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BRE Global Assessment Report

An assessment of the fire performance of FlameGuard fire rated back boxes when installed in non-loadbearing partition systems against EN 1364-1:2015

Prepared for: Scolmore International Limited

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1 Introduction

A fire resistance test in accordance with EN 1364-1:1999 has been carried out on a non-loadbearing partition system incorporating seven FlameGuard fire rated back boxes on the exposed face, six with plastic faceplates and one with a steel faceplate, and six fire rated back boxes with plastic faceplates on the unexposed face. This assessment report considers the fire performance of modified back boxes when installed in partitions of a similar construction to that tested.

2 Scope

This assessment report considers the fire performance of non-loadbearing partition systems incorporating FlameGuard fire rated back boxes against the integrity and insulation criteria of EN 1364-1:2015, for fire exposures of up to 90 minutes from either side.

3 Supporting data

This assessment is based on supporting test data which is more than five years old. This supporting data has therefore been reviewed against current test procedures.

3.1 BRE test report no. 239762

A non-loadbearing steel stud wall, nominally 3000mm high x 3000mm wide and incorporating thirteen double switched electrical sockets, was submitted to a fire resistance test in accordance with EN 1364-1:1999 on 25 October 2007 for the duration of 99 minutes.

The wall was installed in a concrete lined test frame of nominal dimensions 3040mm x 3040mm and consisted of a light gauge steel track located at the head and base of the specimen into which were fitted six steel studs. The steel framework was covered with two layers of 12.5mm-thick Lafarge Firecheck tapered edge plasterboard on each face of the specimen, with all joints between boards staggered by 600mm.

To the exposed face were fitted seven, double switched electrical sockets consisting of galvanised steel wall mounting boxes. Six of the wall boxes were fitted with white plastic facia panels, one wall box was fitted with a stainless steel facia panel.

To the unexposed face were fitted a further six double switched electrical sockets consisting of galvanised steel wall mounting boxes with white plastic facia panels.

The double switched/pole electrical sockets consisted of a 132.7mm-wide x 71.5mm-long x 47mm-deep galvanised steel wall box with white plastic facia panel of dimensions 145mm wide x 85mm long x 10mm thick, marked as “Scolmore UK, H07-02-2-B” or stainless steel facia panel of dimensions 146mm wide x 85mm long x 2mm thick, marked as “Scolmore UK, FP036 G04-02-2”. The inside base of the boxes was lined with 2.25mm-thick Tecnofire 64854A high density intumescent mat.

In the orientation tested, the wall system was found to achieve the following fire resistance:

Insulation:		98 minutes: (time in completed minutes for which the specimen continued to restrict the temperature at the unexposed face from exceeding specified 180°C temperature rise limit, above start time ambient temperature).
Integrity:	Gap gauge:	99 minutes, no failure (the test having been discontinued at the request of the sponsor)
	Cotton Pad:	99 minutes, no failure (the test having been discontinued at the request of the sponsor)
	Sustained Flaming:	99 minutes, no failure (the test having been discontinued at the request of the sponsor)

See BRE test report no. 239762 for full details.

4 Description of the proposed system

The back boxes are as tested but with the following modifications:

4.1 Revised spring retention arrangement

The modification concerns the spring retention arrangement and applies to the following:

a) One gang, 35mm deep;

b) Two gang, 35mm deep;

c) One gang, 47mm deep;

d) Two gang, 47mm deep.

Originally the spring retainer was a separate component that was riveted to the base of the back box as shown in figure 1. With the revised arrangement the retainer comprises a tab which is punched out of the base of the back box as shown in figure 2.

4.2 Revised slots and clips

This modification, which applies only to the 47mm-deep one gang and two gang back boxes, comprises an extension in the length of the slots within the back box and the addition of a second set of tabs on the clip (see figures 3 to 6). These alterations allow the back boxes to be fitted to partitions lined with two layers of 15mm plasterboard.

5 Assumptions

It is assumed that the partition into which the back boxes are being installed has a fire resistance at least that required of the back boxes and comprises steel or timber studs at least 50mm deep faced on both sides with two layers of plasterboard, minimum thickness 12.5mm.

