Assessment Review of FCO-812 titled “Assessment of likely performance of Vermitex “AF” sprayed insulation applied to primed steel sections”

Assessment Review

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**Report number:** Review of FCO-0812
**Date:** 3rd March 2017

**Client:** L & A Fazzini Manufacturing Pty Ltd

Commercial-in-confidence
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<tr>
<td>Brett Roddy</td>
<td>Keith Nicholls</td>
<td>Brett Roddy</td>
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1 Introduction

This review relates to the report FCO-0812 which provides an assessment of the Vermitex “AF” sprayed insulation applied to primed steel sections and test standard and year the assessment was in accordance with.

2 Confirmation of Specification

The sponsor of referenced assessment report FCO-0812 is L & A Fazzini Manufacturing Pty Ltd and has stated in writing that there have been no changes to the design and material specifications of the protection systems in the following tests that are referred to in FCO-0812.

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<thead>
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<th>Report/Test Reference</th>
<th>Test Standard</th>
<th>Outline of Test Specimen</th>
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<td>FS 2161</td>
<td>AS 1530.4-1985</td>
<td>Sprayed beam under slab</td>
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<tr>
<td>FS 2171</td>
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<td>Sprayed beam under slab</td>
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<tr>
<td>FS 2172</td>
<td>AS 1530.4-1985</td>
<td>Sprayed beam under slab</td>
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<tr>
<td>FS 2174</td>
<td>AS 1530.4-1985</td>
<td>Sprayed beam under slab</td>
</tr>
<tr>
<td>FSH 0007</td>
<td>AS 1530.4-1985</td>
<td>steel beams and angles protected with spray applied Vermitex AF fire retardant material</td>
</tr>
<tr>
<td>FSH 0026</td>
<td>AS 1530.4-1985</td>
<td>steel universal column sections protected with Vermitex AF fire protection material sprayed directly to contour</td>
</tr>
<tr>
<td>FSH 0230</td>
<td>AS 1530.4-1990</td>
<td>steel ducts coated with Vermitex &quot;AF&quot; passive fire protection</td>
</tr>
<tr>
<td>FSH 0236</td>
<td>AS 1530.4-1990</td>
<td>steel and PVC ducts sprayed with Vermitex AF passive fire protection</td>
</tr>
<tr>
<td>FSP 0836</td>
<td>AS 1530.4-1997, BS 476, Part 20, Appendix D</td>
<td>concrete slab supported on all four sides by a 500-mm high steel frame, protected by Vermitex TH sprayed insulation</td>
</tr>
<tr>
<td>FSP 0837</td>
<td>AS 1530.4-1997, BS 476, Part 20, Appendix D</td>
<td>concrete slab supported on all four sides by a 500-mm high steel frame, protected by Vermitex TH sprayed insulation</td>
</tr>
<tr>
<td>FSH 0981</td>
<td>BS 476, Parts 20 &amp; 21, Appendix D, Hydrocarbon curve</td>
<td>three loadbearing beam sections, three reinforced concrete panels and one partially exposed timber joist sample, protected by Vermitex TH and AF sprayed insulation</td>
</tr>
<tr>
<td>FSH 0982</td>
<td>BS 476, Parts 20 &amp; 21, Appendix D, AS/NZS 3013:1995, Appendix A</td>
<td>two loadbearing columns, one partially exposed beam &amp; plate and one pre-cast pipe, protected with Vermitex DX &amp; AF spray insulation</td>
</tr>
<tr>
<td>FSH 1070</td>
<td>AS/NZS 3013:1995, Appendix A</td>
<td>Vermitex TH surface adhered cementitious compound used to fire protect various construction elements</td>
</tr>
</tbody>
</table>
3 Formal Review

Since the issue of the referenced assessment the test standard AS 1530.4 has been revised and the current version is AS 1530.4-2014. With reference to NCC Volume 1 Specification A1.3 Table 1 Referenced Documents, the note under AS 1530.4 states the following; “Subject to the note to AS 4072.1, reports relating to tests carried out under earlier editions of AS 1530 Parts 1 to 4 remain valid. Reports relating to tests carried out after the date of an amendment to a Standard must relate to the amended Standard”.

Our client has requested that we review this report against the requirements of the standards it was originally undertaken being AS1530.4, BS 476 Part 20 and BS EN 1363.

Since the issue of assessment report FCO-0812 there have been no changes to the procedures and methodologies used for the original assessment and are similar to those currently in use.

The design and material specifications of the protection systems of the used for the original assessment has been re-examined and found to be satisfactory.

Therefore it is confirmed that the assessed performance in FCO-0812 remains valid subject to the requirements in Section 4.

4 Term of Validity

This review remains valid until 28 February 2022. Should you wish us to re-examine this report with a view to the possible extension of its term of validity, would you please apply to us three to four months before the date of expiry. This Division reserves the right at any time to amend or withdraw this assessment in the light of new knowledge.

5 Limitations

The conclusions of this assessment report may be used to directly assess the fire resistance performance under such conditions, but it should be recognised that a single test method will not provide a full assessment of the fire hazard under all fire conditions.

Because of the nature of fire resistance testing, and the consequent difficulty in quantifying the uncertainty of measurement, it is not possible to provide a stated degree of accuracy. The inherent variability in test procedures, materials and methods of construction, and installation may lead to variations in performance between elements of similar construction.

