

Meeting society's needs
with nature's blessings.



AIR WATER ECOROCA INC.

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Please contact the following address for inquiries and orders.

OS22-10-0000



ECOROCA[®]
EXCELLENT WOOD-PLASTIC COMPOSITES

Oct 2022

 **AIR WATER ECOROCA INC.**
Meeting society's needs with nature's blessings.

MISSION

Together with the air, water, and nature.

This is the basis of the Air Water Group's business. In other words, we coexist with the air and water. We have continued to expand our involvement in the fields of industrial gas, medical gas, chemicals, agricultural produce, marine produce, and logistics up until now, and our pursuit of environmentally-friendly and people-friendly answers has resulted in tangible products. ECOROCA consists of sustainable materials that are universally connected to our ideals. They are produced with 100% recyclable materials, such as waste wood and waste plastic. These materials can be ground down into fragments and recycled again when they have reached the end of their viable life spans as products. Our products are not only BETTER, they are also the BEST. We will provide suggestions that are sure to delight the Earth. Furthermore, we will continue to take into consideration the true meaning of coexistence.

Air Water Ecoroca Inc and SDGs



11. Sustainable Cities and Communities
Make cities and human settlements inclusive, safe, resilient and sustainable



12. Responsible Consumption and Production
Ensure sustainable consumption and production patterns



15. Life On Land
Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Origins of the Name ECOROCA

ECOROCA comes from the combination of the words "ecology" and "pororoca". Pororoca is a tidal phenomenon that flows up the Amazon River, opposite of the river's flow, when the ocean reaches high tide. This expresses our intention of circulating waste products back into usable products like water flowing upstream.

Circulation that gives birth to new usages.
New materials that conceal rich potential.



Environmental quality recognized by official institutions



Certified as construction products using recycled materials

JIS Certified by Japan Industrial Standards



Ecoaction 21
Certified as Environment management based on the guideline by the Ministry of environment



DECK

ECO decking material developed especially for harsh outdoor environments.

The ECO decking material is suitable for a wide range of applications, from public facilities and commercial facilities to waterside decking and urban parks. In addition to optimal functionality when used outdoors, it blends in well with both concrete and natural greenery and is therefore widely used in creating scenery.

→ P05



AIR LOUVER

A material with the texture of natural wood that is light and strong enough for wood exterior use.

The natural wood texture typical of ECOROCA is combined with a lightweight and durable aluminum core. Undisputed durability, versatile formability, and easy installation mean that it can be used in a wide range of scenarios, including building facades and high-rise floors.

→ P15



AIR WALL

Exterior covering that maintains a natural warmth and aesthetic over a long period of time.

Installing this on certain areas of walling or over the entire building creates a natural wood texture finish that overflows with warmth. With excellent durability and weather resistance, this material maintains its aesthetic over a long period of time without having to worry about discoloration caused by aging*.

→ P25

* Fading due to natural causes or ultraviolet rays, etc. may appear.



DECK

Shines no matter where it is used.
Harmonizes with nature to enrich the entire area.



The products are available in several versions according to purpose and application.
Responding to the demand for the wood that provides warmth and the durable flooring material.

Flooring materials that can be used for many years without worry in various ways, from large-scale facilities to general housing, while providing the warmth and texture inherent with wood.

Environmentally-friendly products created from waste wood and waste plastic.

Selectable surface finishes

All products provide a high-grade surface finish. Two types are available: the flat surface type and the ribbed type with surface undulations. Available in tones that match specific applications and the environment in which they are used so that customers can select according to their own individual preferences.



Flat finishing
DK2020F

Rib finishing
DK2020R

Color variation



Brown (Br)

Sandy brown (Sb)

Gray (Gr)



Deep gray (D-Gr)
Optional color

Safe for children



Unlike natural wood, these materials do not split and produce splinters when used for long periods. There is no need to worry over skin injuries or damaged cloths due to splinters, so they provide safe decking for families with small children and pets.



*Eco Mark Products : VDECK (DK2020V)

Multi-Purpose Types DK1000C

The C Deck (conventional product) is also available with their superior level of cost performance.

Total Volume Shipped:
More than 300,000 square meters
(on the market since 2013)



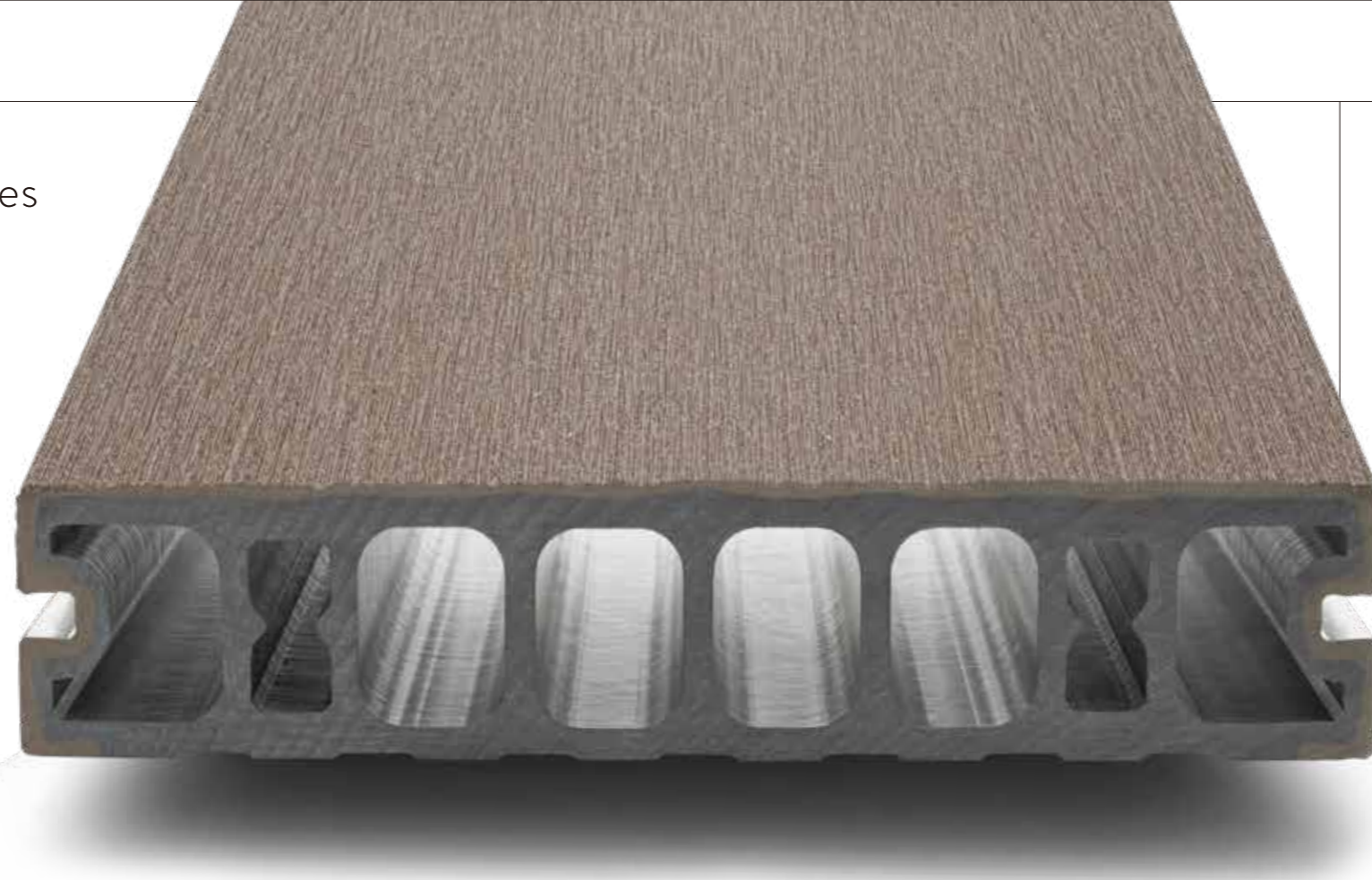
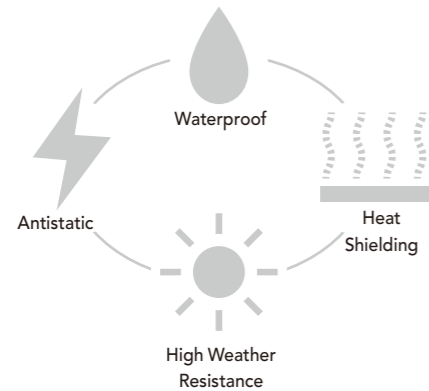
*No antistatic specifications and water absorption suppression specifications

* Check the details listed on pages 29 to 30 (Prohibited Matters / Precautions) of this catalog thoroughly during the design and installation processes. A Technical Information pamphlet and a Design and Installation Manual are available separately.

