

“Maintenance and control scheme” proposal for measuring (controlling) fire properties of Accoya impregnated with Burnblock over time.

Introduction

Burnblock has been asked by Accoya to propose a method to control the fire properties of exterior mounted Accoya impregnated with Burnblock over time.

To Burnblock’s best knowledge there exists no one norm that describes such a method. The following description is based upon a natural weathering test method (EN 927-3 2012) used for varnish and painting. In the below description, the test method has been adapted for fire-retardant on uncoated wood using the fire test method (ISO 5660-01). The methods have been recommended by an independent test institute and put in writing and operationalized by Burnblock. Frequency of measuring can be increased.

Burnblock is not taking any responsibility of the proposal but advises the user of this document to have an independent test institute/expert to verify the proposal before implementing.

Please note: “Natural weathering tests give an indication of the durability of the system tested. The closer the conditions of actual use are to the conditions of the test, the better the correspondence. However, as conditions vary considerably, variations in performance will also occur”. Source: EN 927-3 2012.

1 Apparatus

Exposure racks, inclined at the same angle to the horizontal as part of the building in question where the wood is mounted. The specimens should face towards the equator in accordance with EN ISO 2810.

2 Test panels

2.1 Wood

The wood shall be the specie in question that has been impregnated with Burnblock according to specification and been selected to be free from knots, cracks and resinous streaks and have durability 1 or 2 according to EN350. The wood shall be free from blue stain and evidence of surface or bulk fungal infection. Abnormal porosity (caused by bacterial attack) shall be avoided. The wood shall be conditioned at (20 ± 2) °C and a relative humidity of (65 ± 5) % (in accordance with ISO 554) to an equilibrium moisture content of (13 ± 2) %.

2.2 Preparation and selection of wood panels

The panels shall be cut from boards impregnated with Burnblock and shall be nominally (425 ± 2) mm × (105 ± 2) mm and (20 ± 2) mm thick. For details of panel preparation see Figure 1. The panels shall have a uniform finish. Rounding of edges is not permitted. Any panels showing surface splitting shall be rejected.

2.3 Preparation of Burnblock impregnated Accoya panels

2.3.1 Wood conditioning

Condition the panels at $(20 \pm 2) ^\circ\text{C}$ and a relative humidity of $(65 \pm 5) \%$ until constant mass in accordance with ISO 554. Keep the panels under the same conditions during subsequent storage of test panels before exposure. Panels may be transferred for brief periods to other ambient conditions where this is required for the conduct of specific operations or assessments.

Select two to four panels on a random basis from the available supply. Three panels shall be used for exposure and the fourth shall be for unexposed reference.

