

TRI MO TRIMOTERM

WRH

WAREHOUSE HANDBOOK

CONTENT

P05	TRIMO APPROACH
P06	INSPIRATION
P22	WAREHOUSE PRODUCT PORTFOLIO
P24	WAREHOUSE BENEFITS
P28	WAREHOUSE PRODUCT SOLUTION
P38	WAREHOUSE DETAIL SOLUTION
P50	WAREHOUSE TOOLS
P51	DOWNLOADS
P52	WAREHOUSE HELP SERVICE
P53	THE VALUE PROPOSITION

TRIMO DRESS CODE IS UNIQUE ARCHITECTURE





TRIMO APPROACH

WRH

In life, change is the only constant. Everything is in motion but our goal remains the same – to develop the world’s most trusted and highest performing TRIMO products and to be our customers’ first choice. As you design unique architecture, we create the highest performing products to our customized formula whilst tailoring details specifically to your needs.

With over 50 years of experience and as the first producer in the world since 1987 of panels with incombustible mineral wool core, Trimo provides smart, innovative solutions that benefit people, organizations, and the environment.

Special attention is given to solutions that are sustainable and take account of and create trends for warehouses. Trimo unique architectural solutions for the complete envelope of warehouses that include facade, partitions, and roof system cladding create a place used for safe storage of goods.

Warehouses allow businessmen to carry on production throughout the year and to sell their products, whenever there is adequate demand.

We are aware of needs that provide benefits to owner related to warehouses:

- **REGULAR PRODUCTION**
according to demand expectations in the future.
- **TIME UTILITY**
between the production and consumption of goods.
- **STORE OF SURPLUS GOODS**
until requested by the customers.
- **PRICE STABILIZATION**
when demand and supply are matched.
- **MINIMIZATION OF RISK**
compensation possibility for insured goods from the insurance company.
- **PACKING AND GRADING**
of the goods for the purpose of sale.
- **FINANCING**
advance money against the goods deposited in the warehouse.

Hint!

Click here for Trimo renovation handbook and discover a unique architectural solution tailored to you.

Diagonally installed Trimoterm FTV HL panels with smooth - Gladio surface.

INSPIRATION

Dare to explore and be inspired by the warehouse unique architecture entrusted to Trimo.



INSPIRATION

BUILDING SEGMENT:	WAREHOUSE & PRODUCTION
INVESTOR:	MDM D.O.O.
LOCATION:	SLOVENIA
PRODUCT:	TRIMOTERM FTV HL

The Warehouse with a production facility is the result of excellent cooperation between the participants in the project. An impressive architectural solution is built with the Trimoterm FTV HL product with a complete system solution. A special architectural expression is the diagonal installation of very long Trimoterm FTV HL panels. The flexibility and simplicity of the product allow for endless architectural possibilities.

Trimo installed 7681 m² of Trimoterm FTV HL product.



Facade products allowing the installation of openings aligned with the facade surface.



Diagonally installed Trimoterm FTV HL panels are up to 14m long.

The high-tech automated warehouse is built into the Trimoterm FTV HL facade envelope system.



The iridescent color of the steel sheet on the facade changes color according to daylight from lilac to blue.



INSPIRATION

BUILDING SEGMENT:	HIGH-RACK WAREHOUSE
INVESTOR:	TRIMO D.O.O.
LOCATION:	SLOVENIA
PRODUCT:	TRIMOTERM FTV

Long experience and vast knowledge gave us courage, that Trimo has built its own innovative high-rack warehouse for storing mineral wool. The warehouse is equipped with technology that maintains the oxygen level in the building below 11% and reduced possibility of ignition. The airtightness of the building is a key requirement in such a design.

With the Trimoterm FTV product installed in the horizontal direction and the accessories of the entire envelope system, it is possible to achieve the best airtightness on the market in the scope of panel production.

The Airtightness of Trimoterm FTV complete envelope system enables that oxygen levels are lower than on the highest mountain of the world, Mount Everest. Valuable goods are uncompromisingly protected from the fire.

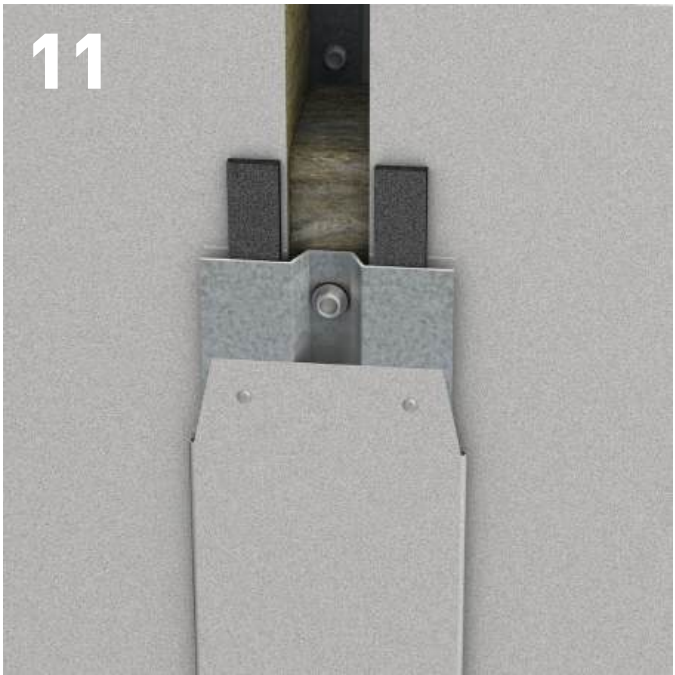
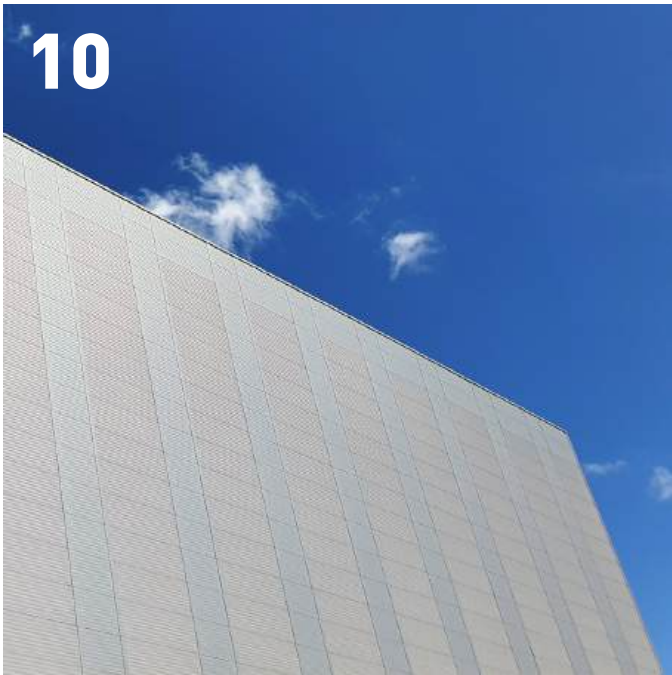
Environmentally friendly and fully adjustable steel construction allows quick installation and a long lifespan.



The warehouse communicates fully automated via the ERP warehouse management system - WMS during the transport process from the racks to the loading points.

The Airtightness of the whole envelope system is achievable with airtight accessories.

For this warehouse building was developed a joint detail TE-H-01.05 where the steel sheet of the joint has the same profile as the facade.



WUPPERMANN GÖNYÜ

Ascetic architecture with minimalist details blends in with the environment.



INSPIRATION

BUILDING SEGMENT:	WAREHOUSE & PRODUCTION
INVESTOR:	WUPPERMANN GÖNYÜ
LOCATION:	HUNGARY
PRODUCT:	TRIMOTERM FTV, TRIMOTERM FTV HL

Wuppermann is a company that bets on quality. Trimo with the versatile product range and technical support and service has convinced the architects in collaboration where they installed 15.319 m² of facades with Trimoterm products.

Well established and quality-oriented company working with steel coils has chosen the sandwich panels with a steel surface.



Minimalist design with diverse panel installation gives the architecture a dynamic look. The gray color palette further emphasizes the various activities in the buildings.

