

# **Report on proposed fire treatment measures and Heritage impacts on ceilings at Corn Exchange Road , Stirling**

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## **1.0 Purpose of the report**

This report is to be used in reference to the proposal of application of intumescent paint, Envirograf product 105 - EC/CP to upgrade the fire resistance of the original and Listed ceilings within Corn Exchange Road as part of conversion works.

We refer to the Fire strategy report ref. 2413 by Astute Fire engineering. In this report, they assess the impact of the conversion against Section 2.3 of the Technical Standards that relates to properties of separating floors and the structure. The focus of our survey therefore is the fire separation and condition of structure at the first floor of the property.

As the existing building is a Heritage property and is Listed, it is not possible to fully upgrade or replace the original timber floor structure which becomes a separating floor between Use classes.

It is however, possible to enhance the fire separating qualities of the floor by improving the fire resisting properties of the ceilings.

We have experience using this paint and primer for similar purposes on a Cat B Listed Building Cumbernauld House, with timber floors and lath and plaster ceilings. It was converted into residential use and flats by us in 2010- 12, approved and accepted by Building Control.

## **2.0 Commissioning of the report**

We have been commission by David Jarvie and Gary Marshall, operator of Monterey Jacks to provide an opinion on the specification of products used and also the condition survey of the ceilings and areas requiring attention prior to the application of the product.

## **3.0 Product and treatment proposed**

We are assuming that the products are to be used in the areas referenced as 1 hr fire resistant to 1<sup>st</sup> floor ceilings, and the associated specification of work on the drawing ref no 29160/SA/11 Appendix 1. We refer to Technical data sheets Appendix 2 and 3 for the Intumescent paint and primer. The literature states that under test conditions and subject to the condition of the lath and plaster, 2 coats of the product will achieve 1hour fire resistance for structure and integrity.

## **4.0 Methodology**

All the first floor ceilings in the project that are marked for an upgrade to 1 hour fire resistance were inspected on site 20.9.23 / 27.9.23 by Nicholas Blair RIAS accredited Conservation Architect (Advanced level ). The inspection was visual only and carried out by looking up from floor level. No disruptive survey was carried out nor was an invasive assessment of the bond between original lath and plaster and the bond to the cornice, substrate undertaken. For the purposes of the report we have accepted that the thickness of the lath and plaster build up is 18mm so it meets the criteria for application. A drill test could be carried out to confirm this.

There are surface mounted fittings, light fittings, sounders, wiring and fire detection that need to be sealed and treated for fire resistance. The survey was carried out on a room by room basis and we are reporting on areas where the condition raises some concern.

## 5.0 Survey and findings

Generally, the original lath and plaster surfaces appeared sound, well bonded and were not sagging, although some hairline cracks were noted.

### 5.1 First floor Beer store and associated stores

This ceiling has been patched with plasterboard and there is a patch of missing plaster on the lath. It is **not** suitable for the application of intumescent paint and should be fully sheeted with 2 layers of Fireline board.

### 5.2 First floor Office

This ceiling features cornicing and ornamental strapwork. It is in good condition although a treatment to fire protect surface mounted cables and light fittings is required. There are some timber plates where formerly suspended light fittings were hung, these should be removed and made good with plaster before the intumescent application.

### 5.3 First floor Female toilets

The ceiling features original plaster ceiling roses and perimeter cornicing. Condition is generally sound although there are some minor cracks and evidence of plaster repairs. The modern lobby cuts into the cornice and there could be a potential loss of cornice here. The lobbies should have the same treatment if the original ceiling here is retained.

### 5.4 First floor Male toilets

The ceiling features original plaster ceiling roses and perimeter cornicing. The condition is generally sound. The modern lobby cuts into the cornice and there could be a potential loss of cornice/ lath and plaster here. The lobbies should have the same treatment if the original ceiling exists.

### 5.5 Stairwell

Condition fair, some evidence of plaster repairs and hairline cracking.

### 5.6 Central circulation area

This area contained a plasterboard downstand and no inspection of the original ceiling was possible.

**The photographs show the condition and recorded points relative to the 1<sup>st</sup> floor ceilings.**



5.1 Beer store



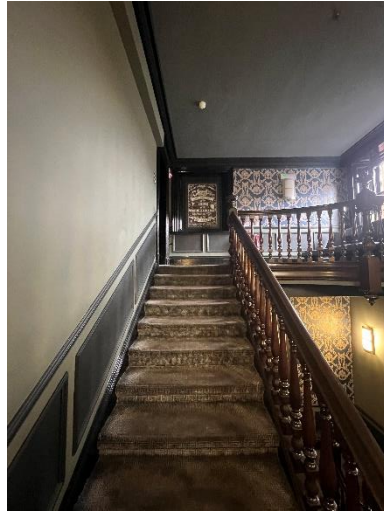
5.2 Office



5.3 Female wc



5.4 First floor gents wc



5.5 First floor stairwell



5.6 First floor circulation

### 5.7 Second floor Suite 05 and adjacent en suite bathroom

This ceiling is evidently lower than the original ceiling and suspended, it is in good condition but should be double sheeted to maintain 1 hour fire resistance.

