Protection any time, any place A&AM

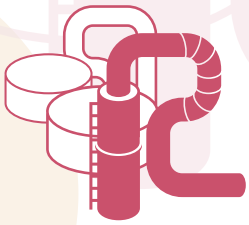
General Catalog of Building Materials

2018 Edition
Interior Materials
Exterior Materials

A&A Material Corporation

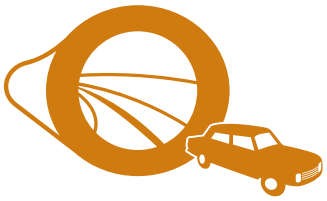
Our mission:
To protect amenable social environments
To protect precious lives

Protection for factories, industrial plant



Protection for commercial buildings, housing complexes, detached housing

Protection for tunnels and vehicles



Protection for ships

Protection any time, any place

Protection for the environment

Protection for pipes

Protection for steel-frames

Fire, heat and sound play essential roles in our lives, but sometimes they can also become threats. A&A Materials has developed fire-resistant and noncombustible materials to protect precious lives and property from fire, and soundproof materials to keep unpleasant noise out of living spaces. By protecting buildings, we also protect lives and society itself. Our continuing challenge is to protect amenable social environments.

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Hokkaido University
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Hiluc

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FG Board

Shopping Mall
Pillar base materials
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Hokkaido University
Interior walls and ceiling in the
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and Medical Innovation
FG Board

AAM GALLERY Our Interior Materials in Use

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Internal lower wall sections
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AAM GALLERY Our Exterior Materials in Use

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Requests Regarding Product Handling

To ensure safety, please observe the following instructions.

Prohibited action
Warning

Prohibited actions and warning about noncombustible boards

Only use these products for the recommended purposes.

Do not use in bathrooms.

Avoid the GL method, which can cause adhesion problems and lifting, etc.

These boards are not suitable for exterior use (except Selflex and Guard Panel N) and must only be used for interior finishing.

Never store these boards in locations where they are exposed to direct sunlight, rain or high humidity.

These materials are not strong enough to support screws, etc., and should only be fastened to base materials.

Avoid the wet method with FG Board in environments where freezing could occur.

Never bend an FG Board along its short side.

Important Information about Design

- Use in accordance with certification requirements when using in building parts requiring fireproof or fire-resistant structures.
- Please seek advice when using these products (including as underlay materials) under special conditions, including high temperature or humidity or extremely dry conditions.
- Colors may vary between production lots.
- When using both sides of a product, please note that there are differences in color and surface conditions between upper and back surfaces.

Important Information about Transportation and Storage

- Boards should be stacked on pallets or planks to prevent them coming into direct contact with the ground.
  If they must be stored outside temporarily, they should be covered with protective sheets.
- These products should be handled carefully and protected from impacts and load shifting.
- Never climb on top of the products when they are in storage.
- For long-term storage, the products should not be left stacked on planks, but should be stacked on a flat, smooth surface such as a pallet.
- Deformation may occur if the products are stored upright.

Important Information about Installation

- Install the products correctly, using the standard installation method indicated.
- When installing 910 mm x 910 mm products always align the boards according to the arrows on the reverse side.

Important Information about Safety

- Refer to SDS documentation for precautions regarding product handling.
- Always take appropriate safety precautions when working in high locations.
- Always use dust collection equipment when cutting materials with power tools.
- Always wear protective gear, including dust masks and goggles, when using power tools.
- Install dust extraction equipment if tasks that generate dust are carried out in indoor locations.
- Workers should be encouraged to gargle and wash their hands after handling the products.

Prohibited actions and warning about noncombustible decorative boards

Only use these products for the recommended purposes.

Do not use in bathrooms.

These boards are not suitable for exterior use and must only be used for interior finishing.

Never store these boards in locations where they are exposed to direct sunlight, rain or high humidity.

Storage in an upright position can cause cracking in the decorative surface. Always stack the panels on a flat surface.

These materials are not strong enough to support screws, etc., and should only be fastened to base materials.

When making holes, avoid the use of tools that cause impacts, such as slate hammers.

Avoid the use of highly adhesive products, such as packaging tape, as masking tape.

Boards should never be left for long periods with masking tape applied.

Do not attach nails or screws, etc. Water may seep in through holes made by nails and screws, causing swelling and separation of the boards.

Do not apply hooks with adhesive, etc., which can cause coating to peel.

Do not strike boards with knives, forks or other sharp objects which may cause damage.

Do not expose to direct flame, or allow boards to come into contact pans, kettles or other hot objects.
● This may cause the decorative surface to burn or blister.

Important Information about Design

⚠ Please seek advice when using these products (including as underlay materials) under special conditions, including high temperature or humidity or extremely dry conditions.

⚠ Colors may vary between production lots.

Important Information about Transportation and Storage

⚠ Boards should be stacked on pallets or planks to prevent them coming into direct contact with the ground.
If they must be stored outside temporarily, they should be covered with protective sheets.

⚠ These products should be handled carefully and protected from impacts and load shifting.

⚠ Never climb on top of the products when they are in storage.

⚠ For long-term storage, the products should not be left stacked on planks, but should be stacked on a flat, smooth surface such as a pallet.

⚠ Take care to avoid load shifting, as laminate used on the decorative surface is slippery.

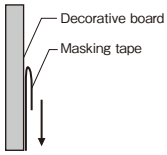
Important Information about Installation

⚠ Install using the recommended two-sided tape and adhesive.

⚠ When applying sealer, use a weakly adhesive paper masking tape intended for building (interior) coating use.

⚠ When attaching protective sheets during painting, etc., use a weak adhesive-type masking tape. Medium to strong adhesive types may cause coating to peel or leave adhesive behind.

⚠ Masking tape should be removed slowly in the direction shown in the diagram on the right.



⚠ Install the products correctly, using the standard installation method indicated.

⚠ When the sub-layer is made of calcium silicate, apply sealer to the top surface of the calcium silicate board.

⚠ Do not install the boards with adhesive if the room temperature is below 5°C or will fall below 5°C before the adhesive sets.
When such installation is unavoidable, use heating or other protective methods.

⚠ Install only after plumbing work (wet work) being done in the same room has dried.

⚠ Use a neutral detergent to remove dirt.

⚠ Remove the protective film after installation (Cera-Art Ecoshiny S).

⚠ When using a suction cup device, note that some devices provide extremely strong suction, therefore, use only after confirming that the device will not affect the decorative surface.

⚠ When attaching hand rails and other metal parts, over-tightening them may cause cracks to form around the part due to an adhesive layer of about 1 mm between the board and the sub-layer material. Take care in attaching such parts to avoid strain on the decorative layer.

⚠ Make sure spaces between kitchen back guards and joints are completely sealed.

Important Information about Use

⚠ Keep cooking appliances at least 15 cm away from the board (at least 20 cm for commercial use).
When this is not possible, protect using a heat dissipating board.

⚠ Use of paint thinner, etc. may damage the decorative board.
★Do not use cleaning agents (cleansers, etc.) containing abrasives.

⚠ Wipe off grease stains immediately.

⚠ Wipe off grease stains using a soft cloth soaked in a diluted, neutral detergent.
★Do not use scrub brushes, steel wool, or other hard cleaning tools.

⚠ In the event sealant beings to crack, repair promptly.
★Leaving cracks unrepaired can allow water to seep in from the edges of the boards andcause bending and cracking.

Important Information about Safety

⚠ Refer to SDS documentation for precautions regarding product handling.

⚠ Always take appropriate safety precautions when working in high locations.

⚠ Always use dust collection equipment when cutting materials with power tools.

⚠ Always wear protective gear, including dust masks and goggles, when using power tools.

⚠ Workers should be encouraged to gargle and wash their hands after handling the products.

Noncombustible boards

- FG Board
- Hiluc
- Hiluc M
- Selflex
- Selflex A
- Guard Panel N
- KaraRich
- CaraRich D-Coat

Curvable Fiber Gypsum Boards

FG Board (Noncombustible) NM-2967

Create beautiful curved designs with this noncombustible board

Although gypsum-based, this revolutionary noncombustible board can be used to create curved surfaces.
(Use 5, 6, and 8 mm products for curved installation.
Refer to the chart at right for curvature guidelines.)
Flexible yet strong, it can easily be bent to follow an extremely tight curvature radius. This characteristic opens up a wide range of interior design possibilities. Other advantages include toughness and excellent sound insulation properties.
FP-FG Board (6 mm) has been added to the product lineup for use in high sound-insulating, fire-resistant partition walls while allowing for curved installation.

Standard Dimensions

Thickness mm	4 ±0.3	5 ±0.3	6 ±0.4	8 ±0.4	10 ±0.5	12 ±0.5
Width × Length mm	910×1820	910×1820 910×2420		910×1820		
Standard weight kg/m²	6.4	8.0	9.6	12.8	16.0	19.3

※Standard product weights are standard values adjusted for moisture absorption ratios.
※FP-FG Board comes only in thickness of 6 mm x 910 x 1820.
※Also allows for perforating, cutting and chamfering.

Interior walls | Ceilings | Perfo-ration

Features

- Can be readily installed using dry or wet methods according to the curvature required.

●Curvature radius (Unit : mm)

Thickness	5	6	8	Remarks
Dry	800 or higher	1000 or higher	1200 or higher	Furring strip base
Wet	150 or higher	200 or higher	400 or higher	Surface base
	300 or higher	400 or higher	800 or higher	Furring strip base

- Resistant to expansion and shrinkage due to absorption and desorption, this product offers excellent dimensional stability.
- Can be processed to form curves, but is as tough as flexible boards.
- Product readily supports a wide range of processing methods, including cutting, planing and direct nailing.
- FG Board is also a highly effective interior material in situations that require sound insulation.
- FG Board has been approved by the Minister of Land, Infrastructure, Transport and Tourism as a noncombustible material.

Uses

- ◆Suitable for interior walls, partitions, ceilings, etc., in various types of buildings
- ◆Ideal for areas in which beautiful curved surfaces are required, such as ceilings, walls and columns

0.8 Calcium Silicate Boards (0.8FK)

Hiluc

JIS A 5430
(Noncombustible) NM-2773

With an established reputation for lightness and impact-resistance, the Hiluc range has set a new standard for noncombustible boards

The main materials used in these autoclave-cured interior boards are calcium silicate, limestone materials and reinforcing fibers. Designed to minimize expansion and contraction caused by moisture absorption, they provide excellent dimensional stability.
Hiluc products are light, easy to process and highly resistant to impact damage. They are also suitable as base materials for decorative boards

Standard Dimensions

Thickness mm	5 ±0.3	6 ±0.4	8 ±0.4	9 ±0.4	10 ±0.5	12 ±0.5
Width × Length mm	910×910 910×1820 910×2420 1000×2000 1210×2420	910×910、910×1820 910×2420、1000×2000 1210×2420、910×2730		910×1820		910×910 910×1820 910×2420 1000×2000
Standard weight kg/m²	4.7	5.6	7.5	8.5	9.4	11.3

※Standard product weights are standard values adjusted for moisture absorption ratios.
※Also allows for perforating, cutting and chamfering.

Interior walls | Ceilings | Base materials for decorative boards | Soffits | Perfo-ration

Features

- Light and springy, these interior finishing materials are highly resistant to impact damage
- Hiluc products are extremely versatile and can be installed by both one shot screw fixing without pre-opening, or stapling methods
- With a thermal conductivity ratio similar to that of wood, Hiluc products provide excellent thermal insulation for added comfort
- For superior dimensional stability, these products are designed to minimize expansion and contraction resulting from moisture absorption
- Hiluc products have been approved by the Minister of Land, Infrastructure, Transport and Tourism as a noncombustible material

Uses

- Suitable for a wide range of uses, including interior finishing and soffits in houses, commercial buildings and various other structures
- Ideal for fire-preventive, quasi-fireproof and fireproofing systems and sound insulation systems in apartment partition walls

1.0 Calcium Silicate Boards (1.0 FK)

Hiluc M

JIS A 5430
(Noncombustible) NM-3021

Excellent stability and durability

Humidity behavior is negligible thanks to the crystallization effect of autoclave curing. As a result, these products will retain their stability and quality for many years. Unlike timber and steel, calcium silicate boards will never rot or rust.

Standard Dimensions

Thickness	mm	4 ±0.3	6 ±0.4	8 ±0.4
Width × Length	mm	910×1820		
Standard weight	kg/m²	4.6	6.9	9.2

※Standard product weights are standard values adjusted for moisture absorption ratios.

Interior walls | Ceilings | Base materials for decorative boards | Soffits

Features

- Light and springy, these interior finishing materials are highly resistant to impact damage
- Hiluc M products are extremely versatile and can be installed by both one shot screw fixing without pre-opening, or stapling methods
- With a thermal conductivity ratio similar to that of wood, Hiluc M products provide excellent thermal insulation for added comfort
- For superior dimensional stability, these products are designed to minimize expansion and contraction resulting from moisture absorption
- Hiluc M products have been approved by the Minister of Land, Infrastructure, Transport and Tourism as a noncombustible material

Uses

- Especially suitable as high-performance base materials for decorative boards
- Ideal for a wide range of interior finishing uses in various types of buildings

Flexible Boards for Interior and Exterior Finishing

Selflex

JIS A 5430
(Noncombustible) NM-2694

These versatile products are suitable for both interior and exterior walls

Strong and flexible, these boards are highly resistant to impacts and also provide weather resistance, making them the ideal choice for a wide range of interior and exterior finishing uses.
Selflex products are designed to minimize deterioration with age and provide reliable quality over many years.

Standard Dimensions

Thickness	mm	4 ±0.3	5 ±0.4	6 ±0.4	8 ±0.4	10*±0.5	12*±0.5
Width × Length	mm	910×910 910×1820 910×2420 1000×2000 1210×2420			910×1820		
Standard weight	kg/m²	7.5	9.4	11.2	15.0	18.8	22.4

※Standard product weights are standard values adjusted for moisture absorption ratios.
※Also allows for perforating, cutting and chamfering.
＊10 mm and 12 mm products do not comply with JIS A 5430 standard.

Interior walls | Exterior walls | Soffits | Perfo-ration

Features

- High-strength flexible boards
- Excellent durability
- Superior weather resistance, even when unpainted
- Approved by the Minister of Land, Infrastructure, Transport and Tourism as a noncombustible material

Uses

- Interior and exterior walls, soffits, etc.
- Especially suitable for interior and exterior walls in open buildings that are exposed to the external environment

Autoclave-Cured Cement Boards for Interior Use

Selflex A

JIS A 5430
(Noncombustible) NM-2695

Manufactured with pride, these high-performance interior materials are the perfect answer for situations in which superior strength required

Selflex A products combine strength and flexibility and are extremely resistant to impact damage. To prevent warping due to aging, they are designed to minimize dimentional change by moistare. These products are also extremely versatile to support a variety of finishing and installation methods. They are manufactured with pride for use as interior and exterior board for walls, ceilings and other locations in all types of buildings.

Standard Dimensions

Thickness	mm	4 ±0.3	5 ±0.4	6 ±0.4
Width × Length	mm	910×1820		
Standard weight	kg/m²	7.5	9.4	11.2

※Standard product weights are standard values adjusted for moisture absorption ratios.

Interior walls | Ceilings | Base materials for decorative boards | Soffits

Features

- These cement boards are autoclave-cured for superior strength
- Age-related deformation is extremely minimal. These products have an established reputation for dimensional stability.
- For enhanced ease of finishing, the boards are press-molded under high pressure to create smooth surfaces
- Selflex A has been approved by the Minister of Land, Infrastructure, Transport and Tourism as a noncombustible material

Uses

- ◆Especially suitable as high-performance base materials for decorative boards
- ◆Ideal for a wide range of interior finishing uses in various types of buildings

Flexible Panels for Exterior Finishing

Guard Panel N (Noncombustible) NM-2871

Dependable protection against rain, sun and impacts

These strong, flexible panels provide a high level of performance, including strenght, flexibility and impact resistance which is always required for exterior material. They also provide weather resistance, and deterioration with age is minimal. Guard Panel N products are the ideal materials for wide range of requirements, including external walls and noise barriers.

Standard Dimensions

Thickness	mm	16.5 ±1.5	20 ±1.5
Width×Length	mm	910×1820、1000×2000	910×1820
Standard weight	kg/m²	30.9	37.4

※Standard product weights are standard values adjusted for moisture absorption ratios.

Exterior walls

Noise barriers

Features

- ●High-strength flexible boards
- ●Excellent durability
- ●Superior weather resistance, even when unpainted
- ●Approved by the Minister of Land, Infrastructure, Transport and Tourism as a noncombustible material

Uses

- ◆Exterior wall material for all types of buildings
- ◆Opposing walls and noise barriers in stations, etc.

Interior Humidity Control Building Material

KaraRich/KaraRich D-Coat

(Noncombustible)
NM-3246(KaraRich)
NM-3734(KaraRich D-Coat)

Maintains natural humidity levels, making interior space more comfortable.

KaraRich is an interior humidity control building material developed primarily using cement and calcium silicate.
When a room is humid, it absorbs that humidity and prevents condensation; in dry conditions, it releases the humidity it has absorbed,maintaining humidity at nearly the same level.
It also adsorbs formaldehyde.

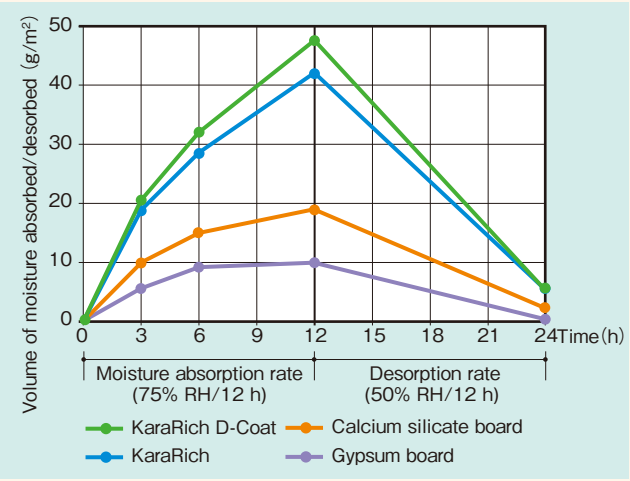
Features

- ●Excellent humidity control functionality. Obtained the Humidity Control Building Material mark from the Japan Construction Material & Housing Equipment Industries Federation
- ●Effective in adsorbing and trapping formaldehyde.
- ●Effective in adsorbing ammonia.
- ●Light and springy, these interior finishing materials are highly resistant to impact damage
- ●KaraRich has been approved by the Minister of Land, Infrastructure, Transport and Tourism as a noncombustible material
- ●In separation wall systems, compatible with both adhesive and metal fitting methods

Uses

- ◆General interior humidity control material
- ◆General residential spaces
- ◆Changing room ceilings

Humidity Control Performance



Note: Slight variations in volume of moisture absorbed/desorbed may occur with each material and the timing of testing.

Varieties

Product	Surface finish
KaraRich	Flat foundation
KaraRich D-Coat	Decorative print

Standard Dimensions

Thickness mm	6 ±0.4
Width×Length mm	KaraRich : 910×1820　910×2420
	KaraRich D-Coat : 910×1820(910×910)
Standard weight kg/m²	6.0

※Standard product weights are standard values adjusted for moisture absorption ratios.
※( )Sizes in parentheses are made-to-order.

●Standard Patterns(KaraRich D-Coat)

※Note that due to the printing process, actual colors may vary slightly.

【Surface Characteristics】

The KaraRich D-Coat product features patterns printed on KaraRich (plain board), and is easily affected by the surface of the board. This may result in slight variations in glossiness and other appearance.

★Black spots: Slight black spotting may appear on the surface.
This presents no problem once installed as a ceiling finish.

Interior walls — KaraRich

Cellings — KaraRich, KaraRich D-Coat

Perforated Panels

Perforated panels involve a secondary process that makes holes in FG Board, Hiluc and Selflex boards, and are used as sound absorption materials. Sound absorption coefficients can be adjust depending on the application, and the product s are thus used in kindergartens, schools and other educational facilities, as well as concert halls and other buildings.

Standard Dimensions

These products are available in various sizes, hole sizes and pitches.

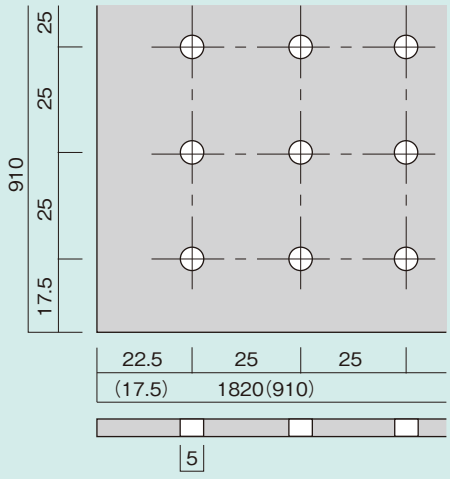
Type	Thickness mm	Width × Length mm	Diameter × Pitch mm	Perforation Ratio %	Note
FG Board	4 , 5 , 6	910×1820	φ5 × 25	Approx. 3	Produced to order
Hiluc	5 , 6	910×910	φ5 × 25	Approx. 3	
	5 , 6 , 8 , 12	910×1820	φ5 × 25	Approx. 3	
	5 , 6	910×1820	φ8 × 20	Approx. 12	Produced to order
Selflex	4 , 5 , 6	910×1820	φ5 × 25	Approx. 3	

※Perforated products are manufactured through a secondary process that makes holes in noncombustible boards, and are not certified as noncombustible.
However, noncombustible certification has been obtained by combining these products with backing materials.

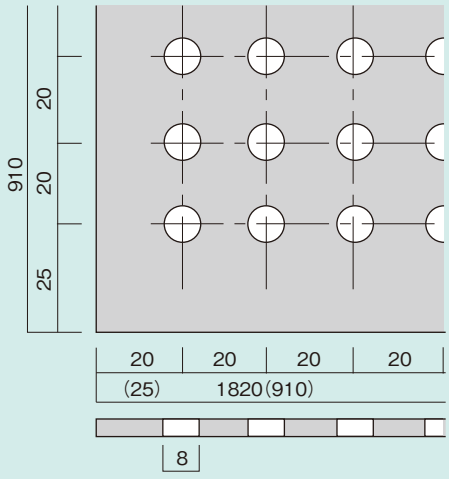
Product Overview

(unit: mm)

φ5 × 25 (Perforation ratio approx. 3%)



φ8 × 20 (Perforation ratio approx. 12%)



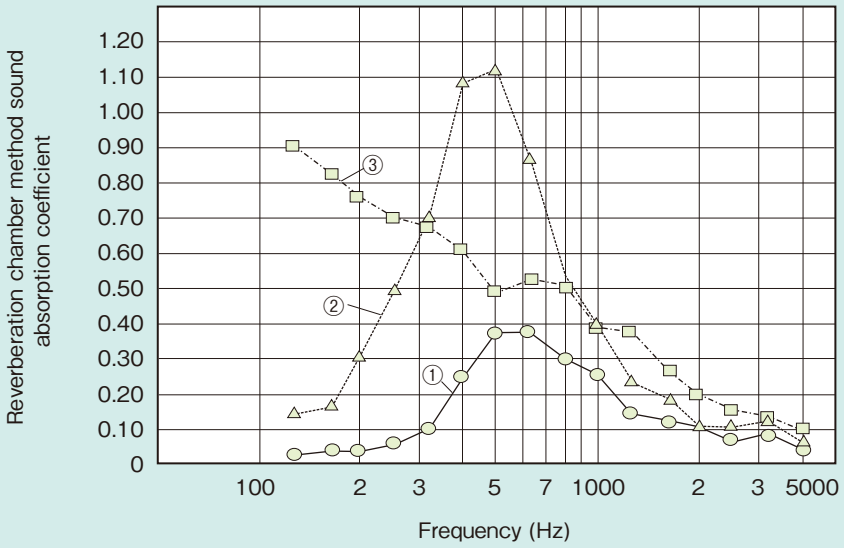
Diameter × Pitch (mm)	Perforation Ratio (%)	Perforation ratio calculation formula (simplified) (π x radius2) / (pitch x pitch)×100
φ5 × 25	Approx. 3	$(\pi \times 2.5^2) / (25 \times 25) \times 100$
φ8 × 20	Approx. 12	$(\pi \times 4^2) / (20 \times 20) \times 100$

Interior walls | Soffits | Perforation

Sound Absorption Performance

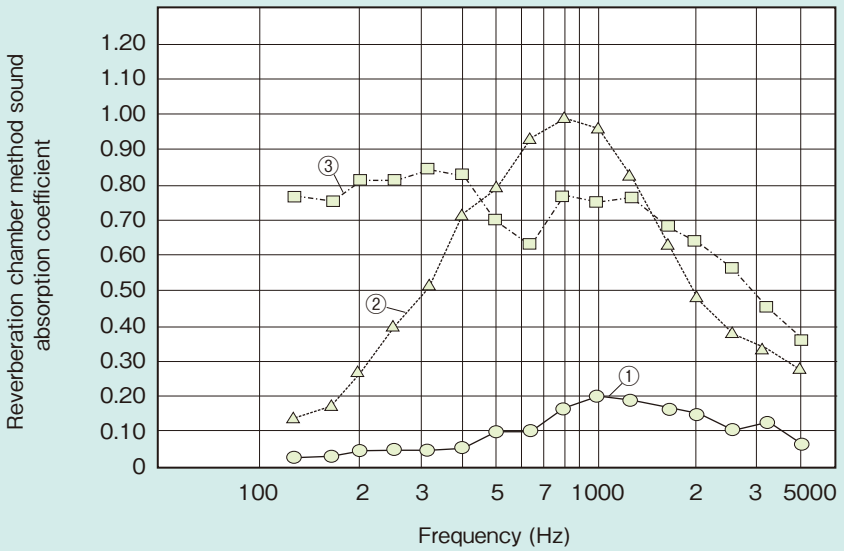
◆Sound absorption coefficient measuring test: Kobayashi Institute of Physical Research/June 1993 (ϕ5 × 25)

Material: ① Hiluc perforated board 6mm + 45mm air layer without fiberglass insulation
② Hiluc perforated board 6mm + 45mm air layer + fiberglass insulation 25mm (24K)
③ Hiluc perforated board 6mm + 300mm air layer + fiberglass insulation 25mm (24K)



◆Sound absorption coefficient measuring test: Kobayashi Institute of Physical Research/June 1993 (ϕ8 × 20)

Material: ① Hiluc perforated board 6mm + 45mm air layer without fiberglass insulation
② Hiluc perforated board 6mm + 45mm air layer + fiberglass insulation 25mm (24K)
③ Hiluc perforated board 6mm + 300mm air layer + fiberglass insulation 25mm (24K)



A&A Materials Products that Comply with JIS A 5430

●What is JIS?

