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# FIRE RESISTANCE CLASSIFICATION REPORT

**Subject of classification:** *Loadbearing floors and roofs with fire-separating function according to ČSN EN 13501-2:2017, clause 7.3.3*

**Report No.:** **PK2-03-22-005-E-0**

**Product name:** *Wooden ceiling construction made of load-bearing panels  
Novatop Element type 320 REI60*

**Sponsor:** **AGROP NOVA, a.s.**  
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## 1 INTRODUCTION

- 1.1 This classification report defines the resistance to fire classification assigned to element in accordance with the procedures given in ČSN EN 13501-2:2017.
- 1.2 This classification report consists of 4 pages and may only be used or reproduced in its entirety.

## 2 DETAILS OF CLASSIFIED ELEMENT

### 2.1 General

Element - *wooden ceiling construction made of load-bearing panels **Novatop Element type 320 REI60** (manufacturer AGROP NOVA, a.s.) with acoustic insulation made of limestone gravel* - is defined as a loadbearing ceiling construction with a fire separating function considering the characteristics of the properties stated in clause 5 of ČSN EN 13501-2:2017.

### 2.2 Description

The subject matter of the classification is the wooden ceiling construction made of load-bearing panels Novatop Element type 320 REI60 with acoustic insulation made of limestone gravel with fraction 4-8 mm and weight 40 kg/m<sup>2</sup>.

Panels are made of SWP boards (manufacturer AGROP NOVA a.s.). SWP boards are multilayer boards with density of 490 kg/m<sup>3</sup> and consists of glued lamellas made of coniferous sawn timber dried to 8 ±2%. Each layer of the boards is made of lamellas made of solid wood.

Total ceiling dimensions are 3000 x 7400 x 320 mm (width x length x thickness).

#### ◆ Composition of the panel (top to bottom):

- top plate composed of 2 pieces of 27 mm thick SWP boards with dimensions 1478.5 x 2130 mm and 5921.5 x 2130 mm;
- structure of the load-bearing timbers:
  - inside the panel are placed transversely timbers from SWP boards with a length of 2090 mm and height of 239 mm in spacings of max. 883 mm (11 pcs / 7.4 m panel length) and with cut-outs for longitudinal timbers - SWP boards with a thickness of 60 mm are used for the panel front edges and SWP boards with a thickness of 42 mm are inside the panel;
  - longitudinal timbers are made of SWP 27 x 239 x 6000 + 1400 mm (thickness x height x length) and are joined to a total panel length of 7400 mm. Timbers at the joint are reinforced on both sides with SWP plates 27 x 239 x 1000 mm, on the side edges of the panel they were reinforced only inside. Timbers at an axial distance of 340 mm. Side of the panel without tongue is made of SWP boards 60 mm thick and side of the panel with tongue and interior timbers are made of SWP boards 27 mm thick.
- 27 mm thick SWP pads are inserted between the timbers on bottom plate of panel;
- plastic bags with limestone gravel with fraction 4-8 mm and weight 40 kg/m<sup>2</sup> (supplier Solné mlýny Olomouc) are placed on the SWP pads
- the bottom plate of the panel is composed of 2 layers of SWP boards 27 mm thick, boards 2100 mm wide and approx. 5000 + 2400 mm long, the transverse joint between the SWP boards in one layer was covered with SWP boards in the second layer;
- all parts of the panel were glued together using Jowapur<sup>®</sup> polyurethane adhesive type 681.20 (manufacturer Jowat SE);
- all wooden parts of the panels were without coating.

#### ◆ Longitudinal joint between panels (tongue and groove):

- tongue is formed by extending the upper SWP board of 27 mm thickness over the edge of the panel by 30 mm;
- 2 strips of PROMASEAL<sup>®</sup>-LX intumescent tape 2 x 10 mm (manufacturer Promat s.r.o.) are glued on the bottom plate of the panel side, the tapes are glued on the centre of the SWP boards forming the bottom plate;
- panels are longitudinally connected to each other from top surface through tongue to groove using diagonally drilled Ø 8x100 mm screws TX40 with disc head (supplier VALENTA ZT s.r.o.), 9 pcs in spacings of 900 mm are used.

**Static design and load:**

- ◆ plain beam with a span of 7.2 m;
- ◆ loads substituting the uniform continuous load of 2.2 kN/m<sup>2</sup>;
- ◆ internal forces from loads applied to the plain beam 1 m wide:
  - at mid-span of the construction  $M = 14.256 \text{ kN.m}$
  - in the supports  $Q_a = Q_b = 7.92 \text{ kN}$

The manufacturer of the tested element: **AGROP NOVA, a.s.**

Detailed description of the product with drawings is in the Test Report No. Pr-22-2.019 issued on 8<sup>th</sup> March 2022.