* The product uses recycled materials, and the color may differ slightly between lots. * The photographs shown here are printed, and the colors may differ from the actual products.

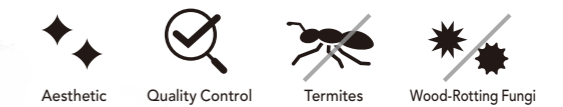
FEATURE of DK2020V series

Highest levels of quality for our customers and the future.
Products by the technology-based Air Water Group.



High Levels of Stable Quality **JIS**

AS JIS certificated factory, we can provide high-quality products under consistent management from procurement of raw materials to manufacturing process management and shipment finished products



1 Water resistance

Standard specification

Reducing expansion of decking due to water absorption of rain or snow
Expansion rate to 1/4 compared with previous product

Total Volume Shipped: More than 100,000 square meters (on the market since 2017)

<Previous product>



Case example of decking expansion due to water absorption

<Our product> DK2020V



Reducing decking expansion by compounding special material

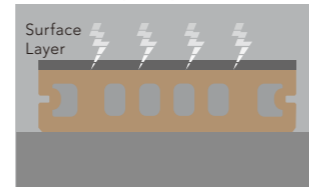
2 Antistatic performance

Standard specification

Prevent static generation semipermanently by patented technology

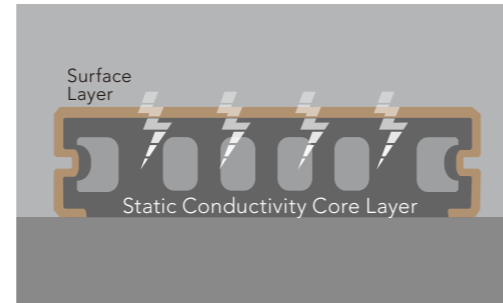
Total Volume Shipped: More than 300,000 square meters (on the market since 2013)

<Other company product>



It is easy to decay antistatic performance because of surface treatment

<Our product>



Static conductivity in the core layer suppresses the generation of static electricity that can be felt

3 Weathering resistance

Standard specification

Reducing color fading or chalking due to sunshine or UV

Improved chalking resistance (in comparison with our conventional products).

<Previous product>



Chalking phenomenon (Powder sticks to hands)

<Our product>



Reduce chalking and prevent color fading

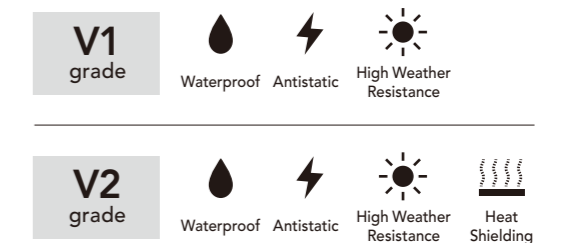
4 Heat shield performance

Optional specification

Prevent to increase surface temperature on decking due to the sun
Decrease surface temperature by 5 to 10°C compared with previous product



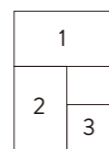
Decrease surface temperature and prevent deterioration



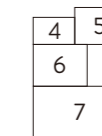


DECK

For example, a collaboration of concrete and wood.
Emphasizing their beautiful presence, and widely-used with contemporary architecture both in Japan and overseas.



- 1 Private pool of the resort hotel (The Brando) in Tahiti
- 2 Pedestrian bridge in Spain
- 3 Institute in Spain



- 4 Aizu Medical Center
- 5 Orange Gardens in Paris
- 6 Azumino Nature Experience Center Seseragi
- 7 Fukuoka University Hospital



3 surface and 2 layer extrusion (Hollow type)

V1 Water resistance, Antistatic, High weatherability | V2 Heat shield, Water resistance, Antistatic, High weatherability

* For DK2020, you can choose either V1 or V2 grade.

DK2020F 145 × 30

Dimension(mm)
Width145 × Thickness30 × Length1995
Weight(kg/m)3.3 | Flat finishing
● Constant Production

End cap available

DK2020R 145 × 30

Dimension(mm)
Width145 × Thickness30 × Length1995
Weight(kg/m)3.3 | Rib finishing
● Order Production

End cap available

DK2020NF 145 × 30

Dimension(mm)
Width145 × Thickness30 × Length1995
Weight(kg/m)3.3 | Flat finishing
● Constant Production * Rib finish no available

No side slit

End cap available

4 surface and 2 layer extrusion (Hollow type) DK1000C is a reversible specification.

DK1000C 145 × 30

Dimension(mm)
Width145 × Thickness30 × Length1995
Weight(kg/m)2.8 | Flat finishing / Rib finishing
● Constant Production

End cap available

CAP14530 145 × 30

Dimension(mm)
Width145 × Thickness30 × Length23.5
● Constant Production

Single layer extrusion (Solid type) Antistatic type

DM1000 145 × 30

Dimension(mm)
Width145 × Thickness30 × Length1995
Weight(kg/m)5.5 | ● Constant Production

DM1000N 145 × 30

Dimension(mm)
Width145 × Thickness30 × Length1995
Weight(kg/m)5.5 | ● Constant Production

No side slit

Single layer extrusion (Hollow type)

DJ1000 145 × 20

Dimension(mm)
Width145 × Thickness20 × Length2000
Weight(kg/m)2.5 | ● Constant Production

Supply in Japan only

Single layer extrusion (Solid type)

SK2100 165 × 12

Dimension(mm)
Width165 × Thickness12 × Length2000/3000
Weight(kg/m)2.5 | ● Planned Production

Supply in Japan only

BM1000 70 × 19

Dimension(mm)
Width70 × Thickness19 × Length2000/3000
Weight(kg/m)1.7 | ● Planned Production

Supply in Japan only

Wall K

WK1000 145 × 20

Dimension(mm)
Width145 × Thickness20 × Length2000/3000
Weight(kg/m)2.6 | ● Planned Production

Supply in Japan only

See the following explanatory notes for details on merchandise production, etc.
 ● Constant Production: Item is regularly produced and stocks are available ● Planned Production: Item is produced periodically
 ● Order Production: Item is produced after orders have been received

● A certain amount of L=2995 and L=3000 are in stock ● Specifications, etc. are subject to changes without prior notice for improvement purposes.
 ● Delivery periods differ between products, so check the delivery in advance.
 * Feel free to contact us for details on products not listed above. We also handle custom-made products.

Basic physical properties of ECOROCA (DK2020V series) made from JIS A 5741 (Wood and Plastic Recycled Compounds)

ITEM		UNIT	JIS standard	ECOROCA	
Raw materials	Wood/inorganic V-Filler	Recycled materials	%	67	
	Recycled plastic resin	Recycled materials	%	28	
	Others (add-in materials, etc.)	New materials	%	5	
Basic physical property	Unit weight	Weight per 1m	kg/m	Approx. 3.5	
	Water absorption property	Water absorption	%	<10	0
		Length(ratio of change)	%	<3	0
	Strength	Bending strength	Mpa	>20	35
		Charpy impact	kJ/m ²	>0.5	6.3
	Thermal properties	Load-deflection temperature	°C	>70	98
	Weather resistance	Tensile strength rate of change	%	<-30	-1
temperature characteristics		linear expansion coefficient	10 ⁻⁵ /°C	-	4
Safety	Toxic substance elution	Cd	mg/L	<0.01	<0.01
		Pb	mg/L	<0.01	<0.01
		Hg	mg/L	<0.0005	<0.0005
		Se	mg/L	<0.01	<0.01
		As	mg/L	<0.01	<0.01
		Cr (VI)	mg/L	<0.05	<0.05

- These products are categorized as "Exterior use (EX-I (for use in residential housing and outdoor facilities))" under "Wood and Plastic Recycled Compounds" in the JIS standards.
- These products are designated as [R90] (recycle rate of 90%) for the level of recycled materials they contain.
- See the relevant manuals for details on the physical properties of products apart from V Deck.
- * A flexural strength of 20Mpa and a flexural modulus of 3,000Mpa are to be used when calculating strength.

Other safety physical property values

ITEM		UNIT	Assessment standard	ECOROCA	
Safety	Skid resistance	Rib specifications	CSR (Average value)	JIS A 1454 : 2010	Dry 0.61
				Extrusion direction 145mm×30mm L=300mm	Wet 0.68
		Width direction 145mm×30mm L=300mm		Dry 0.69	
		Extrusion direction 145mm×30mm L=300mm		Wet 0.78	
	Flat specifications	Width direction 145mm×30mm L=300mm	Dry 0.63		
		Width direction 145mm×30mm L=300mm	Wet 0.73		
Antistatic	Rib specifications/Flat specifications All directions	-	Company Standard	Static electricity cannot be felt even when dragging the feet.	

