

FORTINA WARRANTY

TECHNICAL INFORMATION

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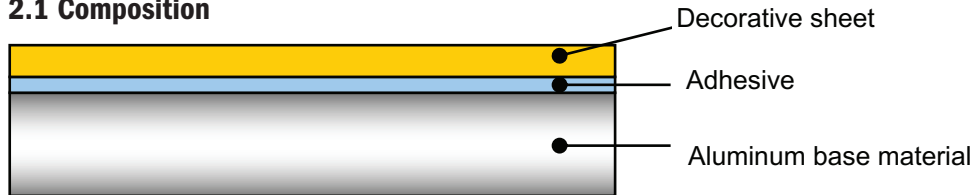
1. Scope of Application

This Specification shall apply to the following product to be produced by Toppan Cosmo, Inc. at Showa Kagaku Kogei Co., Ltd. and to be delivered to B+N Industries, Inc. (herein the Product).

Product: Fortina

2. Product Specification

2.1 Composition



Composition	Material	
Decorative sheet	Exterior specification: Forte Feel, Toppan Cosmo	
	Interior specification: HD ONE sheet, Toppan Cosmo	
Adhesive	Urethane adhesive	
Aluminum base material	Extruded shape	Quality of the shape profile complies with JIS H4100.
		Alloy number A6063
	Composite Coating	Quality of surface treatment complies with JIS H8602.
		Acrylic resin paint

2.2 Sheet Application Designation

Explicitly indicate where the sheets should be applied in the drawing and manufacture the Product according to the approved drawing.

2.3 Size

The maximum length and tolerance of the size of the Product to deliver shall be as follows:

Product length (mm)	Tolerance (mm)
6000	+8 -0

2.4 Decorative film for surfacing (HD ONE)

The specification given in the order form shall be followed.

2.5 Non-combustible Material Certification

Non-combustible material numbers certified by Ministry of Land, Infrastructure, Transport and Tourism are shown below:

Exterior specification: NM-2239

Interior specification: NM-2344

3. Quality Assurance

3.1 Quality (check points in the wrapping plant)

Inspection items		Quality standard
(1) Spread of adhesive (dry)		25.0 g/m ²
(2) Normal state adhesive strength		20N/25mm or higher
(3) Appearance	Wrinkle	There shall be none.
	Float	
	Peeling	
	Scratch	It shall not look conspicuous when seen from a distance of 1m.
	Stripe	
	Pollution	
	Unevenness	
	Dent	
Mixture of foreign matters		

3.2 Lot Inspection Standard

A Lot is a unit of products produced using the same roller set and under the same production conditions.

1. Line inspection

- Check of the initial adhesive strength: Check the adhesive strength upon the start of wrapping. (Check the texture with the start item.)
- Measurement of the adhesive spread: Use a square sheet of 100 mm per side, measure the spread in the dry condition and convert the measured value to the unit of square meter.
- Appearance inspection: Conduct all number inspections of the Product based on the shipment inspection record.

2. Shipment inspection

- Normal state adhesion test: Test the normal state adhesive strength of the specimen that has been wrapped for protection for 72 hours. (Use a tensile tester or similar and measure the adhesive strength of test specimens. n = 3)
- Appearance inspection: Conduct all number inspection of the Product based on the shipment inspection record.

3.3 Handling of Adhesion Test Specimen (one 500 mm long specimen) and Shipment Inspection Record

- . Measure the normal state adhesive strength of the test specimen after the sheet is attached on the specimen and left for 72 hours.
- . Measure the adhesive strength with a tensile tester or similar for every lot (n = 3) and record the minimum value in the shipment inspection record.
- . Maintain the original copy of the shipment inspection record at the wrapping plant for three years.
- . Fax the shipment inspection record to the Product Technology Group of Toppan Cosmo and keep the record there for three years.