### 3 TEST REPORTS / EXTENDED APPLICATION REPORTS AND TEST RESULTS IN SUPPORT OF THE CLASSIFICATION

#### 3.1 Test reports / extended application reports

| Name of laboratory<br>Address<br>Accreditation number                | Name of sponsor  | Test report No<br>Date of the fire test<br>Date of issue | Test standard and date |
|--|--|--|------------------------|
| PAVUS, a. s.<br>Veselí nad Lužnicí<br>AZL No. 1026<br>Czech Republic | <b>AGROP NOVA, a.s.</b><br>Ptenský Dvorek 99<br>79843 Ptení<br>Czech Republic<br><br><b>Vysoké učení technické v Brně</b><br>Antonínská 548/1<br>601 90 Brno-střed<br>Czech Republic | Pr-22-2.019<br>2021-11-19<br>2022-03-08                  | ČSN EN 1365-2:2017     |

#### 3.2 Tests results

| Test method<br>Test report No<br>Date of issue  | Parameter                       |   |
|---|---------------------------------|---|
| ČSN EN 1365-2<br>Pr-22-2.019<br>2022-03-08  | Fire scenario                   | Standard temperature / time curve   |
|   | Direction of fire exposure      | from below  |
|   | Applied load                    | Static loads replacing the uniform continuous load of 2.2 kN/m <sup>2</sup> |
|   | Supporting conditions           | Simple beam of span 7200 mm   |
|   | <b>Loadbearing capacity (R)</b> |   |
|   | - deflection                    | <b>82 minut</b>   |
|   | - rate of deflection            | <b>82 minut</b>   |
|   | <b>Integrity (E)</b>            |   |
|   | - cotton pad                    | <b>82 minut</b> <sup>1)</sup>   |
|   | - gap gauges                    | <b>82 minut</b> <sup>1)</sup>   |
|   | - sustained flaming             | <b>82 minut</b> <sup>1)</sup>   |
|   | <b>Insulation (I)</b>           |   |
|   | - average temperature           | <b>82 minut</b> <sup>1)</sup>   |
|   | - maximum temperature           | <b>82 minut</b> <sup>1)</sup>   |
| <sup>1)</sup> The performance criteria "integrity" and "insulation" shall automatically be assumed not to be satisfied when the "loadbearing capacity" criterion ceases to be satisfied (according to ČSN EN 1363-1:2020 cl. 11.4.1). |                                 |   |

## 4 CLASSIFICATION AND FIELD OF APPLICATION

### 4.1 Reference of classification

This classification has been carried out in accordance with clause 7.3.3 of ČSN EN 13501-2:2017. The test was performed according to ČSN EN 1365-2:2017, the test method and test conditions met the requirements of ČSN EN 1365-2:2015.

### 4.2 Classification

Element - wooden ceiling construction made of load-bearing panels **Novatop Element type 320 REI60** with acoustic insulation made of limestone gravel - is classified according to the following combinations of performance parameters and fire resistance classes:

**REI 60 / RE 60**

*thermal exposure from below*

### 4.3 Field of application

The fire resistance test results of the wooden ceiling system made of panels **Novatop Element type 320 REI60** can be directly applied to same constructions where one or more changes listed specified are made and the construction continues to comply with the appropriate design code for its stiffness and stability:

with respect to the structural building member:

- The maximum moments and shear forces, which when calculated on the same basis as the test load, shall not be greater than those tested, see Article 2.2 of this document.

with respect to the cavity:

- The height of the cavity and the minimum distance between the ceiling and the structural members are equal to or greater than those tested.
- No combustible or insulating material is added to the cavity (load-bearing wooden profiles) unless the same amount (in terms of both weight and fire load) of material was included in the test specimen.

with respect to the inclination of roof constructions:

- The results of the elements tested with an inclination  $\leq 10^\circ$  may be applied for an inclination of  $0^\circ + 15^\circ$ .

This classification does not relate to structural details and conditions determining the disposition of fire separating elements in the internal cavity of the roof construction or to the measures taken against the spread of fire to other structures along the perimeter of the roof.

## 5 LIMITATIONS

This classification is valid unless the conditions, under which it was issued, have been changed (i.e., until the materials used, the composition or design of the product or the technical regulations relating to the product change).

The sponsor may request the issuing authority to review the influence of changes to the classification validity.

This Classification Report does not represent type approval or certification of the product.

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