*The indicated numbers are measured values, not guaranteed values.
 *Temperature and humidity in the laboratory used for the electrostatic property test: 23°C, 25%RH

Maintenance

ECOROCA products are given a sanding finish to produce a texture of natural wood. Because of this, there are cases in which dirt may collect in the sanded grooves. There are also cases in which mold spores scattered from other locations will adhere to the material and cause hard-to-remove soiling. In such cases, it is recommended to clean them off as soon as possible.

Surface Soiling / Cleaning Method

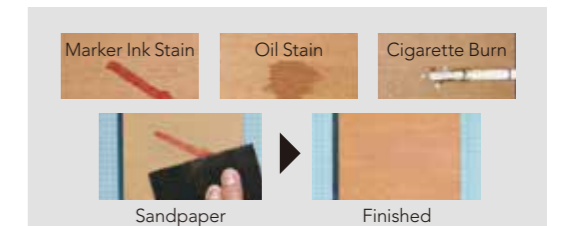
Scrub the soiled area lengthwise with a cloth moistened with a neutral detergent diluted to the prescribed degree, and rinse the residual detergent away with water.

Fading and Scratches Caused by Aging

Fading and scratches caused by aging will not affect strength even if left unattended, but regular maintenance will help the material retain its original aesthetic.

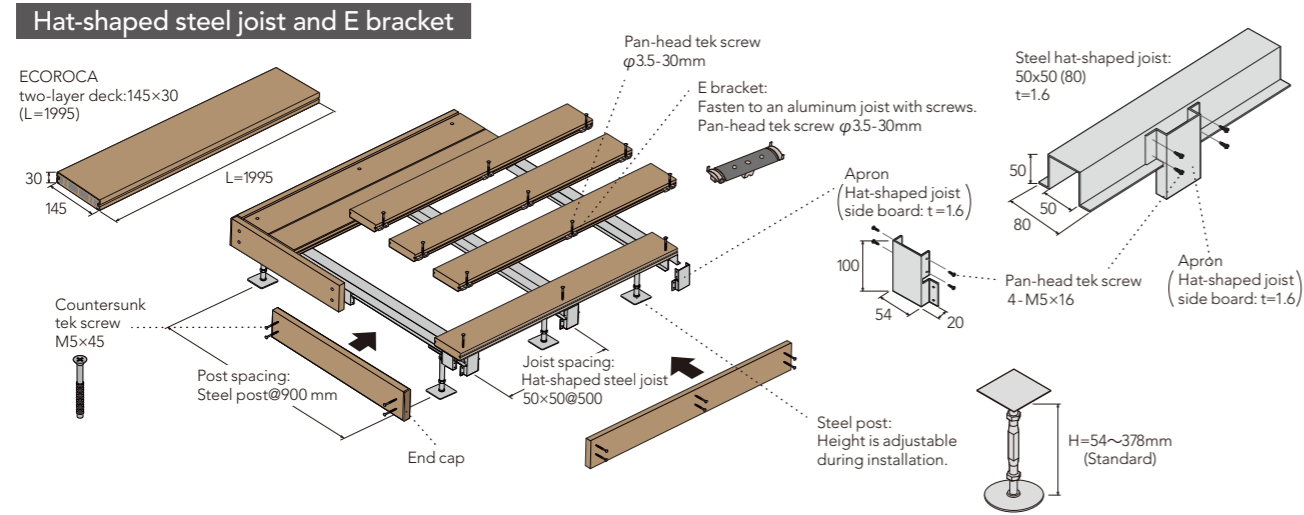
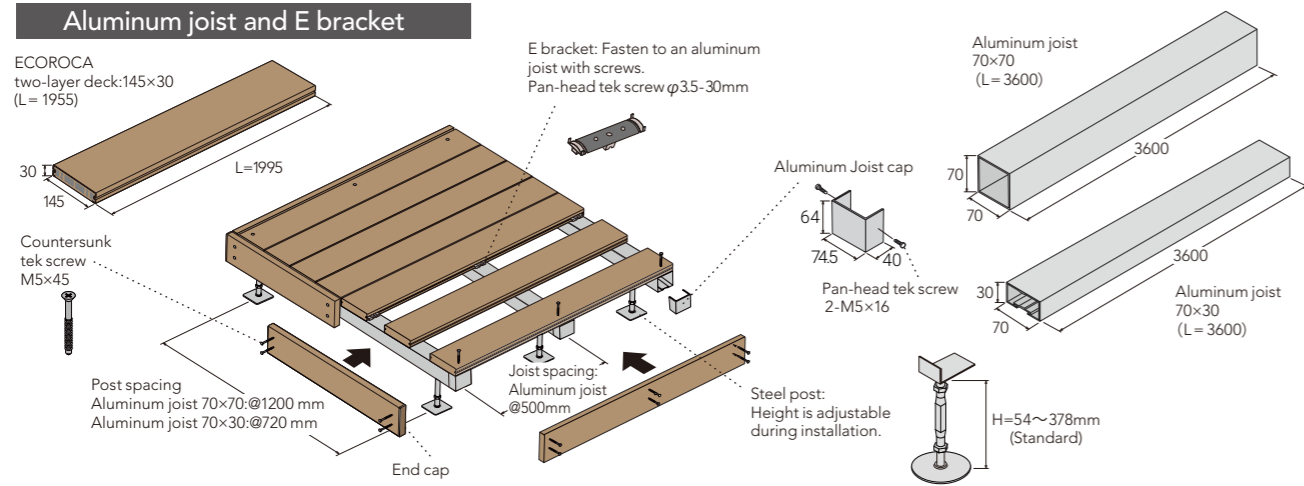
Marker Ink Stains, Oil Stains, and Cigarette Burns / Maintenance Method

- 1 Wipe the surface with a cloth.
- 2 Rub the sandpaper (#40 to 60) lengthwise over the scratches to reveal a new layer.
- 3 Rinse the surface with water, and then wipe off all residual moisture.

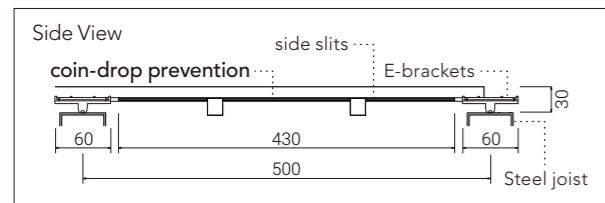
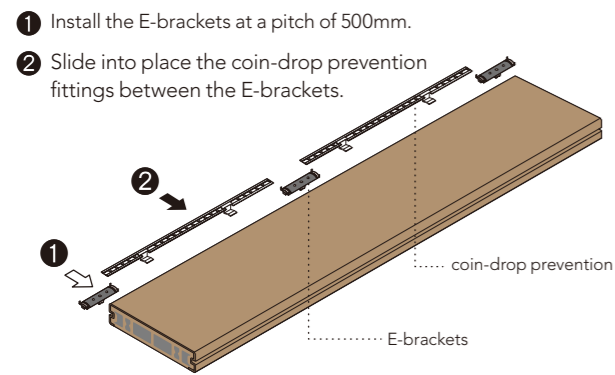


* Sanding the surface may produce a woodgrain that is slightly different from the original.

Installation • For detailed procedures, see the construction manual.



Coin-Drop Prevention Fitting



E-brackets

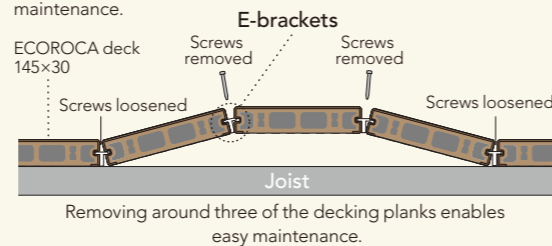
■ **Reduced installation time**

The fittings are not separated from the decking during temporary installation, and the screws are preset to facilitate tightening, reducing the installation time.

