



Assessment Report :

An assessment of the fire resistance of access panels within a partition system when tested in accordance with BS476: Part 22: 1987.

Assessment report number
CC 206789



BR

...in partnership

Prepared for :

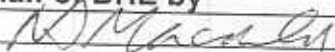
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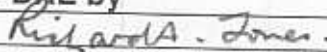
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1 Introduction

Fire Proofing Services Ltd. access panels are designed to provide a fire resistance when installed in fire resisting partitions or ceilings. This report assesses the performance of an access panel system when installed within a fire resisting partition, based on the performance of the system when tested within a ceiling.

2 Scope

This assessment report covers the fire resistance of the Fire Proofing Services access panel mounted in a partition, in terms of the integrity criterion of BS 476: Part 22: 1987, for fire exposures of up to 60 minutes.

3 Supporting test data

3.1 LPC / BRE test report TE 200864

A fire resistance test was carried out for you on your double-leaf access panel for a heating period of 70 minutes in accordance with BS476: Part 22: 1987. The access panel consisted of a perimeter frame, providing a clear opening of 1175mm x 1175mm, which was closed with two access panel leaves, each nominally 584.5mm wide. The perimeter frame was made from 1.2mm-thick Zintec steel which had been polyester powder coated to Ral9010 (20% gloss). The 25mm-wide beaded frame, mitred at each corner, was fitted into the ceiling membrane from below, overlapping the plasterboard ceiling membrane by approximately 20mm. The frame was fixed in position using nominally 25mm x 15mm steel angle, which was screwed to the primary channels surrounding the structural opening and to the top edge of the perimeter frame. Due to the shape of the frame where the steel angle was fixed, a void was left between the access panel frame and the ceiling membrane, which was filled with stone wool and fire-resistant mastic. The top edge of the frame overlapped the access panel leaves by approximately 40mm, which reduced the clear opening of the access panel to 1095mm x 1095mm.

Each access panel leaf consisted of a 1mm-thick, folded Zintec steel tray which was polyester powder coated (on the exposed face) in Ral9010 (20% gloss). Each leaf was stiffened using two pre-formed top-hat section stiffeners, welded (one at each side) to the unexposed face of each steel tray. A 12.5mm-thick sheet of Lafarge Megadeco plasterboard, treated with one coat of Lafarge Drywall Sealer, was fixed to the exposed face of each of the access panel leaves, using 32mm-long drywall screws fixed into Z-section brackets welded to the access panel tray. Each access panel leaf was hung via two hinge pin blocks, one located at each end of a top hat stiffener to the edge of each access panel leaf, the pin locating in a slot in the panel frame. The right-hand side was secured in the closed position using two Budget locks, one each end of the leaf, located in a top hat section. The left-hand leaf was secured using three Budget locks, one each end of the leaf and one in the centre, all locks located under the back cover plate (welded to the right-hand leaf).

The access panel was mounted in a 3.5m x 4.15m ceiling, constructed from a galvanised steel ceiling grid underlined with two layers of 12.5mm-thick Lafarge Firecheck plasterboard on the exposed side of the ceiling and opened towards the furnace. The access panel system satisfied the integrity criteria of the standard for 70 minutes. See LPC / BRE test report TE 200864 for full details

3.2 LPC / BRE test report TE 200479

A fire resistance test was carried out for you on your double-leaf access panel for a heating period of 65 minutes in accordance with BS476: Part 22: 1987. The access panel consisted of a perimeter frame, providing a clear opening of 1095mm x 1095mm, which was closed via two access panel leaves, each nominally 586.5mm wide x 1173mm. The perimeter frame was made from 1.2mm-thick Zintec steel which had been polyester powder coated to Ral9010 (20% gloss). The frame was fitted into the ceiling membrane from below and had a 25mm-wide picture frame surround (mitred in each corner) on its bottom edge which overlapped the plasterboard ceiling membrane by approximately 20mm. The frame was fixed in position using a steel angle, nominally 25mm x 15mm, which was screwed to the primary channels surrounding the structural opening and to the top edge of the perimeter frame. Due to the shape of the frame where the steel angle was fixed, a void was left between the access panel frame and the ceiling membrane, which was filled with stone wool and fire resistant mastic. The top edge of the frame overlapped the access panel leaves by approximately 40mm, which reduced the clear opening of the access panel to 1095mm x 1095mm.

