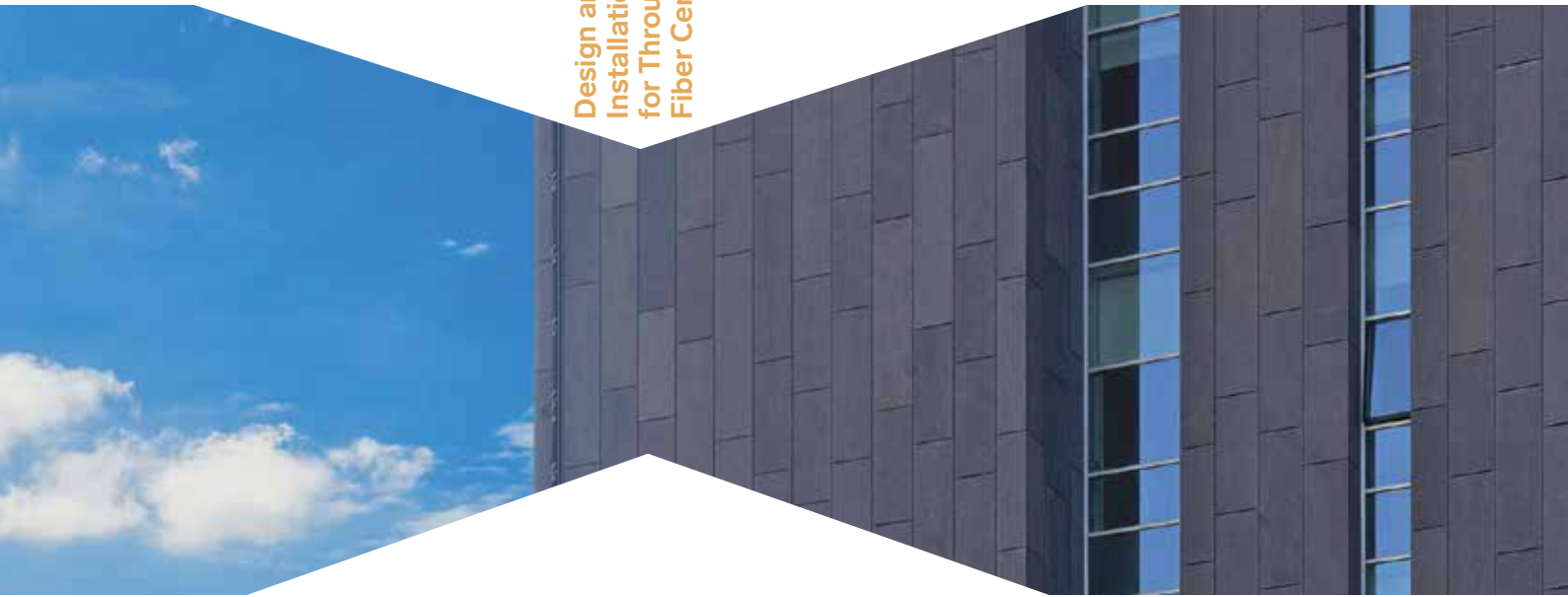
Design and Installation Manual for Through-Coloured Fiber Cement Board



Tepe Unique Pro®

BİLKENT HOLDING

www.betopan.com.tr
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TEPE BETOPAN

Tepe Unique Pro®

Design and Installation Manual

TABLE OF CONTENTS

This booklet has been prepared to explain the specifications, areas of use, application principles and basic details to be known to construction professionals and all users of the water-repellent, through colored, ready-to-use **Tepe Unique Pro®** fiber cement boards that we produce as Tepe Betopan A.Ş.

In the booklet in general, you may find our products and their types, as well as their main areas of use and suitable detail solutions, some considerations that need to be made about our products.
Our aim is to provide the information that will assist in the proper use of our products, and to ensure that the highest efficiency is obtained from our products having a wide range of use.

Please contact our Product Management & AS department for information not contained in the booklet, as well as additional specific details and solutions.

Tepe Unique Pro®

GENERAL INFORMATION

Tepe Unique Pro® is a water-repellent, through colored building board consisting of a mixture of cement and fiber. Its unique features and fibrous structure can be seen on the surface thanks to the natural raw materials used. Minor natural color differences may occur in different production series due to the natural raw materials used in production. Therefore, it is recommended to place the entire order at once.

Spot marks and stains may be visible on the surface that look very natural due to its content, but they can only be noticed very closely. During the day, the color of the board may change depending on its direction, viewing angle, light and humidity level.

Tepe Unique Pro® building boards are high segment, high quality fiber cement boards that are used for decorative purposes in interior areas and with ventilated facade systems in exteriors in all kinds of projects.

It has a fine line sanded and rough surface appearance.
* Customized production with flat sanded surface is possible upon request.

BOARD COLOURS

Tepe Unique Pro®

PRODUCTION TABLE

Surface		Line/Flat*	Line/Flat*	Line/Flat*	Line/Flat*
Areas of Use		Interior	Interior	Interior/Exterior	Interior/Exterior
Thickness (mm)		6	8	10	12
Average Dry Weight (kg/m²)	Anthracite, Cream	8,7	11,6	14,5	17,4
	Red Tiles, Green, Mustard, Gray, Light Gray	7,5	10	12,5	15
Standard Production Dimensions (mm)	**Color**				
1250x3000	Anthracite, Cream, Tile Red, Mustard, Green, Gray, Light Gray	•	•	•	•

* Customized production with "Flat" sanded surface is possible upon request.
Customized dimensions are possible by cutting the standard production size of boards in desired width and length.

AREAS OF USE

Interior

- Wall Cladding
- Indoor Ceiling

Exterior

- Facade
- Balcony, Parapet
- Outdoor Ceiling
- Fences, Boundary Walls
- Soffit and Fascia

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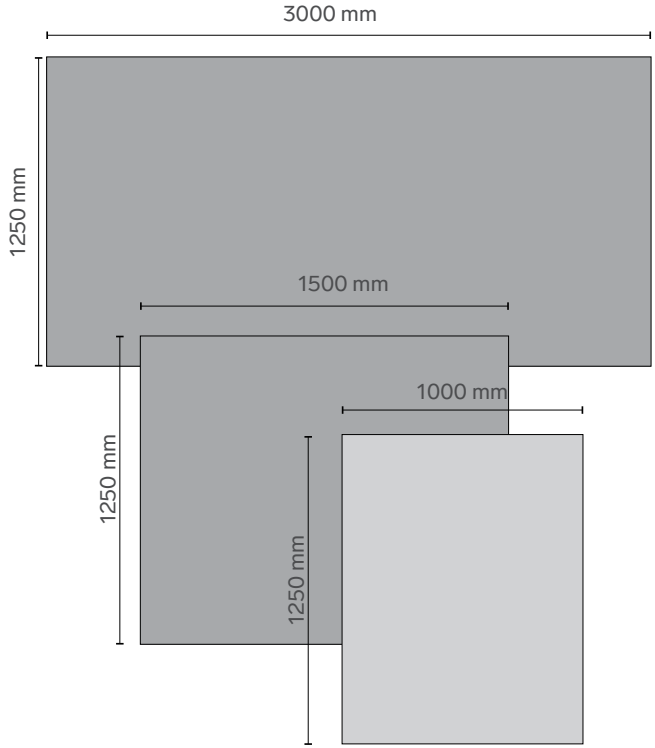
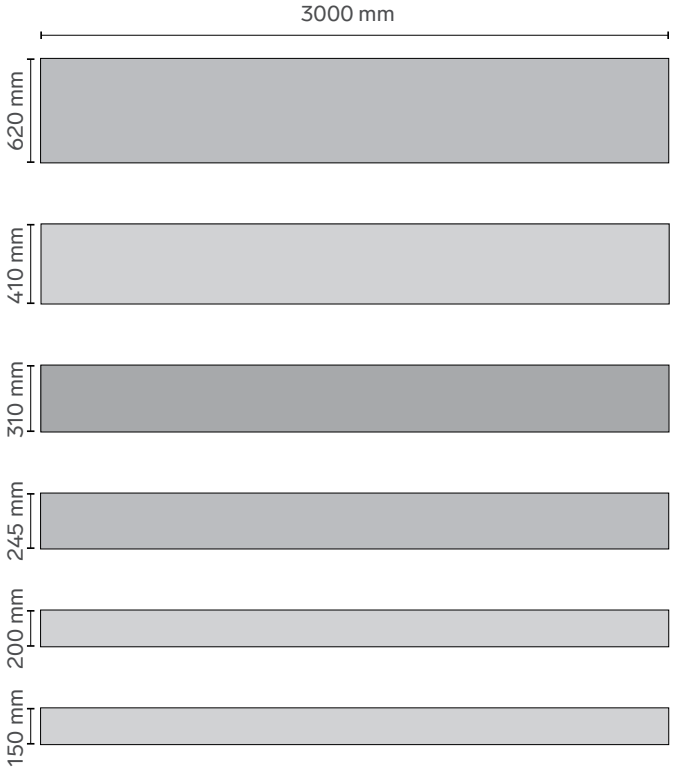
ECONOMICAL MODULATION DIMENSIONS

