

## SC902 Technical Advisory Note – PTA003

### Interpretations of the BCA 2019 in Relation to Intumescent Fire Protection of Structural Steel

The information below aims to provide clarification on the interpretation of the NCC 2019- Volume One and intumescent coating technologies. The NCC 2019- Volume One will be referred to as the BCA 2019 in this document.

#### How do intumescent coatings meet the 'Deemed to Satisfy' provision in accordance with the BCA 2019 Part A5.0 Suitability?



The interpretation of BCA 2019 Part A5, **A5.0 Suitability**, is to ensure a product is “fit for purpose” and supported by relevant evidence of suitability. The exact requirements are explained below:

#### BCA 2019:

##### **A5.0 Suitability**

*(1) A building and plumbing or drainage installation must be constructed using materials, products, plumbing products, forms of construction and designs fit for their intended purpose to achieve the relevant requirements of the NCC.*

*(2) For the purposes of (1), a material, product, plumbing product, form of construction or design is **fit for purpose** if it is—*

*(a) supported by evidence of suitability in accordance with—*

*(i) A5.1; and*

*(ii) A5.2 or A5.3 as appropriate; and*

*(b) constructed or installed in an appropriate manner.*

This requires that the product is supported by evidence of suitability in accordance with **A5.1** and **A5.2**.



**A5.1** requires that any copy of documentary evidence submitted must be a **complete copy** of the original report or document. Permax only ever provide the complete copy of the original BRANZ assessment reports.

#### BCA 2019:

##### **A5.1 Evidence of suitability—Volumes One, Two and Three**

*(1) The form of evidence used must be appropriate to the use of the material, product, plumbing product, form of construction or design to which it relates.*

*(2) Any copy of **documentary evidence submitted** must be a **complete copy** of the **original** certificate, report or document.*



Part A5.2 is then met by **(1)(d)** where a "report issued by an Accredited Testing Laboratory" is required.

**BCA 2019:**

## **A5.2 Evidence of suitability—Volumes One and Two**

*(1) Subject to A5.4, A5.5 and A5.6, evidence to support that the use of a material, product, form of construction or design meets a Performance Requirement, or a **Deemed-to-Satisfy Provision** may be in the form of any one, or any combination of the following:*

*(d) A report issued by an **Accredited Testing Laboratory** that—*

*(i) demonstrates that a material, product or form of construction fulfils specific requirements of the BCA; and*

*(ii) sets out the tests the material, product or form of construction has been subjected to and the results of those tests and any other relevant information that has been relied upon to demonstrate it fulfils specific requirements of the BCA.*



For evidence to support the use of a material, **A5.5** Fire Hazard Properties and **A5.6** Resistance to the incipient spread of fire is not required for structural steel. **A5.4** requires a building element to have an FRL and it must be in accordance with **Schedule 5**.

**BCA 2019:**

## **A5.4 Fire-resistance of building elements**

*Where a **Deemed-to-Satisfy Provision** requires a building element to have an **FRL**, it must be determined in accordance with Schedule 5.*



A building element meets the requirement of **schedule 5** under the following circumstances.

**BCA 2019:**

**2. Rating- A building element meets the requirements of this Schedule if—**

*(b) it is identical with a prototype that has been submitted to the Standard Fire Test, or an equivalent or more severe test, and the FRL achieved by the prototype without the assistance of an active fire suppression system is **confirmed in a report from an Accredited Testing Laboratory** which—*

*(i) describes the method and conditions of the test and the form of construction of the tested prototype in full; and*

*(ii) certifies that the application of restraint to the prototype complied with the Standard Fire Test; or*

*(d) it is **designed to achieve the FRL in accordance with—***

*(i) AS/NZS 2327, **AS 4100** and AS/NZS 4600 if it is a steel or composite structure; or*

*(ii) AS 3600 if it is a concrete structure; or*

*(iii) AS 1720.4 if it is a timber element other than fire-protected timber; or*

*(iv) AS 3700 if it is a masonry structure; or*

The Nullifire SC900 series and SC803 have been assessed in accordance with AS4100-1998 and AS1530.4-2005, by BRANZ, an accredited testing laboratory. These assessments are based on fire resistance tests performed in accordance with BS476 Part 20 and EN 13381-8:2010.

Furthermore, the "Discussion" part of each assessment report confirms that the test methods in AS1530.4-2005 are considered sufficiently similar to the test data for application to an analysis in accordance with AS4100-1998.

**The Nullifire intumescent coating systems have been assessed in accordance with AS1530.4-2005 and AS4100-1998 by BRANZ, an Accredited Testing Laboratory.**



### **BRANZ Fire Test Reports, Fire Assessment Reports and compliance with the Building Code of Australia**

The BRANZ fire testing laboratory is registered by International Accreditation New Zealand (IANZ) and in Australia meets the criteria to be considered an Accredited Testing Laboratory under the following BCA clause:

#### **BCA 2019:**

##### ***Accredited Testing Laboratory means—***

*(a) an organisation accredited by the National Association of Testing Authorities (NATA) to undertake the relevant tests; or*

*(b) an organisation outside Australia accredited to undertake the relevant tests by an authority recognised by NATA through a mutual recognition agreement; or*

*(c) an organisation recognised as being an Accredited Testing Laboratory under legislation at the time the test was undertaken.*

IANZ and NATA have an agreement which provides for mutual recognition so that NATA accepts IANZ endorsed test documents as if they were NATA endorsed and vice-versa. This means that IANZ endorsed reports and test certificates may include both the IANZ and NATA logos along with the following statement:

*"IANZ has a mutual recognition agreement with the National Association of Testing Authorities, Australia (NATA) such that both organisations recognise accreditations by IANZ and NATA as being equivalent. Users of reports/test certificates are recommended to accept reports/test certificates in the name of either accrediting body."*

**BRANZ is thereby considered an Accredited Testing Laboratory for providing fire testing to a range of test standards. This verifies the Nullifire SC902 and SC803 intumescent systems are compliant Deemed to Satisfy solution.**

A BRANZ Fire Assessment Report is deemed acceptable under the BCA General Provisions A5.2 and Schedule 5, wherever it requires that the assessment is prepared by an Accredited Testing Laboratory.

\*A full copy of the BRANZ accreditation certificates and NATA Mutual Recognition Arrangements can be supplied on request.

**How are intumescent coatings tested in accordance with AS1530.4 and how are FRL's determined in accordance with Schedule 5 Fire-resistance of building elements?**



## **The relationship between AS 4100 and AS 1530.4. with Regards to Determination of FRL's of Structural Steel Elements**

In the NCC 2019 (as current) Volume One, Schedule 5, clause 2(d)(i) references AS4100 as a method of determining the FRL of steel structures.

AS4100, Section 12 further specifies a method of calculating the FRL of structural steel elements based on analytical methods using test results from tests which include AS1530.4.

The AS4100 methodology specifies the testing regime, i.e. number and types of sections to be used.

AS1530.4 then offers the test method but not the analytical method to be used. AS1530.4 also makes the statement that AS4100 can also be used to determine the fire resistance of an element of construction.

AS4100 is therefore a standard specified in the NCC Volume One for determining the FRL of steel structure, and in AS 1530.4 for determining the fire resistance of an element of construction.

In that respect AS 4100 is the prime standard to determine the FRL of structural elements.