

TMI-10/2018

# CERTIFICATE

of

## FIRE PREVENTION CONFORMITY

of multilayered roofslab enclosure structures assembled using Lindab trapezoidal steel sheets  
type LTP 150 and LTP 85

**Name of the building product:**

Multilayered roofslab enclosure structures assembled using Lindab trapezoidal steel sheets  
type LTP 150 and LTP 85

**Applicant and holder of the Certificate of Fire Prevention Conformity (TMI):**

Lindab Kft.  
2051 Biatorbágy, Állomás u. 1/a.

**Manufacturers:**

Lindab Kft.  
2051 Biatorbágy, Állomás u. 1/a.

**Distributor:**

Lindab Kft.  
2051 Biatorbágy, Állomás u. 1/a.

This certificate is issued by ÉMI Non-Profit LLC., based on the evaluation of the test results detailed in the National Technical Approval no. **A-218/2007** and in the Research reports no. **K-3/1/2010** and **K-3/2/2010**, furthermore according to data, terms and conditions as well as regulations recorded on the reverse side (and on supplementary sheet(s)).

**Field of application of the building structure:**

Roofslab enclosure structures of buildings.

The Certificate of Fire Prevention Conformity is valid until **28<sup>th</sup> February 2025**.

Szentendre, 10<sup>th</sup> February 2020



*P. Tóth*  
Péter Tóth  
Chief Scientific Officer

This Certificate of Fire Prevention Conformity consists of 65 pages and – attachment forming the part of this document.

The English translation was issued on the 17<sup>th</sup> February 2020 under project number DK-T223N-19049-2019. In case of doubt the Hungarian version is authoritative.

**Name of the testing unit:**

Fire Testing Laboratory of Central Testing Laboratory of ÉMI Non-Profit LLC.\* (2000 Szentendre, Dózsa György út 26.)

\* The Fire Testing Laboratory is a full right member of EGOLF (European Group of Organizations for Fire Testing; Inspection and Certification).

**Laws, standards and regulations taken into account during the tests of the building structure:**

MSZ EN 1365-2:2015, MSZ EN 13501-1:2019, MSZ EN 13501-2:2016, MSZ EN 13501-5:2016 standards, the Fire Safety Technical Directive TvMI 11.2:2020.01.22., as well as Part five of the National Fire Code (OTSZ) issued with BM decree 28/2011. (IX. 6.), the National Fire Code (OTSZ) issued with BM decree 54/2014. (XII. 5.) in force before 22nd January 2020, and the National Fire Code (OTSZ) issued with BM decree 54/2014. (XII. 5.) modified with BM decree 30/2019. (VII. 26.) from 22nd January 2020.

**Short description and technical data of the product:**

The trapezoidal supporting elements marked LTP 150 and LTP 85 are manufactured of hot dip galvanized and 15 µm polyester covered steel sheets with cold forming on mill. Two variants of trapezoidal steel sheets LTP 150 are available: with solid and with perforated web-plates. The trapezoidal sheets are also manufactured with anticondensation felt, which will be applied in the factory during rolling.

The outstretched width (roll width) of the profiles is 1500 mm. Sheet thicknesses of LTP 150 are: 0.75; 0.88; 1.00; 1.25; 1.50 mm. Sheet thicknesses of LTP 85 are: 0.75; 0.88; 1.00; 1.25 mm.

The LTP 150 trapezoidal sheets with solid and perforated web-plates are manufactured with the same dimension of cross section, with height of 153 mm and useful cover width of 840 mm. Height of the LTP 85 trapezoidal sheets is 82.5 mm; useful cover width is 1120 mm.

Steel quality of the trapezoidal sheets LTP 150 and LTP 85 is S320GD+Z100 or S320GD+ZM100 (MSZ EN 10346:2009, prEN 10346:2013).

Table 1

Type	Steel quality	Height [mm]	Useful cover width [mm]	Surface	Reaction to fire class	Sheet thickness [mm]	Dead weight [kg/m <sup>2</sup> ]	Dead weight with felt [kg/m <sup>2</sup> ]
LTP 150	S320GD+Z100 or S320GD+ZM100	153	840	hot dip galvanized	A1	0.75	10.5	10.7
				15 µm PE coating	A1	0.88	12.3	12.5
				anticondensation felt	A2-s1, d0	1.00	14.0	14.2
						1.25	17.5	17.7
LTP 85	S320GD+Z100 or S320GD+ZM100	82.5	1120	hot dip galvanized	A1	1.50	21.0	21.2
				15 µm PE coating	A1	0.75	7.9	8.0
				anticondensation felt	A2-s1, d0	0.88	9.3	9.4
						1.00	10.5	10.6
						1.25	13.1	13.2

The products above are applied to make layered, heat- and waterproofed ceiling structures. The structural elements with trapezoidal profile are supported with beams, purlins, wall profile beams or ceiling beams. The trapezoidal sheets are attached to each other by overlapping in length and cross direction. Steel screws or rivets are applied to joints. The static model of structures can be simply supported continuous beam, depending on the structural design. However, in the vast majority of cases the design with three supports is applied.



Rock wool products applied in the structures:

Table 2

Group	Type	Reaction to fire class
Group 1	Dachrock, Hardrock Max, <b>Hardrock 1000</b>	A1
Group 2	Roofrock 30, Roofrock 40, <b>Monrock Max E</b>	A1
Group 3	Roofrock 30, Roofrock 40, Roofrock 50, Roofrock 60, <b>Durock</b>	A1
Group 4	Roofrock 30, Roofrock 40, Roofrock 50, Roofrock 60, Dachrock, <b>Hardrock Max, Hardrock 1000</b>	A1
Group 5	Roofrock 30, Roofrock 40, Roofrock 50, Roofrock 60, <b>Dachrock</b>	A1
Group 6	Dachrock	A1

**Note:** The products highlighted bold are to be installed in a thickness of max. 80 mm in the listed layer orders 1 to 27 as the upper layer of the heat-insulating layer of the layer orders.

Table 3

Group	Max. thickness (mm)	Max. dead weight (kg/m <sup>2</sup> )	Max. thickness (mm)	Max. dead weight (kg/m <sup>2</sup> )
Group 1	80	14.0	80	14.0
Group 2	90	11.8	250	30.4
	260	31.5	300	36.1
	310	37.3	350	41.9
Group 3	90	14.0	250	36.1
	260	37.4	300	42.8
	310	44.2	350	49.5
Group 4	90	15.5	250	39.2
	260	40.6	300	46.6
	310	48.0	350	54.0
Group 5	90	14.0	250	36.0
	260	38.0	300	43.0
	310	44.0	350	50.0
Group 6	90	14.0	250	39.0
	260	40.5	300	46.5
	310	48	350	54.0

Types of waterproofing membranes applied in the structures:

Table 4

Thickness (mm)	Material type	Types marked in layer orders	Dead weight (kg/m <sup>2</sup> )
1.2-2.0	PVC	Mapeplan M 12, M 15, M 18, M 20	1.5-2.5
1.2		Alkorplan F	1.56
1.5		Alkorplan F 35176	1.85
1.2-2.0	TPO/FPO	Mapeplan TM 12, TM 15, TM 18, TM 20	1.2-2.0
1.1-1.8	TPO	UltraPly TPO	~ 1.2
1.1-1.5	EPDM	RubberGard EPDM LSFR RubberGard EPDM MAX	1.3-1.8 1.4-1.9
8 (3+5)	Bitumen	MEMBRANA PM Plus bituminous under layer + TA-ALFA TOP 5 SPEED PROFILE SBS modified cupsheet	10.5

Layer orders with verified performance:

Layer order of roofslab enclosure structure 1 (from top to bottom):

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
80 mm	„Rockwool” rock wool thermal insulation from Group 1 (105-175 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>0.25 mm thick PE foil or</li> <li>0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 17 kg/m<sup>2</sup>

Layer order of roofslab enclosure structure 2 (from top to bottom):

Thickness	Layer element	Reaction to fire class (EN 13501-1)
8 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>two layers of bituminous waterproofing membrane system against rainwater: MEMBRANA PM Plus bituminous under layer (~ 3 mm) + TA-ALFA TOP 5 SPEED PROFILE SBS modified cupsheet (~ 5 mm)</li> </ul>	min. E
90-250 mm	„Rockwool” rock wool thermal insulation from Group 2 (105-135 kg/m <sup>3</sup> )	A1
0,25-0,60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>0.25 mm thick PE foil or</li> <li>0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 41.35 kg/m<sup>2</sup>



**Layer order of roofslab enclosure structure 3 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
90-250 mm	„Rockwool” rock wool thermal insulation from Group 2 (105-135 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>0.25 mm thick PE foil or</li> <li>0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 33.35 kg/m<sup>2</sup>
**Layer order of roofslab enclosure structure 4 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
8 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>double layer bituminous insulating system against rainwater: MEMBRANA PM Plus bituminous under layer (~ 3 mm) + TA-ALFA TOP 5 SPEED PROFILE SBS modified cupsheet (~ 5 mm)</li> </ul>	min. E
260-300 mm	„Rockwool” rock wool thermal insulation from Group 2 (105-135 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>0.25 mm thick PE foil or</li> <li>0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 47.1 kg/m<sup>2</sup>