It consists of economical dimensions that cause the least waste from the transverse and longitudinal cutting of the standard production dimension board. These are the economical material dimensions recommended to guide the specifier during the project and design phase.



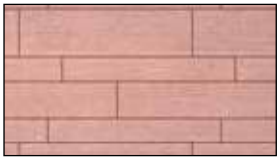


"Contact us for the customized board and strip dimensions for your project.

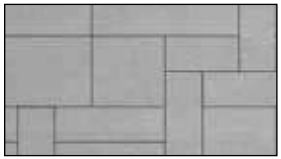
FAÇADE DESIGNS

Tepe Unique Pro® boards offer facade design opportunities in many ways since they can be cut horizontally, vertically and at an angle. Not only the same colored boards are used on the facades, but also designs that combine more than one colored board can also be made.

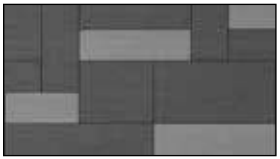
Tile Red



Gray

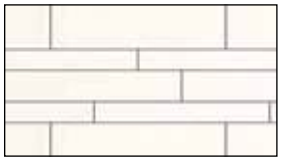


Gray and Anthracite

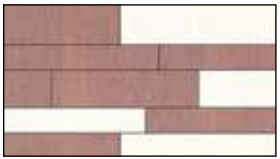


Mustard

Cream



Tile Red and Cream



Green

Anthracite

Anthracite and Light Gray

Direction of Application

Tepe Unique Pro |Line|® products used on the facade should be installed in the same direction with the linear pattern.

TECHNICIAL SPECIFICATIONS

Basic Characteristics	Performance	Relevant Harmonized Standard
	Tepe Unique Pro® - Through Colored Fiber Cement Board According to TS EN 12467 Standard	
Dry Visible Unit Volume Mass	1450 ±100 kg/m³ (Anthracite, Cream) 1250 ±100 kg/m³ (Tile Red, Mustard, Green, Gray, Light Gray)	TS EN 12467+A2:2018- 11
Bending Strength (Average of vertical and parallel values to the production direction in wet conditions)	≥ 13 N/mm²	
Asbestos	Type NT (Asbestos Free)	
Type, Category, Class	NT, Category A, Class 3	
Reaction to Fire	Fireproof, Class A1 Building Material according to EN 13501-1	
Releases of Hazardous Substances	There is no harmful substance or gas emission.	
Water Tightness	No water droplets are observed.	
Hot Water Effect	Resistant to hot water, > 0.75 (RL ratio)	
Wetting/Drying Effect	Resistant to wetting and drying, > 0.75 (RL ratio)	
Freeze-Thaw Effect	Resistant to freezing, > 0.75 (RL ratio)	
Heating/Rain Effect	There are no visible cracks, breakage of boards, distortion, deflection and other defects that will affect the usage performance.	
Moisture Dependent Movement	0,05%±0,01	
Modulus of Elasticity	≥11000 N/mm² (Anthracite, Cream) ≥7000 N/mm² (Tile Red, Mustard, Green, Gray, Light Gray)	

Dimensions and Tolerances		
Thickness	± % 10 k (k: board thickness)	TS EN 12467+A2:2018- 11
Length and Width	Length: ± 5 mm Width: ± 3,75 mm	
Deviation from Perpendicularity at the Edges	≤ 2 mm / m	
Direct Deviation at the Edges	≤ 0.1% x edge length	
Standard Dimensions and Weights	Thickness (mm) : 6-8- 10- 12	
	Min. Dry Weight (kg/m²): 8.7-11.6-14.5-17.4 (Anthracite, Cream) Min. Dry Weight (kg/m²): 7.5-10-12.5-15 (Tile Red, Mustard, Green, Gray, Light Gray)	
	Width (mm): 1250	
	Length (mm): 3000	
Other Technical Specifications		
Coefficient of Thermal Conductivity	λ = 0,2166 W/mK	TS EN 12667
Thermal Resistance	46,168 x 10^-3 m²K/W 10 mm 55,401 x 10^-3 m²K/W 12 mm	TS EN 12667
Water Vapor Diffusion Resistance Coefficient	μ= 13,31	TS EN ISO 12572

Continued on next page.

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Average Water Vapor Resistance Value (Z)	0,187 m^2hPa/mg	TS EN 12086
Sound Insulation (Sound reduction index odd value)	8 mm; 30,2 (-2; -4) dB 12 mm; 32,1 (-2; -3) dB	TS EN ISO 717-1 TS EN ISO 10140-2
pH	10,5 - 12	
Coefficient of Thermal Expansion	0,00493 mm/mK	DIN 51045
Water Absorption Rate	Anthracite, Cream By weight, 2 hours <5% (In the board that equilibrates in the laboratory environment) By weight, 24 hours < 15% (In the board that equilibrates in the laboratory Tile Red, Mustard, Green, Gray, Light Gray By weight, 2 hours <10% (In the board that equilibrates in the laboratory environment) By weight, 24 hours < 25% (In the board that equilibrates in the laboratory	ASTM C1186-08
Thickness Inflatable	< 1% (after 24 hours in water)	TS EN 317

CERTIFICATES

ISO 9001
14001 - 45001

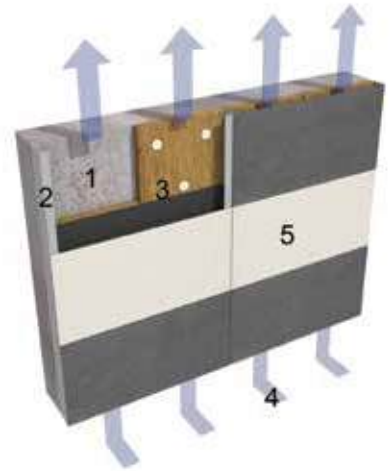
TS EN 13986

1783-CPR-189

TURQUALITY®

VENTILATED FACADE SYSTEM

The system consists of five main components.



1- Load-Bearing External Wall
The external wall of the building consisting of main components such as reinforced concrete, aerated concrete, brick, steel. Rough plastering is recommended on crap and brick surfaces.

2- Subconstruction
Load-bearing system consisting of aluminum/steel brackets and profiles on which the facade boards are installed.

3- Thermal Insulation Layer
An optional vapor barrier can be used on it, which keeps the building at an almost constant and temperature and prevents thermal bridges.

4- Ventilation Gap
Air circulation occurs in the gap between the facade board and the insulation layer or the external wall thanks to ventilation gap and the lower/upper opening. This natural heat movement evaporates damp and moisture away from the building. The ventilation gap should be at least 20mm.

5- Facade Board – Tepe Unique Pro®
It is an exterior cladding material that protects the building from climate and environmental effects and gives an aesthetic appearance. Depending on the project, it is applied on vertical load-bearing with the facade systems recommended by Tepe Betopan.

