TCBM

Resysta®
THE BETTER WOOD

# INSTALLATION GUIDE

## HOLLOW PROFILE

Version 2 / May 2013 / North America

Resysta®
THE BETTER WOOD


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# 1. Basics

**A** The dimensional change of Resysta is solely dependent on the thermal expansion. Air humidity and water have no influence on dimensional change. Thermal expansion has to be considered at installation.

| Material Temperature | 30 F | 65 F | 100 F | Abbuting Gap |
|---|---|---|---|---|
| Profil 12' | 3/8" | 1/4" | 1/16" | 1/2" |

**B** Cutting to length should be carried out at consistent material temperature. Therefore, the material should be stored in the shade or in areas where it is not exposed to direct sunlight. The material can warm up considerably in the sun, leading to an increased change in length. In the case of more distinct fluctuations in material temperature, cutting to length may have to be adapted accordingly.

**C** Resysta has a high vapor diffusion resistance. Please consider at installation.

**D** Resysta has a class A fire rating (ASTM-E84).

**E** Cut-off pieces and/or abrasive dust have to be disposed separately. Please comply with regulations of your competent waste management. You may under no circumstances burn Resysta yourself.

## Wood Preservation – Properties in Comparison to Wood

In comparison to wood and owing to the material properties the following does not apply to Resysta:

- discoloring of the surface due to chemical decomposition and wash off of wood components.
- resin discharge
- surface erosion
- crack formation due to expansion and shrinking
- ingress of moisture (water)
- dishing due to varying moisture spreading
- capillary action at frontal area

Resysta is an innovative material consisting of polymers and rice husks and does not possess typical wood characteristics like graying, cracking and splintering. Owing to the special properties of Resysta the basic installation technique merely differs in some aspects from the installation of other products.

## STORAGE

- please store Resysta products horizontally on level surfaces
- the profiles should never be covered with plastic foil or the like – no matter if already mounted or not. Condensation and accumulated water can cause staining.

# 2. Product Range*

RESHR3421812

| | |
|---|---|
| material<br>color<br>w x h x l | Resysta<br>natural<br>3/4" x 2 1/8" x 12' |

RESHR3431212

| | |
|---|---|
| material<br>color<br>w x h x l | Resysta<br>natural<br>3/4" x 3 1/2" x 12' |

RESP3423412

| | |
|---|---|
| material<br>color<br>w x h x l | Resysta<br>natural<br>3/4" x 2 3/4" x 12' |

RESP1231212

| | |
|---|---|
| material<br>color<br>w x h x l | Resysta<br>natural<br>1/2" x 3 1/2" x 12' |

RESP1223412

| | |
|---|---|
| material<br>color<br>w x h x l | Resysta<br>natural<br>1/2" x 2 3/4" x 12' |

RESP340612

| | |
|---|---|
| material<br>color<br>w x h x l | Resysta<br>natural<br>3/4" x 5 1/2" x 12' |

* Additional profiles available, which can e.g. be used as runners or for end pieces.

# 3. General Information

**The installation should be carried out by a skilled specialist.**

**Standard woodworking tools can be used for the material processing.**

**SAWING:** Resysta may be cut longitudinal and transversal with all customary saws.
**MILLING:** Any profiles can be milled easily by means of customary woodworking machines.
**SANDING:** Resysta should be grinded in longitudinal direction only. Depending on the required surface structure, we recommend the use of sand paper with grit between 24 and 60. Fine-grit sand paper should only be employed for the removal of dirt.
**DRILLING:** Drilling can also be done with customary standard wood drills.

## Bonding

Resysta North America provides adhesives and bonding agents for the bonding of surface profiles with floor, wall and ceiling. Resysta may be glued with standard PU-adhesive or a suitable plastic adhesive.

## Varnishing

Resysta can be treated with Resysta glazes. You will find especially developed and carefully matched color shades in Resysta Color Concept. Please only use the colors and sealer especially developed for Resysta.

## Cleaning and Care

Resysta is extremely easy to maintain. Please refer to cleaning and maintenance details specified in the separate information sheet or at www.resysta.com.

# 4. Pre-Treatment

## Application of the color-glaze (FVG)

To obtain a uniform and optimal color result, the glaze should be applied at consistent basic conditions. We therefore recommend to apply the glaze before installation on each profile individually. Application temperature approx. 40°F - 80°F, relative air humidity approx. 50 – 60%.

Please do not apply the glaze under direct exposure to sunlight or at high risk of rain. The glaze should be applied rapidly and with a broad paint-brush.

