SINTEF Technical Approval

TG 2458

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Amended:
Valid until 01.03.2028
Provided listed on
www.sintefcertification.no

SINTEF confirms that

Metrotile Steel Tile System

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document

1. Holder of the approval

ROOFTG Europe NV
Michielenweg 3
3700 Tongeren
Belgium
www.rooftg.com

2. Product description

Metrotile Steel Tile System are steel tiles manufactured from cold rolled steel sheets in different designs, standard dimensions and thicknesses. According to their design they can be called tile, illustrated in Fig. 1 to 3.

Metrotile Steel Tile System is supplied in different colours. The different surface treatments are shown in table 1.

In addition to the standard steel tiles, different types of accessories are delivered in the same material, such as ridge fittings, gable steel tiles, gutters etc., plus fixing nails.

3. Fields of application

Metrotile Steel Tile System can be used on buildings classified in in risk class 1-6 in fire class 1-3.

Metro Steel Tile System can be used as roofing on ventilated, pitched roofs where the roofing steel tiles are laid on timber batten construction.

Table 1.
Surface treatment for Metrotile Steel Tile System

Product \ Type of treatment		Hot dip zinc-magnesium aluminium coated steel	Primer	Basecoat	Stone granules crushed /	Acryl varnish clear	Coating
Metrotile Bond	Top	X	X	X	X	X	
	Bottom	X	X				
Metrotile X-Bond Prestige	Top	X	X				X
	Bottom	X	X				
Metrotile Qube Prestige	Top	X	X				X
	Bottom	X	X				

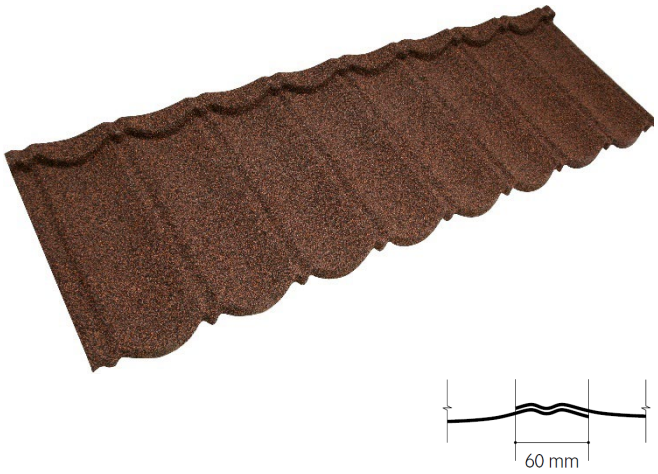

Fig. 1
Metrotile Steel Tile System, Metrotile Bond. Overlap 60 mm.
Figure: ROOFTG Europe NV

Fig. 2
Metrotile Steel Tile System, Metrotile X-Bond Prestige.
Overlap 70 mm
Figure: ROOFTG Europe NV

Table 2
Weight, geometric measures, and product characteristics for the different Metrotile products

Property	Metrotile						Unit	Tolerance
	Bond		X-Bond Prestige		Qube Prestige			
	DoP[1)]	Control limit[2)]	DoP[1)]	Control limit[2)]	DoP[1)]	Control limit[2)]		
Steel thickness	0,40	0.40	0,40	0.40	0,46	0.46	%	±0,5
max. length	-	1330	-	1470	-	1305	mm	±3
Covering length	-	1270	-	1400	-	1260	%	±0,5
Max. width	-	410	-	410	-	350	mm	±2
Covering width	-	370	-	370	-	321	%	±0,5
Distance of battens	-	370	-	370	-	321	mm	±2
Overlap	-	60	-	70	-	45	mm	±2
Weight / plate	-	2.8	-	3.19	-	2.1	kg/plate	±0,2
Weight / m^2	-	6.2	-	4.4	-	5.19	kg/m^2	±0,3
Snowload resistance	-	8.0[3)]	-	8.0[3)]	-	5.5[3)]	kN/m^2	-

[1)] Manufacturers Declaration of Performance, DoP
[2)] Control limit shows values, product has to satisfy during internal factory production control and audit testing
[3)] Shown snowload can be used as design load according to EN 1991 – 1 - 3:2003+A1:2015+NA:2018

4. Properties

Material Properties
Product characteristics for Metrotile Steel Tile System are shown in table 2.

Safety in case of fire
Metrotile Steel Tile System in relation to its external fire performance is classified B_{ROOF} (t2). The classification has been carried out in accordance with EN 13501-5:2016.

Load-carrying capacity
Performed tests and evaluation showing that Metrotile Steel Tile System can be assessed to have satisfying strength a stiffness for the most of the in Norway relevant snow loads. Explicit loads for the different products are given in table 2. If the recommended maximum load is exceeded permanently, visible deformation need to be expected.

Testing with static point loads shows that permanent deformations at ca. 1 kN (10 cm x 10 cm surface) can occur when the load is not placed in the bottom of the tile-valleys.

Durability
Metrotile Steel Tile System has documented sufficient corrosion protection on all surfaces and edges coated with the different surface treatments, shown in table 1. The cut edges, made on site should, if possible, be positioned underneath another tile or the edges should be treated with corrosion protection. In general roofing based on steel sheeting may be subject to corrosion damage over time in locations with particularly corrosive atmospheres.