Tepe Unique Pro® Advantages

- Impact Resistant
- Fire Resistant
- Water and Moisture
- Insect-proof
- Weather Resistant
- Thermal Insulation
- Sound Insulation
- Easy Workability
- Environmentally Friendly
- Harmless to Health
- Lightweight
- Easy Installation

Long-lasting

Facade boards are resistant to different weather conditions such as sun rays, rain and snow. No fading is observed for many years depending on the production technology and characteristic features.

Ecological

It is an ecological building material since it consists of natural materials without containing harmful substances such as asbestos, does not emit odor and harmful gas, consumes minimum energy during production and is long-lasting after application, and does not require any maintenance.

High Fire Resistance

Due to its cementitious content, the cladding boards are in A1 fire resistance class according to EN 13501-1.

Durability Class

Category A, Class 3, top quality fiber cement cladding board having high resistance properties.

Inspirational and Applicable

Cladding boards can be applied in all weather conditions. It has system details. It can be used in low-high rise buildings. It is a standard wide board production but can be dimensioned according to the project and processed in different forms. It can be applied horizontally and vertically. It offers different design options consisting of one color and more than one color thanks to its different colour options. It gives a natural and modern look to different types of structures in natural areas and cities.

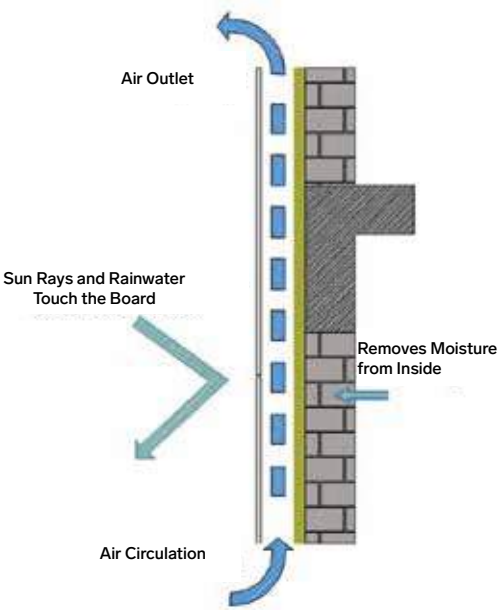
Comfort

The building's heat and sound insulation are provided thanks to the thermally insulated ventilated facade system. While evacuating moisture, steam and rainwater, it prevents heat transfer, thus creating an ideal and healthy environment in the building in summer and winter conditions.

Maintenance

It is insect-proof, resistant to impacts for crowded and high-circulation areas. It is a ready-to-use finishing material with through color and water-repellent properties. It does not require paint after the application and during the years of use of the buildings.

ADVANTAGES OF VENTILATED FACADE SYSTEM



- It prolongs the life of the building by providing effective protection against weather conditions such as rain, wind, snow and sun that damage the structures, together with the use of exterior boards that act as curtains against the effects of weather conditions.

- The humidity that causes dampness is mostly caused by the condensation on the exterior surface of the buildings. High humidity also causes mold and fungus formation. The direct contact of the sun with the wall surface of the building is prevented by means of the facade boards and the building is allowed to breathe, and such negative situations are eliminated by establishing the thermal balance.

- It contributes to the energy efficiency of buildings by providing great savings in thermal insulation.

- It provides a more aesthetic appearance in exterior and interior designs of buildings.

- It contributes to sound insulation. By means of facade boards, the insulation of the air is realized to a certain extent and reduces the noise. In this way, it adds value to the buildings by making the buildings on busy streets more comfortable, especially in crowded cities.

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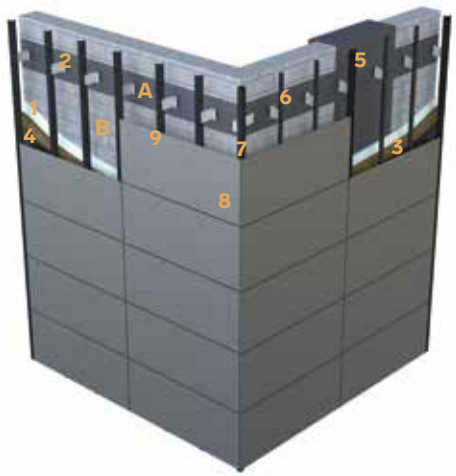
OPEN JOINT APPLICATION SYSTEM

THE SYSTEM WITH RIVET

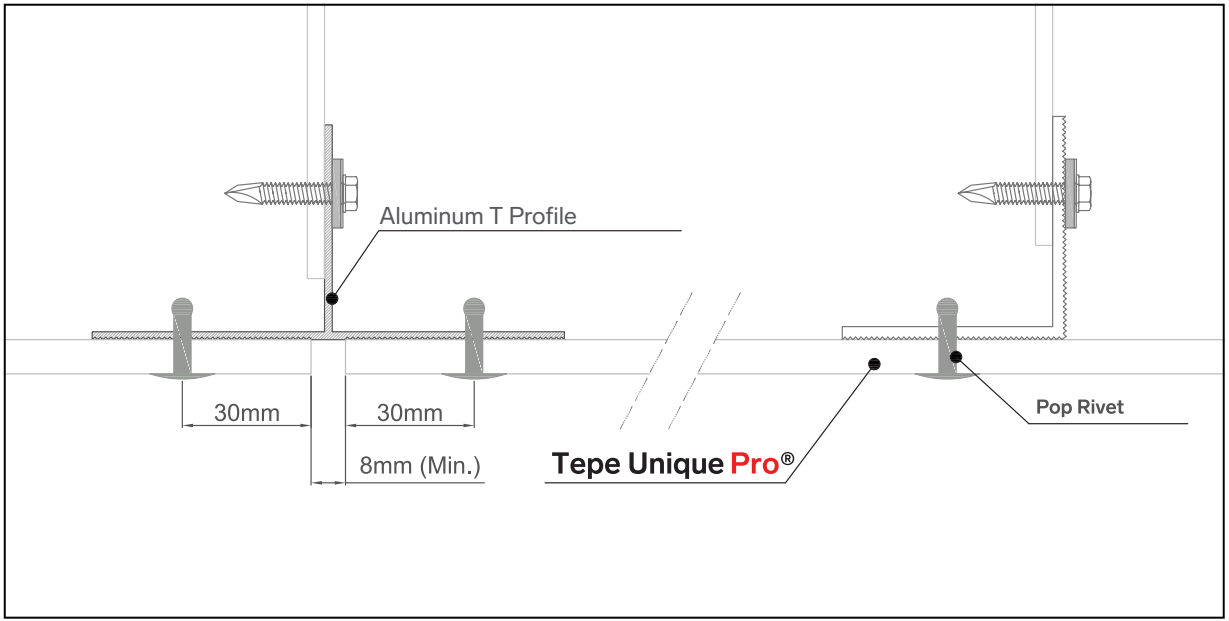
Application Steps

1- Rough Plaster (if happen)
2- L Bracket
3- Thermal Insulation (Mineral Wool)
4- Vapor Barrier
5- Aluminum T Profile
6- Aluminum L Profile
7- Aluminum Box Profile
8- **Tepe Unique Pro®**
9- Pop Rivet
A- Reinforced Concrete Wall
B- Wall Surface (Bims, Brick, Aerated Concrete)