6 Comparison of test standards

The test detailed in BRE report no. 239762 was carried out in accordance with the 1999 version of EN 1364-1 whereas this assessment is against the 2015 version. The only significant difference between the two versions of the standard relates to a minor change in the location of the thermocouples on the unexposed face of the specimen. This would have made no effective difference to the fire resistance achieved.

7 Assessment

The specimen tested in BRE report no. 239762 satisfied the integrity and insulation criteria for 99 and 98 minutes respectively. Failure occurred when the maximum temperature limit was exceeded by a thermocouple attached to the bottom right hand quarter section of the wall, well away from any of the back boxes.

The back boxes themselves are constructed in the same manner as those tested, the only changes are the method by which the springs are retained on the base, the length of the slots in the sides and the design of the retaining clips; the thickness of the steel from which the back boxes are manufactured, their overall dimensions and the intumescent material type and thickness are unchanged, as is the method of installation.

The revision to the spring retainer will, in our opinion, provide the same level of fixity to the base of the spring and we would therefore expect the modification to have no impact on the fire performance of the back boxes. The increase in the length of the slots and the modified clips will also have no impact. The alterations are simply to accommodate partitions lined with two layers of 15mm plasterboard and the method of retaining the back boxes is otherwise unchanged.

8 Conclusion

Therefore it is our opinion that non-loadbearing partition systems incorporating the modified FlameGuard fire rated back boxes, as described in section 4 of this report, will provide up to 90 minutes fire resistance with respect to the integrity and insulation criteria of EN 1364-1:2015, for fire exposure from either side.

The partition system must meet the requirements of section 5 in order for the conclusions of this assessment report to be valid.

