TOLI

VINYL FLOORINGS
FOR
RESIDENTIAL & FACILITIE´S BATHROOMS

BATHNA series

BATHNA REAL DESIGN
BATHNA FLORE
BATHNA ARTI

Why not make your bathroom safer and more com

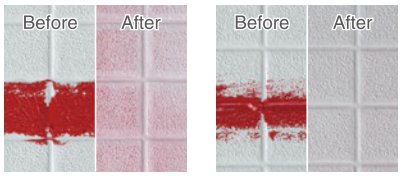
BATHNA series is a vinyl floor sheet for bathrooms of private use and facilities' use.
It is used in bathrooms of various sizes, and for various purposes like renovations and new fittings in medical, welfare, lodging, and sports facilities.
This latest version, improved in designs and functions, shall satisfy more people than before.

GOOD DESIGN

\ For keeping the cleanliness /

Special emboss & BATHNA Hydro-coat

Easy to clean



Without BATHNA Hydro-coat　　With BATHNA Hydro-coat

With the special emboss and BATHNA Hydro-coat, dirt will be easily removed off the flooring. And the floor can be kept clean for long.

Dry quickly

Drops of water　will spread out thinly　Dry quickly

The special emboss and BATHNA Hydro-coat allow water drops on the surface to spread out thinly, accelerating the drying of the floor.

Hard to be scratched

The floor surface is strong enough to resist chair drags and the drops of showerhead and to assure its long life.

Renewal without breakdown

The best option for bathroom reno

CASE1 Cold porcelain tile floor

The porcelain tile floor is so hard and cold in winter that it increases a risk of slipping and a risk of cold shock. The BATHNA series offers excellent thermal feeling underfoot, shock absorption, and slip resistance, so that you can enjoy safety and security without the danger by porcelain.

CASE2 Scratched and dirty floor of modular bathrooms

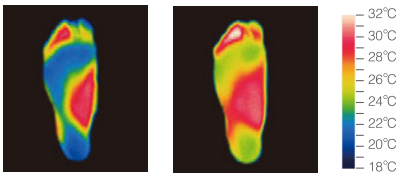
The floor surface of the modular bathrooms could not be easily renovated even if scratches or dirt becomes outstanding.
The BATHNA series does not require breaking down of old bathrooms, but you can change your bathroom beautiful by simple renovation.
After renovation, it will be reborn into a comfortable bathroom with superior slip resistance and water drainage.

fortable ?

\Safe and comfortable/

Heat insulating cushion-backed layer

Thermal insulation property



Ordinary porcelain tile　　BATHNA FLORE

*All the data are actual test result and not guaranteed value.

With its excellent heat insulation performance, you don't feel cold when you stand barefoot on it. This will decrease the risk of cold shock in winter.

Soft & non-slippery

Surface embossing and proper dent by cushion-backing will grip your foot sole and prevent from falling down. It also has great shock-absorbing capability in case you fall down.

Comfortable texture

With its cushion-backed soft texture to your skin, you will have less pain even when getting down on your knees for caregiving.

vation

Three types of flooring materials are available for different bathroom applications.

BATHNA REAL DESIGN Stone pattern Tile pattern

This model is recommended when you want a high-grade feeling in private bathrooms or hot bath facilities.

Cushioning comfort ◎　Heat insulation ◎

BATHNA FLORE Plain color

Recommended for residential bathrooms, this model offers gentle touch to caregivers' knees.

Cushioning comfort ◎　Heat insulation ◎

BATHNA ARTI Plain color

This model has the surface for smooth caster running in welfare facilities etc.

Cushioning comfort ○　Heat insulation ○

Smooth caster running ◎

NEW LINEUP

BATHNA REAL DESIGN

BATHNA REAL DESIGN, realized by the pursuit of combining printing and embossing technology.
The stone pattern and tile pattern were sublimated to authentic designs by the technology unique to our vinyl floorings. You can choose your favorite item from a full lineup of 10 items in 4 patterns.

RandomStone

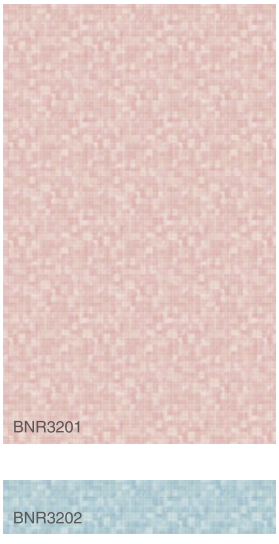
detail

pattern & color

Attractive stone randomly combined like pavement. This design delivers classy feeling not only in the private bathroom but also in large bathrooms in facilities.

ColorTile

detail

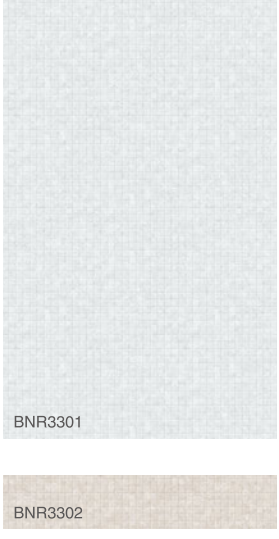


pattern & color

Glossy mosaic pattern with image of glass mosaic. Natural colors matches well with plain-colored and wood-grain walls.

MosaicTile

detail



pattern & color

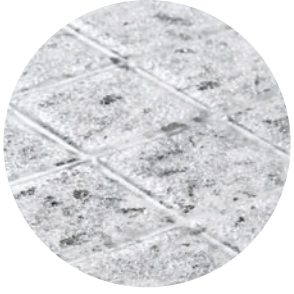
A mosaic tile pattern with plain yet delicate expressions. Bathrooms look clean with gentle and light colored floors.

BATHNA FLORE

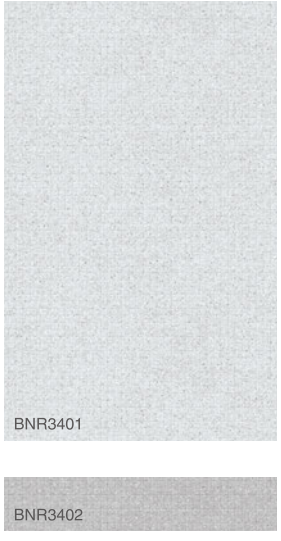
BATHNA ARTI

Simple and plain colors to fit anywhere. The easy-to-coordinate color lineup. For residential and accommodation applications, BATHNA FLORE is available in 4 colors, and BATHNA ARTI is available in 3 colors for medical and welfare applications.

Terrazzo



detail

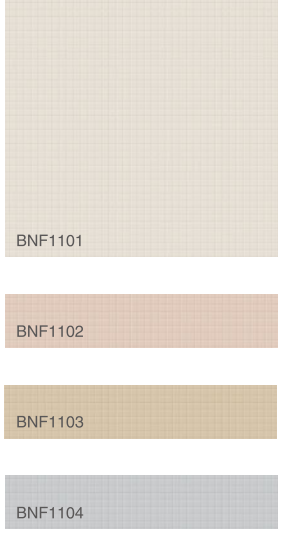


pattern & color

The shiny, beautiful terrazzo pattern in a tile form with uniquely-embossed surface. Novelty design for bathroom floors by unique vinyl technology.