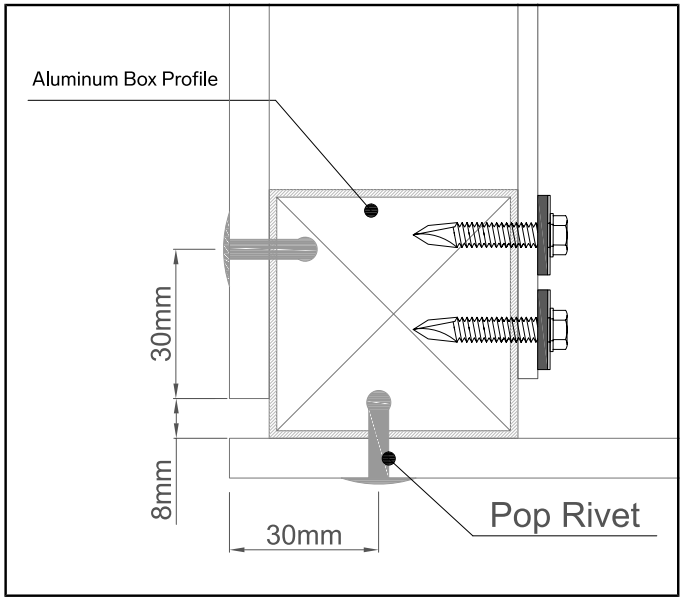
- It is possible to apply in high-rise buildings. Make your rivet and sub-construction design according to the wind load of the building. (See the "Distances by Loads and Designs" table.)
- In the connection of aluminum profiles with the bracket, fixing should be done at the middle or upper point, in all other connections, perform the installation as a sliding point.
- **Tepe Unique Pro®** boards has 2 fixing points, all other fixings are sliding headstock points. 2 fixing points meet the vertical load of the board, all other sliding fixings provide the strength of the board.
- In rivet installation, first install the fixing (load-bearing) points, then the sliding headstock points.
- Use a rivet gun for rivet installation.
- Sub construction system should be formed by leaving a gap of 5 mm between aluminum profiles.

SYSTEM DETAILS



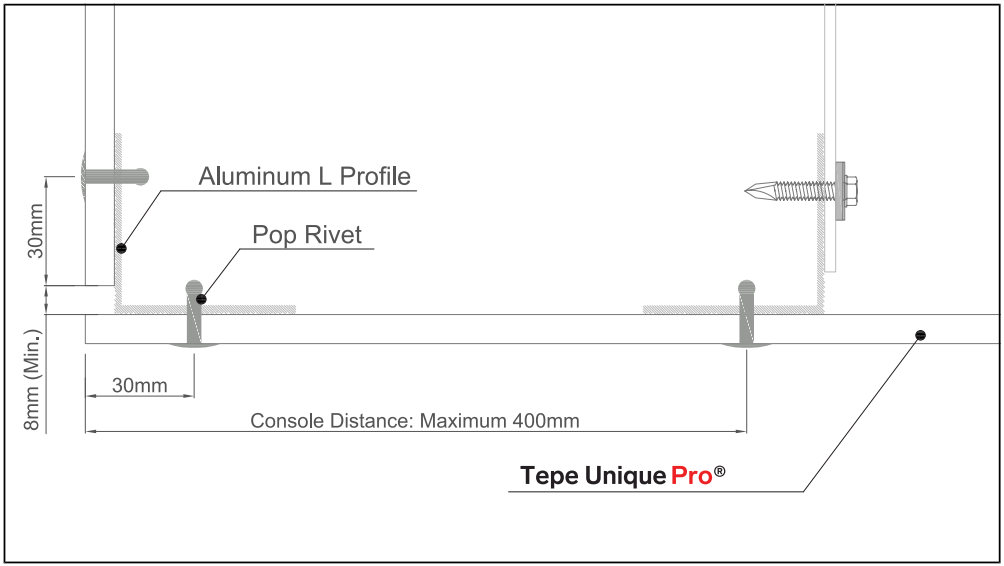
Plan

- **Tepe Unique Pro®** board installation, an aluminum T profile with a minimum width of 110 mm should be used at the joint points, and an aluminum L profile with a minimum width of 40 mm should be used at the middle of the board.
- For pop rivet installation, the wall thickness of T-L aluminum profiles should be a minimum of 1.8 mm.
- The application should be made with a minimum of 8 mm vertical and horizontal joints between the two boards.
- In case the vertical joints are desired wider, the aluminum T profiles in the joints should be used wider for the rivet distance. Since the application will be made on vertical load-bearing aluminum profiles, there is no limit on horizontal joints.



Outer Corner Detail-1

- A minimum of 50*50 mm aluminum box profile should be used in **Tepe Unique Pro®** board outer corner installation.
- Aluminum box profile thickness should be a minimum of 1.8 mm for rivet installation.
- A minimum of 8 mm joint gap should be left between the two boards in **Tepe Unique Pro®** board outer corner installation.
- If the vertical joint is desired to be wider, aluminum box profile dimension and a wider dimension for rivet distance should be used.
- Facade opening is recommended for corner bracket installation on facades up to 200 mm.



Outer Corner Detail-2

- A minimum of 50*50 mm aluminum L profile should be used for the junction of two boards in **Tepe Unique Pro®** board outer corner installation.
- Aluminum L profile thickness should be a minimum of 1.8 mm for rivet installation.
- A minimum of 8 mm joint gap should be left between the two boards in **Tepe Unique Pro®** board outer corner installation.
- If the vertical joint is desired to be wider, aluminum L profile dimension and a wider dimension for rivet distance should be used.
- The variation of the console distances according to the wind pressure is shown in the table on the right.

Wind Pressure (KPA)	Console Distance (mm)
0,0 < p < 1,0	400
1,0 < p < 2,0	300
2,0 < p < 3,0	250
3,0 < p < 4,0	200

RIVET DISTANCES BY LOAD AND DESIGNS

Prior to the application, the wind load values of the building should be checked, and the aluminum sub-construction and rivet distances should be installed according to the maximum distances in the table based on the thickness of the board to be used and the tile pattern. You can contact the Product Management & AS department (teknik@betopan.com.tr) for project-based and more detailed rivet distances.

Tepe Unique Pro® (10 mm)

Design Wind Pressure (kPa)*	Vertical & Horizontal Boards	
	a (mm)	b (mm)
0,5	619	595
0,6	600	595
0,7	571	595
0,8	551	595
0,9	522	595
1	503	595
1,1	489	595
1,2	469	595
1,3	450	595
1,4	435	595
1,5	416	595
1,6	402	595
1,7	387	595
1,8	368	595
1,9	348	595
2	334	595
2,1	324	595
2,2	319	595
2,3	315	595
2,4	310	595
2,5	305	595
2,6	300	595
2,7	295	595
2,8	290	595
2,9	286	595
3	366	395

a: Vertical Riveting Distance b: Horizontal Riveting Distance

- The rivet distances demonstrated in the table are given as an indication. For the actual cladding design, a locally licensed engineer will take responsibility for calculation and verification.

- The safety factor of the rivet distances is calculated as 2.0.

- The design wind pressure is the load factor applied to the wind pressure calculated according to TS498 or TS EN 1991 1-4 in accordance with TS500. Please contact the Product Management & AS department for larger pressure values.

- Linear proportion can be applied for intermediate pressure values.

Tepe Unique Pro® (12 mm)

Design Wind Pressure (kPa)*	Vertical & Horizontal Boards	
	a (mm)	b (mm)
0,5	725	595
0,6	705	595
0,7	672	595
0,8	647	595
0,9	614	595
1	589	595
1,1	575	595
1,2	551	595
1,3	532	595
1,4	512	595
1,5	488	595
1,6	474	595
1,7	454	595
1,8	435	595
1,9	411	595
2	391	595
2,1	382	595
2,2	377	595
2,3	372	595
2,4	362	595
2,5	358	595
2,6	353	595
2,7	348	595
2,8	338	595
2,9	333	595
3	428	395

a: Vertical Riveting Distance b: Horizontal Riveting Distance

- The rivet distances demonstrated in the table are given as an indication. For the actual cladding design, a locally licensed engineer will take responsibility for calculation and verification.

- The safety factor of the rivet distances is calculated as 2.0.

