

Subject: Building Code of Australia Fire Group Number Classifications explained

The purpose of this technical notification is to provide assistance to those wishing to understand the requirement of the Building Code of Australia (BCA) in relation to establishing group numbers for products used in building construction.

1 DEEMED TO SATISFY PROVISIONS FOR SPECIFICATION C1.10 FIRE HAZARD PROPERTIES FOR WALL AND CEILING LININGS

- 1.1** The National Construction Code (NCC) 2016 Building Code of Australia (BCA) Specification C1.10 Fire Hazard Properties sets out the Deemed to Satisfy requirements in relation to the fire hazard properties of linings, materials and assemblies in Class 2 to 9 buildings.
- 1.2** Class 2 to 9 building encompasses most buildings types for example
 - multi-unit residentials,
 - hotels,
 - healthcare facilities,
 - schools,
 - shopping centres,
 - office buildings,
 - warehouses and factories etc.
- 1.3** In order to comply with the requirements of C1.10, any wall and ceiling lining must meet the requirements of a group number, which is determined by fire tests as follows;
 - Physical testing conducted in an accredited test facility, in accordance with AS ISO 9705 (full-scale room test for surface products), or
 - Prediction in accordance with 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 a cone test).
- 1.4** The National Construction Code (NCC) 2016 incorporates Amendment No. 1 to AS/NZS 3837, which states that certain types of materials and assemblies cannot use this method to determine a material group number.
- 1.5** These materials and assemblies include:
 - a) All assemblies, including those with profiled facings;
 - b) Materials or assemblies that contain materials that melt or shrink away from a flame;
 - c) Assemblies with joints and openings; and
 - d) Products with a reflective surface.
- 1.6** Most insulation products used for wall and ceiling linings (i.e. polyisocyanurate (PIR) boards, phenolic boards, polyester and glasswool etc.), are typically classified as an assembly, and

most commonly have a reflective facing. As a consequence of this, these products must undergo the ISO 9705 full-scale room test to determine a group number.

2 GROUP NUMBER

- 2.1 The results of the ISO 9705 full-scale room test provide the group number of a material.
- 2.2 This group number is an indication of the materials' fire hazard properties with Group 1 being the highest (best) classification and Group 4 being the poorest performing classification.

3 WHAT GROUP NUMBER IS REQUIRED

- 3.1 For a limited number of applications, the NCC 2016 requires a Group 1 classification to be achieved.
- 3.2 For most applications, materials classified as Group 2 and Group 3 are permitted for use as a finish, surface, lining or attachment to a wall or ceiling, in accordance with the table below:

Wall and Ceiling Linings Fire Group Numbers

BUILDING CLASS (According to the BCA 2016)	FIRE ISOLATED EXITS AND FIRE CONTROL ROOMS	PUBLIC CORRIDORS		SPECIFIC AREAS		OTHER AREAS
		Wall	Ceiling	Wall	Ceiling	Wall/ Ceiling
Class 2 or 3						
(Excluding accommodation for the aged, people with disabilities and children)						
Unsprinklered	1	1,2	1,2	1,2,3	1,2,3	1,2,3
Sprinklered	1	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3
Class 3 or 9a						
(Accommodation for the aged, people with disabilities, children and health-care buildings)						
Unsprinklered	1	1	1	1,2	1,2	1,2,3
Sprinklered	1	1,2	1,2	1,2,3	1,2,3	1,2,3
Class 5, 6, 7, 8 or 9b schools						
Unsprinklered	1	1,2	1,2	1,2,3	1,2	1,2,3
Sprinklered	1	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3
Class 9b other than schools						
Unsprinklered	1	1	1	1,2,	1,2	1,2,3
Sprinklered	1	1,2	1,2	1,2,3	1,2,3	1,2,3
Class 9c						
Sprinklered	1	1,2	1,2	1,2,3	1,2,3	1,2,3

Important Note:

In addition, where a building is not fitted with a complying sprinkler system, the wall and ceiling lining must have:

- (i) A smoke growth rate index (SMOGRA) not more than 100 (AS ISO 9705); or
- (ii) An average specific extinction area less than 250 m²/kg (AS/NZS 3837).

All building linings in walls in Class 2 to 9 buildings, must have the appropriate group number classification that has been derived from testing to ISO 9705 full-scale room test, and if the building is not fitted with a complying sprinkler system, then the product must meet the above indexes.