



TECHNICAL NOTE

Fire Hazard Properties Requirements for Internal Wall and Ceiling Linings – Class 2 to 9 buildings

This technical note has been created in response to confusion over suitable evidence of fire hazard properties of internal wall and ceiling lining products. As an industry representative body, the EWPAAs provides this independent advice to ensure that specifiers and certifiers are able to determine the suitability of wood products in these applications.

This document explains how to interpret fire hazard property reports and certificates, and provides a brief explanation of the impact of fire hazard properties for internal wall and ceiling linings on building performance.

Further guidance on the fire performance of wood products for internal wall and ceiling linings is available in EWPAAs' [Fire Performance Fact Sheet](#) and WoodSolutions' [Fire Hazard Properties article](#).

Reports and Certificates as Evidence of Suitability

The NCC requires all linings used as a wall or ceiling covering for building Classification Class 2 to 9 to have a group number of 1, 2 or 3. Group numbers are regulated in NCC Specification C1.10 Clause 4 and this clause references AS 5637.1 'Determination of fire hazard properties Wall and ceiling linings' as the method to determine group numbers and the average specific extinction area (ASEA) or smoke growth rate index (SMOGR_{ARC}).

The Standard AS 5637.1 stipulates that fire hazard property reports must include

- whether the test was conducted to AS ISO 9705 'Fire tests – Full-scale room test for surface products' or AS/NZS 3837 'Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter'
- a statement that the group number was determined in accordance with the requirements of AS 5637.1.

If the AS/NZS 3837 'Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter' method has been used, the report must include either:

- a) a statement that it was appropriate to test the material in the cone calorimeter for assignment of a group number; or
- b) if there is no demonstrated correlation, the following statement must be included: "THE RESULTS REPORTED HEREIN SHALL NOT BE USED TO DETERMINE A GROUP NUMBER".

From 1 May 2019, fire hazard properties reports must include the following information in order to be relied upon for evidence of suitability:

- **Statement of conformance to AS 5637.1**
- **Statement of the test method used (AS/NZS 3837 or AS ISO 9705)**
- **If AS/NZS 3837 was used, a statement to its appropriateness or otherwise for determining the group number**



Test Methods for Fire Hazard Properties

Group Number

A group number is a measure of the ignitability of a material, the rate at which heat is released, and the tendency to cause a fire to flashover. Greater resistance to ignition and lower heat release slows the rate at which a fire will develop, and increases the time available for initial response and evacuation. Group numbers are expressed as Group 1 (best performing), 2, 3 or 4 (worst performing). The group number is determined by testing to one of the following two Australian standards.

1. The Room Burn Test AS ISO 9705

Most materials must be tested to AS ISO 9705 “Fire tests – Full-scale room test for surface products” (commonly referred to as a “Room Burn Test”). This test involves lining a 3.6 x 2.4m x 2.4m high room with an open door at one end. A heat source is applied to one corner of the room and the development of the fire is observed. The group number is determined from these observations.

2. The Cone Calorimeter Test AS/NZS 3837

For some materials AS/NZS 3837 ‘Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter’ (commonly referred to as the “Cone Calorimeter Test”) provides an acceptable alternative test method. Specimens are placed in a small furnace and the ignitability of the material observed. The group number is determined from these observations. This method can only be used to determine a group number where there is an established correlation between the Room Burn Test and the Cone Calorimeter Test.

This test method is **not suitable** for:

- profiled surfaces where more than 50% of the surface is rebated more than 10mm from the highest point.
- material containing large holes, cracks, or fissures.
- products for which there is not an established correlation between the room burn and cone calorimeter tests (an established correlation exists for some wood products. Experienced expert test laboratories are able to make a determination on these and other established correlations).

Average Smoke Extinction Area (ASEA) or Smoke Growth Rate Index (SMOGR_{RC})

Higher rates of smoke development reduce time for safe evacuation and impede first response to a fire. There are two measures of smoke development that apply to internal wall and ceiling linings: ASEA and SMOGR_{RC}.

The measurement included in the fire hazard properties report will depend on which test method has been used for determining the group number. ASEA is determined by collection and analysis of smoke from the Cone Calorimeter Test. SMOGR_{RC} is determined by capture and analysis of smoke generated during the Room Burn Test. Higher ASEA and higher SMOGR_{RC} both indicate greater smoke generation.

Specification C1.10 of NCC Volume One allows either ASEA or SMOGR_{RC} to be used to determine suitability of internal wall and ceiling linings.

Contact

For clarification of any of the information in this technical note, please contact the EWPAAs via phone (+61 7 3250 3700) or email (inbox@ewp.asn.au).