PlaneTile

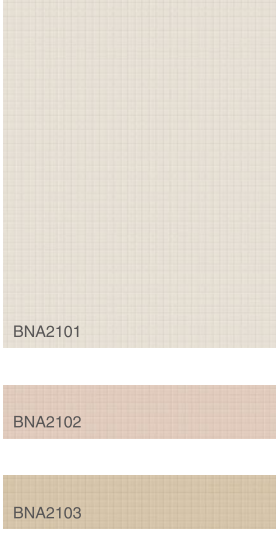
detail



pattern & color

A plain and traditional pattern that matches any bathroom. 4 colors are available for wide use in residential bathrooms.

detail



pattern & color

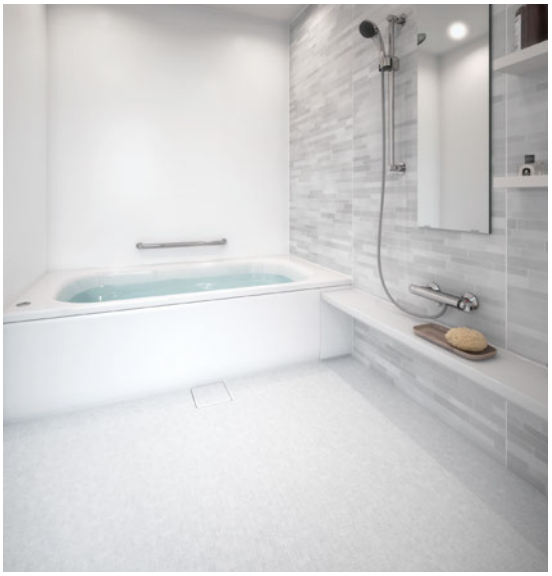
A plain and traditional pattern that matches any bathroom. Handicapped bathrooms will have happy atmosphere with these light colors.

COORDINATES

A combination of bathroom floors and walls will create a variety of spaces of different atmosphere.

LIGHT

A clean and jolly bathroom image in white or blue color

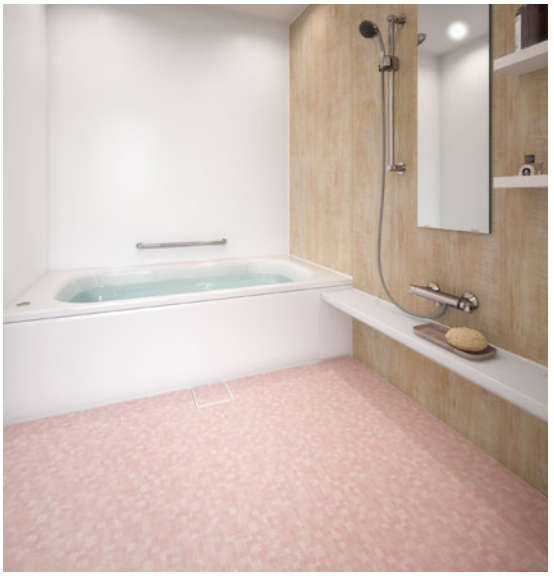


MosaicTile　WHITE　BNR3301

ColorTile　BLUE　BNR3202

NATURAL

Bathroom in warm colors of nature

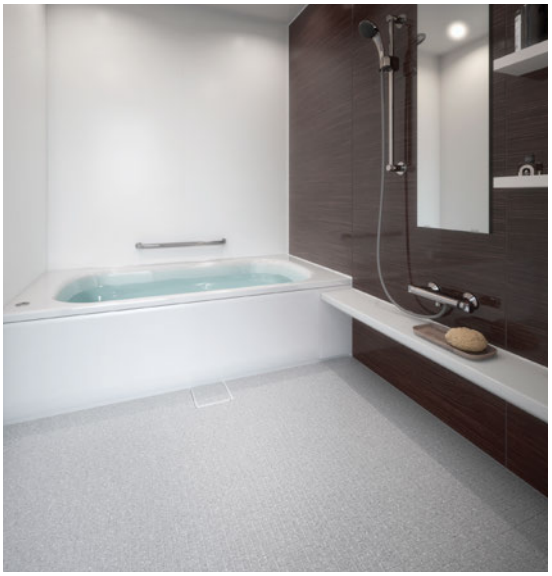


ColorTile　PINK　BNR3201

RandomStone　BEIGE　BNR3103

MODERN

Modern bathroom in quiet colors

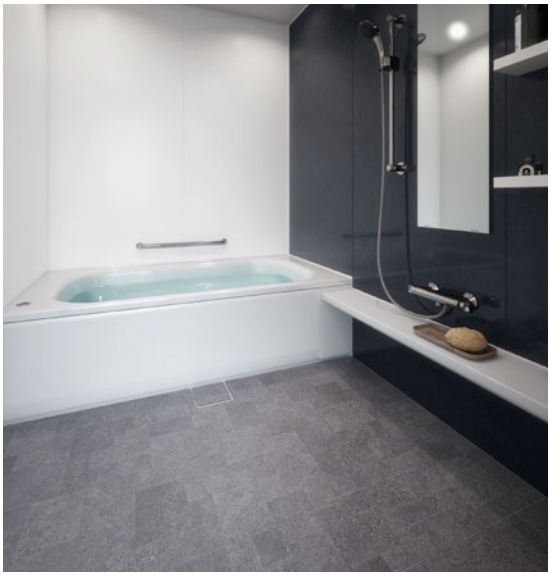


Terrazzo GRAY BNR3402

PlaneTile IVORY BNF1101

URBAN

Urban bathroom of simple coordination



RandomStone BLACK BNR3101

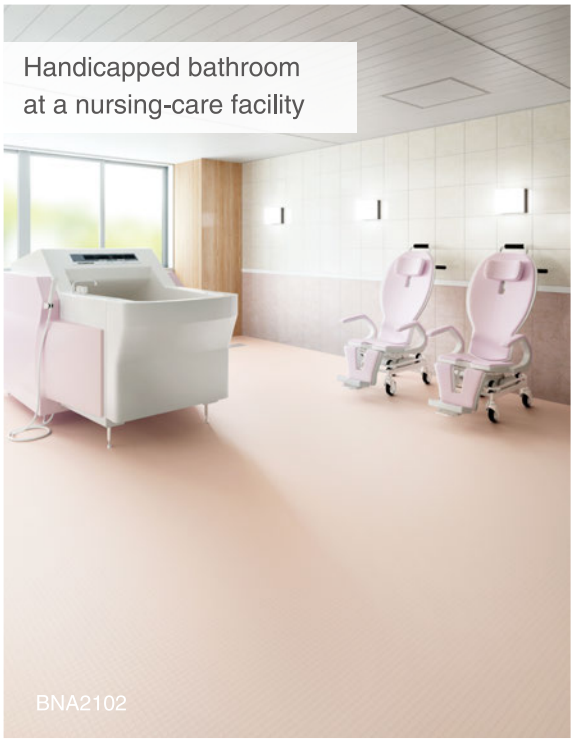
Terrazzo LIGHT GRAY BNR3401

SELECTION BY FACILITIES

Recommended for bathrooms in houses and facilities as well.
We have a variety of colors and patterns that can be used in varied spaces, like hotels, various recreational facilities and welfare facilities.

