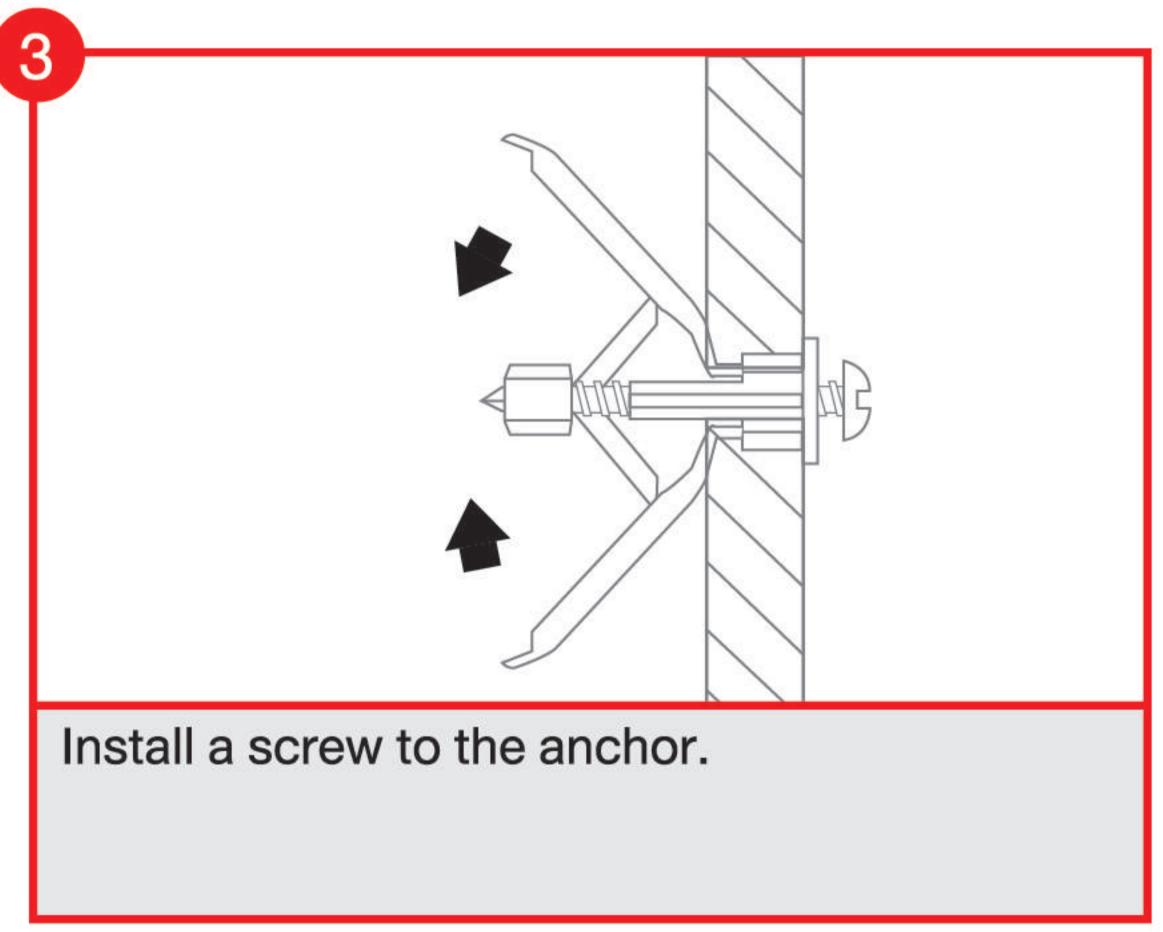
- For attaching SCG Smartboard by hammering concrete nails longer than 1 inch, take care to avoid causing the concrete nail to hit the steel reinforcement in the floor.
- The plane of the floor for SCG Smartboard installation should be leveled before installation.
- The boards should not be used with covering materials that are capable of contracting or expanding significantly, such as actual wood, etc.

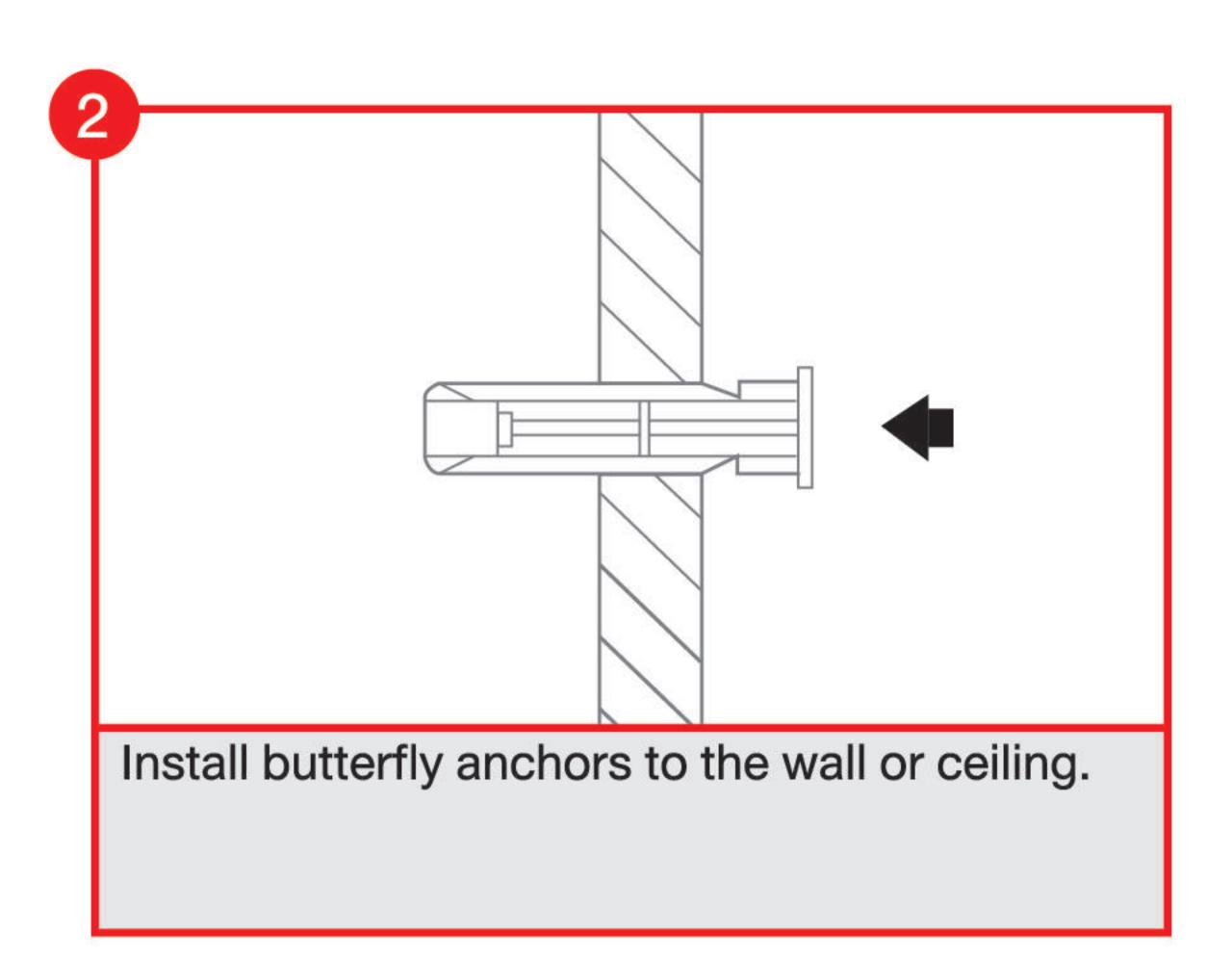
# Hanging Device Installation and Repair Techniques