**Layer order of roofslab enclosure structure 5 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
8 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>double layer bituminous insulating system against rainwater: MEMBRANA PM Plus bituminous under layer (~ 3 mm) + TA-ALFA TOP 5 SPEED PROFILE SBS modified cupsheet (~ 5 mm)</li> </ul>	min. E
310-350 mm	„Rockwool” rock wool thermal insulation from Group 2 (105-135 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>0.25 mm thick PE foil or</li> <li>0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 52.85 kg/m<sup>2</sup>
**Layer order of roofslab enclosure structure 6 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
90-250 mm	„Rockwool” rock wool thermal insulation from Group 3 (105-164 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>0.25 mm thick PE foil or</li> <li>0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 39.07 kg/m<sup>2</sup>



**Layer order of roofslab enclosure structure 7 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
260-300 mm	„Rockwool” rock wool thermal insulation from Group 3 (105-164 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 45.82 kg/m<sup>2</sup>

**Layer order of roofslab enclosure structure 8 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
310-350 mm	„Rockwool” rock wool thermal insulation from Group 3 (105-164 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 52.57 kg/m<sup>2</sup>



**Layer order of roofslab enclosure structure 9 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
90-250 mm	„Rockwool” rock wool thermal insulation from Group 4 (105-175 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 42.16 kg/m<sup>2</sup>

Layer order of roofslab enclosure structure 10 (from top to bottom):

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
260-300 mm	„Rockwool” rock wool thermal insulation from Group 4 (105-175 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 49.56 kg/m<sup>2</sup>



**Layer order of roofslab enclosure structure 11 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
310-350 mm	„Rockwool” rock wool thermal insulation from Group 4 (105-175 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 56.96 kg/m<sup>2</sup>

**Layer order of roofslab enclosure structure 12 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
80 mm	„Rockwool” rock wool thermal insulation from Group 1 (105-175 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
85 mm	Lindab LTP 85 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.25 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 17 kg/m<sup>2</sup>
**Layer order of roofslab enclosure structure 13 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
8 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– double layer bituminous insulating system against rainwater: MEMBRANA PM Plus bituminous under layer (~ 3 mm) + TA-ALFA TOP 5 SPEED PROFILE SBS modified cupsheet (~ 5 mm)</li> </ul>	min. E
310-350 mm	„Rockwool” rock wool thermal insulation from Group 2 (105-135 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
85 mm	Lindab LTP 85 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.25 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 41.35 kg/m<sup>2</sup>



**Layer order of roofslab enclosure structure 14 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
90-250 mm	„Rockwool” rock wool thermal insulation from Group 2 (105-135 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
85 mm	Lindab LTP 85 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.25 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 33.35 kg/m<sup>2</sup>
**Layer order of roofslab enclosure structure 15 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
8 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– double layer bituminous insulating system against rainwater: MEMBRANA PM Plus bituminous under layer (~ 3 mm) + TA-ALFA TOP 5 SPEED PROFILE SBS modified cupsheet (~ 5 mm)</li> </ul>	min. E
260-300 mm	„Rockwool” rock wool thermal insulation from Group 2 (105-135 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
85 mm	Lindab LTP 85 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.25 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 47.1 kg/m<sup>2</sup>

**Layer order of roofslab enclosure structure 16 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
8 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>double layer bituminous insulating system against rainwater: MEMBRANA PM Plus bituminous under layer (~ 3 mm) + TA-ALFA TOP 5 SPEED PROFILE SBS modified cupsheet (~ 5 mm)</li> </ul>	min. E
310-350 mm	„Rockwool“ rock wool thermal insulation from Group 2 (105-135 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>0.25 mm thick PE foil or</li> <li>0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
85 mm	Lindab LTP 85 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.25 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 52.85 kg/m<sup>2</sup>
**Layer order of roofslab enclosure structure 17 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
90-250 mm	„Rockwool“ rock wool thermal insulation from Group 3 (105-164 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>0.25 mm thick PE foil or</li> <li>0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
85 mm	Lindab LTP 85 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.25 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 39.07 kg/m<sup>2</sup>



Layer order of roofslab enclosure structure 18 (from top to bottom):

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
260-300 mm	„Rockwool” rock wool thermal insulation from Group 3 (105-164 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
85 mm	Lindab LTP 85 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.25 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 45.82 kg/m<sup>2</sup>

Layer order of roofslab enclosure structure 19 (from top to bottom):

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
310-350 mm	„Rockwool” rock wool thermal insulation from Group 3 (105-164 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
85 mm	Lindab LTP 85 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.25 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 52.57 kg/m<sup>2</sup>



Layer order of roofslab enclosure structure 20 (from top to bottom):

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
90-250 mm	„Rockwool“ rock wool thermal insulation from Group 4 (105-175 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
85 mm	Lindab LTP 85 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.25 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 42.16 kg/m<sup>2</sup>

Layer order of roofslab enclosure structure 21 (from top to bottom):

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
260-300 mm	„Rockwool” rock wool thermal insulation from Group 4 (105-175 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
85 mm	Lindab LTP 85 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.25 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 49.56 kg/m<sup>2</sup>



Layer order of roofslab enclosure structure 22 (from top to bottom):

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
310-350 mm	„Rockwool” rock wool thermal insulation from Group 4 (105-175 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
85 mm	Lindab LTP 85 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.25 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 56.96 kg/m<sup>2</sup>

Layer order of roofslab enclosure structure 23 (from top to bottom):

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
90-250 mm	„Rockwool” rock wool thermal insulation from Group 5 (105-152 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 39 kg/m<sup>2</sup>



**Layer order of roofslab enclosure structure 24 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
260-300 mm	„Rockwool” rock wool thermal insulation from Group 5 (105-152 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 46 kg/m<sup>2</sup>
**Layer order of roofslab enclosure structure 25 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
8 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– double layer bituminous insulating system against rainwater: MEMBRANA PM Plus bituminous under layer (~ 3 mm) + TA-ALFA TOP 5 SPEED PROFILE SBS modified cupsheet (~ 5 mm)</li> </ul>	min. E
260-300 mm	„Rockwool” rock wool thermal insulation from Group 5 (105-152 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 54 kg/m<sup>2</sup>

**Layer order of roofslab enclosure structure 26 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
310-350 mm	„Rockwool” rock wool thermal insulation from Group 5 (105-152 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 53 kg/m<sup>2</sup>

**Layer order of roofslab enclosure structure 27 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
8 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– double layer bituminous insulating system against rainwater: MEMBRANA PM Plus bituminous under layer (~ 3 mm) + TA-ALFA TOP 5 SPEED PROFILE SBS modified cupsheet (~ 5 mm)</li> </ul>	min. E
310-350 mm	„Rockwool” rock wool thermal insulation from Group 5 (105-152 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 61 kg/m<sup>2</sup>



**Layer order of roofslab enclosure structure 28 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
90-250 mm	„Rockwool” rock wool thermal insulation from Group 6 (152 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 42 kg/m<sup>2</sup>

**Layer order of roofslab enclosure structure 29 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
260-300 mm	„Rockwool” rock wool thermal insulation from Group 6 (152 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 49.5 kg/m<sup>2</sup>
**Layer order of roofslab enclosure structure 30 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
8 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– double layer bituminous insulating system against rainwater: MEMBRANA PM Plus bituminous under layer (~ 3 mm) + TA-ALFA TOP 5 SPEED PROFILE SBS modified cupsheet (~ 5 mm)</li> </ul>	min. E
260-300 mm	„Rockwool” rock wool thermal insulation from Group 6 (152 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 57.5 kg/m<sup>2</sup>



**Layer order of roofslab enclosure structure 31 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
1.1-2.0 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– 1.2-2.0 mm thick PVC waterproofing against rainwater: Mapeplan M 12, M 15, M 18, M 20 or</li> <li>– 1.2 mm thick PVC waterproofing against rainwater: Alkorplan F or</li> <li>– 1.5 mm thick PVC waterproofing against rainwater: Alkorplan F 35176 or</li> <li>– 1.2-2.0 mm thick TPO/FPO waterproofing against rainwater: Mapeplan TM 12, TM 15, TM 18, TM 20 or</li> <li>– 1.1-1.8 mm thick TPO waterproofing against rainwater: UltraPly TPO or</li> <li>– 1.1-1.5 mm thick EPDM waterproofing against rainwater: RubberGard EPDM LSFR or RubberGard EPDM MAX</li> </ul>	min. E
310-350 mm	„Rockwool” rock wool thermal insulation from Group 6 (152 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 57 kg/m<sup>2</sup>
**Layer order of roofslab enclosure structure 32 (from top to bottom):**

Thickness	Layer element	Reaction to fire class (EN 13501-1)
8 mm	Waterproofing against rainwater: <ul style="list-style-type: none"> <li>– double layer bituminous insulating system against rainwater: MEMBRANA PM Plus bituminous under layer (~ 3 mm) + TA-ALFA TOP 5 SPEED PROFILE SBS modified cupsheet (~ 5 mm)</li> </ul>	min. E
310-350 mm	„Rockwool” rock wool thermal insulation from Group 6 (152 kg/m <sup>3</sup> )	A1
0.25-0.60 mm	Vapor proof layer: <ul style="list-style-type: none"> <li>– 0.25 mm thick PE foil or</li> <li>– 0.6 mm thick aluminum inlay bituminous sheet (Alutrix)</li> </ul>	min. E
153 mm	Lindab LTP 150 load-bearing trapezoidal sheet. Thickness of material: 0.75-1.50 mm. The trapezoidal sheets must be fixed to each other with steel screws in max. every 250 mm (according to EN 1090-1 standard).	A1 (hot dip galvanized or 15 µm PE coating) A2-s1, d0 (anticondensation felt)

Maximum dead weight of the layer order without load-bearing trapezoidal sheet: 57.5 kg/m<sup>2</sup>

When designing structures – taking into account changing manufacturing techniques – the weight of thermal insulation applied to rock wool must always be determined on the basis of data provided by the manufacturer.