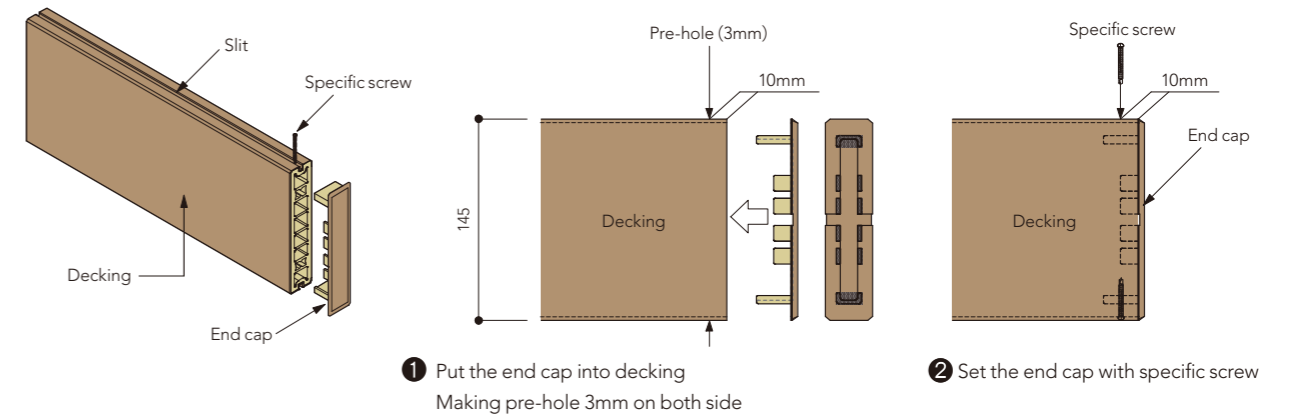


■ **Easy maintenance**

The decking can be installed or removed in part to provide easy maintenance.

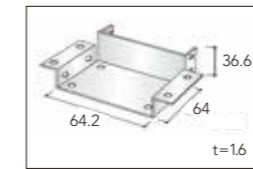


How to attach end cap

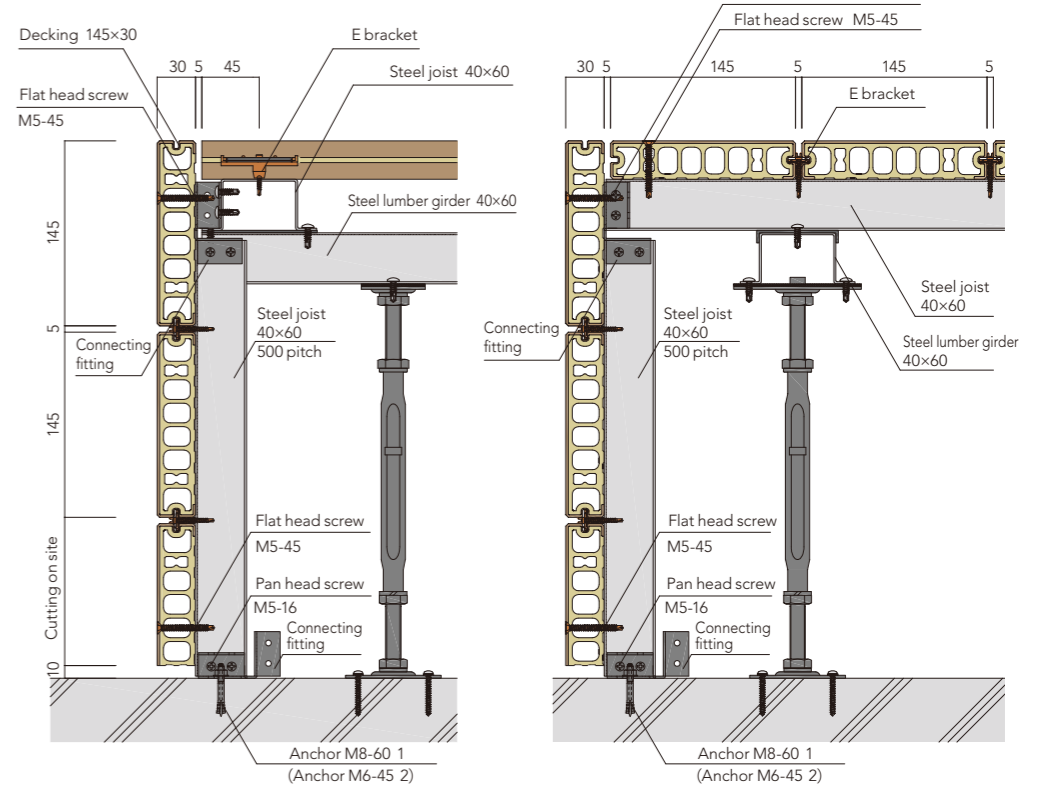


How to use connecting fitting

Connecting fitting for steel joist 40x60 Plated sheet steel

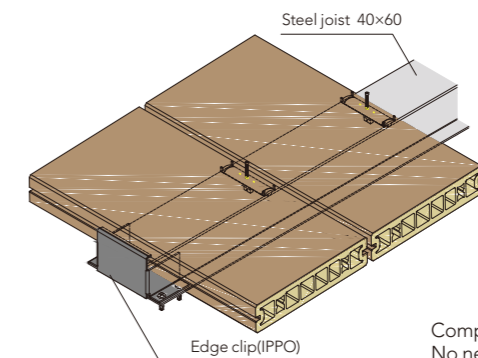
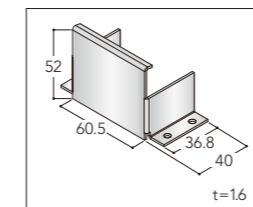


In case of steel joist 40x60, multistage kneehole panel



How to use edge clip (IPPO)

Edge clip for steel joist 40x60 Plated sheet steel



Complete non-screw construction method
No need to screw for starting and ending decking

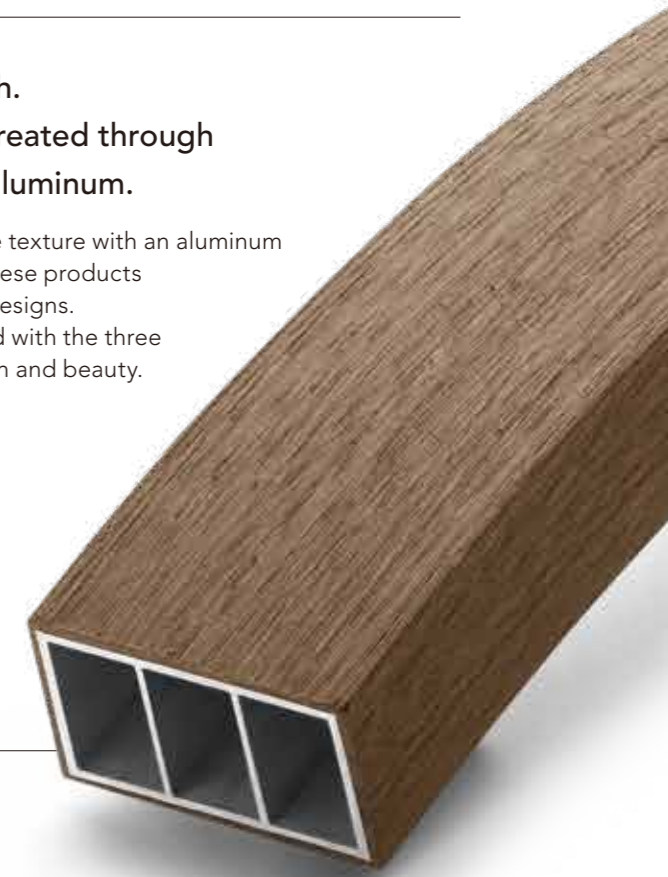
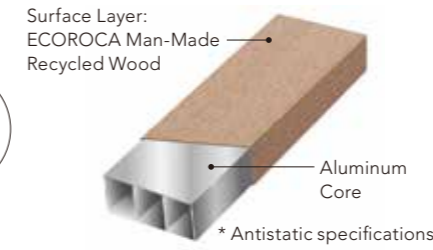
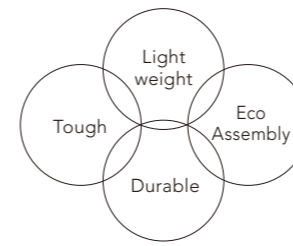
AIR LOUVER

The light, breeze, and field of view are controlled with austere beauty.



Lightweight and tough. Louver-type construction material created through the integration of wood and aluminum.

"Combining a surface layer with ECOROCA's high-grade texture with an aluminum core to produce a single structure makes these products perfect for exteriors with high-level designs. A louver-type construction material equipped with the three consummate elements of lightness, strength and beauty.



Outstanding Construction Workability

The aluminum core is both strong and easy to process, so cutting, drilling holes, tightening screws and all other tasks required on-site can be easily performed. This enables construction times to be reduced and leads to potential reductions in overall costs, including the costs involved in base preparations and installation.

38%
lighter

38% lighter than our conventional products consisting of Wood-plastic recycled composite and strengthened aluminum cores.