9 Figures

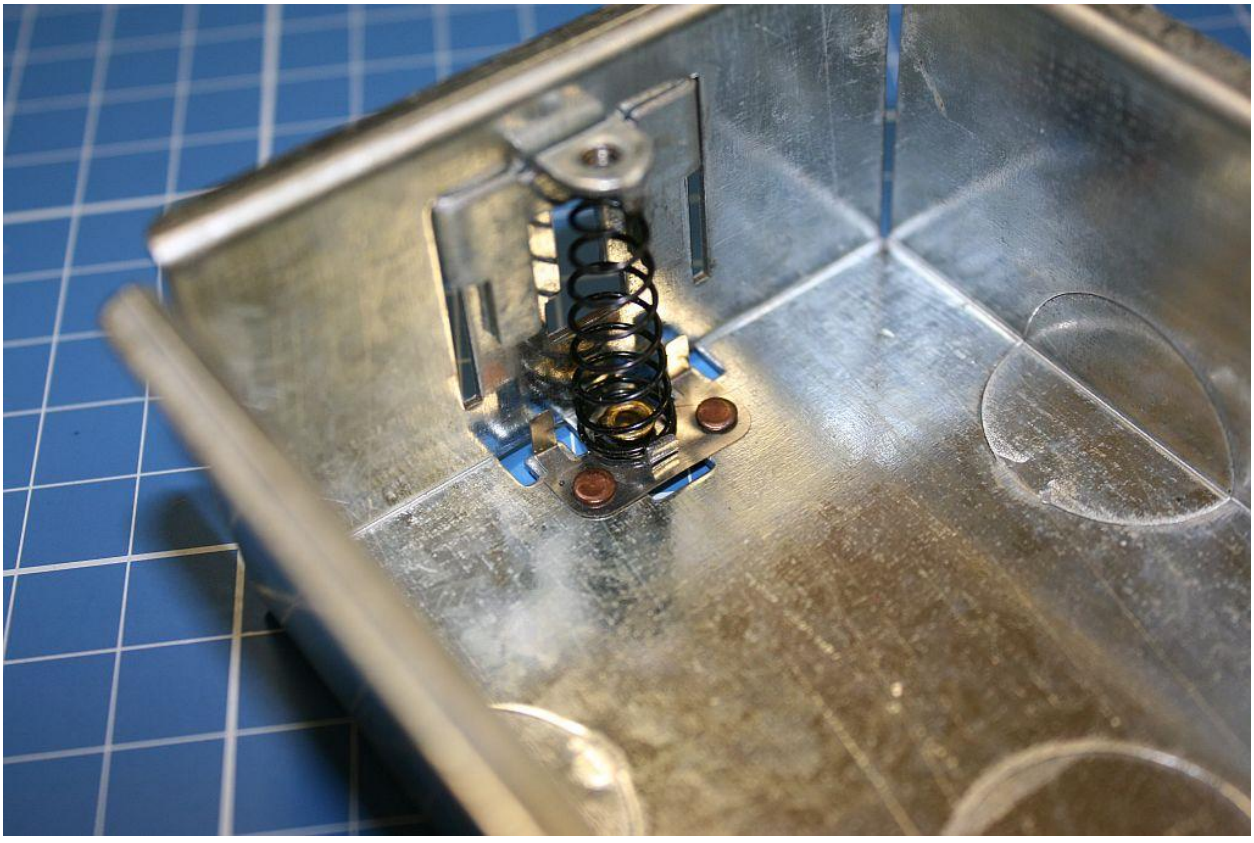

Figure 1 Original spring retention arrangement

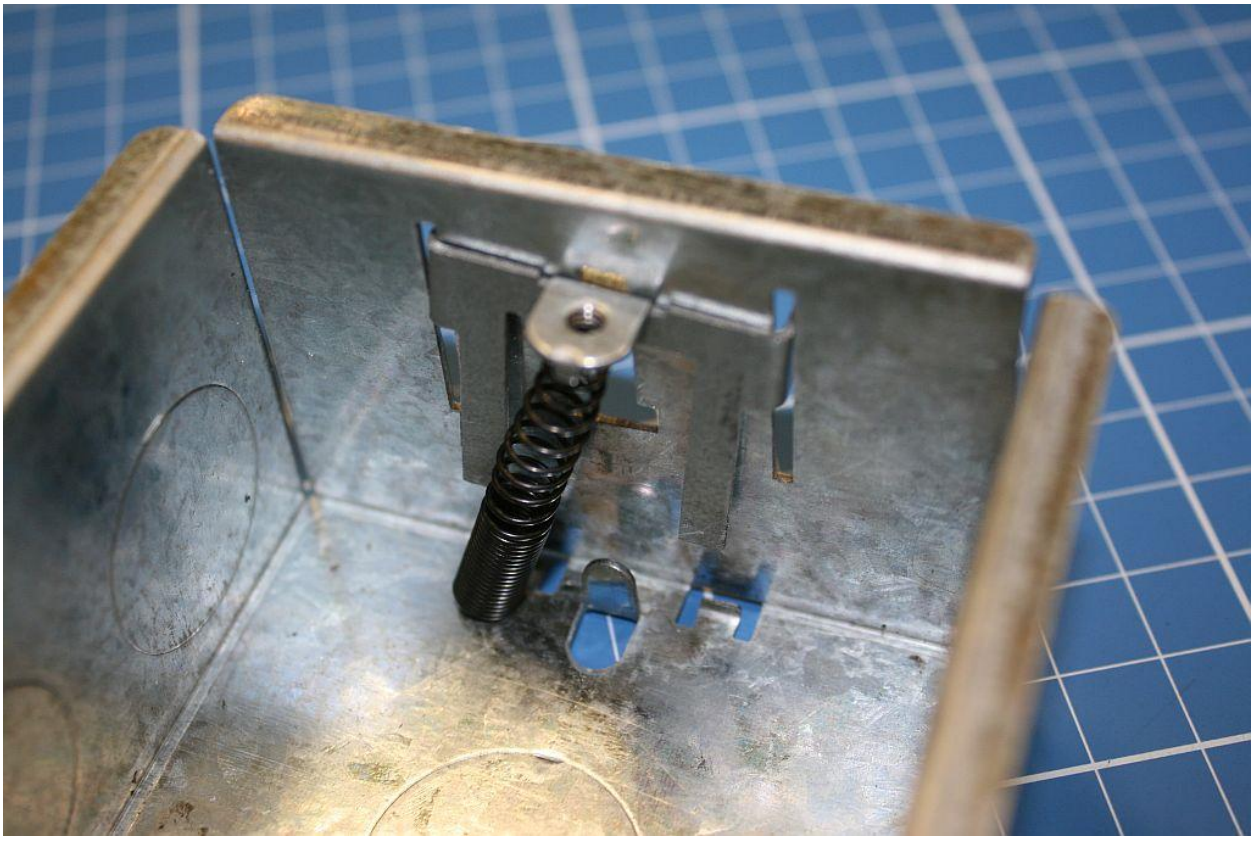

Figure 2 Revised spring retention arrangement

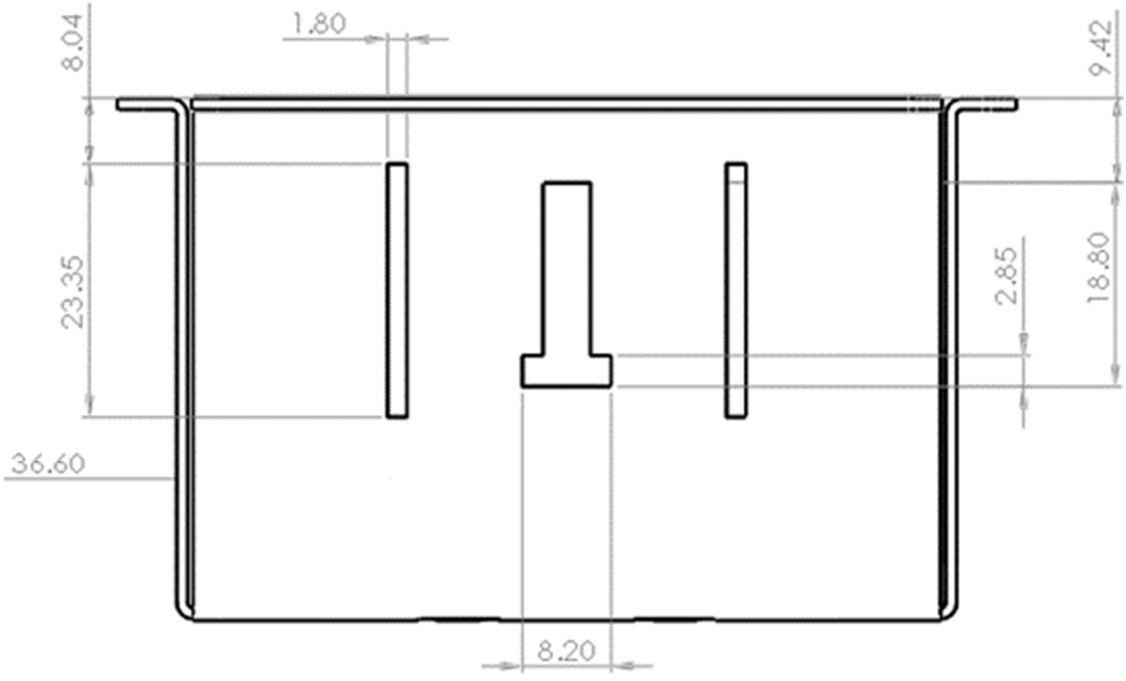

Figure 3 Original back box design showing shorter slots

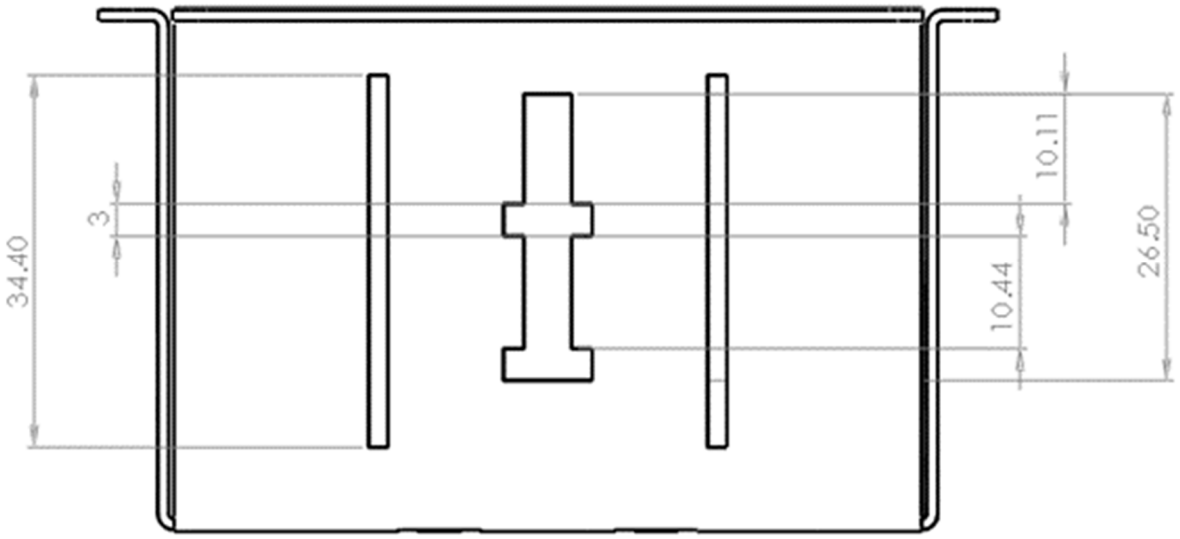

Figure 4 Revised back box showing longer slots

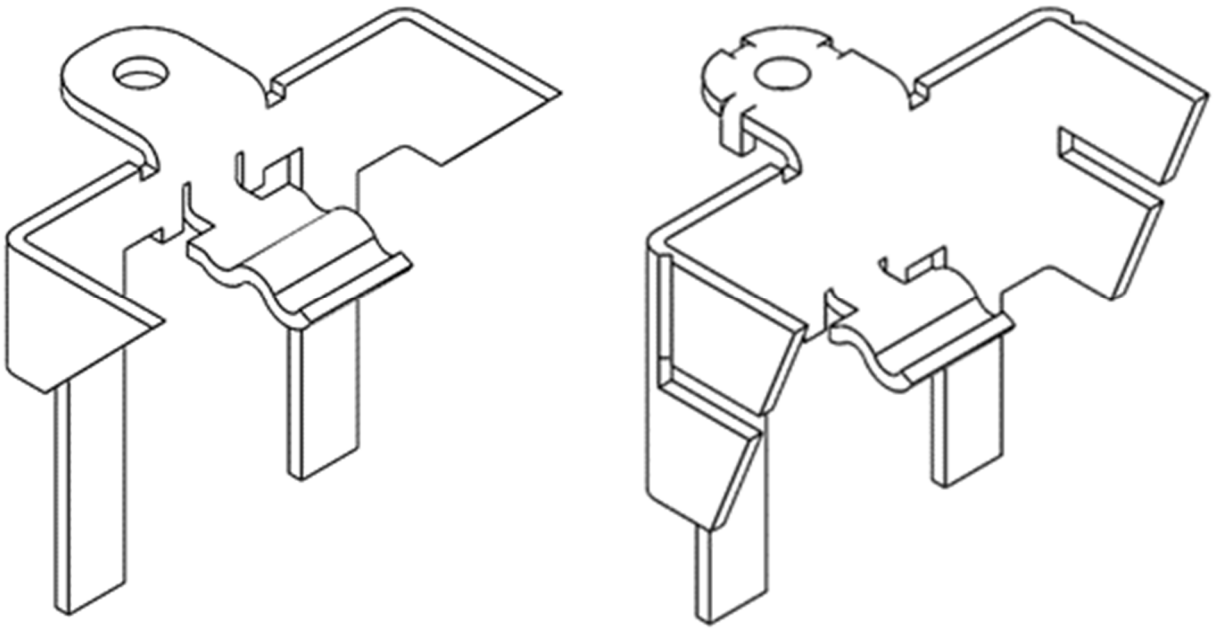

Figure 5 Comparison of original clip on left and revised clip on right

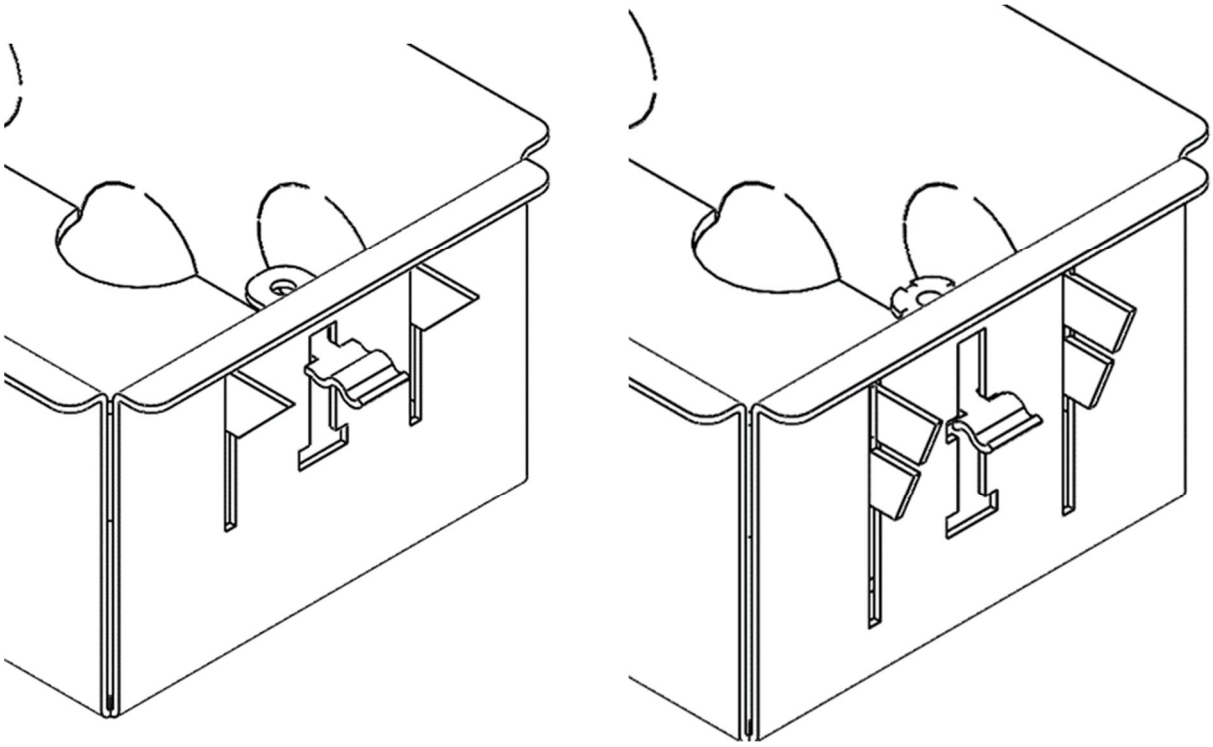

Figure 6 Comparison of original clip and slot arrangement on left and revised clip and slot arrangement on right

10 Validity of the assessment

10.1 Declaration by applicant

We the undersigned confirm that we have read and complied with the obligations placed on us by the Passive Fire Protection Forum (PFPF) Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence 2021.