In addition to types PVC, TPO, FPO, EPDM and bituminous waterproofing membranes listed in the layer orders above other types of PVC, TPO, FPO, EPDM and bituminous water membranes can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order as well as  $B_{\text{roof}}(t_1)$  reaction to fire class according to fire propagation test on roof is verified for the whole layer order.

**Design/conformity certification /type test values**

Table 5

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 1</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[4]</sup> / A2 <sup>[5]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	$B_{\text{roof}}(t_1)$ <sup>[6]</sup>	MSZ EN 13501-5:2016
static model: single- or multi span		
<b>LTP 150</b>		span (m)
t (mm)	$g^*$ (kg/m <sup>2</sup> )	4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50
		Surplus load above the dead weight simultaneous with the fire effect (kN/m <sup>2</sup> )
<b>0.75</b>	10.5	1.06 0.92 0.82 0.67 0.55 0.42 0.32 -
<b>0.88</b>	12.3	1.86 1.51 1.16 0.91 0.71 0.56 0.44 0.34
<b>1.00</b>	14.0	2.29 1.69 1.34 1.09 0.84 0.69 0.55 0.44
<b>1.25</b>	17.5	3.05 2.35 1.85 1.45 1.15 0.95 0.65 0.60
<b>1.50</b>	21.0	3.72 2.92 2.27 1.82 1.47 1.17 0.97 0.77

\*nominal dead weight of the trapezoidal sheet

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> The specified fire resistance is valid only 80 mm thick with rock wool thermal insulation.

<sup>[3]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[4]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[5]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[6]</sup> In addition to types PVC, TPO, FPO, EPDM and bituminous water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM and bituminous water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the  $B_{\text{roof}}(t_1)$  reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 6

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 2</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 15</b> fire resistance (kN/m <sup>2</sup> )									
<b>0.75</b>	10.5	0.83	0.68	0.58	0.43	0.31	-	-	-
<b>0.88</b>	12.3	1.62	1.27	0.92	0.67	0.47	0.32	0.20	-
<b>1.00</b>	14.0	2.05	1.45	1.10	0.85	0.60	0.45	0.31	0.20
<b>1.25</b>	17.5	2.81	2.11	1.61	1.21	0.91	0.71	0.41	0.36
<b>1.50</b>	21.0	3.48	2.68	2.03	1.58	1.23	0.93	0.73	0.53

\* nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 30</b> fire resistance (kN/m <sup>2</sup> )									
<b>0.75</b>	10.5	0.58	0.48	0.38	0.23	-	-	-	-
<b>0.88</b>	12.3	1.16	0.81	0.56	0.36	0.21	-	-	-
<b>1.00</b>	14.0	1.44	0.99	0.69	0.49	0.31	-	-	-
<b>1.25</b>	17.5	2.01	1.41	1.06	0.76	0.56	0.36	0.26	-
<b>1.50</b>	21.0	2.47	1.87	1.37	1.02	0.77	0.57	0.37	0.27

\* nominal dead weight of the trapezoidal sheet

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> The specified fire resistance is valid only 90-250 mm thick with rock wool thermal insulation.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to bituminous water insulation types listed in the layer orders other bituminous water insulation types can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 7

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 3</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 15</b> fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.91	0.76	0.66	0.51	0.39	0.26	-	-
0.88	12.3	1.70	1.35	1.00	0.75	0.55	0.40	0.28	-
1.00	14.0	2.13	1.53	1.18	0.93	0.68	0.53	0.39	0.28
1.25	17.5	2.89	2.19	1.69	1.29	0.99	0.79	0.49	0.44
1.50	21.0	3.56	2.76	2.11	1.66	1.31	1.01	0.81	0.61

\* nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 30</b> fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.66	0.56	0.46	0.31	-	-	-	-
0.88	12.3	1.24	0.89	0.54	0.44	0.29	-	-	-
1.00	14.0	1.52	1.08	0.77	0.58	0.39	0.27	-	-
1.25	17.5	2.09	1.49	1.14	0.84	0.64	0.44	0.34	0.22
1.50	21.0	2.56	1.96	1.45	1.10	0.85	0.65	0.45	0.35

\* nominal dead weight of the trapezoidal sheet

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> The specified fire resistance is valid only 90-250 mm thick with rock wool thermal insulation.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor ceiling structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 8

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 4</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.67	0.52	0.42	0.27	-	-	-	-
0.88	12.3	1.45	1.10	0.75	0.50	0.30	-	-	-
1.00	14.0	1.88	1.28	0.93	0.68	0.43	0.28	-	-
1.25	17.5	2.65	1.95	1.45	1.05	0.75	0.55	0.25	0.20
1.50	21.0	3.31	2.51	1.86	1.41	1.07	0.66	0.56	0.36

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.52	0.42	0.32	0.17	-	-	-	-
0.88	12.3	1.10	0.75	0.50	0.30	-	-	-	-
1.00	14.0	1.38	0.93	0.63	0.43	0.25	-	-	-
1.25	17.5	1.95	1.35	1.00	0.70	0.50	0.30	0.20	-
1.50	21.0	2.41	1.81	1.31	0.96	0.71	0.51	0.31	0.21

\*nominal dead weight of the trapezoidal sheet

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> The specified fire resistance is valid only 260-300 mm thick with rock wool thermal insulation.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to bituminous water insulation types listed in the layer orders, other bituminous water insulation types can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 9

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 5</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.61	0.47	0.37	0.22	-	-	-	-
0.88	12.3	1.40	1.05	0.70	0.45	0.25	-	-	-
1.00	14.0	1.83	1.23	0.88	0.63	0.38	0.23	-	-
1.25	17.5	2.60	1.90	1.40	1.00	0.70	0.50	0.20	-
1.50	21.0	3.26	2.46	1.81	1.36	1.02	0.69	0.51	0.31

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.47	0.37	0.27	-	-	-	-	-
0.88	12.3	1.05	0.70	0.45	0.25	-	-	-	-
1.00	14.0	1.30	0.88	0.58	0.38	0.20	-	-	-
1.25	17.5	1.90	1.30	0.95	0.65	0.45	0.25	-	-
1.50	21.0	2.36	1.76	1.26	0.91	0.66	0.46	0.26	-

\*nominal dead weight of the trapezoidal sheet

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> In case of the possible increase of the thickness of the rock wool heat insulation the resulting surplus dead weight is to be deducted from the load spreading equally simultaneously with the specified fire effect.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor ceiling structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to bituminous water insulation types listed in the layer orders other bituminous water insulation types can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 10

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 6</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016
static model: single- or multi span		
<b>LTP 150</b>		<b>span (m)</b>
<b>t</b> (mm)	<b>g*</b> (kg/m <sup>2</sup> )	<b>4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50</b>
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 15</b> fire resistance (kN/m <sup>2</sup> )		
<b>0.75</b>	10.5	0.85 0.70 0.60 0.45 0.33 0.20 - -
<b>0.88</b>	12.3	1.63 1.28 0.93 0.68 0.48 0.33 0.21 -
<b>1.00</b>	14.0	2.06 1.46 1.11 0.86 0.61 0.46 0.32 0.21
<b>1.25</b>	17.5	2.83 2.13 1.63 1.23 0.93 0.73 0.43 0.38
<b>1.50</b>	21.0	3.49 2.69 2.04 1.59 1.24 0.94 0.74 0.54
*nominal dead weight of the trapezoidal sheet		
static model: single- or multi span		
<b>LTP 150</b>		<b>span (m)</b>
<b>t</b> (mm)	<b>g*</b> (kg/m <sup>2</sup> )	<b>4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50</b>
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 30</b> fire resistance (kN/m <sup>2</sup> )		
<b>0.75</b>	10.5	0.60 0.50 0.40 0.25 - - - -
<b>0.88</b>	12.3	1.18 0.83 0.58 0.38 0.23 - - -
<b>1.00</b>	14.0	1.46 1.01 0.71 0.51 0.33 0.21 - -
<b>1.25</b>	17.5	2.03 1.43 1.08 0.78 0.58 0.38 0.28 -
<b>1.50</b>	21.0	2.49 1.89 1.39 1.04 0.79 0.59 0.39 0.29
*nominal dead weight of the trapezoidal sheet		

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 90-250 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- a the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 11

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 7</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.78	0.63	0.53	0.38	0.26	-	-	-
0.88	12.3	1.57	1.22	0.87	0.62	0.42	0.27	-	-
1.00	14.0	2.00	1.40	1.05	0.80	0.55	0.40	0.26	-
1.25	17.5	2.76	2.06	1.56	1.16	0.86	0.66	0.36	0.31
1.50	21.0	3.43	2.63	1.98	1.53	1.18	0.88	0.68	0.48

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.53	0.43	0.33	-	-	-	-	-
0.88	12.3	1.12	0.77	0.52	0.32	-	-	-	-
1.00	14.0	1.40	0.95	0.65	0.45	0.27	-	-	-
1.25	17.5	1.96	1.36	1.01	0.71	0.51	0.31	0.21	-
1.50	21.0	2.43	1.83	1.33	0.98	0.73	0.53	0.33	0.23

\*nominal dead weight of the trapezoidal sheet

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> The specified fire resistance is valid only 260-300 mm thick with rock wool thermal insulation.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 12