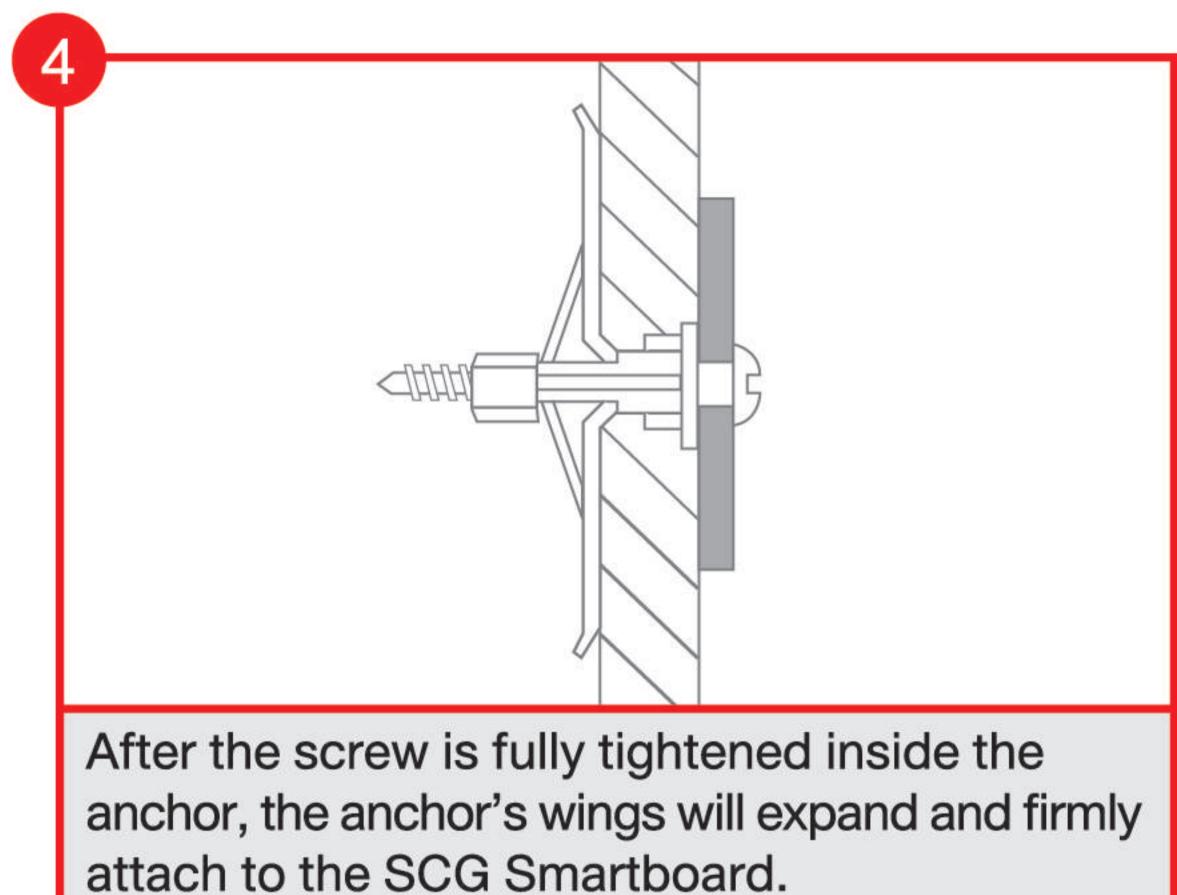
## 5.1 Hanging Device Installation

#### Installation Procedures









#### Recommendations

Hanging devices can be installed on ceilings and walls. Do so by using the installation devices shown in the table below:

| Product                               | Usage    | Devices Used                         | Safe Usage Load<br>(kilograms) |
|---------------------------------------|----------|--------------------------------------|--------------------------------|
| SCG Smartboard with 3.5 mm thickness. | Ceilings | PT- 5 butterfly anchors with screws. | 5                              |
| SCG Smartboard with 4 mm thickness.   | Ceilings | PT- 5 butterfly anchors with screws. | 7                              |
| SCG Smartboard with 6 mm thickness.   | Ceilings | PT-13 butterfly anchors with screws. | 10                             |
| SCG Smartboard with 8 m thickness.    | Walls    | PT-13 butterfly anchors with screws. | 80                             |

Remarks : Maximum load

For ceilings: The maximum load is determined from the maximum nail pull-out value acceptable by the SCG Smartboard, which also depends on the strength of the frame.

For walls : The maximum load is determined from the direct shear value acceptable by the SCG Smartboard, which depends on the strength of the frame.

When hanging very heavy materials, we recommend you install the hanging devices onto the frame.

# 5.2 SCG Smartboard Repair

#### Frames and Equipment

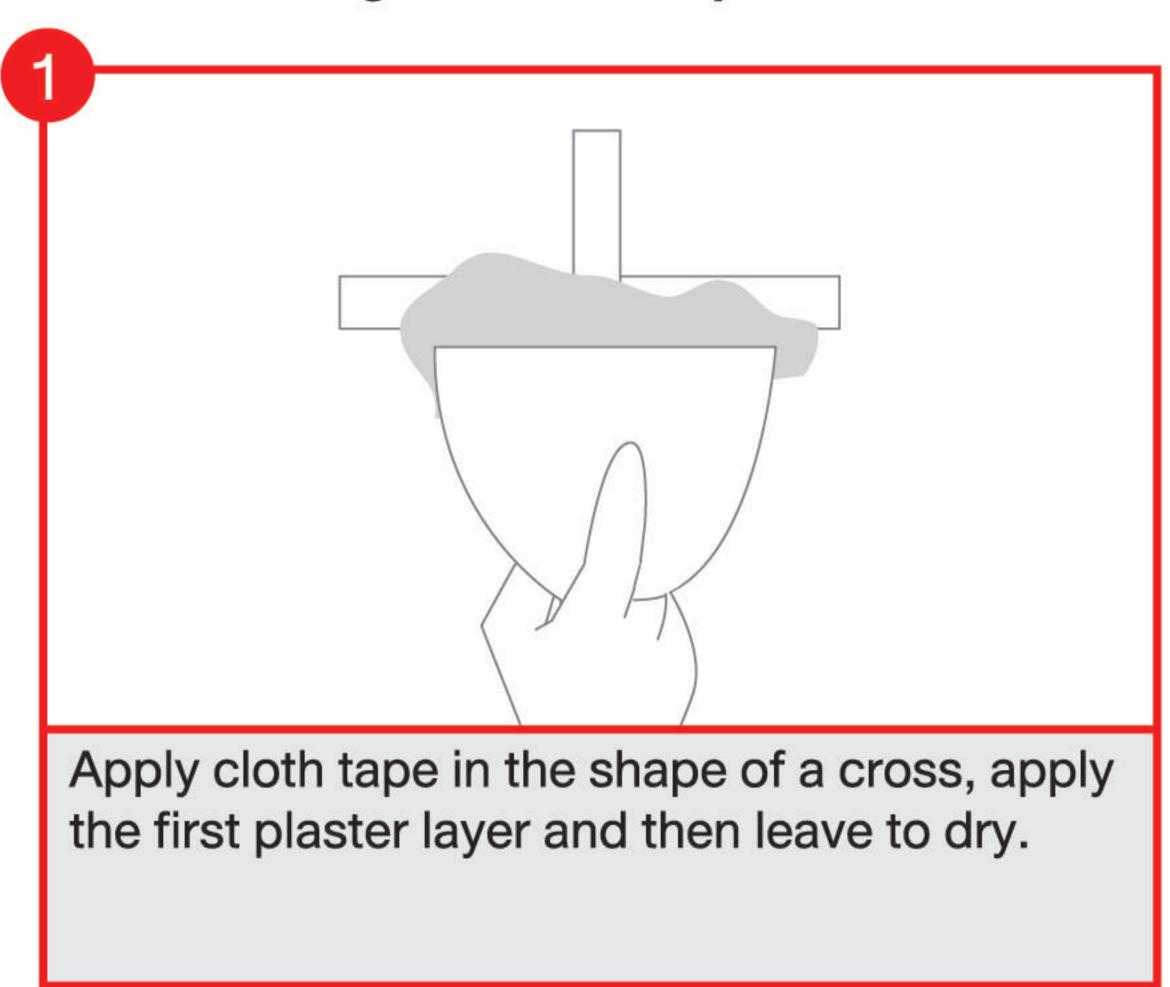
Frames : C-line frames.