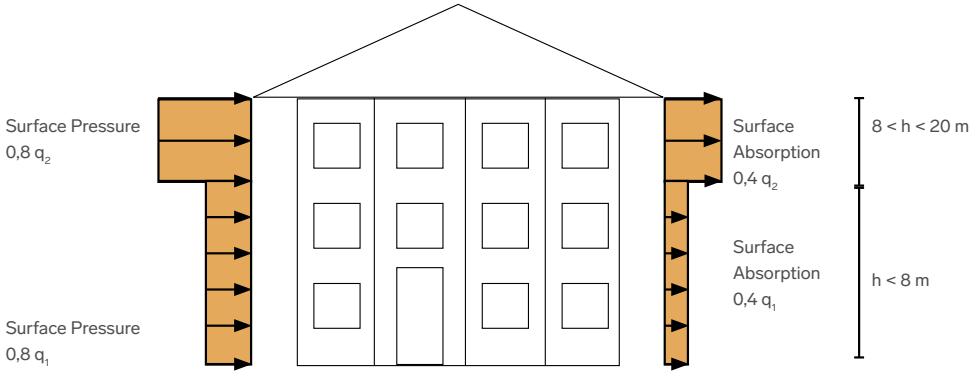
- The design wind pressure is the load factor applied to the wind pressure calculated according to TS498 or TS EN 1991 1-4 in accordance with TS500. Please contact the Product Management & AS department for larger pressure values.

- Linear proportion can be applied for intermediate pressure values.

TABLE USER GUIDE FOR RIVET DISTANCES BY LOAD AND DESIGNS

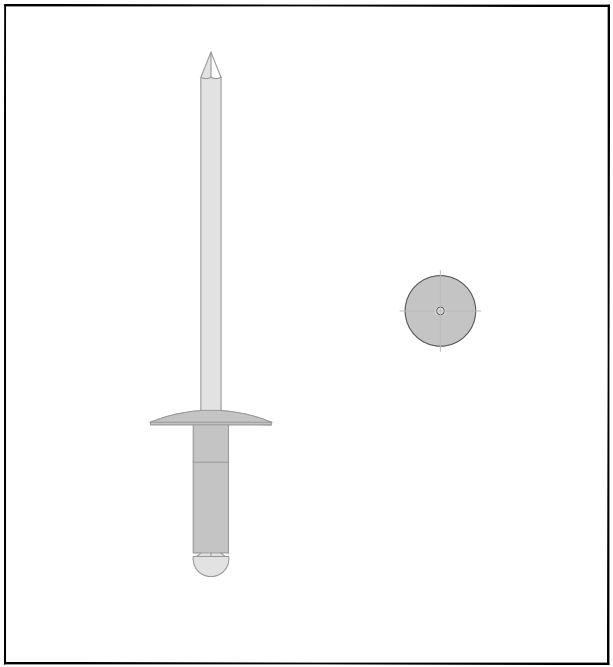
Calculating the wind pressures in the cladding design, the following procedure should be followed while using the TS498 procedure.
1. Pressure and absorption pressure values in the table and figure will be used for the wind pressure distribution along the height of the building.

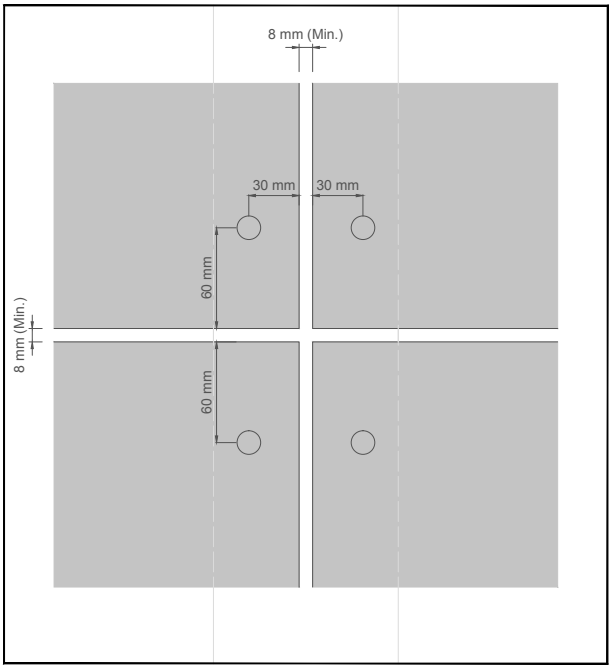
Height, h (m)	Pressure, q (kPa)
0 - 8	q_1=0,5
9 - 20	q_2=0,8
21 - 100	q_3=1,1
> 100	q_4=1,3



2. The pressure and absorption pressure values calculated in item 1 in accordance with TS500 will be enlarged with a load factor of 1.3 and used as the **Design Wind Pressure** in the given table. Maximum horizontal and vertical riveting distances of the board will be determined according to the predetermined **Board Thickness and Design Wind Pressure** value.

RIVET APPLICATION BOARD EDGE AND INTERMEDIATE DISTANCES





Pop Rivet

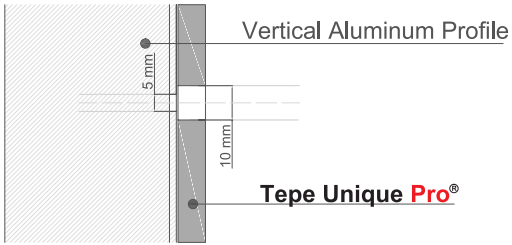
* Pop Rivet can be used in different dimension depending on the thickness of board and profile.

Installation of Rivet

Centering Apparatus

Usage Details of Centering Apparatus

Details of the Obtained Gap

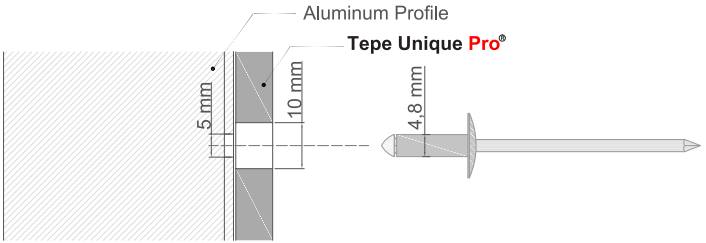


Gap Appearance

- Use the centering apparatus.
- Use a centering drill with a head diameter of Ø10 mm, and a drill bit of Ø5 mm.
- Make a hole on the vertical aluminum profile with a Ø5 mm drill bit.
- Thanks to the previously made Ø10 mm holes in the board, the centering apparatus will provide full seating and the rivets will be installed from the center.

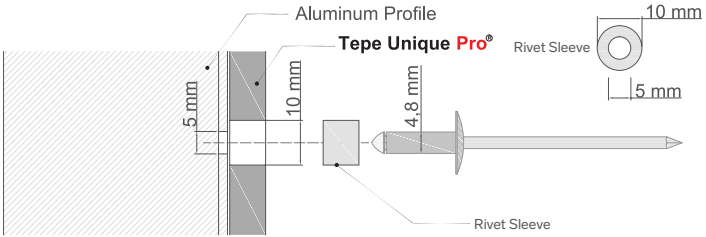
Load-Bearing and Sliding Rivet Installation Detail

Sliding (Moving) Rivet Application



- Make holes of 10 mm in the board and 5 mm in the aluminum profile in order to allow the movement of the board in different weather conditions. Use rivets with a diameter of 4.8 mm

Load-Bearing (Fixed) Rivet Application



- Use 2 rivet sleeves with an outer diameter of app. 10 mm and an inner cavity diameter of 5 mm on each board in order to take the vertical load of the board.

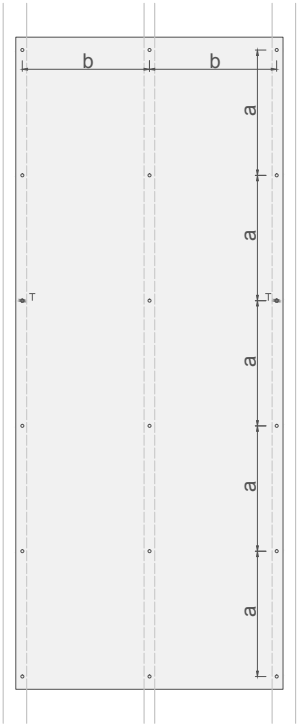
*A rivet gun of suitable specification should be used in the installation of rivets.