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 8</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.71	0.56	0.46	0.31	0.19	-	-	-
0.88	12.3	1.50	1.15	0.80	0.55	0.35	0.20	-	-
1.00	14.0	1.93	1.33	0.98	0.73	0.48	0.33	-	-
1.25	17.5	2.69	1.99	1.49	1.09	0.79	0.59	0.29	0.24
1.50	21.0	3.36	2.56	1.89	1.46	1.11	0.81	0.61	0.41

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.46	0.36	0.26	-	-	-	-	-
0.88	12.3	1.05	0.70	0.45	0.25	-	-	-	-
1.00	14.0	1.33	0.88	0.58	0.38	0.20	-	-	-
1.25	17.5	1.89	1.29	0.94	0.64	0.44	0.24	-	-
1.50	21.0	2.36	1.76	1.26	0.91	0.66	0.46	0.26	-

\*nominal dead weight of the trapezoidal sheet

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> In case of the possible increase of the thickness of the rock wool heat insulation the resulting surplus dead weight is to be deducted from the load spreading equally simultaneously with the specified fire effect.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 13

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 9</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 15</b> fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.82	0.67	0.57	0.42	0.30	-	-	-
0.88	12.3	1.60	1.25	0.90	0.65	0.45	0.30	-	-
1.00	14.0	2.03	1.43	1.08	0.83	0.58	0.43	0.29	-
1.25	17.5	2.80	2.10	1.60	1.20	0.90	0.70	0.40	0.35
1.50	21.0	3.46	2.66	2.01	1.56	1.21	0.91	0.71	0.51

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 30</b> fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.57	0.47	0.37	0.22	-	-	-	-
0.88	12.3	1.15	0.80	0.55	0.35	0.20	-	-	-
1.00	14.0	1.43	0.98	0.68	0.48	0.30	-	-	-
1.25	17.5	2.00	1.40	1.05	0.75	0.55	0.35	0.25	-
1.50	21.0	2.46	1.86	1.36	1.01	0.76	0.56	0.36	0.26

\*nominal dead weight of the trapezoidal sheet

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> The specified fire resistance is valid only 90-250 mm thick with rock wool thermal insulation.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 14

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 10</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 15</b> fire resistance (kN/m <sup>2</sup> )									
<b>0.75</b>	10.5	0.74	0.59	0.49	0.34	0.22	-	-	-
<b>0.88</b>	12.3	1.53	1.18	0.83	0.58	0.38	0.23	-	-
<b>1.00</b>	14.0	1.96	1.36	1.01	0.76	0.51	0.36	0.22	-
<b>1.25</b>	17.5	2.72	2.02	1.52	1.12	0.82	0.62	0.32	0.27
<b>1.50</b>	21.0	3.39	2.59	1.94	1.49	1.14	0.84	0.64	0.44

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 30</b> fire resistance (kN/m <sup>2</sup> )									
<b>0.75</b>	10.5	0.49	0.39	0.29	-	-	-	-	-
<b>0.88</b>	12.3	1.08	0.73	0.48	0.28	-	-	-	-
<b>1.00</b>	14.0	1.36	0.89	0.61	0.41	0.23	-	-	-
<b>1.25</b>	17.5	1.92	1.32	0.97	0.67	0.47	0.27	-	-
<b>1.50</b>	21.0	2.39	1.79	1.29	0.94	0.69	0.49	0.29	-

\*nominal dead weight of the trapezoidal sheet

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 260-300 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 15

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 11</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.67	0.52	0.42	0.27	-	-	-	-
0.88	12.3	1.46	1.11	0.76	0.51	0.31	-	-	-
1.00	14.0	1.89	1.29	0.94	0.69	0.44	0.29	-	-
1.25	17.5	2.66	1.95	1.45	1.05	0.75	0.55	0.25	0.20
1.50	21.0	3.32	2.52	1.87	1.42	1.07	0.77	0.57	0.37

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.42	0.32	0.22	-	-	-	-	-
0.88	12.3	1.01	0.66	0.41	0.21	-	-	-	-
1.00	14.0	1.29	0.84	0.54	0.34	-	-	-	-
1.25	17.5	1.86	1.25	0.90	0.60	0.40	0.20	-	-
1.50	21.0	2.32	1.72	1.22	0.87	0.62	0.42	0.22	-

\*nominal dead weight of the trapezoidal sheet

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> In case of the possible increase of the thickness of the rock wool heat insulation the resulting surplus dead weight is to be deducted from the load spreading equally simultaneously with the specified fire effect.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 16

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 12</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[4]</sup> / A2 <sup>[5]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[6]</sup>	MSZ EN 13501-5:2016
static model: single- or multi span		
<b>LTP 85</b>		<b>span (m)</b>
<b>t</b> (mm)	<b>g*</b> (kg/m <sup>2</sup> )	<b>1.50   2.00   2.50   3.00   3.50   4.00   4.50   5.00</b>
		Surplus load above the dead weight simultaneous with the fire effect (kN/m <sup>2</sup> )
<b>0.75</b>	7.9	1.45   0.90   0.55   0.35   -   -   -   -
<b>0.88</b>	9.3	2.04   1.24   0.79   0.54   0.34   -   -   -
<b>1.00</b>	10.5	2.62   1.62   1.02   0.67   0.47   0.32   -   -
<b>1.25</b>	13.1	3.80   2.30   1.60   1.05   0.75   0.55   0.38   0.25

\*nominal dead weight of the trapezoidal sheet

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 80 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[4]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[5]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[6]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.

Table 17

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 13</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.21	0.66	0.31	-	-	-	-	-
0.88	9.3	1.79	0.99	0.54	0.29	-	-	-	-
1.00	10.5	2.38	1.38	0.78	0.44	0.23	-	-	-
1.25	13.1	3.55	2.05	1.35	0.80	0.50	0.30	-	-

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.21	0.66	0.31	-	-	-	-	-
0.88	9.3	1.79	0.99	0.54	0.29	-	-	-	-
1.00	10.5	2.38	1.38	0.78	0.44	0.23	-	-	-
1.25	13.1	3.55	2.05	1.35	0.80	0.50	0.30	-	-

\*nominal dead weight of the trapezoidal sheet

- [1] The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- [2] The specified fire resistance is valid only 90-250 mm thick with rock wool thermal insulation.
- [3] Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- [4] Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- [5] It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- [6] If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- [7] In addition to bituminous water insulation types listed in the layer orders other bituminous water insulation types can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 18

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 14</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.29	0.74	0.39	-	-	-	-	-
0.88	9.3	1.87	1.07	0.62	0.37	-	-	-	-
1.00	10.5	2.46	1.46	0.86	0.51	0.31	-	-	-
1.25	13.1	3.63	2.13	1.43	0.88	0.58	0.38	0.21	-

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.29	0.74	0.39	-	-	-	-	-
0.88	9.3	1.87	1.07	0.62	0.37	-	-	-	-
1.00	10.5	2.46	1.46	0.86	0.51	0.31	-	-	-
1.25	13.1	3.63	2.13	1.43	0.88	0.58	0.38	0.21	-

\*nominal dead weight of the trapezoidal sheet

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> The specified fire resistance is valid only 90-250 mm thick with rock wool thermal insulation.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.

Table 19

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 15</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.15	0.60	0.25	-	-	-	-	-
0.88	9.3	1.73	0.93	0.48	0.23	-	-	-	-
1.00	10.5	2.32	1.32	0.72	0.37	-	-	-	-
1.25	13.1	3.49	1.99	1.29	0.74	0.44	0.24	-	-

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.15	0.60	0.25	-	-	-	-	-
0.88	9.3	1.73	0.93	0.48	0.23	-	-	-	-
1.00	10.5	2.32	1.32	0.72	0.37	-	-	-	-
1.25	13.1	3.49	1.99	1.29	0.74	0.44	0.24	-	-

\*nominal dead weight of the trapezoidal sheet

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 260-300 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to bituminous water insulation types listed in the layer orders other bituminous water insulation types can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 20

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 16</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.10	0.55	0.20	-	-	-	-	-
0.88	9.3	1.68	0.88	0.43	-	-	-	-	-
1.00	10.5	2.27	1.27	0.67	0.32	-	-	-	-
1.25	13.1	3.44	1.94	1.24	0.69	0.39	-	-	-

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.10	0.55	0.20	-	-	-	-	-
0.88	9.3	1.68	0.88	0.43	-	-	-	-	-
1.00	10.5	2.27	1.27	0.67	0.32	-	-	-	-
1.25	13.1	3.44	1.94	1.24	0.69	0.39	-	-	-

\*nominal dead weight of the trapezoidal sheet

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> In case of the possible increase of the thickness of the rock wool heat insulation the resulting surplus dead weight is to be deducted from the load spreading equally simultaneously with the specified fire effect.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to bituminous water insulation types listed in the layer orders other bituminous water insulation types can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.