Attachments: SCG Needle point screw 23 mm

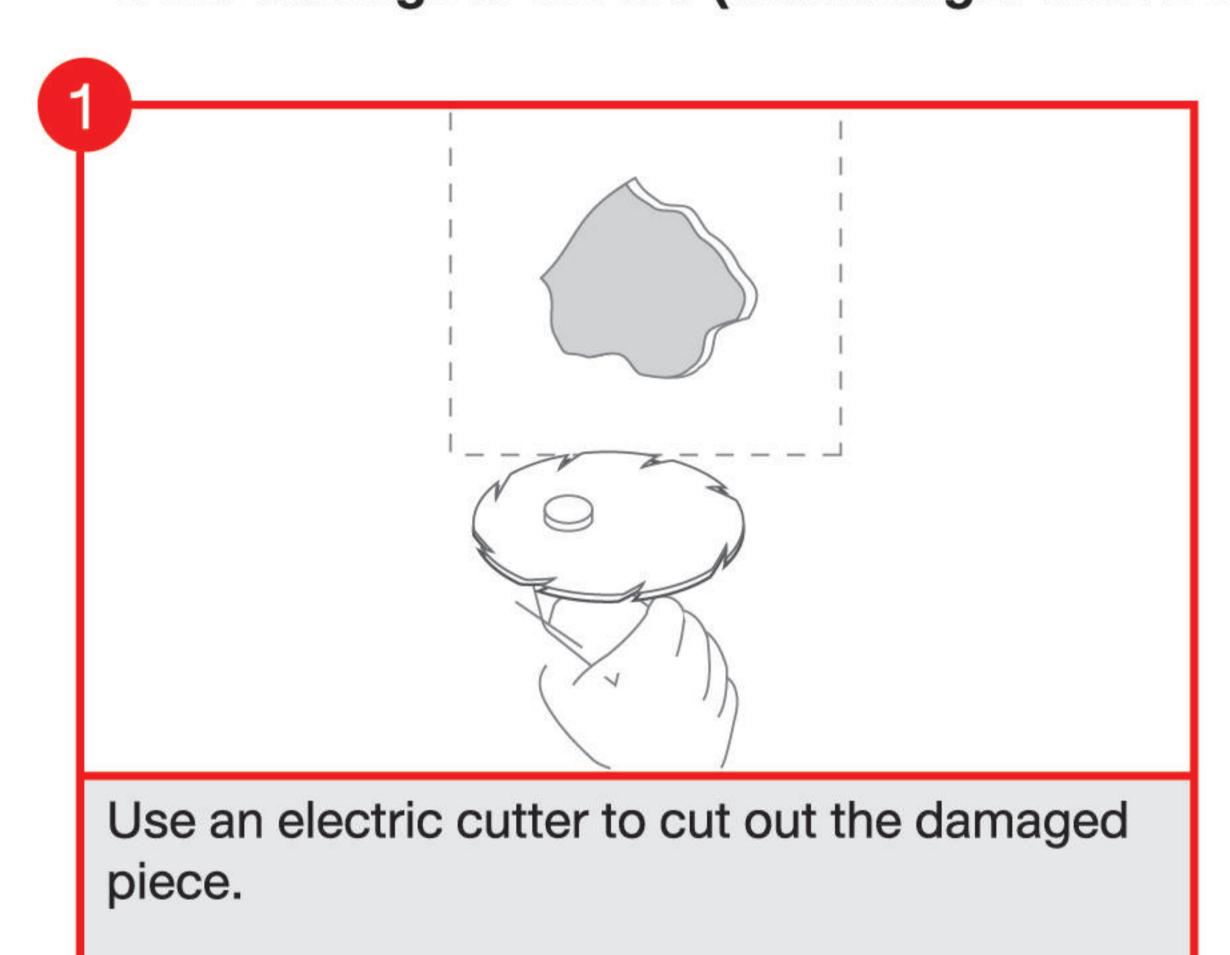
Joint sealant: SCG Smart joint polymer, sandpaper.

