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TECHNICAL BULLETIN

FIRE HAZARD COMPLIANCE

BCA Group Number Classification Update

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

National Construction Code (NCC) 2015 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]. This includes most buildings types such as multi-unit residentials, hotels, healthcare facilities, schools, shopping centres, office buildings, warehouses and factories etc.

To comply with C1.10, wall and ceiling linings must meet the requirements of a Group number, which is determined by fire tests as follows[2].

(i) Physical testing in accordance with AS ISO 9705 (Full-scale room test for surface products)

(ii) 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). NCC 2015 incorporates Amendment No. 1 to AS/NZS 3837, which states that **certain types of materials and assemblies cannot use this method to determine a Group number**[3]. 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.

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. Hence, for these products, only the **ISO 9705 Full-scale room test can be used to determine a Group number.**

CSR

Group number

The results of the ISO 9705 Full-scale room test provide the Group number of a material. This Group number is an indication of the materials' fire hazard properties with Group 1 being the highest classification and Group 4 being the poorest performing classification[4].

What Group number is required for your project?

For a limited number of applications, the NCC 2015 requires a Group 1 classification to be achieved. However, 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 below table[5].

Wall and ceiling lining materials (material groups permitted)

CLASS OF BUILDING	FIRE ISOLATED EXITS AND FIRE CONTROL ROOMS	PUBLIC CORRIDORS		SPECIFIC AREAS[6]		OTHER AREAS
	Wall/ceiling	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

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 m^2/kg (AS/NZS 3837).

Conclusion

When specifying products for use in wall and ceiling linings in Class 2 to 9 buildings, ensure the Group number classification is derived from the results of an 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. For more information, please contact CSR Bradford Technical specialist team.

1) Refer to National Construction Code (NCC) 2015 Building code of Australia (BCA) Volume One, Section C - Fire Resistance, Specification C1.10 Fire Hazard Properties, page 134 - 138. **2)** Refer to NCC 2015 BCA Volume One, Section C - Fire Resistance, Specification C1.10 Fire Hazard Properties, 4. Wall and ceiling linings, page 135 - 137. **3)** Refer to NCC 2015 BCA Volume One, List of Amendments, page 782, and AS/NZS 3837:1998/Amdt 1:2012 : Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter. **4)** Refer to NCC 2015 BCA Volume One, Section A - General Provisions, Part A1.1 Definitions, page 24, and Section C - Fire Resistance, Specification C1.10 Fire Hazard Properties, 4. Wall and ceiling linings, page 135 - 137. **5)** Refer to NCC 2015 BCA Volume One, Section C - Fire Resistance, Specification C1.10 Fire Hazard Properties, 4. Wall and ceiling linings, page 135 - 137. **6)** Specific areas means within— Class 2 & 3: a sole-occupancy unit; Class 5 & 6: open plan offices/shops with minimum floor dimension/floor to ceiling height ratio > 5; Class 9a health-care: patient care areas; Class 9b theatres and halls: auditorium; 9b schools: a classroom; Class 9c: resident use areas. Refer to NCC 2015 BCA Volume One, Section C - Fire Resistance, Specification C1.10 Fire Hazard Properties, Table 3 Wall and Ceiling Lining Materials (Material Groups permitted), page 136 - 137.

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