Table 21

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 17</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.23	0.68	0.33	-	-	-	-	-
0.88	9.3	1.81	1.01	0.56	0.31	-	-	-	-
1.00	10.5	2.40	1.40	0.80	0.45	0.25	-	-	-
1.25	13.1	3.57	2.07	1.37	0.82	0.52	0.32	-	-

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.23	0.68	0.33	-	-	-	-	-
0.88	9.3	1.81	1.01	0.56	0.31	-	-	-	-
1.00	10.5	2.40	1.40	0.80	0.45	0.25	-	-	-
1.25	13.1	3.57	2.07	1.37	0.82	0.52	0.32	-	-

\*nominal dead weight of the trapezoidal sheet

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 90-250 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 22

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 18</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016
static model: single- or multi span		
<b>LTP 85</b>		<b>span (m)</b>
<b>t</b> (mm)	<b>g*</b> (kg/m <sup>2</sup> )	<b>1.50 2.00 2.50 3.00 3.50 4.00 4.50 5.00</b>
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 15</b> fire resistance (kN/m <sup>2</sup> )		
<b>0.75</b>	<b>7.9</b>	<b>1.16 0.61 0.26 - - - - -</b>
<b>0.88</b>	<b>9.3</b>	<b>1.75 0.95 0.50 0.25 - - - - -</b>
<b>1.00</b>	<b>10.5</b>	<b>2.33 1.33 0.73 0.38 - - - - -</b>
<b>1.25</b>	<b>13.1</b>	<b>3.51 2.01 1.31 0.76 0.46 0.26 - - -</b>
*nominal dead weight of the trapezoidal sheet		
static model: single- or multi span		
<b>LTP 85</b>		<b>span (m)</b>
<b>t</b> (mm)	<b>g*</b> (kg/m <sup>2</sup> )	<b>1.50 2.00 2.50 3.00 3.50 4.00 4.50 5.00</b>
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 30</b> fire resistance (kN/m <sup>2</sup> )		
<b>0.75</b>	<b>7.9</b>	<b>1.16 0.61 0.26 - - - - -</b>
<b>0.88</b>	<b>9.3</b>	<b>1.75 0.95 0.50 0.25 - - - - -</b>
<b>1.00</b>	<b>10.5</b>	<b>2.33 1.33 0.73 0.38 - - - - -</b>
<b>1.25</b>	<b>13.1</b>	<b>3.51 2.01 1.31 0.76 0.46 0.26 - - -</b>
*nominal dead weight of the trapezoidal sheet		

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 260-300 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.

Table 23

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 19</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	0.99	0.54	-	-	-	-	-	-
0.88	9.3	1.68	0.88	0.43	-	-	-	-	-
1.00	10.5	2.26	1.26	0.66	0.31	-	-	-	-
1.25	13.1	3.44	1.94	1.24	0.69	0.39	-	-	-

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	0.99	0.54	-	-	-	-	-	-
0.88	9.3	1.68	0.88	0.43	-	-	-	-	-
1.00	10.5	2.26	1.26	0.66	0.31	-	-	-	-
1.25	13.1	3.44	1.94	1.24	0.69	0.39	-	-	-

\*nominal dead weight of the trapezoidal sheet

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> In case of the possible increase of the thickness of the rock wool heat insulation the resulting surplus dead weight is to be deducted from the load spreading equally simultaneously with the specified fire effect.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 24

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 20</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.20	0.65	0.30	-	-	-	-	-
0.88	9.3	1.78	0.98	0.53	0.28	-	-	-	-
1.00	10.5	2.37	1.37	0.77	0.42	0.22	-	-	-
1.25	13.1	3.54	2.04	1.34	0.79	0.49	0.29	-	-

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.20	0.65	0.30	-	-	-	-	-
0.88	9.3	1.78	0.98	0.53	0.28	-	-	-	-
1.00	10.5	2.37	1.37	0.77	0.42	0.22	-	-	-
1.25	13.1	3.54	2.04	1.34	0.79	0.49	0.29	-	-

\*nominal dead weight of the trapezoidal sheet

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 90-250 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.

Table 25

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 21</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.12	0.57	0.22	-	-	-	-	-
0.88	9.3	1.71	0.91	0.46	0.21	-	-	-	-
1.00	10.5	2.29	1.29	0.69	0.34	-	-	-	-
1.25	13.1	3.47	1.97	1.27	0.72	0.42	0.22	-	-

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.12	0.57	0.22	-	-	-	-	-
0.88	9.3	1.71	0.91	0.46	0.21	-	-	-	-
1.00	10.5	2.29	1.29	0.69	0.34	-	-	-	-
1.25	13.1	3.47	1.97	1.27	0.72	0.42	0.22	-	-

\*nominal dead weight of the trapezoidal sheet

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 260-300 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 26

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 22</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.05	0.50	-	-	-	-	-	-
0.88	9.3	1.64	0.84	0.39	-	-	-	-	-
1.00	10.5	2.22	1.22	0.62	0.27	-	-	-	-
1.25	13.1	3.40	1.90	1.20	0.65	0.35	-	-	-

\*nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 85		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	7.9	1.05	0.50	-	-	-	-	-	-
0.88	9.3	1.64	0.84	0.39	-	-	-	-	-
1.00	10.5	2.22	1.22	0.62	0.27	-	-	-	-
1.25	13.1	3.40	1.90	1.20	0.65	0.35	-	-	-

\*nominal dead weight of the trapezoidal sheet

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> In case of the possible increase of the thickness of the rock wool heat insulation the resulting surplus dead weight is to be deducted from the load spreading equally simultaneously with the specified fire effect.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 27

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 23</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.85	0.70	0.60	0.45	0.33	0.20	-	-
0.88	12.3	1.63	1.28	0.93	0.68	0.48	0.33	0.21	-
1.00	14.0	2.06	1.46	1.11	0.86	0.61	0.46	0.32	0.21
1.25	17.5	2.83	2.13	1.63	1.23	0.93	0.73	0.43	0.38
1.50	21.0	3.49	2.69	2.04	1.59	1.24	0.94	0.74	0.54

\* nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.60	0.50	0.40	0.25	-	-	-	-
0.88	12.3	1.18	0.83	0.58	0.38	0.23	-	-	-
1.00	14.0	1.46	1.01	0.71	0.51	0.33	0.21	-	-
1.25	17.5	2.03	1.43	1.08	0.78	0.58	0.38	0.28	-
1.50	21.0	2.49	1.89	1.39	1.04	0.79	0.59	0.39	0.29

\* nominal dead weight of the trapezoidal sheet

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 90-250 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor ceiling structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 28

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 24</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.78	0.63	0.53	0.38	0.26	-	-	-
0.88	12.3	1.57	1.22	0.87	0.62	0.42	0.27	-	-
1.00	14.0	2.00	1.40	1.05	0.80	0.55	0.40	0.26	-
1.25	17.5	2.76	2.06	1.56	1.16	0.86	0.66	0.36	0.31
1.50	21.0	3.43	2.63	1.98	1.53	1.18	0.88	0.68	0.48

\* nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.53	0.43	0.33	-	-	-	-	-
0.88	12.3	1.12	0.77	0.52	0.32	-	-	-	-
1.00	14.0	1.40	0.95	0.65	0.45	0.27	-	-	-
1.25	17.5	1.96	1.36	1.01	0.71	0.51	0.31	-	-
1.50	21.0	2.43	1.83	1.33	0.98	0.73	0.53	0.33	0.23

\* nominal dead weight of the trapezoidal sheet

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> The specified fire resistance is valid only 260-300 mm thick with rock wool thermal insulation.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor ceiling structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 29

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 25</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.70	0.55	0.45	0.30	-	-	-	-
0.88	12.3	1.49	1.14	0.79	0.54	0.34	-	-	-
1.00	14.0	1.92	1.32	0.97	0.72	0.47	0.32	-	-
1.25	17.5	2.68	1.98	1.48	1.08	0.78	0.58	0.28	0.23
1.50	21.0	3.35	2.55	1.90	1.45	1.10	0.80	0.60	0.40

\* nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.45	0.35	0.25	-	-	-	-	-
0.88	12.3	1.04	0.69	0.44	0.24	-	-	-	-
1.00	14.0	1.32	0.87	0.57	0.37	-	-	-	-
1.25	17.5	1.88	1.28	0.93	0.63	0.43	0.23	-	-
1.50	21.0	2.35	1.75	1.25	0.90	0.65	0.45	0.25	-

\* nominal dead weight of the trapezoidal sheet

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> The specified fire resistance is valid only 260-300 mm thick with rock wool thermal insulation.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor ceiling structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to bituminous water insulation types listed in the layer orders other bituminous water insulation types can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 30

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 26</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016
static model: single- or multi span		
<b>LTP 150</b>		<b>span (m)</b>
<b>t</b> (mm)	<b>g*</b> (kg/m <sup>2</sup> )	<b>4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50</b>
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 15</b> fire resistance (kN/m <sup>2</sup> )		
<b>0.75</b>	<b>10.5</b>	<b>0.71 0.56 0.46 0.31 - - - -</b>
<b>0.88</b>	<b>12.3</b>	<b>1.50 1.15 0.80 0.55 0.35 0.20 - -</b>
<b>1.00</b>	<b>14.0</b>	<b>1.93 1.33 0.98 0.73 0.48 0.33 - -</b>
<b>1.25</b>	<b>17.5</b>	<b>2.69 1.99 1.59 1.09 0.79 0.59 0.29 0.24</b>
<b>1.50</b>	<b>21.0</b>	<b>3.36 2.56 1.91 1.46 1.11 0.81 0.61 0.41</b>
* nominal dead weight of the trapezoidal sheet		
static model: single- or multi span		
<b>LTP 150</b>		<b>span (m)</b>
<b>t</b> (mm)	<b>g*</b> (kg/m <sup>2</sup> )	<b>4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50</b>
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 30</b> fire resistance (kN/m <sup>2</sup> )		
<b>0.75</b>	<b>10.5</b>	<b>0.46 0.36 0.26 - - - -</b>
<b>0.88</b>	<b>12.3</b>	<b>1.05 0.70 0.45 0.25 - - - -</b>
<b>1.00</b>	<b>14.0</b>	<b>1.33 0.88 0.58 0.38 0.20 - - - -</b>
<b>1.25</b>	<b>17.5</b>	<b>1.89 1.29 0.94 0.64 0.44 0.24 - -</b>
<b>1.50</b>	<b>21.0</b>	<b>2.36 1.76 1.26 0.91 0.66 0.46 0.26 -</b>
* nominal dead weight of the trapezoidal sheet		