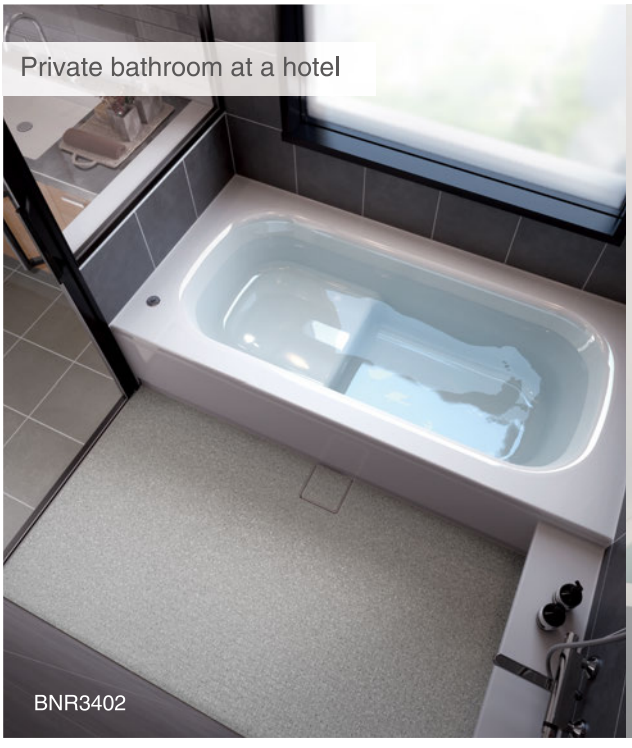
Large bath at a hot bath facility

BNF1101



Handicapped bathroom
at a nursing-care facility

BNA2102



Private bathroom at a hotel

BNR3402

BNR3103

Large bath at a sports facility

BNR3101

Shower room at a yoga studio

BNR3201

NOTES ON ADOPTION

Notes on adoption

The appropriate applications of the BATHNA series are shown in the table below. Usability : ○-yes, △-conditional, ×-no

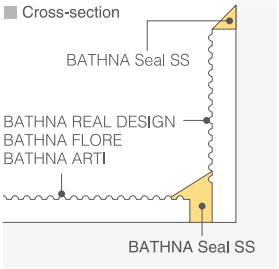
	Usability	Precautions
Residential bathrooms (barefoot use)	○	Usable
Private bathroom at a hotel (use with footwear on)	○	Usable
Bathrooms of various facilities (with large baths)	○	Usable. Before successive use, please take 3 hours' drying time a day. (*1)
Changing room (with floor heating)	○	Usable
Swimming pool	△	For indoor poolside only
Natural hot springs	△	Ingredients of hot spring may discolor the floor sheet or deteriorate its slip-resistance.
Inside bathtub	×	Unusable
Sauna floor	×	Unusable
Pedestrian area (outside bathroom)	×	It cannot be used where soil may be brought in.

*1) Please note that the floor surface may whiten if it's always flooded with hot water.
There is no quality damage by whitening, and it will recover the original color & pattern when it's sufficiently dried.

Q & A on installation (for detailed information, see Installation manual on page 15.)

Q1 **Is it possible to cove up on the wall ?**

Possible. However, please note that ordinary bathrooms have sloped floor, and if the slope is steep, sheet edges may not be coved up neatly. In case the wall base is installed with BATHNA sheet, leave 5 mm gap between the walled strip and the floor sheet, then fill with caulking of BATHNA Seal SS. (see the right figure)



When installing on walls

Q2 **Is it possible to install UNDERELAY SHEET ?**

It can not be used in bathrooms, but can be used in changing rooms, etc.

Q3 **Is it possible to use caulking materials other than BATHNA Seal SS ?**

There is a risk of breakage or discoloration of other caulking material than BATHNA Seal SS.

MAINTENANCE MANUAL

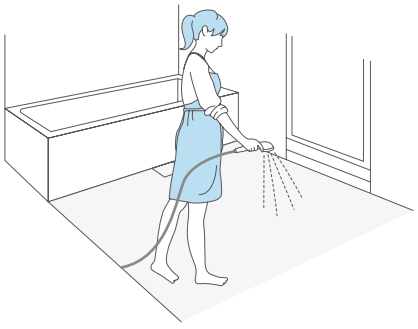
BATHNA series is resistant to dirt, and it's easily removed if adhered.
However, depending on the surroundings, frequency of maintenance and its procedure, stubborn stains may be hard to remove.
In order to keep the floor clean for long, we recommend the appropriate daily and periodic cleaning.

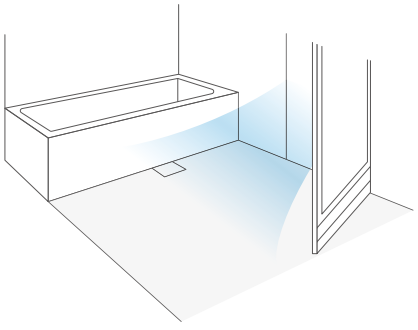
Daily care

1 **Flush out foamed dirt, scale, soap rubbish, etc. with hot water.**
* If there is any stubborn dirt, lightly rub it off with a sponge, etc. (Note 1).

2 **Rinse the entire bathroom with water to lower the temperature in the bathroom.**

3 **Ventilate and dry the bathroom.**





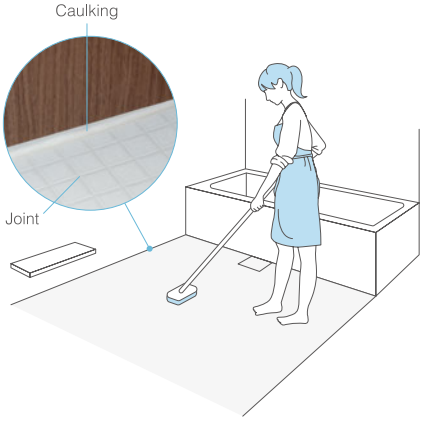
Periodic maintenance (when dirt becomes noticeable)

1 **Flush out foamed dirt, scale, soap rubbish, etc. with hot water.**

2 **With the use of sponge and neutral detergent, rub the dirt off caulking and dent lines on floor sheet.** (Note 1)

3 **Rinse out the detergent with water.**

4 **Ventilate and dry the bathroom.**



(Note 1) Use of wire brushes, melamine sponges, cleansers, or other highly abrasive cleaning tools may damage the floor.