On the part of the high-reck warehouse are horizontally installed Trimoterm FTV panels in RAL 9006 color. Average length of panels is 8400mm and module of 1000mm.

The Production facility has vertically installed Trimoterm FTV HL panels in RAL 7012 color. Average length of panels is 13.000mm and module of 1000mm.



METALBOX

The flagship warehouse of the logistics park was the Metalobox warehouse.



INSPIRATION

BUILDING SEGMENT:	WAREHOUSE
INVESTOR:	METALOBX
LOCATION:	HUNGARY
PRODUCT:	TRIMOTERM FTV

Right next to the M7 motorway at Székesfehérvár in Hungary, a warehouse complex of the fast-growing company Metalobox has grown. Thanks to the innovative architecture of bold colors, the business park has become a landmark and a brand for the area where more than 10 similar facilities have additionally grown in the so-called M59 business park.

View from the highway M7 in Hungary on a cluster of colorful warehouses.



The combination of the primary color in RAL 7016 and additional vivid color on parts of the façade gives the entire complex of buildings a recognizable architectural expression.

After a successful story with the Metalobox warehouse, more than 10 additional warehouses in the same area were built.

The architecture of the buildings was executed with architecturally sophisticated details with fully prefabricated corners element. The panels have a profiled outer sheet metal with M profile.



WAREHOUSE PRODUCT PORTFOLIO

Over the years, our product portfolio grew and developed in tune with market requirements. Trimo is known as a market leader in its sector and a trendsetter company as proven by numerous international awards for innovation and cooperation on projects which have received the most respected prestigious architectural awards:

RED DOT AWARD, GOLDEN KIWI AWARD, BIO 20, MIPIM, EFQM.

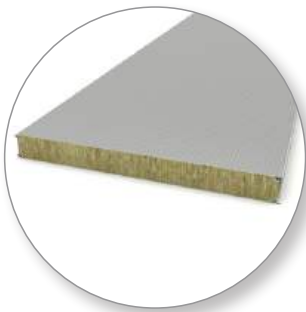
QBISS



QBISS SCREEN



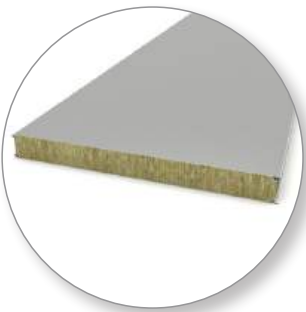
Warehouse product solution



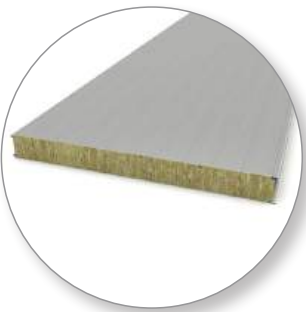
Horizontal facade
Trimoterm FTV



Vertical facade
Trimoterm FTV HL



Flat roof
Trimoterm FTV



Internal wall
Trimoterm FTV

TRIMOTERM



MODULAR UNITS



WAREHOUSE BENEFITS

The added value of the product is reflected in the benefits for the user. The stars of architecture such as **Fosters and Partners**, recipient of the **Trimo Architectural Award**, trust the superior quality of Trimo products and the flexibility of Trimo service.



	FEATURES	ADVANTAGES	BENEFITS
	TOTAL ENVELOPE SOLUTION	Tailor-made details, prefabricated corner elements	Save time & money by choosing only one supplier
	SELF SUPPORTING	Up to 10 m single span & fast installation	Reduce amount of structure.
	PREFABRICATED	Quality control, produced in a controlled environment, ready to install without cutting	Reduced costs, reduced construction time, reduced quality risk
	MINERAL WOOL INSULATION	High level of fire resistance, non-combustibility	Ultimate fire safety, reduced insurance premiums, product for higher buildings (A2)
	WATER & AIR TIGHTNESS	Low air change rates, safe equipment	Superb workplace climate
	TAILORED PROJECT SOLUTIONS	Design experts, technical support, in-house knowledge, 50+ years of experiences	Unique architecture, Optimal cost solution
	BIM LIBRARIES	Free ARCHICAD and Revit BIM libraries	Compliance with the legislation, smooth collaboration, reduced errors and conflicts, better cost control and predictability, project visualisations
	BURGLARY RESISTANCE	Class RC3 of Burglary resistance	Safety of personnel and equipment in the building
	FLEXIBLE WARRANTIES	Robust, durable and high quality coatings	Easy & low-cost maintenance, 10-30 years warranty against corrosion
	99% RECYCLABLE	Environmentally friendly material	High sustainability and eco-friendliness
	EXTREME THERMAL VALUES	High energy efficiency	Reduced HVAC costs
	MOISTURE RESISTANT	No moisture on the surface of internal walls	No damage to expensive machinery



WAREHOUSE PRODUCT SOLUTION

We take into account the specifics of warehouses and constantly improve and invent products that fulfill all demands. **Warehouse installation** and **warehouse product formula** steps explain pragmatically how to define and develop optimal products for complete envelope system.

WAREHOUSE INSTALLATION GIVES RECOMMENDATIONS AND SOLUTIONS



SPAN

A single-span system defines, that a panel is fixed only at both edges of the panel. A multi-span system defines, that a panel is fixed at both edges and also at intermediate supports.



INSTALLATION DIRECTIONS

The installation direction defines the direction of the transversal and the longitudinal joint of the panel.

WAREHOUSE TRIMOTERM PRODUCT FORMULA



FACADE SYSTEM

The facade system defines the wall of panels where one or both surfaces of the panel face to the outdoor space.



INTERNAL WALL SYSTEM

The facade system defines the wall of panels where both surfaces of the panel face to the indoor space.



ROOF SYSTEM

The roof system defines the upper covering of a building in a flat or pitched option.

Hint!

We know how to help you. Contact us:



technical@trimo-group.com
+386 (0)7 34 60 200



WAREHOUSE PRODUCT SOLUTION

01. STEP

WAREHOUSE INSTALLATION

FACADE SYSTEM

The direction of installation of the facade cladding depends on the construction of the building. For warehouses is an optimal steel structure, which enables an extremely fast installation of Trimoterm products directly on the main structure.

Trimoterm products offer a complete solution for the facade system envelope of warehouses for installation in the vertical and horizontal directions. With a fire-safe design of the façade system envelope and details, the system can achieve fire resistance for up to 4 hours.

RECOMMENDATION

Main steel structure with about 12 m span between columns or beams.

SOLUTION

Horizontal installation with 6 m single span

Vertical installation with 12 m multi span

Request service ►

FLAT ROOF SYSTEM

The densely mounted steel structure in the warehouses allows the installation of a flat roof without an additional substructure.

RECOMMENDATION

Main steel structure with 3 m span between beams.

SOLUTION

Flat roof with 12 m multispans

Request service ►

INTERNAL WALL SYSTEM

Internal walls usually divide the premises into fire-resistant sectors with different goods and so in case of fire the goods remain safe and undamaged.

RECOMMENDATION

Main steel structure with 6 m span between beams.

SOLUTION

Vertical installation fire resistance internal wall with 6 m single span.

Request service ►

02. STEP

WAREHOUSE PRODUCT FORMULA

Rational planning and the right choice of products tailored for the warehouse can drastically reduce the cost of investment. Trimoterm products specially developed for the specifics of warehouses offer a maximally optimized solution for a complete warehouse envelope.

The choice of color for buildings refers to personal preferences and environmental requirements. The use of Lighter Colors impact in better static performance and can consequently reduce investment costs.

Anticorrosion protection affects the life of the Trimoterm envelope. Better protection allows for a longer warranty period.