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 310-350 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor ceiling structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 31

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 27</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.63	0.48	0.38	0.23	-	-	-	-
0.88	12.3	1.42	1.07	0.72	0.47	0.27	-	-	-
1.00	14.0	1.85	1.25	0.90	0.65	0.40	0.25	-	-
1.25	17.5	2.61	1.92	1.41	1.01	0.71	0.51	0.21	-
1.50	21.0	3.28	2.48	1.83	1.38	1.03	0.73	0.53	0.33

\* nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.38	0.28	-	-	-	-	-	-
0.88	12.3	0.97	0.62	0.37	-	-	-	-	-
1.00	14.0	1.25	0.78	0.50	0.30	-	-	-	-
1.25	17.5	1.81	1.21	0.86	0.56	0.36	-	-	-
1.50	21.0	2.28	1.68	1.18	0.85	0.58	0.38	-	-

\* nominal dead weight of the trapezoidal sheet

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 310-350 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor ceiling structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to bituminous water insulation types listed in the layer orders other bituminous water insulation types can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 32

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 28</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 15</b> fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.82	0.67	0.57	0.42	0.30	-	-	-
0.88	12.3	1.60	1.25	0.90	0.65	0.45	0.30	-	-
1.00	14.0	2.03	1.43	1.08	0.83	0.58	0.43	0.29	-
1.25	17.5	2.80	2.10	1.60	1.20	0.90	0.70	0.40	0.35
1.50	21.0	3.46	2.66	2.01	1.56	1.21	0.91	0.71	0.51

\* nominal dead weight of the trapezoidal sheet

static model: single- or multi span

LTP 150		span (m)							
t (mm)	g* (kg/m <sup>2</sup> )	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 30</b> fire resistance (kN/m <sup>2</sup> )									
0.75	10.5	0.57	0.47	0.37	0.22	-	-	-	-
0.88	12.3	1.15	0.80	0.55	0.35	0.20	-	-	-
1.00	14.0	1.43	0.98	0.68	0.48	0.30	-	-	-
1.25	17.5	2.00	1.40	1.05	0.75	0.55	0.35	0.25	-
1.50	21.0	2.46	1.86	1.36	1.01	0.76	0.55	0.36	0.26

\* nominal dead weight of the trapezoidal sheet

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> The specified fire resistance is valid only 90-250 mm thick with rock wool thermal insulation.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor ceiling structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 33

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 29</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016
static model: single- or multi span		
<b>LTP 150</b>		<b>span (m)</b>
<b>t</b> (mm)	<b>g*</b> (kg/m <sup>2</sup> )	<b>4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50</b>
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 15</b> fire resistance (kN/m <sup>2</sup> )		
<b>0.75</b>	<b>10.5</b>	0.59 0.59 0.59 0.34 0.22 - - -
<b>0.88</b>	<b>12.3</b>	1.53 1.18 0.83 0.58 0.38 0.23 - -
<b>1.00</b>	<b>14.0</b>	1.96 1.36 1.01 0.76 0.51 0.36 0.22 -
<b>1.25</b>	<b>17.5</b>	2.72 2.02 1.52 1.12 0.82 0.62 0.32 0.27
<b>1.50</b>	<b>21.0</b>	3.39 2.58 1.94 1.49 1.14 0.84 0.64 0.44
* nominal dead weight of the trapezoidal sheet		
static model: single- or multi span		
<b>LTP 150</b>		<b>span (m)</b>
<b>t</b> (mm)	<b>g*</b> (kg/m <sup>2</sup> )	<b>4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50</b>
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 30</b> fire resistance (kN/m <sup>2</sup> )		
<b>0.75</b>	<b>10.5</b>	0.49 0.39 0.29 - - - -
<b>0.88</b>	<b>12.3</b>	1.08 0.73 0.48 0.28 - - -
<b>1.00</b>	<b>14.0</b>	1.36 0.91 0.61 0.41 0.23 - - -
<b>1.25</b>	<b>17.5</b>	1.92 1.32 0.97 0.67 0.47 0.27 - -
<b>1.50</b>	<b>21.0</b>	2.39 1.79 1.29 0.94 0.69 0.49 0.29 -
* nominal dead weight of the trapezoidal sheet		

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 260-300 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor ceiling structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 34

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 30</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016
static model: single- or multi span		
<b>LTP 150</b>		span (m)
t (mm)	g* (kg/m <sup>2</sup> )	4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50
		Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 15</b> fire resistance (kN/m <sup>2</sup> )
0.75	10.5	0.66 0.51 0.41 0.26 - - - -
0.88	12.3	1.45 1.10 0.75 0.50 0.30 - - - -
1.00	14.0	1.88 1.28 0.93 0.68 0.43 0.29 - - - -
1.25	17.5	2.64 1.94 1.44 1.04 0.74 0.44 0.24 - -
1.50	21.0	3.31 2.51 1.86 1.41 1.06 0.76 0.56 0.36
* nominal dead weight of the trapezoidal sheet		
static model: single- or multi span		
<b>LTP 150</b>		span (m)
t (mm)	g* (kg/m <sup>2</sup> )	4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50
		Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 30</b> fire resistance (kN/m <sup>2</sup> )
0.75	10.5	0.41 0.31 0.21 - - - - -
0.88	12.3	1.00 0.65 0.40 0.20 - - - - -
1.00	14.0	1.28 0.83 0.53 0.33 - - - - -
1.25	17.5	1.84 1.24 0.89 0.59 0.39 - - - -
1.50	21.0	2.31 1.71 1.21 0.86 0.61 0.41 0.21 -
* nominal dead weight of the trapezoidal sheet		

- <sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.
- <sup>[2]</sup> The specified fire resistance is valid only 260-300 mm thick with rock wool thermal insulation.
- <sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.
- <sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.
- <sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.
- <sup>[6]</sup> If
- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
  - the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
  - the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor ceiling structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.
- <sup>[7]</sup> In addition to bituminous water insulation types listed in the layer orders other bituminous water insulation types can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 35

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 31</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016
static model: single- or multi span		
<b>LTP 150</b>		<b>span (m)</b>
<b>t</b> (mm)	<b>g*</b> (kg/m <sup>2</sup> )	<b>4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50</b>
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 15</b> fire resistance (kN/m <sup>2</sup> )		
<b>0.75</b>	<b>10.5</b>	0.67 0.52 0.42 0.27 - - - -
<b>0.88</b>	<b>12.3</b>	1.46 1.11 0.76 0.51 0.31 - - -
<b>1.00</b>	<b>14.0</b>	1.89 1.29 0.94 0.69 0.44 0.29 - -
<b>1.25</b>	<b>17.5</b>	2.65 1.95 1.45 1.05 0.75 0.55 0.25 0.20
<b>1.50</b>	<b>21.0</b>	3.32 2.52 1.87 1.42 1.07 0.77 0.57 0.37
* nominal dead weight of the trapezoidal sheet		
static model: single- or multi span		
<b>LTP 150</b>		<b>span (m)</b>
<b>t</b> (mm)	<b>g*</b> (kg/m <sup>2</sup> )	<b>4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50</b>
Surplus load above the dead weight simultaneous with the fire effect allowed in case of <b>REI 30</b> fire resistance (kN/m <sup>2</sup> )		
<b>0.75</b>	<b>10.5</b>	0.42 0.32 0.22 - - - -
<b>0.88</b>	<b>12.3</b>	1.01 0.66 0.41 0.21 - - -
<b>1.00</b>	<b>14.0</b>	1.29 0.84 0.54 0.34 - - -
<b>1.25</b>	<b>17.5</b>	1.85 1.25 0.90 0.60 0.40 0.20 - -
<b>1.50</b>	<b>21.0</b>	2.32 1.72 1.22 0.87 0.62 0.42 0.22 -
* nominal dead weight of the trapezoidal sheet		

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> The specified fire resistance is valid only 310-350 mm thick with rock wool thermal insulation.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor ceiling structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to types PVC, TPO, FPO, EPDM water insulation listed in the layer orders other types of PVC, TPO, FPO, EPDM water insulation can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.



Table 36

Characteristics of the building structure (and their units)	Value/data	Test/assessment method
<b>Roofslab enclosure structure 32</b>		
Fire resistance (minute)	<b>REI 15</b> <sup>[1] [2] [3] [4]</sup> <b>REI 30</b> <sup>[1] [2] [3] [4]</sup>	MSZ EN 1365-2:2015 MSZ EN 13501-2:2016
Reaction to fire class (-)	B <sup>[5]</sup> / A2 <sup>[6]</sup>	Fire Safety Technical Directive TvMI 11.2:2020.01.22.
Fire propagation on roof (-)	B <sub>roof</sub> (t1) <sup>[7]</sup>	MSZ EN 13501-5:2016
static model: single- or multi span		
<b>LTP 150</b>		span (m)
t (mm)	g* (kg/m <sup>2</sup> )	4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 15 fire resistance (kN/m <sup>2</sup> )		
0.75	10.5	0.59 0.44 0.34 - - - - -
0.88	12.3	1.38 1.03 0.68 0.43 0.23 - - -
1.00	14.0	2.81 1.51 0.86 0.61 0.36 0.21 - -
1.25	17.5	2.57 1.87 1.37 0.97 0.67 0.47 - -
1.50	21.0	3.24 2.44 1.79 1.34 0.99 0.69 0.49 0.29
* nominal dead weight of the trapezoidal sheet		
static model: single- or multi span		
<b>LTP 150</b>		span (m)
t (mm)	g* (kg/m <sup>2</sup> )	4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50
Surplus load above the dead weight simultaneous with the fire effect allowed in case of REI 30 fire resistance (kN/m <sup>2</sup> )		
0.75	10.5	0.34 0.24 - - - - -
0.88	12.3	0.93 0.58 0.33 - - - -
1.00	14.0	1.21 0.76 0.46 0.26 - - -
1.25	17.5	1.77 1.17 0.82 0.52 0.32 - - -
1.50	21.0	2.24 1.64 1.14 0.79 0.54 0.34 - -
* nominal dead weight of the trapezoidal sheet		

<sup>[1]</sup> The specified fire resistance is valid only in case of fastening the neighboring trapezoidal sheets with steel screws in every 250 mm at the most.

