

Petima Pty Ltd
Factory 52, 37-39 East Street
Daylesford VIC 3460

RE: SPA and Tridek SIPs Structural Assessment Report

Appendix D SPA SIPs (EPS/XPS/PUR core)

Floor Loading Capacity and Span Tables For CLASS 2 TO 9 BUILDINGS For Non-Cyclonic Areas

Assessment Items

The items have been checked are as listed below:

- Floor framing and flooring: SPA SIPs with LVL timber splines of 2.0kPa LIVE LOAD
- Floor framing and flooring: SPA SIPs with LVL timber splines of 3.0kPa LIVE LOAD

Note:

The maximum allowed concentrated load of 2.7KN is allowed over an area of 0.025 m² for calculation of punching or crushing.

Additional floor boards would be required due to the concentrated loads punching effect. It must be further assessed by the project engineer according to the project loading.

SIPs like all timber products will creep under the action of long term loads. It is recommended that long term deflections should be estimated using a factor of 4 TO 7 times the initial deflections for SIPs Panels. Timber joining spline deflections should use a factor of 2 for long term creep effect.

This appendix must be used in conjunction with the SPA and Tridek SIPs Structural Assessment Report, prepared by Metroeng Pty Ltd, dated 9 June 2022

Yours Faithfully,



Huade He
B.Eng, MIE Aust, CPEng, NER, APEC Engineer, IntPE(Aus), RBP, RPEQ, BSP TAS
Principal Civil/Structural Engineer
For and on behalf of Metroeng Pty. Ltd.

Building Code of Australia Compliance

The Loading Capacity and Span Tables complies with the following provisions of Building Regulations 2018 (Victoria):

- NCC 2019 Building Code of Australia - Volume One
 - BP1.1(a)
 - BP1.1(b)(i) to (iv)
 - BP1.2(a) to (d)
 - B1.0(a) to (b)
 - B1.1(a) to (b)
 - B1.2(a) to (b)
 - B1.2(c) (i) to (ii)
 - B1.4(f)
 - B1.0(a) to (b)
- Relevant Australian Standards
 - AS/NZS 1170.0-2002 Structural design actions Part 0: General principles
 - AS/NZS 1170.1-2002 Structural design actions Part 1: Permanent, imposed and other actions
 - AS/NZS 1170.2-2011 Structural design actions Part 2: Wind for non-cyclonic areas only
 - AS1170.4-2007 Structural design action Part 4: Earthquake actions in Australia
 - AS4055-2012 Wind loads for housing for non-cyclonic areas only
 - AS1720.1-2010 Timber structures Part 1: Design methods
 - AS1684.2-2010 Residential timber-framed construction Part 2: Non-Cyclonic Areas
 - AS1684.4-2010 Residential timber-framed construction Part 4: Simplified Non-Cyclonic Areas

Combustible external wall cladding

*The following external wall cladding products are **prohibited** from being used in class 2 to 9 buildings:*

expanded polystyrene (EPS) products used in an external insulation and finish (rendered) wall system.

*All EPS products application in buildings **must** be checked and confirmed against the updated local laws and statutory requirements.*

**Floor framing Span Table: SPA SIPs with LVL timber splines of 2.0kPa LIVE LOAD
Hyspan LVL or equivalent**

Panel Thickness	EPS/XPS CORE								SINGLE LVL spline
	CARPET/TIMBER FLOORING				TILE FLOORING				
	Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		
	single span	continuous span	single span	continuous span	single span	continuous span	single span	continuous span	
115	2.5	2.6	2.6	2.6	2.1	2.2	2.2	2.2	90 x 45
145	2.8	3.3	2.9	3.3	2.3	2.9	2.6	2.9	120 x 45
165	3.5	3.8	3.5	3.8	2.9	3.3	3.1	3.3	140 x 45
215	4.4	5.1	4.2	5.0	3.7	4.4	3.7	4.4	190 x 45
265	5.3	6.3	4.8	5.8	4.5	5.4	4.3	5.1	240 x 45
315	6.2	7.6	5.4	6.5	5.3	6.5	4.8	5.8	290 x 45

Panel Thickness	PUR CORE								SINGLE LVL spline
	CARPET/TIMBER FLOORING				TILE FLOORING				
	Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		
	single span	continuous span	single span	continuous span	single span	continuous span	single span	continuous span	
115	2.2	2.6	2.5	2.6	1.8	2.4	2.2	2.6	90 x 45
145	2.8	3.3	2.9	3.3	2.3	2.9	2.6	3.1	120 x 45
165	3.1	3.8	3.2	3.8	2.6	3.3	2.8	3.3	140 x 45
215	4.0	5.1	3.9	4.6	3.3	4.2	3.4	4.0	190 x 45
265	4.8	6.1	4.5	5.4	4.0	5.1	3.9	4.7	240 x 45
315	5.7	7.2	5.1	6.1	4.7	6.0	4.4	5.3	290 x 45

