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EXTENDED APPLICATION REPORT OF FIRE RESISTANCE

Object of application: *Non-loadbearing wall in accordance with ČSN EN 15254-4+A1*

Identification number:

PRA2-05-14-902-E-1

Name and type of element:

*Non-loadbearing interior glazed wall Pyrobel EI60/25
in a wooden frame*

Sponsor:

AGC Glass Europe
4, Avenue Jean Monnet
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Issuing organization:

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1 INTRODUCTION

The subject of this extended application is determination of the parameter changes influence on the value of fire resistance of *Non-loadbearing interior glazed wall Pyrobel EI60/25 in a wooden frame* in rigid supporting structures.

This extended application report is related to the test results according to the procedures mentioned in ČSN EN 1364-1:2000 and ČSN EN 13501-2+A1:2010.

This report of extended application is worked out in accordance with ČSN EN 15254-4+A1:2012 and ČSN EN 15725:2010.

This extended application report consists of 6 pages and it may only be used or reproduced in its entirety.

This Report of extended application supersedes and repeals the Report of extended application No. PRA2-02-14-902-A-0 of 2014-04-02. Compared to the previous version, glass dimensions are corrected.

2 REVIEW OF TECHNICAL STANDARDS, REGULATIONS AND OTHER DOCUMENTS

2.1 Technical standards and regulations

- ČSN EN 1364-1 Fire resistance tests for on-loadbearing elements – Part 1: Walls
- ČSN EN 13501-2+A1 Fire classification of construction products and building elements - Part 2: Classification using test data from resistance fire tests, excluding ventilation services
- ČSN EN 15254-4+A1 Extended application of results from fire resistance tests - Non-loadbearing walls - Part 4: Glazed constructions
- ČSN EN 15725 Extended application reports on the fire performance of construction products and building elements

2.2 Technical documents

- [1] Test report of fire resistance No. Pr-01-02.053, issued by PAVUS, a.s., ATL Veselí nad Lužnicí, dated 2001-06-06
- [2] Agreement Glaverbel using the test protocol for the company AGC Glass Europe dated 2014-04-02

3 DETAILED INFORMATION ABOUT ASSESSED PRODUCT

The subject of extended application of test results is *Non-loadbearing interior glazed wall Pyrobel EI60/25 in a wooden frame* which is defined as fire resistance structure and it has function of fire resistance partition construction with respect to fire characteristics of properties stated in clause 5 of ČSN EN 13501-2+A1:2010.

Wooden frame, type Meranti, is assembled of perimeter profiles 95 x 60 mm and inner profiles 95 x 100 mm. Overall dimension of specimen is 2950 x 2776 mm (width x height). Test specimen is divided into two parts with vertical joint. Frames are connected together by using steel screws Joint between frames is covered by wooden bar with dimension 44 x 12 mm which is fixed to frames by steel screws.

Glazing is made of fire-resistant glass boards from Pyrobel EI60/25, thickness 25 mm. Dimensions of the boards are (height x width): 1) - 1800 x 542 mm; 2) - 1800 x 800 mm; 3) - 844 x 1398 mm; 4) - 2700 x 1400 mm. Boards are bordered with wooden profile, type Meranti, with dimension 27 x 30 mm. Bars are connected to the frame by screws. Glazed boards No. 1, 2 and 3 have bars on the unexposed side of fire and glazed board No. 4 has bars on the exposed side of fire. Glazing is fixed in vertical direction by distance pad Promatec H, dimension 70 x 25 x 5 mm. In horizontal direction is fixing by both-side intumescent seal Vito Vorlegeband, dimension 15 x 5 mm and the joint is closed by silicon Dow Corning.

Supporting structure is from lightweight concrete blocks with thickness 250 mm.

Description and drawings of the glazed wall is mentioned in Test report No. Pr-01-02.053, dated 2001-06-06.

4 FIRE RESISTANCE TEST REPORTS AND TEST RESULTS USED FOR CLASSIFICATION AND EXTENDED APPLICATION

4.1 Test reports of fire resistance

Name of the lab Address Accreditation number	Sponsor name of test report	Test report number Date of issue	Test standard
<i>PAVUS a.s. Testing lab in Veselí nad Lužnicí ATL No. 1026</i>	<i>Glaverbel Parc Industriel Zone C B-7180 Seneffe Belgium</i>	<i>Pr-01-02.053 2001-06-06</i>	<i>ČSN EN 1364-1</i>

4.2 Stress conditions and test results of fire resistance

Test method Test report number Date of issue	Parameter	
<i>ČSN EN 1364-1 Pr-01-02.053 2001-06-06</i>	Thermal exposure Number of exposed sides Direction of loading Dimension of tested specimen (width x height) Dimension of glazing (height x width)	<i>standard curve time / temperature 1 symmetrical structure 2950 x 2776 mm 1800 x 542 mm; 1800 x 800 mm; 844 x 1398 mm; 2700 x 1400 mm</i>
	Type of glazing Type of frame Supporting structure	<i>Pyrobel EI60/25 wooden - Meranti from lightweight concrete blocks of thickness 250 mm, one vertical free edge</i>
	Integrity (E) Insulation (I) - average temperature - maximum temperature	<i>77 minutes, no failure 77 minutes, no failure 76 minutes</i>

5 EXTENDED APPLICATION OF TEST RESULTS

Extended application is worked out in accordance with ČSN EN 15254-4+A1:2012 regulations. Rules described below refer to clauses of this standard. Extended application is especially focused on the following construction parameter changes:

5.1 Specific changes to glazing system

clause 6.1 *Alternative change of fire resistant glass*

- it is not possible without additional test

clause 6.2 *Asymmetrical fire resistant glass*

- glass Pyrobel EI60/25 is symmetrical

clause 6.3 *Maximal dimensions of individual glass panes*

- increase in height and width of individual glass pane is possible up to 20 % because there was achieved prolonged classification time.
- increase in area of individual glass pane is possible up to 21 % because there was achieved prolonged classification time.
- circular, triangular or four-sided shapes shall be cut from within the extended rectangular pane size. All other non-rectangular shapes shall only be cut from the original sized rectangular pane in the reference test, and cannot be extended further.
- changes of side proportions of rectangular panes are allowed providing new extended panes confirm enlargement dimension mentioned above. Changes of pane side proportion, rotation of pane from portrait to landscape and from landscape to portrait is possible providing:
 - maximal tested width and height aren't exceed
 - area of new pane is smaller than: $0,5 * (A_{\text{portrait}} + A_{\text{landscape}})$
- increase of pane dimensions is possible if the frame manufacturer should issue confirmation that the framing system is able to support the additional weight due to the increase of pane area.

clause 6.6 *Alternative use of wooden glazing bars*

- change in type of material is not allowed (i.e. from wooden to metal)
- change in type of wood is possible providing calculation in accordance with ČSN EN 1995-1-2 or by reference test. Fire resistance parameters have to be equal or better then parameters of tested wood.
- it is not allowed to change manner of mounting (screwed bars shall not be mounted by pins or clips without additional testes)
- interchange from oblique or cut profiles to plane profiles with the same height is possible without additional test for fire resistant glazed elements with classification EI

clause 6.8 *Alternative use of glazed material*

- it is not allowed without additional tests

clause 6.9 *Alternative use of decorative finishes of glazing bars*

- it is possible to add decorative finishes with reaction to fire A1 or A2 in accordance with ČSN EN 13501-1+A1. Additionally it has to be declare that fire resistance parameters will not be influenced

5.2 *Specific changes to framing system*

clause 7.1 *Asymmetrical systems of framing*

- wooden frame is symmetrical

clause 7.2 *Alternative use of framing*

- change of material type of frame is not allowed
- change in wooden type is allowed. Tested timber should be replaced by timber with equal or higher density and / or equal or higher moisture and with equal or lower char rate and identical profile.
- increase in thickness of frame is allowed
- laminated timber frames shall not be used
- junction of frame shall be used only in accordance with tested details. It was tested:
 - Type B: three panes coming together at one point, only double mullion, including pane height 2700 mm
 - Type C: three panes coming together at one point, including pane width 1378 mm
 - Type E: corner junction

clause 7.3 *Alternative use of decorative finishes of frame*

- it is possible to add decorative finishes with reaction to fire A1 or A2 in accordance with ČSN EN 13501-1+A1. Additionally it has to be declared that fire resistance parameters will not be influenced

clause 7.4 *Alternative use of supporting structure and fixing to frame*

- it is possible to use rigid supporting structure with equal or better thickness and density

5.3 *Specific changes to glazed element*

clause 8.1 *Maximal overall dimensions of non-loadbearing wall*

- increase in height and width of individual glass pane is possible up to 20 % because there was achieved prolonged classification time.
- increase in area of individual glass pane is possible up to 21 % because there was achieved prolonged classification time
- circular, triangular or four-sided shapes shall be cut from within the extended rectangular pane size. All other non-rectangular shapes shall only be cut from the original sized rectangular pane in the reference test, and cannot be extended further
- changes of side proportion of rectangular panes are allowed providing new extended panes confirm enlargement dimension mentioned above

clause 8.3 *Replication of the fire resistant glazed element*

- rectangular fire resistant glazed element tested with one vertical edge without restraint, a wider construction achieved by replicating the fire resistant glazed element as tested, by adding more units of the same fire resistant glazed element side by side, is allowed for E and EI classified elements

clause 8.4 *Alternative angle of mounting*

- in accordance with direct field of application it is allowed to change angle in range $\pm 10^\circ$ from vertical, see ČSN EN 1364-1, cl. A.5.1

6 RESULTS ANALYSIS

Reached value of fire resistance are determined for non-loadbearing interior glazed wall Pyrobel EI60/25 in a wooden frame. Achieved values of fire resistance for non-loadbearing wall Pyrobel EI60/25 with wooden timber is EI 60. It is possible to increase in dimension of glass panes and / or glazed wall because it was achieved prolonged classification time.

This extended application of test results is issued based on the test results and based on information from relevant parts of Standard ČSN EN 15254-4+A1 which are in disposal during issuing period.

7 LIMITATION

Results of extended application corresponds with behaviour of product / product groups or building elements in specific test conditions; they are not given as one criterion for evaluation of possible fire danger of product / product group or building element by utilization.

This extended application report is valid unless the conditions under which it was issued have been changed. The sponsor may request the issuing authority to review the influence of changes to the classification validity.

Duration of validity of this extended application report is 5 years of the issue date.

This report of extended application does not represent type approval or certification of the product.

Prepared by:



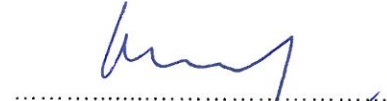
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