Trimoterm metal steel sheet is hot galvanized in compliance with EN 10346, and additionally protected by an organic coating in accordance with the coil-coating process (DIN EN 10169/1). The following basic types of organic coatings are applied to steel sheet metal-based on:

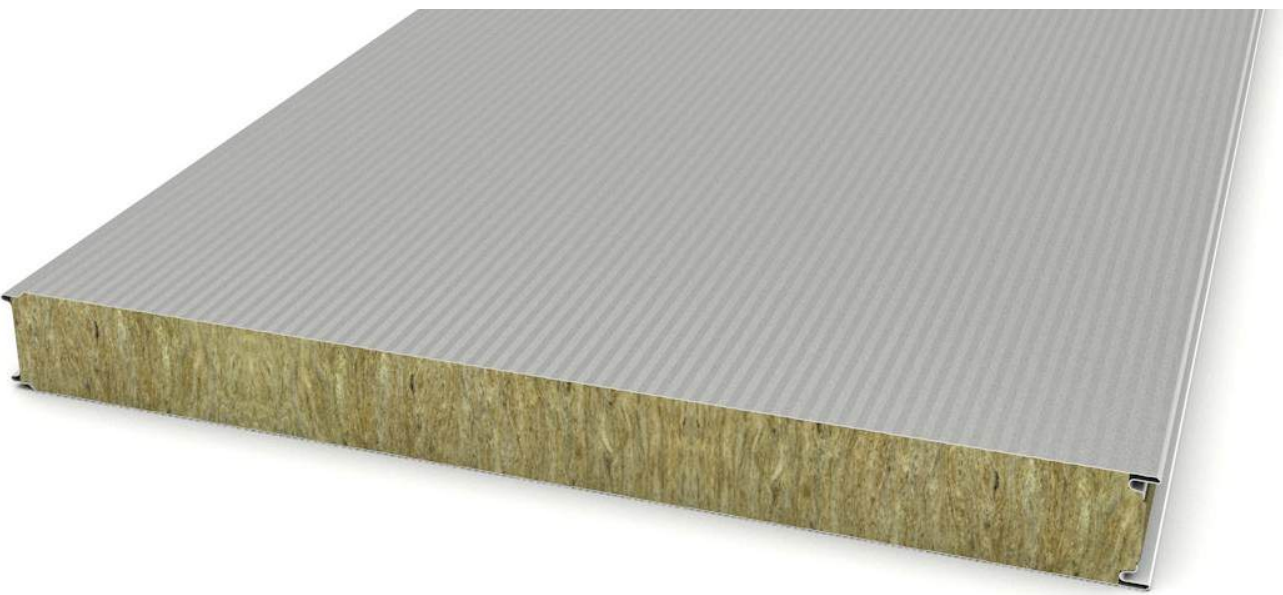
- SP polyester
- PVDF polyvinylidene fluoride
- PUR polyurethane
- PVC polyvinyl chloride, coating or film



WAREHOUSE
PRODUCT SOLUTION

I. FORMULA




HORIZONTAL SINGLE SPAN
FACADE SYSTEM,
TRIMOTERM FTV
PRODUCT



Product	TRIMOTERM FTV		
Colour range	Bright, medium, dark		
Unit dimension	T (mm)	120	
	M (mm)	1200	
	L (mm)	6000	
External steel sheet	Thickness t (mm)	0.6	
	Profile	Microline (M)	
Internal steel sheet	Thickness t (mm)	0.6	
	Profile	Standard (S)	
Features	Mineral Wool core (EN 14509)	Power T	
	Weight (kg/m²)	19.8	
	Fire resistance	EI120	
	Reaction to fire	A2-s1, d0	
	Thermal transmittance U (W/m²K)	0.31	
	Airborne sound insulation R _w [C:C _{tr}] (dB)	30 [-1;-3]	
	Water permeability (EN 14509)	class A (1200Pa)	
	Air permeability (EN 14509)	n=1.5: C=0.00005	
	Burglary resistance class	RC3	
	Certificates	CE, LPCB, FM	

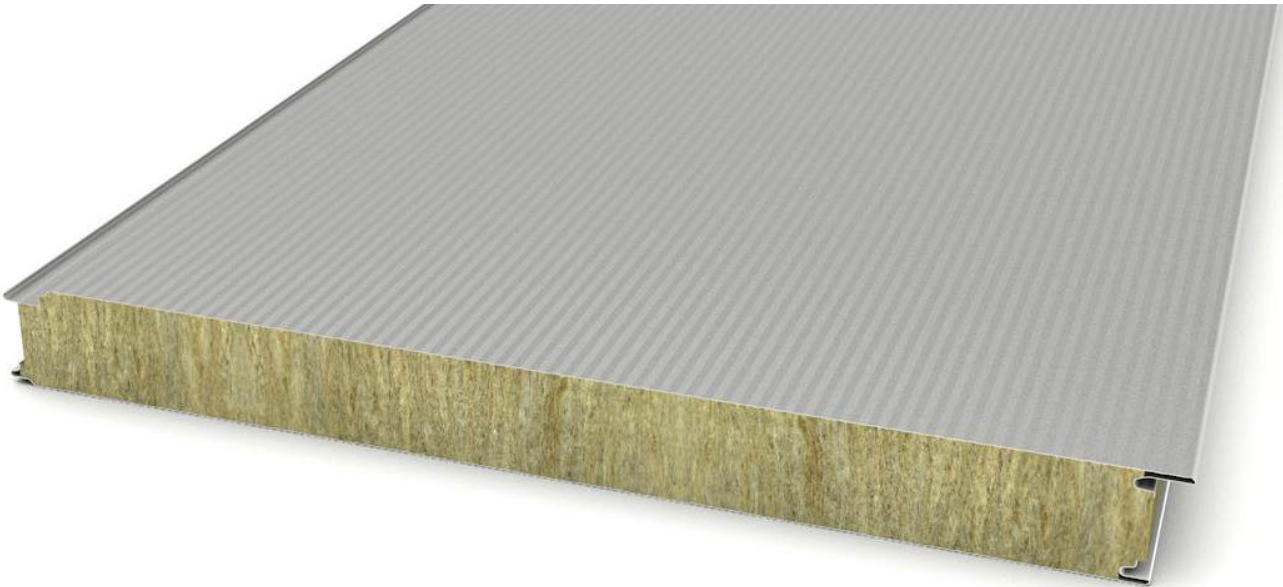
Hint!

We know how to develop and optimize product formula for your unique architecture at your location. Contact us by e-mail or phone:

 sales@trimo-group.com
 +386 (0)7 34 60 200 

II. FORMULA

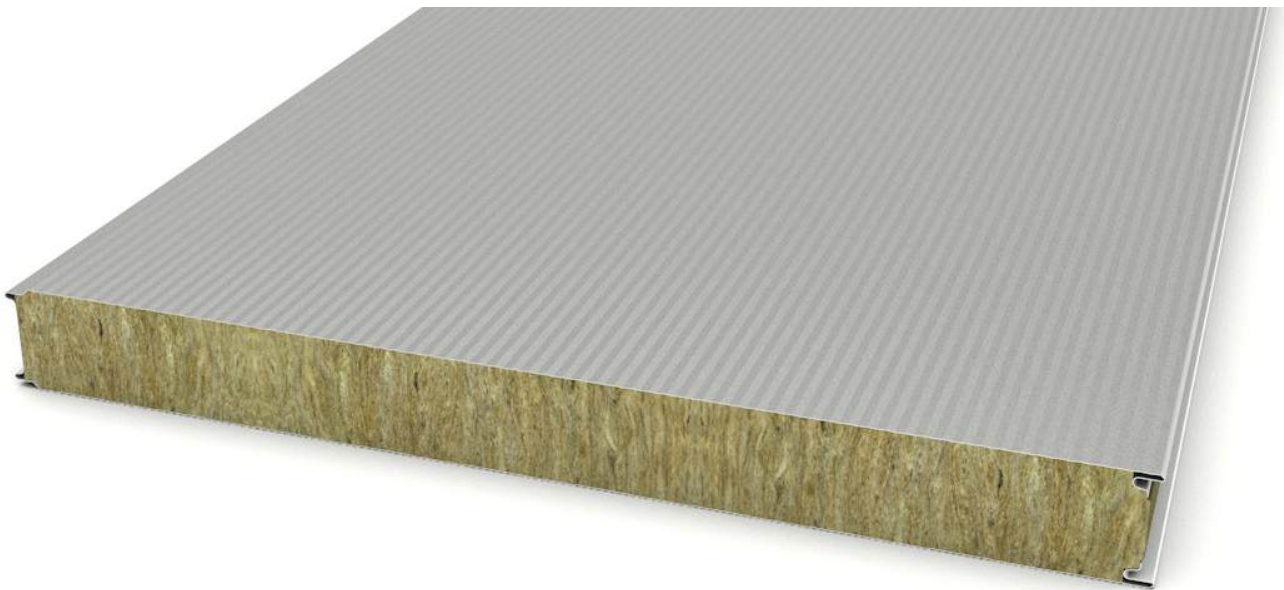
VERTICAL MULTI SPAN
FACADE SYSTEM,
TRIMOTERM FTV HL
PRODUCT

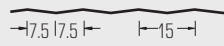
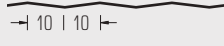


