OEL™

Optimised Engineered Lumber

WOOD ENGINEERING TECHNOLOGY

USING OEL™ – SPECIFICATION AND INSTALLATION[1]

OEL™ is an engineered, glue laminated timber intended for use as structural or non-structural framing members in all timber frame construction within the scope and limitations of the OEL™ pass™.

It may be used as a direct substitute for the equivalent solid lumber or LVL lumber; for instance GL8 may be substituted for SG8 or LVL8.

This document is to be read in conjunction with:

- Wood Engineering Technology Ltd OEL™ pass™
- Wood Engineering Technology Care & Maintenance
- NZS 3604:2011[2] (as modified by B1/AS1 Amd 18), or NZS 3603:1993[3] and AS 1170:2002[4] (as modified by B1/VM1 Amd 18)
- Building Consent documentation (where applicable).

SPECIFICATION

Specification of OEL™ is no different from specifying solid lumber or LVL.

Table 1 below compares the characteristic design values of OEL™ with that of solid lumber[5].

From this table is can be seen that the characteristic values of GL8 and GL10 exceed that of SG8 and SG10 (respectively). Therefore when specifying GL8 and GL10 NZS, 3604:2011 span tables may be relied on.

Some of the characteristic values of GL12 are less than SG12. Wood Engineering Technology Ltd has prepared GL12 OEL™ specific span tables that must be used when specifying GL12 OEL™.

Where relying on pre-engineered software (such as Mitek or Pryda) ensure that the glulam option has been selected.

All other aspects of specification to be in accordance with NZS 3604:2011 (as modified by B1/AS1 Amd 18), or NZS 3603:1993 and AS 1170:2002 (as modified by B1/VM1 Amd 18) depending on the project scope.

The specification of OEL™ should be undertaken or supervised by a suitably qualified person such as LBP licensed to the applicable design license class.

Table 1

	Characteristic strengths (MPa)								Elastic Moduli (GPa)			
Grade	Bending *fb*		Tension parallel to grain *ft*		Shear in beams *Fs*		Compression parallel to grain *fc*		Modulus of elasticity parallel to grain *E*		Modulus of rigidity for beams *G*	
	GL	SG	GL	SG	GL	SG	GL	SG	GL	SG	GL	SG
12	25	28	12.5	14	3.7	3.8	29	25	11.5	12.0	0.77	
10	22	20	11	8	3.7	3.8	26	20	10.0	10.0	0.67	
8	19	14	10	6	3.7	3.8	24	18	8.0	8.0	0.53	

FABRICATION

Where used in the manufacture of roof trusses or prefabricated wall framing, the manufacturer must be a member of the Frame and Truss Manufacturers' Association of NZ (FTMA-NZ) or another, relevant, recognised industry association.

1 This document supersedes OEL™ Handling, Storage & Installation Requirements v2.0 Sept 2018
2 NZS 3604:2011 *Timber-framed Buildings*
3 NZS 3603:1993 *Timber Structures Standard*
4 AS/NZS 1170:2002 *Structural Design Actions*
5 Glulam characteristic values as per AS1720.1:2010 and solid lumber values as per NZS 3604:2011.

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CONSTRUCTION

PREPARATION

Health and Safety

Take all necessary steps to ensure your safety and the safety of others:

- ensure adequate ventilation or mechanical dust extraction when cutting or drilling
- ensure the lumber are well supported when cutting
- wear appropriate safety equipment, clothing and footwear
- use all tools in accordance with relevant instruction manuals
- clear the work area of any obstructions before work starts.

For further information refer to:

- *WorkSafe July 2018. Small Construction Sites, The Absolutely Essential Health and Safety Toolkit.*
- *WorkSafe December 2016. Health and Safety at Work, Quick Reference Guide.*

These documents are available at www.worksafe.govt.nz.

STORAGE & HANDLING

When taking delivery of OEL™, handle and store as for solid lumber or LVL:

- Do not tip from truck, man-handle or use flexible lifting strops where possible.
- Keep dry and free from moisture; store on full width packers, off the ground and ensure a good air flow to keep the OEL™ timber dry.
- Store flat so as to avoid warping.
- Cover where exposed.
- Avoid damage from sharp objects, loose debris and scaffold projections.

SKILL LEVEL REQUIRED

Installation of OEL™ should be undertaken or supervised by a suitably qualified person such as an LBP (carpentry), or a skilled DIYer.

TOOLS REQUIRED:

- standard carpentry tools
- ensure all cutting and drilling tools are sharp and fit for purpose.
- power driven nails are acceptable.

INSTALLATION

OEL™ must be installed in accordance with the building consent/ specific engineering. Where the building consent does not provide adequate information or the work is not subject to a building consent, installation must be in accordance with section 8, NZS 3604:2011 (as modified by B1/AS1 Amd 18).
For work outside the scope of NZS 3604:2011, installation must rely on a specific design to NZS 3603:1993 and AS 1170:2002 (as modified by B1/VM1 Amd 18).

Supplementary Treatment

Supplementary treatment is required for cut ends and holes where OEL™ H3.2 is used. OEL™ treated to H1.2 does not require supplementary treatment.

Wood Engineering Technology Ltd recommends Brush-On Eco Wood, Metalex, Preschen or similar.

Fixings

All fixings are to be in accordance with the building consent and/ or specific engineering. Where the building consent/specific engineering does not specify fixings, then fixings are to be to in accordance with NZS 3604:2011, section 8.

Where the project falls outside the scope of NZS 3604:2011, fixings are to be specifically designed to NZS 3603:1993.

Moisture Content

Do not install internal linings where the moisture content (mc) exceeds 18%. Be sure to check the mc before installing internal linings.

Notches and holes

Notches and holes are to be in accordance with NZS 3604:2011.

USEFUL INFORMATION

For further information on OEL™ visit www.woodeng.co.nz.

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