TECHNICAL DATA

1. Slip Resistance ～ Reducing the risk of falling in the bathroom ～

Slip Resistance test (Sensory test / C.S.R · B-value) (Refer to page 13 for detailed test method)

Product Name	Results of sensory tests		C.S.R · B-value	
	Bathroom detergent	Water	0.3% soapy water	Water
BATHNA ARTI	B	B	0.84	1.11
BATHNA FLORE	B	A	0.96	1.22
BATHNA REAL DESIGN (BNR3101 to 3104)	B	B	0.71	0.93
BATHNA REAL DESIGN (BNR3201 to 3402)	B	A	0.86	1.17

Safety is indicated by 0.7 or higher figure.

Criteria for Evaluation

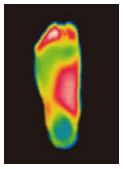
A (more than 4.0)	: Very reassuring
B (3.0 to 3.9)	: Reliable
C (2.0 to 2.9)	: Slightly anxious
D (less than 1.9)	: Very anxious

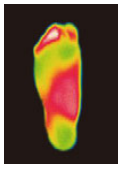
Evaluation Criteria

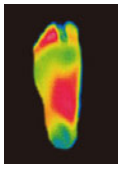
TOLI uses a C.S.R·B-value of 0.7 or higher and a sensory test result of B or higher as an index of the safety of bathroom flooring.

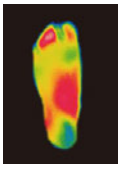
2. Thermal insulation property ～ reducing cold shock in winter ～

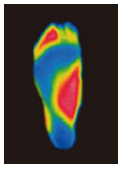
Comparison of barefoot temperature on each flooring including porcelain tile (thermography)

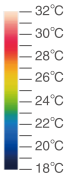

BATHNA ARTI


BATHNA FLORE


BATHNA REAL DESIGN (BNR3101 to 3104)


BATHNA REAL DESIGN (BNR3201 to 3402)


Ordinary porcelain tile



Test method of thermal feeling of barefoot contact

Step on the floor material for 10 seconds, at 5℃ and 50% humidity. Immediately measure the temperature of foot sole on thermography.

Evaluation Criteria

The larger the blue area is, the colder the foot feels. The larger the red and yellow areas are, the less cold foot feels.

3. Water drainage ～ let it dry quickly after use, with special emboss and BATHNA Hydro-coat ～

Water drainage test

Product Name	Ranking
BATHNA ARTI	B
BATHNA FLORE	B
BATHNA REAL DESIGN (BNR3101 to 3104)	A
BATHNA REAL DESIGN (BNR3201 to 3402)	B

Test method

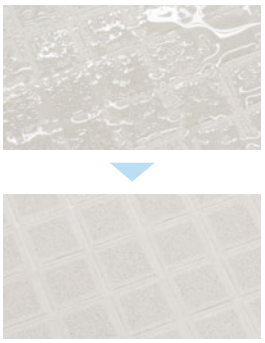
Floor materials are installed on a glass plate with a 2/100 slope in an environment of 25°C and 50% R.H. Spray 400g/m² of water on top of the floor material and time the drying-out speed of 90% water or more.

Evaluation Criteria

A	: Less than 2 hours
B	: 2 hours or more to less than 4 hours
C	: 4 hours or more to less than 6 hours
D	: 6 hours or more

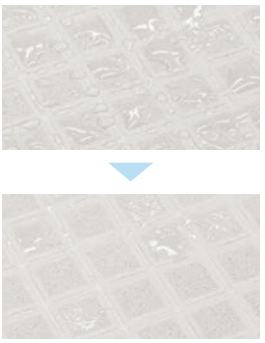
Testing image of BATHNA Hydro-coat

Flooring with quick water drainage



With Hydro-coat

Flooring with slow water drainage



Without Hydro-coat

4. Cushioning comfort ～ softening the impact of falling down and the pain of caregivers' knees ～

Shock Absorption test (G-value) of bathroom flooring (see page 13 for detailed test methods)

Product Name	Ranking	G-value 100	110	120	130	140	150
BATHNA ARTI	B	129					
BATHNA FLORE	A	110					
BATHNA REAL DESIGN (BNR3101 to 3104)	A	104					
BATHNA REAL DESIGN (BNR3201 to 3402)	A	103					
		m / s² 980	1078	1176	1274	1372	1470

Evaluation Criteria (The S, A, B-ranked have shock absorption property.)

Rank	Test result	Guide for application
S	≤ 100G	Place where safety is essential in case of falling for prevention of injury
A	100G <, ≤ 115G	Location with a comparatively high risk of falling
B	115G <, ≤ 130G	Place where safety is desired in case of falling while walking on
C	General Flooring	Ordinary pedestrian area

* All the data without source are based on in-house test. Data are based on actual test, and not always guaranteed.

5. Easy to clean ～ easy to remove bath dirt with special embossed surface and BATHNA Hydro-coat ～

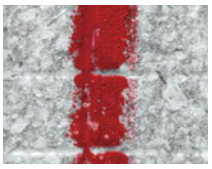
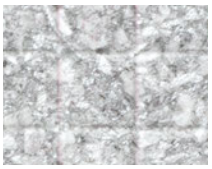
Cleaning test

Test method

After application of simulated oily soil to the floor surface, wash the stain out with a neutral detergent and deck brush or sponge. After running water on the floor, the residual stain is visually observed and evaluated.

Evaluation Criteria

Rank	Test result
A	Most of the dirt could be removed
B	Dirt remained partially
C	Much of the dirt remained

	Non-BATHNA Hydro-coated	BATHNA ARTI	BATHNA FLORE	BATHNA REAL DESIGN (BNR3101 to 3104)	BATHNA REAL DESIGN (BNR3201 to 3402)
Application of simulated dirt					
After washing with deck brush					
Ranking	C	B	B	A	B
After washing with sponge					
Ranking	C	A	A	A	A

6. Durability ～ Excellent durability will assure long life ～

Test of durability to rolling loads (Caster Resistance test)

(See page 14 for detailed test methods.)

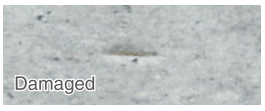
Product Name	Rank
BATHNA ARTI	A
BATHNA FLORE	A
BATHNA REAL DESIGN (BNR3101 to 3104)	A
BATHNA REAL DESIGN (BNR3201 to 3402)	A

Evaluation Criteria (The S and A-ranked have durability to rolling loads.)

S	Primary test to endure castor moving (wheel of 110 mm dia.) for 180 minutes or more, secondary test to endure the wheel of 46mm dia. for 30 minutes or more / with no foamed layer / with backing layer (excluding vinyl floor tiles)
A	Primary test to endure wheel of 110mm dia. for 180 min or more, though secondary test (wheel of 46mm dia.) shows less than 30 min.
B	Primary test to endure wheel of 110 mm dia. for 60 - 180 min
C	Ordinary pedestrian area

Scratch Resistance test (scratch test)

Product Name	
BATHNA ARTI	
BATHNA FLORE	

Product Name	
BATHNA REAL DESIGN (BNR3101 to 3104)	
BATHNA REAL DESIGN (BNR3201 to 3402)	
CF sheet - H	

Test method

Drop an object with sharp edge (weighing 180g) vertically down from 40cm height to the flooring specimen affixed to the cement board, then observe the damage of the specimen.

