



Building Research Institute (ITB)

Research | Development | Accredited Laboratory Group |

Notified Body No. 1488 | Member of EOTA | Certified Management Systems ISO 9001, ISO 27001

CLASSIFICATION REPORT ON THE EXPOSURE TO EXTERNAL FLAME for roofs with covering made of PLASTFOIL ECO or PLASTFOIL LAY membrane 00893.2/21/Z00NZP

for

THE OWNER OF THE CLASSIFICATION REPORT

PENOPLEX SPb Limited

**Saperny per. 1, letter A, RF-191014
St Petersburg**

Contract No. 00893/21/Z00NZP

1. Introduction

This classification report provides the classification for a roof with covering made of PLASTFOIL ECO or PLASTFOIL LAY membrane according to the procedure given in EN 13501-5:2016-07, method 1.

2. Roof description

Roofing with covering made of PLASTFOIL ECO or PLASTFOIL LAY membrane.

Layering of the roofing from the underside:

- chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,
- polyethylene film with a thickness of 0.20 mm, mass per unit area of 180 g/m², - thermal insulation interchangeably: EPS boards, XPS boards, mineral wool boards, PIR foam boards, - on top of the thermal insulation made of EPS and XPS boards, a separation layer made of fibreglass surface tissue with a weight of at least 120 g/m²,
- PVC roof membrane with the trade name of PLASTFOIL ECO or PLASTFOIL LAY with thicknesses from 1.2 mm to 2.0 mm. The manufacturer of the PLASTFOIL ECO and PLASTFOIL LAY membranes is PENOPLEX SPb Limited, Saperny per. 1, letter A, RF-191014, St. Petersburg.

3. Test report and results as a basis for classification

3.1 Test report

Name of laboratory	Name of Ordering Party	Test report number	Testing method
Fire Research Laboratory of the Building Research Institute	PENOPLEX SPb Limited Saperny per. 1, letter A, RF-191014 St. Petersburg	LZP01-00893/21/Z00NZP LZP02-00893/21/Z00NZP LZP03-00893/21/Z00NZP LZP04-00893/21/Z00NZP LZP05-00893/21/Z00NZP LZP06-00893/21/Z00NZP LZP07-00893/21/Z00NZP LZP08-00893/21/Z00NZP LZP09-00893/21/Z00NZP LZP10-00893/21/Z00NZP	CEN/TS 1187:2012, method 1

		LZP11-00893/21/Z00NZP LZP12-00893/21/Z00NZP LZP13-00893/21/Z00NZP	
--	--	---	--

3.2 Test results for the roofing with EPS 100 thermal insulation and covering made of PLASTFOIL ECO 1.2 mm membrane

Report LZP01-00893/21/Z00NZ

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.010	0.010	0.020	0.010	Yes
External upward flame spread	< 0.700 m	0.010	0.0	0.005	0.0	Yes
Internal downward flame spread	< 0.600 m	0.020	0.025	0.020	0.025	Yes
External downward flame spread	< 0.600 m	0.030	0.015	0.020	0.025	Yes
Maximum internal burnt length	< 0.800 m	0.020	0.025	0.020	0.025	Yes
Maximum external burnt length	< 0.800 m	0.030	0.015	0.020	0.025	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 19.5 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

3.3 Test results for the roofing with XPS thermal insulation and covering made of PLASTFOIL ECO 1.2 mm membrane

Report LZP02-00893/21/Z00NZP

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.010	0.010	0.010	0.010	Yes
External upward flame spread	< 0.700 m	0.0	0.0	0.010	0.020	Yes
Internal downward flame spread	< 0.600 m	0.020	0.045	0.020	0.050	Yes
External downward flame spread	< 0.600 m	0.045	0.050	0.025	0.080	Yes
Maximum internal burnt length	< 0.800 m	0.020	0.045	0.020	0.050	Yes
Maximum external burnt length	< 0.800 m	0.045	0.050	0.025	0.080	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 19.5 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

3.4 Test results for the roofing with PIR thermal insulation and covering made of PLASTFOIL ECO 1.2 mm membrane

Report LZP03-00893/21/Z00NZP

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.0	0.0	0.0	0.0	Yes
External upward flame spread	< 0.700 m	0.020	0.010	0.0	0.010	Yes

