



ASSESSMENT REVIEW

Review of assessment report WFRA 45693

The performance of joiner plates and angle brackets in concrete protected by Unitex panel patch if tested in accordance with the general principles of AS1530.4-2005.

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37675500

Report Sponsor:

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1 INTRODUCTION

The referenced assessment WFRA 45693, dated 15th November 2002 provides an assessment of the fire resistance performance of steel joiner plates and angle brackets for connecting pre-cast concrete wall panels when protected by Unitex Panel Patch if tested in accordance with AS1530.4-1997.

2 CONFIRMATION OF SPECIFICATION

The sponsor of WFRA 45963, was Unitex Granular Marble, and has confirmed in writing that there have been no changes to the design and material specifications of the Unitex Panel Patch since the reference test.

3 FORMAL OPINION SUMMARY

3.1 General

The assessment in WFRA 45693 refers to test report WFRA 40938, which was conducted in accordance with AS1530.4-1997. Since the issue of original assessment report Australian Standard AS 1530.4-1997 has been superseded by AS1530.4-2005. Therefore this review has been undertaken in accordance with the requirements of AS1530.4-2005.

3.2 Relevance of AS 1530.4–1997 test data with respect to AS 1530.4–2005

General

The referenced fire resistance test WFRA 40938 was conducted in accordance with AS 1530.4–1997, which differs slightly from AS 1530.4–2005. These variations and their potential effect on the fire resistance performance of the test specimen are discussed below.

Temperature Regime

The heating regime in fire resistance tests conducted in accordance with AS 1530.4–2005 follows a similar trend to that in AS 1530.4–1997. The specified heating rate in AS 1530.4–1997 is given by:

$$T_t - T_0 = 345 \log_{10}(8t+1)$$

Where;

- T_t = Furnace temperature at time t, in degrees Celsius.
- T_0 = Initial furnace temperature, in degrees Celsius, not less than 10°C nor more than 40°C.
- t = Time into the test, measured from the ignition of the furnace, in minutes.

The heating regimes in AS 1530.4–1997 and AS 1530.4–2005 vary in that the former is an expression of the temperature rise in the furnace above an initial ambient temperature, and the latter, although similar, assumes that the initial furnace temperature (T_0) is 20°C irrespective of the actual ambient temperature. A test conducted in accordance with AS 1530.4–1997 on a warm day with an ambient temperature above 20°C could therefore be slightly more onerous than in accordance with AS 1530.4–2005.

The parameters outlining the accuracy of control of the furnace temperature in AS 1530.4–2005 and AS 1530.4–1997 are not appreciably different.

Furnace Pressure

The parameters outlining the furnace pressure control for specimens in AS 1530.4–2005 and AS 1530.4–1997 are not appreciably different.

Performance Criteria

AS 1530.4–2005 specifies the following performance criteria for building materials and structures:

- Structural Adequacy
- Integrity
- Insulation

Structural Adequacy

This criterion is not relevant in this case as the test specimen was not loaded.

Integrity

The specimen shall be deemed to have failed the integrity criterion in accordance with AS 1530.4–2005 if the specimen:

- Collapses
- Sustains flaming on the non-fire side in excess of 10 seconds
- Ignites a cotton pad within 30 seconds when applied.

The specimen is deemed to have failed to AS 1530.4 1997 if the specimen:

- Collapses
- Develops cracks, fissures or, other openings through which flames or hot gases can pass
- Sustains flaming on the non-fire side in excess of 10 seconds.

Prior to the formation of gaps and fissures, the integrity criterion in accordance with AS 1530.4–1997 is generally more stringent. Integrity failure would normally occur prior to failure in accordance with AS 1530.4–2005.

No gaps formed in the exposed face of the specimen therefore the differences in the failure criteria are not relevant in this case.

Insulation

The insulation criteria of AS 1530.4–1997 and AS 1530.4–2005 are not appreciably different.

Application of Results of WFRA 40938 to AS1530.4-2005.

The variations in furnace heating regimes, furnace thermocouples and the responses of the different thermocouple types to the furnace conditions are not expected to have significant effect on the outcome of the referenced fire resistance test.

The specimen described in WFRA 40938 was tested to general principles of AS1530.4-1997 to assess the performance of the protection system based on determining a structurally critical temperature in accordance with AS4100-1998.

On the basis of the above discussion, it is concluded that the results of the test WFRA 40938 remain valid if tested and assessed in accordance with AS1530.4-2005

As AS4100 has not been revised and it is therefore considered that the results of assessment WFRA-45693 would not have been appreciably different if they were undertaken in accordance with AS1530.4-2005.

3.3 Conclusion

Based on the above discussion it is considered that the construction tested in WFRA 45693 can be used to assess the performance of Unitex Panel Patch in accordance with AS1530.4-2005.

4 VALIDITY

This assessment review does not provide an endorsement by Exova Warringtonfire Aus Pty Ltd of the actual products assessed.

This review 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.

This review remains valid until the expiry date stated in Section 5.5 subject to compliance with the applicant undertakings and conditions in the original assessment and this review.

5 AUTHORITY

5.1 APPLICANT UNDERTAKINGS AND CONDITIONS OF USE

By using this report as evidence of compliance or performance the applicant(s) confirms that:

- to their knowledge the component or element of structure, which is the subject of this assessment, has not been subjected to a fire test to the Standard against which this assessment is being made, and
- they agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test by a test authority in accordance with the Standard against which this assessment is being made and the results are not in agreement with this assessment, and
- they are not aware of any information that could adversely affect the conclusions of this assessment and if they subsequently become aware of any such information, agree to ask the assessing authority to withdraw the assessment.

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5.3 AUTHORISATION ON BEHALF OF EXOVA WARRINGTONFIRE AUS PTY LTD

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5.4 DATE OF ISSUE

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5.5 EXPIRY DATE

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