5. Environmental aspects

Substances hazardous to health and environment
Metrotile Steel Tile System contains no hazardous substances with priority in quantities that pose any increased risk for human health and environment. Chemicals with priority include CMR, PBT or vPvB substances.

Effect on soil, surface water and ground water
The leaching properties of Metrotile Steel Tile System are evaluated to have no negative effects on soil or water.

Fig. 3
Metrotile Steel Tile System, Metrotile Qube Prestige. Overlap 45 mm
Figure: ROOFTG Europe NV

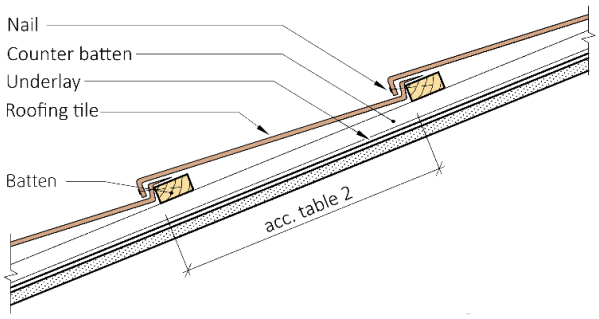

Fig. 4
Roofing tiles laid on counter battens and roof battens and fixed with nails from the top through both sheets at once.

Waste treatment/recycling
Metrotile Steel Tile System shall be sorted as metall. The product shall be delivered to an authorized waste treatment plant for material recovery.

Environmental declaration
No environmental declaration (EPD) has been worked out for Metrotile Steel Tile System.

6. Special conditions for use and installation

Design considerations

Metrotile Steel Tile System can be used over a roofing underlay on roofs with a slope down to 18°. If the roofing underlay consists of a load-bearing sub-roof and a continuous waterproof layer such as an asphalt underlay with bonded joints, the steel tiles may be laid on roofs with a slope down to approx. 10°. The roofing underlay should never have any loose overlap joints.

Metrotile Steel Tile System handles the normal occurring wind blast velocities in Norway. Condition for that is, that the nailing is performed in ca. 90° direction of the resultant wind load direction as shown in Fig. 4.

If wind design considerations shall be done for 25 year or 50 year events exact evaluations have to be done, especially for dimension and fastening of battens.

Installation

Metrotile Steel Tile System shall be mounted from ridge to eave, from left into right direction.

Metrotile Steel Tile System shall be fastened with 50 mm hot galvanized ring shank nails with a diameter of 2,8 mm. The nails are delivered as a part of the roofing system.

Each tile shall be fixed with 4 nails. The method for fasting has need for an exact mounting of battens with distances which are shown in table 2. The minimum batten dimension is recommended to be 30 mm x 48 mm.

Both when walking on the roofing and when fastening the tiles, care must be taken to ensure that the roofing steel tiles are not damaged during installation. See the manufacturer's special installation guideline. Special repair kits are available for mending damages to the surface coating.

Cutting of Metrotile Steel Tile System must be carried out using a guillotine, sheet metal shears, or a special saw with hardened metal blade. Grinders or high-speed saws that generate high temperatures in the cut should be avoided. Cut edges should be coated with corrosion-protective paint.

The roof must have sufficient ventilation. Care must be taken to ensure sufficient air supply below the tiles at the eaves, cf. the manufacturer's installation guideline.

In general, the roofing steel tiles should be installed in accordance with principles given in the Building Research Design Sheets 544.101 and 544.103, including connections to other parts of the building structure. The need for a snow-guard may be assumed to be the same as for roofing made of bituminous roofing membranes or shingles, and coarse concrete tiles. See Building Research Design Sheets 525.931.

Traffic on roof

Deformation of sheets due to overloading may cause damages to the corrosion protection. Roofing with Metrotile Steel Tile System should therefore be supplemented with specially designed roof ladder or roof bridge where access to the roof is required for maintenance purposes. Walking on the roofing sheets must only be done with caution, and the foot should be positioned in the valley of the profiles directly above the roofing batten.

Transport and storage

Metrotile Steel Tile System parts are packed on pallets and covered with shrinking foil. It is prohibited to position pallets on top of each other.

7. Factory production control

Metrotile Steel Tile System is produced by ROOFTG Europe NV, Michielenweg 3, 3700 Tongeren, Belgium.

The holder of the approval is responsible for the factory production control in order to ensure that Metrotile Steel Tile System is produced in accordance with the preconditions applying to this approval.

The manufacturing of the Metrotile Steel Tile System and the manufacturer's system for factory production control (FPC) is subject to continuous surveillance in accordance with the contract regarding SINTEF Technical Approval.

ROOFTG Europe NV has a quality management system what is certified according EN ISO 9001.

8. Basis for the approval

The evaluation of Metrotile Steel Tile System is based on reports owned by the holder of the approval.

The evaluation of design and technical solutions are based on recommendations given in SINTEF Building Research Design Guides.

9. Marking

Metrotile Steel Tile System is marked on the reverse side of each roofing steel tile with product name and production time. The product is CE marked in accordance with EN 14782.

The approval mark for SINTEF Technical Approval TG 2458 may also be used.

10. Liability

The holder/manufacturer has sole product responsibility according to existing law. Claims resulting from the use of the product cannot be brought against SINTEF beyond the provisions of Norwegian Standard NS 8402

for SINTEF

Hans Boye Skogstad
Approval Manager