Japan Industrial Standards (JIS) are standards that define values and standards, including testing methods, that must be used to confirm types, dimensions, quality, performance and safety of products.

●JIS Mark Labeling

The inclusion of the JIS Mark in a product's label indicates that the product has met the requirements of the JIS standard. These marks are sued as indicators in various situations, such as transactions between companies and procurement by government agencies. This label allows users to check instantly whether or not a product is of reliable quality.

●JIS-Compliant Products Supplied by A&A Materials

We obtain certification under JIS A5430 (fiber-reinforced cement boards). Representative products are shown in the table below. All of these products are designed to protect buildings from earthquakes and first and are widely used as building materials that contribute to safety and comfort.

A&A Materials Products and JIS Categories

A&M Materials Product	Type			Code	Main Uses
Selflex	Slate	Boards	Flexible boards	F	Interior and exterior finishing
Selflex A			Flexible boards A	FA	Interior finishing
Hiluc	Calcium Silicate Boards	Type 2	0.8 Calcium Silicate Boards	0.8FK	Interior finishing
Hiluc M			1.0 Calcium Silicate Boards	1.0FK	Interior finishing

Thickness and Dimensional Tolerance of JIS Compliant Products

(Slate Board and Calcium Silicate Board Type 2)

A&M Materials Product	Thickness	Tolerance	
		Thickness	Length/Width
Selflex	4	±0.3	0 −1
	5	±0.4	
	6		
	8		
Selflex A	4	±0.3	
	5	±0.4	
	6		
Hiluc	5	±0.3	
	6	±0.4	
	8		
	9		
	10	±0.5	
	12		
Hiluc M	4	±0.3	
	6	±0.4	
	8		

※Tolerances based on testing standards at time of shipping.

Physical Properties (Slate Boards)

A&A Materials Product	JIS Standard Value					Reference Value		
	Delivery Testing		Format Testing					
	Bending strength N/mm^2 (lengthwise)	Water absorption ratio %	Water permeability	Length variation caused by water absorption % (lengthwise)	Fire-retardant or exothermic properties	Density g/cm^3	Young's modulus N/mm^2 (lengthwise)	Thermal conductivity W/m·K
Selflex	28.0 or higher	24 or lower	Water droplets must not form on the back.	0.20 or lower	Grade 1 exothermic	Approx. 1.6	16×10^3	0.35
Selflex A	28.0 or higher	28 or lower		0.15 or lower	Grade 1 exothermic	Approx. 1.6	16×10^3	0.32

Physical Properties (Calcium Silicate Board Type 2)

A&A Materials Products	JIS Standard Value					Reference Value	
	Delivery Testing		Format Testing				
	Density g/cm^3	Bending strength N/mm^2 (lengthwise)	Length variation caused by water absorption % (lengthwise)	Thermal conductivity W/m·K	Fire-retardant or exothermic properties	Water absorption ratio %	Young's modulus N/mm^2 (lengthwise)
Hiluc	Min. 0.6 Max. 0.9	10.0 or higher	0.15 or lower	0.18 or lower	Grade 1 exothermic	Approx. 80	6×10^3
Hiluc M	Min. 0.9 Max. 1.2	13.0 or higher		0.24 or lower		Approx. 60	9×10^3

Standard Properties of Noncombustible Boards

We supply noncombustible boards with a wide range of compositions and performance characteristics, including flexible boards, calcium silicate boards and gypsum boards.

●Properties of Products Covered by JIS Standards

We supply flexible boards and calcium silicate boards.
The physical properties of these products are controlled to comply with JIS A 5430.

●Properties of Products Not Covered by JIS Standards

We also supply a range of noncombustible boards that are not covered by JIS standards.
The standard properties of these products are as shown in the table below.
Note that values for these properties are based on in-house measurements, and are not guaranteed values.

Type	Standard Value							
	Density g/cm^3	Bending strength N/mm^2 (lengthwise)	Water permeability	Length variation caused by water absorption % (lengthwise)	Water absorption ratio %	Young's modulus N/mm^2 (lengthwise)	Thermal conductivity W/m·K	Fire-retardant or exothermic properties
Guard Panel N	Approx. 1.7	28.0 or higher	Water droplets must not form on the back	0.20 or lower	24 or lower	14×10^3	0.40	Grade 1 exothermic
FG Board	Approx. 1.6	15.0 or higher	—	0.07 or lower	18 or lower	13×10^3	0.35	
FP-FG Board	Approx. 1.6	15.0 or higher	—	0.07 or lower	25 or lower	10×10^3	0.42	
KaraRich	Approx. 0.9	11.0 or higher	—	0.18 or lower	Approx. 70	—	0.20	
Test method	JIS A 5430	JIS A 5430	JIS A 5430	JIS A 5430	JIS A 5430	JIS A 1408	JIS A 5430	

※Because FG Boards and FP-FG Boards are made from a gypsum-based material, test methods that do not cause crystalline water to break down are used.
※Young's modulus testing complies with JIS A 1408; other test methods comply with JIS A 5430.

■Standard Installation Method

Installation Process

1. Processing
- ■Pre-processing
- ■On-site processing

2. Installation
- ■Methods for fastening with nails, screws and staples
- ■Opening area layout
- ■Sub-layer spacing and spacing of fasteners

3. Joint Finishing
- ■Spacing
- ■End-to-end
- ■Seal finishing
- ■Joiner finishing

4. Surface Finishing
- ■Paint finishing
- ■Cloth finishing
- ■Tile finishing

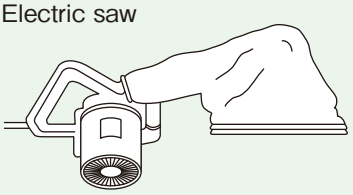
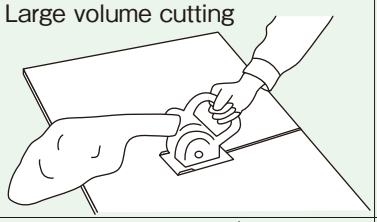
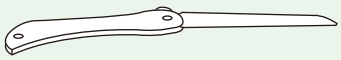
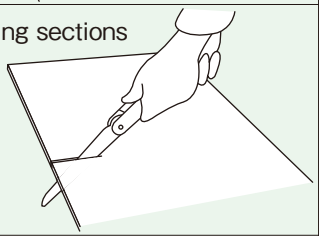
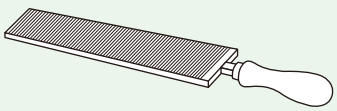
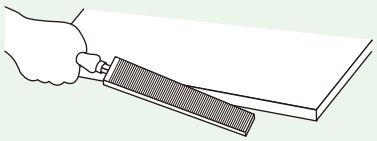
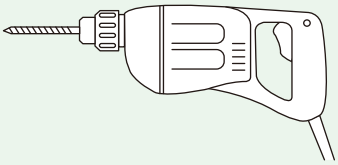
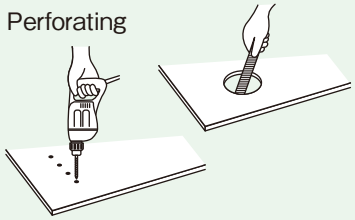
1. Processing

■Pre-processing (factory processing)

Noncombustible boards can be pre-cut at the factory based on design specification, and delivered to the installation site.

■On-site processing

Noncombustible boards offer excellent workability, and can easily be cut and perforated on-site.

	Tool	Application	Precautions
Cutting	Electric saw 	Large volume cutting 	●Use a chip saw or diamond saw blade. ●Use a circular saw with a dust collection device
Cutting	Slate saw 	Cutting sections 	
Chamfering	Flat file, rasp, etc. 	Chamfering, edge finishing 	
Perforating	Drill or jigsaw 	Perforating 	●Use a standard ironworking drill bit. ●When opening holes for plumbing and conduit pipes, make a series of holes around the edge marking the opening, then tap lightly with a hammer to remove. After perforation, smooth the edge with a file or other tool.

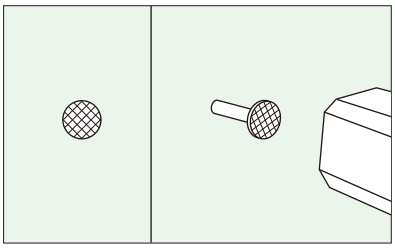
2. Installation

■Methods for fastening with nails, screws and staples.

If the sub-layer is steel frame, attach the boards using self-tapping screws or bolts; if the sub-layer is wood construction, use wood screws or board nails, etc.
Because the boards are held in place by the nail head, use nails with large heads or add a washer.
Also, make sure round wire nails, wood screws, small screws and other fastenings are plated or otherwise rust-proofed.

Wood sub-layer → Fastening with nails

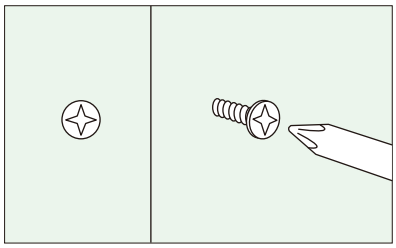
(Board nails, wood screws, etc.)



※Use JIS A 5508 compliant nails (round wire nails) that have been plated, or stainless steel nails, etc.
Nail length should be approximately 2.5-3 times board thickness.

Steel frame sub-layer → Fastening with screws

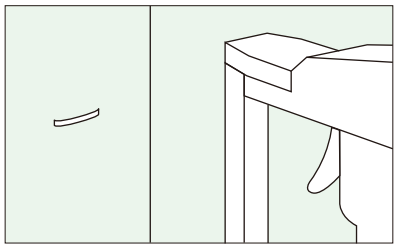
(Self-tapping screws, bolts, etc.)



※Use JIS B 1122 self-tapping screws that have been plated, or stainless steel screws. Screw length should be approximately 2 times board thickness.
※To prevent cement board from splitting, first make a starter hole approximately 0.5-1mm larger than the screw or other fastening.

Gypsum board sub-layer → Fastening with staples

(Staples)



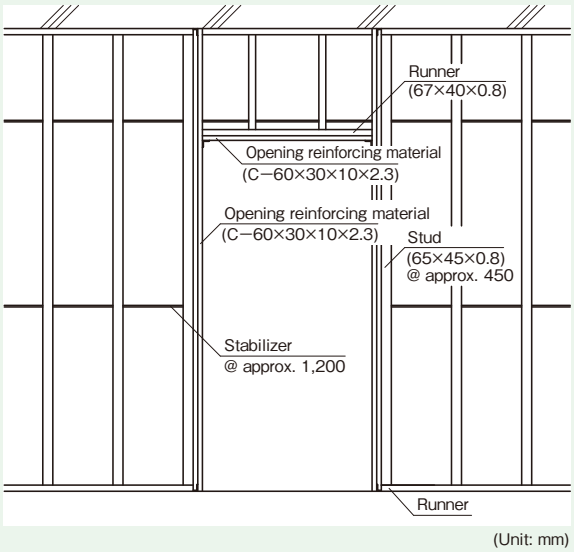
※The stapling method also requires the use of adhesive.
※Use staples treated with rust-proofing. Use staples of a length corresponding to board thickness.
※Use staples to fasten Hiluc, Hiluc M and FG Board products. Do not use with cement board.
※As a rule, do not use on ceiling installations.

※Because the staple material itself lacks the holding force of screws, use only on supporting material.
※Seek advice before using under special conditions (including underlay materials), including high temperatures or humidity, or in extremely dry conditions.

■Opening area layout

●Reinforcing the opening sub-laye

To minimize vibration from opening and closing of the opening, use a sub-layer of light gauge steel (C channel shape, etc.) rather than steel studs to reinforce the opening.

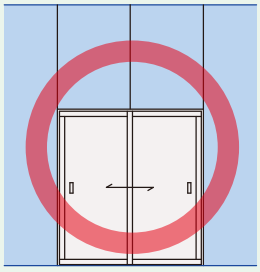


(Unit: mm)

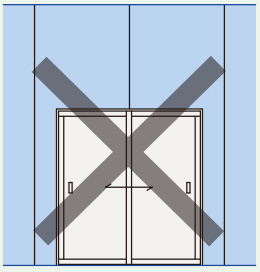
●Layout

To ensure the cut-out portion does not create a weak point, finishing material used around the opening should by laid out to fit the width of the opening.

Good example

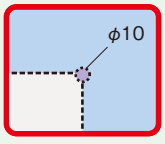


Bad example



●Cutting

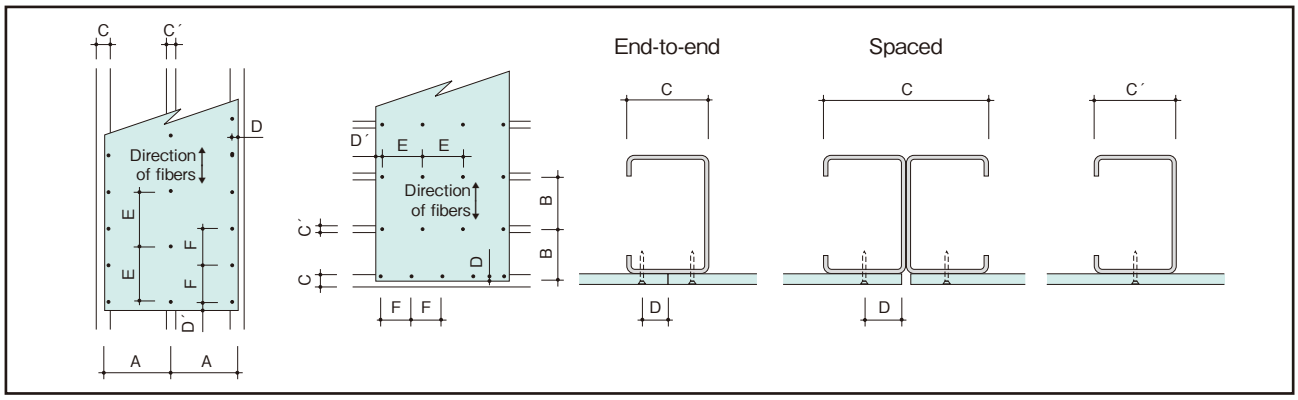
When cutting out the finishing material used around the opening and cutting to fit the opening is unavoidable, before cutting first use an electric drill to make a starter hole of approximately ϕ10 at the corner of the section to be cut.



■Standard Installation Method

Exterior Walls and Standard Interior Walls

■Sub-layer spacing and spacing of fasteners



●Exterior walls

(Unit: mm)

Product name	Thickness	Sub-layer spacing		Sub-layer aspect width		Fastener spacing			
		A	B	C	C´	D	D´	E	F
Selflex	6,8,10,12	450↓	600↓	90↑	45↑	25↑	25↑	300↓	300↓
Guard Panel N	16.5 , 20	600↓	900↓	100↑	50↑	30↑	30～45	450↓	450↓

↑More than ↓Less than

●Standard interior walls

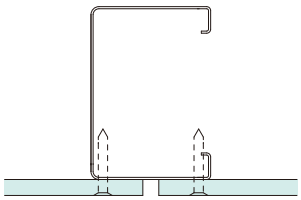
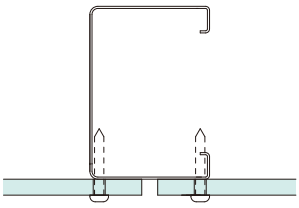
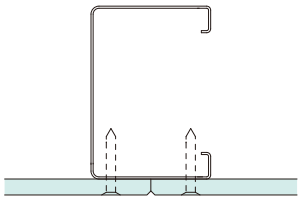
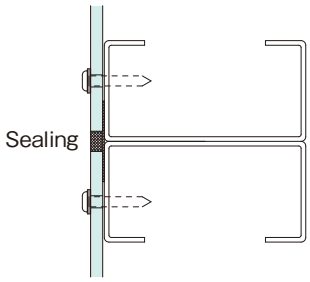
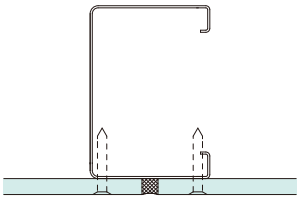
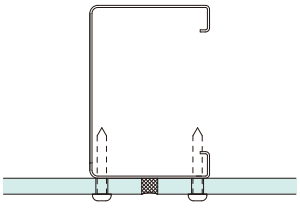
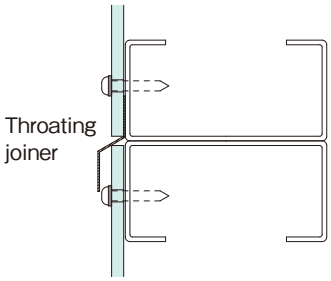
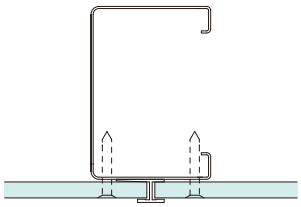
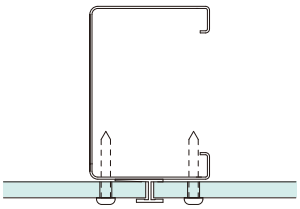
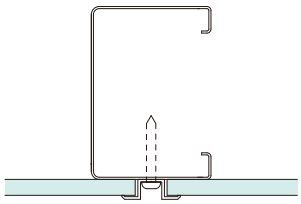
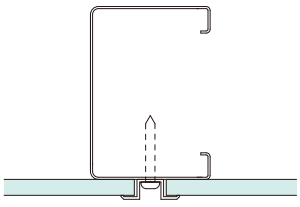
(Unit: mm)

Product name	Thickness	Sub-layer spacing		Sub-layer aspect width		Fastener spacing			
		A	B	C	C´	D	D´	E	F
FG Board	6	300↓	450↓	45↑	45↑	10～15	25～35	300↓	300↓
	8,10,12	450↓	600↓			12～20			450↓
Hiluc	6 , 8	300↓	450↓	45↑	45↑	15↑	25～35	300↓	300↓
	10 , 12	450↓							
Hiluc M	6 , 8	300↓	450↓	45↑	45↑	15↑	25～35	300↓	300↓
Selflex A	5 , 6	450↓	600↓	45↑	45↑	15↑	25↑	300↓	300↓
Selflex	5 , 6	450↓	600↓	45↑	45↑	15↑	25↑	300↓	300↓

※When using single boards (6mm thickness) as interior material, height should be 2.7m or less.

↑More than ↓Less than

●Joint finishing

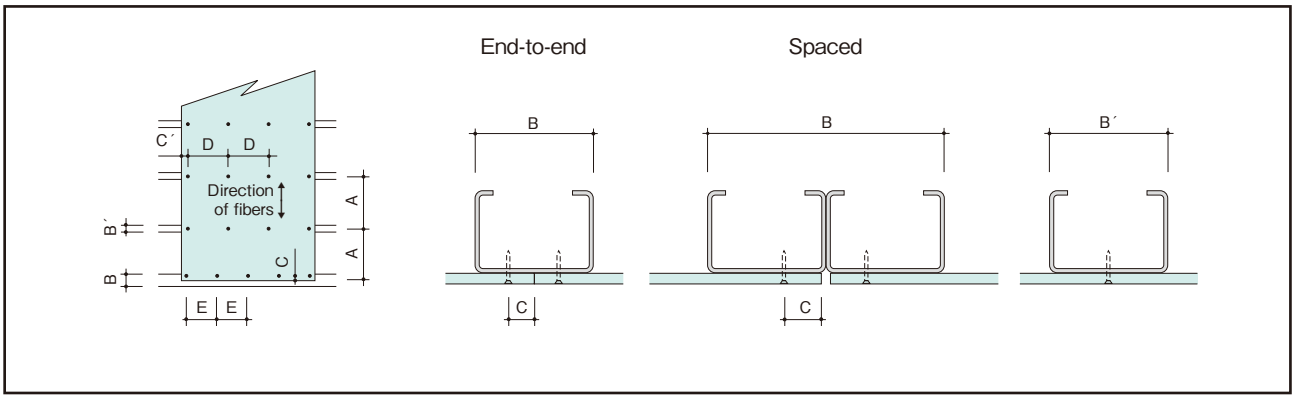
Section	Exterior wall	Standard interior wall	
Backing material	Selflex	FG Board Hiluc/Hiluc M Selflex A	Selflex
Spaced		 Spaced	 Spaced
End-to-end		 End-to-end or chamfered end-to-end	
Seal finishing	 Sealing	 Sealing	 Sealing
Joiner finishing	 Throating joiner	 H Joiner	 H Joiner
		 Decorative joiner	 Decorative joiner

※Create a starter hole approximately 0.5-1mm larger than the fastener when installing Selflex.
※Use pan head screws when installing Selflex.
※Avoid using end-to-end sub-layer when installing Selflex.

■Standard Installation Method

Ceilings and Soffits

■Sub-layer spacing and spacing of fasteners



●Ceilings

(Unit: mm)

Product name	Thickness	Sub-layer spacing	Sub-layer aspect width		Fastener spacing			
		A	B	B´	C	C´	D	E
FG Board	4	225↓	45↑	25↑	10～15	25～35	300↓	300↓
	5 , 6 , 8	300↓						
Hiluc	5 , 6 , 8	300↓	50↑	25↑	15↑	25～30	300↓	150～200↓
Hiluc M	6 , 8	300↓	50↑	25↑	15↑	25～30	300↓	150～200↓
Selflex A	4 , 5 , 6	225↓	50↑	25↑	15↑	25↑	300↓	150↓
Selflex	4 , 5 , 6	225↓	50↑	25↑	15↑	25↑	300↓	150↓

↑More than ↓Less than

●Soffits

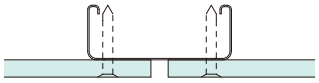
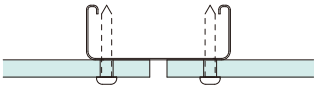
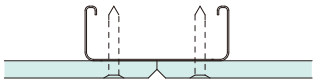
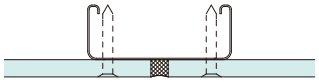
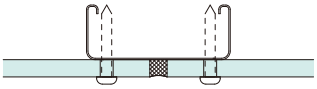
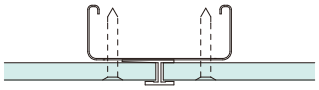
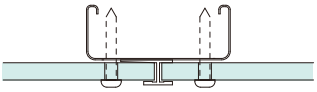
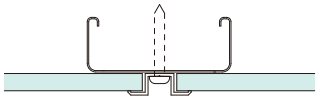
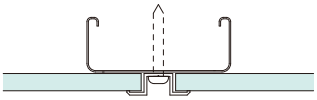
(Unit: mm)

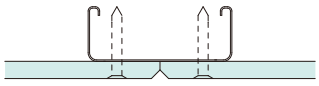
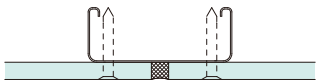
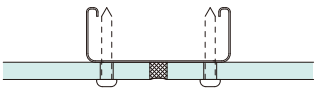
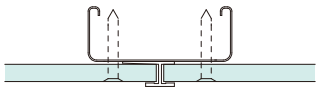
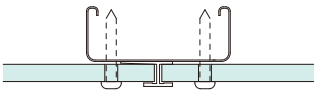
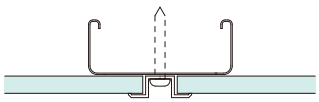
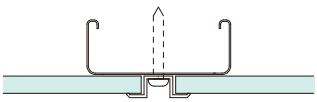
Product name	Thickness	Sub-layer spacing	Sub-layer aspect width		Fastener spacing			
		A	B	B´	C	C´	D	E
Hiluc	5 , 6 , 8	300↓	50↑	25↑	15↑	25～30	300↓	150～200↓
Hiluc M	6 , 8	300↓	50↑	25↑	15↑	25～30	300↓	150～200↓
Selflex A	4 , 5 , 6	225↓	50↑	25↑	15↑	25↑	300↓	150↓
Selflex	4 , 5 , 6	225↓	50↑	25↑	15↑	25↑	300↓	150↓

※Install ceiling and soffit sub-layer at right angles to the direction of the board fibers.