* Comparison of [Hybrid 93 x 43] and [Wood-plastic recycled composite 93 x 43 and strengthened aluminum core 30 x 20 x 2].

High-Grade Designs

Taking advantage of the characteristics inherent with easily-processed aluminum, it is possible to produce curves in accordance with the design intentions. Various combinations of straight lines, curves, cross-sections and color tones enhance designs to a much greater extent.

Safety Verified in Durability Performance Tests

The material cleared all hot water drying tests, hot-cold cycle tests, hot water resistance, and other tests. In stringent tests equivalent to aging after 30 years of installation, it has been verified that no separation or cracking of the recycled wood layer and aluminum layer, and no localized swelling exist.

Color variation



* Check the details listed on pages 29 to 30 (Prohibited Matters / Precautions) of this catalog thoroughly during the design and installation processes. A Technical Information pamphlet and a Design and Installation Manual are available separately.

* The product uses recycled materials, and the color may differ slightly between lots. * The photographs shown here are printed, and the colors may differ from the actual products.



- 1
- 2
- 3

- 1 Toyo University Himeji Senior High School
- 2 Paris des Expositions, Porte de Versailles
- 3 Miyama, inc. office



- 4
- 6
- 5
- 7

- 4 Shopping mall in Barcelona
- 5 School in Paris
- 6 Residential in Paris
- 7 Office in Belgium



AIR LOUVER

Functionality and aesthetic that blend into the scenery in locations all over the world. Even in locations that demand high levels of durability, weather resistance, and ease of installation.



HB0403 **40 × 30**



Weight(kg/m)	0.80	Geometrical Moment of Inertia(cm ⁴)	IX	1.8870
Dimension(mm)	40 × 30		Iy	3.4436
Standard length(mm)	3000	Section modulus(cm ³)	ZX	1.4512
Core Cross Section(mm ²)	179.6		Zy	1.8442
Outer Layer Croaa Section(mm ²)	262.86			

HB0503 **52 × 32**



Weight(kg/m)	0.88	Geometrical Moment of Inertia(cm ⁴)	IX	2.5383
Dimension(mm)	51.5 × 31.5		Iy	6.9770
Standard length(mm)	3000	Section modulus(cm ³)	ZX	1.7750
Core Cross Section(mm ²)	223.6719		Zy	2.8712
Outer Layer Croaa Section(mm ²)	232.19			

HB1503 **145 × 30**



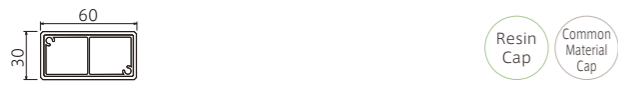
Weight(kg/m)	2.13	Geometrical Moment of Inertia(cm ⁴)	IX	7.5871
Dimension(mm)	145 × 30		Iy	110.6689
Standard length(mm)	3000	Section modulus(cm ³)	ZX	5.6201
Core Cross Section(mm ²)	557.9606		Zy	15.5872
Outer Layer Croaa Section(mm ²)	516.214			

HB1203 **120 × 30**



Weight(kg/m)	1.84	Geometrical Moment of Inertia(cm ⁴)	IX	4.9561
Dimension(mm)	120 × 30		Iy	45.6155
Standard length(mm)	3000	Section modulus(cm ³)	ZX	3.8124
Core Cross Section(mm ²)	447.3762		Zy	7.8994
Outer Layer Croaa Section(mm ²)	522.38			

HB0603 **60 × 30**



Weight(kg/m)	1.17	Geometrical Moment of Inertia(cm ⁴)	IX	3.0801
Dimension(mm)	60 × 30		Iy	10.4254
Standard length(mm)	3000	Section modulus(cm ³)	ZX	2.3686
Core Cross Section(mm ²)	280.7936		Zy	3.7213
Outer Layer Croaa Section(mm ²)	341.9314			

HB0803 **80 × 30**



Weight(kg/m)	1.43	Geometrical Moment of Inertia(cm ⁴)	IX	3.9816
Dimension(mm)	80 × 30		Iy	22.3820
Standard length(mm)	3000	Section modulus(cm ³)	ZX	3.0620
Core Cross Section(mm ²)	340.7936		Zy	5.8863
Outer Layer Croaa Section(mm ²)	421.93			

HB0604 **60 × 40**



Weight(kg/m)	1.20	Geometrical Moment of Inertia(cm ⁴)	IX	5.2114
Dimension(mm)	60 × 40		Iy	11.1842
Standard length(mm)	3000	Section modulus(cm ³)	ZX	2.8756
Core Cross Section(mm ²)	276.9187		Zy	3.8066
Outer Layer Croaa Section(mm ²)	380.71			

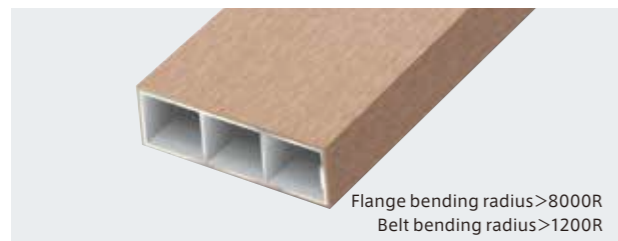
HB0704 **70 × 40**



Weight(kg/m)	1.18	Geometrical Moment of Inertia(cm ⁴)	IX	6.3864
Dimension(mm)	70 × 40		Iy	16.4699
Standard length(mm)	3000	Section modulus(cm ³)	ZX	3.4521
Core Cross Section(mm ²)	294.6322		Zy	4.6951
Outer Layer Croaa Section(mm ²)	321.214			

● Order Production

HB1003 **100 × 30**



Weight(kg/m)	1.52	Geometrical Moment of Inertia(cm ⁴)	IX	4.8172
Dimension(mm)	100 × 30		Iy	38.7455
Standard length(mm)	3000	Section modulus(cm ³)	ZX	3.5683
Core Cross Section(mm ²)	392.9492		Zy	7.7345
Outer Layer Croaa Section(mm ²)	379.21			

HB1303 **126 × 28**



Weight(kg/m)	1.93	Geometrical Moment of Inertia(cm ⁴)	IX	5.5505
Dimension(mm)	126 × 27.5		Iy	75.1962
Standard length(mm)	3000	Section modulus(cm ³)	ZX	4.5302
Core Cross Section(mm ²)	513.1359		Zy	12.2265
Outer Layer Croaa Section(mm ²)	451.72			

HB0904 **93 × 43**



Weight(kg/m)	1.58	Geometrical Moment of Inertia(cm ⁴)	IX	10.2677
Dimension(mm)	93 × 43		Iy	37.6581
Standard length(mm)	3000	Section modulus(cm ³)	ZX	5.1339
Core Cross Section(mm ²)	410.1168		Zy	8.0041
Outer Layer Croaa Section(mm ²)	391.8584			

HB1005 **105 × 53**



Weight(kg/m)	2.10	Geometrical Moment of Inertia(cm ⁴)	IX	20.5700
Dimension(mm)	105 × 52.5		Iy	62.4406
Standard length(mm)	3000	Section modulus(cm ³)	ZX	8.4825
Core Cross Section(mm ²)	508.1972		Zy	12.3645
Outer Layer Croaa Section(mm ²)	605.03			

Belt Bending : Belt bending is the radius when an object is bent into the direction it can most easily be bent. Contact us separately for details on bending in directions that are difficult to bend.