This assessment report does not provide an endorsement by CSIRO of the actual products supplied to industry. The referenced assessment can therefore only relate only to the actual prototype test specimens, testing conditions and methodology described in the supporting data, and does not imply any performance abilities of constructions of subsequent manufacture.

This assessment is based on information and experience available at the time of preparation. The published procedures for the conduct of tests and the assessment of test results are the subject of constant review and improvement and it is recommended that this report be reviewed on or, before, the stated expiry date.
The information contained in this assessment report shall not be used for the assessment of variations other than those stated in the conclusions above. The assessment is valid provided no modifications are made to the systems detailed in this report. All details of construction should be consistent with the requirements stated in the relevant test reports and all referenced documents.
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FOR FURTHER INFORMATION

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Our ref: FCO-0812/3932

Mr Lorenzo Fazzini
L & A Fazzini Manufacturing Pty Ltd
23-25 Wentworth Street
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Dear Mr Fazzini,

COMPATIBILITY OF VERMITEX SPRAY PROTECTION SYSTEMS WITH METAL PRIMERS
Assessment FCO-0812
Your e-mail of 11 November 2010

INTRODUCTION

We have re-examined the information referenced by you on the likely performance of your sprayed insulation system when applied to primed steel sections. The information included:

- test numbered FS 2161 conducted on 14 December 1988;
- test numbered FS 2171 conducted on 6 February 1989;
- test numbered FS 2172 conducted on 13 February 1989;
- test numbered FS 2174 conducted on 15 February 1989;
- CSIRO Sponsored Investigation test report numbered FSH 0007 for a full-scale fire-resistance test conducted on 2, 17 and 25 May 1989;
- CSIRO Sponsored Investigation test report numbered FSH 0230 on fire protected steel sections;
- CSIRO Sponsored Investigation test report numbered FSH 0236 for a full-scale fire-resistance test conducted on 18 December 1992;
- CSIRO Sponsored Investigation test report numbered FSP 0836 for a fire test conducted on 19 December 2000;
- CSIRO Sponsored Investigation test report numbered FSP 0837 for a fire test conducted on 22 December 2000;
- CSIRO Sponsored Investigation test report numbered FSH 0981 for a fire test conducted on 28 June 2003;
- CSIRO Sponsored Investigation test report numbered FSH 0982 for a fire test conducted on 28 June 2003;
- CSIRO Sponsored Investigation test report numbered FSH 1070 for fire tests conducted on 30 June 2004 and 2 July 2004;
- CSIRO Sponsored Investigation test report numbered FSH 0026 for a full-scale fire-resistance test conducted on 6 September 1989;
- faxes from Vessey Chemicals;
- National Association of Corrosion Engineers publication 6H189; and
- Duraprime HB Zinc Phosphate Primer data sheet.

We have retained this information.
You have proposed to apply your various Vermitex sprayed insulation materials over primed steel surfaces without detrimentally affecting the fire-resistance levels of the approved protection system.

ANALYSIS

As the result of a number of series of full scale fire-resistance tests on various steel column and beam sections using your Vermitex (AF DX & TH) sprayed insulation this Division carried out a least square regression analysis in accordance with Section 12 of the Australian steel Structure Code to produce a series of tables relating fire protection to material thickness and the surface-to-mass ratio of the steel sections. These tests were performed on steel section which were both protected and not protected by a primer layer prior to your treatment.

All of these tests, particularly the 700 mm wide plate in FSH 0230 and on the underside of concrete slabs, have demonstrated the excellent stickability of your Vermitex spray material. It is this stickability requirement of the protection material that would be in question should it be applied over a pre-finished surface.

As referred to, Section 9 of AS 3784.1-1990 and BS 8202.1-1995 indicated that the spray may be locked in position due to the shape of the steel member. Members such as Universal Columns and Universal Beams, for which you are seeking this assessment, would certainly fulfill this requirement. The addition of a thin layer of primer over correctly prepared steel should not affect this stickability.

CONCLUSION/OPINION

Based on the proven performance of your Vermitex (AF DX & TH) sprayed protection systems during standard fire tests to AS 1530.4, BS 476 Part 20 and BSEN 1363, it is the opinion of the Division that the fire-resistance levels specified for your approved Vermitex (AF, DX & TH) fire protection system when applied to steel sections would not be detrimentally affected by applying it over the commercially primed steel or steel sections primed using Vermitex 7 Primer (Bond/Prick-up), provided that the steel is cleaned and prepared as specified by the primer manufacturer prior to the application of the primer.

This assessment covers the application of Vermitex (AF, DX & TH) to

1. Bare Steel.
2. Primed steel (Red Oxide/Zinc Phosphate etc).
3. Galvanized/Hot Dip & Electroplated Structural steel members for all steel sections (Universal & Welded Beams, Universal & Welded Columns, SHS, RHS, CHS, PFC, TFB, TFC, EA and UA)

TERM OF VALIDITY

This assessment report will lapse on 31 January 2016. Should you wish us to re-examine this assessment with a view to the possible extension of its term of validity, would you please apply to us three to four months before the date of expiry. This Division reserves the right at any time to amend or withdraw this report in the light of new knowledge.

Yours faithfully

Russell Collins
For Manager, Fire Testing and Assessment
21 January 2011