↑More than ↓Less than

3. Joint Finishing

Backing material		FG Board Hiluc/Hiluc M Selflex A	Selflex
Ceilings	Spaced	 Spaced	 Spaced
	End-to-end	 End-to-end or chamfered end-to-end	
	Seal finishing	 Sealing	 Sealing
	Joiner finishing	 H Joiner	 HH Joiner
		 Decorative joiner	 Decorative joiner

Backing material		Hiluc Hiluc M Selflex A	Selflex
Soffits	End-to-end	 Chamfered end-to-end	
	Seal finishing	 Sealing	 Sealing
	Joiner finishing	 H Joiner	 H Joiner
		 Decorative joiner	 Decorative joiner

※Create a starter hole approximately 0.5-1mm larger than the fastener when installing Selflex.
※Use pan head screws when installing Selflex.
※Avoid using end-to-end sub-layer when installing Selflex.

4. Surface Finishing

■Painting

《Installation process》

Sub-layer surface preparation

When painting, to ensure the coat of paint adheres well, the sub-layer should first be prepared with an application of sealer.

Painting

Because Hiluc, Selflex and Selflex A are alkaline products, an alkali-resistant paint should be used.

●Use the appropriate paint for indoor and outdoor applications.

Interior painting	Exterior painting
◆Synthetic resin-based interior emulsion paint ◆In kitchens and other locations easily exposed to water, use a resin-based alkali emulsion paint or a synthetic resin-based exterior emulsion paint ◆Emulsion paint Use an alkali emulsion resin-based paint, vinyl acetate resin, epoxy resin, urethane resin, or silicone resin	◆Synthetic resin-based exterior emulsion paint ◆Solvent-based paints Urethane resin, acrylic resin, acrylic urethane resin, acrylic silicon resin, epoxy resin, polyvinyl chloride resin, fluorine resin

Note 1: Each of these paints has its own characteristics. Use according to specifications.
Note 2: Use of a roller or brush for application on calcium silicate board is recommended. Spray application of paint may cause pilling.
Note 3: Boards other than Selflex and Guard Panel N cannot be used for exterior finishes.

●Surface finishing method (example of specifications for use of synthetic resin-based emulsion paints)

Step	Type	Sealer and thinner……Dilution rate	Number of applications	Drying time	Application volume g/m²	Application method
1. Substrate preparation	1 part	Cation-exchange synthetic resin-based emulsion sealer……100	1	2 hours at 20°C	110	Roller
	2 part	Weak solvent-based reaction-type epoxy resin sealer…100 Paint thinner……30～50	1～2 2 for highly absorbent substrates	4 hours at 20°C	100	
	1 part	Polyurethane resin-based sealer……100 Tor urethane thinner＃1000……30～100	1	1 hour at 23°C	50～150	
	1 part	Special synthetic resin emulsion sealer……100	1～2 2 for highly absorbent substrates	2 hours at 23°C	150	
	2 part	Weak solvent-based reaction-type epoxy resin sealer…100	1～2 2 for highly absorbent substrates	4 hours at 23°C	140	
2.Primer	1 part	Acrylic-based emulsion paint……100 Tap water……5～10	1	3 hours at 20°C	120	Roller
	1 part	Acrylic emulsion paint……100 Tap water……5～15	1	3 hours at 23°C	110～140	
	1 part	Acrylic resin-based emulsion paint……100 Tap water……0～10	1	2 hours at 23°C	130	
3.Top coat	1 part	Same as above	1		Same as above	Roller

※Follow paint manufacturer specifications regarding surface finishing methods
※The appropriate paint type must be selected depending on building use, location conditions and durability; contact the manufacturer regarding specifications.

■Cloth

《Installation process》

Sub-layer surface preparation

To ensure covering adhesive strength with Hiluc and Hiluc M, the sub-layer should first be prepared with an application of sealer

Pasting

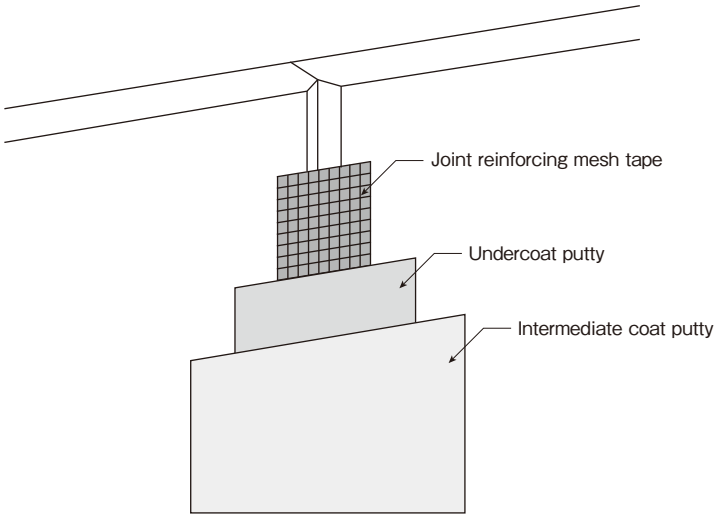
Because Hiluc and Selflex A are alkaline products, an alkali-resistant adhesive should be used.

Alkali-resistant adhesives
◆Wallpaper ·····Starch-based
◆Cloth ·····Vinyl acetate resin-based
◆Vinyl sheet ·····(SBR) Rubber latex-based
◆Decorative veneer/melamine ····Neoprene-based

Note: Depending on the combination of finishing material and board, finishing material may split along the joints. Be sure to keep this in mind when selecting a material.

●Surface primer putty for chamfered end-to-end joints (paint, cloth finishing)

A top coat of putty may be applied depending on the finish.



●Joint-less method for walls without exposed pillars

Install chamfered FG Board (6mm or more) or FP-FG Board (6mm only) end-to-end, and using pan-head self-tapping screws, flat-head nails, etc., ensure the head is completely below the surface of the board.

①Completely seal the joints with an IP sealant, etc. and leave for at least five hours.
②Fill the joints with a synthetic resin-based emulsion putty (ex. All-purpose IP putty from International Paint Co.) using a putty knife, and leave to dry for at least five hours (may require two applications).
③Remove any burrs in the putty with sandpaper, then use a putty knife to apply additional putty around the joints (to a width of 50mm). Allow to dry for three hours, then finish with sandpaper.
When applying putty, use of cheesecloth or silk tape is also recommended.
④As with the joints, apply putty two to three times to the fasteners, then finish with sandpaper.

4. Surface Finishing (Interior Tile Finish)

《When installing full-surface tile using organic-based adhesive on a dry wall base》

●Types of tile

◆Tiles should be no more than 300mm square.
◆Tiles should weigh no more than 2.2kg each.
◆Grooves on the back of the tile should protrude no more than 2.0mm from the surface.

●Types of adhesives

◆Adhesives conforming to JISA 5448:2003 (Adhesives for Ceramic Tile) and JISA 5557:2010 (Organic Adhesives for Exterior Tile).
※When installing, follow the installation specifications for each type of adhesive.

●Applicable sites and types of sub-layer board for interior tile

Application location	Hiluc (0.8 calcium silicate board)	Hiluc M (1.0 calcium silicate board)	FG Board (Fiber-reinforced gypsum board)	Selflex A (Flexible Board A)
Use in spaces that are constantly dry (non-wet rooms, toilets, etc.)	◎	◎	◎	◎
Use in spaces that repeatedly go from wet to dry (primarily dry) (washrooms, commercial kitchens, etc.)	○	◎	○	◎
Use in spaces exposed to water or are frequently wet (Bathrooms, shower rooms, etc.)	–	–	–	◎

■Suitability: ◎Best suited ○Suitable
※In locations exposed to water, avoid using in around bathtubs and other areas of standing water.
※Avoid using Selflex (flexible board) as a base board for applying tile.

●Installing base boards

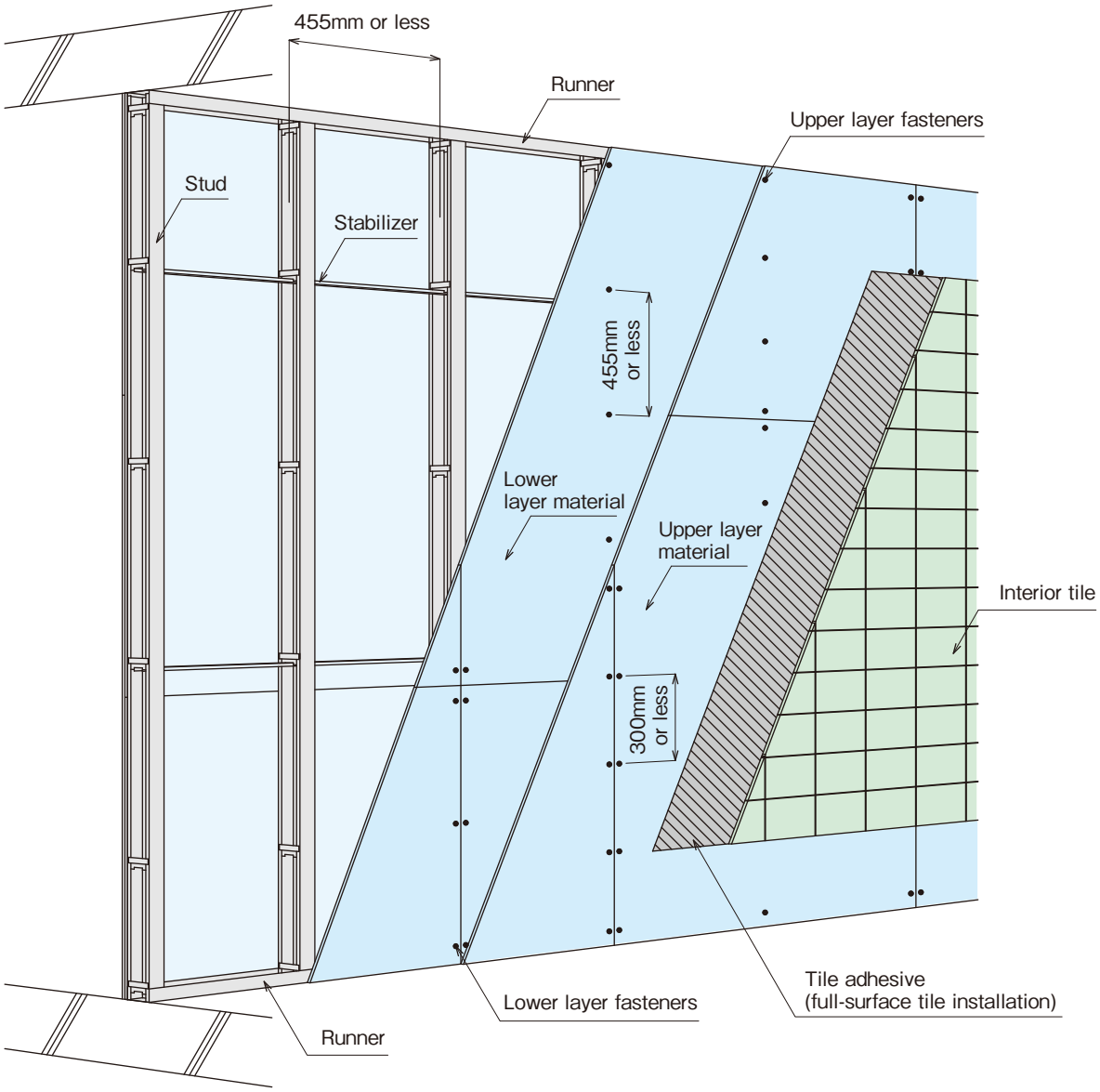
◆Use of 6mm thickness boards in two layers is recommended for base boards.
◆Sub-layer spacing should be 455mm or less.
◆Fastener should be spaced 455mm or less for the lower layer and 300mm or less for the upper layer.

●Sub-layer surface preparation

◆Remove any dust, etc. from the base board surface.
◆Verify the base board surface is dry before installing tile.
◆To ensure tile adhesive strength with Hiluc and Hiluc M, the sub-layer should first be prepared with an application of sealer.

Types of sealer : ① Water-based sealer
②Synthetic emulsion
③Modified silicon resin

●Schematic of interior tile finishing



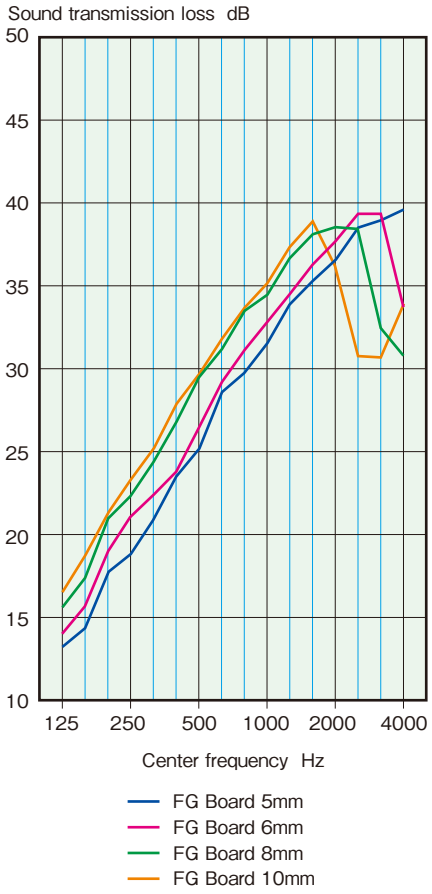
Sound insulation performance by board type

Gypsum board

〈Testing institution: Tokyo Metropolitan Industrial Technology Research Institute〉

■FG Board

Center frequency Hz	Sound transmission loss dB			
	Thickness mm			
	5	6	8	10
125	13.9	14.2	15.5	16.9
160	14.4	15.5	17.3	17.3
200	17.6	18.8	20.7	21.2
250	18.7	20.8	22.2	23.0
315	20.8	22.3	24.4	25.3
400	23.5	24.7	26.8	27.8
500	25.1	26.2	28.1	29.2
630	28.0	29.1	31.0	31.6
800	29.7	30.9	33.1	33.9
1000	31.3	32.6	34.6	35.2
1250	33.7	34.9	36.7	37.2
1600	35.3	36.2	37.9	37.9
2000	36.6	37.6	38.4	36.5
2500	38.0	38.5	38.2	30.6
3150	38.8	38.5	32.3	30.5
4000	39.7	33.7	30.6	34.1

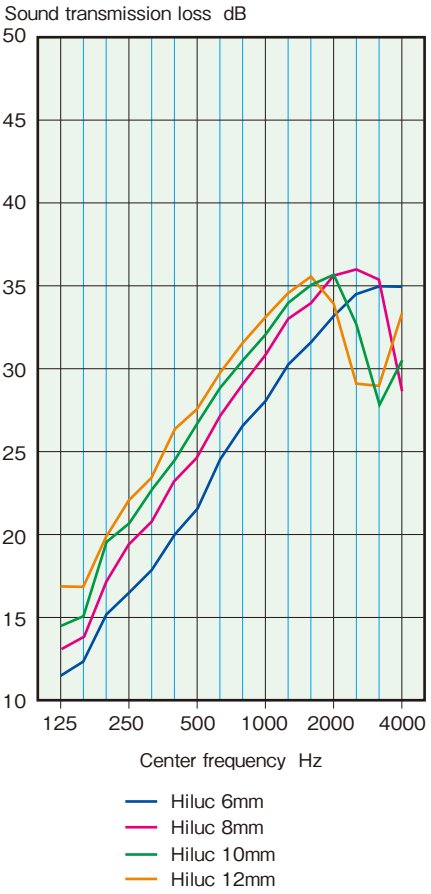


Calcium silicate board

〈Testing institution: Tokyo Metropolitan Industrial Technology Research Institute〉

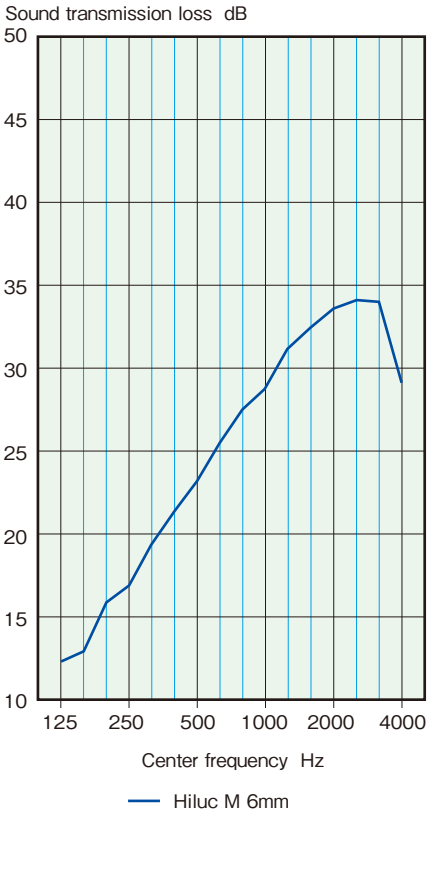
■Hiluc

Center frequency Hz	Sound transmission loss dB			
	Thickness mm			
	6	8	10	12
125	11.7	13.1	14.4	16.9
160	12.3	13.9	15.0	16.9
200	15.1	17.1	19.1	19.8
250	16.4	18.9	20.4	21.9
315	17.8	20.7	22.6	23.8
400	20.0	22.9	24.5	26.2
500	21.8	24.3	26.4	27.2
630	24.3	26.7	28.6	29.7
800	26.4	28.8	30.4	31.3
1000	27.8	30.4	31.8	32.8
1250	30.1	32.7	33.8	34.6
1600	31.5	33.9	35.0	35.3
2000	32.9	35.3	35.3	34.3
2500	34.3	35.9	32.4	29.1
3150	35.0	35.2	27.5	29.0
4000	35.0	28.3	30.3	32.8



■Hiluc M

Center frequency Hz	Sound transmission loss dB
	Thickness mm
	6
125	12.4
160	12.9
200	15.8
250	16.8
315	19.3
400	21.3
500	23.0
630	25.5
800	27.2
1000	28.6
1250	30.9
1600	32.2
2000	33.4
2500	34.3
3150	34.1
4000	28.6



Cement board

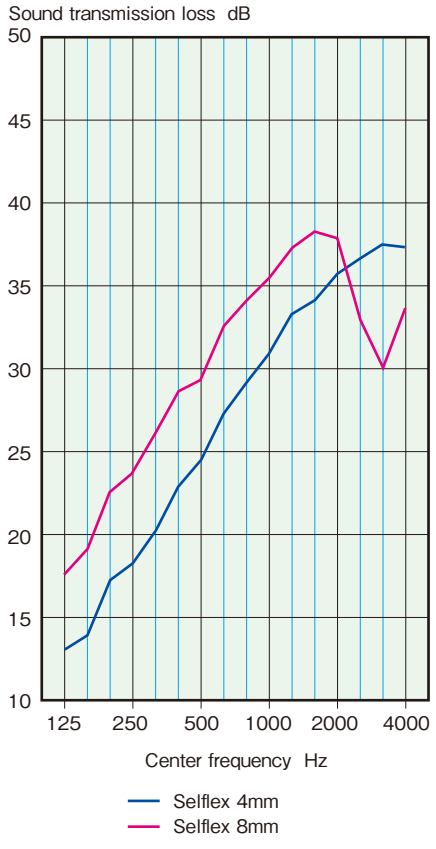
〈Testing institution: Tokyo Metropolitan Industrial Technology Research Institute〉

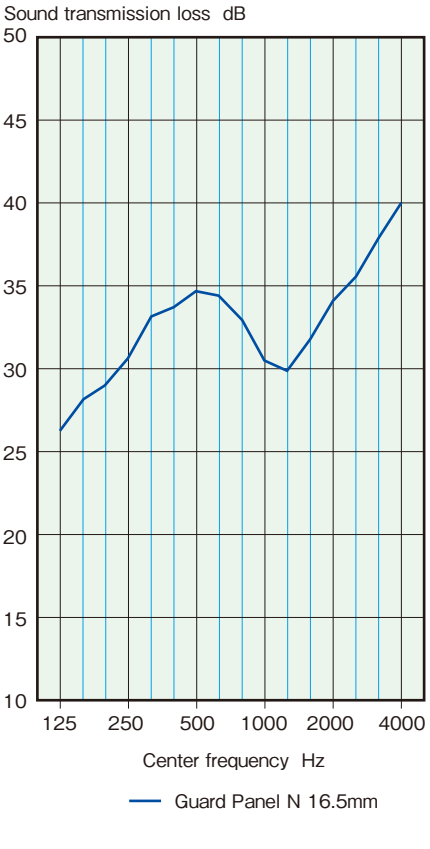
■Selflex

Center frequency Hz	Sound transmission loss dB	
	Thickness mm	
	4	8
125	13.0	17.5
160	14.0	18.4
200	17.3	22.5
250	18.3	23.3
315	20.2	25.9
400	22.8	28.0
500	24.6	29.5
630	27.3	32.4
800	29.3	34.1
1000	30.7	35.4
1250	33.0	37.3
1600	34.2	38.1
2000	35.7	37.7
2500	36.9	32.7
3150	37.4	30.1
4000	37.3	33.5

■Guard Panel N

Center frequency Hz	Sound transmission loss dB
	Thickness mm
	16.5
125	26.1
160	27.8
200	29.0
250	30.4
315	32.8
400	33.6
500	34.7
630	34.3
800	32.7
1000	30.4
1250	29.9
1600	31.6
2000	34.0
2500	35.4
3150	37.8
4000	40.0





Noncombustible decorative boards

Single Color

Stendo#400
Stendo#500
Stendo#500T
Stendo#500S
Stendo#500MR
Stendo#800 Dry
Stendo#300

Decorative

Stendo#400 Mokume
Cera-Art Ecoshiny S
Cera-Art Bright
Cera-Art Linebright

※Note that these are decorative boards and are not suited to bending.

SIAA
ISO 22196 for KOHKIN
Inorganic antimicrobial painting decorative surface layer

The SIAA brand mark is carried on products evaluated according to ISO 22196,
and are subject to quality control and information disclosure under the guidelines of the Society of International sustaining growth for Antimicrobial Articles.

【Target product】

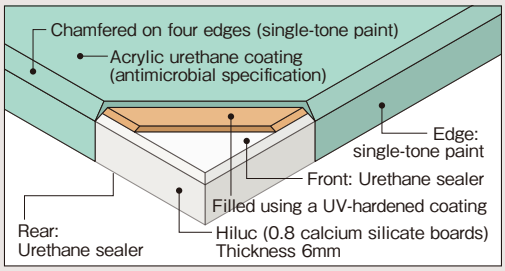
JP0122128A0005W……Stendo#400
JP0122128A0008Z……Stendo#800 Dry
JP0122128A0006X……Stendo#400 Mokume

Single Color Product Overview

Overview and decorative board composition

◆Stendo#400

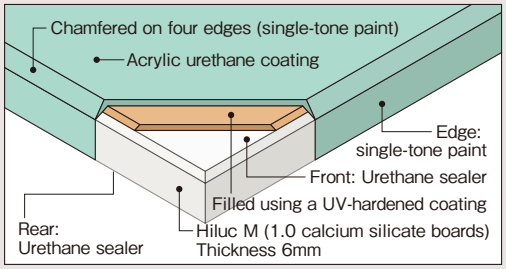
Standard decorative calcium silicate boards (antimicrobial specification).



◆Stendo#500

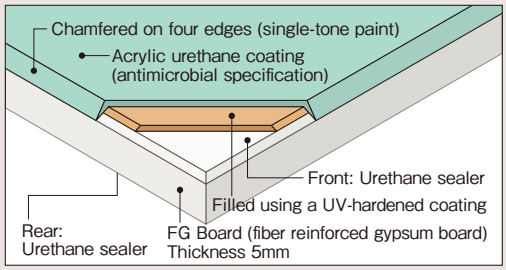
Decorative calcium silicate boards suitable for clean rooms. Available in #500T, #500S, #500MR series.

※Stendo #500 only can also be offered in an antibacterial specification.
※No simple coating finish on Stendo #500T/S/MR edges.



◆Stendo#800 Dry

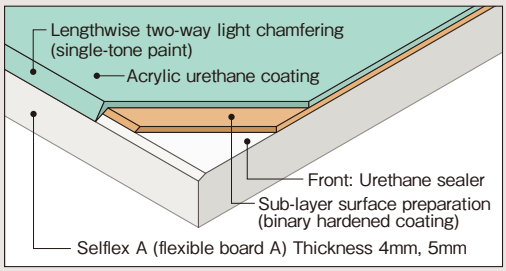
Suitable for environments in which dehumidification is required.
High-performance noncombustible decorative boards for dry rooms. (Antimicrobial specification)



◆Stendo#300

Decorative cement boards for situations requiring water-resistance and strength.

※Also available in antimicrobial specification on a special order basis.



Used primarily in

★Public facilities, transportation facilities, government offices
★Factories, research facilities
★Medical facilities
★Geriatric facilities
★Office buildings
★Educational facilities
★Commercial facilities, stores, restaurants
★Hotels and other accommodations
★Condominiums
★Single-family homes

Main uses

Product	General interior finishing	Clean rooms	Toilets	Washrooms	Public facilities
Stendo#400	◎	○	◎	◎	◎
Stendo#500	◎	◎	◎	◎	◎
Stendo#500T	○	◎ Public facilities	○	○	○
Stendo#500S	○	◎ Resistant to germicidal lamp rays	○	○	○
Stendo#500MR	○	◎ Germ resistant (MRSA compatible)	◎	◎	○
Stendo#800 Dry	○	◎ For dry rooms	○	○	—
Stendo#300	◎	○	◎	◎	◎

※Not suitable for locations subject to high temperatures and humidity, such as bathrooms.