SLIDING AND LOAD-BEARING RIVET PLACEMENTS

Vertical Boards

Load-bearing rivets, which are used as 2 pieces on each vertical and horizontal board, should be placed symmetrically and their positioning should be in the center or close to the center of the board.

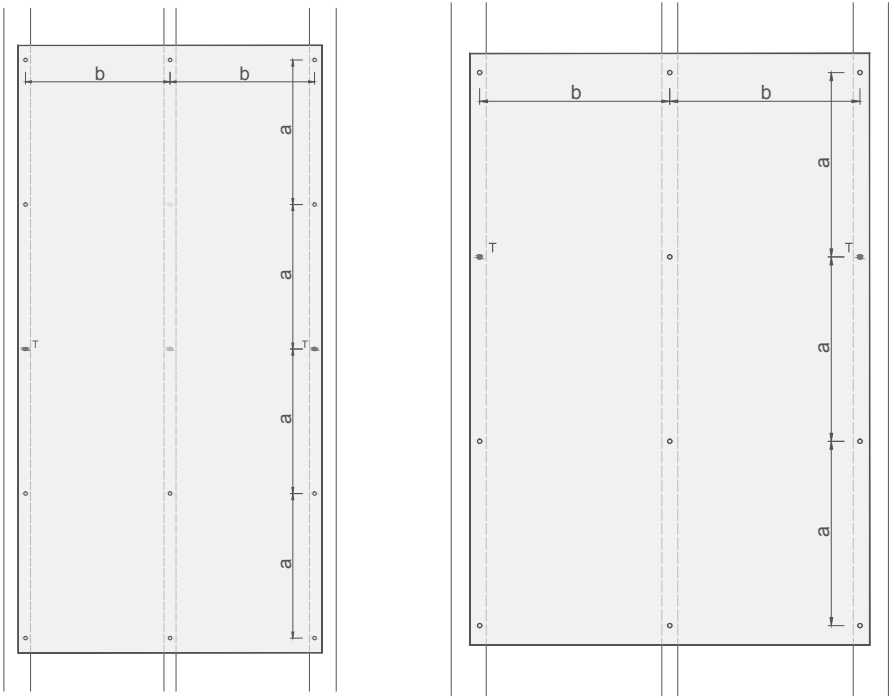
See the table (Riveting distances by Load and Designs) for the determination of the horizontal and vertical riveting distances of the number of rivets to be used in the board dimensions in the facade design.



○ Sliding Rivet ● Load-Bearing Rivet

a: Vertical Riveting Distance b: Horizontal Riveting Distance

Analyze the table of rivet distances by load and designs for the riveting distances which shown with a and b.



a: Vertical Riveting Distance b: Horizontal Riveting Distance

○ Sliding Rivet ● Load-Bearing Rivet

Analyze the table of rivet distances by load and designs for the riveting distances which shown with a and b.

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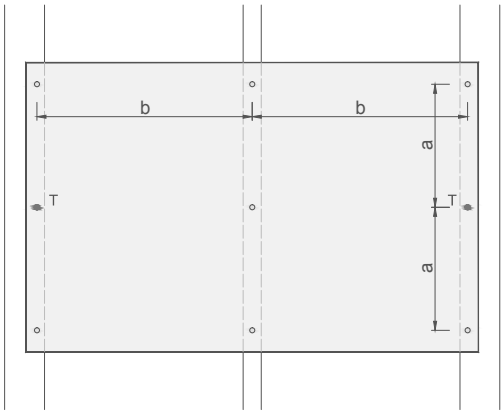
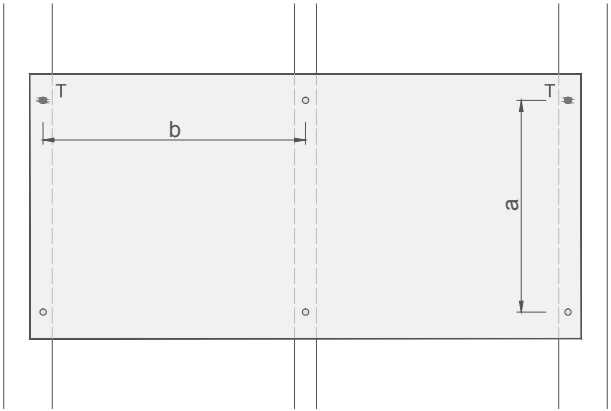


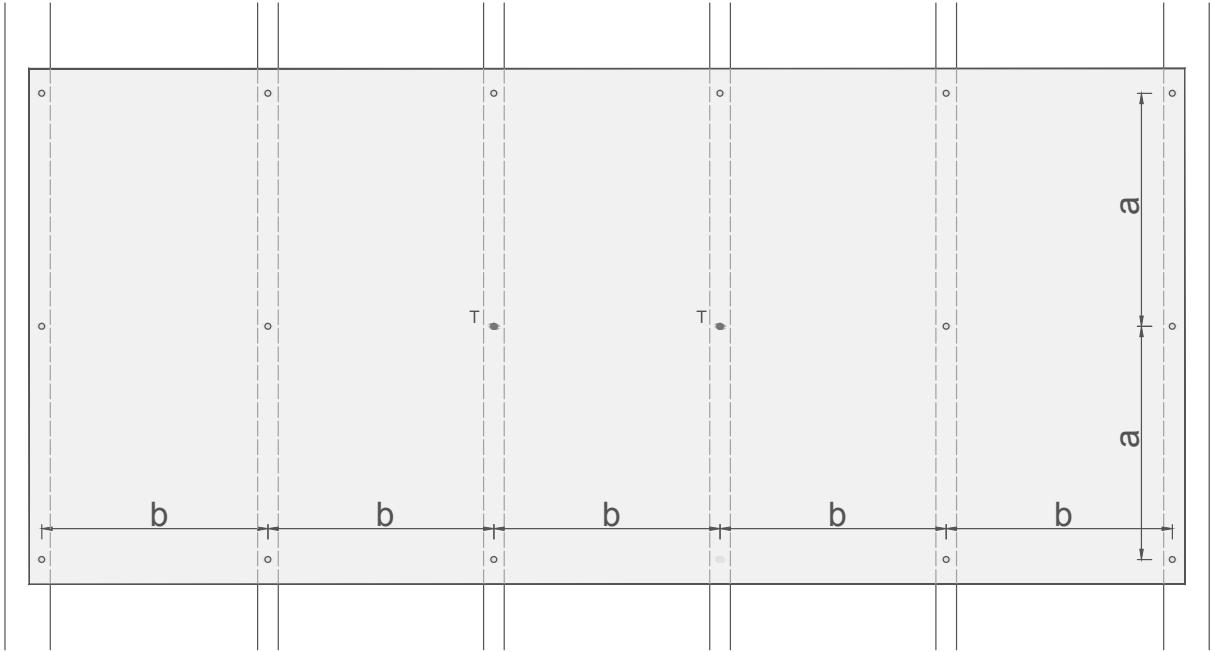


○ Sliding Rivet ● Load-Bearing Rivet

a: Vertical Riveting Distance b: Horizontal Riveting Distance

Analyze the table of rivet distances by load and designs for the riveting distances which shown with a and b.

