

IGNIS LABORATORY ASSESSMENT

BELGOTEX FLOORCOVERINGS (AUSTRALIA) PTY LTD FRENCH COUTURE COMPLIANCE ADVICE NATIONAL CONSTRUCTION CODE 2025

Evaluation No. IGNE-260099-01R Issue 01 Revision 00

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1 Introduction

Ignis Labs has been engaged by Belgotex Floorcoverings (Australia) Pty Ltd to advise on the compliance of their French Couture (1) dessin DARIUS carpet material with the requirements of the National Construction Code (NCC) 2025 Volume 1. The French Couture (1) Dessin DARIUS carpet material has been tested in accordance with NF EN ISO 9239.1-2013 by CRET, with the results detailed within test report number RL 2026/364 dated 20 May 2026. The carpet has been evaluated for its compliance with the fire hazard property requirements for floor lining materials outlined within Clause S7C3 of the NCC 2025 Volume 1.

This advisory note is issued by Benjamin Hughes-Brown, Chartered Professional Engineer of Ignis Labs Pty Ltd, 3 Cooper Place, Queanbeyan, 2620, NSW for use under the Deemed-to-Satisfy requirements of the National Construction Code Building Code of Australia Volume 1 and Volume 2 2022 (BCA). Ignis Labs holds accreditation to AS ISO 9239.1-2003 with NATA, accreditation number 20534. This engineering advisory note serves as a certificate from an accredited lab and a professional engineer in accordance with Clause A5G3 (d) and (e) of the BCA

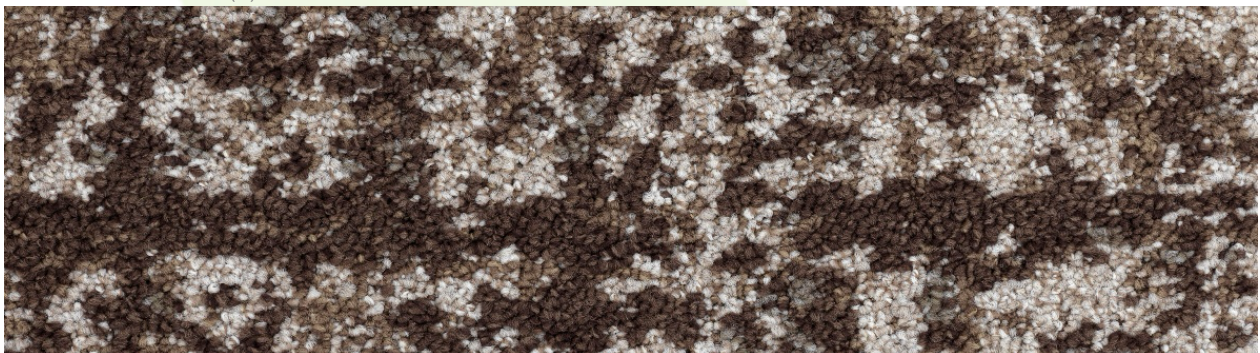
2 NF EN ISO 9239.1-2013 Testing

Floor Lining Performance

As detailed by CRET within test report number RL 2026/364, The French Couture (1) Dessin Darius carpet has a pile thickness of 4.3 mm and a total nominal thickness of 8 mm. It has a density of 2,460 gsm and is composed of 100% polyamide with a woven polyester backing and was grey-green in colour. The carpet was tested without an underlay, and was directly fixed to an 8 mm thick fibre cement substrate with UZIN UZ 57 acrylic glue at an application rate of 350 gsm. The specimens were conditioned for a minimum of 14 days at 23 +/- 2 °C and 50 +/- 5% relative humidity prior to testing.

FIGURE 1:

FRENCH COUTURE (1) DESSIN DARIUS



In testing, it was found that the specimen in the transverse direction performed slightly worse than the specimen in the longitudinal direction and as such two additional specimens were tested in the transverse direction.



The specimens were tested for a total duration of 30 minutes, with extinguishment occurring between 12 and 13 minutes for all specimens. Specimens 1, 2, and 3 in the transverse direction had a maximum flame front distance of 100, 110, and 80 mm respectively. Only minor amounts of smoke were recorded during testing.

The Critical Heat Flux (CHF) of the carpet material was determined in accordance with EN ISO 9239.1-2013 as shown in Table 1.

Table 1 French Couture (1) Dassin Darius – NF EN ISO 9239.1 Test Results			
Test Specimen	Maximum Flame Spread	Critical Radiant Flux	Smoke Development Rate
N RL 2026/364			
French Couture (1) dessin DARIUS	96.67 mm	$\geq 11 \text{ kW/m}^2$	9.6 % $\times$ min

3 National Construction Code Compliance

Clause C2D11 (a) of the NCC Volume 1 2025 outlines the deemed-to-satisfy requirements for the fire hazard properties of floor linings, where floor linings within Class 2 to 9 buildings must comply with Specification 7. Clause S7C3 of Specification 7 states that floor linings must have a critical radiant flux not less than the values outlined in Table S7C3, where the critical radiant flux is the critical heat flux (CHF) at extinguishment as determined through testing in accordance with AS ISO 9239.1.

FIGURE 2:

CLAUSE S7C3

S7C3 Floor linings and floor coverings

[2019: Spec C1.10: 3]

A floor lining or floor covering must have—

- (a) a *critical radiant flux* not less than that listed in Table S7C3; and
- (b) in a building not protected by a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17, a maximum *smoke development rate* of 750 percent-minutes; and
- (c) a *group number* complying with S7C6(b), for any portion of the floor covering that is continued more than 150 mm up a wall.