* All the data without source are based on in-house test. Data are based on actual test, and not always guaranteed.

7. Smooth caster move ～ usability of wheelchairs ～

Caster Running test (See page 14 for detailed test method)

Product Name	Rank
BATHNA ARTI	B
BATHNA FLORE	C
BATHNA REAL DESIGN (BNR3101 to 3104)	C
BATHNA REAL DESIGN (BNR3201 to 3402)	C

Evaluation Criteria

Rank	Test result	Application guide
A	Average run of 4.0 m or longer	Can be moved by light force
B	Average run of 2.0 m or longer	Can be moved by some force
C	Average run of 1.2 m or longer	Can be moved by medium force
D	Average run of less than 1.2 m	Can be moved by strong force

8. Chemical Resistance · Antibacterial Property · Antimildew Property

～ Hardly get discolored with disinfectant or bathroom detergent ～

Chemical Resistance, Antibacterial and Antimildew Property tests (see page 14 for detailed test methods)

Product Name	Chemical Resistance					Antibacterial Property				Antimildew Property
	Neutral detergent	Acid detergent	Mildew remover	Spa powder	Sodium hypochlorite 8 to 10%	Trichophyton fungus	Bacillus Coli	Staphylococcus Aureus	MRSA	
BATHNA ARTI	A	A	A	A	B	○	○	○	○	0
BATHNA FLORE	A	A	A	A	B	○	○	○	○	0
BATHNA REAL DESIGN (BNR3101 to 3104)	A	A	A	A	B	○	○	○	○	0
BATHNA REAL DESIGN (BNR3201 to 3402)	A	A	A	A	B	○	○	○	○	0

Chemical resistance evaluation criteria

For the judgement of discoloration, material deterioration and gloss change, let the judge to apply the level of A: No change, B: Slight change or C: Change, then select the worst judgement as its overall evaluation.

Antimildew Property evaluation criteria

0 to 1: With Antimildew Property (not recognized with naked eyes)
2 to 5: Without Antmildew Property

Antibacterial property evaluation criteria

○: With antibacterial property (antibacterial activity value: 2.0 or higher)
×: Without antibacterial property (antibacterial activity value: less than 2.0)

* All the data without source are based on in-house test. Data are based on actual test, and not always guaranteed.

TEST METHOD

Slip Resistance test

C.S.R · B-value

Test method

Simulated-barefoot Sliding test

Calculate the sum (C.S.R · B-value) of the maximum friction coefficient and minimum friction coefficient obtained by sliding a rubber piece with a rugged bottom area of 56 cm^2 and 785 N (approx. 80kgf) weight, on the floor material with an elevation angle of 18 degrees, at a tensile strength of 785 N/second.

$$\text{C.S.R · B-value} = \frac{\text{Pmax (N)} + \text{Pmin (N)}}{\text{Vertical load (785N)}}$$

Bare foot sensory test

Test method

Install the flooring on a subfloor with 10/100 slope and pour 0.3 % soapy water on it, then walk on the floor sheet barefoot to evaluate slipperiness. Assuming slip resistant floor sheet "NS-Sheet NS550 GARDENT " as grade 5, and ordinary vinyl floor sheet as grade 1, evaluate each flooring material and give a grade from 1 to 5 by relative comparisons.

A (more than 4.0)	: Very reassuring
B (3.0 to 3.9)	: Reliable
C (2.0 to 2.9)	: Slightly anxious
D (less than 1.9)	: Very anxious

Evaluation Criteria

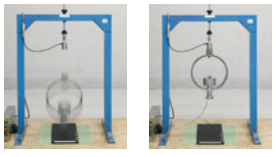
TOLI recognize C.S.R · B-value of 0.7 or higher and a sensory test result of B or better as an index of safe bathroom flooring.

Shock Absorption test

Test method

Shock Absorption test

Drop the head model (3.85kg) with the accelerometer attached, from the specified height (20±1cm) to the floor, and measure the acceleration at the time of the collision.



Testing tool at TOLI R&D

Evaluation Criteria (S, A and B have shock absorbing property)

Rank	Test result	Application guide
S	≤ 100G	Place where safety is essential in case of falling for prevention of injury.
A	100G <, ≤ 115G	Location with comparatively high risk of falling
B	115G <, ≤ 130G	Place where safety is desired in case of falling while walking on
C	General Flooring	Ordinary pedestrian area

Guide to data evaluation

Shock absorbing performance is more affected by subfloor material than by flooring material. For example, if concrete subfloor is compared to wooden framed subfloor, the latter has much better impact absorption, and the difference of subfloors will exceed by far the performance difference of surface flooring materials. Even on the same subfloor, shock absorbing property of flooring materials can be greatly enhanced with the use of underlay like TOLI's UNDERLAY SHEET. The biggest acceleration value indicates shock-absorbent rating. The larger the value is, the worse the shock absorption is.

Durability to rolling loads

Test method

Caster Rolling test (JIS A 1454)

Draw the swibble locus (Fig. 2) with the caster resistance tester (Fig. 1) that moves back and forth and left and right, and measure the time from the start of the test until breakage or swelling occurs.
The test conforms to the JIS A 1454 21 (method A for caster resistance test). Joint seams of sheet specimen would make performance difference, thus, the test was carried out on a sheet without seams.

Load: 2000 N (approx. 204kgf)
(approx. 900N/cm² unit area)
Wheel: 110mm in diameter, 50mm in width, made of steel

Subfloor : 10mm thick fiber-reinforced cement board
Adhesive : EPOGRAY S

Fig. 1

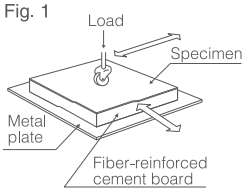
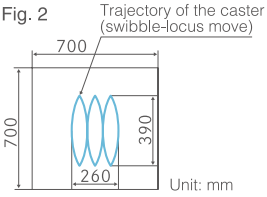


Fig. 2



Evaluation Criteria

(The S and A ranked are with durability to rolling loads)

S	Primary test to endure for 180 min. or more beneath 110mm dia. wheel. Secondary test to endure the wheel of 46mm dia. for 30 minutes or more / with no foamed layer / with backing layer (excluding vinyl floor tiles)
A	Primary test to endure for 180 min. or more beneath 110mm dia. wheel. Secondary test to endure the wheel of 46mm dia. for less than 30 minutes.
B	Primary test to endure for 60 - 180 min. beneath 110mm dia. wheel.
C	Ordinary pedestrian area

Testing tool at TOLI R&D

Guide to data evaluation

Let the caster with the specified load applied move around on the test specimen. It can be said that the longer time it endures rolling loads, the more durability it has against rolling loads.