## Application of the sealer (RFS)

To achieve increased protection against soiling and weathering we generally recommend application of the sealer. The colorless sealer may be applied to Resysta untreated and Resysta glazed material. For further details please refer to data sheet, "glazes and sealers" at www.resysta.com.

## Surface treatment

Reasons for recommended surface treatment of Resysta:

- color design
- protection against soiling
- protection against brightening of color



# 5. Technical References

## 1. Substructure Facade

The substructure has to be designed according to professional carpentry requirements. The weight and the high diffusion resistance of Resysta have to be taken into consideration. Fastening of the facade is generally carried out on a wooden substructure. Please attend to the following guidelines for substructures:

- wooden battening and joists have to be screwed diagonally with 2 screws (A2) at the cross-over point
- fixation with fasteners approved by building authorities and according to manufacturer specifications
- the substructure has to be adjusted in alignment and perpendicular orientation

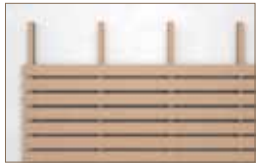
For the substructure, Resysta North America provides special profiles, which may also be employed. For more details please refer to www.resysta.com. We explicitly recommend the use of the Resysta substructures because of their durability and water resistance.

## 2. Rear Ventilation

Due to Resysta's high diffusion resistance, a rear ventilation of the facade is always required. The rear ventilation distance must measure at least 3/4" and may not be reduced.
The air inlet opening and venting opening must be 3/4" wide end-to-end.

# 5. Technical References

## 3. Fixing Distances

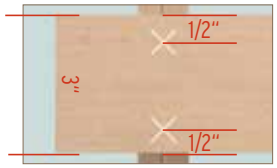


Recommended maximum fixing distances are dependant on the type of profile. These are defined individually for each profile (please refer to data sheet, "profiles").
The determined distances ensure that the maximum bending is 1/300 of the fixing distances. Bending is caused by the weight of the profiles and the different warming of the separate material layers due to sunlight exposure.

| RESYSTA PROFILE | | MAXIMUM CENTER DISTANCE at upright installation |
|---|---|---|
| RESHR3421812 | | 16" |
| RESHR3431212 | | 16" |
| RESP3423412 | | 16" |
| RESP1231212 | | 16" |
| RESP1223412 | | 16" |
| RESP340612 | | 16" |

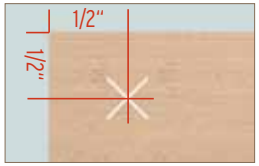
## 4. Screws / Screw Mounting

When screw mounting into the material, the screw depth should be approx. 3 times the diameter of the screw (3 x Ø ). Resysta should be pre-drilled with 0.7 – 0.8 times the screw diameter (0.7 – 0.8 x Ø).




With Resysta profiles, which are more than 3" wide, 2 screws / fastener have to be used breadthways.

The distance between profile end and screw may not exceed 2".



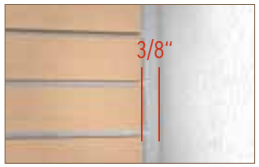

The distance of the screw to profile edge must measure at least 1/2".

The screws may be mounted flush to the surface or countersunk. At the process of countersinking, ripping of the surface fiber or ingress of moisture will not occur. Please use stainless steel screws suitable for outdoor areas.

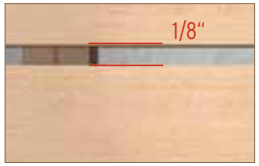
# 5. Technical References

## 5. Distances between Profiles – Expansion Joints

The expansion joint should be 3/8" with frontal profile joints.




When adjacent to another building, an expansion joint of 3/8" is required.




A distance of at least 1/8" has to be kept between the profiles in longitudinal direction.

## 6. Joint Pattern

We recommend the formation of staggered joints (ship's deck pattern). In this case the lining-up of the joints can be accomplished more neatly and the mounting tolerances are less visible.

In the case of end-to-end joints, we recommend covering the joint. This can be achieved with customary aluminium T-rails. Otherwise, varying changes in length could lead to a slightly irregular joint pattern.

# 5. Technical References

## 7. Corner Solutions

Corners can be designed similar to wooden facades.
Thermal expansion always has to be considered when calculating distances.

open miter joint

open straight joint

open corner with standard aluminium end plate

corner end  with Resysta RESANP020212

**NOTICE:**

When selecting the covering and the corner end, please consider that the free expansion of Resysta may not be constrained. Ingress of moisture into the substructure has to be implicitly avoided. The design of the interior corner has to allow for Resysta to freely expand and avoid ingress of moisture.