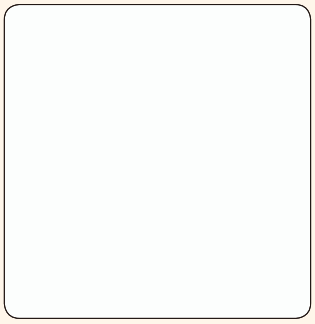
■Suitability: ◎Best suited ○Suitable

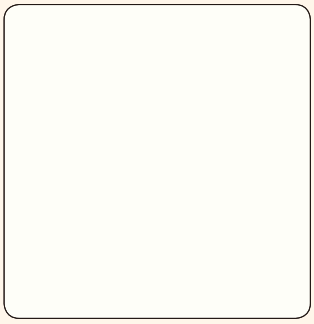
Single Color Variations

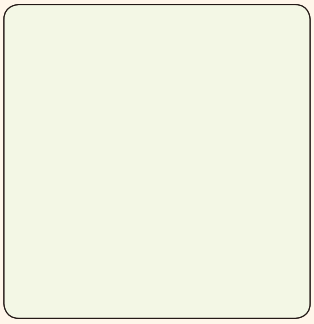
Always in stock
Stendo#400
Stendo#500
Stendo#300 (Some are special order)

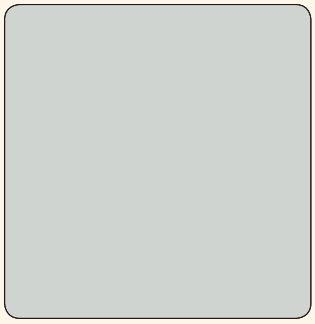
Produced to order
Stendo#500T (Some not available)
Stendo#500S (Some not available)
Stendo#500MR
Stendo#800 Dry

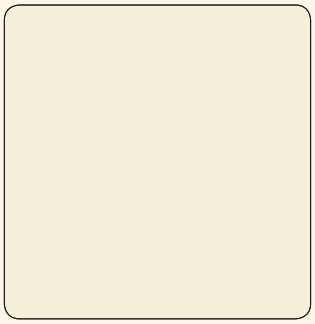
Standard color

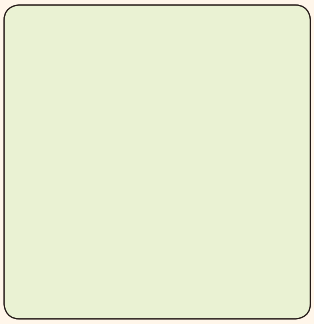

1A / Snow White

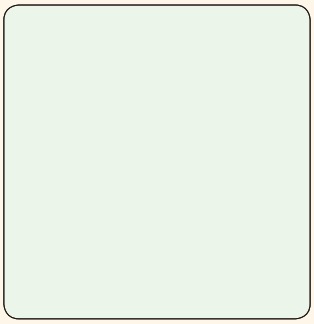

9A / Fresh Milk

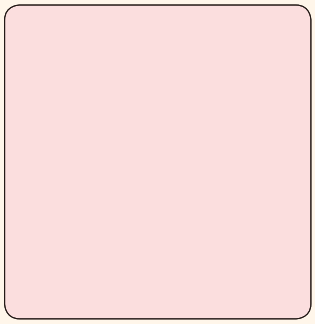

3B / Bone White


8B / Light Gray


2B / Ivory


4B / Silky Green


5B / Mist Blue


7B / Coral Pink

※Some types can only be produced to order. See table below for details.
※Please note that actual colors may differ from those shown here because of the limitations of the printing process.

Items always in stock at the factory and available product types

			Standard colors								Custom colors											
Product name	Thickness mm	Width × Length mm	1A	2B	3B	4B	5B	7B	8B	9A	10A	41B	42B	43C	44C	45D	46E	47F	50A	53C	54C	55C
Stendo#400	6	910×1820																				
		910×2420																				
		910×2730																				
Stendo#500	6	910×1820																				
		910×2420																				
Stendo#500T	6	–																				
Stendo#500S	6	–																				
Stendo#500MR	6	–																				
Stendo#800 Dry	5	–																				
Stendo#300	4	910×1820																				
	5	910×1820																				
	6	–																				

: Always in stock (other dimensions produced to order) : Produced to order : Produced to order (high color) : Not available

Custom colors

Custom colors																										
56F	57F	61B	62B	63C	64D	32E	65F	67F	71B	72C	73D	74E	75F	76F	77F	80A	82B	83C	84C	85C	86E	87F	91B	94C	95E	96F	99F

0.8 Decorative Calcium Silicate Boards

Stendo#400

Standard color noncombustible certification number
NM-3073
Customer color noncombustible certification number
NM-4487

Antibacterial Specification

SIAA
ISO22196
for KOHKIN
Inorganic antimicrobial
Painting decorative
surface layer
JP0122128A0005W

Shima City School
Catering Center

A lightweight, standard decorative board with excellent dimensional stability

These lightweight noncombustible decorative boards consist of calcium silicate boards coated with urethane resin. For ease of installation on-site, they can be processed in the same way as wood. The base board (Hiluc) is highly resistant to impact and provides excellent dimensional stability, making these products ideal for a wide range of interior finishing uses. The stable composition of Stendo#400 products ensures that they will continue to provide excellent performance for many years. These decorative boards offer excellent cost-performance.

Standard Specifications

Decorative layer		Acrylic-urethane resin (antibacterial specification)
Base board		Hiluc (0.8 calcium silicate board)
Thickness	mm	6
Width × Length	mm	910×1820 910×2420 910×2730＊ (910×910) (1000×2000)
Standard weight	kg/m²	5.6
Remarks		Decorative side: All for edges chamfered Back: Sealer treated　Edges: Single-tone paint

※Dimensions shown in ( ) are manufactured to order. Please inquire.
※Standard product weights are standard values adjusted for moisture absorption ratios.
＊: 1A/2B/3B/4B/8B 910×2730 boards always in stock

Interior walls　Ceilings

Features

- Interior decorative panels coated with urethane resin
- Lightweight standard products that are highly resistant to bending and impacts
- Excellent dimensional stability, with extremely low levels of shrinkage and deterioration under normal environments
- Not classed as formaldehyde emitting materials, warning labels not required
- Antimicrobial specification painted surface

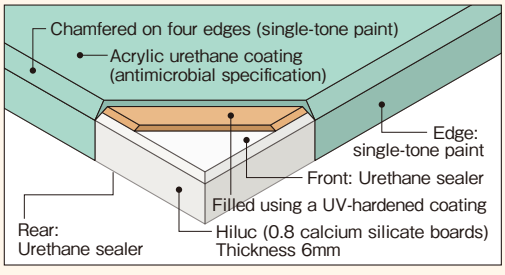
用　途

- Interior walls in schools, hospitals, toilets, etc.
- Interior walls in catering centers, kitchens, etc.
- Interior walls and ceilings in station buildings, public facilities, etc.
- General interior finishing in buildings, factories, warehouses, etc.

Standard color

※Please note that actual colors may differ from those shown here because of the limitations of the printing process.

Decorative Layer Cross-section



1.0 Decorative Calcium Silicate Boards

Stendo#500/T/S/MR

Standard color noncombustible certification number
NM-3455(Stendo#500/T/MR)
Customer color noncombustible certification number
NM-4486(Stendo#500/T/MR)
Noncombustible certification number
NM-3456(Stendo#500S)


Kitchen, Villa de Mariages

Excellent surface performance in indoor areas where hygiene is a priority.

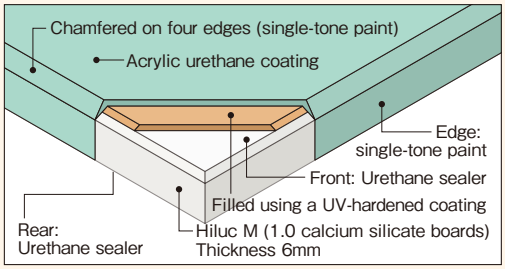
The enhanced surface performance characteristics of these sophisticated noncombustibledecorative boards makes them ideal for interior finishing in spaces where cleanliness is essential,such as clean rooms.
They consist of Hiluc M (calcium silicate boards coated) with a UV-hardened sealer and finished with coatings designed for various purposes. Basic features include superior smoothness, resistance to chemicals and ease of decontamination.
The range also includes antistatic types and MRSA germicidal types, as well as products designed to withstand germicidal lamp rays.

Standard Specifications

Decorative layer	Acrylic-urethane resin
Base board	Hiluc M (1.0 calcium silicate board)
Thickness mm	6
Width × Length mm	910×1820 (910×910) 910×2420 (910×2730)
Standard weight kg/m²	6.9
Remarks	Decorative side: All for edges chamfered Back: Sealer treated Edges: Single-tone paint

( )Sizes in parentheses are made-to-order.
* Single-tone paint on edges applies to Stendo#500 only. Stendo#500T/S/MR edges are not painted.
※Standard product weights are standard values adjusted for moisture absorption ratios.

Decorative Layer Cross-section (Stendo#500)



Features

- ●Interior decorative boards with superior surface smoothness
- ●Resistant to chemicals, designed to prevent deterioration resulting from washing or adhesion
- ●Resistant to dirt adhesion, extremely easy to clean
- ●Excellent resistance to water—ideal for spaces in which water is used
- ●Not classed as formaldehyde emitting materials, warning labels not required

Stendo#500	Standard type
Stendo#500T	Antistatic type (resistant to dust adhesion)
Stendo#500S	Resistant to discoloration under germicidal lamp rays
Stendo#500MR	Designed to prevent MRSA (methicillin-resistant staphylococcus aureus) infections in hospitals

Uses

- ◆Interior finishing in clean rooms and medical institutions
- ◆Interior walls and ceilings, etc., in general buildings, kitchens and sanitary facilities

Standard color

Stendo#500常備在庫
(910×1820mm、910×2420mm)

※Stendo#500Tは、1A色が対応できません。
※Stendo#500Sは、7B色が対応できません。
※Stendo#500のみ、抗菌仕様の対応も可能です。(受注対応)
※Please note that actual colors may differ from those shown here because of the limitations of the printing process.

Interior walls | Ceilings | Interior walls in medical institutions | Clean rooms

Decorative Fiber-gypsum Boards

Stendo#800 Dry (Noncombustible) NM-3912

Antibacterial Specification

SIAA ISO22196 for KOHKIN
Inorganic antimicrobial Painting decorative surface layer
JP0122128A0008Z

Suitable for environments in which dehumidification is required Noncombustible decorative boards for dry rooms

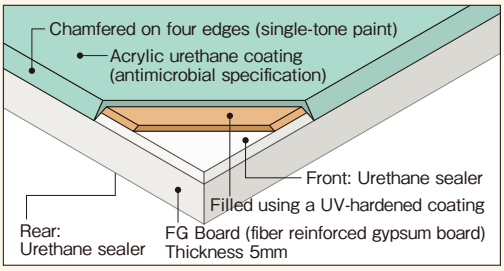
Stendo#800 Dry was developed for use in environments in which dehumidification is required, such as manufacturing lines and stockrooms.
These noncombustible decorative boards are designed for dry rooms and will show extremely small shrinkage, even in low-humidity environments.
Thanks to their excellent coating film properties, including surface smoothness and resistance to chemicals, they are also suitable for applications that require restricted conditions.
※Note that these are decorative boards and are not suited to bending.

Standard Specifications

Decorative layer		Acrylic-urethane resin coating
Base board		FG board (fiber-gypsum board)
Thickness	mm	5
Width × Length	mm	910×1820, 910×2420
Standard weight	kg/m²	8.0
Remarks		Decorative side: All for edges chamfered Back: Sealer treated

※Standard product weights are standard values adjusted for moisture absorption ratios.

Decorative Layer Cross-section



Interior walls | Ceilings | Clean rooms | Dry rooms

Features

- Extremely small dimensional changes due to drying, suitable for extremely low-humidity environments
- Notched sections provide crack resistance in low-humidity environments
- Excellent surface smoothness and resistance to chemicals
- High-strength FG (fiber-gypsum) base board for excellent impact resistance
- Certified as noncombustible for safety and peace of mind

Uses

- Interior walls and ceilings in areas requiring a low-humidity environment, such as production lines for lithium-ion batteries, organic EL and precision electronic parts, pharmaceuticals manufacturing lines, food processing lines and metal stockrooms.

Standard color (all custom-manufactured)

※Please note that actual colors may differ from those shown here because of the limitations of the printing process.

Decorative Flexible Board A

Stendo#300 (Noncombustible) NM-2923

Dependable products for interior spaces requiring superior strength and water resistance

These products consist of autoclave-cured cement boards finished with a hot-applied urethane resin coating. The smooth surface and rich colors help to create interior spaces that combine comfort with a sense of cleanliness. The base board (Selflex A) provides excellent strength, dimensional stability and water resistance.

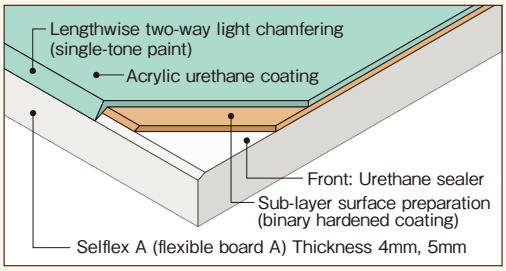
Standard Specifications

Decorative layer		Acrylic-urethane resin		
Base board		Selflex A (flexible board A)		
Thickness	mm	4	5	(6)
Width × Length	mm	910×1820	(910×910) (910×2420)	
Standard weight	kg/m²	7.5	9.4	11.2
Remarks		Decorative surface: Both long edges chamfered		

※Standard product weights are standard values adjusted for moisture absorption ratios.
( ) Sizes in parentheses are made-to-order.

Interior walls
Ceilings

Decorative Layer Cross-section



Features

- Noncombustible interior finishing decorative boards with excellent surface smoothness
- Superior impact resistance compared with other decorative panels
- Ideal for areas in which water is used, excellent water resistance thanks to characteristics of base board
- Sophisticated urethane-based decorative surface—highly resistant to soiling and chemicals
- Contains no formaldehyde—can be used with confidence as a product not covered by VOC regulations

Uses

- ◆Interior finishing in commercial buildings, factories, warehouses, etc.
- ◆Interior walls and ceilings in station buildings, public facilities, etc.
- ◆Suitable for a wide range of uses in kitchens and sanitary facilities, etc.

Standard color

Always in stock/Size (910 x 1820mm)
Thickness (4, 5mm)

※Stendo#300: Also available in antimicrobial specification (special order).
※Please note that actual colors may differ from those shown here because of the limitations of the printing process.

Decorative Colors Color Variations

Always in stock
Stendo#400 Mokume
Cera-Art Ecoshiny S
Cera-Art Bright
Cera-Art Linebright

Stendo#400 Mokume — Wood grain


51F / Oak


52F / Cherry


53F / Maple


55F / Walnut

Cera-Art Ecoshiny S — Mirrored finish


Pearl Peach Light


Pearl Orange Light


Pearl Blue Light


Pearl Silver Light


Carrara Opinion


Botticino

Cera-Art Bright

Embossed finish


White Silver


Ivory


Light Blue


Light Gray

Cera-Art Linebright

Wave pattern


White Silver


Ivory


Light Blue


Light Gray

※Please note that actual colors may differ from those shown here because of the limitations of the printing process.

Decorative Calcium Silicate Board with Wood Grain Finish

Stendo#400 Mokume (Noncombustible) NM-3604

Antibacterial Specification

SIAA ISO22196 for KOHKIN
Inorganic antimicrobial Painting decorative surface layer
JP0122128A0006X


Aged-care facility Aozora Koukei

Standard patterns


51F Oak


52F Cherry


53F Maple


55F Walnut

※Please note that actual colors may differ from those shown here because of the limitations of the printing process.

Elegance plus cost performance-ideal for creating a soothing ambience

New wood grain patterns have been added to the Stendo#400 range of antibacterial boards. These products combine the reassurance of antibacterial properties with the soothing elegance of wood grain. Certified as noncombustible, they offer excellent cost performance and are the perfect choice for a wide range of uses as elegant interior finishing materials in both general and public facilities.

Standard Specifications

Decorative layer		Acrylic-urethane resin (antibacterial specification)
Base board		Hiluc (0.8 calcium silicate board)
Thickness	mm	6
Width×Length	mm	910 × 1820、910 × 2420
Standard weight	kg/m²	5.6
Remarks		Decorative side: All for edges chamfered Back: Sealer treated　Edges: Single-tone paint (Single tone)

※Standard product weights are standard values adjusted for moisture absorption ratios.

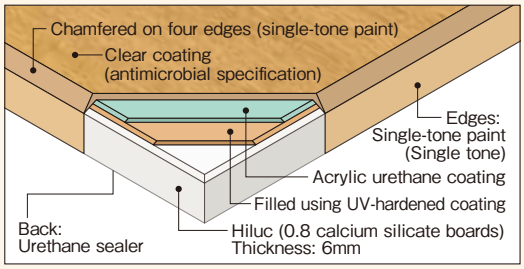
Features

- ●Fine wood grain finish perfect for creating a calm, soothing ambience
- ●Suitable for a wide range of interior finishing applications thanks to antibacterial properties
- ●Not classified as a formaldehyde-emitting construction material-exempt from restrictions
- ●Calcium silicate base board for superb strength and dimensional stability
- ●Quick and easy installation using standard tools and a combination of two-sided tape and elastic adhesive-cost performance also excellent
- ●Certified as noncombustible by the Minister of Land, Infrastructure, Transport and Tourism (NM-3604)

Uses

- ◆Interior finishing in shops, showrooms, commercial facilities, geriatric facilities, hospitals, etc.
- ◆Wherever a calming, elegant interior finish is required in general or public facilities

Decorative Layer Cross-section



Interior walls　Ceilings

Ornamental Decorative Calcium Silicate Boards (Mirrored Type)

Cera-Art Ecoshiny S (Noncombustible) NM-3430

Features

- ●New mirrored type
- ●Dirt-resistant and easy to clean, thanks to special surface finish
- ●Large boards ideal for creating wide, beautiful surfaces with minimal joins
- ●Not classed as formaldehyde emitting materials, warning labels not required
- ●Excellent strength and dimensional stability thanks to characteristics of calcium silicate base product
- ●Easy to process with standard tools. Suitable for quick installation using double-sided adhesive tape and elastic adhesive

Uses

- ◆Shops, showrooms, commercial facilities, facilities for the aged, hospitals, etc.
- ◆General interior finishing in kitchens, wash rooms, entrance halls, utility areas, etc.

Design variations for enhanced wall finishes

Special finishing processes have been used to create products that turn flat surfaces into highly original design statements while also resisting dirt to provide a maintenance-free environment. These brightly mirrored products are ideal for a variety of spaces.

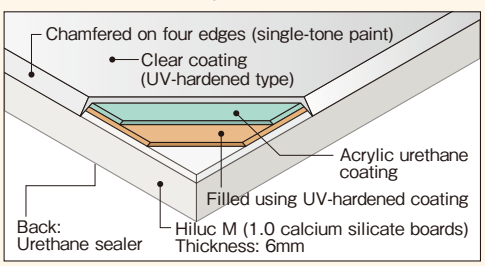
Standard Specifications

Decorative layer		Clear finish using special UV resin coating (mirror type)
Base board		Hiluc M (1.0 calcium silicate board)
Thickness	mm	6
Width×Length	mm	910×1820、 910×2420
Standard weight	kg/m²	6.9
Remarks		Decorative side: All for edges chamfered Back: Sealer treated

※Standard product weights are standard values adjusted for moisture absorption ratios.

Standard Patterns

Decorative Layer Cross-section



Interior Walls | Kitchen | Sanitary

※Please note that actual colors may differ from those shown here because of the limitations of the printing process.

Ornamental Decorative Calcium Silicate Boards (Embossed)

Cera-Art Bright (Noncombustible) NM-3348

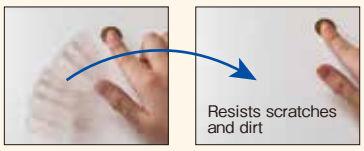
Toilet, Kyoto University

Sophisticated Blending of Design Originality and Functionality

These interior boards have decorative surfaces coated with acrylic-urethane resin for stylishly refined finishes that combine strength with gentleness.

Features

- Noncombustible decorative boards with embossed surface finish
- Robust coating—easy to clean, resistant to detergents
- Tough, dependable surface—less prone to surface scratching



- Easy to process using standard tools such as cutters and files
- Highly water resistant and suitable for areas in which water is used
- Not classed as formaldehyde emitting materials, warning labels not required

Uses

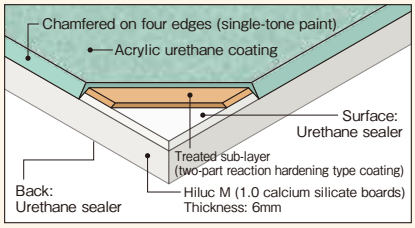
- ◆Interior finishing in shops, showrooms, commercial facilities, geriatric facilities, hospitals, etc.
- ◆Wherever a calming, elegant interior finish is required in general or public facilities

Standard Specifications

Decorative layer		Acrylic-urethane coating
Base board		Hiluc M(1.0calcium silicate board)
Thickness	mm	6
Width × Length	mm	910×1820、910×2420
Standard weight	kg/m²	6.9
Remarks		Decorative side: All for edges chamfered Back: Sealer treated

※Standard product weights are standard values adjusted for moisture absorption ratios.

Decorative Layer Cross-section



Standard Colors/Patterns

※Please note that actual colors may differ from those shown here because of the limitations of the printing process.

Interior walls

Sanitary

Ornamental Decorative Calcium Silicate Boards (Wave pattern)

Cera-Art Linebright (Noncombustible) NM-3348


Hospital waiting room

These uniquely impressive products bring an enhanced ambience of quality to any space

The line pattern on the surface creates a unique impression of softness and quality.
This product is ideal for a wide range of original design concepts, including traditional Japanese and modern themes.

Features

- ●Noncombustible decorative boards with a line pattern on the surface
- ●Robust coating—easy to clean, resistant to detergents
- ●Tough, dependable surface—less prone to scratching than gypsum board
- ●Easy to process using standard tools, such as cutters and files
- ●More resistant to water than gypsum board—suitable for areas in which water is used
- ●Not classed as formaldehyde emitting materials, warning labels not required

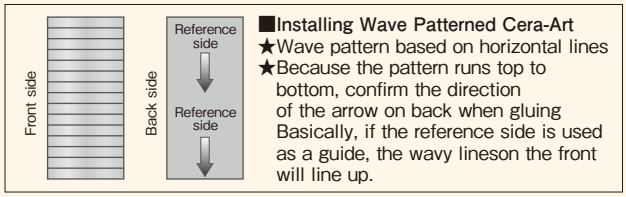
Uses

- ◆Interior finishing in wash rooms, entrance halls, utility areas, etc.
- ◆Excellent reputation as material for use in commercial and transportation facilities, such as shops, showrooms and concourses

Standard Specifications

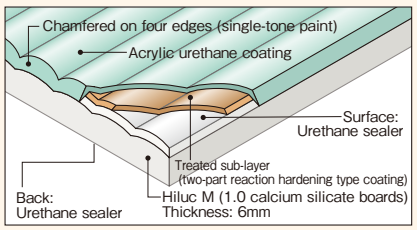
Decorative layer		Acrylic-urethane coating
Base board		Hiluc M(1.0calcium silicate board)
Thickness	mm	6
Width × Length	mm	910×1820、910×2420
Standard weight	kg/m²	6.9
Remarks		Decorative side: All for edges chamfered Back: Sealer treated

※Standard product weights are standard values adjusted for moisture absorption ratios.



■Installing Wave Patterned Cera-Art
★Wave pattern based on horizontal lines
★Because the pattern runs top to bottom, confirm the direction of the arrow on back when gluing Basically, if the reference side is used as a guide, the wavy lineson the front will line up.

Decorative Layer Cross-section



Interior walls
Sanitary

Standard Colors/Patterns

※In the photograph, the product is shown with the long side upright.
※Please note that actual colors may differ from those shown here because of the limitations of the printing process.

