

Residential LVL Substitutions - 14th January 2020

Acceptable Solutions:

For use in Residential Timber framed Buildings in accordance with NZS3604 NelsonPine LVL may be used as a direct substitute in place of No. 1 Framing, SG6, SG8 and SG10 provided that the LVL is of the same finished size as the member to be substituted and has no less than the strength and stiffness properties of the grade to be substituted as per NZS3604: Timber Framed Buildings, Clause 2.3.9¹ (refer to Table 1 below: Timbers to be Substituted).

NelsonPine LVL meets the durability requirements of the NZ Building Code B2, when specified in accordance with NZS3602: Timber and wood-based products for use in building. H1.2 glueline and face treatment is the preferred treatment for LVL and is the only Acceptable Solution treatment for LVL in NZS3640: Chemical Preservation of Round and Sawn Timber (A5) and is included in NZBC B2/AS1.

Building (Minor Variations) Regulations 2009:

A minor variation is defined as: “a minor modification, addition, or variation to a building consent that does not deviate significantly from the plans and specifications” in Regulation 3 of the Building (Minor Variations) Regulations 2009.

A Building Consent Authority (BCA) needs to be made aware of the substitution and the BCA will require the application to demonstrate that the substitution will meet the Building Code. This substitution note submitted to the BCA will provide confidence to the BCA of the nature of the minor variation when assessing its suitability. Minor variations can be approved on site or at the BCA office.

The proposed sequence for a BCA’s assessment of a minor variation is:

1. *Does the proposed change involve building work that is required to comply with the Building Code? If the work is not required to comply with the building Code, then it is not necessary to seek approval for the change; the work may proceed.*

2. *Is the proposed change sufficiently minor that it comes within the definition of “minor variation” contained in the Building (Minor Variations) Regulations 2009. A proposed change will generally come within that definition of a minor variation if it involves, for example, any of the following situations*

- *Substituting comparable building products in the same or similar position/manner.*
- *Any alteration that does not change the footprint of the building or the location of internal load-bearing supports, or does not change fire safety aspects.*
- *Does the proposed change:*
 - *Comply with the Building code*

¹ The 16kN limits on reactions are imposed to avoid overloading the rest of the structure (BRANZ Engineering Basis of NZS3603)

- Reflect common appropriate industry practice or standards (for example, drainage or roof truss ‘as-built’ plan).
- Not significantly increase the likelihood of a building element’s performance failure or of damage to other property.

If the answer to each of these three questions is ‘yes’, then it will generally be appropriate for the BCA to grant the minor variation.

Laminated Veneer Lumber (LVL) supplied by different manufacturers can be substituted within a residential new build or renovation in accordance with section 175 of the Building Act 2004 as a minor variation, provided that:

- The MoE grade is the same or higher.
- The dimensions are the same.
- The LVL is manufactured to AS/NZS4357 from Radiata Pine Species.
- The LVL meets the durability requirements of the application.

Examples of what is not a minor substitution and needs specific design input:

- LVL as a primary member in a commercial building.
- LVL being substituted for pre-cambered Glulam beams
- If in doubt please call Nelson Pine Industries Ltd.

Table 1: Timbers to be Substituted

NelsonPine LVL	TIMBERS TO BE SUBSTITUTED							
	Sawn Timber		Glulam ^(a)		LVL			
	SG8	SG10	GL8	GL12	J-Frame LVL8	Hy90	Hychord	Hyspan
LVL8	✓		✓		✓			
LVL11	✓	✓	✓		✓	✓	✓ ^(b)	
LVL13	✓	✓	✓	✓	✓	✓	✓	✓

Note (a) LVL may only be substituted for straight Glulam (non-cambered).

Note (b) For use in trusses use proprietary truss software as nail plate capacities may vary.

References:

- New Zealand Building Code Clause B2 Durability (Amendment 8).
- MBIE Quick Guide to Product Substitution.
- <https://www.building.govt.nz/projects-and-consents>.
- NZ Wood Design Guides: Consenting Timber Buildings.
- NZS3604: Timber Framed Buildings.
- NZS3603: Timber Structures Standard.
- NZS3602: Timber and wood-based products for use in building.
- NZS3640: Chemical Preservation of Round and Sawn Timber.
- NelsonPine LVL Specific Engineering Design Guide.
- NelsonPine LVL Product Technical Statement.
- J Frame Product Assurance Supplier Statement.
- Futurebuild LVL Specific Engineering Design Guide.