Each of the access panel leaves consisted of 1mm-thick, folded Zintec steel tray which was polyester powder coated (on the exposed face) in Ral9010 (20% gloss). Each leaf was internally stiffened via two pre-formed top-hat section stiffeners that were welded to the sides and bottom of the steel trays. A 12.5mm-thick sheet of Lafarge Megadeco plasterboard, treated with one coat of Lafarge Drywall Sealer, was fixed to the rear face (unexposed face) of each of the access panel leaves. The Megadeco plasterboard was fixed in position via 32mm-long drywall screws fixed into the stiffeners and folded returns of the access panel tray. Each of the access panel leaves was hung via a continuous hinge that was welded to the access panel trays and was bolted to the frame using three M6 bolts welded to the frame at 300mm centres. The meeting stile between the active leaf and the passive leaf was fitted with a 1.2mm-thick steel locking angle/meeting astragal, which overlapped the active leaf by approximately 25mm. The passive leaf was fitted with two Budget locks, that engaged approximately 14mm with steel angles, nominally 20mm x 15mm, fixed to the surrounding frame. The two locks were operated from the unexposed face of the leaf via a Budget key. The active leaf was fitted with a three-point locking system that incorporated a mid-span latch, nominally 18mm x 33mm, that engaged with the passive leaf and two shoot bolts that engaged in corresponding housings fixed to the frame. The three-point locking was operated from the exposed face of the construction via a Budget key.

The access panel was mounted in a 3.5m x 4.15m ceiling, constructed from steel stud clad with two layers of 12.5mm-thick Firecheck plasterboard on the exposed side of the ceiling and opened towards the furnace. The access panel satisfied the integrity criteria of the standard for 65 minutes. See LPC / BRE test report TE 200479 for full details.

3.3 LPC (FIRTO) test report TE 94530

A fire resistance test in accordance with BS476 : Part 22 : 1987 was carried out for you on your double-leaf access panel for a heating period of 135min. The actual overall panel dimensions not including the picture frame surround were 2000mm high x 2000mm wide, with a 25mm-wide picture frame surround mitred at each corner. The three-point lock hole in the left-hand access panel tray was fitted with a plastic dome plug and collar. Plastic spacer plugs were also fitted in the edge of the access panel trays; two top and bottom of each access panel with two on the opening side.

Each access panel tray consisted of a 1.0mm-thick Zintec steel skin, which was polyester powder-coated in Ral9010 20% gloss with pre-formed 1.2mm-thick top-hat section stiffeners welded to the sides and middle section of each access panel tray. The voids within the access panel trays were filled with a stone wool insulation (type and density not stated by the sponsor). A 12.5mm-thick sheet of Lafarge Megadeco wallboard was fixed to the rear face of each access panel tray using 32mm drywall screws. The panel had a fire retardant smoke seal attached to the frame perimeter. Each access panel was fitted with a continuous steel hinge welded to the access panel tray and fixed to the frame using nuts and washers to M6 bolts welded to the frame at 150mm in from the edges and 300mm centres thereafter. The right hand access panel (as viewed from the exposed face) was fitted with a 1mm-thick back plate and was locked top and bottom from the opposite side by a Budget lock. The left-hand access panel was locked using a three-point locking system. Both access panel leaves were nominally 60mm thick.

The panel frame consisted of a 1.2mm-thick Zintec steel section with M6 bolts welded to the hinge side. The 25mm-wide front picture frame flange was mitred at each corner. The frame was polyester powder-coated to Ral9010 20% gloss.

The access panel was mounted in a plasterboard-clad, steel stud partition with both panel leaves opening towards the furnace. The access panel satisfied the integrity criteria of the standard for 135 minutes. See LPC test report TE 94530 for full details.

4 Description of proposed system

The proposed access panel system is the same as that tested as described in report TE 200864, mounted in a lightweight, steel-framed partition, instead of in a ceiling. (see section 3.1 above).

Any details of the construction of the access panels not described in this assessment report are assumed to be the same as on the tested specimens.

5 Assessment

The 1175mm x 1175mm double-leaf access panel tested in TE 200864, as described above, satisfied the integrity criteria of BS476: Part 22: 1987 for the 70-minute duration of the fire resistance test. The face of the access panel lined with plasterboard was exposed to the fire. During the test, the complete ceiling / access panel specimen deflected towards the furnace by 12.9mm, with very little deflection of the access panel relative to the supporting ceiling. A similar access panel tested in TE 200479 above satisfied the integrity criteria for 65 minutes. In this case, the face of the access panel lined with plasterboard was on the non-fire side. As in TE 200084, there was little deflection of the access panel relative to the ceiling. The test was terminated at 65 minutes due to the access panels opening.