### 5.8 Second floor Suite 04 and en suite bathroom within room

The ceiling is original and apart from minor hairline cracks is in good condition. There is evidence of plaster skim coat repairs and 2 recessed downlights penetrate the ceiling plane. It is not possible to tell if the lights have fire rated domes or encapsulation. The two ceiling roses are non original and the material should be checked that its non combustible / or be appropriate for the Envirograf application. The ensuite partitions are scribed to, or cut the cornice and this ceiling is lowered plasterboard, again this should be double sheeted to maintain the 1 hour resistance performance criteria.

### 5.7 Second floor Suite 03 and adjacent en suite

This ceiling is original lath and plaster and in decent condition. There are hairline cracks showing in places and some minor defects. The ceiling roses are non original and the same comment for Suite 04 applies. If they are plaster and non combustible, they should be satisfactory for application.

In the adjoining en suite, again the ceiling is lowered and finished in modern plasterboard. This ceiling is penetrated by an extract fan and duct which will affect performance and fire resistance.

A fire damper should be fitted to the fan grille or duct aperture, where the ceiling is punctured.

### 5.8 Second floor Suite 02 and adjacent en suite bathroom

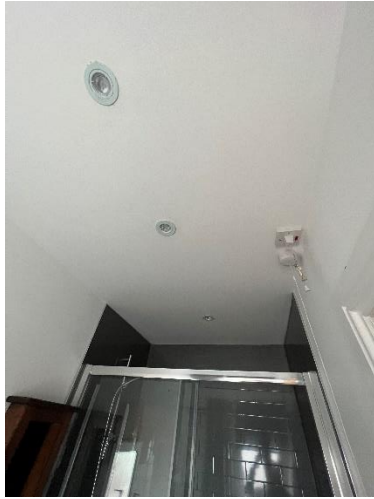
This ceiling is original lath and plaster and in decent condition. There are 3No. non original ceiling roses, if they are plaster and non combustible, they should be satisfactory for the Envirograf application. In the adjoining en suite bathroom, again the ceiling is lowered and finished in modern plasterboard. This should be double sheeted with fire line board to achieve fire resistance.

### 5.9 Upper Stairwell

This ceiling is original lath and plaster and in decent condition, with some minor cracking. We note some embedded wiring and a partial loss of some cornice in areas, but the lath and plaster is intact.

There is a large suspended light fitting within the ceiling on a circular plate and it is not possible to know if this is fitted with a fire rated dome or cup. The seal at the cabling should be tightly sealed with intumescent mastic.

**The photographs show the condition and recorded points relative to the 2nd floor ceilings.**



Suite 05 2<sup>nd</sup> floor en suite



Suite 04 2<sup>nd</sup> floor ceiling rose



Suite 03 ceiling rose



Suite 02 2<sup>nd</sup> floor ceiling roses and smoke detection



Stairwell embedded wiring and light fitting

## 7.0 Conclusion

The performance of the Envirograf product depends on the condition and quality of the existing lath and plaster build up. Overall this would appear to be generally sound. However, all of the ceilings surveyed and highlighted in red on dwg no 29160/SA/11 are not original and some modern suspended ceilings have been noted in this report. Where ceiling roses have been applied, it has to be assumed that the lath and plaster underneath is in good condition and that the Envirograf product can be used on the surface if plaster.

The Envirograf technical specification states that an 18mm thick build up is required for the product performance, this should be checked prior to installation. For the work to be carried out successfully, the application will need to be undertaken by a specialist contractor who will provide 3<sup>rd</sup> party certification for the application and confirmation of the level of protection attained.

## **8.0 Recommendation for a working methodology**

*As noted upon visual inspection, it would appear that the existing lath and plaster surfaces are generally sound. In order to fully ascertain if these ceilings are boss and have separated from the underlying lath substrate, physical tap testing with a light hammer should be undertaken.*

*Carrying out proper 3<sup>rd</sup> party tap tests on all ceilings would be an onerous exercise at this stage and involve ladder access, moving furniture etc and also temporary working at height platforms and safe access over the stairs.*

*We would recommend that before repair work commences, physical tap testing for boss lath would be undertaken by the contractor responsible for carrying out the work and applying the Envirograf product in order that a Certificate can be produced – ( this could be monitored on site during construction and recorded accordingly )*

*For the proposed work to be guaranteed , the Product guidance states that any boss lath should be removed and replaced to a sound and level base etc, as per the Envirograf product guidelines for application.*