Product	TRIMOTERM FTV HL		
Colour range	Bright		
Unit dimension	T (mm)	120	
	M (mm)	1000	
	L (mm)	12000	
External steel sheet	Thickness t (mm)	0.6	
	Profile	Microline (M)	
Internal steel sheet	Thickness t (mm)	0.6	
	Profile	Standard (S)	
Features	Mineral Wool core (EN 14509)	Power T	
	Weight (kg/m²)	20.0	
	Fire resistance	EI120	
	Reaction to fire	A2-s1, d0	
	Thermal transmittance U (W/m²K)	0.31	
	Airborne sound insulation R _w [C:C _{tr}] (dB)	30 [-1;-3]	
	Water permeability (EN 14509)	class A (1200Pa)	
	Air permeability (EN 14509)	n=1.5: C=0.00005	
	Burglary resistance class	RC3	
	Certificates	CE, LPCB, FM	

III. FORMULA

FLAT MULTI SPAN
ROOF SYSTEM,
TRIMOTERM FTV
PRODUCT

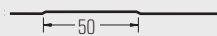



Product	TRIMOTERM FTV		
Colour range	Bright		
Unit dimension	T (mm)	150	
	M (mm)	1200	
	L (mm)	12000	
External steel sheet	Thickness t (mm)	0.7	
	Profile	Microline (M)	
Internal steel sheet	Thickness t (mm)	0.6	
	Profile	Microline (M2)	
Features	Mineral Wool core (EN 14509)	Power S	
	Weight (kg/m²)	28.1	
	Reaction to fire	A2-s1, d0	
	External fire performance (EN 13501-5)	Broof (t1, t2, t3)	
	Thermal transmittance U (W/m²K)	0.28	
	Airborne sound insulation R _w [C:C _{tr}] (dB)	32 [-1;-2]	
	Water permeability (EN 14509)	class A (1200Pa)	
	Air permeability (EN 14509)	n=1.5: C=0.00005	
	Burglary resistance class	RC3	
	Certificates	CE	

IV. FORMULA

VERTICAL SINGLE SPAN
INTERNAL WALL
SYSTEM,
TRIMOTERM FTV
PRODUCT



Product	TRIMOTERM FTV		
Colour range	Bright, medium, dark		
Unit dimension	T (mm)	120	
	M (mm)	1200	
	L (mm)	6000	
External steel sheet	Thickness t (mm)	0.6	
	Profile	Standard (S)	
Internal steel sheet	Thickness t (mm)	0.6	
	Profile	Standard (S)	
Features	Mineral Wool core (EN 14509)	Power T	
	Weight (kg/m²)	19.8	
	Fire resistance	EI120	
	Reaction to fire	A2-s1, d0	
	Thermal transmittance U (W/m²K)	0.31	
	Airborne sound insulation R _w [C:C _{tr}] (dB)	30 [-1;-3]	
	Water permeability (EN 14509)	class A (1200Pa)	
	Air permeability (EN 14509)	n=1.5: C=0.00005	
	Burglary resistance class	RC3	
	Certificates	CE, LPCB, FM	

