Design development and testing of Plasterboard systems

DRYWALL TECHNICAL CONSULTANTS
Nightingale House
95 Nightingale Rise
Portishead
Bristol BS20 8LX

Excel Laminating Ltd
Kingston International Business Park
Hull HU 9 5NX

Date- 21 July 2021

FAO Jeff Thomas , Managing Director

Draft Fire Test Report Summary of an External Wall Specimen for Excel Laminating.

This fire test was sponsored by Excel Laminating Ltd at BRE Global on 01 February 2021. The test specimen was built by Integra Buildings Ltd at their Hull factory then transported to Watford for installation in the 3m x3m wall furnace there by BRE Technicians.

The test method was BS 476 – 21: 1987 and the BRE reference code is P119030-1000.Dated 26/05 /21

1) External Wall Detail – 2700 mm H x 3000 mm W x 162 mm thick loaded to 90 kN with hydraulic jacks under a spreader beam. The load was shared between the SHS columns and the timber stud frame.

The brief method of construction is show listed below. See drawing No F101 PO2 in the report

1) Three 100x 100 x 4mm SHS columns located at each end 3100 mm apart with two of these shown as bay joint corner posts and on one side to simulate a loaded continuous wall run
2) Timber stud frames between SHS columns, with 120 x 34mm C 16 studs at 400 mm centres and with the outermost studs adjacent to the columns on both sides and with 15mm XPS packers.
3) 11 mm Kingspan OSB/3, sheathing board on the outer side covered with a breather membrane
4) 120 mm Superglass Mat 35 insulation friction fitted in the stud cavity.
5) Inside sheathing, also Kingspan 11mmOSB /3 on the fire side of the timber frame
6) Inside lining – 15mm Siniat Mega XL Type F boards with joints staggered
7) Finishing was with 5 mm of Thistle skimming plaster with joints reinforced with fibreglass tape

2) Timed Observations During the Test Period – with fire exposed onto the MegaXL board

Minus 15 minutes – the specimen was loaded to achieve an axial load of 90 kN throughout the duration
18 mins – plaster skim became detached from the MegaXL board
40 mins – flaming coming through the joints from the burning OSB layer behind the MegaXL
52 mins – MegaXL board starting to detach from the board fixing
62 mins – on the non fire side the surface heat did not cause the roving thermocouple to ignite
68 mins – a lot of smoke was coming out of the vertical joints but there was no Insulation failure
73 mins – the cotton pad ignited at 1750 mm from the base and at mid width – **Integrity Failure**
75 mins – test terminated

3) Test Result

75 mins for **Loadbearing Capacity,** and **73** mins for both **Insulation** and **Integrity.**

The overall fire resistance of the system was > 60 minutes in accordance with BS 476 – 21: 1987

Assessment Notes (1) The result is valid in the case where the outer sheathing board could be substituted by using 9 mm MultiPro XS instead of 11 mm OSB (2) then the result would achieve a fire resistance **EIR = 60 mins** in accordance with BS EN 1365 – 1 : 2015

Chris Walker MSc (eng) FIOA
Fire Safety Engineering Design and Testing Consultant

Telephone: 01275 847759 Fax: 01275 846308 Mobile: 07836 566 554
E-mail: chris.walker@drywallconsultants.co.uk
Chris Walker, MSc, FIOA