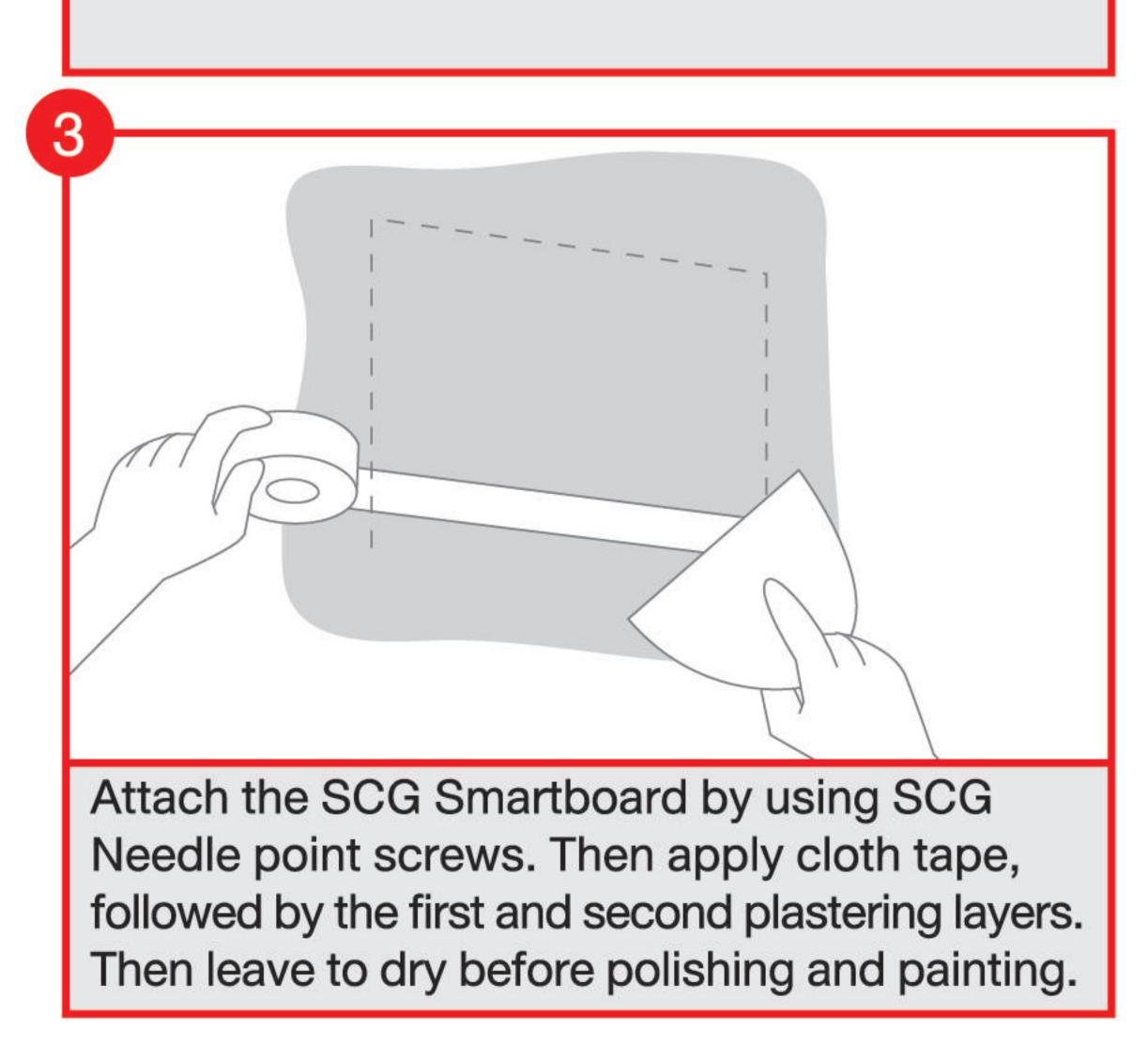
#### **Installation Procedures**

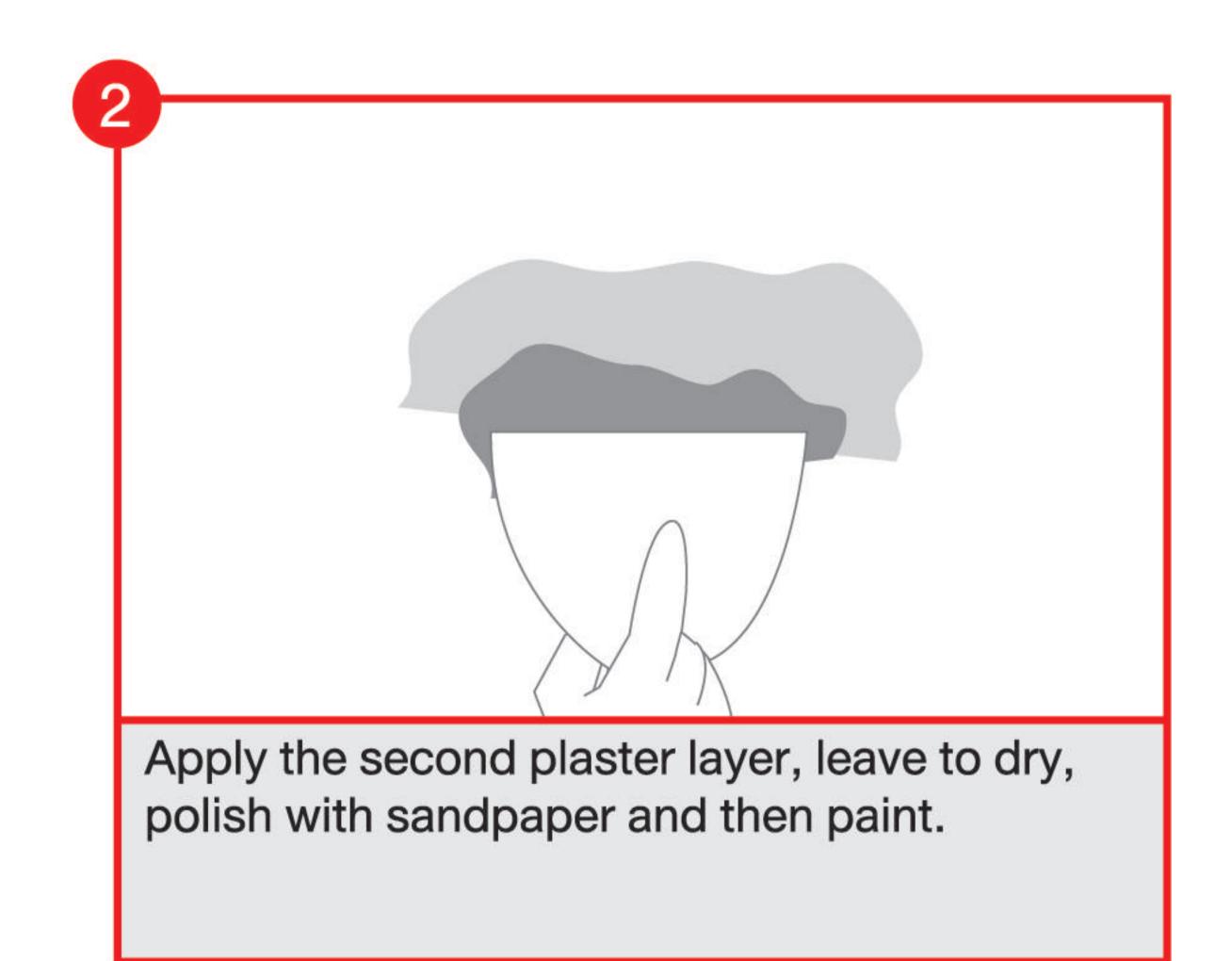
If the damage is minimal (crack smaller than 2 cm)