● Order Production: Item is produced after orders have been received

HB1305 **128 × 53**



Weight(kg/m)	2.71	Geometrical Moment of Inertia(cm ⁴)	IX	24.6126
Dimension(mm)	128 × 53		Iy	101.5315
Standard length(mm)	3000	Section modulus(cm ³)	ZX	10.1286
Core Cross Section(mm ²)	662.1081		Zy	16.4291
Outer Layer Croaa Section(mm ²)	767.04			

HB0404 **45 × 45**



Weight(kg/m)	0.85	Geometrical Moment of Inertia(cm ⁴)	IX	5.7267
Dimension(mm)	45 × 45		Iy	5.7267
Standard length(mm)	3000	Section modulus(cm ³)	ZX	2.7141
Core Cross Section(mm ²)	204.75		Zy	2.7141
Outer Layer Croaa Section(mm ²)	244.19			

● Order Production

HB0005 **φ50**



Weight(kg/m)	1.06	Geometrical Moment of Inertia(cm ⁴)	IX	7.0080
Dimension(mm)	φ50		Iy	5.2330
Standard length(mm)	3000	Section modulus(cm ³)	ZX	3.0470
Core Cross Section(mm ²)	259.5965		Zy	2.2752
Outer Layer Croaa Section(mm ²)	301.58			

● Order Production

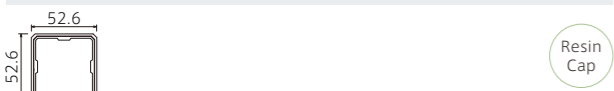
HB1107 **110 × 70**



Weight(kg/m)	1.68	Geometrical Moment of Inertia(cm ⁴)	IX	31.0587
Dimension(mm)	110 × 70		Iy	63.1321
Standard length(mm)	3000	Section modulus(cm ³)	ZX	9.1081
Core Cross Section(mm ²)	513.6711		Zy	11.6695
Outer Layer Croaa Section(mm ²)	246.2			

● Order Production

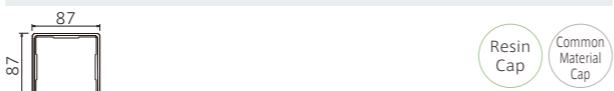
HB0505 **53 × 53**



Weight(kg/m)	1.38	Geometrical Moment of Inertia(cm ⁴)	IX	11.4834
Dimension(mm)	52.6 × 52.6		Iy	11.4834
Standard length(mm)	3000	Section modulus(cm ³)	ZX	4.7257
Core Cross Section(mm ²)	334.441		Zy	4.7257
Outer Layer Croaa Section(mm ²)	400.2			

● Order Production

HB0909 **87 × 87**



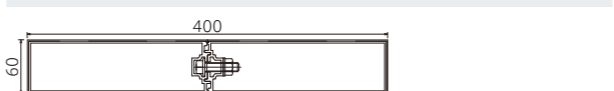
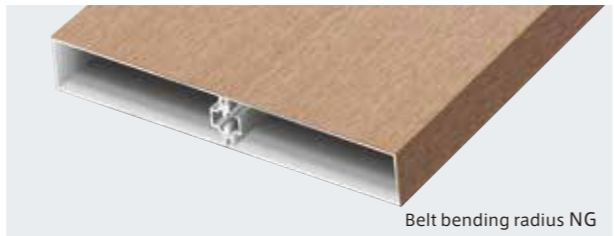
Weight(kg/m)	2.35	Geometrical Moment of Inertia(cm ⁴)	IX	65.9480
Dimension(mm)	87 × 87		Iy	65.9480
Standard length(mm)	3000	Section modulus(cm ³)	ZX	15.7770
Core Cross Section(mm ²)	613.5975		Zy	15.7770
Outer Layer Croaa Section(mm ²)	577.02			

HB2003 **200 × 35**



Weight(kg/m)	3.69	Geometrical Moment of Inertia(cm ⁴)	IX	13.3871
Dimension(mm)	200 × 35		Iy	309.4787
Standard length(mm)	3000	Section modulus(cm ³)	ZX	8.9195
Core Cross Section(mm ²)	858.7934		Zy	31.7414
Outer Layer Croaa Section(mm ²)	1142.86			

HB4006 **400 × 60**



Weight(kg/m)	9.20	Geometrical Moment of Inertia(cm ⁴)	IX	163.9768
Dimension(mm)	400 × 60		Iy	3621.9853
Standard length(mm)	3000	Section modulus(cm ³)	ZX	57.5357
Core Cross Section(mm ²)	2794.3808		Zy	182.4678
Outer Layer Croaa Section(mm ²)	1378.1746			

● Order Production

● Order Production: Item is produced after orders have been received

Basic Physical Properties of Air Louver Products (Molded Products Integrating Aluminum and Resin Containing Wood Flour)

Items Evaluated	Conventional Product		ECOROCA Air Louver	
	Linear Expansion Coefficient	×10 ⁻⁵ 1/°C JIS - K 6911 Standards		4.1
Flexural Strength	Bend JIS - K7203 Standards	Stress (Mpa)	25.2	JIS - K7181
		Flexural Modulus (Mpa)	3,300	JIS - K7113
Moisture Absorption Rates	Moisture Absorption Rates JIS - K7209 Standards	After 1 day / After 30 days	0.6%	JIS - A5905
	Width Expansion Rates / Height Expansion Rates	After 1 day / After 30 days	0.1% or below	JIS - A5905

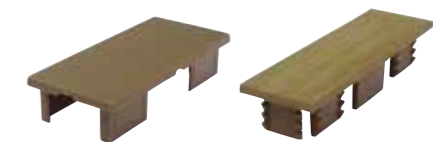
*1. Only calculate with the strength of the aluminum parts when calculating overall strength. Aluminum strength (flexural strength: 107Mpa, flexural modulus 68,000Mpa)

Durability Performance

Durability Performance *2	Hot Water Drying (Light)	60°C water 5H ↔ 80°C drying 2H 15CYC	No abnormalities
	Hot Water Drying (Heavy)	60°C water 5D ↔ 80°C drying 5D 15CYC	No abnormalities
	Hot-Cold Cycle	-10°C 2H ↔ 80°C 2H 50CYC	No abnormalities
	Constant Temperature/Humidity	70°C 95% 30D Accelerated	No abnormalities
	Moisture Absorption	Room temperature 30D Submerged	No abnormalities
	Hot Water Resistance	80°C water 14D Submerged	No abnormalities

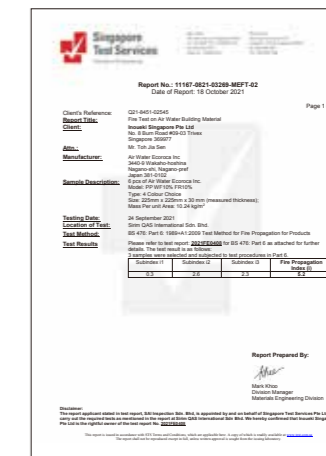
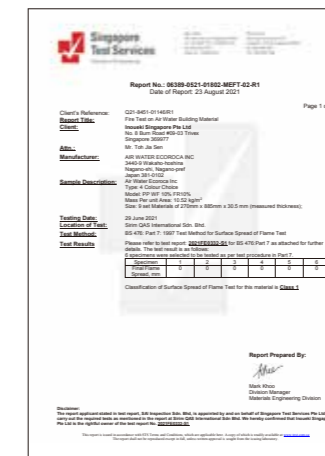
*2. Evaluation Standards: No cracking, peeling, or localized swelling. ● The hot water drying (heavy) test is equivalent to 30 years of natural weathering.

End Caps



ASA Resin Cap Common Material Cap

Flame Resistance



Certified according to BS 476 ; Part 6 and Part 7 for flame resistance to use as finishing materials for Wall and Ceiling.

Belt Bending : Belt bending is the radius when an object is bent into the direction it can most easily be bent. Contact us separately for details on bending in directions that are difficult to bend.



AIR WALL

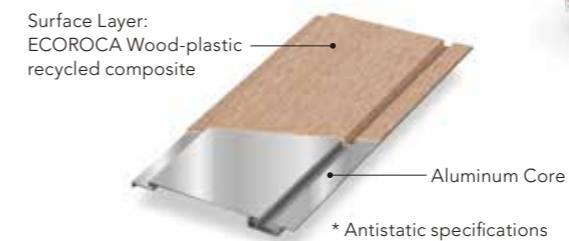
The never-changing warmth of wood on external facades.

Materials with a warm texture and lasting durability for decorating and protecting walls.

An exterior wall material with many attractive features, such as being environmentally-friendly, durable, and easy to install, and for which the inherent texture and warmth of wood remain unchanged. Maintains the original beauty of the building and walls while blending naturally into the external facade and area of installation.

A level of aesthetic that exploits the texture of wood

Using Air Wall for design purposes on a building or on a part of a wall provides a sense of warmth inherent with wood as well as a gentle and pleasing facade. Harmonizes perfectly with the surrounding environment, and helps create calm and relaxing spaces.



Superior levels of weather resistance and durability

Can be used over a long period of time without having to worry about discoloration caused by aging. The superior levels of water resistance and durability prevent wood-rotting fungi, the arch enemy of wood, from accumulating, so there is no need to worry about damage caused by corrosion or termites.

Safe and free of toxic materials

Only recycled materials have been used. Does not contain halogenated or toxic heavy metals (cadmium, lead, hexavalent chromium, mercury, selenium, etc).

Color variation

Surface Layer Finish:
Wood and plastic recycled compound (recycled wood)



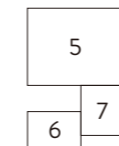
Surface Finish:
Special resin finish with a woodgrain texture (conforms with UL94V-0 standards)



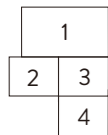
* Check the details listed on pages 29 to 30 (Prohibited Matters / Precautions) of this catalog thoroughly during the design and installation processes. A Technical Information pamphlet and a Design and Installation Manual are available separately.
* The product uses recycled materials, and the color may differ slightly between lots. * The photographs shown here are printed, and the colors may differ from the actual products.