Grounding load on floor covering

	Total weight	Ground contact area	Ground load
Stretcher for bathing	115kg	4 casters x 1.30cm² / caster	220N/cm²
Shower chair	66.7kg	4 casters x 1.00cm² / caster	160N/cm²
General wheel chair (Steel, 24inch, pneumatic tire)	78.5kg	2 casters x 1.80cm² / caster 2 casters x 6.10cm² / caster	50N/cm²
Electric wheel chair	113.5kg	2 casters x 2.50cm² / caster 2 casters x 4.30cm² / caster	80N/cm²

Caster Running test

Test method

Caster Running test (TOLI, internal test)

Run a handcart on casters with loaded weight, from the slope (incline of approx. 10 degrees) and measure the travel distance until it stops on the flooring material installed horizontally. The measurement shall be taken from the joining edge of the horizontal floor to the center of the rear wheels of the handcart that stops after running. The handcart is loaded with 20 or 80 kg weight, just like the actual use.

Testing tool at TOLI R&D

Guide to data evaluation

The longer the travel is, the better the castor-moving is.

Evaluation Criteria

Rank	Test result	Application guide
A	Average run of more than 4.0 m	Can be moved by light force
B	Average run of more than 2.0 m	Can be moved by some force
C	Average run of more than 1.2 m	Medium force is needed to keep moving
D	Can be moved less than 1.2 m	Can be moved by strong force

The ease of castor-moving can be determined by the force required to start moving and to keep moving. The smaller the force is, the easier the move is. Take vinyl flooring and loop pile carpet with short pile height for a comparing example, both require almost equal force at the start of moving. However, a certain amount of force is required to keep moving on carpet, while on vinyl floor, once it begins to move, only a little force is necessary to keep moving.

Chemical Resistance test

Test method

Chemical Resistance test

Place absorbent cotton on flooring specimen, drip 1 ml of chemicals, cover it with a watch glass, and leave it for 24 hours. After washing with water and drying, the condition of contamination is visually evaluated in three grades.

Evaluation Criteria

For the judgement of discoloration, material deterioration and gloss change, let the judge to apply the level of **A: No change**, **B: Slight change** or **C: Change**, then select the worst judgement as its overall evaluation.

Example of vinyl flooring

A: No change　B: Slight change　C: Change

Antibacterial and Antimildew Property tests

Antibacterial Property

Test method

Antibacterial processed products: antibacterial property test method and effectiveness (JIS Z 2801)

Drop each bacterial solution containing 1/500 normal broth onto the sterilized sample, cover with sterilized film, store it at 35±1℃ for 24 hours at 90 %RH or above, wash out the bacteria, and determine the viable cell count by the agar plate method. Antibacterial activity is calculated according to the following equation after performing the same test on the unprocessed product.

$$\text{Antibacterial activity} = \log \frac{B}{C}$$

B: Viable cell counts on non-processed specimen after 24 hours. (by pcs.)
C: Viable cell counts on anti-bacterial specimen after 24 hours. (by pcs.)

Evaluation Criteria

○…Antibacterial effetiveness: determined by the antibacterial activity against each bacteria being 2.0 or bigger

Guide to data evaluation

The flooring material is considered to have antibacterial performance if the respective antibacterial activity is 2.0 or bigger.

Antimildew Property

Test method

Test for fungus resistance (JIS Z 2911) · method A

Spray the specimen with a mildew-mixed spore suspension and incubate at 29 ℃ and 95% RH or more for 4 weeks, and observe hyphal growth, with naked eyes first then stereomicroscopy if needed.

Evaluation Criteria

(Antimildew Property : determined by 0 or 1 value, which means mold growth is not observed with naked eyes.)

Rank	Visual judgment
0	No mold growth observed with naked eyes or microscopy
1	No mold growth is observed with naked eyes, but is confirmed by microscopy
2	Hyphal growth is observed with naked eyes only in the 25% area or less of the specimen.
3 to 5	Hyphal growth is observed with naked eyes in the 25% area or more of the specimen.

INSTALLATION MANUAL (For bathroom requiring no seaming)

1. Prepare the floor sheet and installation tools

In addition to the floor sheets, installation tools (adhesive or double-sided tape, sealing material, and subfloor repair material) are required for installation of the BATHNA series. Please purchase either package or required tools for your selected type of installation.

Installation tools		Adhesive and Double-sided Tape		Sealing material		Subfloor repair	
		Select either one		Required		Required by conditions (*2)	
		BATHNA Cement EPO	BATHNA Tape	BATHNA Seal SS	Caulking Gun (*1)	Quick Leveler	BATHNA Putty EPO
							
Contents in a set package (*3)	Tool package for BATHNA Tape method	×	○	○	×	×	×
	Tool package for BATHNA FA method	○	×	○	×	○	×

○: included in the package ×: not included in the package

*1 Application of sealing material needs Caulking Gun.

*2 If the subfloor needs repair work before flooring, see the following "2. Subfloor adjustment."

*3 Package for BATHNA Tape method includes a spatula for BATHNA Seal SS.

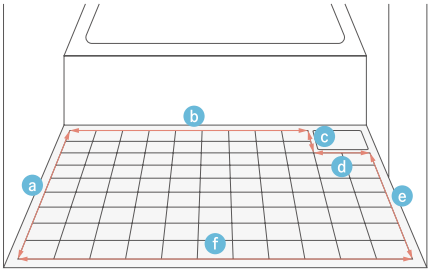
2. Subfloor adjustment (only if necessary)

On the occasion of renovating the bathroom floor, if the unevenness of the tile joints are 1mm or deeper, or if the distance between the uneven points is 10mm or larger, such subfloor need flattening work before floor sheet installation. See page 18 for the details of Subfloor repair work. For smooth water drainage, subfloor should be inclined down to ditch at 1-3/100.

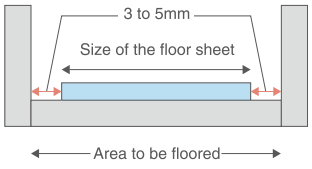
3. Floor-dimensional measurement & sheet cutting

1. Determine the area where the floor sheet is to be installed, and then take the measurements of sides.

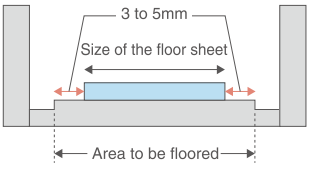
* Since the edges of the floor sheet are finally sealed with BATHNA Seal SS, measure each side of the flooring area being 3 to 5mm smaller than the actual area, as shown in the figure below.



