TECHNICAL GUIDANCE NOTE – 004b

BCA Fire Hazard Properties – Floor Coverings

Introduction

From the May 1, 2006, the Building Code of Australia, fire hazard properties; that is the performance criteria for both wall & ceiling linings and floor coverings have both changed, requiring fire testing to new and improved test methods.

This Technical Guidance Note provides a basic overview relating to floor coverings linings, discussing the **critical radiant flux** and **smoke development rate**, including the underlying fire testing requirements to determine the these properties for a particular product.

Note – For wall & ceiling linings, please refer to TGN – 004a.

Previous requirements

Historically, the fire hazard properties for internal linings (walls, ceilings and floors), were determined from fire testing to AS1530 Part 3. The results from testing to this Standard were reported as four indices; namely ignitability, spread of flame, heat evolved and smoke developed.

This test method had many shortcomings and therefore after some serious research by the Fire Code Reform Centre, a BCA reform initiative was initiated and after a more than equitable “grace” period, the BCA has now changed, effective May 1, 2006.

New requirements – floor coverings

Critical radiant flux

For floor coverings, the new requirements manifest themselves in BCA Specification C1.10a. This Specification provides critical radiant flux values for **floor coverings**, based on Class of building, the **location** within the building (general use or use in fire isolated exits) and whether or not the building is **sprinkler protected** or not.

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Table 1 CRITICAL RADIANT FLUX (CRF in kW/M^2) OF FLOOR MATERIALS AND FLOOR COVERINGS

Class of building	General		Fire—Isolated Exits
	Building not fitted with a sprinkler system complying with Specification E1.5	Building fitted with a sprinkler system complying with Specification E1.5	
Class 2, 3, 5, 6, 7, 8 or 9b	2.2	1.2	2.2
Excluding accommodation for the aged			
Class 3	4.5	2.2	4.5
Accommodation for the aged			
Class 9a			
Patient care areas	4.5	2.2	4.5
Areas other than *patient care areas*	2.2	1.2	4.5
Class 9c			
Resident use areas	—	2.2	4.5
Areas other than *resident use areas*	—	1.2	4.5

NOTE - For buildings not protected with a sprinkler system, a maximum smoke development rate of 750 percent-minutes applies.

BCA Specification C1.10a – Table 1 – Critical Radiant Flux values permitted for floor coverings

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Fire testing requirements

For floor coverings, the critical radiant flux and smoke development rate (as applicable) are determined from fire testing to ISO 9239.1.

ISO 9239.1 fire test

The fire test method consists of an inclined radiant heat panel and pilot flame, from which a critical radiant flux for the floor covering material in question can be determined from a pre-determined relationship between flame spread and radiant heat flux for the test apparatus. During the test smoke produced is captured and allow the determination of the smoke development rate as applicable.

A photo of a floor covering being fire tested to the requirements of ISO 9239.1

Summary

As of May 1, 2006, new projects will require floor covering materials to have a **Critical Radiant Flux**, **(CRF),** and smoke development rate (as applicable) determined in accordance with BCA Specification C1.10a (requiring ISO 9239.1 fire testing). The new requirements replace the former requirements in Specification C1.10 and fire testing to AS1530 Part 3.

This Technical Guidance Note (like others of its kind) has been prepared in good faith to provide some basic assistance to those who are not familiar with some relevant technical issues relating to Fire and Smoke Containment.

***This document can be change without prior notification*.**

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