<sup>[2]</sup> The specified fire resistance is valid only 310-350 mm thick with rock wool thermal insulation.

<sup>[3]</sup> Load values indicated in the table were determined based on the max. rock wool thickness specified in the layer order. The thickness of the rock wool heat insulation can be reduced up to the extent indicated in the layer order. The originating dead weight difference can be added to the load spreading equally simultaneously with the specified fire effect.

<sup>[4]</sup> Load values indicated in the table were determined based on the metal sheet without anticondensation-felt coat specified in the layer order. In the case of felt-coated sheets, the difference in weight between uncoated and coated sheets shall be deducted from the load distributed evenly over the fire load given in the table.

<sup>[5]</sup> It is valid in case of applying vapor proof foil/sheet of min. „E” reaction to fire class.

<sup>[6]</sup> If

- the vapor proof foil/sheet is of min. „D” reaction to fire class and its heat of combustion amounts to 10 MJ/m<sup>2</sup> at most for the average of the surface; or
- the heat of combustion of the vapor proof foil/sheet amount to 4 MJ/m<sup>2</sup> at most; or
- the heat of combustion of the vapor proof foil/sheet of min. „E” reaction to fire class amounts to 10.5 MJ/m<sup>2</sup> at most and the heat of combustion of the entire floor ceiling structure does not exceed the criteria of 3 MJ/kg, furthermore penetrations are provided with fireproof sealings so that the vapor proof foil cannot ignite within the required fire resistance period of the floor structure.

<sup>[7]</sup> In addition to bituminous water insulation types listed in the layer orders other bituminous water insulation types can also be applied, if their reaction to fire class and thickness meet those indicated in the layer order and the B<sub>roof</sub>(t1) reaction to fire class according to fire propagation test on roof is verified for the whole layer order.

**Conditions under which the product is suitable for its intended use:**

This Fire Prevention Conformity Certificate 5-36. Tables in REI 15 and According to REI 30 Fire Resistance Limits, when installing the structures, the applicable National Fire Code (OTSZ) should be considered.

**Conditions of application based on the National Fire Code (OTSZ) issued with BM decree 28/2011. (IX. 6.):**

Roof structures of layer orders 1 to 32 (REI 15; B) can be applied as roofslab enclosure structures (up to 60 kg/m<sup>2</sup> surface mass \*)

- in single-storey buildings of fire resistance grade II-V , and
- in hall buildings of fire resistance grade III-V,

also taking the data indicated in Tables 5 to 36 into consideration.

Roof structures of layer orders 1 to 32 (REI 15; A2) can be applied as roofslab enclosure structures (up to 60 kg/m<sup>2</sup> surface mass \*)

- in single-storey buildings of fire resistance grade I-IV, and
- in hall buildings of fire resistance grade II-V,

also taking the data indicated in Tables 5 to 36 into consideration.

Roof structures of layer orders 1 to 32 (REI 15; B) can be applied as supports of roofslab enclosure structures (above 60 kg/m<sup>2</sup> \*)

- in single-storey buildings of fire resistance grade IV-V,

also taking the data indicated in Tables 5 to 36 into consideration.

Roof structures of layer orders 1 to 32 (REI 15; A2) can be applied as supports of roofslab enclosure structures (above 60 kg/m<sup>2</sup> surface mass \*)

- in single-storey buildings of fire resistance class IV-V,

also taking the data indicated in Tables 5 to 36 into consideration.

Roof structures of layer orders 2 to 11 and 13 to 32 (REI 30; B) can be applied as roofslab enclosure structures (up to 60 kg/m<sup>2</sup> surface mass\*)

- in buildings of fire resistance grade II with up to three floors, in buildings of fire resistance grade III with up to five floors, in buildings of fire resistance grade IV with up to two floors, in single-storey buildings of fire resistance grade V, and
- in hall buildings of fire resistance class III-V,

taking the data indicated in Tables 6 to 15 and 17 to 36 into consideration.

Roof structures of layer orders 2 to 11 and 13 to 32 (REI 30; A2) can be applied as roofslab enclosure structures (up to 60 kg/m<sup>2</sup> surface mass\*) without restriction from fire safety aspect in buildings of fire resistance grade I-V, also taking the data indicated in the Tables 6 to 15 and 17 to 36 into consideration.

Roof structures of layer orders 2 to 11 and 13 to 32 (REI 30; A2) can be applied as roofslab enclosure structures (up to 60 kg/m<sup>2</sup> surface mass\*)

- in hall buildings of II-V fire resistance class,

also taking the data indicated in Tables 6 to 15 and 17 to 36 into consideration.

Roof structures of layer orders 2 to 11 and 13 to 32 (REI 30; B) can be applied as supports of roofslab enclosure structures (above 60 kg/m<sup>2</sup> \*)



- in buildings of fire resistance grade II-III with up to three floors, in buildings of fire resistance grade IV with up to two floors, in single-storey buildings of fire resistance class V,

also taking the data indicated in Tables 6 to 15 and 17 to 36 into consideration.

Roof structures of layer orders 2 to 11 and 13 to 32 (REI 30; A2) can be applied as supports of roofslab enclosure structures (above 60 kg/m<sup>2</sup> \*)

- in buildings of fire resistance grade II-III with up to three floors, in buildings of fire resistance grade IV with up to two floors, in single-storey buildings of fire resistance grade V,  
also taking the data indicated in Tables 6 to 15 and 17 to 36 into consideration.

\*Note: all roof layers as well as suspended and applied loads must be calculated in the constant load.

Trapezoidal sheets only with solid webs can be applied for structures with fire resistance requirements.

The values of the permissible surplus load calculated simultaneously with the fire effect were indicated in kN/m<sup>2</sup> in Tables 5 to 36 as a function of the sheet thickness and span for the tested layer orders.

During installation the applicable instructions of the manufacturer should be observed.

The Hungarian version of the installation instructions (instruction manual) must be attached to the product.

**Conditions of application based on the National Fire Code (OTSZ) issued with BM decree 54/2014 (XII. 5.) in force before 22nd January 2020:**

Roof structures of layer orders 1 to 32 (REI 15; B) can be applied as roofslab enclosure structures (up to 60 kg/m<sup>2</sup> surface mass\*) in

- NAK risk class buildings
  - with basement + ground floor;
  - with residential function and with basement + ground floor + storey;
  - with basement + ground floor + maximum two storeys,
- AK risk class buildings
  - with basement + ground floor;
  - with basement + ground floor + maximum two storeys;
- KK risk class buildings
  - with basement + ground floor,

also taking the data indicated in the tables 5 to 36 into consideration.

Roof structures of layer orders 1 to 32 (REI 15; A2) can be applied as roofslab enclosure structures (up to 60 kg/m<sup>2</sup> surface mass\*) in

- NAK risk class buildings
  - with basement + ground floor;
  - with residential function and with basement + ground floor + storey;
  - with basement + ground floor + maximum two storeys;
- AK risk class buildings
  - with basement + ground floor;
  - with basement + ground floor + maximum two storeys;

- KK risk class buildings
  - with basement +ground floor,

also taking the data indicated in Tables 5 to 36 into consideration.

Roof structures of layer orders 1 to 32 (REI 15; B) can be applied as roofslab enclosure structures (above 60 kg/m<sup>2</sup>\*) in

- NAK risk class buildings
  - with basement +ground floor;
  - with residential function and with basement +ground floor+storey;
  - basement +ground floor+maximum two storeys;
- AK risk class buildings
  - with basement +ground floor;
  - with basement +ground floor+maximum two storeys,

also taking the data indicated in Tables 5 to 36 into consideration.

Roof structures of layer orders 1 to 32 (REI 15; A2) can be applied as roofslab enclosure structures (above 60 kg/m<sup>2</sup>\*) in

- NAK risk class buildings
  - with basement +ground floor;
  - with residential function and with basement +ground floor+storey;
  - with basement +ground floor+maximum 2 two storeys;
- AK risk class buildings
  - with basement +ground floor;
  - with basement +ground floor+maximum two storeys,

also taking the data indicated in the tables 5 to 36 into consideration.

Roof structures of layer orders 2 to 11 and 13 to 32 (REI 30; B) can be applied as roofslab enclosure structures (up to 60 kg/m<sup>2</sup> surface mass\*) in

- NAK risk class buildings
  - with basement +ground floor,
  - with residential function and with building basement +ground floor+storey;
  - with basement +ground floor+max. two storeys;
- AK risk class buildings
  - with basement +ground floor;
  - with basement +ground floor+max. two storeys;
- KK risk class buildings
  - with basement +ground floor,

also taking the data indicated in the tables 6 to 15 and 17 to 36 into consideration.