Internal downward flame spread	< 0.600 m	0.0	0.0	0.0	0.0	Yes
External downward flame spread	< 0.600 m	0.0	0.005	0.0	0.010	Yes
Maximum internal burnt length	< 0.800 m	0.0	0.0	0.0	0.0	Yes
Maximum external burnt length	< 0.800 m	0.020	0.010	0.0	0.010	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 19.5 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

3.5 Test results for the roofing with mineral wool thermal insulation and covering made of PLASTFOIL ECO 1.2 mm membrane

Report LZP04-00893/21/Z00NZP

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.0	0.0	0.0	0.0	Yes
External upward flame spread	< 0.700 m	0.070	0.0	0.060	0.0	Yes
Internal downward flame spread	< 0.600 m	0.0	0.0	0.0	0.0	Yes
External downward flame spread	< 0.600 m	0.035	0.0	0.048	0.022	Yes
Maximum internal burnt length	< 0.800 m	0.0	0.0	0.0	0.0	Yes
Maximum external burnt length	< 0.800 m	0.035	0.0	0.048	0.022	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 19.8 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

3.6 Test results for the roofing with EPS 100 thermal insulation and covering made of PLASTFOIL ECO 2.0 mm membrane

Report LZP05-00893/21/Z00NZP

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.020	0.020	0.020	0.020	Yes
External upward flame spread	< 0.700 m	0.0	0.0	0.0	0.010	Yes
Internal downward flame spread	< 0.600 m	0.020	0.025	0.025	0.025	Yes
External downward flame spread	< 0.600 m	0.0	0.010	0.010	0.015	Yes
Maximum internal burnt length	< 0.800 m	0.020	0.025	0.025	0.025	Yes
Maximum external burnt length	< 0.800 m	0.0	0.010	0.010	0.015	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 19.8 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

3.7 Test results for the roofing with XPS thermal insulation and covering made of PLASTFOIL ECO 2.0 mm membrane

Report LZP06-00893/21/Z00NZP

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.010	0.010	0.010	0.010	Yes
External upward flame spread	< 0.700 m	0.0	0.0	0.0	0.020	Yes
Internal downward flame spread	< 0.600 m	0.020	0.010	0.050	0.020	Yes
External downward flame spread	< 0.600 m	0.0	0.040	0.055	0.0	Yes
Maximum internal burnt length	< 0.800 m	0.020	0.010	0.050	0.020	Yes
Maximum external burnt length	< 0.800 m	0.0	0.040	0.055	0.020	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 20.2 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

3.8 Test results for the roofing with PIR thermal insulation and covering made of PLASTFOIL ECO 2.0 mm membrane

Report LZP07-00893/21/Z00NZP

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.0	0.0	0.0	0.0	Yes
External upward flame spread	< 0.700 m	0.0	0.010	0.042	0.033	Yes
Internal downward flame spread	< 0.600 m	0.0	0.0	0.0	0.0	Yes
External downward flame spread	< 0.600 m	0.0	0.0	0.0	0.0	Yes
Maximum internal burnt length	< 0.800 m	0.0	0.0	0.0	0.0	Yes
Maximum external burnt length	< 0.800 m	0.0	0.010	0.042	0.033	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 19.8 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

3.9 Test results for the roofing with mineral wool thermal insulation and covering made of PLASTFOIL ECO 2.0 mm membrane

Report LZP08-00893/21/Z00NZP

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.0	0.0	0.0	0.0	Yes
External upward flame spread	< 0.700 m	0.090	0.0	0.020	0.075	Yes
Internal downward flame spread	< 0.600 m	0.0	0.0	0.0	0.0	Yes

External downward flame spread	< 0.600 m	0.020	0.010	0.025	0.0	Yes
Maximum internal burnt length	< 0.800 m	0.0	0.0	0.0	0.0	Yes
Maximum external burnt length	< 0.800 m	0.090	0.010	0.025	0.075	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 20.1 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

3.10 Test results for the renovation roofing with EPS 100 thermal insulation and covering made of PLASTFOIL ECO 1.2 mm membrane