It is considered that the testing of the French Couture (1) Dessin Darius carpet material to NF EN ISO 9239.1-2013 is equivalent to AS ISO 9239.1-2003, and as such the CHF and smoke development rate determined in CRET's test report number RL 2026/364 are suitable for determining compliance with Clause S7C3 of the NCC 2025.

Both AS ISO 9239.1-2003 and NF EN ISO 9239.1-2013 are derived from ISO 9239.1, and as such have the same equipment, methodology, and procedures. The NF EN ISO 9239.1-2013 differs from AS ISO 9239.1-2003 in that the zero point is detailed as being at 0 mm rather than 10 mm, however the radiation calibration is identical between both standards and as such the CHF values measured are consistent between the tests.

When tested to NF EN ISO 9239.1-2013, the average spread of flame was 96.67 mm and the CHF was 11.0 kW/m^2 . Should the specimens be tested to AS ISO 9239.1-2003, it is considered that the spread of flame would be consistent as the requirements for the radiant panel and the calibration procedure are consistent between the two methodologies. In accordance with Table 1 of AS ISO 9239, the heat flux 110 mm from the zero point of the specimen is 10.9 kW/m^2 .



FIGURE 2:

AS ISO 9239.1-2003 TABLE 1 – HEAT FLUX DISTRIBUTION

Table 1 — Required heat flux distribution onto the calibration board

Distance to zero point of specimen mm	Heat flux kW/m ²	Tolerances kW/m ²
110	10,9	± 0,4
210	9,2	± 0,4
310	7,1	± 0,4
410	5,1	± 0,2
510	3,5	± 0,2
610	2,5	± 0,2
710	1,8	± 0,2
810	1,4	± 0,2
910	1,1	± 0,2

In accordance with Clause 8.1 of AS ISO 9239.1-2003, the CHF is to be expressed to the nearest 0.2 kW/m² and as such the French Couture (1) Dessin Darius carpet material, having an average flame spread of 96.67 mm, is deemed to have a CHF of 11.0 kW/m² in accordance with AS ISO 9239.1-2003.

The French Couture (1) Dessin Darius carpet material, having a CHF of 11. 0 kW/m², is suitable for use within all applications detailed within Table S7C3.

FIGURE 2:

TABLE S7C3

Table S7C3: Critical radiant flux (CHF in kW/m²) of floor linings and floor coverings

Class of building	Building not fitted with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17	Building fitted with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17	Fire-isolated exits and fire control rooms
Class 2, 3, 5, 6, 7, 8 or 9b, excluding Class 3 accommodation for the aged and Class 9b as specified below	2.2 kW/m ²	1.2 kW/m ²	2.2 kW/m ²
Class 3 accommodation for the aged	4.5 kW/m ²	2.2 kW/m ²	4.5 kW/m ²
Class 9a <i>patient care areas</i>	4.5 kW/m ²	2.2 kW/m ²	4.5 kW/m ²
Class 9a areas other than <i>patient care areas</i>	2.2 kW/m ²	1.2 kW/m ²	4.5 kW/m ²
Class 9b auditorium or audience seating area used mainly for indoor swimming or ice skating	1.2 kW/m ²	1.2 kW/m ²	2.2 kW/m ²
Class 9b auditorium or audience seating area used mainly for other sports or multi-purpose functions	2.2 kW/m ²	1.2 kW/m ²	2.2 kW/m ²
Class 9c <i>resident use area</i>	N/A	2.2 kW/m ²	4.5 kW/m ²
Class 9c areas other than <i>resident use areas</i>	N/A	1.2 kW/m ²	4.5 kW/m ²

In accordance with Clause S7C3 (b), flooring linings with a smoke development rate of greater than 750 % minutes are not suitable for non-sprinklered applications. The French Couture (1) Dessin Darius carpet was determined to have a smoke development rate of 9.6 % × minutes and as such it is considered that the carpet material is suitable for both sprinklered and non-sprinklered applications.



3.1 Limitations

The French Couture (1) Dessin Darius carpet material was tested fixed directly to a fibre cement substrate using UZIN UZ 57 acrylic glue at an application rate of 350 gsm. Clause 5.3 of AS ISO 9239.1-2003 states that the adhesive used for specimens shall be representative of those used in practice, and that underlays used as part of the specimens shall be representative of those used in practice.

As the carpet specimens were not tested with an underlay, the results prescribed within this assessment are only applicable to direct fixing of the French Couture (1) Dessin Darius carpet material using an acrylic based adhesive.

4 Conclusion

Based on testing of the French Couture carpet to NF EN ISO 9239.1-2013 it is deemed that it achieves a critical radiant flux of 11 kW/m² and a smoke development rate of 9.6 % × min for the purposes of complying with Clause S7C3 of Specification 7 of the NCC Volume 1 2025. It is suitable for use in all Class 2-9 applications outlined within Table S7C3.

Tom Lewis
Lead Engineer
BEng (ANU)

Benjamin Hughes-Brown FIEAust CPEng NER APEC Engineer IntPE(Aus)

Chartered Professional Engineer

CPEng, NER (Fire Safety / Mech) 2590091, RPEQ 11498, BDC-1875, PRE0000303, DEP0000317, PE0001872, ACT - 00300002504
MFireSafety (UWS), BEng (UTS), GradDipBushFire (UWS), DipEngPrac (UTS), DipEng (CIT)

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