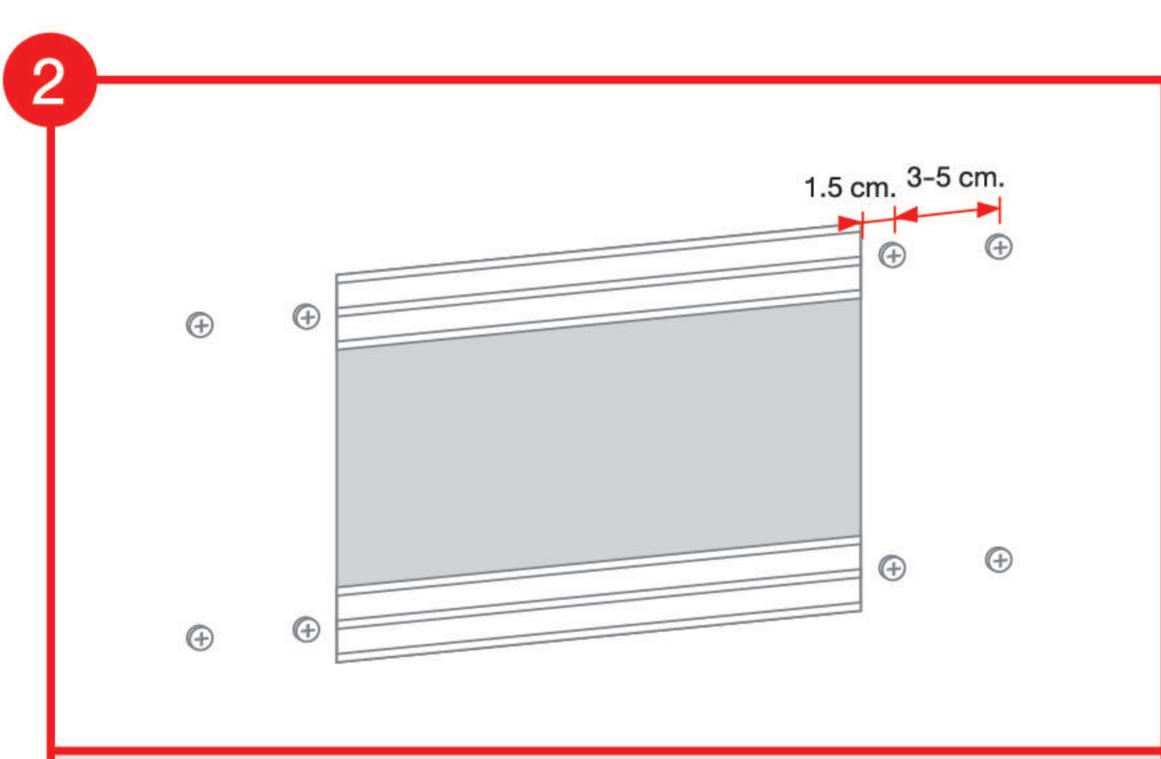


• If the damage is severe (crack larger than 2 cm)









Attach C-line frame by using SCG Needle point screws at a distance of 1.5 cm away from the edges of the crack and then attach additional ones a further 3-5 cm out on both sides.

# 6.

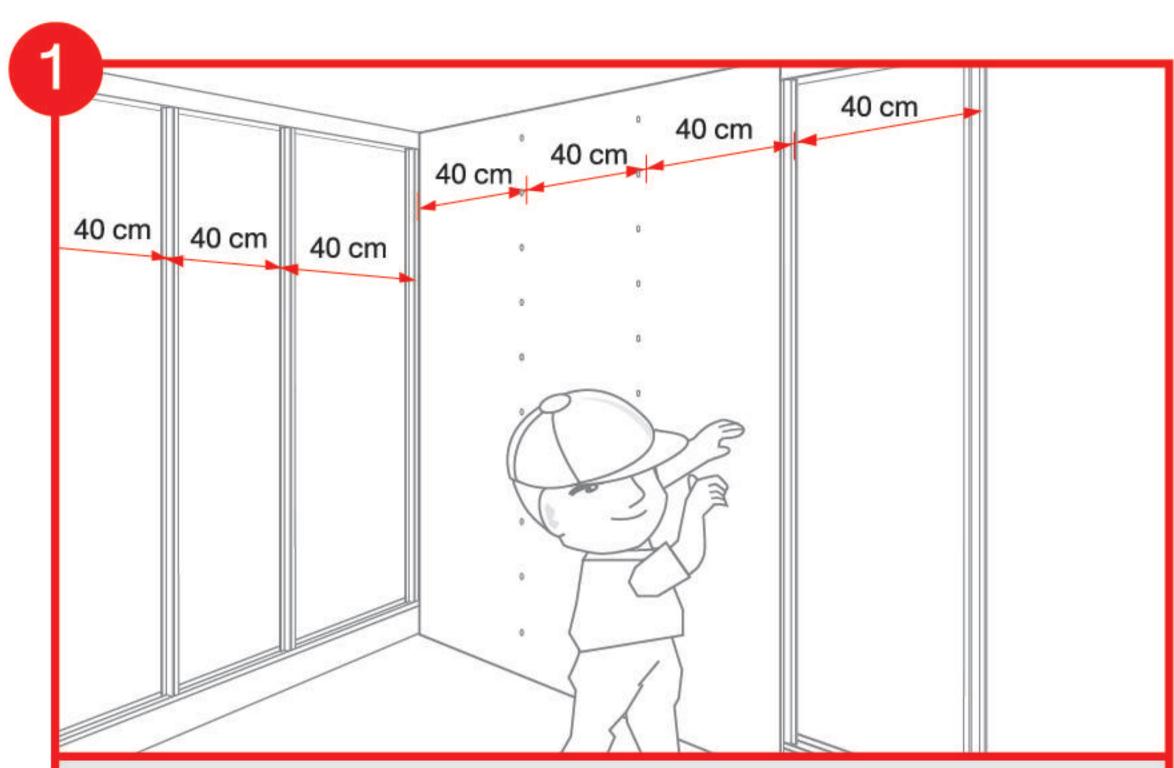
# SCG Smartboard Backer Board for Ceramic

#### **Frames and Equipment**

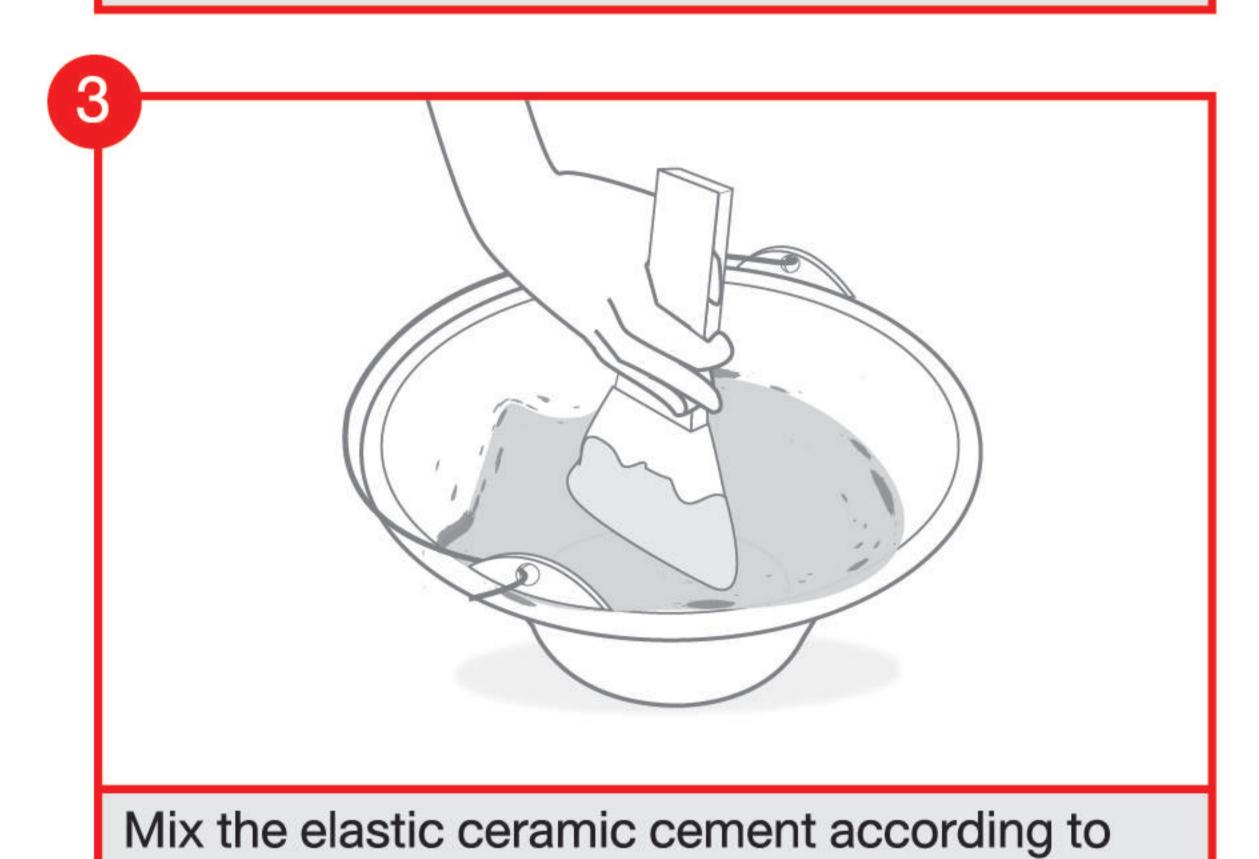
Frames : Elastic ceramic adhesive cement.