AIR WALL

Exterior wall materials with internationally-acclaimed levels of durability and weather resistance while maintaining the warmth of wood and a sense of gentleness.



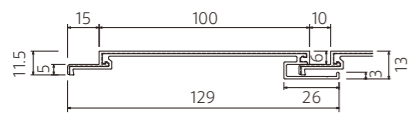
- 5 Shopping mall in Barcelona
- 6 Kindergarten attached to Kinki University
- 7 Lake Shikotsu Tsuruga Besso



- 1 Welfare institution Shion Gakuen
- 2 Shopping mall in Kisarazu
- 3 Welfare institution Shion Gakuen
- 4 Tomoe junior high school, Hakodate

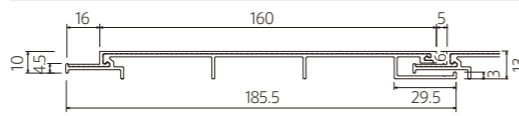


AW-100 100 × 13



Dimension(mm)
Width100 × Thickness13 × Length4000 | Weight(kg./m) 0.79
Surface finishing ... Wood-Plastic Composites
Wood-grain Unique resin finishing
(Passed V-0 of Flammability UL94)

AW-160 160 × 13



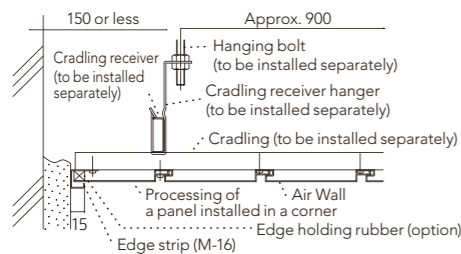
Dimension(mm)
Width160 × Thickness13 × Length4000 | Weight(kg./m) 1.31
Surface finishing ... Wood-Plastic Composites
Wood-grain Unique resin finishing
(Passed V-0 of Flammability UL94)

Reference Drawings of Joints between Various Parts

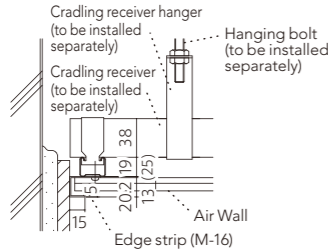
*Furring strips for bases to be installed during the construction phase

Wall

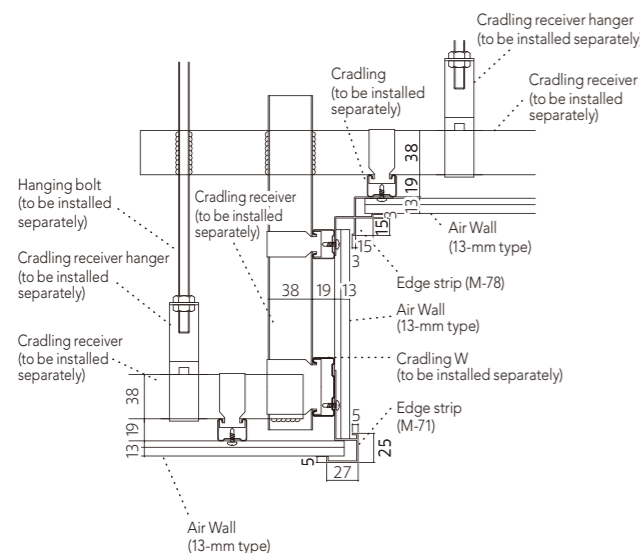
Vertical Section of Wall (M-16)



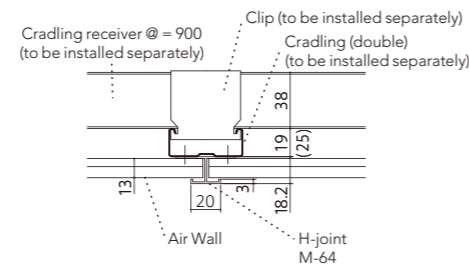
Horizontal Section of Wall (M-16)



Suspended Wall

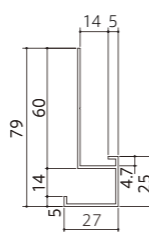


Joint



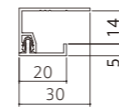
For Suspended Wall

M-71



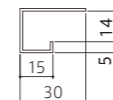
Retrofittable Edge Strip

M-141-142



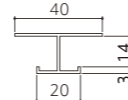
Edge Strip

M-16



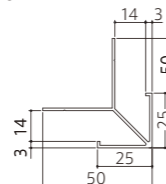
H-Joint

M-64



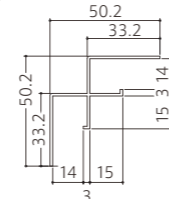
Edge Strip for Outside Corner

M-70



Edge Strip for Inside Corner

M-78



- Read the separately provided Design and Installation Manual thoroughly before installation.
- The precautions listed below are very important and must be followed at all times.

Deck Products

Points to Note with Regard to Deck Products

- Although every effort has been expended to ensure that ECOROCA products meet all quality requirements, note that individual products may have slight color variations and deformation to a degree that does not interfere with the functionality. Also, note that the degree to which age fading caused by ultraviolet rays, etc. appears will differ between individual products.
- There are cases in which ECOROCA products may expand or change shape due to changes in temperature, humidity, or other natural conditions. Ensure that all installation work is carried out in accordance with the details provided in the separate Technical Information pamphlet and Design and Installation Manual.
- There is a risk of ECOROCA products expanding or becoming deformed if they absorb moisture over extended periods of time. Do not use ECOROCA products if they are constantly submerged in water in their entirety or in part. Make sure that rainwater or other water does not enter and accumulate inside the material cavities for long periods of time. Also, note that deck products may absorb moisture and become deformed if they are subject to high levels of humidity due to bad drainage or bad ventilation beneath the decks. Ensure that there are no drain blockages and that the spaces beneath the decks are well-ventilated.
- There are cases in which powdered particles will accumulate on the surface of ECOROCA products due to changes in temperature and humidity, ultraviolet rays, and other weather conditions, or through friction from regular use, etc. Note that this powder may adhere to and stain clothes that come into contact with it.
- The surface of ECOROCA products will become hot when subject to direct sunshine in the summer. There are cases in which walking on decks barefooted may result in burns. Special care must be taken with infants. Wear shoes or other footwear when on the decks to avoid this.
- Heavy items or objects with sharp corners may cause damage or dents on ECOROCA products. When heavy items are to be placed on ECOROCA products, make sure they are placed on boards capable of dispersing their weight. Also, make sure to consult with our sales representatives if there is the chance of vehicles driving over ECOROCA products.
- Note that since ECOROCA products include resin, the friction generated when walking over them, etc. may result in static electricity being discharged. **The V Deck (DK2020V) series that suppresses the buildup of static electricity is recommended in order to prevent this.**
- ECOROCA products do not consist of flame retardant nor fireproof materials. Take care when using flames near them. Also, note that there are certain designs and locations of use that are subject to restrictions under related laws and ordinances.
- Contact our sales representatives if you have any questions related to use.

Points to Note During Installation

- ECOROCA products consist of a new compound material that has been recycled from wood and plastic. Note that their physical property is different to natural wood. Ensure that all installation work is carried out in accordance with the details provided in the separate Technical Information pamphlet and Design and Installation Manual, and take special note of the details listed below.
- * Carry out installation while making sure that the prescribed clearances have been left between products and other materials, and between products and building frames.
- * Carry out installation while making sure that the joint pitches and post pitches are within the prescribed ranges.
- * When joining multiple decking planks together lengthwise, make sure the length of the deck is within L2000 to ensure the joints are able to withstand the passage of time, and install double the amount of base joists at the prescribed pitch. Check the Technical Information for further details.
- * Make sure the height of the bases has been aligned and ensure a horizontal structure to prevent rainwater, etc. from accumulating inside the material cavities.
- * In the event of the gaps between planks having closed due to long-term moisture absorption, etc., reconstruct the gaps in the required areas by cutting or with the use of saws, etc. Failure to observe this may result in cracking or warping, which may damage the building or walls.
- Store the products on a flat surface, and make sure they are not laid on uneven surfaces or stored upright against walls, etc. Implement all required safety measures, including measures for preventing the products from toppling over and barricading the storage area.