Performance of Decorative Boards (Single Color)

■Single Color

Base standard physical properties

Product names ( ) are made-to-order.		Stendo#400	
Base material		Hiluc	
Density	g/cm^3	Min. 0.60 Max. 0.90	
Bending strength (lengthwise)	N/mm^2	10.0 or higher	
Young's modulus (lengthwise) *2	N/mm^2	6×10^3	
Length variation caused by water absorption (lengthwise)	%	0.15 or lower	
Thermal conductivity	W/m·K	0.18 or lower	

*1 Because base material is made from gypsum-based material, testing conducted after 24 hours of drying at 40°C
*2 Test method: Young's modulus testing complies with JIS A 1408, other test methods comply with JIS A 5430
*3 Reference values

Decorative Surface Performance

Test Item	Test Method	Stendo#400	
Coating adhesion	Cross-cut adhesion (4mm) Sellotape removal	16/16	
Surface hardness	Pencil hardness	2H	
Soiling resistance	Red crayon wiped off after 24 hours	No discoloration	
Electrostatic properties (surface resistance)	JIS K 6911	—	
Germicidal lamp rays (gloss maintenance ratio)	Exposure to 20W germicidal lamp at 15cm for 1,500 hours	—	
Antibacterial properties	Antibacterial activity value JIS Z 2801	2.0 or higher*1	

*1 Test bacteria: Staphylococcus aureus, E. coli
*2 Test bacteria: Staphylococcus aureus, E. coli, MRSA (antibacterial effect as specified in JIS Z 2801)

Chemical Resistance

Chemical	Concentration	#400	#500	#500T	#500S	#500MR	#800 Dry	#300
Hydrochloric acid	5%	◎	◎	◎	◎	◎	◎	◎
Nitric acid	5%	◎	◎	◎	◎	◎	◎	◎
Acetic acid	5%	◎	◎	◎	◎	◎	◎	◎
Sodium hydroxide	5%	○	○	◎	◎	○	◎ Ammonia water 10%	○
Methyl ethyl ketone	Undiluted	○	○	○	○	○	○	○
Toluene	Undiluted	◎	◎	◎	◎	◎	◎	◎
Butyl acetate	Undiluted	○	○	◎	◎	◎	○	○
White kerosene	Undiluted	◎	◎	◎	◎	◎	◎	◎
Sodium hypochlorite (antiformin)	Undiluted	◎	◎	◎	◎	◎	◎	◎
Benzalkonium chloride (Osvan)	0.2%	◎	◎	◎	◎	◎	◎	◎
Official phenol	5%	○	○	○	○	○	○	○
Chlorhexidine (Hibiden)	0.02%	◎	◎	◎	◎	◎	◎	◎
Ethyl alcohol	Undiluted	◎	◎	◎	◎	◎	◎	◎

※Substances were spot dripped, left for 24 hours, cleaned off with water, and the effects observed.
■Standard levels: ◎: No soiling ○: Slight soiling (Use ethanol for soiling that cannot be removed by wiping).

	Stendo#500	(Stendo#500T)	(Stendo#500S)	(Stendo#500MR)	(Stendo#800 Dry)*1	Stendo#300
	Hiluc M	Hiluc M	Hiluc M	Hiluc M	FG Board	Selflex A
	Min. 0.90 Max. 1.20	Min. 0.90 Max. 1.20	Min. 0.90 Max. 1.20	Min. 0.90 Max. 1.20	Approx. 1.6	Approx. 1.6
	13.0 or higher	13.0 or higher	13.0 or higher	13.0 or higher	15.0 or higher	28.0 or higher
	9×10^3	9×10^3	9×10^3	9×10^3	13×10^3	16×10^3
	0.15 or lower	0.15 or lower	0.15 or lower	0.15 or lower	0.07 or lower	0.15 or lower
	0.24 or lower	0.24 or lower	0.24 or lower	0.24 or lower	0.35*3	0.32*3

	Stendo#500	Stendo#500T	Stendo#500S	Stendo#500MR	Stendo#800 Dry	Stendo#300
	16/16	16/16	16/16	16/16	16/16	16/16
	2H	3H	3H	3H	3H	3H
	No discoloration	No discoloration	No discoloration	No discoloration	No discoloration	No discoloration
	$9.1\times10^{15}\Omega$	$1.6\times10^{6\sim8}\Omega$	—	—	—	—
	28%	—	87%	—	—	—
	—	—	—	2.0 or higher*2	2.0 or higher*1	—

Contamination Resistance

Contaminant	＃400	＃500	＃500T	＃500S	＃500MR	#800 Dry	＃300
Vegetable oil (tempura oil)	◎	◎	◎	◎	◎	◎	◎
Soy sauce	◎	◎	◎	◎	◎	◎	◎
Worcestershire sauce	◎	◎	◎	◎	◎	◎	◎
Coffee	◎	◎	◎	◎	◎	◎	◎
Tea	◎	◎	◎	◎	◎	◎	◎
Salt water	◎	◎	◎	◎	◎	◎	◎
Nicotine resin	◎	◎	◎	◎	◎	◎	◎
Crayon	◎	◎	◎	◎	◎	◎	◎
Shoe polish	◎	◎	◎	◎	◎	—	◎
Pencil	◎	◎	◎	◎	◎	◎	◎
Ink	○	○	◎	◎	○	—	○
Magic marker ink	○	○	◎	◎	○	◎	○

※Substances were applied, left for 24 hours, cleaned off with a neutral detergent, and the effects observed.
■Standard levels: ◎: No soiling ○: Slight soiling (Use ethanol for soiling that cannot be removed by wiping).

Performance of Decorative Boards (Decorative Colors)

■Decorative Colors

Base standard physical properties

Product names	
Base material	
Density	g/cm^3
Bending strength (lengthwise)	N/mm^2
Young's modulus (lengthwise) *1	N/mm^2
Length variation caused by water absorption (lengthwise)	%
Thermal conductivity	W/m·K

*1 Test method: Young's modulus testing complies with JIS A 1408, thermal conductivity testing complies with JIS A 1412, and other test methods comply with JIS A 5430. Reference values.

Decorative Surface Performance

Test Item	Test Method
Coating adhesion	Cross-cut adhesion (4mm) Sellotape removal
Surface hardness	Pencil hardness
Water resistance	40°C hot water immersion to 10 days
Heat resistance	JIS K 5600 (Left for 3 hours at 140°C atmosphere)
Light resistance	JIS K 5600 (Xenon lamp 120 hrs.)
Abrasion resistance	JIS A 5423
Antibacterial properties	Antibacterial activity value

*1 Test bacteria: Staphylococcus aureus, E. coli

Chemical Resistance

Chemical	Concentration	Stendo#400 Mokume	Cera-Art Ecoshiny S	Cera-Art Bright	Cera-Art Linebright
Hydrochloric acid	5%	◎	◎	◎	◎
Nitric acid	5%	◎	◎	◎	◎
Acetic acid	5%	◎	◎	◎	◎
Sodium hydroxide	5%	◎	◎	◎	◎
Methyl ethyl ketone	Undiluted	○	◎	◎	◎
Ethyl alcohol	Undiluted	◎	◎	◎	◎
Cockroach S	Undiluted	◎	◎	◎	◎
Paibenika	Undiluted	◎	◎	◎	◎
Kabi Killer	Undiluted	◎	◎	◎	◎
Sodium carbonate	1%	◎	◎	◎	◎

※Above chemicals were spot dripped on decorative surface, left for 24 hours, cleaned off with water, and the effects observed. (Use ethanol for soiling that cannot be removed by wiping). Standard levels: ◎: No soiling ○: Slight soiling

	Stendo#400 Mokume	Cera-Art Ecoshiny S	Cera-Art Bright	Cera-Art Linebright
	Hiluc	Hiluc M	Hiluc M	Hiluc M
	Min. 0.60 Max. 0.90	Min. 0.90 Max. 1.20	Min. 0.90 Max. 1.20	Min. 0.90 Max. 1.20
	10.0 or higher	13.0 or higher	13.0 or higher	13.0 or higher
	6×10^3	9×10^3	9×10^3	9×10^3
	0.15 or lower	0.15 or lower	0.15 or lower	0.15 or lower
	0.18 or lower	0.24 or lower	0.24 or lower	0.24 or lower

	Stendo#400 Mokume	Cera-Art Ecoshiny S	Cera-Art Bright	Cera-Art Linebright
	16/16	16/16	16/16	16/16
	2H	2H	2H	2H
	No abnormality	No abnormality	No abnormality	No abnormality
	—	⊿E≦3.0	⊿E≦3.0	⊿E≦3.0
	⊿E≦3.0	⊿E≦3.0	⊿E≦3.0	⊿E≦3.0
	Passed	Passed	Passed	Passed
	2.0 or higher*1	—	—	—

Contamination Resistance

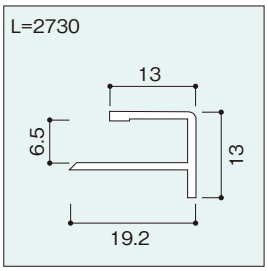
Chemical	Stendo#400 Mokume	Cera-Art Ecoshiny S	Cera-Art Bright	Cera-Art Linebright
Vegetable oil (tempura oil)	◎	◎	◎	◎
Soy sauce	◎	◎	◎	◎
Nicotine resin	◎	◎	◎	◎
Oil wax	◎	◎	◎	◎
Ink	◎	◎	◎	◎
Magic marker ink	◎	◎	◎	◎
Vinegar	◎	◎	◎	◎
Magiclean	◎	◎	◎	◎
Sunpole	◎	◎	◎	◎

※Above chemicals were spot dripped on decorative surface, left for 24 hours, cleaned off with water, and the effects observed.
(Use ethanol for soiling that cannot be removed by wiping). Standard levels: ◎: No soiling

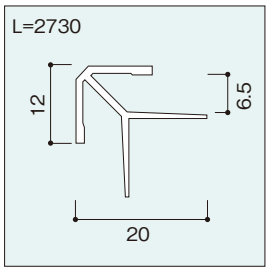
〈Aluminum Joiners〉

■Interior, Toilets

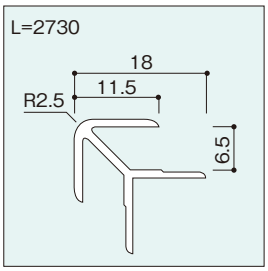
● For 6mm thick boards
〈Stendo#400 / #500 / #300〉
〈Stendo#400 Mokume〉
〈Cera-Art Ecoshiny S / Bright/Linebright〉



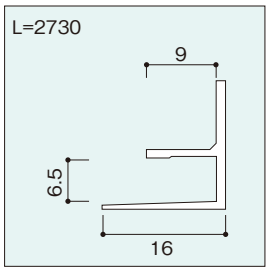
6AF type (external corner)



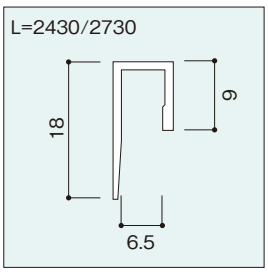
6SA type (external corner)



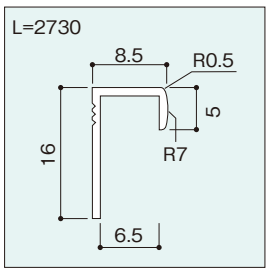
6.5AR type (external corner)



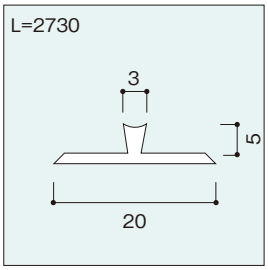
6SL type (internal corner)



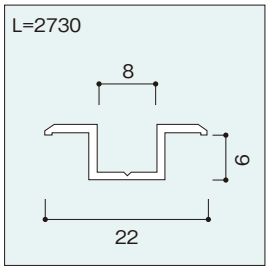
6SU type (edge)



6.5CN type (edge)

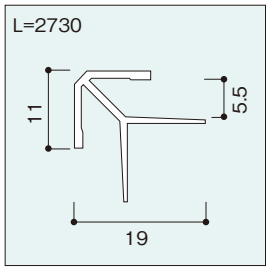


6T type (joint)

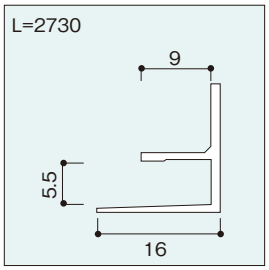


6 hat type flat joint

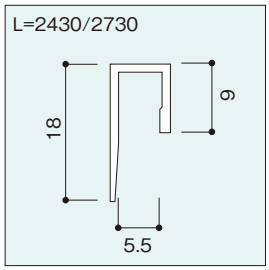
● For 5mm thick boards
〈Stendo#800 Dry / #300〉



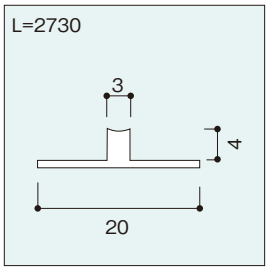
5SA type (external corner)



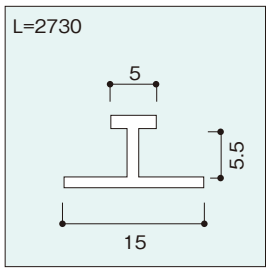
5SL type (internal corner)



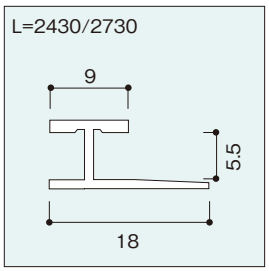
5SU type (edge)



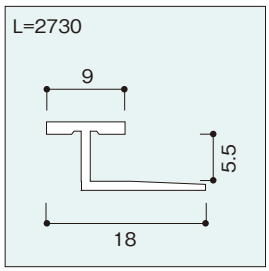
5T type (joint)



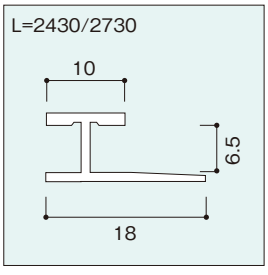
5HN type (joint)



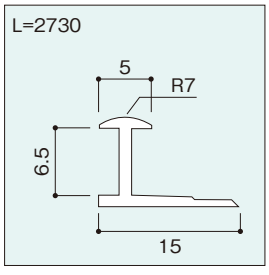
5SH type (joint)



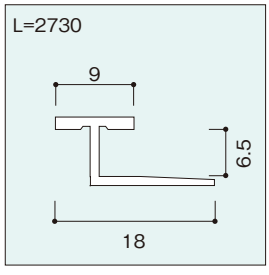
5SK type (edge)



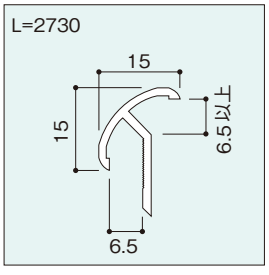
6SH type (joint)



6.5HN type (joint)

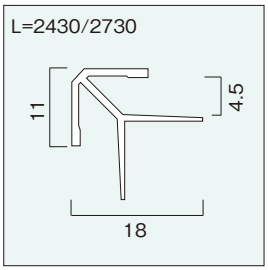


6SK type (edge)

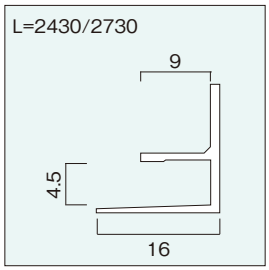


KC joiner (external corner)

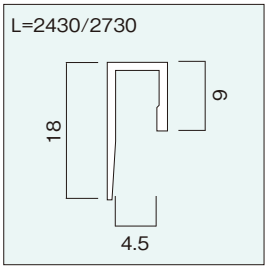
● For 4mm thick boards
〈Stendo#800 Dry / #300〉



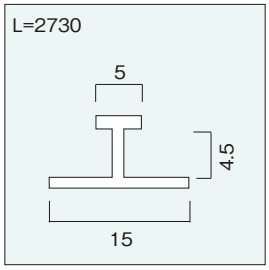
4SA type (external corner)



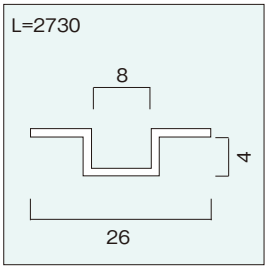
4SL type (internal corner)



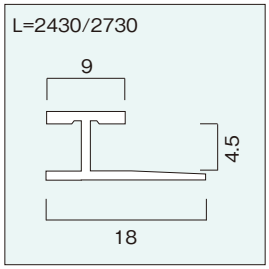
4SU type (edge)



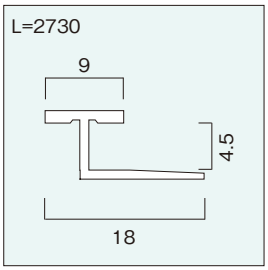
4HN type (joint)



4 hat type flat joint

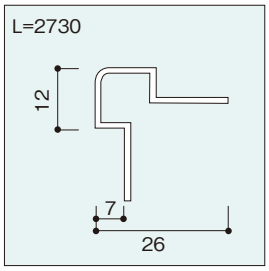


4SH type (joint)

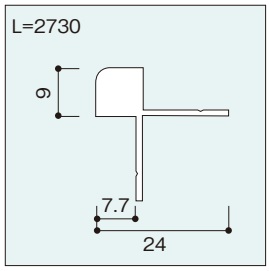


4SK type (edge)

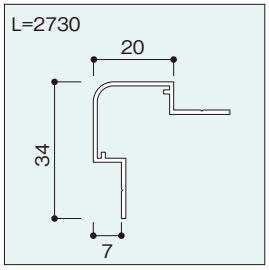
■Clean Room
● For 6mm thick boards
〈Stendo#500 .etc〉



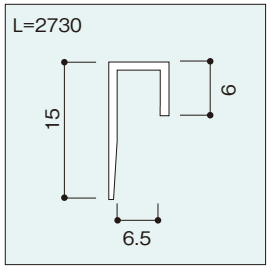
3R-7 type (external corner)



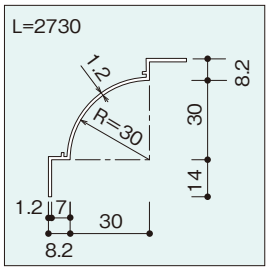
3R-7 Ⅱ type (external corner)



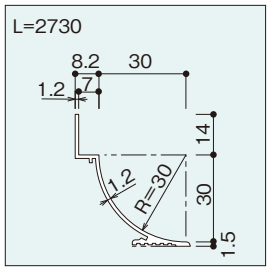
5R-7 type (external corner)



6SU Ⅱ type (edge)

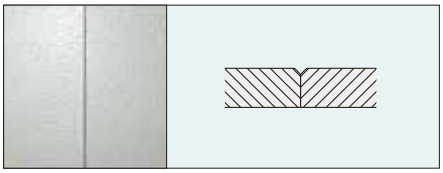


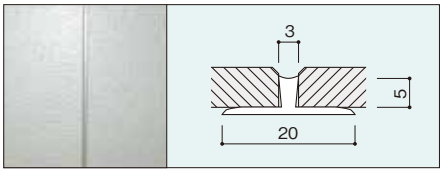
30MR type
(outside edge, internal corner)



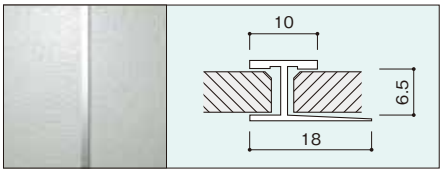
30HR type (baseboard)

Cera-Art Bright / Linebright
■Typical Installation Examples

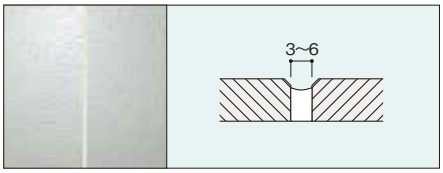

End-to-end



T-shaped joiner (6T type)



H-shaped joiner (6SH type)

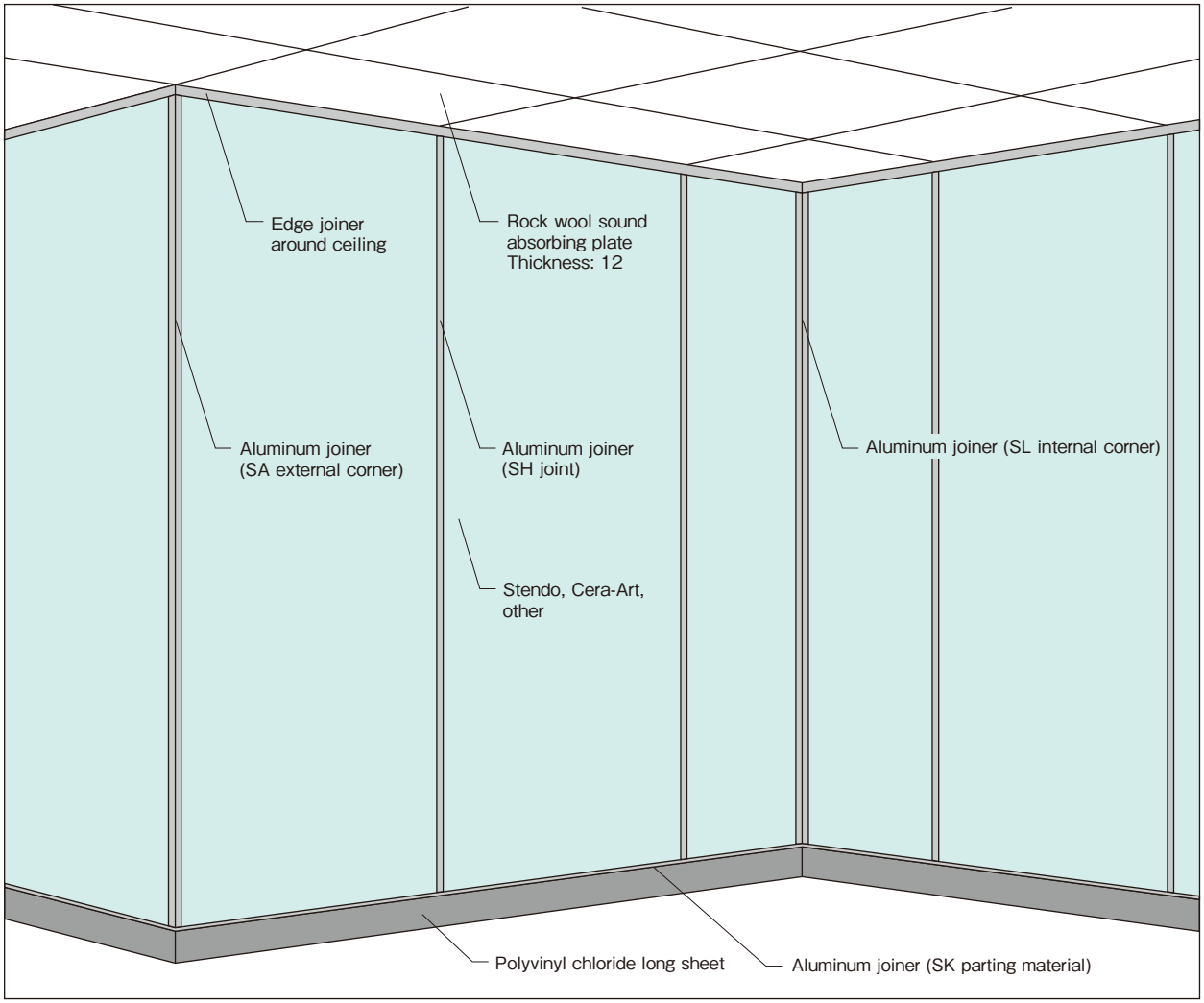


Sealing

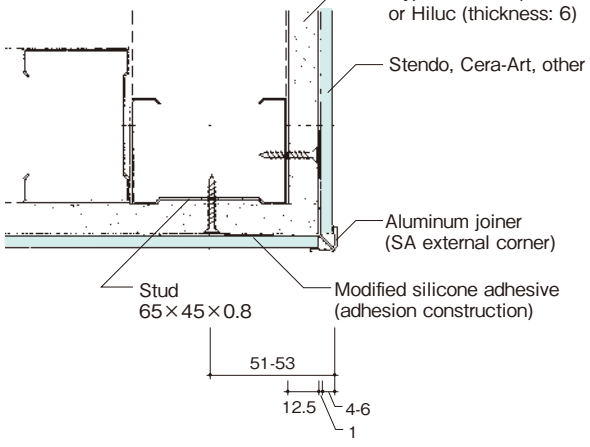
■Standard Details

〈General Interior Finishing and Toilets〉

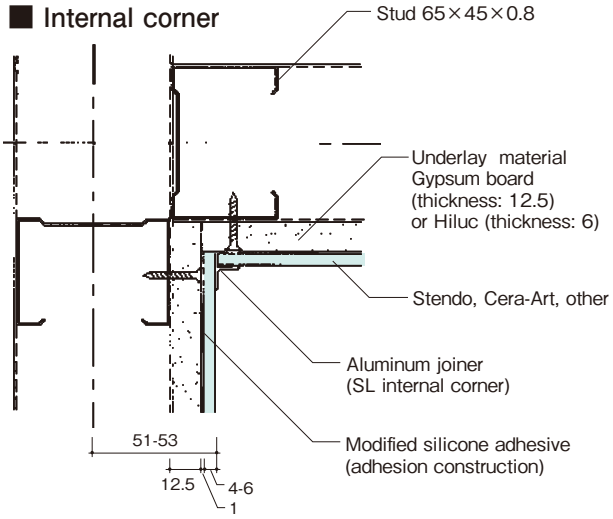
■Stendo#400, Stendo#500(T,S, and MR), Stendo#300, Stendo#800 Dry, Cera-Art



■ External corner



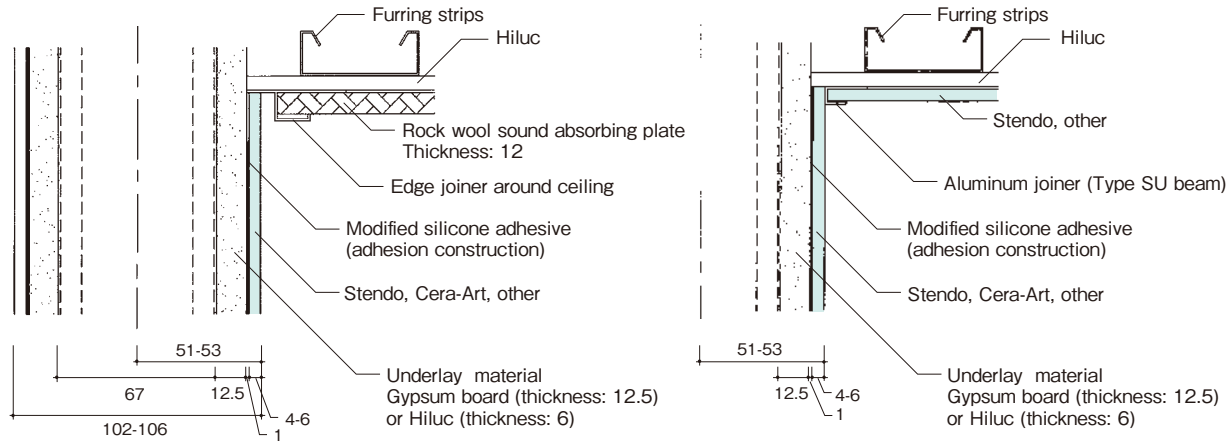
■ Internal corner



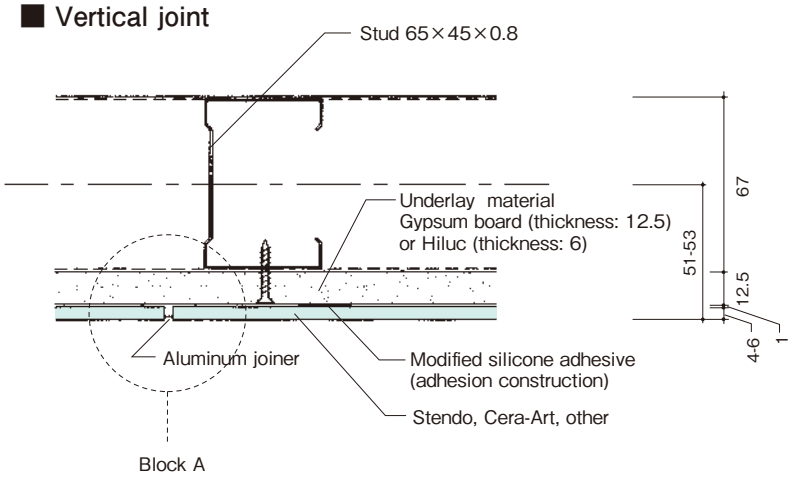
●What is adhesion construction?
A construction method using both double-face tapes and elastic adhesives in combination
This construction method employs special double-faced tapes as the primary adhesive, and a one-component modified silicone adhesive as the secondary adhesive.