Horizontal Boards



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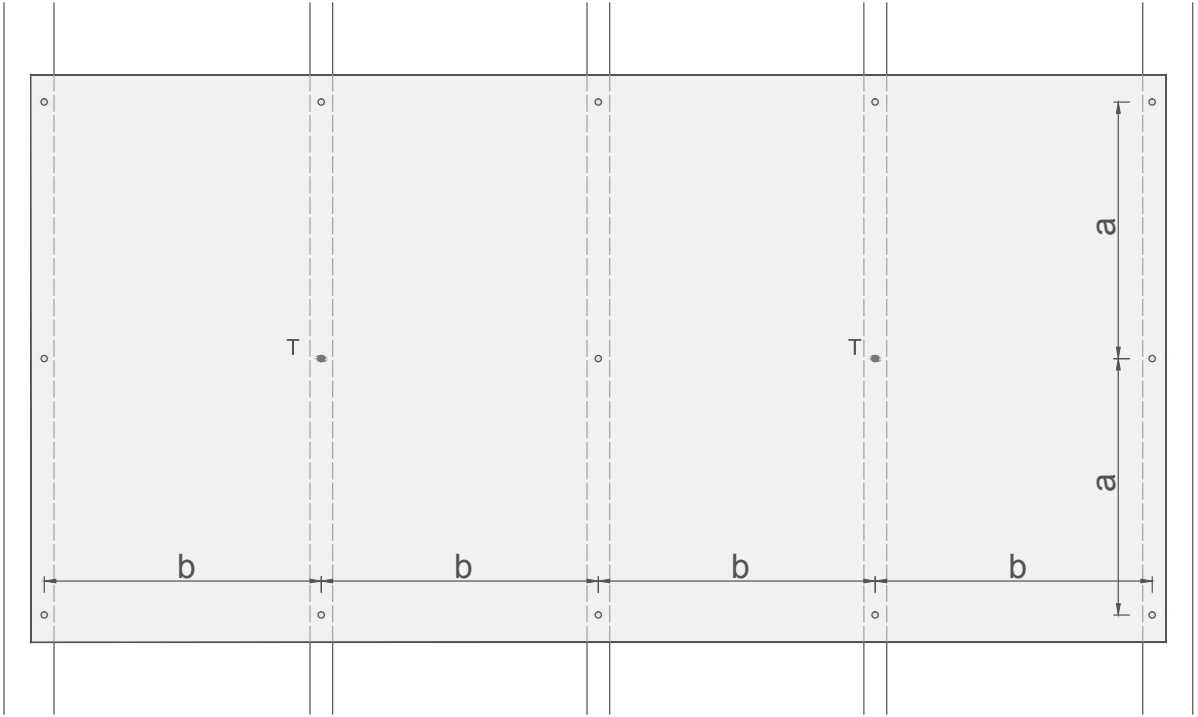
TEPE BETOPAN



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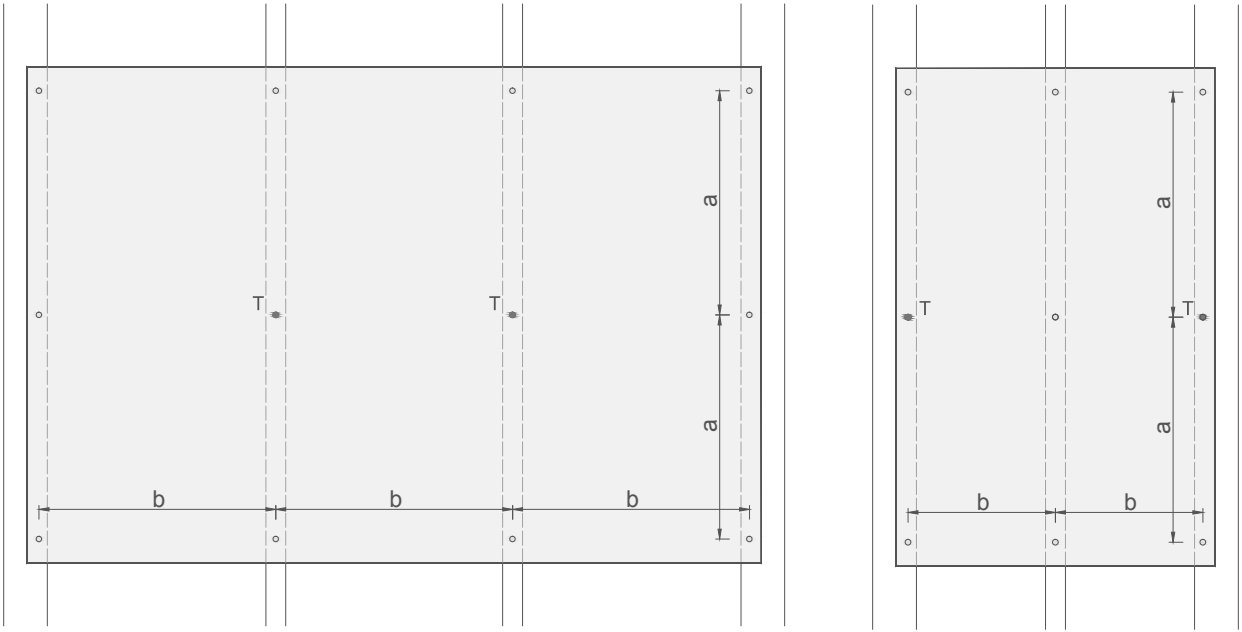

○ Sliding Rivet ● Load-Bearing Rivet

a: Vertical Riveting Distance b: Horizontal Riveting Distance

Analyze the table of rivet distances by load and designs for the riveting distances which shown with a and b.

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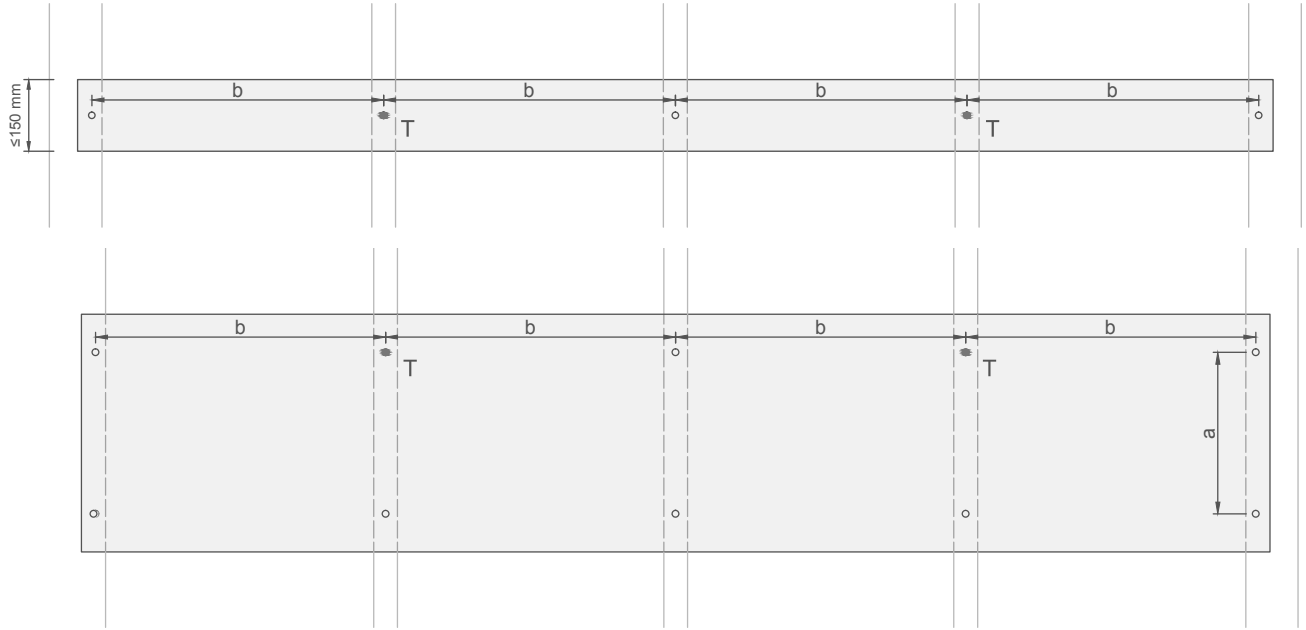
Strips



○ Sliding Rivet ● Load-Bearing Rivet

a: Vertical Riveting Distance b: Horizontal Riveting Distance

Analyze the table of rivet distances by load and designs for the riveting distances which shown with a and b.

MATERIAL LIST AND ACCESSORIES

Load-Bearing Subconstruction

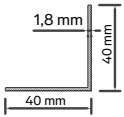
The surfaces, certificates and dimensions of the load-bearing sub-construction materials to be used may differ depending on the condition of the building, the specification submitted by the employer and the static report, and the minimum dimensions are presented as a recommendation. Problems related to the load bearing that will occur during the operation or during the application of the load-bearing sub-construction are the responsibility of the sub contractor.