We confirm that the change, which is the subject of this assessment, has not to our knowledge been tested to the standard against which this assessment has been made.

We agree to withdraw this assessment from circulation should the component or element of structure or any of its component parts be the subject of a failed fire test to the standard against which this assessment is being made.

We understand that this assessment is based on test evidence and will be withdrawn should evidence become available that causes the conclusion to be questioned. In that case, we accept that new test evidence may be required.

We are not aware of any information that could affect the conclusions of this assessment. If we subsequently become aware of any such information, we agree to ask BRE Global to withdraw the assessment.

Signed:

For and on behalf of:

10.2 BRE Global declaration

This assessment was reviewed on 14 February 2022. We have received written confirmation from Scolmore International Limited that there have been no changes in the specification of their FlameGuard fire rated back boxes since the original date of the assessment. There have been no changes in the fire test procedures or methods of assessment, which would adversely affect the fire performance of the back boxes. We are therefore satisfied that the validity of this assessment may be extended for a further five years.

This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available to BRE Global the assessment will be unconditionally withdrawn and the applicant will be notified in writing. Similarly, the assessment should be re-evaluated if the assessed construction is subsequently tested since actual test data is deemed to take precedence.

The assessment is valid for a period of five years after which it is recommended that it be submitted to BRE Global for re-evaluation.

This assessment has been carried out in accordance with the Passive Fire Protection Forum (PFPF) Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence 2021. 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 imply that the product is approved under any Loss Prevention Certification Board approval or certification scheme or any other endorsements, approval or certification scheme.

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

Next review date: 14 February 2027

Report Ends