SCG Smartboard: Square-edged with 10-12 mm thickness.

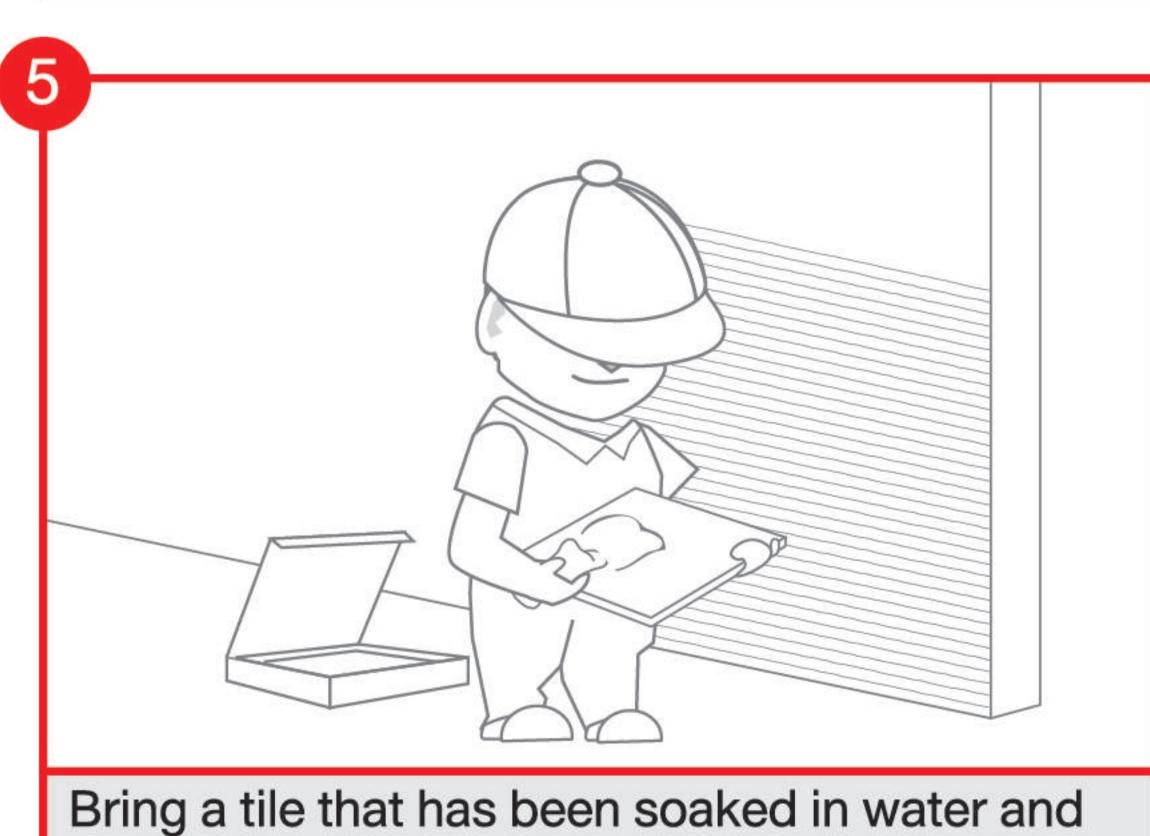
#### Installation Procedures



For SCG Smartboard to be covered in ceramic, use a distance of 40 cm from frames to prevent significant wall vibrations during ceramic installation.



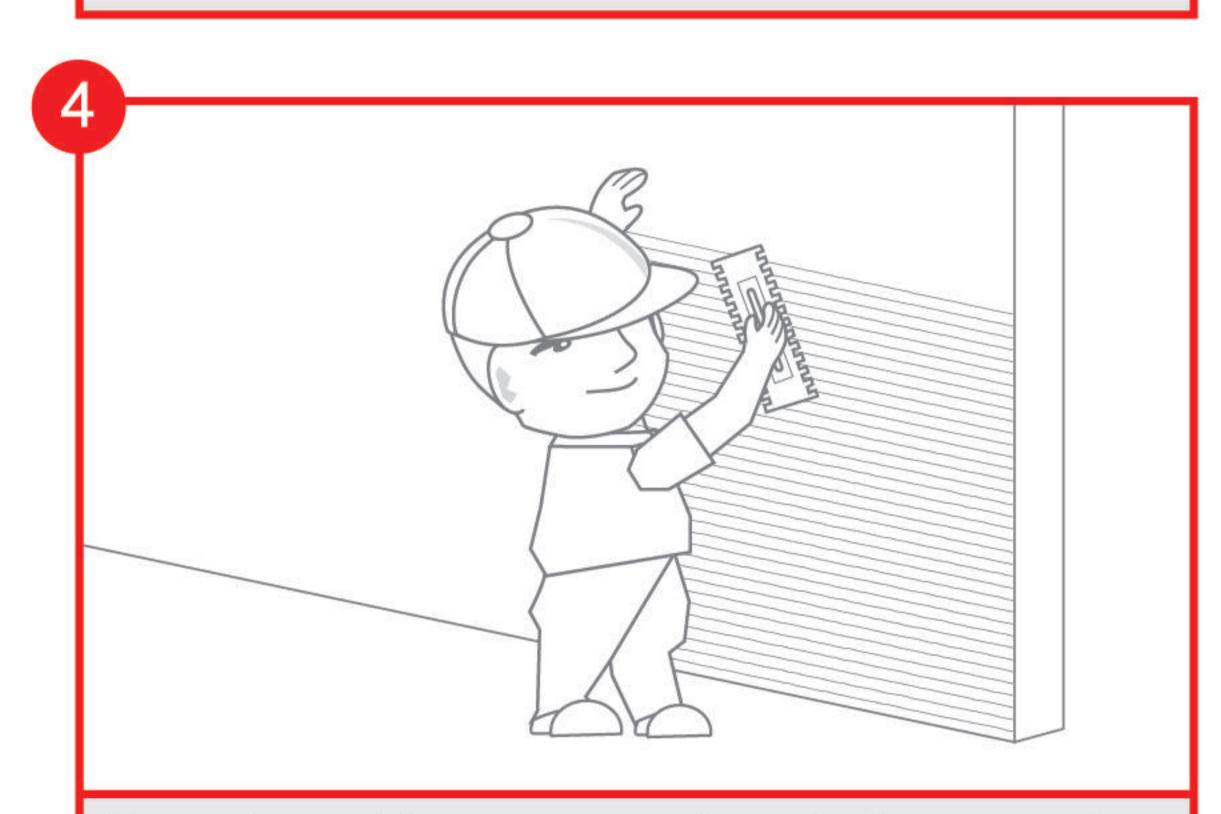
the manufacturer's recommendations.



