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22nd October, 2019

To whom it may concern

Re: truFRAME® Characteristic Structural Properties

truFRAME® is an LVL product manufactured by Futurebuild® LVL made in section sizes including 90x45, 140x45, 190x45, 240x45 and 300x45, is H1.2 treated and is available in lengths up to 7.2 m. truFRAME can be designed using specific engineering design in accordance with NZS 3603, Timber Structures Standard (NZS 3603), and is also available for specification through our designIT® for houses and designIT for commercial floors software solutions available for download at chhsoftware.co.nz.

Please find below both the Characteristic Structural Properties for truFRAME and the truFRAME section sizes, properties and design capacities. Design should be completed in accordance with sound engineering practice, NZS 3603, and taking into account Section 2.0, General Design Considerations, of the Futurebuild LVL Specific Engineering Design Guide.

Table 1. truFRAME Characteristic Structural Properties

Characteristic Structural Properties		Edge (MPa)	Flat (MPa)
Modulus of Elasticity	E	8,000	8,000
Modulus of Rigidity	G	400	400
Characteristic Stresses			
Bending	f_b[1]	30.0	30.0
Tension parallel to grain	f_t[2]	16.5	
Compression parallel to grain	f_c	30.0	
Shear in beams	f_s	3.8	1.8
Bearing perpendicular to grain	f_p	10.0	10.0
Joint Group		J5	

Notes:
1. For beams exceeding 95 mm – multiply the published characteristic value for bending by $(95/d)^{0.154}$ where d is the depth of the beam.
2. For tension members with the largest cross-sectional dimension exceeding 150 mm – multiply the published characteristic value for tension by $(150/d)^{0.167}$ where d is the largest cross-sectional dimension of the tension.

Table 2. truFRAME Section Sizes, Properties and Design Capacities

Dimensions (mm x mm)	Mass (kg/m)	I_{xx} ($x10^6$ mm^4)	Z_{xx} ($x10^3$ mm^3)	J ($x10^6$ mm^4)	EI_{xx} ($x10^9$ Nmm^2)	$Ø f_b Z_x$* (kNm)
90x45	2.3	2.7	60.8	1.9	21.9	1.6
140x45	3.7	10.3	147.0	3.4	82.3	3.7
190x45	5.0	25.7	270.8	4.9	205.8	6.6
240x45	6.3	51.8	432.0	6.4	414.7	10.1
300x45	7.8	101.3	675.0	8.3	810.0	15.3

Note: * Strength Reduction Factor Ø = 0.9

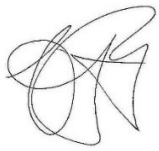
All H1.2 treated Futurebuild LVL products, including truFRAME, are glue line and surface spray treated to the requirements of NZS 3640, Chemical Preservation of Round and Sawn Timber.

If you have any further queries please don't hesitate to contact Futurebuild® LVL on 0800 808 131.

References:

- Futurebuild LVL Specific Engineering Design Guide – August 2019.
- NZS 3603:1993 Timber Structures Standards.
- AS 1720.1-2010 Timber structures – Design methods.
- AS/NZS 4063.2:2010 Characterisation of structural timber – Determination of characteristic values.
- AS 1649-2001 Timber – Methods of test for mechanical fasteners and connectors – Basic working loads and characteristic strengths.

Yours Sincerely,



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