L Bracket
It is recommended to use a minimum thickness of 3 mm for steel brackets and a minimum of 4 mm for aluminum brackets.

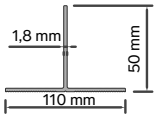
Clip Anchor
Recommended to be used as ETA certified with minimum dimension of M8*75 mm.

Plastic wall Plugs
Recommended to be used as ETA certified with a minimum dimension of M10*100 mm.

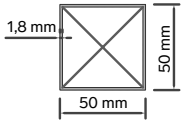
Trapeze Screw with bonded washer
Should be at least 5,5*25mm.



Aluminum L Profile
Should be at least 40*40*1,8 mm.



Aluminum T Profile
Should be at least 50*110*1,8 mm.



Aluminum Box Profile
Should be at least 50*50*1,8 mm.

TEPE BETOPAN

Thermal Insulation Group

The surfaces, certificates and dimensions of the insulation group materials to be used may differ according to the condition of the building, the specification submitted by the employer and the heat-energy report, and the minimum dimensions are presented as a recommendation. The problems that may occur in the insulation group, in the operation or during the application are the responsibility of the sub contractor.

Thermal Insulation Board
The use of mineral wool is recommended. Product specifications vary according to the location and height of the building.

Thermal Insulation Wall Plug
It is recommended to be used with steel nails, ETA certificate, M8 diameter.

Vapor Barrier
B1 and E fire class products are included; B1 fire class and UV resistant products are recommended.

Acrylic Tape
It is recommended to be used with a minimum width of 60 mm and single-sided.

Accessory Group

While fixing **Tepe Unique Pro®** facade boards using aluminum sub construction, use accessories designed for the purpose. In general, the tools suitable for use provide the best installation.

Centering Apparatus
The head part suitable for the drill inlet should be 10 mm. The drill bit should drill 5 mm.

Drill Bit
It is used to drill 10 mm holes in **Tepe Unique Pro®** boards. Its diamond bit prevents slipping on the board surface and has a long wear (burning) time.

Pop Rivet
Aluminum body and stainless mandrel parts suitable painted to match color of board and Ø16 mm 4.8x18-K16 in dimension.

Rivet Sleeve
Rivet Sleeve must be approximately 10mm in outer diameter, 5mm in inner diameter and must be made of aluminum,steel,delrin,etc.

Saw Blade
Since it has diamond tips, it has a high cutting quality and a long service life. It is used with circular saw, fixed bench, spiral. After cutting, **Tepe Unique Pro®** boards should be cleaned of dust by blowing air, using a brush and vacuum cleaner. If the blades are forced during cutting, they will vibrate, and the cut will not be smooth. Wet cutting should not be performed.

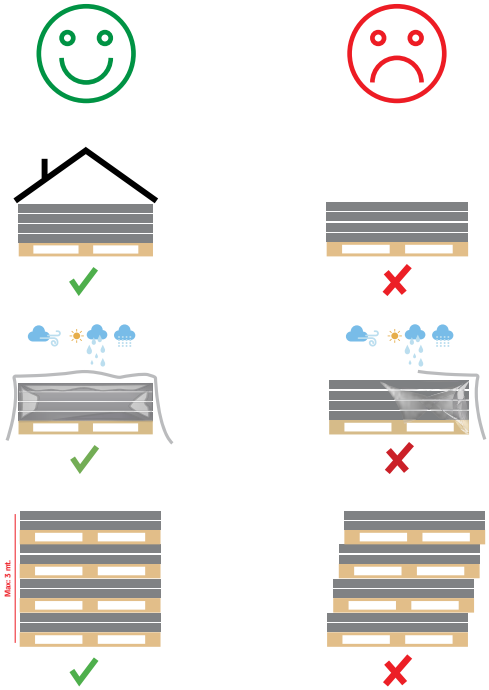
* These systems can be supplied by Tepe Betopan. For the products on sale, please contact the Domestic/Foreign Sales Department.

CARE & MAINTENANCE

After the cutting and drilling process, dust and residues on the surfaces should be removed by blowing air, using a soft sponge or brush without pressing the surface, or gently cleaned with the help of a vacuum cleaner. Otherwise, wiping and cleaning by pressing on the surface may leave stains on the surface and damage the boards. It is necessary to ensure that the boards are properly cleaned before the installation.

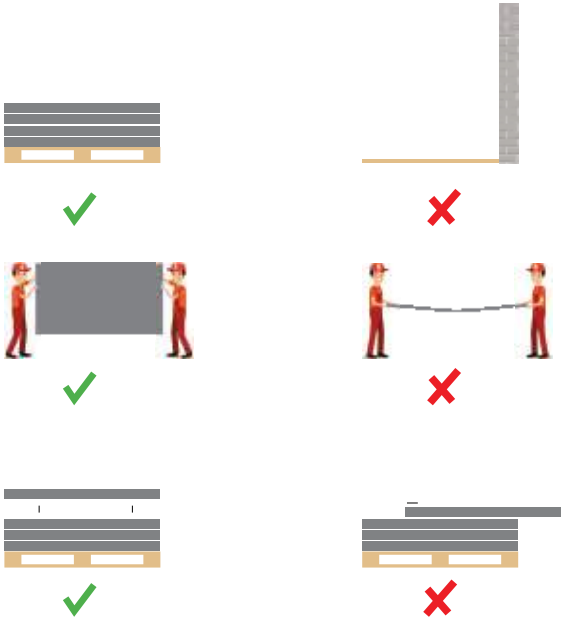
PRINCIPLES OF STOCKING / STACKING / HANDLING

- Boards should be stored in a closed standard package on a flat and dry surface in a ventilated indoor area.
- If the boards need to be temporarily stored outside, they should be stored in a closed standard package on a flat, water-proof surface, under any roof or a watertight, weather-proof PE (Polyethylene) or PVC tarpaulin. The tarpaulin should be covered and fixed in such a way that it takes air from the top of the pallet. If a board is taken from these packages, the package should be closed immediately after the board is taken.
- If packages are to be stocked on top of each other, packages of the same dimension should be stacked on top of each other, with the pallet feet aligned. The stack height should not exceed 3 meters. Sufficient gaps should be left between stacks placed side by side.
- The boards should be kept and stored horizontally on the pallet in the warehouse or at the construction site. If it needs to be placed on the wedge temporarily, it can be placed horizontally on the wedges of the same dimension, at a maximum distance of 50 cm. It should not be kept horizontally or vertically leaning against walls etc.
- It is recommended for the boards to be transported on pallets first. If the boards are to be carried by hand, they must be carried by at least two people one at a time, in an upright position, with their edges parallel to the ground. Care should be taken not to damage the corners and edges of the board during carriage.
- All products, especially through colored and patterned boards, should be lifted directly when being taken from the pallet, and should not be dragged on the board below. Otherwise, the board below may be scratched and damaged.



PRINCIPLES OF PACKING / SHIPPING

- Tepe Betopan products are delivered in standard packages on a wooden pallet that can be easily transported by forklift and crane, wrapped with nylon and stretch foil in domestic, with strapping strips, and abroad, with cardboard gussets in addition to domestic transactions.
- Standard packaging helps the safe and balanced transportation of products during domestic/international shipping and transportation, protects them against weather conditions and impacts from corners, is not suitable for long-term storage in the open air, cannot withstand weather conditions.
- The board quantities in the package are adjusted as standard so that the total weight does not exceed 2.5-3 tons. It is possible to prepare packages under 2.5 tons according to special demands.
- Forklift forks must go into the pallet at least 3/4 of the depth of the pallet in order to avoid damage to the pallets and to safely transport and lift palletized products. If they protrude too far out, they can damage or knock over the edges of adjacent packages. Forklift blades should be adjusted to the appropriate clearance so that the boards are not bent and damaged while the packages are being transported.



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Visit our websites for more information.

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