WAREHOUSE DETAIL SOLUTION

I. FORMULA

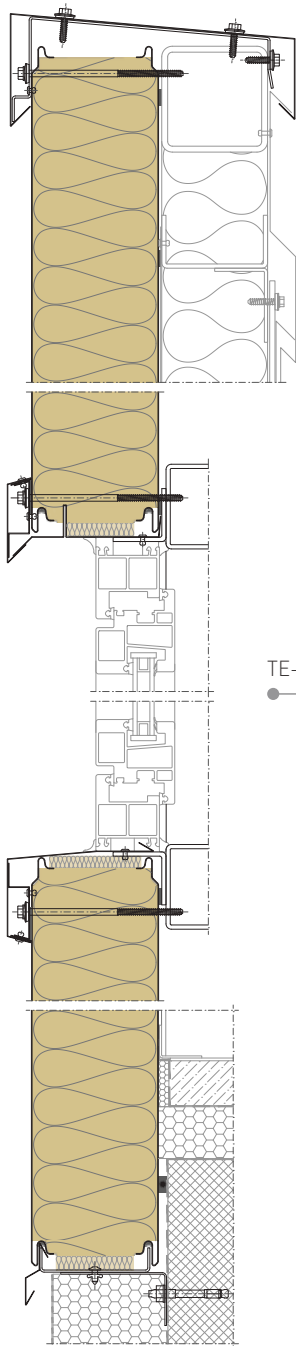
HORIZONTAL SINGLE SPAN
FACADE SYSTEM,
TRIMOTERM FTV
PRODUCT

LONGITUDINAL JOINT

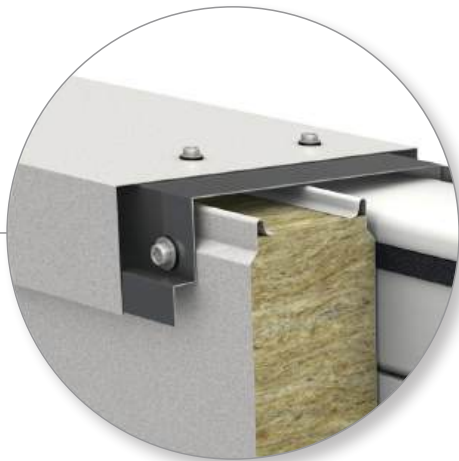


FIRE RESISTANCE FACADE OPTION VERTICAL CUT

PARAPET	TE-H-03.02
WINDOW	TE-H-06.02
BASE	TE-H-02.01



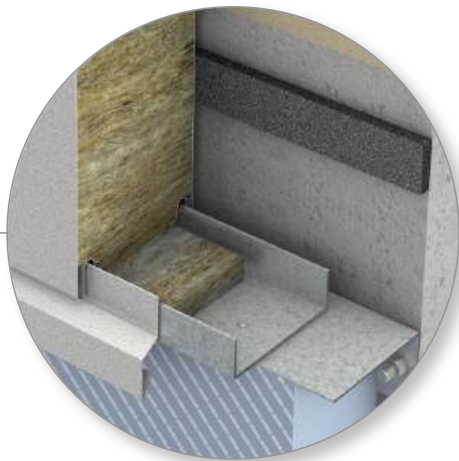
TE-H-03.02



TE-H-06.02

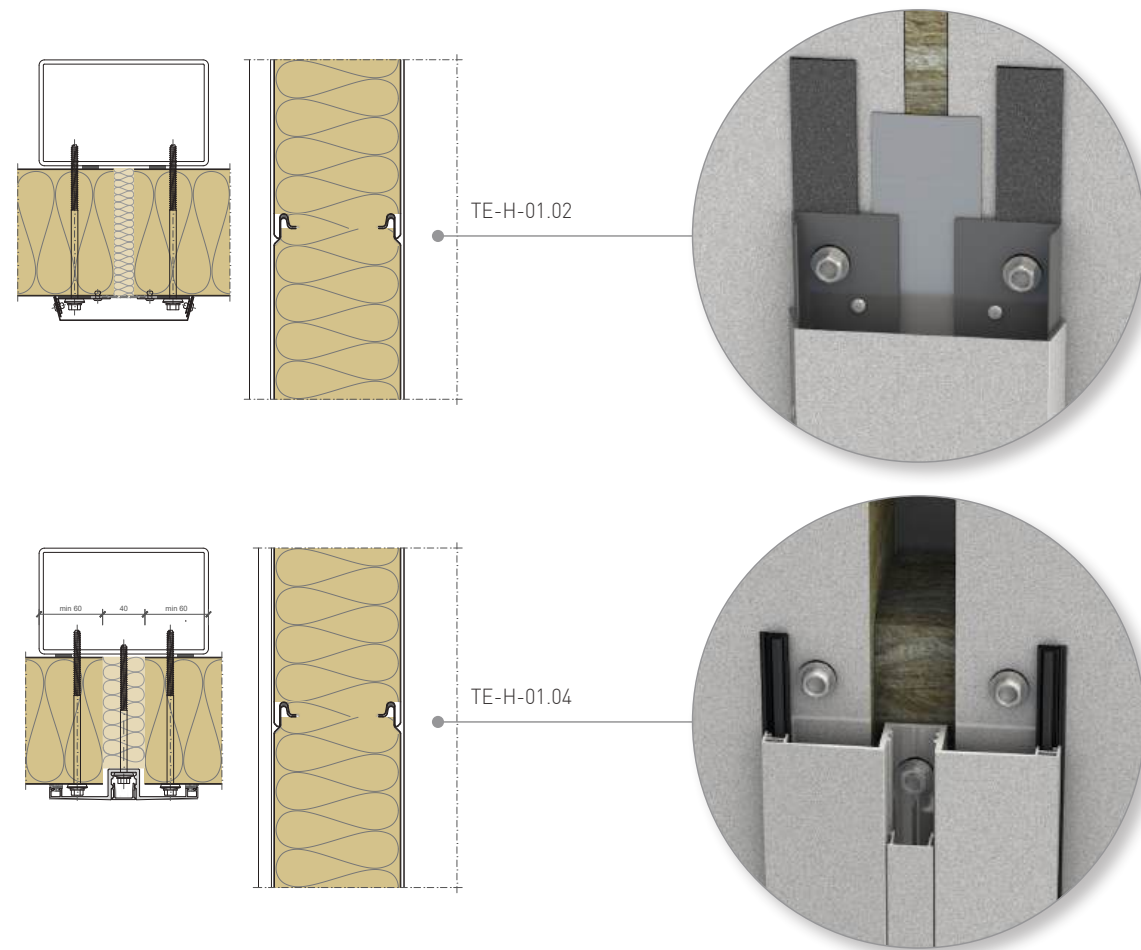


TE-H-02.01



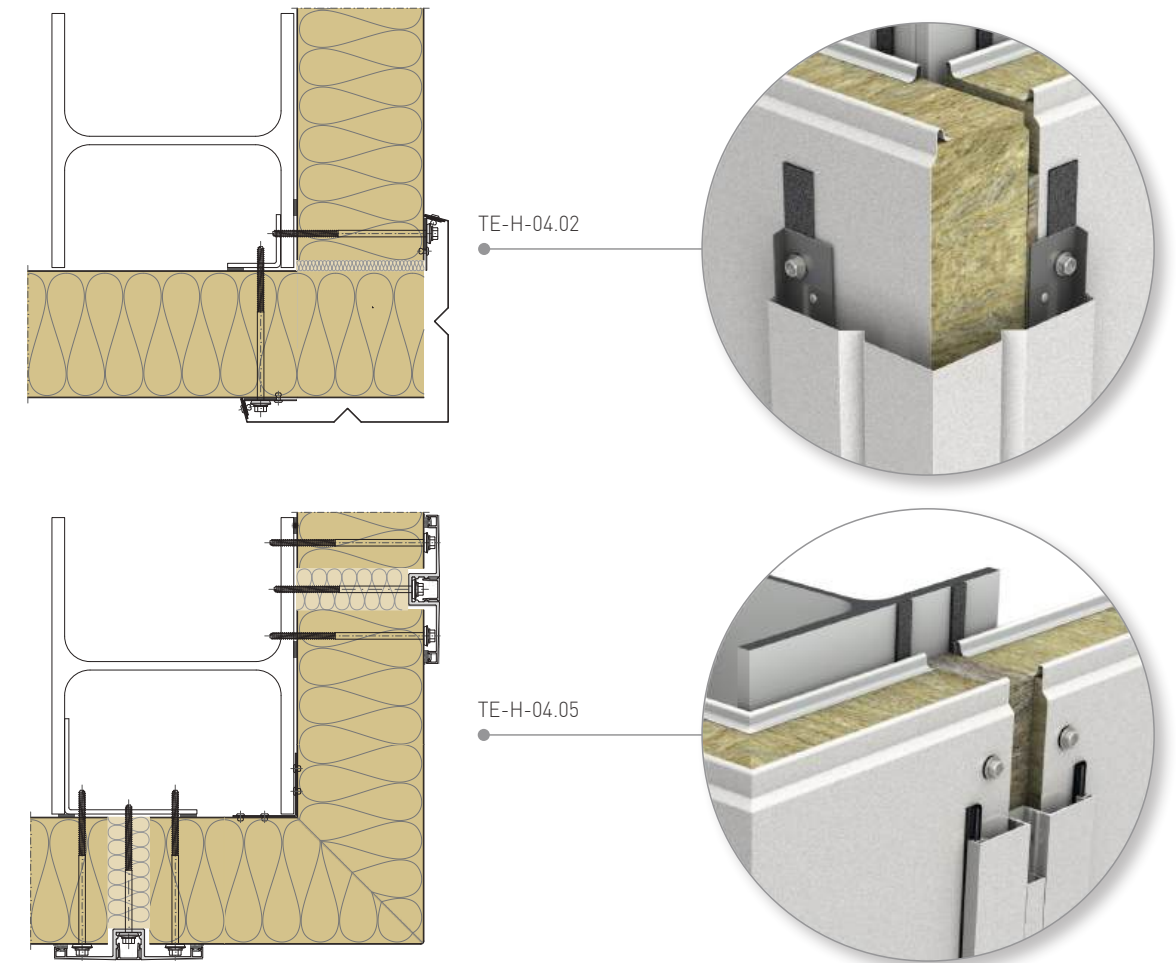
FIRE RESISTANCE JOINT OPTION: HORIZONTAL AND VERTICAL CUT

JOINT TE-H-01.02
JOINT TE-H-01.04



FIRE RESISTANCE CORNER OPTION: HORIZONTAL CUT

EXTERNAL CORNER TE-H-04.02
EXTERNAL CORNER TE-H-04.05



Hint!

We accept challenges and develop tailor-made details for your unique architecture at your location. Contact us by e-mail or phone:

✉ technical@trimo-group.com
☎ +386 (0)7 34 60 200

II. FORMULA

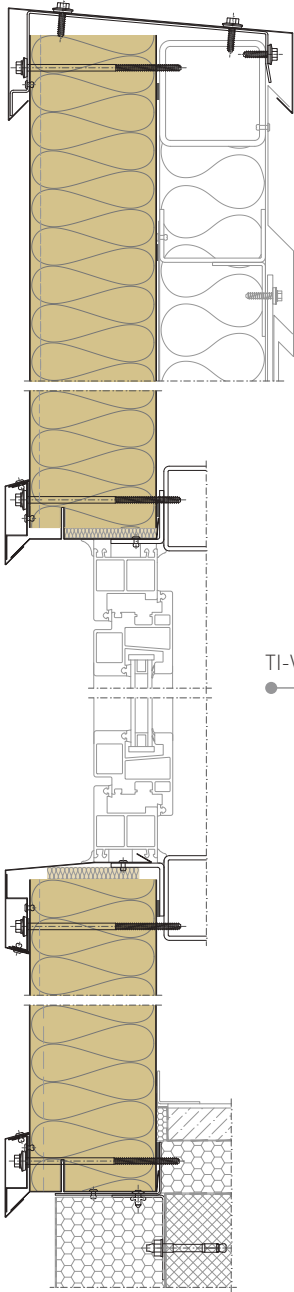
VERTICAL MULTI SPAN FACADE SYSTEM, **TRIMOTERM FTV HL** PRODUCT

LONGITUDINAL JOINT

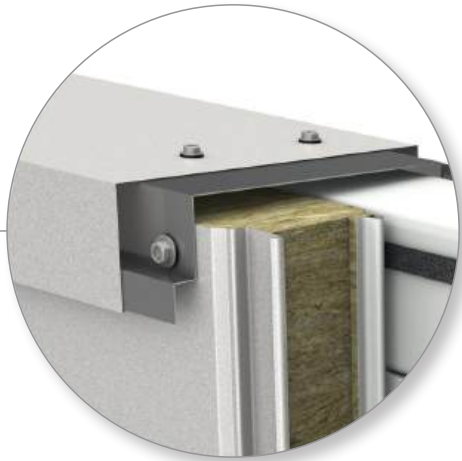


FIRE RESISTANCE FACADE OPTION VERTICAL CUT

PARAPET	TI-V-03.01
WINDOW	TI-V-06.01
BASE	TI-V-02.01



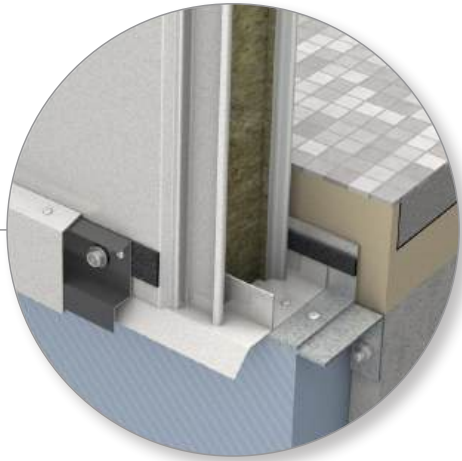
TI-V-03.01



TI-V-06.01

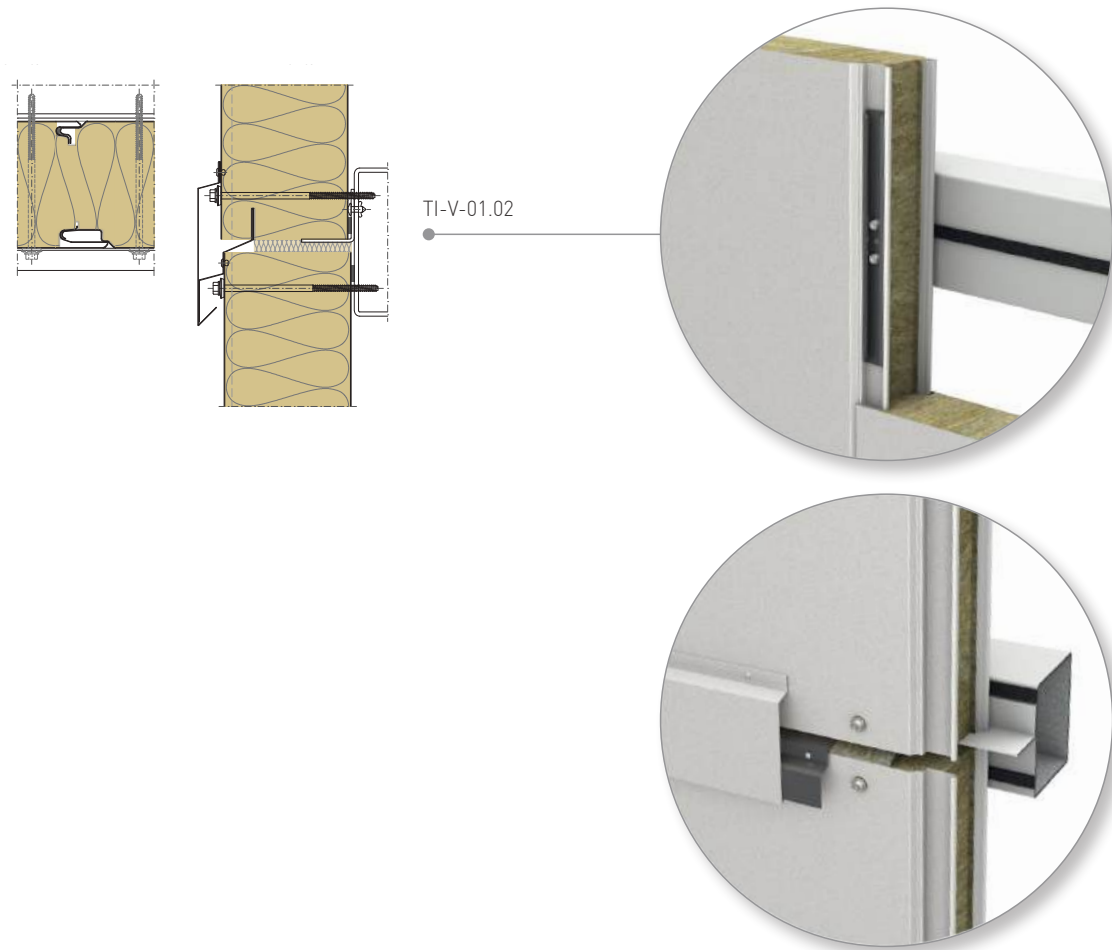


TI-V-02.01



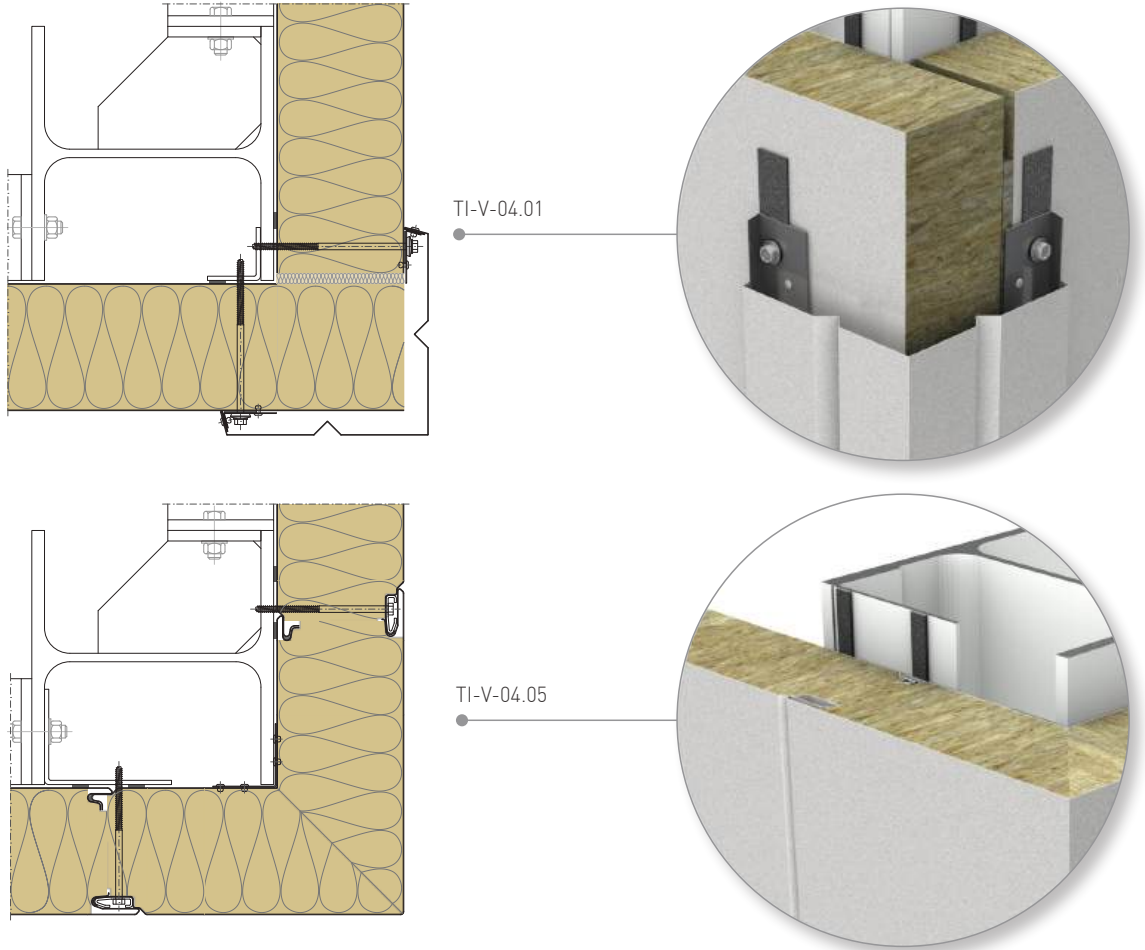
FIRE RESISTANCE JOINT OPTION:
HORIZONTAL AND VERTICAL CUT

JOINT TI-V-01.02