Report LZP09-00893/21/Z00NZP

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.050	0.010	0.050	0.040	Yes
External upward flame spread	< 0.700 m	0.098	0.0	0.080	0.120	Yes
Internal downward flame spread	< 0.600 m	0.010	0.010	0.030	0.030	Yes
External downward flame spread	< 0.600 m	0.0	0.010	0.040	0.030	Yes
Maximum internal burnt length	< 0.800 m	0.050	0.010	0.050	0.040	Yes
Maximum external burnt length	< 0.800 m	0.098	0.010	0.080	0.120	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 20.4 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

3.11 Test results for the renovation roofing with EPS 100 thermal insulation and covering made of PLASTFOIL ECO 2.0 mm membrane

Report LZP10-00893/21/Z00NZP

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.050	0.020	0.010	0.010	Yes
External upward flame spread	< 0.700 m	0.072	0.030	0.010	0.0	Yes
Internal downward flame spread	< 0.600 m	0.010	0.020	0.010	0.020	Yes
External downward flame spread	< 0.600 m	0.022	0.040	0.0	0.026	Yes
Maximum internal burnt length	< 0.800 m	0.050	0.020	0.010	0.020	Yes
Maximum external burnt length	< 0.800 m	0.072	0.040	0.010	0.026	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 19.5 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

3.12 Test results for the roofing without thermal insulation and covering made of PLASTFOIL ECO 1.2 mm membrane

Report LZP11-00893/21/Z00NZP

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.0	0.0	0.0	0.0	Yes
External upward flame spread	< 0.700 m	0.0	0.0	0.0	0.0	Yes
Internal downward flame spread	< 0.600 m	0.0	0.0	0.0	0.0	Yes
External downward flame spread	< 0.600 m	0.0	0.0	0.0	0.0	Yes
Maximum internal burnt length	< 0.800 m	0.0	0.0	0.0	0.0	Yes
Maximum external burnt length	< 0.800 m	0.0	0.0	0.0	0.0	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 19.5 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

3.13 Test results for the roofing without thermal insulation and covering made of PLASTFOIL ECO 2.0 mm membrane

Report LZP12-00893/21/Z00NZP

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.0	0.0	0.0	0.0	Yes
External upward flame spread	< 0.700 m	0.0	0.0	0.0	0.0	Yes
Internal downward flame spread	< 0.600 m	0.0	0.0	0.0	0.0	Yes
External downward flame spread	< 0.600 m	0.0	0.0	0.0	0.0	Yes
Maximum internal burnt length	< 0.800 m	0.0	0.0	0.0	0.0	Yes
Maximum external burnt length	< 0.800 m	0.0	0.0	0.0	0.0	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 20.0 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

3.14 Test results for the roofing with EPS 100 thermal insulation and covering made of PLASTFOIL LAY 1.2 mm membrane

Report LZP13-00893/21ZZ00NZP

Parameter	Criteria	Sample test results				Compliance with the criterion
		1	2	3	4	
Internal upward flame spread	< 0.700 m	0.100	0.120	0.100	0.100	Yes
External upward flame spread	< 0.700 m	0.250	0.285	0.120	0.135	Yes
Internal downward flame spread	< 0.600 m	0.020	0.050	0.040	0.040	Yes
External downward flame spread	< 0.600 m	0.0	0.060	0.040	0.044	Yes

Maximum internal burnt length	< 0.800 m	0.100	0.120	0.100	0.100	Yes
Maximum external burnt length	< 0.800 m	0.250	0.285	0.120	0.135	Yes
Flaming droplets/debris from the exposed side	No	No	No	No	No	Yes
Flaming droplets/debris from the underside	No	No	No	No	No	Yes
Single openings	< 25 mm ²	0	0	0	0	Yes
Openings in total	< 4500 mm ²	0	0	0	0	Yes
Lateral flame spread	to the edge*	0	0	0	0	Yes
Internal smouldering	No	No	No	No	No	Yes
Flame spread radius (flat roofs)	< 0.200 m	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

"0" means no damage

* – edges of measuring zone

Test conditions: Air temperature: 20.0 °C

The test was carried out with a roof pitch of 15°.