(Unit: mm)

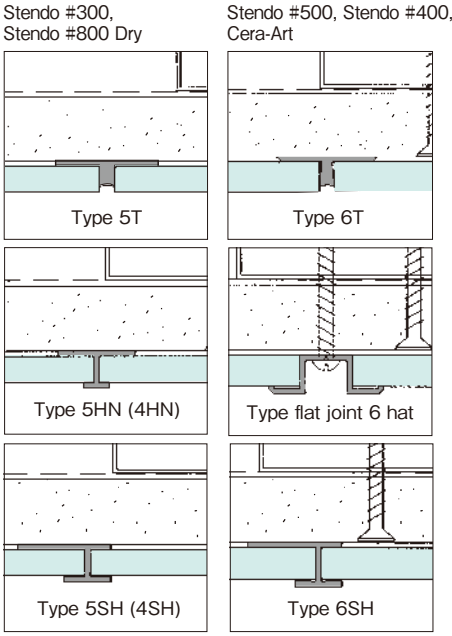
■ Ceiling



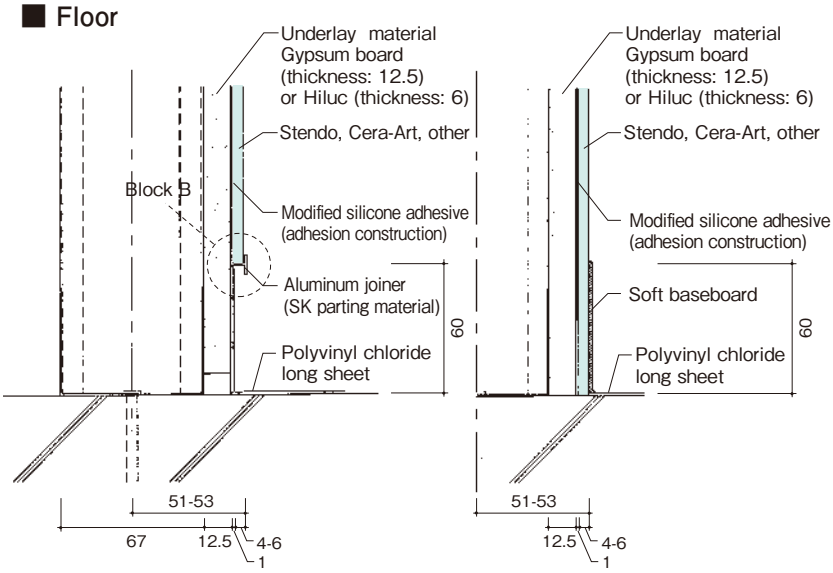
■ Vertical joint



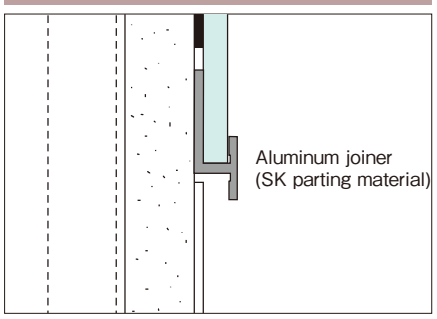
Block A vertical joint details



■ Floor

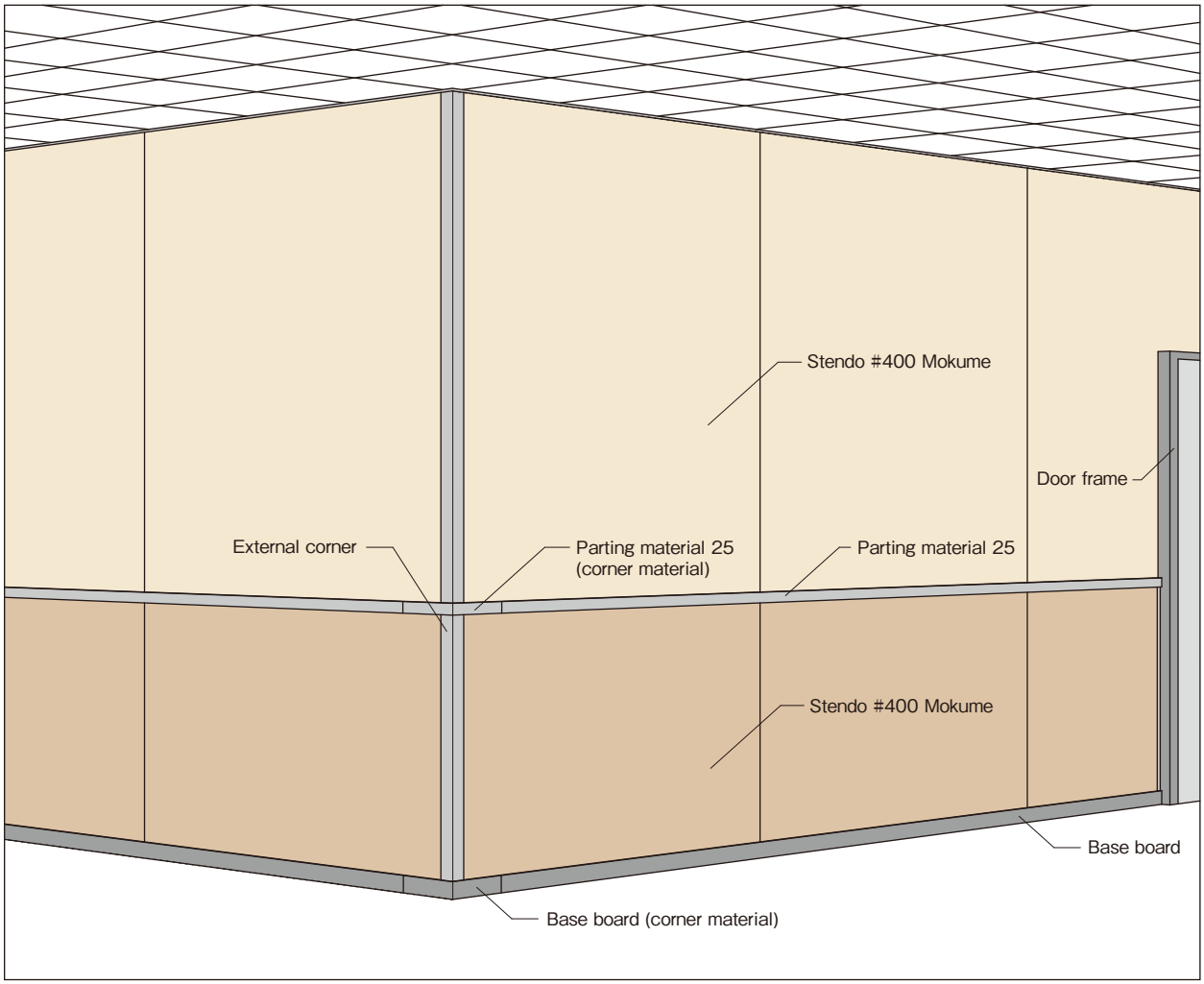


Block B floor details

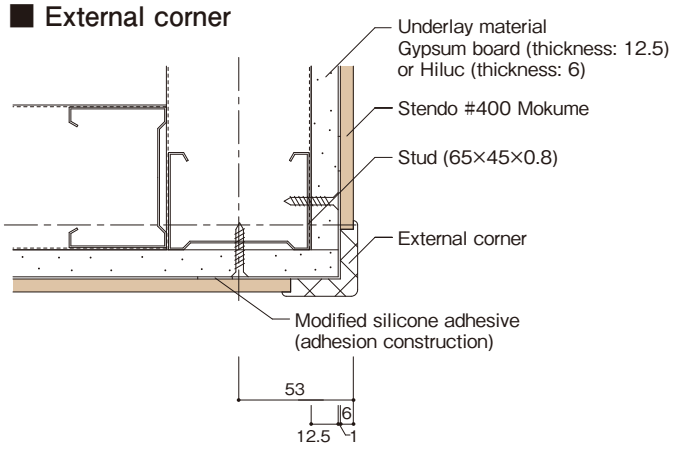


〈General Interior Finishing〉

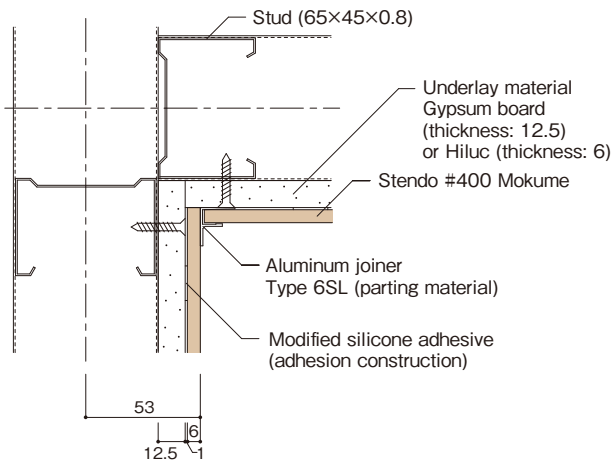
■Stendo#400 Mokume



■ External corner



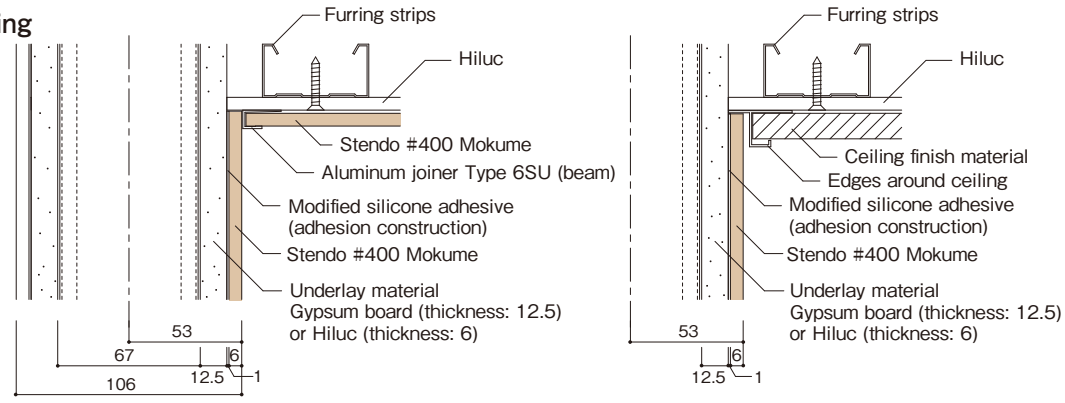
■ Internal corner



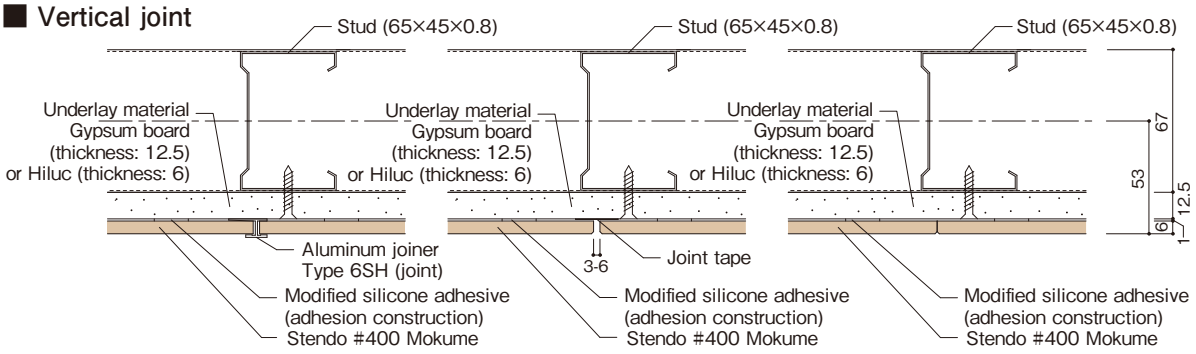
●What is adhesion construction?
A construction method using both double-face tapes and elastic adhesives in combination
This construction method employs special double-faced tapes as the primary adhesive, and a one-component modified silicone adhesive as the secondary adhesive.

(Unit: mm)

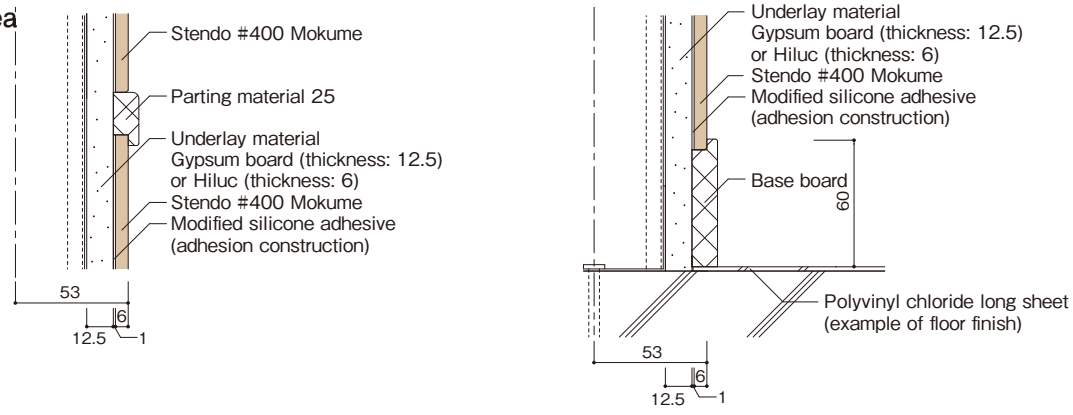
■ Ceiling



■ Vertical joint



■ Parting area



● Recommended secondary materials (parting materials, base boards, and external corners) (for panel with 6-mm width)

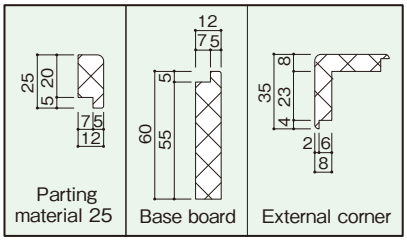
Items	Sizes (mm)
Parting material 25	t 12×25×3075
Parting material 25 (corner material)	t 12×150×150＊
Base board	t 12×60×3075
Base board (corner material)	t 12×150×150＊
External corner	t 8×35×35×3075

＊Manufactured to order

● Joint tape (diallyl phthalate resin adhesive tape)

Items	Thickness and sizes
Joint bottom tape (embossed type)	t 0.3 mm×W20 mm×50 m/rol

● Cross-sectional view

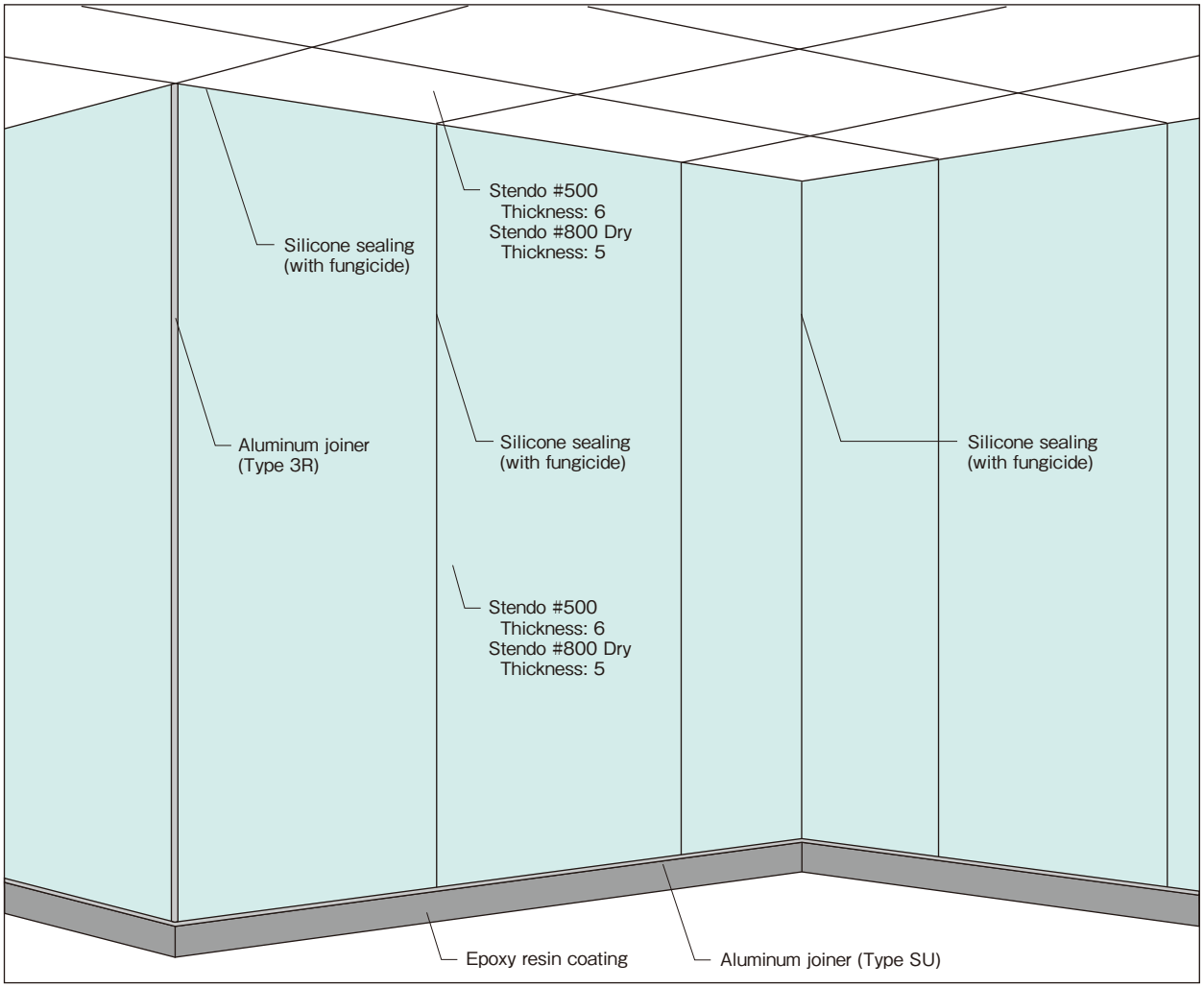


※The secondary materials are not of the same substance, color, or pattern as our standard products. Be sure to examine samples for comparison before deciding to use the

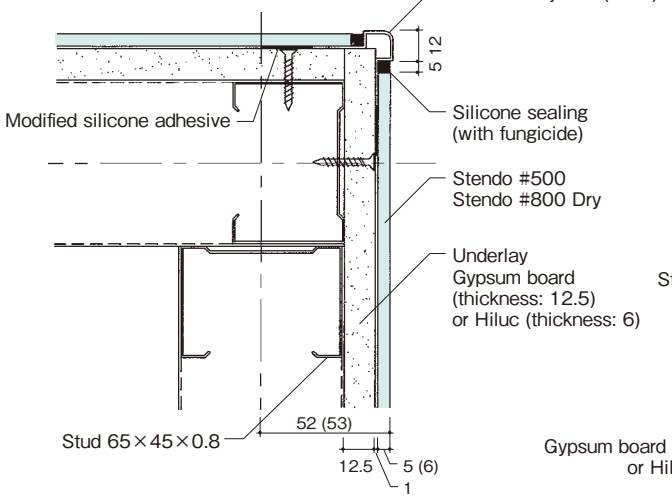
■Standard Details

〈Clean Rooms〉

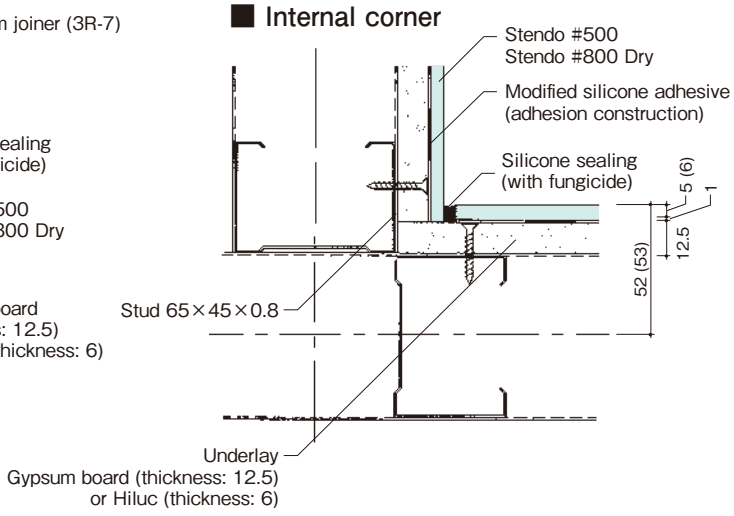
■Stendo#500(T,S, and MR), Stendo#800 Dry



■ External corner



■ Internal corner

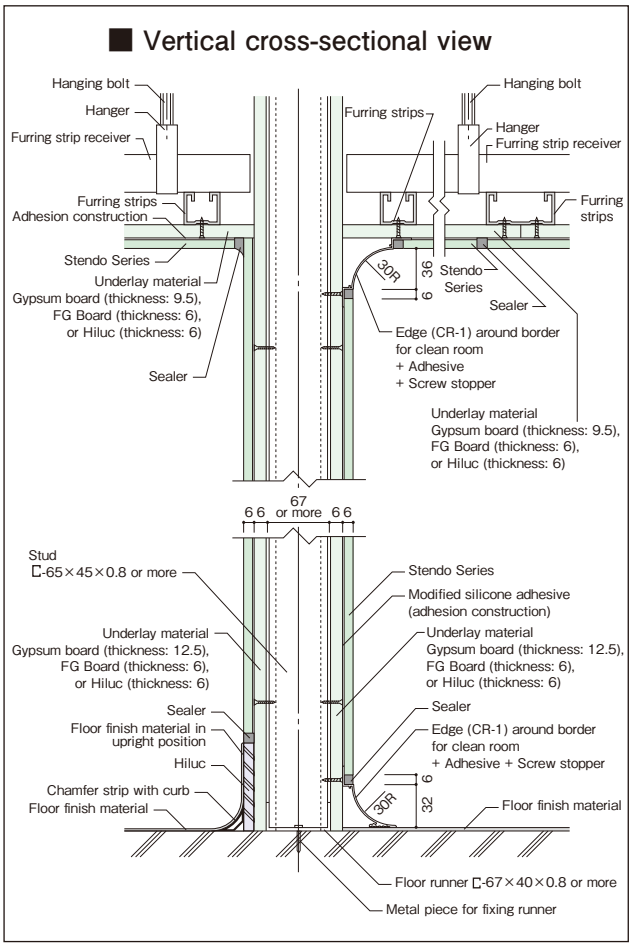


●What is adhesion construction?
A construction method using both double-face tapes and elastic adhesives in combination
This construction method employs special double-faced tapes as the primary adhesive, and a one-component modified silicone adhesive as the secondary adhesive.