FIRE RESISTANCE CORNER OPTION:
HORIZONTAL CUT

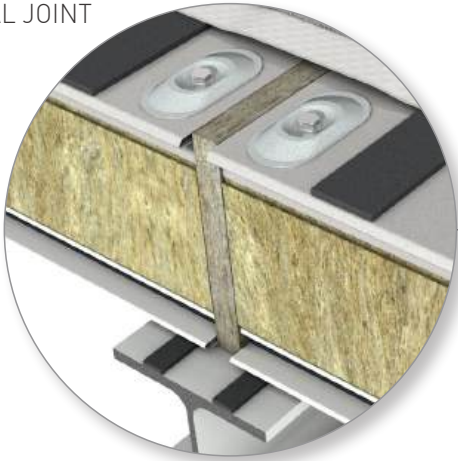
EXTERNAL CORNER TI-V-04.01
EXTERNAL CORNER TI-V-04.05



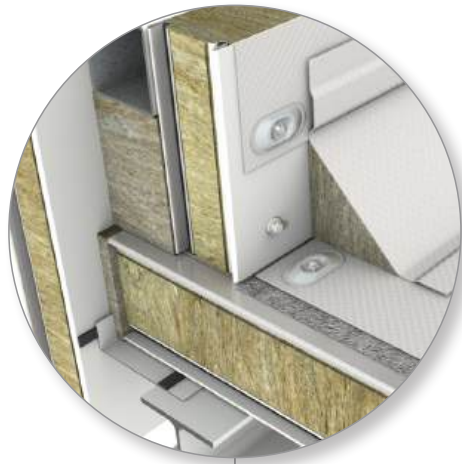
III. FORMULA

FLAT ROOF MULTI SPAN ROOF SYSTEM, **TRIMOTERM FTV** PRODUCT

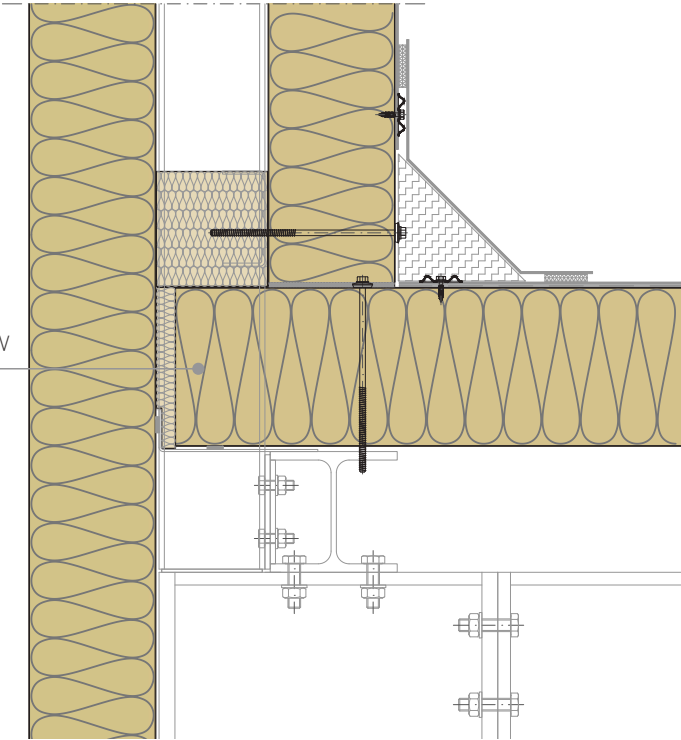
TRANSVERSAL JOINT



TRIMOTERM FTV

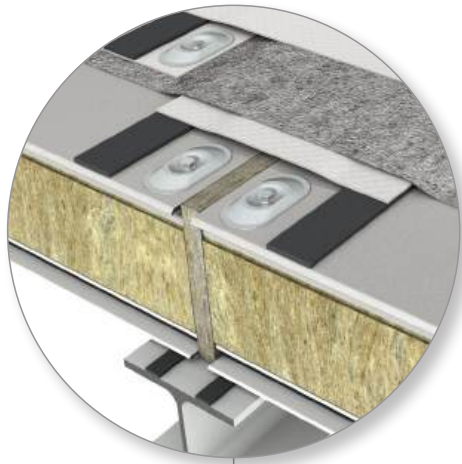


TE-F-03.01

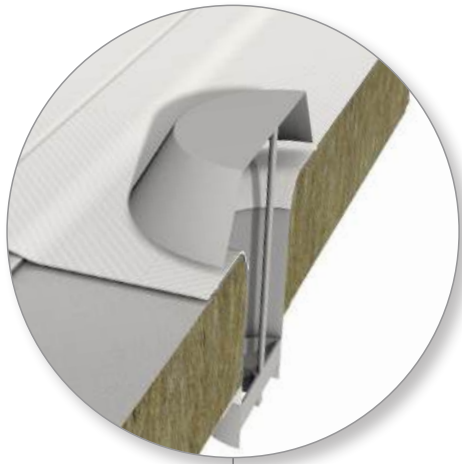
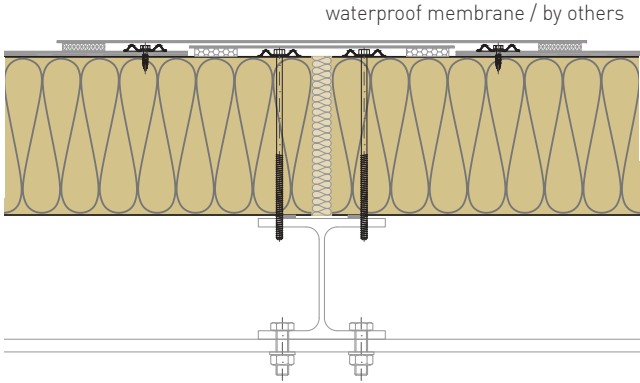


FLAT ROOF OPTION VERTICAL CUT

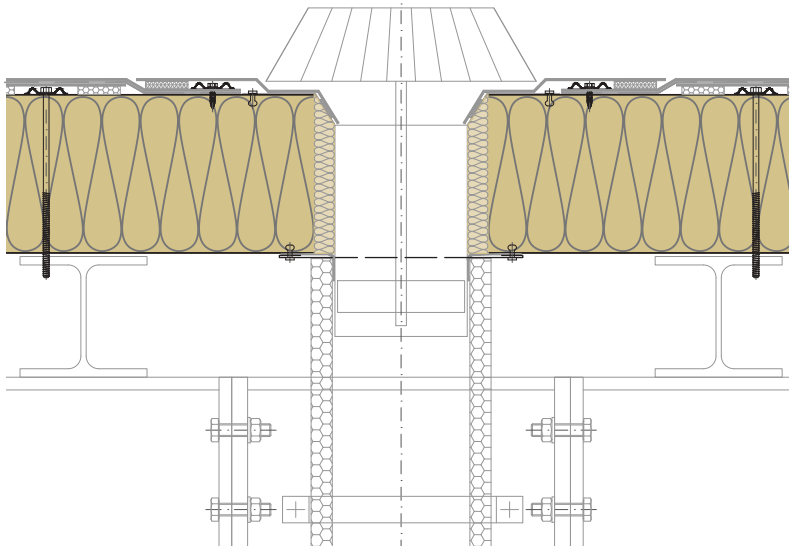
VALLEY	TE-F-06.01
JOINT	TE-F-01.01
PARAPET	TE-F-03.01