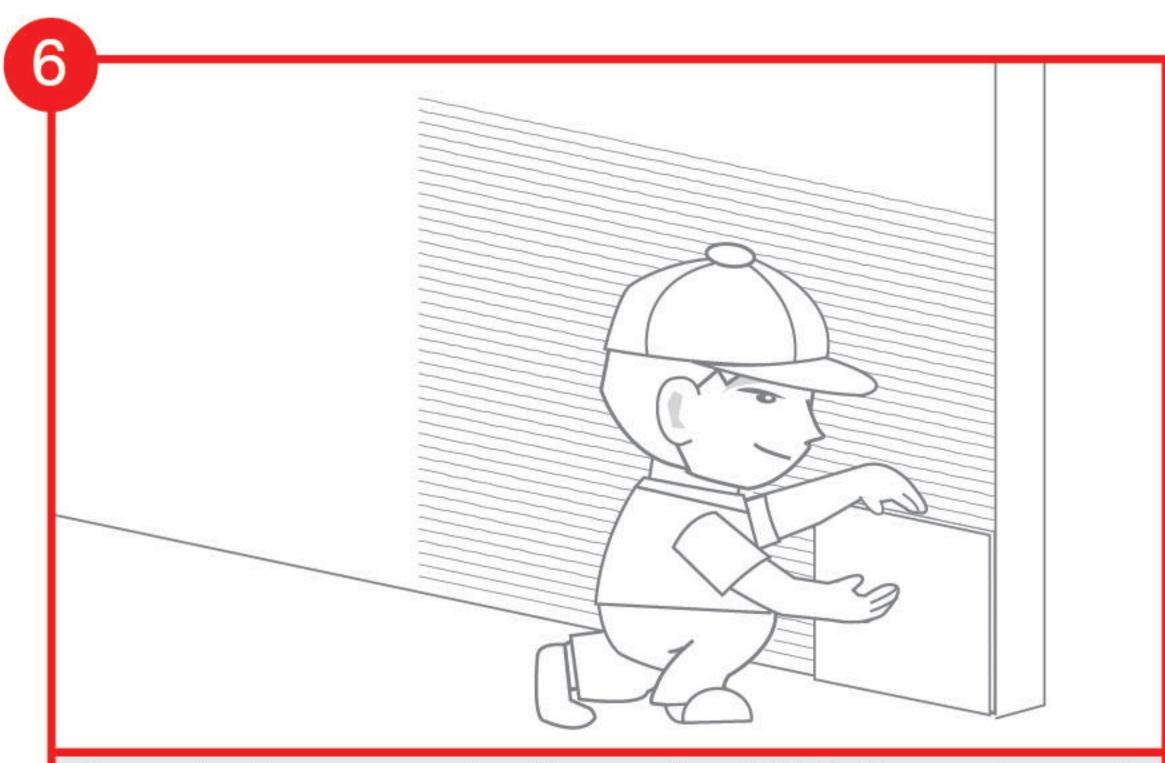
wipe until just damp.



Prepare the SCG Smartboard surface by cleaning and painting contact primer over the old surface. Then leave to dry.



Use a trowel to scrape and apply the ceramic cement onto the SCG Smartboard wall.



Attach the ceramic tile to the SCG Smartboard wall with the tile joint matching the SCG Smartboard joint. Continue until the entire wall surface is covered. Then leave for about 7 days before grouting.

#### **Recommendations:**

- When installing ceramic onto an SCG Smartboard wall, we do not recommend installing on walls longer than 5 meters. If the wall length is greater than 5 meters, please consult the manufacturing company first.
- We do not recommend installing ceramic over board joints.

| Product Model and Size               |                |                     |                      |                   |                    |                               |  |  |
|--------------------------------------|----------------|---------------------|----------------------|-------------------|--------------------|-------------------------------|--|--|
| SCG Smartboard Type                  | Thickness (mm) | Width x Length (cm) | Edge<br>Squared edge | Tapered edge      | Weight (kg./board) | No. of Boards/m. <sup>2</sup> |  |  |
| Light                                | 3.5            | 60 x 240            | •                    | -                 | 7.6                | 0.70                          |  |  |
|                                      |                | 120 x 120           | •                    | 9. <del></del> -3 | 7.6                | 0.70                          |  |  |
|                                      |                | 120 x 240           | •                    | _                 | 15.2               | 0.35                          |  |  |
|                                      | 4              | 60 x 120            | •                    | -                 | 4.4                | 1.40                          |  |  |
|                                      |                | 60 x 240            | •                    | 5 <del>-</del> 3  | 8.7                | 0.70                          |  |  |
|                                      |                | 120 x 120           | •                    | 5 <b>—</b> -3     | 8.7                | 0.70                          |  |  |
|                                      |                | 120 x 240           | •                    | <b>—</b>          | 17.4               | 0.35                          |  |  |
|                                      | 6              | 120 x 240           | •                    | -                 | 26.1               | 0.35                          |  |  |
| Squared edge                         | 8              | 120 x 240           | •                    | .—:               | 34.8               | 0.35                          |  |  |
|                                      |                | 120 x 280           |                      | 2-sided           | 40.2               | 0.30                          |  |  |
|                                      | 10             | 120 x 240           | •                    | <b>—</b>          | 43.5               | 0.35                          |  |  |
|                                      | 12             | 120 x 240           | •                    | A <u></u>         | 52.2               | 0.35                          |  |  |
|                                      | 15             | 120 x 240           | •                    | i—:               | 65.3               | 0.35                          |  |  |
|                                      | 16             | 120 x 240           | •                    | _                 | 69.6               | 0.35                          |  |  |
|                                      | 18             | 120 x 240           | •                    | _                 | 78.3               | 0.35                          |  |  |
|                                      | 20             | 120 x 240           | •                    | -                 | 87                 | 0.35                          |  |  |
| Super Smart                          | 4              | 60 x 60             | •                    | _                 | 2.2                | 2.78                          |  |  |
| Wood grain                           | 4              | 60 x 120            | •                    | i—:               | 5.0                | 1.40                          |  |  |
| 3-Inch lining                        | 4              | 60 x 120            | •                    | _                 | 5.1                | 1.40                          |  |  |
| Ventilated                           | 4              | 60 x 120            | •                    | -                 | 4.2                | 1.40                          |  |  |
| Ventilated wood grain                | 4              | 60 x 120            | •                    | 7 <del>-</del> 3  | 4.9                | 1.40                          |  |  |
| Ventilated 3- Inch lining            | 4              | 60 x 120            | •                    | _                 | 5.1                | 1.40                          |  |  |
| Ventilated 3- Inch half panel        | 4              | 60 x 120            | •                    | -                 | 5.0                | 1.40                          |  |  |
| Ventilated capsule protection        | 4              | 60 x 120            | •                    | -                 | 4.2                | 1.40                          |  |  |
| Ventilated wood grain protection     | 4              | 60 x 120            | •                    | -                 | 4.9                | 1.40                          |  |  |
| Ventilated 3- Inch lining protection | 4              | 60 x 120            | •                    | -                 | 5.1                | 1.40                          |  |  |
| Ventilated Half panel protection     | 4              | 60 x 120            | •                    | (=)               | 5.0                | 1.40                          |  |  |
| 4- Inch square lining                | 8              | 120 x 280           | •                    | 5 <b>—</b> 3      | 40.0               | 0.30                          |  |  |
| 3- Inch lining wood grain            | 6*             | 120 x 240           | •                    | _                 | 25.7               | 0.35                          |  |  |
| 3- Inch lining wood grain            | 8              | 120 x 280           | •                    | _                 | 40.1               | 0.30                          |  |  |