Decking: chipboard decking, constructed from 250 mm wide, 16 mm thick panels with a density of 680 kg/m³ with straight edges joined tightly so that the gaps do not exceed 5.0 mm,

4. Classification and scope of application

4.1 References

The classification was determined in accordance with **PN-EN 13501-5:2016-07**.

4.2 Classification

The roof as described in Section 2 was classified for external fire performance as follows:

B_{ROOF} (T1).

This classification is valid for end uses in accordance with technical conditions to be met by buildings and their location, and as for a fire retardant roof in accordance with the Regulation of the Minister of Infrastructure of 12th April 2002. (Journal of Laws No. 75 of 15th June 2002, item 690 as amended).

4.3 Scope of application

This classification is valid for the following conditions:

- 1a) any wood or wood-based decking with a minimum thickness of 16 mm and with gaps not exceeding 5.0 mm,
- 1b) any profiled or non-profiled steel decking,
- 1c) any non-flammable decking with a thickness of at least 10 mm,
- 2) old, existing, needing renovation, insulated or non-insulated roofing covered with asphalt felt in a single or double layer system; as well as old, existing, needing renovation, insulated or non-insulated roofing covered with roof membranes.
- 3a) PE foil vapour barrier
- 3b) bituminous vapour barrier made of roofing felt underlay with properties according to EN 13707 or EN 13970 and reaction to fire class of at least E according to EN 13501-1,
- 4) thermal insulation made of EPS 100 or EPS 80 or EPS 70 boards with a thickness \geq 50 mm, reaction to fire class of at least E according to EN 13501-1. It is permissible to use falling wedges made of EPS 100 or EPS 80 or EPS 70 boards manufactured in accordance with PN-EN 13163 with fire reaction class E according to PN-EN 13501-1.
- 5) thermal insulation made of XPS boards with a thickness \geq 50 mm, reaction to fire class of at least E according to PN-EN 13501-1. It is permissible to use falling wedges made of XPS boards with fire reaction class of at least E according to PN-EN 13501-1.
- 6) thermal insulation made of mineral wool with a thickness \geq 50 mm, reaction to fire class of at least A2-s3,d0 according to PN-EN 13501-1. It is permissible to use falling wedges made of mineral wool with fire reaction class of at least A2-s3,d0 according to PN-EN 13501-1.
- 7) thermal insulation made of PIR foam with a thickness \geq 50 mm, reaction to fire class of at least E according to PN-EN 13501-1. It is permissible to use falling wedges made of PIR foam with fire reaction class of at least E according to PN-EN 13501-1.

- 8) it is permitted to use a combination of the above-mentioned thermal insulation materials,
- 9) on the thermal insulation made of EPS and XPS boards a separation layer made of fibreglass fabric with a weight of at least 120 g/m².
- 10) PES 300 or PP 300 geotextile used as a separation layer between the membrane and the old roofing felt or roof membrane,
- 11) PVC roof membrane with the trade name of PLASTFOIL ECO with a thickness of 1.2 mm to 2.0 mm or PVC roof membrane with the trade name of PLASTFOIL LAY with a thickness of 1.2 mm to 2.0 mm. The manufacturer of the PLASTFOIL ECO and PLASTFOIL LAY membranes is PENOPLEX SPb Limited, Saperny per. 1, letter A, RF-191014, St. Petersburg.
- 12) roofs with a slope of up to 20°.

5. Limitations

5.1 Validity

The classification is valid until **31st December 2024**, provided that the composition and production technology remain unchanged.

5.2 Disclaimer

The classification may only be reproduced by the Ordering Party in its entirety with its appendices without any comments, abridgements or alterations.

Certified copies may be issued by the Fire Research Department of the Building Research Institute only at the request of the Principal.

5.3 Warning

This classification document does not constitute approval or certification.

Classification	Full name	Signature*	Date
Prepared by	Tomasz Gwiżdż	/Signature/	20/12/2021

* – on behalf of the organisation preparing the report

/Stamp: MANAGER
Fire Research Department
/Signature/
Bartłomiej Papis, BEng, MSc, PhD/