Roof structures of layer orders 2 to 11 and 13 to 32 (REI 30; A2) can be applied as roofslab enclosure structures (up to 60 kg/m<sup>2</sup> surface mass \*) in

- NAK risk class buildings
  - with basement +ground floor;
  - with residential function and with basement +ground floor+storey;
  - with basement +ground floor+max. two storeys;
- AK risk class buildings
  - with basement +ground floor;
  - with basement +ground floor+max. two storeys;
- KK risk class buildings
  - with basement +ground floor;
  - with basement +ground floor+maximum four storeys and other levels;
- MK risk class buildings
  - with basement +ground floor

also taking the data indicated in the tables 6 to 15 and 17 to 36 into consideration.

The roof structures of 2 to 11 and 13 to 32 layer orders (REI 30; B) can be applied as roof ceiling structures (above 60 kg/m<sup>2</sup> \*) in

- NAK risk class buildings
  - with basement +ground floor;
  - with residential function and with basement +ground floor+storey;
  - with basement +ground floor+max. two storeys;
- AK risk class buildings
  - with basement +ground floor;
  - with basement +ground floor+max. two storeys;
- KK risk class buildings
  - with basement +ground floor,

also taking the data indicated in the tables 6 to 15 and 17 to 36 into consideration.

The roof structures of 2 to 11 and 13 to 32 layer orders (REI 30; A2) can be applied as roof ceiling structures (above 60 kg/m<sup>2</sup> \*), taking the data indicated in the tables 6 to 15 and 17 to 36 into consideration.

In the buildings

- NAK risk class,
  - basement +ground floor,
  - in case of residential building basement +ground floor+ storey,
  - basement +ground floor+max. two storey,
- AK risk class,
  - basement +ground floor

- basement +ground floor+max. two storey and other levels,
- KK risk class,
  - basement +ground floor.

taking the data indicated in the tables 6 to 15 and 17 to 36 into consideration.

\*Note: All roof layers as well as suspended and applied loads must be calculated in the constant load.

Trapezoidal sheets only with solid webs can be applied for structures with fire resistance requirements.

The values of the permissible surplus load calculated simultaneously with the fire effect were indicated in  $\text{kN/m}^2$  in Tables 5 to 36 as a function of the sheet thickness and span for the tested layer orders.

However, roof boundary structures can be applied without restriction from fire safety aspect in buildings listed in Section 15 § (2) of the OTSZ.

During installation the applicable instructions of the manufacturer should be observed.

The Hungarian version of the installation instructions (instruction manual) must be attached to the product.

**Conditions of application from 22<sup>nd</sup> January 2020 based on the National Fire Code (OTSZ) issued with BM decree 54/2014 (XII. 5.) modified with BM decree 30/2019. (VII. 26.):**

Roof structures of layer orders 1 to 32 (REI 15; B) can be applied as non-loadbearing roof structures of the uppermost storey (up to  $80 \text{ kg/m}^2$  surface mass\*) in

- NAK risk class buildings,
  - with industrial, agricultural, storage basic function and with maximum three storeys, or
  - with residential, public basic function and with maximum three storeys, or
  - with maximum four storeys, independently from their function,
- AK risk class buildings,
  - with maximum three storeys, independently from their function,
- KK risk class buildings,
  - with maximum two storeys, independently from their function,

also taking the data indicated in Tables 5 to 36 into consideration.

Roof structures of layer orders 1 to 32 (REI 15; A2) can be applied as non-loadbearing roof structures of the uppermost storey (up to  $80 \text{ kg/m}^2$  surface mass\*) in

- NAK risk class buildings,
  - with industrial, agricultural, storage basic function and with maximum three storeys, or
  - with residential, public basic function and with maximum three storeys, or
  - with maximum four storeys, independently from their function,
- AK risk class buildings,
  - with maximum seven storeys, independently from their function,
- KK risk class buildings,
  - with maximum two storeys, independently from their function,

also taking the data indicated in Tables 5 to 36 into consideration.



Roof structures of layer orders 1 to 32 (REI 15; B) can be applied as roof slabs and loadbearing roof structures of the uppermost storey (above 80 kg/m<sup>2</sup> \*) in

- NAK risk class buildings,
  - with industrial, agricultural, storage basic function and with maximum three storeys, or
  - with residential, public basic function and with maximum three storeys, or
- AK risk class buildings,
  - with maximum three storeys, independently from their function,

also taking the data indicated in Tables 5 to 36 into consideration.

Roof structures of layer orders 1 to 32 (REI 15; A2) can be applied as roof slabs and loadbearing roof structures of the uppermost storey (above 80 kg/m<sup>2</sup> \*) in

- NAK risk class buildings
  - with industrial, agricultural, storage basic function and with maximum three storeys, or
  - with residential, public basic function and with maximum three storeys, or
- AK risk class buildings,
  - with maximum three storeys, independently from their function,

also taking the data indicated in Tables 5 to 36 into consideration.

Roof structures of layer orders 2 to 11 and 13 to 32 (REI 30; B) can be applied as non-loadbearing roof structures of the uppermost storey (up to 80 kg/m<sup>2</sup> surface mass\*) in

- NAK risk class buildings
  - with industrial, agricultural, storage basic function and with maximum three storeys, or
  - with residential, public basic function and with maximum three storeys, or
  - with maximum four storeys, independently from their function,
- AK risk class buildings,
  - with maximum three storeys, independently from their function,
- KK risk class buildings,
  - with maximum two storeys, independently from their function,

also taking the data indicated in Tables 6 to 15 and 17 to 36 into consideration.

Roof structures of layer orders 2 to 11 and 13 to 32 (REI 30; A2) can be applied as non-loadbearing roof structures of the uppermost storey (up to 80 kg/m<sup>2</sup> surface mass\*) in

- NAK risk class buildings
  - with industrial, agricultural, storage basic function and with maximum three storeys, or
  - with residential, public basic function and with maximum three storeys, or
  - with maximum four storeys, independently from their function,
- AK risk class buildings,
  - with maximum seven storeys, independently from their function,
- KK risk class buildings,
  - with maximum fifteen storeys, independently from their function,

- MK risk class buildings,
  - with maximum fifteen storeys, independently from their function,

also taking the data indicated in Tables 6 to 15 and 17 to 36 into consideration.

Roof structures of layer orders 2 to 11 and 13 to 32 (REI 30; B) can be applied as roof slabs and loadbearing roof structures of the uppermost storey (above 80 kg/m<sup>2</sup> \*) in

- NAK risk class buildings
  - with industrial, agricultural, storage basic function and with maximum three storeys, or
  - with residential, public basic function and with maximum three storeys, or
  - with maximum four storeys, independently from their function,
- AK risk class buildings,
  - with maximum three storeys, independently from their function,
- KK risk class buildings,
  - with maximum two storeys, independently from their function,

also taking the data indicated in Tables 6 to 15 and 17 to 36 into consideration.

Roof structures of layer orders 2 to 11 and 13 to 32 (REI 30; A2) can be applied as roof slabs and loadbearing roof structures of the uppermost storey (above 80 kg/m<sup>2</sup> \*) in

- NAK risk class buildings
  - with industrial, agricultural, storage basic function and with maximum three storeys, or
  - with residential, public basic function and with maximum three storeys, or
  - with maximum four storeys, independently from their function,
- AK risk class buildings,
  - with maximum seven storeys, independently from their function,
- KK risk class buildings,
  - with maximum six storeys, independently from their function,
- MK risk class buildings,
  - with maximum two storeys, independently from their function,

also taking the data indicated in Tables 6 to 15 and 17 to 36 into consideration.

\*Note: All roof layers as well as suspended and applied loads must be calculated in the constant load.

When applied as non-loadbearing roof structures of the uppermost storey,

- the EI criterion regarding these structures can be disregarded if opening up or warming of the structure does not pose a threat to its environment and ignition of the structure or any of its components does not entail the risk of propagation of fire on a significant part of the surface of the roof,
- the REI criterion regarding these structures can be disregarded if opening up or warming of the structure does not pose a threat to its environment and ignition of the structure or any of its components does not entail the risk of propagation of fire on a significant part of the surface of the roof, and failure of the structure does not pose a threat to the stability of loadbearing structures.

When applied as roof slabs and loadbearing roof structures of the uppermost storey,



- the EI criterion regarding these structures can be disregarded if opening up or warming of the structure does not pose a threat to its environment and ignition of the structure or any of its components does not entail the risk of propagation of fire on a significant part of the surface of the roof,
- the structure is a subject only to the D or maximum C reaction to fire requirement of Annex 2 Table 1 of OTSZ when it is applied to separate an attic or other room which is not appropriate for human occupancy from external space,
- the supporting structure of the rooflight is subject to a reaction to fire requirement only.

Trapezoidal sheets only with solid webs can be applied for structures which are subject to a fire resistance requirement.

The values of the permissible surplus loads calculated simultaneously with the fire effect were indicated in kN/m<sup>2</sup> in Tables 5 to 36 as a function of the sheet thickness and span for the tested layer orders.

However, roof slab structures can be applied as roof slab structures in buildings listed in Section 15 § (2) of the OTSZ without restriction from fire safety aspect provided that protection against propagation of fire between the building and the neighbouring buildings and open-air storage areas is ensured.

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Tamás Kiss-Sponga  
Test engineer