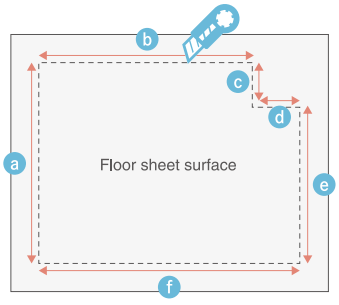
For the floor sheet abutting the walls



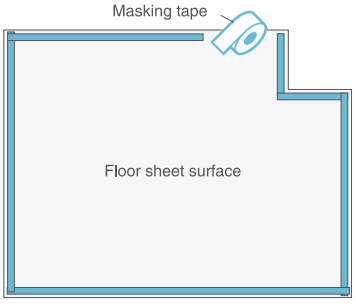
For the floor sheet bordering the drains



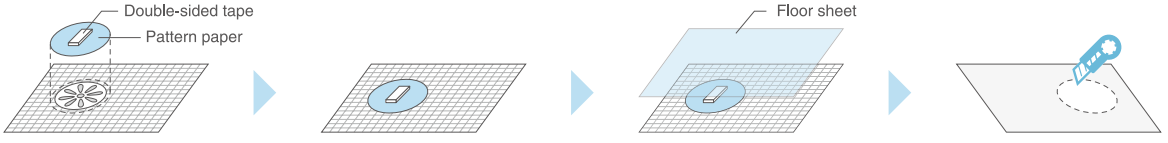
2. Cut the floor sheet according to the planned dimensions.



3. Affix the masking tape around the sheet edges on its surface side.



For the drain grating positioning inside the sheet



Make a pattern paper with a radius of 3 to 5 mm larger than the drain grating, and apply double-sided tape on the surface of the pattern paper.

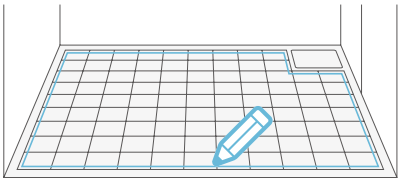
Remove the release paper from the double-sided tape and place the pattern paper on the drain grating.

Temporarily place the floor sheet to the planned position, and attach the pattern paper to the reverse side of the floor sheet.

Turn the floor sheet over and cut it along the pattern paper.

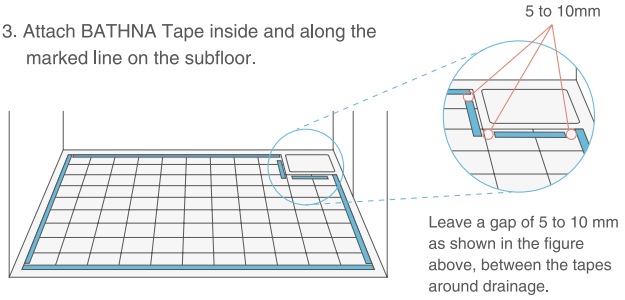
4. Fixing the floor sheet

1. Remove debris and dust from the subfloor.
2. Temporarily position the floor sheet on the subfloor, and trace the sheet edge and line the subfloor with a pencil or the like.



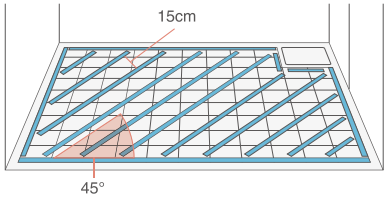
(A) When using BATHNA Tape

3. Attach BATHNA Tape inside and along the marked line on the subfloor.



Leave a gap of 5 to 10 mm as shown in the figure above, between the tapes around drainage.

4. Attach BATHNA Tape inside the affixed tape by above 3 diagonally with 45°angle with 15cm spaces.

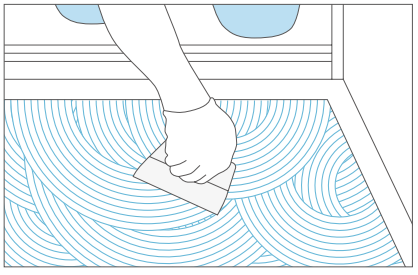


5. Peel off the release paper of the BATHNA Tape on the subfloor, and place and fix the floor sheet firmly to the subfloor.

(B) When using BATHNA Cement EPO (Adhesive)

3. According to instruction, mix thoroughly the equal amount of liquid A and B of BATHNA Cement EPO with an attached spatula or the like. (a spatula is included in Tool Package for BATHNA Tape method).
4. Apply the mixed adhesive to the subfloor with an attached trowel. After an appropriate waiting time, position the floor sheet and press it firmly down.

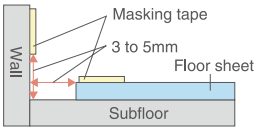
Suggested waiting time	
Summer: 20 to 60 minutes	Winter: 20 to 120 minutes



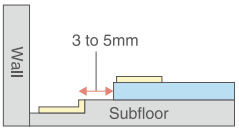
5. Caulking work with BATHNA Seal SS

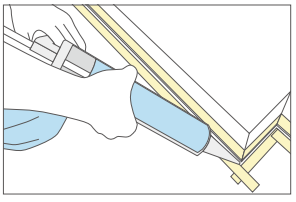
1. Attach the masking tape around the fixed floor sheet with a gap of about 3 to 5mm.
2. Fill the BATHNA Seal SS with a Caulking Gun.
3. Scrape off excess caulking with a spatula, and then remove all the masking tape.

For the floor sheet abutting the walls



For the floor sheet bordering the drains





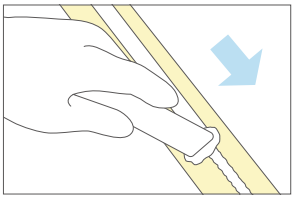
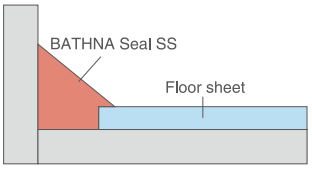
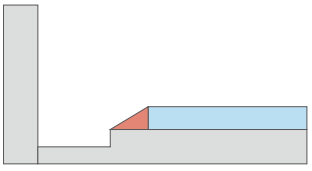


Image of the finish

For the floor sheet abutting the walls



For the floor sheet bordering the drains



INSTALLATION MANUAL

(With seam joints) Hot welding or Caulking with BATHNA Seal SS at joints, Edges need caulking

Installation procedure

1. Preparation of subfloor (including adjustment of subfloor)

Observe the subfloor and make sure it's in an acceptable condition.
It's important that the subfloor has a gentle slope.
For smooth water drainage, subfloor should be inclined down to ditch at 1-3/100.

<Mortar & concrete subfloor>

- Moisture content in subfloor should be below 620 by High Frequency Moisture Meter HI-520-Type 2 (D. MODE).
- Repair the irregularities with scraper and levelling compound (such as Quick Leveler).

<Porcelain-tiled subfloor>

- Fill the tile joints with levelling compound like Quick Leveler to have a flat subfloor. Excess filler dropped on tile surface should be wiped or scraped off, to secure flatness.

<FRP subfloor>

- If there are irregularities at joints, flatten the subfloor with the use of BATHNA Putty EPO, etc.

2. Carry-in and temporary laying of materials

Straighten wavy edges by temporary laying.
*Temperature for temporary laying should be 10℃ or higher for quicker flattening of the wavy edges.

3. Cleaning of the subfloor

Remove debris and dust from the subfloor.