Other access panels of similar construction have also been tested in a steel-framed partition (see test TE 94530) for up to 135 minutes with no failure of integrity. In this case, the side of the access panels lined with plasterboard and ceramic tiles was on the fire side. After the first 60 minutes of this test, the partition had deflected by approximately 79mm, and the deflection of the access panel leaf relative to the partition was 12mm.

Although the access panels tested in TE 200479 and TE 94530 were slightly deeper than the proposed system; it is considered that they would behave in a similar manner in fire to the system tested as reported in TE 200864. They also indicate that the locking mechanism retains such panels in place for at least 60 minutes even when they are exposed directly to the fire.

The panel system also appears to tolerate a reasonable deflection of the supporting construction as demonstrated in TE 94530 in particular where the partition had deflected up to 84mm after 90 minutes and the access panel system had deflected 104mm. In order that greater deflections will not be experienced in practice, the partition system will require to have at least 60 minutes fire resistance and comprise galvanised steel studs of a suitable size for the height of the partition, and faced on each side with at least two layers of 12.5mm thick Lafarge Firecheck plasterboard or similar (grade 5). The framing of the partition system around the perimeter of the surrounding partition system will need to be protected against fire using at least one layer of 12.5mm Lafarge Firecheck plasterboard as used in test TE 94530.

It has been proposed that the access panel tested in TE 200864 will have a minor change to the hinge pin slot in the panel frame for mounting in a partition. The slot length will be reduced by 10mm (from 30mm to 20mm) to prevent excess movement of the panel leaves when they are opened. As there was negligible movement of the access panel leaves within the frame during the fire tests using the 30mm slot, it is our opinion that reducing the slot to 20mm will have no effect on the fire resistance performance of the access panels.

6 Conclusions

Therefore it is our opinion that your access panel, as described in Section 4 of this report, is suitable for mounting in a steel stud partition, where a fire resistance of up to one hour is specified in terms of the integrity criterion of BS 476: Part 22: 1987, providing the following provisions are satisfied:-

- a) The partition should have at least 60 minutes fire resistance, (integrity and insulation), in accordance with BS476: Part 22.
- b) The partition should be steel framed and faced on each side with at least two layers of 12.5mm Lafarge Firecheck, or similar.
- c) Any exposed framing of the partition around the perimeter of the opening for the access panel system should be protected with at least one layer of 12.5mm Lafarge Firecheck plasterboard or similar.
- d) The opening size in the partition, after the partition framing has been protected, should not exceed 1185 x 1185mm.

7 References

- 1 Fire tests on building materials and structures. Part 22. Method for determination of the fire resistance of non-loadbearing elements of construction. British Standard 476: Part 22 : Part 22 : 1987. British Standards Institution, London, 1987

8 Validity of Assessment

8.1 Declaration by applicant

- We the undersigned confirm that we have read and complied with the obligations placed on us by the UK Fire Test Study Group Resolution No. 82 : 2001.
- We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a fire test to the Standard against which this assessment is being made.
- We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made.
- We are not aware of any information that could adversely affect the conclusions of this assessment.
- If we subsequently become aware of any such information we agree to cease using the assessment and ask BRE to withdraw the assessment.

Signed: 

For and on behalf of: Fire Xpert Services Ltd.

8.2 BRE declaration

This assessment is based on test data, experience and the information supplied. If contradictory evidence becomes available to the BRE the assessment will be unconditionally withdrawn and the applicant will be notified in writing. Similarly the assessment is invalidated if the assessed construction is subsequently tested since actual test data is deemed to take precedence over an expressed opinion. The assessment is valid for a period of five years after which it should be returned for review to consider any additional data which has become available or any changes in the fire test procedures. Any changes in the specification of the product will invalidate this assessment.

This assessment has been carried out in accordance with Fire Test Study Group Resolution No. 82. It relates to the fire performance of the product and does not cover aspects of quality, durability, maintenance nor service requirements. This assessment relates only to the specimen(s) assessed and does not by itself infer that the product is approved under any Loss Prevention Certification Board approval or certification scheme or any other endorsements, approval or certification scheme.

Next review date: 18 September 2007

This assessment report is not valid unless it incorporates the declaration duly signed by the applicant.

=====REPORT ENDS=====