TE-F-01.01



TE-F-06.01



IV. FORMULA

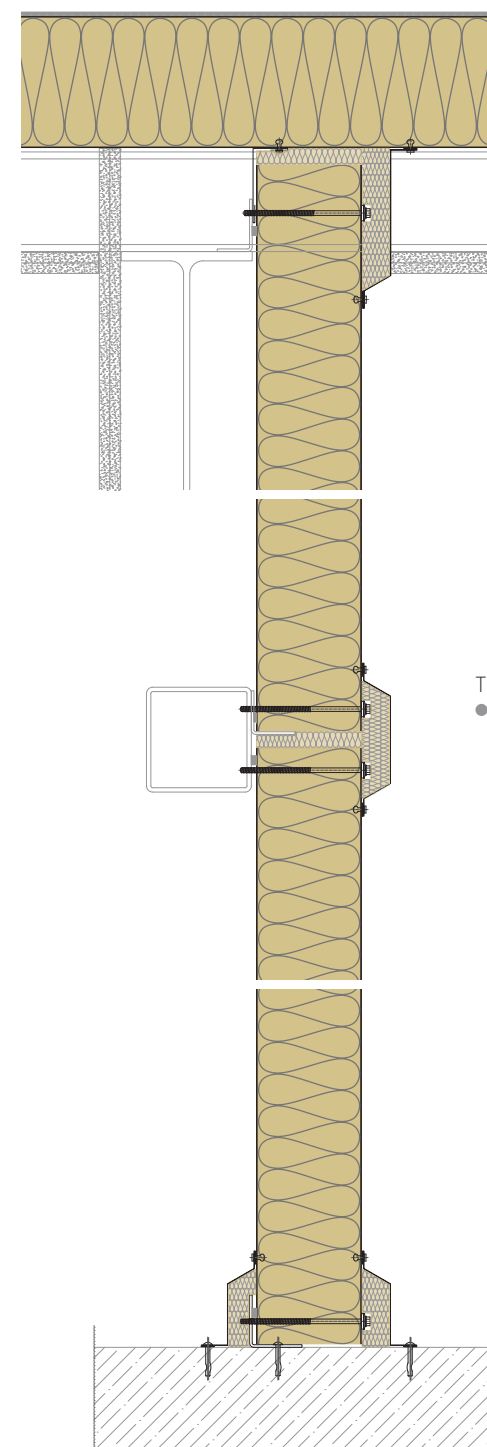
VERTICAL SINGLE SPAN INTERNAL WALL SYSTEM, **TRIMOTERM FTV** PRODUCT

LONGITUDINAL JOINT

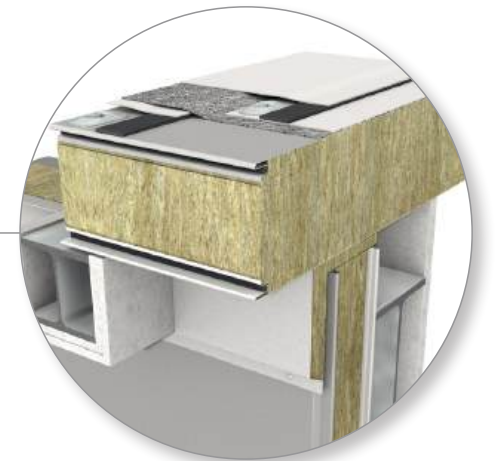


FIRE RESISTANT INTERNAL WALL OPTION VERTICAL CUT

TRIMO SYSTEM CONNECTION	TE-V-10.40
JOINT	TE-V-01.40
BASE	TE-V-02.40



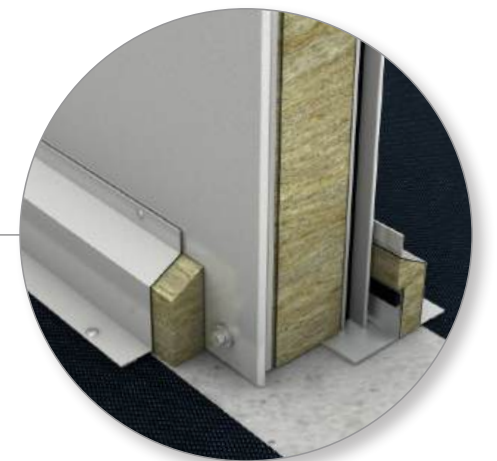
TE-V-10.40



TE-V-01.40



TE-V-02.40



WAREHOUSE TOOLS

The tool is made to serve people during project realization. As pioneers in our industry, we have developed a user-friendly BIM tool for planning building envelopes that enables faster project planning by up to 20% compared to classic CAD design.

BIM

The dedicated Trimo BIM libraries include the developed Trimoterm products in line with Warehouse product formula and associated details. BIM libraries for Trimo warehouse envelope systems are available and for GRAPHISOFT ARCHICAD and Autodesk Revit software.

Trimo BIM software tool ensures insight of product features data. Designing in a 3D environment reduces collisions, raises productivity and enables cost control with a list of quantities, which is a base for a quotation.

GREEN CITY

The green city is represented by architectures built with Trimo products that are up to 99% recyclable. In the animation, you notice architectures that are already built according to the product formula.

Discover your future warehouse building in a vision of urban design, where we have placed our case study buildings made only with Trimo products.



DOWNLOADS

We constantly strive to keep up with the times and make sure you have the latest information and tools.

BROCHURES

- Facade systems
- Roof systems
- General



TECHNICAL DOCUMENTS

- Facade systems
- Roof systems
- Structural performance



RENOVATION

- Renovation handbook



DESIGN TOOLS

- CAD details
- BIM product libraries




WAREHOUSE

- Green city animation



Hint!

In case of renovation scan QR code and check out Trimo Renovation handbook. 

WAREHOUSE HELP SERVICE

When you want to bring your project to the reality you can count on us. We provide comprehensive support throughout the entire duration of your project - from planning and purchasing to project management and creation, as well as flawless implementation.

OPTIMAL SOLUTION

With long term experience and knowledge, we are especially focused on optimal solutions for warehouses where there are very high demands for safety, fire resistance, airtightness, and quick installation.

We believe in smart, innovative, cost-effective, sustainable solutions therefore we develop a unique **product formula** with a complete **detail solution** for your warehouse at your location.

WAREHOUSE PRODUCT FORMULA



WAREHOUSE DETAIL SOLUTIONS



SERVICE

- Visualizations, animations, VR
- Technical management
- Structural calculations
- BIM product libraries and engineering
- CAD design and shop-drawings

FIND YOUR LOCAL CONTACT

www.trimo-group.com/en/company/about-trimo/global-presence



THE VALUE PROPOSITION

As you design unique architecture, we create the highest performing products to our customized formula whilst tailoring details specifically to your needs.

TRIMO DRESS CODE IS UNIQUE ARCHITECTURE



reddot design award
winner 2010

Artme, a unique product for unique personalities



HEADQUARTERS

TRIMO D.O.O.

PRIJATELJEVA CESTA 12,
8210 TREBNJE, SLOVENIA

T: +386 (0)7 34 60 200

F: +386 (0)7 34 60 127

TRIMO@TRIMO-GROUP.COM

WWW.TRIMO-GROUP.COM

Trimo Group holds full copyrights on the information and details provided in this document, therefore any unauthorised reproduction and distribution is strictly prohibited. Professional Care has been taken to ensure that the information/details are accurate, correct, complete and not misleading. However, Trimo, including its subsidiaries, does not accept responsibility or liability for errors or information, which is found to be misleading. Information/details in this document are for general purposes only. It is the user's responsibility to check compliance with local laws. Any deviations in details and project solutions are the user's responsibility. Under no circumstances, will we be liable for any loss or damage including without limitation, indirect or consequential loss or damage, or any loss or damage whatsoever arising from lost profits as a result of or in connection with the use of this document. All information issued by Trimo Group is subject to continuous development and information/details contained in this document were current on the date of issue. It is the user's responsibility to obtain the most up-to-date information from Trimo when information/details are used for a project.

The latest version of the document is available at www.trimo-group.com. The latest version of the published document in English prevails over other translated documents.

For information about the delivery of panels see Trimo's General conditions
(<https://trimo-group.com/en/trimo/general-conditions-of-sale>).