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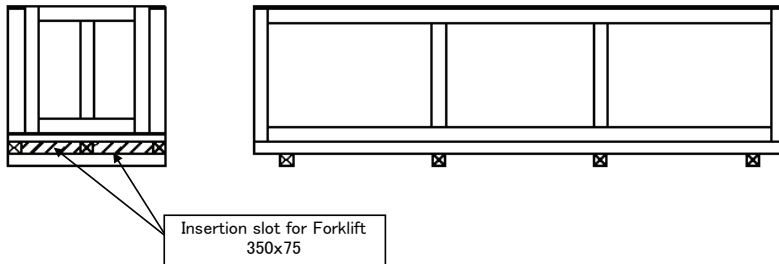
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4. Delivery Specification

4.1 Form of Packing

An example of form of packing of the Product is shown in the following diagram.

- The form of packing shall be a timber cradle covering all four sides of each Product.
- Protect the product surface against any damage.
- Fix the Product with a stretch tape or similar to make it immobile during transport.
- Protect the entire surface of the Product with a polyethylene sheet or similar to prevent it from getting wet from rain, etc.



4.1 Lot Number Indication

- Attach the product label that shows the data as shown in the following table on each of the right and left side end face of the package.



B+N Industries, Inc	
B+N Part #	582938-A
B+N P/O #	282533-1
Quantity <PCS>	234
Country of Origin	Japan
Attn : Mr. Bret Ridge	
Destination	San Francisco, CA
Fortina THS -2010	

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5. Post-delivery Product Assurance

- The guarantee period of the Product shall be two years from the date of delivery.
- After the expiration of the guarantee period, any quality problem that occurs with the Product shall be settled based on consultation of the two parties hereto whenever such problem occurs.

6. Precautions of Product Storage and Handling

- Store the Product in a cold dark place without exposure to direct sunlight or water.
- Take sufficient care of the Product so as not to cause damage, dents, or wetting during transport.
- Pay sufficient attention to change of properties or contamination of the Product.

7. Others

7.1 Troubleshooting

- Whenever any defect occurs to the Product after delivery, the Product shall immediately be examined with the two parties hereto present, and the defect shall be swiftly settled based on the consultation of the two parties.
- When the decorative sheet is peeled off for reuse of aluminum, peel the sheets for reuse immediately after wrapping. In doing so, the surfaces will be checked for any damages or anomaly.

7.2 Change of 4M

Whenever any 4M change is made, such as change to production equipment, materials, production methods, or man, advance approval will be obtained and conduct the change.

7.2 Valid Term of Specification

- The validity term of the Specification shall be as long as the period of time for which the Product is kept available.”
- This Specification shall be approved by both parties, each keeping one copy.

7.3 Revision Method

- In case any doubt or inadequacy arises about the contents of the Specification or the Specification needs to be revised, it shall be settled through mutual consultation at the request of either party whenever such a matter occurs. “

7.4 Date of Issue of Specification

- This Specification shall be issued on yy, mm, dd.

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Guarantee period: Two years from the date of delivery of the Product from the manufacture

Disclaimer: When the Product falls under the following cases, it shall be handled for a fee even during the above guarantee period.