4. Assignment and rough cutting

Plan the joints as little as possible so that they do not interfere water flow, and do not allow small cuts near the edges. And then cut it roughly a little larger. If the roll ends are damaged during transportation or storage, trim away the damaged sheet edges before installation.

5. Cutting the sheet

<Entire flooring>

- To install along the wall, keeping approx. 3 to 5 mm gap to caulk, cut the floor sheet with Bar scribe or Guiding rule.

<Partial flooring>

- When partially laying a sheet on porcelain tiles or FRP subfloors, determine the area to be laid beforehand to have the entire surrounding borders to be sealed up.

6. Application of adhesive

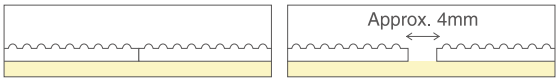
Please prepare prescribed adhesive named BATHNA Cement EPO. This adhesive is an epoxy resin-based adhesive, consisting of two parts. Weigh the equal quantity of liquid A and B and pour into a plastic container or the like, mix it thoroughly until the color becomes uniform, and then apply it on the subfloor immediately.

7. Fixing the sheet

Curly sheet edges should be flattened, if any even after temporary laying, by rolling up with backing side out. In order to avoid slack or air pocket under the sheet, press out the air from the center to outward.

8. Finishing of joints

Seam joints can be finished with either hot welding or cold caulking. For hot welding, have the abutting sheet edges. For caulking have approx. 4mm gaps along seams.



For hot welding　　For cold caulking

9. Bonding down and pushing air out

After fixing of the sheet, press down the entire sheet firmly, including the joints.
* Remaining sheet curls may cause partial air pocket eventually.
If this happens, soften the sheet with hot air by welding tool, hair dryer, etc., and then press it down again.

10. Final check and curing

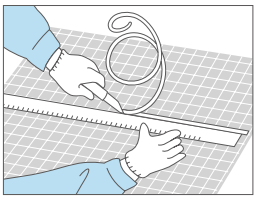
Clean any dirt of adhesives or others, and then cure until adhesive dries up.

Hot welding of seam joints

The prescribed welding rod is used.

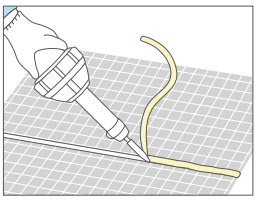
1. Grooving

After adhesive hardens sufficiently, groove along the joint line with a grooving machine or a grooving knife in U or V shape.



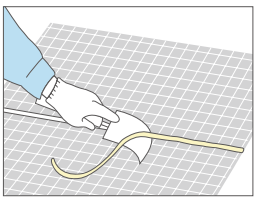
2. Hot welding

Hot weld the sheet joints with BATHNA welding rod.



3. Trimming of rod excess

Trim off the excess part of welding rod with spatula knife.

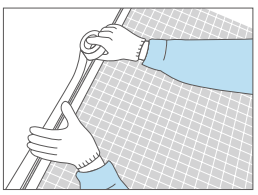


Cold caulking with BATHNA Seal SS

Prescribed BATHNA Seal SS is used for caulking and sealing.

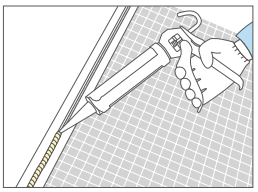
1. Masking

Apply masking tape to the bordering area along caulking area to avoid caulking contamination.
Before caulking, remove dirt, dust, etc. from the surface to be applied, and check that there is no water.



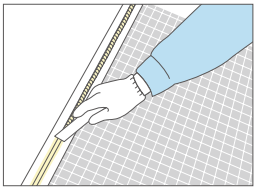
2. Filling

Cut the tip of the cartridge, drill a hole in the moisture-proof film, set it on the Caulking Gun, and then fill it into the seam groove and sheet edges.



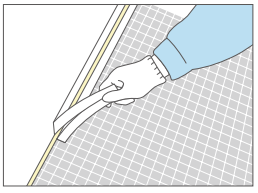
3. Make smooth

After filling, immediately scrape its surface with a finishing spatula.



4. Removal of masking tape and curing

After scraping the caulking surface, immediately remove the masking tape.

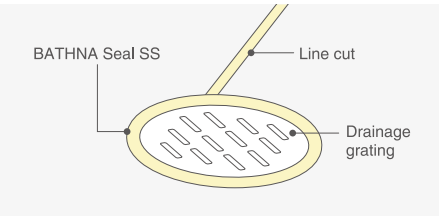


Precautions

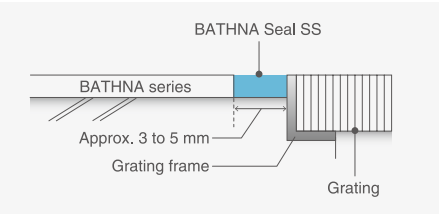
After completing installation, you can take a bath after overnight curing.
Do not brush the caulking for 2 to 3 days even for cleaning. Also, please refrain from traveling of castered cart or wheelchairs in a large bathroom for 2 to 3 days.

Fitting around the drain ditch and grating

If there is a steep inclination around drain grating, sheet needs to be cut and pushed in, and such cut lines should be sealed or hot welded.



Cut flooring 3 to 5mm before grating, and fill the gap with sealing material.



APPENDIX

Subfloor repair

On the occasion of renovating the bathroom floor, if the unevenness of the tile joints are 1mm or deeper, or if the distance between the uneven points is 10mm or larger, the joints and concaves must be filled with repairing compound (sold separately), as shown in the table below.

Adhesive or Tape	Subfloor	Subfloor repair
BATHNA Tape	Porcelain tile	BATHNA Putty EPO
	Modular bath of FRP resin	BATHNA Putty EPO
BATHNA Cement EPO	Porcelain tile	Quick Leveler
	Modular bath of FRP resin	BATHNA Putty EPO

Repair work with BATHNA Putty EPO

(1) Remove debris and dust from subfloor.

(2) Mix equal volume each of liquid A and B of BATHNA Putty EPO, according to the instruction.

(3) Use a trowel or spatula to fill the joints or other concaves with the putty, for achieving flat subfloor.

(4) Make sure that BATHNA Putty EPO is dry, before the start of floor sheet installation. (approx. 3 h. waiting time at 20℃)

Repair work with levelling compound like Quick Leveler

(1) Remove debris and dust from the subfloor.

(2) Mix the Quick Leveler with water according to the instruction.

(3) Use a trowel or spatula to fill the joints or other concaves with the levelling compound, for achieving flat subfloor.

(4) Clean excess compound on porcelain tiles if any, before it dries up.

(5) Make sure that Quick Leveler is dry, before the start of floor sheet installation.(approx. 3 h. waiting time at 20℃)

CAUTION

- For smooth water drainage, subfloor should be inclined down to ditch at 1-3/100.
- If the subfloor inclination is not sufficient, water drainage will not be satisfactory.
- Bathroom can be used from next day of installation.

PRODUCT PHOTOS IN BATHROOMS

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