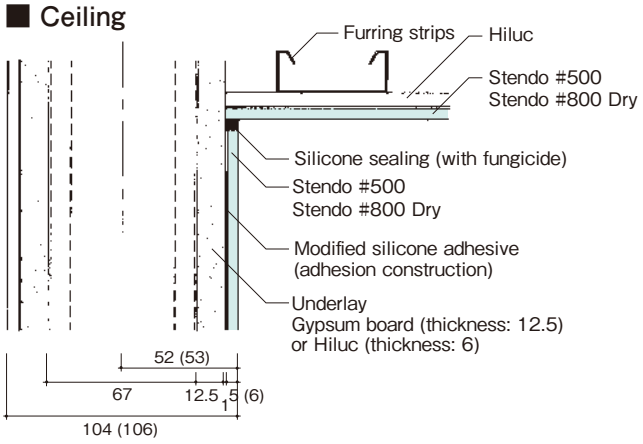
※Values in parentheses are for Stendo #500.

(Unit: mm)

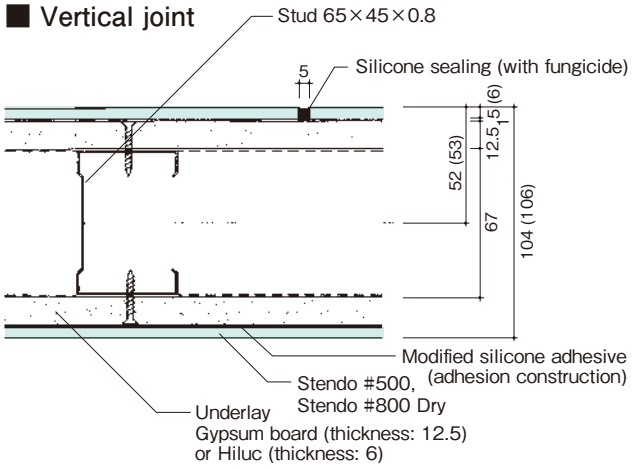
■ Vertical cross-sectional view



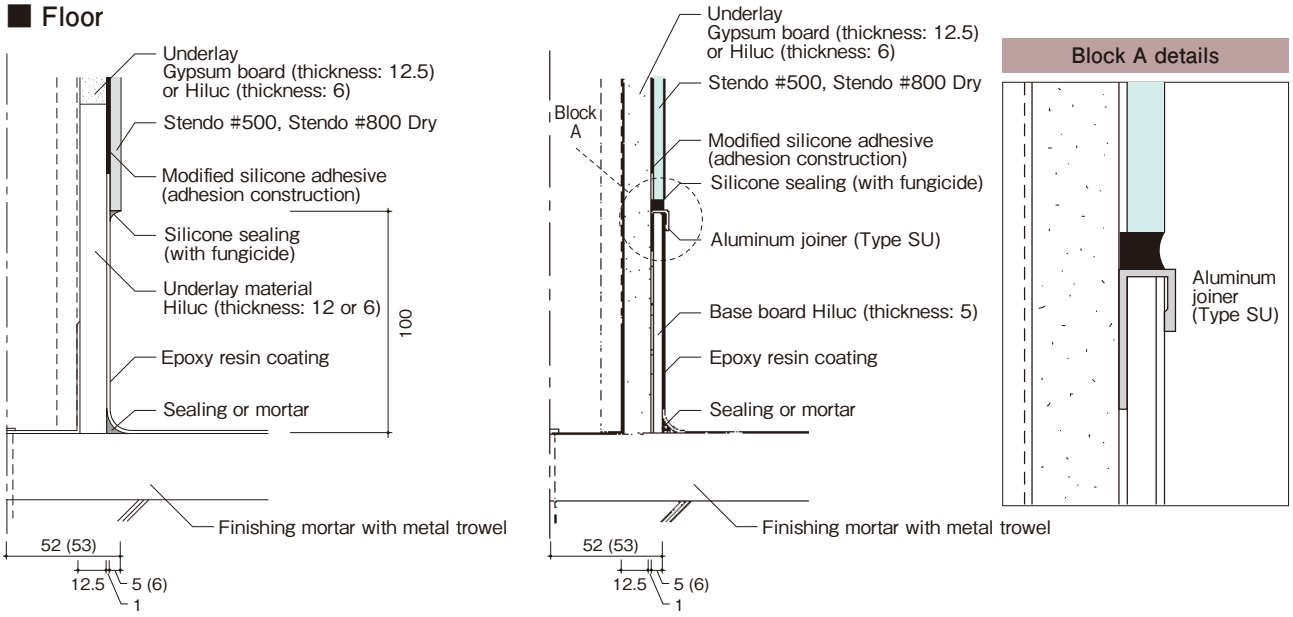
■ Ceiling



■ Vertical joint



■ Floor



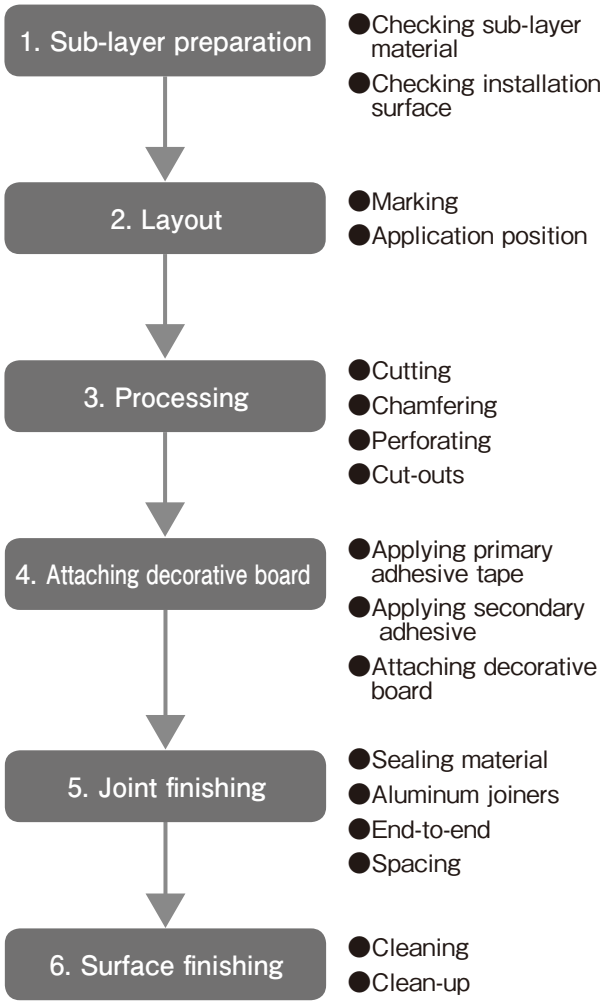
※When constructing an ultra-low humidity dry clean room, use Stendo #800 dry and FG Board or gypsum board as the underlay material.

■Standard Installation Method

〈Adhesive Installation Method〉

■Decorative Board Finishing (when using Stendo and Cera-Art Series)

When using two-sided tape and adhesive together, follow the steps shown below.



1. Sub-layer Preparation

■Checking sub-layer material

Gypsum board and calcium silicate board, etc. are appropriate sub-layer materials.
When using Hiluc and Hiluc M as sub-layers, first prepare the sub-layer (primer and sealer) to check the adherence of the primary adhesive tape and secondary adhesive.
(Sample recommended sealer) Dai Nippon Toryo Co., Ltd. NO VOC CLEAN EPO SEALER
(Water-based epoxy resin, zero-VOC product)

※When using Stendo#800 Dry in low-temperature environments, gypsum board and FG Boardare recommended as sub-layer materials.

■When sub-layer is tile

See P68 for information on adhesive installation with an existing tile surface as sub-layer.

※Adhesives cannot be used on sub-layers of ALC, RC framing, or painted, cloth or decorative surfaces.

■Adjusting for unevenness

Check to be sure installation surface is smooth and free of unevenness, then thoroughly dry and clean the surface.

■Cleaning

Remove any oil, dirt and dust from the installation surface.

2. Layout

■Horizontal and vertical checks

Check that walls are straight horizontally and vertically and that corners are at right angles.

■Marking

Following the approved installation drawing, mark the layout of the sub-layer material so that horizontal and vertical placement can be judged.

■Area around openings

Refer to P62 to ensure cut-outs do not become weak points.

■Following manufacturer instructions, determine the positioning of primary adhesive tape and secondary adhesive application.

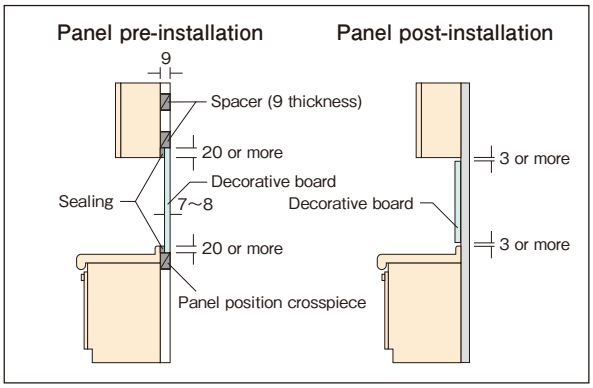
◎Kitchens/Sanitary (6mm thickness)

To ensure an attractive finished appearance, vertical joints should be laid outto minimize loss of material by fitting them to any hanging cabinets and door openings.

Sealing material joint width should be laid out using a standard width of 3mm as a reference.

Allow for an expansion of about 7-8 mm from the sub-layer surface.

※Avoid using joiners horizontally.



■Pre-installation and post-installation

●Pre-installation

When pre-installing decorative board, allow for an overlap with the uppercabinet and sink of about 20mm.

●Post-installation

When post-installing decorative board, all for a space of at least 3mm between the upper cabinet and sink.

3. Processing

■Tools

Boards should be cut using the following tools

●Cutting and cut-outs

○Electric saw with dust collection device (Use a chip saw or diamond saw blade)

○Board cutter ○Cutter

●Chamfering

○Board plane ○Sandpaper (#180, etc.)

○Flat file ○Rasp file

●Perforating and cut-outs

○Electric drill ○Hole saw ○Jigsaw

■Cutting

●Preparation

Wear a dust mask and protective goggles before cutting.

●Surface protection

When cutting, have the underside of the board facing up and use a plank to protect the surface. Cut using a piece of wood (guide ruler or such) as a brace to control kickback.

●Using an electric circular saw

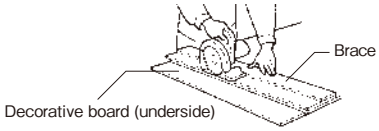
Use an electric circular saw equipped with a dust collection device.

○When using an electric circular saw, always insert the blade from the underside of the board.

※Decorative surfaces and ends are particularly prone to chipping, and special care is required.

Using a circular saw from the underside

●Decorative surfaces and areas already cut are prone to chipping, and special care is required.



■Using a board cutter

①Make a cut about 2mm deep on the top and underside of the board

Shallow cuts can cause splitting and chipping.

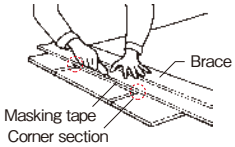
②Cut from the top surface of the board.

Use a support piece to prevent splitting and chipping.

※Corner sections: On the decorative surface, first use an electric drill to make a starting hole of about ϕ10.

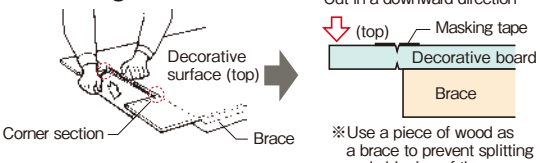
Using a board cutter

1. Make a cut of about 2mm on the top and underside of the board.



●On corner sections, first use an electric drill to make a starting hole of about ϕ10.
●Take care as initial cuts are prone to slipping.
●Shallow cuts can cause splitting and chipping of the decorative surface.

2. Cutting the board

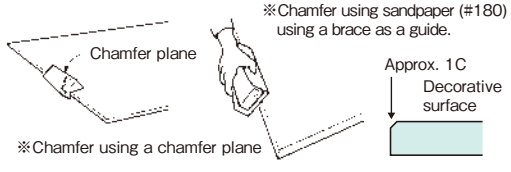


※Use a piece of wood as a brace to prevent splitting and chipping of the decorative surface.

●After cutting, use a file or other tool to finish the corners.

■Chamfering (finishing)

After cutting boards with an electric circular saw or cutter, etc., always finish the cut ends using a chamfer board plane, sandpaper, or file to prevent coatings from peeling.



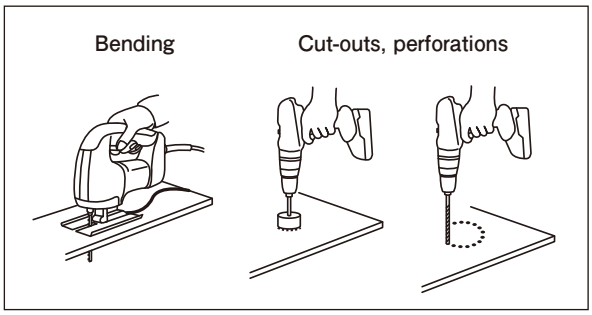
〈Adhesive Installation Method〉

■Perforating

First drill holes of about ϕ10 in the corners where openings for outlets, etc. are to be made.

- With the decorative surface facing down, drill a series of holes from the undersideusing a jigsaw or drill and following the outline of the cut-out, then use a straight saw or board cutter to cut out the section.
- For cutouts for gas pipes, etc., use a hole saw to cut holes the circumference required, cutting from the decorative surface.

※Use sandpaper or a file to finish the cut openings.



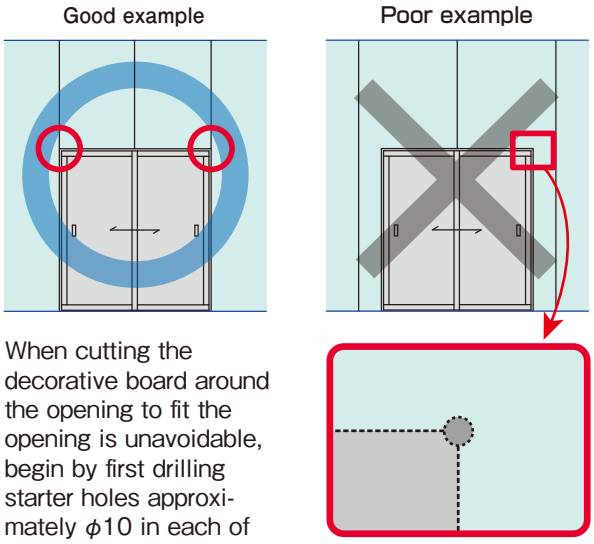
◎Kitchen and Sanitary

When installing racks, etc., always make sure there is a sub-layer, and do notattach directly to the decorative board.

It is recommended that racks, etc. be installed by always drilling starter holes in the decorative surface for screws, etc.

■Cut-outs

Cut-outs should be laid out to follow the width of the opening as closely as possible, to ensure the finished opening does not become a weak point.



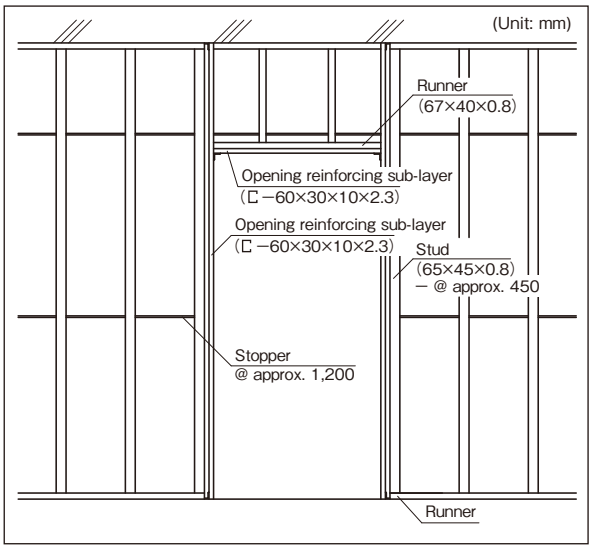
When cutting the decorative board around the opening to fit the opening is unavoidable, begin by first drilling starter holes approxi-mately ϕ10 in each of the corners of the cut-out with an electric drill.

◎Kitchen and Sanitary

Cut-outs should be at least 100mm wide.

■Opening reinforcing sub-layer

To minimize vibrations from the opening and closing of the opening, use lightweight steel framing (C-channel, etc.)
rather than steel studs as a reinforcing sub-layer.



4. Installation

■Follow the steps below when using both two-sided tape and adhesive.

Using two-sided tape that adheres quickly as the primary adhesive, and a one-part modified silicon adhesive that requires time to harden as the secondary adhesive, gives the hardened elastic adhesive a flexible rubber-like elasticity, absorbing and mitigating external stress such as impact and vibration, as well as swelling and shrinking of the component, thus protecting the component.

Decorative Board

- Remove any oil, dirt, moisture or dust from the decorative board, which can cause poor adhesion.
- Check to be sure boards are laid out so that joints in the sub-layer materialdo not overlap with joints in the decorative board.

※Avoid installing when indoor temperatures are 5°C or less, or if temperature will fall below 5°C before the adhesive hardens.

Primary Adhesive Tape

- Affix two-sided tape to the underside of the decorative board.
  (Positioning is different for wall and ceiling surfaces.)

※Do not re-use tape that has come off or been peeled off, as adhesive strength may have deteriorated.

Secondary Adhesive Tape

●Apply the adhesive. Except under special circum stances, as a rule the adhesive should be applied in bead form.
※Consider switching between two-sided tape and adhesive on board ends to adjust for other components and as a measure against warping.
※If openings can be determined in advance, use two-sided tape and adhesivearound the edges of any openings as well.
※Cutting the nozzle of the applicator in two direc tions is one way of ensuring a sufficient coating of adhesive.

■Corrections

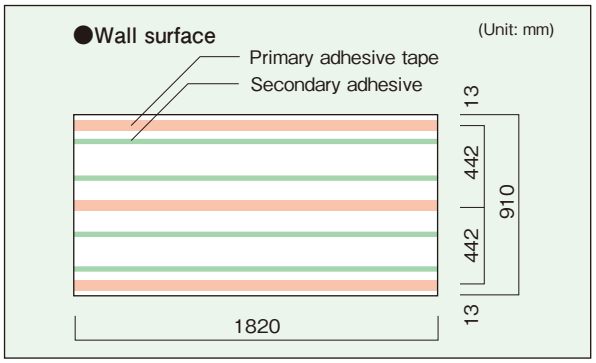
Note that boards cannot be shifted or otherwise corrected once attached.

Removing Backing Paper and Bonding

●Taking care that the two-sided tape does not peel off of the decorative board, peel the backing paper off of the two-sided tape and ensure the tape is firmly attached.
●Attach the decorative board in the prescribed position within ten minutes of applying adhesive.
●Do not apply pressure by hitting the decorative board with hands or tools. Push down firmly on the area where the two-sided tape and adhesive have been applied to bond them to the surface.
※When using a suction cup device, note that some devices provide extremely strong suction. Use only after confirming that the device will not affect the decorative surface.

■Applying adhesive (standard application)

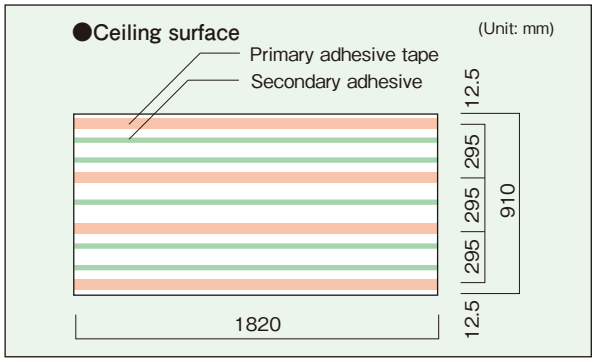
Positioning of primary adhesive tape (two-sided tape) and secondary adhesive.



Primary adhesive two-sided tape should be within a pitch of 450mm, secondary adhesive should be applied in beads of about ϕ8mm within a pitch of 300mm.

★Amount used ( ) is per m²

Primary adhesive two-sided tape 442mm pitch	5.4m(3.3m)
Secondary adhesive 270mm pitch Approx. ϕ8mm bead application	Cartridge 0.8 cartridges (0.5 cartridges)



Primary adhesive two-sided tape should be within a pitch of 300mm, secondary adhesive should be applied in beads of about ϕ8mm within a pitch of 220mm.

★Amount used ( ) is per m²

Primary adhesive two-sided tape 295mm pitch	7.3m(4.4m)
Secondary adhesive 203mm pitch Approx. ϕ8mm bead application	Cartridge 1 cartridges (0.6 cartridges)

※In the event of concerns about deformation and warping after installation or as time goes by, consider switching the position of the primary adhesive tape and secondary adhesive on the ends of the decorative boards.

■Recommended adhesives for use with with A&AM decorative boards

	Manufacturer	Primary adhesive tape	Secondary adhesive	Primer (sub-layer prep)
Interior	A&A Materials	Stendo Eco-tape 11 (11m roll)	Stendo Eco-bond 500 (500ml)*	
	Konishi	Bond TM Tape R1, W1 (10m roll)	Bond MPX-1 (333ml)	Bond Seal Primer #25
	Cemedine	Board Tape 310 (10m roll)	Board Lock SF (333ml)	MP-2000
	Sekisui Fuller	Double Tack Tape #532S (10m roll)	Sekisui Bond #75 (330ml)	Sekisui Modified Silicon Primer
	Aica Kogyo	Tacking Tape Z K-31 (10m roll)	Aica Eco-eco Bond GS-330 (333ml)	JW-900N
	Tilement	Bond Tack (10m roll)	Panel Bond MK720 (320ml)	Arc Primer

※Use primary adhesive tape and secondary adhesive products from the same manufacturer.
※Use a 1mm or 2mm primary adhesive tape for interior use.
*Stendo Eco-bond 500 requires a specialized caulking gun.

〈Adhesive Installation Method〉

5. Joint Finishing

■Sealing material

●Modified silicon sealing
Ex. 1) Konishi: Bond modified silicon caulk ···. F☆☆☆☆
Ex. 2) Cemedine: POS Seal LM ···. F☆☆☆☆

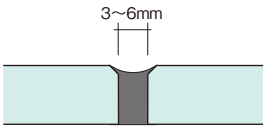
※Consult with sealing manufacturer before using sealing materials other than modified silicon.
※Check with sealing manufacturer for colors similar to the decorative boards being installed.

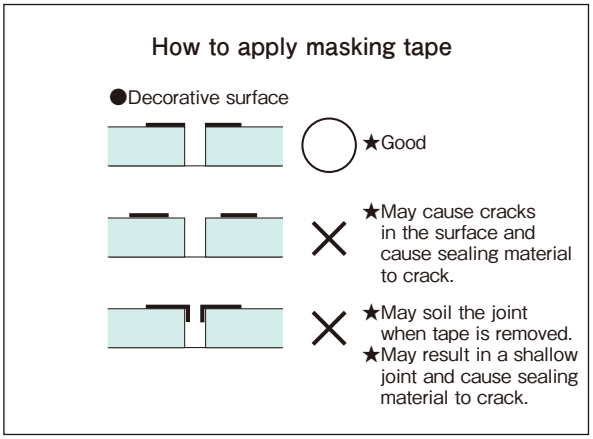
●Filling sealing
1) Coloring may vary slightly by lot, so avoid using sealing material from different lots in the same location.
2) Remove any dirt or debris from the application surface before beginning work.
3) To ensure an attractive finish, apply masking tape along the joint being sealed.
4) Attach the cartridge to the caulking gun and fill the joint with sealing material.

※Seal areas around holes as well.

5) After filling, use a metal or bamboo spatula to press down on the sealing material, Going back and forth several times to create a smooth surface finish.
6) After finishing, immediately remove masking tape by peeling slowly inward.
7) Remove any sealing material that remains.
8) Protect the surface with a piece of cardboard or other flat board to prevent debris or contact with the surface until the sealing material dries.

※Use a paper-based painter's masking tape (for interiors) with a weak adhesive when applying sealing material.

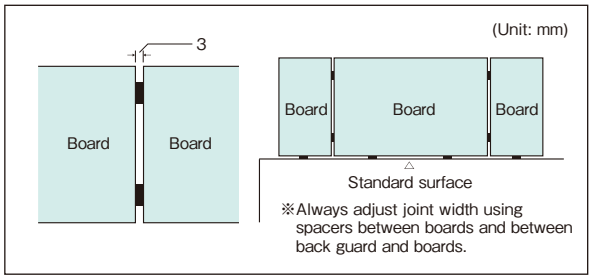


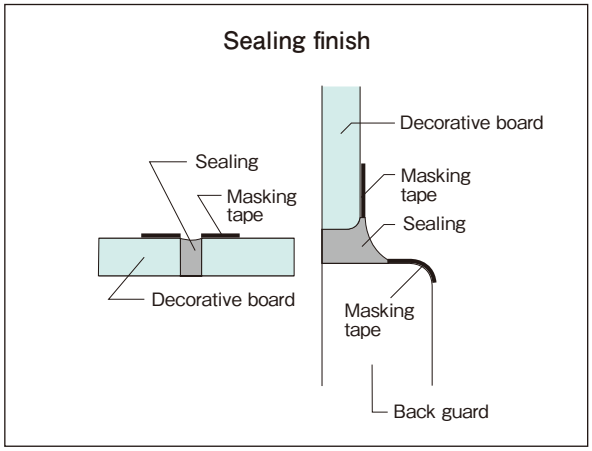


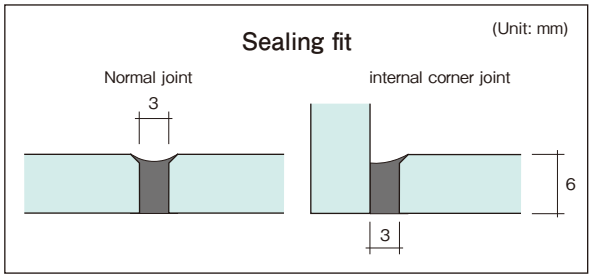
◎Kitchen/Sanitary
Joints should be a standard 3mm width; make sure to fill the joints completely.