1. Defects attributable to fabrication, processing, assembling, operation, management or maintenance conducted by a third party employed without regular arrangement.
2. Defects such as deterioration of the Product caused by members or auxiliary materials not involved in use of the Product
3. Defects caused by the use of the Product installed in an environment other than the specified and reasonably recognized service environment and operated beyond the prescribed level of performance.
4. Defects of the Product attributable to deformation of the building structure.
5. Aging change of the Product or any of its components such as wear and tear, aging deterioration, such as denaturation or discoloration, or rusting, molding or other defects associated with these.
6. Defects attributable to rust stains.
7. Damage due to location of a special environment such as a hot spring, incineration plant, or swimming pool facility or industrial area where special gas, heat, acid, alkali or salt is used or generated. Area where salt damage occurs or area where water splash constantly occurs because of proximity to a lake or river area where flue dust or chemicals such as metallic powder, stone powder, or agricultural chemicals are attached or accumulated, and damage by environmental pollution.
8. Damage by natural disasters such as typhoon, flood, earthquake, lightning, or icicle.
9. Defects attributable to phenomena technically unforeseeable in commercialization of the Product.
10. Defects attributable to animals such as dogs, cats, birds or mice.
11. Defects attributable to relocation, repair or remodeling of the Product conducted by the Purchase.
12. Defects of locations where no touch-up paint has been applied at the time of repair.
13. Damage caused by cleaning with inappropriate tools such as scrubbers or brushes or with chemicals.
14. Damage aggravated as a result of initial damage or defects left unattended for a long time
15. Defects caused by the failure of appropriate maintenance after delivery.
16. Defects caused by use of the Product for purposes other than the originally intended use or defects caused by a method of use different from the intended use.
17. Defects caused by no use of authentic accessories or members or by use of members other than our own .
18. Defects including damage attributable to illegal conduct such as crime.

* Repair or replacement, etc. after the expiration of the guarantee period shall be conducted for a fee.

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Decorative Sheet Performance Data (Exterior Specification)

Evaluation Items		Test items	Test method	
1	Dimensional stability	Heat resistance test	Put a cross-cut measuring 100 mm x 100 mm at the center of a specimen, leave it at a temperature of 65°C for two days, and check the clearance at the cross-cut part.	
2	Weather resistance	Accelerated weathering test	Apply a light beam to the specimen with a sunshine carbon arc weather meter for 8,000 hours and check the appearance.	
3	Heat resistance	Long-term heat resistance test	Leave the specimen in each oven for 1,000 hours and check the appearance.	60°C
				80°C
4	Heat cycle resistance	Heat-cold repeating test	Conduct 100 cycles, with each cycle consisting of 80°C for two hours switched to -20°C for two hours, and observe the appearance.	
5	Dry/wet cycle resistance	Dry/wet cycle test	Conduct 20 cycles, with each cycle consisting of 40°C and 30% RH for 8 hours switched to 40°C and 90%RH for 16 hours, and observe the appearance.	
6	Humidity resistance	Long-term humidity resistance test	Leave the specimen in a high humidity tank at a constant temperature of 40°C and 90%RH and observe the appearance.	
7	Scratch resistance	Pencil scratch resistance (based on JIS H8602)	Apply the core of the pencil to the specimen while applying a load of 1 kg to the angle of about 45° and scratch the surface toward the front at a constant speed.	
8	Abrasion resistance	Abrasion resistance test	Rotate the specimen 7,000 times with a taper abrasion tester (abrasion wheel: CS-17; and load: 1 kg) and observe the appearance.	
		Falling sand abrasion resistance test (based on JIS H8602)	Let a grinding material fall through a guiding tube of 20 mm in inner diameter to the specimen at an angle of 45° at a falling rate of 320 g/min. and measure the time when the base material begins to be exposed and the abrasion depth.	
9	Low temperature impact resistance	Dupont impact test	Let a 1 kg weight fall from a height of 30 cm to the specimen at 5°C and observe the appearance.	
10	Pollution resistance	Pollution resistance test (1)	Immerse dry cotton in a solvent, rub the surface of the specimen with the cotton for 20 strokes and observe the appearance.	Petroleum benzine Methyl ethyl ketone Ethyl acetate Ethanol
		Pollution resistance test (2)	Apply each pollutant, wipe it off with water or ethanol after a lapse of 24 hours and observe the appearance.	Blue ink Black shoe cream Black marker Red crayon
		Oil and solvent resistance test	Apply each oil and solvent, wipe it off with water after a lapse of 24 hours and observe the appearance.	Heating oil CRC556 Ethanol Petroleum benzine
11	Acid resistance	Acid resistance test	Immerse the specimen in a 1% sulfuric acid aqueous solution for one hour and observe the appearance.	
12	Alkali resistance	Alkali resistance test (based on JIS H8602)	Put a drop of 5 g/l sodium hydrate aqueous solution to the surface, leave it for 24 hours, wash the solution off with water, and observe the appearance.	
13	Corrosion resistance	CASS corrosion resistance test (based on JIS H8602)	Put the specimen in a test tank, spray a sodium chloride solution of a 50 g/l concentration to the specimen for 48 hours, and observe the appearance.	
14	Adhesiveness	Cross-cut peel test (based on JIS H8602)	Scratch the surface at an interval of 2 mm in both the longitudinal and transverse directions to the depth that reaches the base material, make 100 grids with those scratches, apply cellophane tape over the grids, and peel it off.	
15	Adhesive strength	Normal state adhesiveness test	Pull the sheet in a 180 degree direction at a rate of 200 mm/min. relative to the base material under a normal room temperature and measure the adhesive strength.	
		Heat creep resistance test	Apply a load at a rate of 500 g/25 mm to the sheet at a 90 degree direction relative to the base material at 60°C and measure the peeling distance 30 min. later.	
		Cold creep resistance test	Apply a load at a rate of 500 g/25 mm to the sheet at a 90 degree direction relative to the base material at -20°C and measure the peeling distance 30 min. later.	