\*Use for decorative walls only.

#### SCG Smartboard Technical Information

| Physical Properties   | Standard             | Unit              | Test Result           |
|---|----------------------|-------------------|-----------------------|
| Density   | ASTM C 1185          | kg/m <sup>3</sup> | 1300±50               |
| Resistance to bending (in moist conditions)                 | ASTM C 1185          | MPa               | ≥ 8                   |
| Noise proofing value  | Marshall Day program | dB                | 38 - 61* <sup>1</sup> |
| Heat conductivity   | ASTM C 518           | W/m.K             | 0.134                 |
| Water absorption  | ASTM C 1185          | %                 | ≤ 35                  |
| Expansion following soaking in water                        | JIS A 5414           | %                 | ≤ 0.12                |
| Lengthwise contraction following changes in humidity levels | MS 1296              | %                 | 0.06                  |
| pH  | Litmus test          |                   | 7 - 8                 |
| Tolerance   | ASTM C 1186          |                   | Pass                  |
| Durability  | Standard             | Unit              | Test Result           |
| Freeze/Thaw Resistance                                      | ASTM C 1185          | -                 | Pass                  |
| Water Permeability  | AS/NZS 2908.2        | _                 | Pass                  |
| Warm Water Resistance                                       | AS/NZS 2908.2        | _                 | Pass                  |
| Soak/Dry Resistance   | AS/NZS 2908.2        | _                 | Pass                  |
| Heat/Rain Resistance  | AS/NZS 2908.2        | _                 | Pass                  |
| Fire Resistance   | Standard             | Unit              | Test Result           |
| Smoke index   | ASTM E84-17          | :: <del></del> :  | Class A               |
| Flame Spread index (FSI)                                    | ASTM E84-17          | :::               | 0                     |
| Smoke Developed Index (SDI)                                 | ASTM E84-17          | ·—·               | 0                     |
| Non-combustibility test                                     | BS 476 Part 4        | _                 | Non-combusible        |
| Ignitablility   | BS 476 Part 5        |                   | Pass                  |
| Fire Propagation  | BS 476 Part 6        | s <del></del> s   | I = O                 |
| Surface Spread of flame                                     | BS 476 Part 7        | -                 | Class 1               |
| Fire resistance system <sup>2</sup>                         | BS 476 Part 20-22    | (= <u></u>        | 60 - 180 mins*2       |
| Single Burning Item   | EN 13823 : 2010      | _                 | Pass                  |
| Fire Classification   | EN 13501-1           | s <del></del> s   | A2-s1, dO             |
| Other   | Standard             | Unit              | Test Result           |
| Curve radius (4, 6, 8 mm thickness)                         | _                    | m.                | 1.2 / 1.8 / 3.0       |

Remarks: \*1. The STC is the value obtained from calculations by the Marshall Day program with a tolerance of +/13 STC. \*2. Depending on the system used.



# Installation Specifications for SCG Smartboard Fiber Cement Boards



WARNING

• Never use as a building structure or for other purposes, and always install according to the installation manuals and with the standard equipment specified by the manufacturing company.



Do not ingest.



Do not inhale.



#### **Precautions to Avoid Danger**

• SCG Smartboard products have been designed and prescribed with usage methods that are appropriate to usage conditions in Thailand only. Therefore, uses outside of Thailand are the direct responsibility of designers, construction supervisors and persons carrying out installations.

#### **For Designers**

• The properties specified in this document are mean values obtained through product testing in accordance with specified standards through random product sampling

before sales only. Transportation, use and any actions taken relating to the products such as prolonged exposure to sunlight or water might cause changes to product

properties.

• The various installation specifications provided are only basic recommendations for general use. In determining the installation methods and structures used, make considerations based on the standard for shaped steel buildings EIT 1015-40 and design specifications based on Ministerial Regulation No. 6 (B.E. 2527)

#### For Installers and Users

• The various installation specifications provided are only basic recommendations for general use. In determining the installation methods and structures used, make considerations based on the standard for shaped steel buildings EIT 1015-40 and design specifications based on Ministerial Regulation No. 6 (B.E. 2527 [1984])

issued by virtue of the Building Control Act, B.E. 2522 (1979).

- For product uses outside of the specifications of this installation manual, consult an architect or design engineer.
- The T-bar ceiling system was not designed for people to walk on top of the frame of the T-bar system. If work above a T-bar ceiling is required, use a



#### **Work Safety Recommendations**

• SCG Smartboard contain silica. Upon cutting, grinding, drilling or polishing of the products, dust dispersion might occur. In addition, ingestion and inhalation in large

quantities over an extended period of time may cause harm to the respiratory system and the body.

- Products should be cut in a well-ventilated area, and product cutting, grinding, drilling and polishing tools that produce a lot of dust should be avoided.
- Wear up-to-standard personal protective equipment such as dust prevention masks, safety goggles, shirt, gloves and boots.
- People without up-to-standard protective personal equipment and people uninvolved in work are prohibited from approaching the work site. This is to avoid potential

dangers.

• Lifting or transportation of products has to be done with caution. Never lift by using the back, and never lean or twist the body in different directions while lifting,

and always avoid working continuously for an extended period of time. This is to prevent injuries and fatigue.

- Never lift entire boxes by holding to straps, as straps can break and injuries might occur as a result of falling products. Always lift carefully from the edges of product boxes
- Whenever lifting, always bend down, get a good grip and then lift by using the legs.
- Clean the workplace after cutting, grinding, drilling or polishing the products. Do so by using a vacuum cleaner and then sealing the dust tightly in bags. Otherwise,

#### First Aid

• If dust or scrap material enters the eyes, do not wipe or rub the eyes. Instead, quickly rinse with clean water several times and then rush to see a doctor.

#### Verify that this product installation manual is the most recent version.

• Product installation manuals are regularly update. Therefore, construction supervisors and installers must verify to ensure that their manual is the latest version. If you are unsure, you can check at www.scgbuildingmaterials.com.



Catalogue Smartboard

CW-SB-E-M001/6503

All content, design, and layout are Copyright © 2015, SCG Cement-Building Materials All Rights Reserved, Reproduction in whole or part in any form or medium without specific written permission is prohibited.

