

01<sup>st</sup> November 2019

Ref:/jobs/19082A Ambience Panel NZBC Compliance Fire Assessment Rev A

Big River Group (NZ) Ltd (t/a Plytech)

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New Zealand

2013

**Email:** [craig@plytech.co.nz](mailto:craig@plytech.co.nz)

**Attention:** Craig Floyd

**SUBJECT: ASSESSMENT FOR INTERNAL SURFACE FINISHES REQUIREMENTS OF 12MM AMBIENCE FOR COMPLIANCE WITH NEW ZEALAND BUILDING CODE (NZBC) REQUIREMENTS.**

Dear Craig,

Thank you for your request to provide advice on the internal surface finishes requirement of 12mm thick Ambience panels, for compliance with the New Zealand Building Code requirements.

## Product Description

Ambience is European Polar plywood with the following different wood grain finishes,

- Ambience-Poplar
- Ambience-Birch
- Ambience-Eucalypt
- Ambience-Okume

These panels are available both unfinished and prefinished ready to be installed. These panels are available with thickness of 10mm and 12mm however our assessment is carried out only for these Ambience panels with overall thickness of 12mm.



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**Ambience – Poplar**

Manufactured from selected high quality Italian Poplar veneer which has been "blonded" to achieve a consistent creamy-white appearance. Ambience – Poplar is creamy-white in colour. Straight grained with a fine and even, woolly texture.



**Ambience – Birch**

Stable and lightweight European manufactured Poplar plywood with a decorative Birch veneer face and back. Ambience – Birch is creamy-white to biscuit in colour with a straight grain and fine texture.



**Ambience – Eucalypt**

Stable and lightweight European manufactured Poplar plywood with a decorative Eucalypt veneer face and back. Ambience – Eucalypt is light in colour, ranging from straw to reddish brown. Predominantly straight grained.



**Ambience – Okoume**

Stable and lightweight European manufactured Poplar plywood with a decorative Okoume veneer face and back. Ambience – Okoume is light in colour, ranging from straw to brown. Straight to slightly wavy grain and an even medium texture.



# New Zealand Building Code Compliance

The building code C3.4a states

Provisions		Limit on application	
<p><b>PERFORMANCE</b></p> <p><b>C3.4</b> (a) materials used as internal surface linings in the following areas of <i>buildings</i> must meet the performance criteria specified below:</p>		<p>Clause C3.4 does not apply to <i>detached dwellings</i>, within <i>household units</i> in <i>multi-unit dwellings</i>, or <i>outbuildings</i> and <i>ancillary buildings</i>.</p>	
Area of building	Performance determined under conditions described in ISO 9705: 1993		
	Buildings not protected with an automatic fire sprinkler system	Buildings protected with an automatic fire sprinkler system	
Wall/ceiling materials in sleeping areas where care or detention is provided	Material Group Number 1-S	Material Group Number 1 or 2	
Wall/ceiling materials in exitways	Material Group Number 1-S	Material Group Number 1 or 2	
Wall/ceiling materials in all <i>occupied spaces</i> in importance level 4 <i>buildings</i>	Material Group Number 1-S	Material Group Number 1 or 2	
Internal surfaces of ducts for HVAC systems	Material Group Number 1-S	Material Group Number 1 or 2	
Ceiling materials in crowd and sleeping uses except <i>household units</i> and where care or detention is provided	Material Group Number 1-S or 2-S	Material Group Number 1 or 2	
Wall materials in crowd and sleeping uses except <i>household units</i> and where care or detention is provided	Material Group Number 1-S or 2-S	Material Group Number 1, 2, or 3	
Wall/ceiling materials in occupied spaces in all other locations in <i>buildings</i> , including <i>household units</i>	Material Group Number 1, 2, or 3	Material Group Number 1, 2, or 3	
External surfaces of ducts for HVAC systems	Material Group Number 1, 2, or 3	Material Group Number 1, 2, or 3	
Acoustic treatment and pipe insulation within airhandling plenums in sleeping uses	Material Group Number 1, 2, or 3	Material Group Number 1, 2, or 3	

The internal surface finishes for walls and ceilings are tested to assess the risk of the spread of flame across the surface using one of two methods which enables a material Group Number between 1 and 4 to be assigned to the material and demonstrate compliance with the Table above. A postscript “S” can also be provided which denotes that the smoke production also needs to be considered. The first method is the ISO9705 (full scale room corner-test) and assigned a Group Number between 1 to 4 (least to most combustible). The second method is using the ISO5660 (bench scale fire test on a small sample of material) with the input parameters and method of calculating the Material Group Number given in Appendix A of C/VM2.

Compliance for the internal surface finishes requirements can also be demonstrated using Table C1.2 of Acceptable Solution(C/AS2).

Table C1.2 Specified performances for some substrate and coating combinations		
Coating (coating in good condition and well adhered to substrate)	Substrate	Group Number
Waterborne or solvent borne paint coatings ≤ 0.4 mm thick Polymeric films ≤ 0.2 mm thick	Concrete and masonry ≥ 15 mm thick Sheet metal ≥ 0.4 mm thick Fibre-cement board ≥ 6.0 mm thick Porcelain, ceramic, glass, solid stone or similar tiles	1-5
Waterborne or solvent borne paint coatings ≤ 0.4 mm thick	Gypsum plasterboard with or without paper facing ≥ 9.5 mm thick	2-5
Waterborne or solvent borne paint coatings, varnish or stain ≤ 0.4 mm thick ≤ 100 g/m <sup>2</sup>	Solid wood or wood product ≥ 9.0 mm thick ≥ 600 kg/m <sup>3</sup> for particle boards, or ≥ 400 kg/m <sup>3</sup> for all other wood and wood products	3
<b>Note:</b> The requirements of this table do not apply to metal faced panels with polymeric substrate.		

## Assessment on Ambience Panels

The assessment is carried out for prefinished Ambience plywood panels (Birch, Poplar, Eucalypt, Okoume) with thickness of 12mm and density of 420kg/m<sup>3</sup>. We have been advised that the applied final thickness of coating is approximately 40 to 50 microns for prefinished Ambience panels (Birch, Poplar, Eucalypt, Okoume).

Based on C/AS2 Table C1.2, 12mm thick prefinished Ambience plywood panels (Birch, Poplar, Eucalypt, Okoume) will comply with the internal surface finishes requirement of Group Number 3, as these panels have

- thickness greater than 9mm
- density of 420kg/m<sup>3</sup> (which is greater than 400kg/m<sup>3</sup>)
- the final thickness of coating is 0.05mm which is less than 0.4mm

## Conclusion

The spread of fire over internal surface finishes for walls and ceilings consisting of 12mm overall thickness prefinished Ambience Plywood panels (Birch, Poplar, Eucalypt, Okoume) is Group Number 3 (C/ASx Table C1) therefore these products will comply with the building code C3.4a for Group Number 3 requirements, if the installation is carried out in accordance with the manufacturer's instructions.

## DISCLAIMER

1. This report is based on the datasheet supplied by Plytech International Ltd.
2. This opinion represents the views of Origin Fire Consultants.
3. If a more authoritative opinion is required, then this would have to be obtained from a recognised testing laboratory.
4. This report does not relieve other designers and consenting authorities to assess the relevance of this report to the particular building project.

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