* These data are based on our own test results. We do not guarantee those results.

Decorative Sheet Adhesion Performance Data (Interior Specification)

Evaluation Items	Test items	Test method
1 Weather resistance	Accelerated weathering test	Apply light beam for a certain duration of time with a sunshine carbon arc weather meter.
2 Heat resistance	Heat resistance test (company standard)	Leave the specimen in an oven at a temperature of 60 ± 5°C for 48 hours.
3 Water resistance	Water resistance test (company standard)	Immerse the specimen in room temperature water for 24 hours and then dry it.
4 Humidity resistance	Humidity resistance test (company standard)	Leave the specimen in a tank at a constant temperature and humidity of 40 ± 2°C and 90 ± % RH for 48 hours.
5 Heat cycle resistance	Heat-cold repeating test (based on JAS heat-cold repeating C test)	Put a specimen measuring 150 x 150 mm in an oven at a temperature of 60 ± 3°C, leave it there for two hours, and leave it in a low-temperature tank at -20 ± 3°C for two hours. Repeat this for two cycles.
6 Chemical resistance	Chemical resistance (company standard)	Apply (a) 2% sodium hydrate, (b) 5% acetate solution, and (c) petroleum benzine to the specimen, leave it for six hours and wipe them off.
	Chlorine resistance test (company standard)	Apply chlorine of 1.0 mg/L, which is the sanitation criterion for a swimming pool, and chlorine of 10.0 mg/L, 10 times higher concentration of the above, to the specimen, leave it for 24 hours, 48 hours, and 72 hours, and wipe it off. However, change chlorine water every six hours considering the decomposition rate of chlorine. * Sanitation criterion of a swimming pool: The residual free chlorine concentration of water in a swimming pool shall be 0.4 mg/L or more. The desired concentration is 1.0 mg/L (according to the notification of the Director-General, Environmental Health Bureau, Ministry of Health and Welfare).
7 Pollution resistance	Pollution resistance test (1)	Apply each detergent (weak alkali, neutral, and weak acid), insecticide, and heating oil to each specimen, leave them for six hours, and wipe them off.
	Pollution resistance test (2)	Draw a 10 mm wide line with a permanent marker and a crayon, leave it for two hours, and wipe it off with a solvent or a detergent.
8 Abrasion resistance	Abrasion resistance test (pattern loss) (based on JAS abrasion C test)	Conduct a test on a 120 x 120 mm specimen with a taber abrasion tester and calculate the rotational value when the loss of pattern reaches 50%.
9 Scratch resistance	Scratch resistance test (company standard)	Pencil hardness test based on JIS K 5400 (load of 500 g)

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