

SUBSTITUTIONS

Engineered Wood Products

Engineered Wood Products can be substituted within a residential building renovation or new residential build in accordance with the "Building (Minor Variations) Regulations 2009".

Building (Minor Variations) Regulations 2009

Minor variation (partial definition)

A minor variation is a minor modification, addition, or variation to a building consent that does *not deviate significantly from the plans and specifications* to which the building consent relates.

MBIE Guidance

MBIE's web site provides guidance as to what constitutes a minor variation

MBIE recommend BCAs assess a proposed minor variation by addressing, in sequence, the following questions:

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 can simply be carried out as of right.*

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 if it involves either, for example:*

- i. substituting comparable building products in the same or similar position/manner*
- ii. 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*
- iii. altering a room's layout (for example, the position of sanitary fixtures in a room).*

3. *Does the proposed change:*

- i. comply with the Building Code*
- ii. reflect common appropriate industry practice or standards (for example, drainage or roof truss 'as-built' plan)*
- iii. not significantly increase the likelihood of a building element's performance failure or of damage to other property.*

If the answer to each of the three questions 3i-3iii is 'yes', then it will generally be appropriate for the BCA to grant the minor variation.

Applications

I-Beams or I-Joists

There is no New Zealand/Australia joint standard for the manufacture of I-Beams. To ensure compliance with the New Zealand Building Code LumberworX recommends selecting a brand that has been third party certified by a reputable Australasian organisation such as EWPA, BRANZ or SCION, or has been granted a New Zealand CodeMark.

I-Beam science and engineering principles are common world-wide but all manufacturers products differ in performance due to them being assembled from components (flanges and webs) with varying characteristics (such as stiffness, strength and dimensions).

LumberworX I-Beams may be substituted for another brand provided evidence is supplied showing deflections are similar to the original design parameters in which case this would be a "minor variation" as the substitution "...does not deviate significantly from the plans and specifications..."

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Laminated Veneer Lumber (LVL)

The Australian and New Zealand standard for the manufacture of LVL is AS/NZS4357 and there are 4 manufacturers in Australasia; Nelson Pine Industries, Carter Holt Harvey, Juken NZ (JNL), and Wesbeam (Western Australia).

Product from any of these manufacturers may be substituted in residential building for any of the others provided the MoE (grade) is the same, the dimensions are the same, and the product meets the timber protection requirements for the application proposed. MoE is the only value required to be marked on the timber. Be wary of imports as they may not be manufactured to AS/NZS4357.

H1.2 glueline and face treatment is the preferred treatment for LVL and is the only treatment for LVL in NZS 3640 (A5) and is included in B2/AS1. H3.1 LOSP has a dispensation in B2/AS1 but only meets the minimum requirements of H1.2 (see B2/AS1). LVL can be used untreated in some situations.

H1.2 treated LVL can be substituted for H3.1 and untreated LVL due to its inclusion in B2/AS1 and its greater efficacy over H3.1 LOSP.

Laminated Strand Lumber (LSL)

Structural strand technology is new to New Zealand: Lumberworx has a Lintel substitution Technical Note for substituting LSL10 x 90mm for SG timber as lintels. The document signed by a New Registered Engineer (CPEng) also permits LSL to be substituted for LVL and Glulam lintels if the Elasticity (Stiffness) and Bending Strength of the LSL is the same or greater than the member being substituted.

The CodeMark certificate of conformity confirms LSL10 can generally be substituted for SG10 sawn timber in any application.

Glue Laminated Beams (Glulam)

The Australian and New Zealand standard for the manufacture of Glulam is AS/NZS1328. There are many manufacturers throughout Australasia and each manufacturer needs to be "licenced".

Product from any licenced manufacturer may be substituted for any of the others provided the MoE (grade) is the same, the dimensions are the same, and the product meets the timber protection requirements for the application proposed. MoE is the only value required to be marked on the timber. **Do not** substitute a "straight" beam for a "cambered" beam, although the reverse is acceptable. Ensure the manufacturer is licenced to manufacture to the AS/NZS1328 standard.

Glulam for exterior use is treated to H3.2 and for internal protected use to H1.2 hazard class.

Some imported Glulam is treated to H3 LOSP (Australian hazard class) – this no longer meets B2/AS1 with H3 LOSP now confirmed only as a "cladding" treatment with 15 years durability. H3 LOSP cannot be used for structural use under B2/AS1.

Summary of Substitutions

- Implied warranties contained in the Building Act will not be diminished
- Lumberworx can provide evidence of suitability for any engineered wood product substitution
- The substitution of one brand of Engineered Wood Products with another is little different than substituting or co-mingling sawn timber products of the same size and grade amongst saw-millers provided the substituting member comes from an approved mill or has reputable 3rd party accreditation in the case of I-Beams.
- The environment will not be compromised; Lumberworx supplied products are treated to H1.2 hazard class without the use of solvents.
- Other design features will not be compromised if Lumberworx supplied products are fixed or installed in accordance with manufacturer's instructions
- Performance will be in accordance with the recommendations contained in NZS1170 and be similar to the specified materials.