**Floor framing Span Table: SPA SIPs with 2/LVL timber splines of 2.0kPa LIVE LOAD
 Hyspan LVL or equivalent**

		EPS/XPS CORE								2/LVL splines
		CARPET/TIMBER FLOORING				TILE FLOORING				
Panel Thickness	Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection			
	single span	continuous span	single span	continuous span	single span	continuous span	single span	continuous span		
115	2.6	2.6	2.6	2.6	2.2	2.2	2.2	2.2	2/90 x 45	
145	2.8	3.3	2.9	3.3	2.3	2.9	2.6	2.9	2/120 x 45	
165	3.8	3.8	3.8	3.8	3.3	3.3	3.3	3.3	2/140 x 45	
215	5.0	5.1	4.6	5.1	4.2	4.4	4.1	4.4	2/190 x 45	
265	6.2	6.3	5.4	6.3	5.2	5.4	4.8	5.4	2/240 x 45	
315	7.3	7.4	6.1	7.3	6.2	6.5	5.4	6.5	2/290 x 45	

		PUR CORE								2/LVL splines
		CARPET/TIMBER FLOORING				TILE FLOORING				
Panel Thickness	Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection			
	single span	continuous span	single span	continuous span	single span	continuous span	single span	continuous span		
115	2.4	2.6	2.6	2.6	2.0	2.2	2.2	2.2	2/90 x 45	
145	2.8	3.3	2.9	3.3	2.3	2.9	2.6	2.9	2/120 x 45	
165	3.5	3.8	3.5	3.8	2.9	3.3	3.1	3.3	2/140 x 45	
215	4.6	5.1	4.3	5.1	3.8	4.4	3.8	4.4	2/190 x 45	
265	5.7	6.3	5.1	6.1	4.7	5.4	4.4	5.3	2/240 x 45	
315	6.8	7.4	5.8	6.9	5.7	6.5	5.1	6.1	2/290 x 45	

Floor framing Span Table: SPA SIPs with LVL timber splines of 3.0kPa LIVE LOAD
Hyspan LVL or equivalent
Results are generally governed by strength

Panel Thickness	EPS/XPS CORE								SINGLE LVL spline
	CARPET/TIMBER FLOORING				TILE FLOORING				
	Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		
	single span	continuous span	single span	continuous span	single span	continuous span	single span	continuous span	
115	1.8	1.8	1.8	1.8	1.6	1.6	1.6	1.6	90 x 45
145	2.4	2.4	2.4	2.4	2.1	2.1	2.1	2.1	120 x 45
165	2.7	2.7	2.7	2.7	2.4	2.4	2.4	2.4	140 x 45
215	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2	190 x 45
265	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	240 x 45
315	5.3	5.3	5.2	5.3	4.8	4.8	4.7	4.8	290 x 45

Panel Thickness	PUR CORE								SINGLE LVL spline
	CARPET/TIMBER FLOORING				TILE FLOORING				
	Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		
	single span	continuous span	single span	continuous span	single span	continuous span	single span	continuous span	
115	1.8	1.8	1.8	1.8	1.6	1.6	1.6	1.6	90 x 45
145	2.4	2.4	2.4	2.4	2.1	2.1	2.1	2.1	120 x 45
165	2.7	2.7	2.7	2.7	2.4	2.4	2.4	2.4	140 x 45
215	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2	190 x 45
265	4.5	4.5	4.3	4.5	3.9	4.0	3.8	4.0	240 x 45
315	5.3	5.3	4.9	5.3	4.6	4.8	4.3	4.8	290 x 45

Floor framing Span Table: SPA SIPs with 2/LVL timber splines of 3.0kPa LIVE LOAD
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Panel Thickness	EPS/XPS CORE								2/LVL splines
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	Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		
	single span	continuous span	single span	continuous span	single span	continuous span	single span	continuous span	
115	1.8	1.8	1.8	1.8	1.6	1.6	1.6	1.6	2/90 x 45
145	2.4	2.4	2.4	2.4	2.1	2.1	2.1	2.1	2/120 x 45
165	2.7	2.7	2.7	2.7	2.4	2.4	2.4	2.4	2/140 x 45
215	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2	2/190 x 45
265	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	2/240 x 45
315	5.3	5.3	5.3	5.3	4.8	4.8	4.8	4.8	2/290 x 45

Panel Thickness	PUR CORE								2/LVL splines
	CARPET/TIMBER FLOORING				TILE FLOORING				
	Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		Maximum span (m) for Span/300 deflection		Maximum span (m) for 12mm deflection		
	single span	continuous span	single span	continuous span	single span	continuous span	single span	continuous span	
115	1.8	1.8	1.8	1.8	1.6	1.6	1.6	1.6	2/90 x 45
145	2.4	2.4	2.4	2.4	2.1	2.1	2.1	2.1	2/120 x 45
165	2.7	2.7	2.7	2.7	2.4	2.4	2.4	2.4	2/140 x 45
215	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2	2/190 x 45
265	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	2/240 x 45
315	5.3	5.3	5.3	5.3	4.8	4.8	4.8	4.8	2/290 x 45