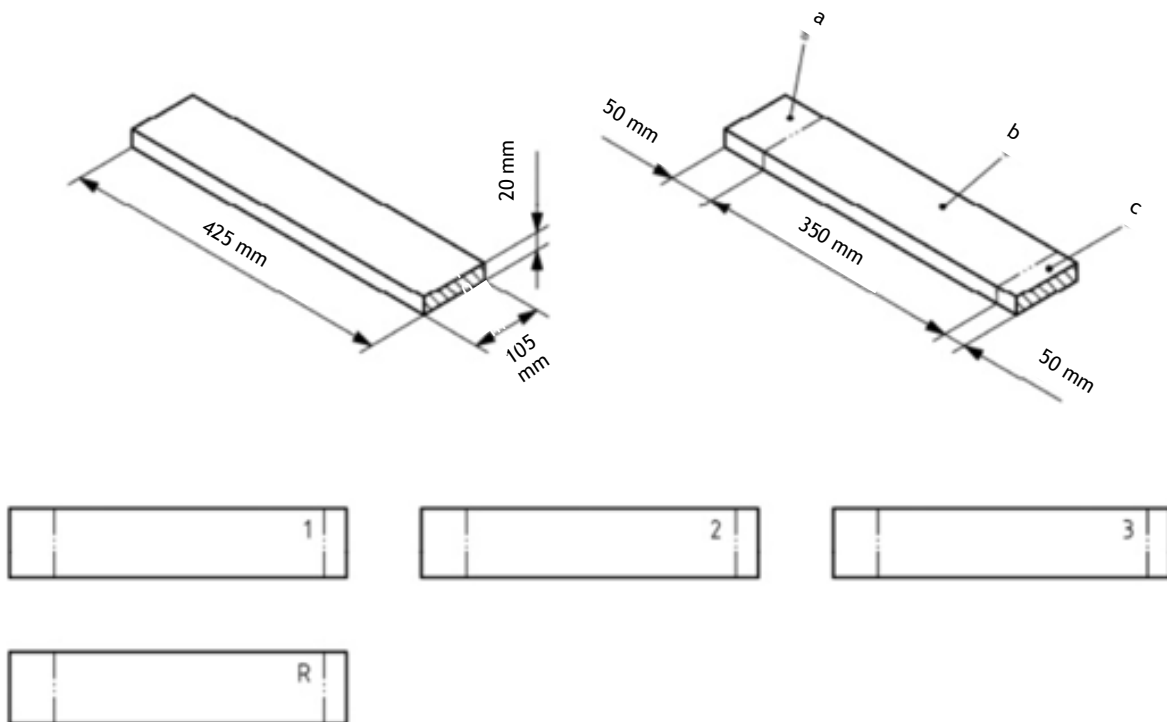
2.3.2 Sealing

Seal thoroughly the ends of the panels using epoxy. The sealer may be applied by brushing or dipping. The sealer shall be applied to the bands marked "a" and "c" at the ends of the panel shown in Figure 1. It is important that the sealer is applied all round, i.e. that front, sides, end grains and rear face of the bands are coated.

After sealing, age the panels for approximately 7 days in the controlled environment at $(20 \pm 2) ^\circ\text{C}$ and a relative humidity of $(65 \pm 5) \%$ (in accordance with ISO 554), before carrying out initial panel examinations.

Exposure shall start at the latest 28 days after completion of sealing.

FIGURE 1



Key

- 1, 2 and 3: Exposure panels
- R: Unexposed reference panels
- a: Sealed end (may be used for numbering of test panels)
- b: Section impregnated with Burnblock for testing
- c: Sealed end

NOTE: The figure is not to scale

3 Procedure

The results from the examinations can be registered in Appendix 1

3.1 Examination before exposure

Before exposure, carry out the following measures on the test panels and reference panel:

- Photos of each test panel together with reference panel
- Measure the density of each panel

As wood is a natural material, unexpected defects can be detected in the panels just before exposure, even though the wood material has been selected, inspected and prepared along the guidelines of 6.1 and 6.2. If unexpected defects are found on a panel it should be replaced.

3.2 Exposure

Expose three of the panels with their long edge horizontal and the 50 mm band to the left of the exposed face, for a period of 10 years, using the exposure rack (4.1). Record the starting and ending dates. Store the reference panel indoors at a temperature of (20 ± 2) °C, a relative humidity of (65 ± 5) % and protected from direct light.

3.3 Examination after exposure

An examination of one of the exposed panels should take place after 10 years.

An examination consists of the following measures.

- Photo of panel together with reference panel
- Measure the density of the test panel and the reference panel
- Cut the test panel into 3 samples measuring 105*105 mm. The sealed ends must not be part of the samples.
- Test each of the 3 samples according to ISO 5660-01. Result of fire classification: Euroclass B for minimum two out of the 3 samples.

Burnblock

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Appendix 1

		Reference panel	Panel 1	Panel 2	Panel 3
Before exposure	Date:				
Weight of panels	(g)				
After 10 years of exposure					
Date:				10 years	
Weight of panel	(g)				
Fire classification per sample (acc ISO 5660)					