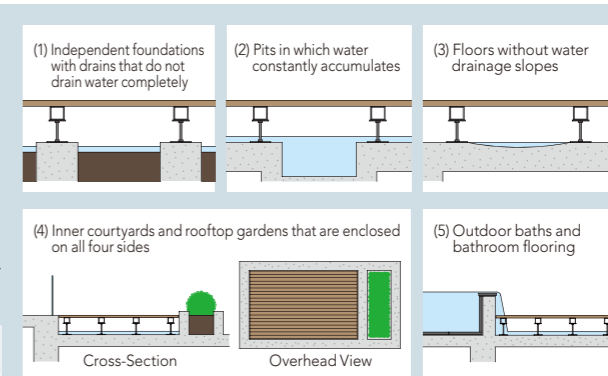
⚠ PROHIBITED MATTERS

- ECOROCA products are surfaces designed for walking. Do not use them for any purpose other than this, such as for the passage of motorized vehicles. Consult with our sales representatives in advance if the installation plan includes the passage of motorized vehicles.
- Do not use ECOROCA products to construct observation decks on steep overhanging or other dangerous locations.
- ECOROCA products are flammable and must not be installed near fuel tanks, other hazardous materials, hot air ventilation outlets, etc.
- Lighting flames or applying excessive heat to ECOROCA products may result in the outbreak of fire or product deformation and must be avoided.

⚠ PRECAUTIONS

- ECOROCA products must be stored away from direct sunlight, horizontally in the original packaging, and must not be stacked for extended periods of time. Failure to observe this may result in warping or bending.
- Products that exceed three meters in length must be carried by two or more people, and care must be taken to avoid bending.
- Installing or establishing support spans for ECOROCA products using anything other than stipulated methods may result in warping, bending, or damage, etc. and must be avoided.
- ECOROCA products consist of wood flour and polypropylene resin that have been ground, mixed together, and molded. Therefore the products have a tendency to expand or contract through heat or moisture absorption, so installation must be carried out in accordance with the standards provided in the Design and Installation Manual.
- Jumping onto or off of ECOROCA products or otherwise subjecting them to excessive centralized loads or impact may result in bending or other damage that may cause serious injury.
- The surface of ECOROCA products become hot when subject to strong sunlight. Wear shoes or other footwear when walking over them.
- In addition to observing the standards listed in the separate Design and Installation Manual, strength levels must be calculated and confirmed to take the weight of snowfall into account when using ECOROCA products in areas subject to snow accumulation.

It may be assumed that when ECOROCA products are used in the environments listed on the right, the conditions under the decking become highly humid, and the moisture absorbed from this will result in unexpected expansion of the products. This will cause the decking boards to warp or swell and there are cases in which this will result in damage to the main structure at the edges of the decking boards and other unexpected accidents. When installing the products, it is recommended that the areas under the decks are well ventilated and that measures to drain water are observed, such as installing slopes, drains, or water gullies.



The V Deck (DK2020V) series that suppresses deformation caused by moisture absorption is recommended if you have concerns over this.

Limitations on Designs and Installation

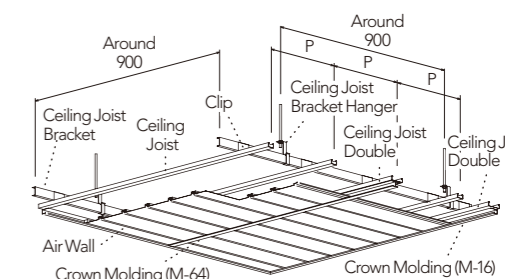
- ECOROCA products are not structural components. The louvers cannot be used to support weight.
- The permissible support spans of the louvers differ depending on the area and place of installation (height, etc.).
- The maximum length to which ECOROCA products can be manufactured is 5,500mm.
- Louvers with fireproof (self-extinguishing) [JIS K6911 5.24, A type] specifications are available by separate order.
 - * Made to orders, special-order colors, and self-extinguishing louvers are manufactured with predetermined delivery dates and quantities. Contact our sales representatives for further details.
 - * The products use recycled wood, and there are cases in which the color may differ between lots.

⚠ PRECAUTIONS

- (1) Using Air Louver products for purposes other than what they were designed for is extremely dangerous and must be avoided.
- (2) Standard Air Louver products are not fireproof. Note that there are certain locations where usage is subject to restrictions. Consult with our sales representatives for details on fireproof specifications.
- (3) The surfaces of Air Louver products are made from recycled materials. Although every effort has been expended to ensure that they meet all quality requirements, note that individual products may have slight color variations and deformation to a degree that does not interfere with the functionality.
- (4) Do not use Air Louver products in locations where flames are used. Also, do not place lit cigarettes on or near them. Failure to observe this may result in deformation, discoloration, or other damage.
- (5) Installation spans, etc. for Air Louver products differ depending on the area and environment in which they are installed, so err on the side of safety when calculating strength, etc.
 - Leave an appropriate level of clearance between the Air Louver joints and construction joints in consideration of the louvers expanding. (Leave a clearance of 10mm under normal conditions.)
- (6) Avoid leaving joints with protruding parts.
- (7) There are cases in which powdered particles will accumulate on Air Louver products due to changes in temperature and humidity, ultraviolet rays, and other weather conditions, or through friction from regular use, etc. Note that this powder may adhere to and stain clothes that come into contact with it.
- (8) Note that the surface of Air Louver products will become hot when subject to direct sunshine in the summer.
- (9) Note that Air Louver products include resin, and there are cases in which the friction generated may result in static electricity being discharged.
- (10) Give full consideration to the location of installation when Air Louver products are to be used in environments subject to corrosive gases, seawater or sand/dust, or in areas subject to snow accumulation.
- (11) Do not drop heavy objects onto Air Louver products or pierce them with sharp objects, such as umbrellas. Failure to observe this may result in cracks, dents, or scratches.
- (12) Store Air Louver products indoors on flat surfaces.
- (13) Wipe away all soiling with a diluted neutral detergent, and then rinse with water to remove all residual detergent. (Do not use thinner or other solvents)
- (14) The way in which colors appear may change.
 - The surfaces of Air Louver products are sanded in a predetermined direction. If they are installed upside down, the difference in the sanding direction may make them seem to be a different color. The sanding direction is marked on the side of Air Louver products, so check thoroughly during processing and installation.

Design Points

- Check the strength of external walls, eaves, and other areas subject to wind load, including the base.
- Confirm the strength of the base material to be used since the shape, thickness, and dimensions differ depending on manufacturers.
- Particular care must be taken over wind lift loads on designs for base materials used on eaves.
- Always check the strength calculations, etc. as there are cases in which the pitch for base materials, etc. differs depending on the installation conditions.
- Keep the protruding portions of the Air Wall edges to 150mm or less.



Types of ceiling base materials and gaps between base materials for each installation location
(Source: Standard Specifications for Public Building Architecture - Architectural Work)

Installation Location	P(Ceiling Joist Pitch)	Ceiling Joist	Clip Thickness	Ceiling Joist Bracket	Ceiling Joist Bracket Hanger Thickness
Indoor Ceiling	Around 360	Type 19 (25×19×0.5)	0.6 or more	v38×12×1.2	2.0 or more
Eaves	As listed	Type 25 (25×25×0.5)	0.8 or more	38×12×1.6	

* The gaps for ceiling joist brackets, suspension bolts, and inserts are to be around 900mm, and surrounding components are to be within 150mm of the edges. However, as listed when installed indoors.

- The aluminum bases for Air Wall products are made of inflammable material (as stipulated in 2000 report No.1400 Inflammable Material), but the surface layers are neither flame retardant nor fireproof, so check all related laws and ordinances. (The teak and walnut colors conform to the Fire Retardancy: UV-94V-0 standards.) Also, note that the individual Air Wall components do not support fireproof structure or fire-resistant structure standards, so structural measures to conform to this are required.
- Air Wall products cannot be treated for waterproofing, so waterproofing measures must be firmly implemented during the preparation process.
- There is a risk of the effects of heat expansion causing unevenness in the finished surfaces of Air Wall products if they are used without joints on large exterior walls which are subject to large changes in temperature everyday and throughout the year, and this must therefore be avoided.

See the separate Air Wall Product Catalog for further details on precautions during usage and installation points, etc.

Regular Inspections

- Carry out regular inspections after installing ECOROCA products.
 - * Contact your dealer or Air Water ECOROCA immediately if you notice any abnormality.
- (1) Check for loose screws, wobbling, etc.
- (2) Check for cracks, warping, deformation, etc.
- (3) Check to make sure that the gaps between ECOROCA products or between the products and the building or wall, etc. are being maintained
- (4) Check for any strange noises or sense of discomfort when walking, etc.