●Adjusting joint width (attaching spacers)
○Attaching spacers (procure on-site)
Always use spacers to adjust joint width between boards being sealed and adjacent components.
★Use a pitch of about 450mm.
★Avoid using spacers in corner sections.

○Temporary placement
Always set up boards temporarily to check installation.



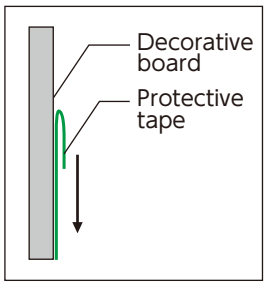




※Spaced installation cannot be used in kitchens.

■Protective tape

●Do not use duct tape or other highly adhesive tape as protective tape.
●Do not leave protective tape in place for long periods of time.
●When attaching protective sheets for painting work, etc., use a protective tape with a weak adhesive. Medium to strong adhesive types can cause coatings to peel and may leave adhesive behind.
●When removing protective tape, peel off slowly in the direction of the arrow as indicated in the diagram at right.

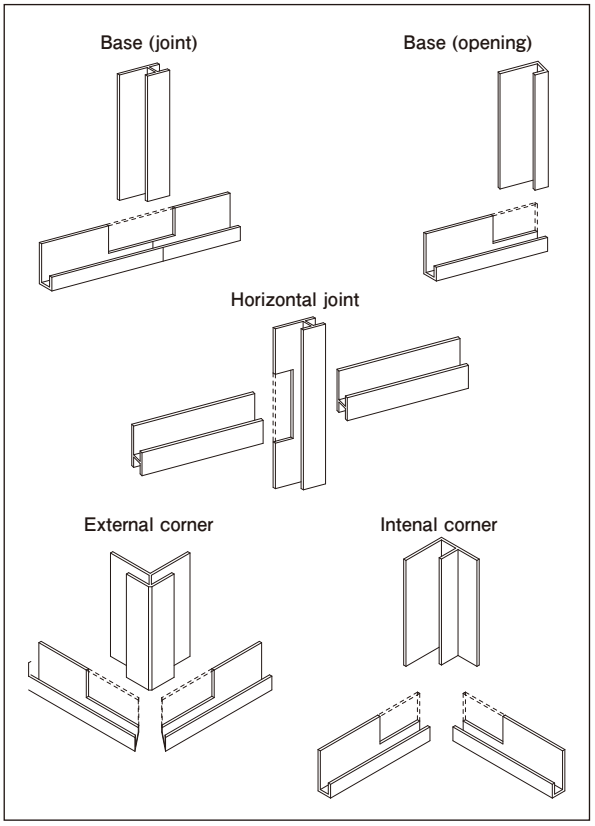


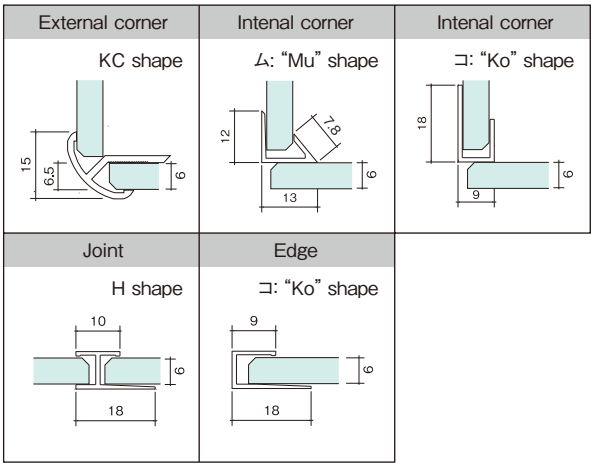
■Aluminum joiners

●When installing using joiners, attach to the decorative board before attaching to the wall.
●When installing in locations that may get wet, it is recommended that you inject small dots of adhesive in the joiner before attaching to the decorative board.

■How to prepare aluminum joiners

When installing joiners, give priority to vertical joints, cutting out the back side of the joiner where the joiners abut.



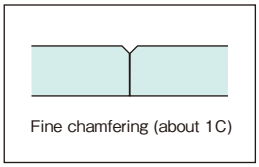


※Joiners are normally treated with a silver-colored alumite, but other special-order baked-on coating colors are available (made-to-order).
※Joiners with antibacterial specification baked-on coating are also available. (made-to-order).

■End-to-end

●When cutting to fit, the degree of precision in the sub-layer may affect the decorative board, resulting in displaced joints and slight spaces. Avoid installing when a precise fit is required.
●Note that coating finishes on decorative board surfaces and chamfered edges will not be the same.

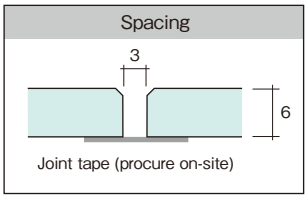
※Avoid cutting to fit in areas of high temperature, high humidity or extreme dryness.
※End-to-end cannot be made with Stendo #300.



■Spacing

●When spacing to fit, install the panels after applying joint tape along the marked layout.
※Use joint tape of about 20mm in width to avoid affecting the position of the adhesive.
※Avoid spacing to fit in areas of high temperature, high humidity or extreme dryness.
※Spaced installation cannot be used with Stendo#300 with uncoated edges, or with Stendo#800 Dry.

※When calcium silicate board is used as a sub-layer, application of a sealer on the calcium silicate board surface where joint tape is being applied is recommended.



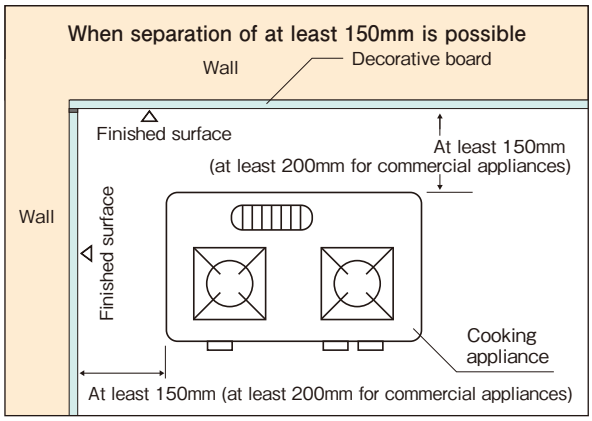
■Standard Installation Method

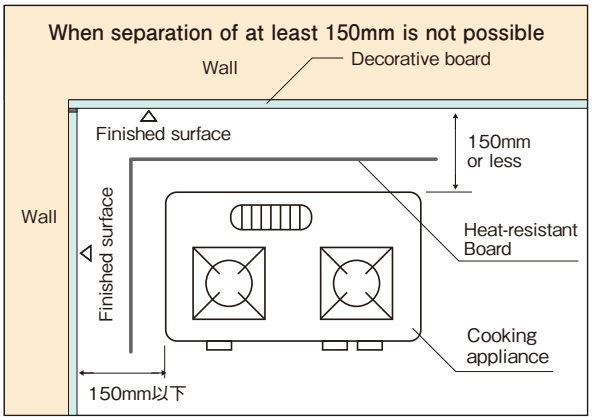
〈Adhesive Installation Method〉

■Checking walls adjacent to cooking appliances (specification for Japan)

●Check that the distance from the finished surface is at least 150mm in the case of household cooking appliances,and at least 200mm in the case of commercial cooking appliances. If this is not possible, install a wall that meets or exceeds fireproof performance as stipulated in the Building Standards Act.

●Even when separation is not subject to restrictions under the Building Standards Act, fire prevention ordinances and the like, to ensure decorative board performance, allow for a distance of at least 150mm between the cooking appliance and the finished surface. Note that if this is not possible, the surface should be protected with a heat insulating plate (stainless steel, etc.).





Always check the items on this list prior to installation.

- ☐ Do not store in an upright position.
- ☐ Avoid installing in places exposed to direct flame.
- ☐ The Stendo Series and Cera-Art Series are not strong enough to support nails, screws, etc. When installing small box and hanging systems, etc., add a sub-layer material and attach with screws.
  (Always drill starter holes for the screws.)
- ☐ Use for interior walls in wet areas (Boards cannot be used in bathrooms.)
- ☐ Boards cannot be used for floors, counter tops, bay window counters, etc.
- ☐ Boards may be subject to cracking. Handle with care.
- ☐ Always install on a sub-layer. Do not install directly on pillars, studs or furring strips.
- ☐ Avoid storing in locations where boards may be exposed to direct sunlight.

6. Surface Finishing

■Maintenance and Repair

●Repair method (example)

Refer to the following methods for repairing scratches, etc. on the coated surface.

1) Rub off a thin layer of the coated surface using a fine-grade sandpaper, etc. (about #220-grit). If there are no abnormalities in the sub-layer (base) board surface, there is no need to remove the entire coated surface, but scratch marks from the sandpaper should be left on the entire surface.

2) Remove all dust and dirt, etc. after sanding to leave a clean surface.

3) Give the coated surface a smooth finish by using a sprayer, etc. to apply a quick-drying urethane coating .

4) Where necessary, finish the coated surface after drying by smoothing with a fine-grade sandpaper, etc.

※Prior to installation, it is recommended that a sample be used to test for finished appearance, coloration after drying, etc.

●Day-to-day cleaning method

Wipe using a soft cloth soaked in water or a diluted neutral detergent.

●Method for cleaning dirt from coated surfaces

1) For dust, mud, ink, etc., wipe using a soft cloth soaked in water or a neutral detergent diluted with water.

2) For magic marker ink, crayon, oils, etc., wipe lightly with a soft cloth soaked in xylol, benzene, disinfecting ethanol, etc. Note, however, that the luster of the surface may change. Take care not to wipe too hard or too often, as this may damage the coating. While disinfecting alcohol or benzene may also be applied with a soft cloth, this will also alter the luster of the surface.

■Important information

1) Take care when using alcohol or thinner, as these may damage coated surfaces.

2) Do not use cleaning agents containing abrasives (cleanser, etc.).

3) Wipe off grease stains immediately.

4) Take care when using scrub brushes, steel wool or other hard cleaning tools, as these may damage coated surfaces.

5) Take care when repeatedly or continually wiping the same place too hard with a cloth, as this may damage the coated surface.

6) When cracks occur in sealing materials, repair promptly.

7) Refer to the chemical resistance information listed in the catalog when conducting chemical cleaning. Note that the chemical resistance data consists of reference values; review the information thoroughly when using chemicals. It is recommended that a sample be tested to check prior to use.

■Important information about use

1) Do not attach nails or screws. Decorative boards lack the thickness to support nails and screws, and their use may result in cracks and detachment. Water seeping in through holes created by nails and screws, etc. may also cause panels to swellor separate.

2) Do not attach duct tape, adhesive hooks or other items with strong adhesives, as this my cause coating to peel.

3) Do not strike boards with knives, forks or other sharp objects, as this may damage the surface.

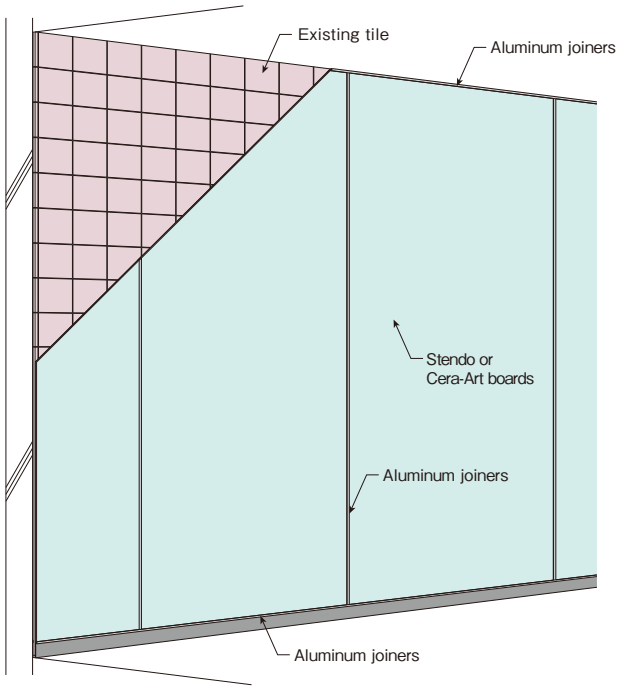
4) Do not allow flame or heated object to come near to or in contact with boards, as this may cause the coated surface to burn or blister.

5) To prevent mold from forming, it is recommended that dirt and dust be cleaned off, as these provide nourishment for any mold that may adhere to the coated surface. Mold formation can also be preventedby ventilating the area and maintaining low humidity. Mold is said to require four conditions to reproduce: nourishment, humidity, temperature and oxygen.

■Standard Installation Method

〈Adhesive Installation Method（Interior tile sub-layer)〉

The adhesive installation repair method uses existing interior tile as a sub-layer,
with the decorative board installed on top of the tile using the adhesive method, shortening installation time.

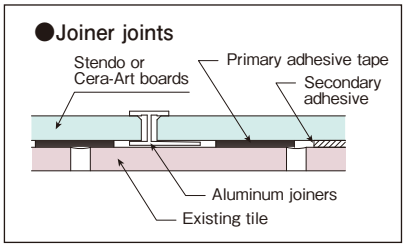


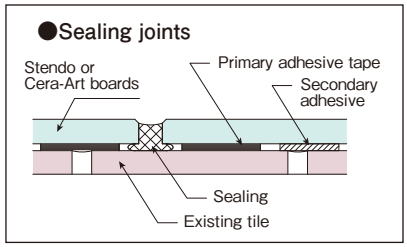
〈Adhesive method〉

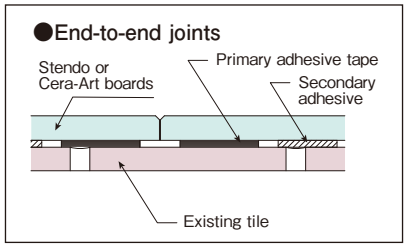
●Method using both two-sided tape and elastic adhesive

This adhesive method uses special two-sided tape as the primary adhesive, and one-part modified silicon adhesive as the secondary adhesive.

■Finishing material joint treatment







●The superior adhesive properties of modified silicon adhesives are compatible with a tile sub-layer, and result in a beautiful finish when decorative boards are used.

●Elastic adhesive absorbs and mitigates external stress such as impact and vibration, as well as swelling and shrinking of the component, thus protecting the component.

●This is a solvent-free method, and thus is safe for use in repair work.

■Joint material when using AA&M decorative boards

Modified silicon sealing or aluminum joiners are used in joints.

※Refer to P52 for aluminum joiner shapes.

Consult with the sealing manufacturer when using sealing other than modified silicon.

Stendo or Cera-Art boards
(Finishing material)

Existing interior tile
(Sub-layer material)

After repairs

■Recommended adhesives for use with AA&M decorative boards

Modified silicon sealing or aluminum joiners are used in joints.

※Refer to P52 for aluminum joiner shapes.

Consult with the sealing manufacturer when using sealing other than modified silicon.

■Standard Installation Method

〈Adhesive Installation Method（Interior tile sub-layer)〉

■Decorative Board Finishing (when using Stendo and Cara-Art Series)

When using two-sided tape and adhesive together, follow the steps shown below.

■Installation procedure

Check sub-layer (existing interior tile)

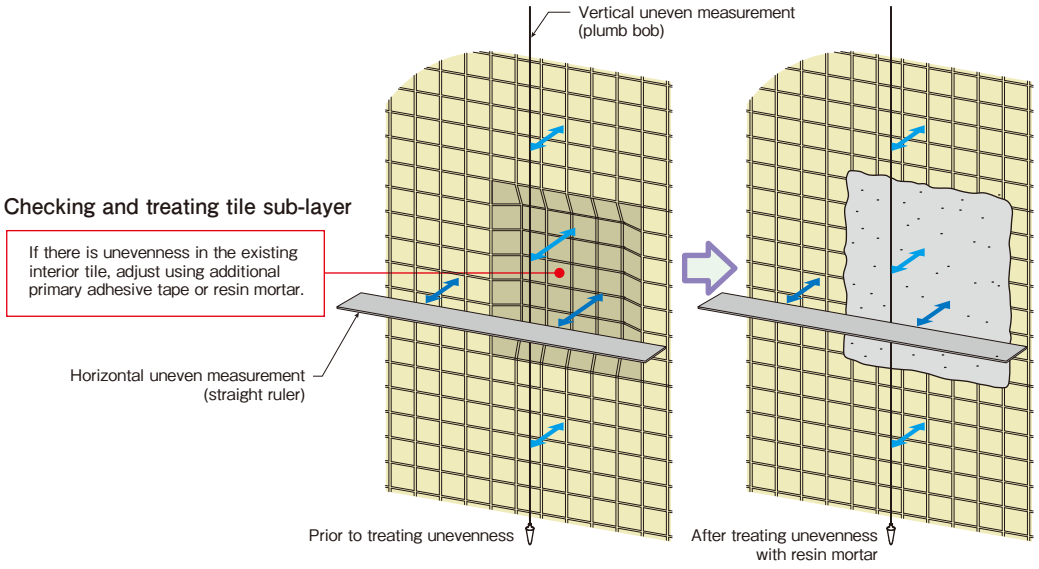
- ●Check condition of sub-layer
- ●Thoroughly remove any dirt from tile surface.

Check for loose tiles

- ●Because old tile surfaces are highly prone to loosening and detaching, check for loose tiles by conducting a strike test (hitting the tile surface with a test hammer to listen for abnormal sounds).
  Loose tiles should either be removed or repaired by drilling a hole in the tile and injecting a repair adhesive, etc.

Check sub-layer for unevenness

- ●Using a plumb bob or straight ruler, check for vertical and horizontal unevenness.
- ●Acceptable unevenness is around 2-3mm.
- ●Adjust for tile surface unevenness by affixing additional primary adhesive tape.
- ●Unevenness greater than 3mm should be adjusted using resin mortar; check that the mortar has dried and hardened.



Layout

- ●Check that the tile surface is adequately dry.
- ●Following the approved drawing, mark the layout on the existing interior tile. When doing so, check the dimensions of the approved drawing against the actual dimensions, laying out the base line by prioritizing the marked reference line.

※Avoid installing when indoor temperatures are 5°C or less, or if temperature will fall below 5°C before the adhesive hardens.

Processing

- ●Tools
  Boards should be cut using the following tools

★Cutting and cut-outs
★Chamfering (finishing)
★Perforating and cut-outs

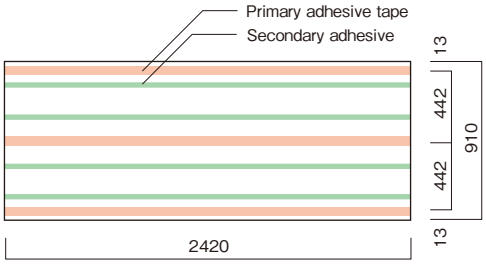
※See P61 (3. Processing) for tools, cutting, chamfering (finishing), and cut-outs.

Attaching decorative boards

Primary adhesive tape

●Affix two-sided tape to the underside of the decorative board, as shown in the diagram.
※Do not re-use tape that has come off or been peeled off, as adhesive strength may have deteriorated.

(Unit: mm)



Secondary adhesive

●Apply adhesive to the underside of the decorative board, as shown in the diagram.
Except under special circumstances, as a rule the adhesive should be applied in bead form.

●Attach the decorative board in the prescribed position within 10 minutes of applying adhesive.
※Consider switching between two-sided tape and adhesive on board ends to adjust for other components and as a measure against warping.
※If openings can be determined in advance, use two-sided tape and adhesive around the edges of any openings as well.
※Cutting the nozzle of the applicator in two directions is one way of ensuring a sufficient coating of adhesive.
※Depending on the unevenness of the tile sub-layer, consider applying the secondary adhesive in a grid pattern.

Removing Backing Paper and Bonding

●Taking care that the two-sided tape does not peel off of the decorative board, peel the backing paper off of the two-sided tape and ensure the tape is firmly attached.

●Do not apply pressure by hitting the decorative board with hands or tools. Push down firmly on the area where the two-sided tape and adhesive have been applied to bond them to the surface.
※When using a suction cup device, note that some devices provide extremely strong suction. Use only after confirming that the device will not affect the decorative surface.
※When attaching hand rails and other metal parts, over-tightening them may cause cracks to form around the part due to an adhesive layer of about 1 mm between the board and the sub-layer material. Take care in attaching such parts to avoid strain on the decorative board.

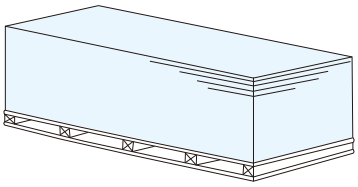
Board Storage and Handling

Take adequate care to prevent dirt, humidity and moisture during transport and storage.

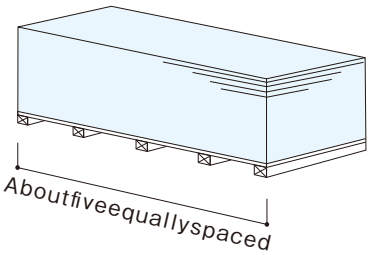
Important Information about Transport

- When transporting by vehicle, etc., boards should be stacked flat.
- To prevent damage during sudden braking, etc., boards should be tied down and corners should always be protected with a board.
- When unloading and carrying boards, take care not to damage the corners.
- When lifting boards, use a protective board and tie boards down to prevent damage.

★Pallet stacking

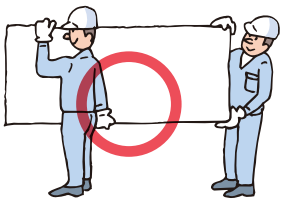


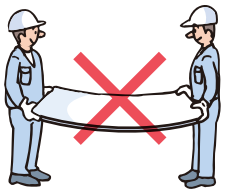
★Stacking using planks



Carrying at installation site

- Carry straight with the short end up.
- Take care not to damage the corners by hitting other objects or dropping the boards; avoid touching with dirty hands or gloves.

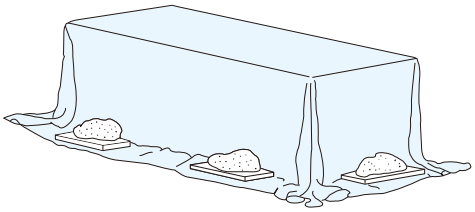




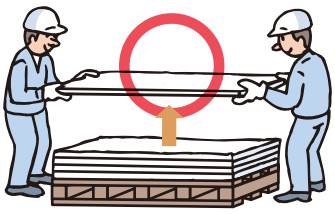
Important Information about Storage

- Never store boards in locations where they are exposed to direct sunlight, rain or high humidity.
- Place boards indoors on a hard, flat surface.
- Boards should be stacked flat on pallets or planks to prevent them from coming into direct contact with the ground.
- When storage outside is unavoidable, cover boards with a protective sheet or other appropriate covering to ensure they do not get rained on or splashed.
- For long-term storage, the products should not be left stacked on planks. They should be stacked on a flat, smooth surface such as a pallet.
- Never climb on top of the products when they are in storage.
- These products should be handled carefully and protected from impacts or load shifting.
- Deformation may occur if the products are stored upright.

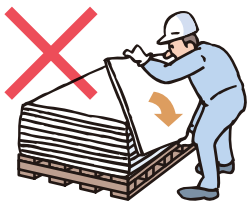
★When storing temporarily outside (on site)



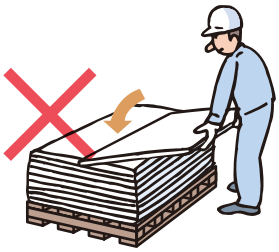
※Protect from wind and rain by covering boards with a protective sheet, making sure the sheets are secure. Boards should be stacked in the same manner as for indoor storage.



★Working in pairs is recommended.



★Do not use part of a board as a fulcrum.



★Do not throw boards down.

★Do not drag boards.

Disclaimer

When preparing designs or installing products, please be aware that no liability will be accepted in any of the following circumstances:

1. If problems are caused by user-prescribed specifications and installation methods, etc., that differ from the standard specifications stipulated by A&A Material Corporation
2. If problems are caused by user-supplied materials and parts that differ from the standard specifications
3. If problems result from the use of supplementary materials other than those recommended by A&A Material Corporation
4. If problems are caused by external factors not related to the products of A&A Material Corporation, such as deformation or aging of the building structure or ground, or external impacts
5. If problems occur as a result of post-delivery changes to structures or specifications, etc.
6. If the product is affected by soiling that would normally occur with the passage of time
7. If problems are caused by the use, storage or transportation, etc., of the materials in environments other than the normal conditions (temperature, humidity, air pressure, etc.) anticipated at development, manufacturing and sales stages.
8. If problems are caused by special factors, such as earthquakes or typhoons.

Important Information about the Contents of this Catalog

※Numerical data included in this catalog are averages and are not intended to represent guarantees.
※Mass weights are standard values that take product moisture content and other factors into consideration.

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