## 8. Joining

Joining to roof frames, window lintels, window reveals, apron walls etc. has to be carried out in a manner that avoids ingress of water into the substructure and allows for controlled water drainage. In this regard the use of aluminium Z-profiles is recommended.

Different Resysta profiles can also be utilized for connections, e.g. window reveals with FP 200/5.

## 9. Edges

Ingress of moisture at the edges cannot occur. We, however, recommend rounding off the edges with sand paper prior to color treatment. The edges of Resysta profiles are customarily slightly grinded as standard.

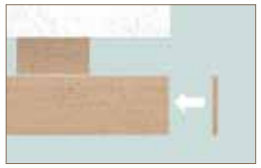
## 10. Cutting Edges

Cutting edges should be rounded off with sand paper (refer to „Edges“).
This should be done on any account prior to color treatment.

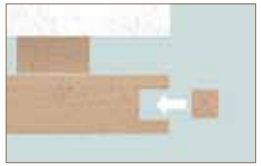
# 5. Technical References

## 11. Closing ends with extruded profiles

To avoid heavy weight, many Resysta profiles were produced as hollow chamber profiles. There are numerous possibilities to conceal or close these.



closing the ends with 2.5 mm Resysta veneer (bonding)



closing the ends with end plate
(prior milling of a groove is required)

covering the hollow chamber with end plate

covering the hollow chamber with end plate
(3D-image)

concealing the hollow chamber by means of bevel cut

## 12. Frontal area protection

Resysta does not feature capillary action. Therefore a frontal area protection with color is not strictly necessary. Paint coating may however be done for visual reasons.

## 13. Driving rain protection

Thanks to the high material density no adverse effects are caused by driving rain.

## 14. Splash water protection

Thanks to the high durability (resistance) of Resysta a material impairment does not occur. Increased soiling can, however, be expected and can result in staining. We recommend treating Resyta with sealer (RFS) in the affected area.
It is absolutely required to protect the substructure against ingress of moisture.

# 6. Completion

Drilled holes, dowel holes and cut surfaces occurring after mounting should be glazed afterwards. By applying the glaze with a cloth, scratches and damages can be refinished.

# 7. Important Information

Resysta profiles are not approved by building authorities.
Resysta profiles are not suitable for supporting or constructional purposes.
Local building codes have to be observed accordingly.

Resysta is a new construction material. Basic constructions, fixing material, etc. have to be conducted in accordance with the general state of technical knowledge and adjusted to the respective application area and purpose.

Check material quality prior to installation.
In case of complaints the material should not be installed.

Please adhere to all current standards and regulations as well as VOB.

Illustrations in this guideline are not mechanical drawings and displays no technical solutions.

# 8. Technical Data

| | | |
|---|---|---|
| Density | ASTM D2395:2002 | approx. 1.46 kg/m³ |
| Coefficient of Linear Thermal Expansion | ASTM D696 | 3.6x10(-5)mC |
| Water Absorption and Air Humidity Behaviour | ASTM D1037:2006a | none or very low water absorption (only surface wetting) |
| Weathering and UV Resistance | QUV Test | Resysta surfaces treated with glaze show extremely high resistance |
| Skid Resistance | DIN 51097 | C Rating (highest rating) |
| Fire Behaviour (German Standard) | EN ISO 11925-2 | B2, normal flammability (by adding flame retardants, a higher rating of B1 can be reached) |
| Fire Behaviour (US Standard) | ASTM E84 | A Rating (flame propagation 25, smoke emission 450) |
| Fire Behaviour (British Standard) | BS 476 Part 6&7 | Rating 1 |
| Durability (Resistance to Wood-Destructive Fungi) | DINV ENV 12038:2002 | the material has not been affected, highest durability - Class 1 |
| Emission | DIN EB ISO 9001/14001 | passed |
| Brinell Hardness (HB) | EN 1534 | 81,1 N/mm² |
| Friction Coefficient μ untreated | EN 13893 | 0,46 |
| Friction Coefficient μ with 2K | EN 13894 | 0,52 |
| Screw Withdrawal Resistance | EN 320.2011-07 | 5777 N |

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THE BETTER WOOD

# The Future Formula is Called Resysta.

Raw materials used:

approx. 60 % rice husk + approx. 22 % rock salt + approx. 18 % mineral oil = Resysta


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All specifications provided are subject to our installation guidelines and appropriate use at outdoor exposure.

The installation guide may be adapted to technical progress without prior notice.

The current version can be downloaded at www.resysta.com.

Subject to alterations. Slight deviations in color, photos and graphics could occur due to printing process.

www.resysta.com