RED STAG TIMBER - SAWMILL BUILDING (CONSTRUCTED)

WAIPA STATE MILL ROAD, ROTORUA

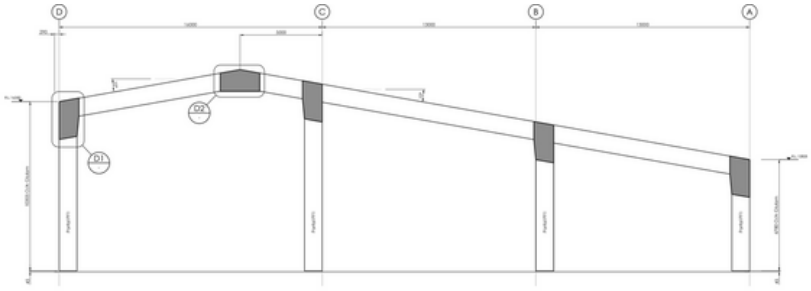
CASE STUDY

Ministry for Primary Industries
Manatū Ahu Matua

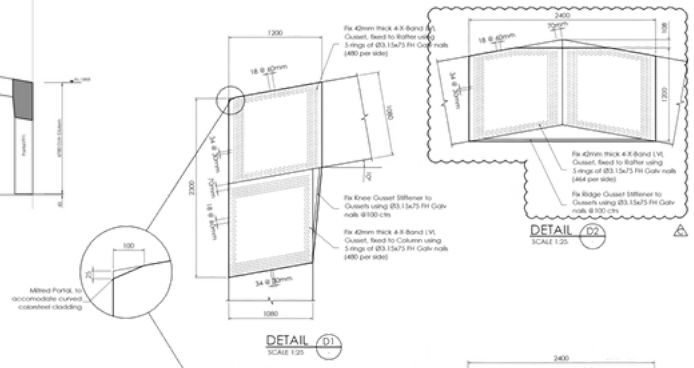
RED STAG TIMBERLAB

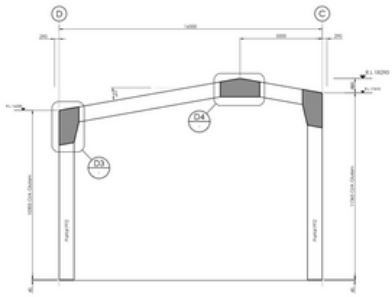
MID-RISE Wood Construction

STRUCTURAL PLAN AND CROSS SECTIONAL DRAWINGS

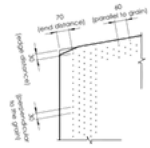


Typical PF1 Portal Elevation
SCALE 1:100
Note: PF1 = 1080x180 Glulam GL10
Refer to ????? for Girt & Purlin Details

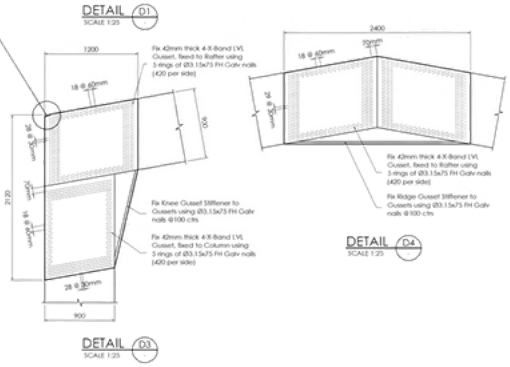


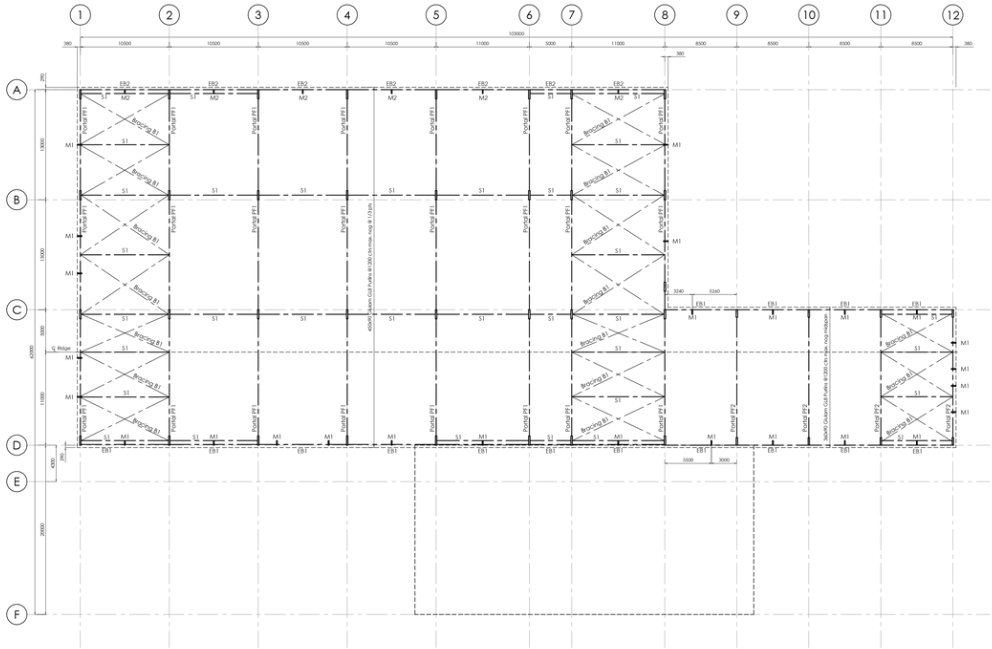


Typical PF2 Portal Elevation
SCALE 1:100
Note: PF2 = 900x180 Glulam GL10
Refer to ????? for Girt & Purlin Details

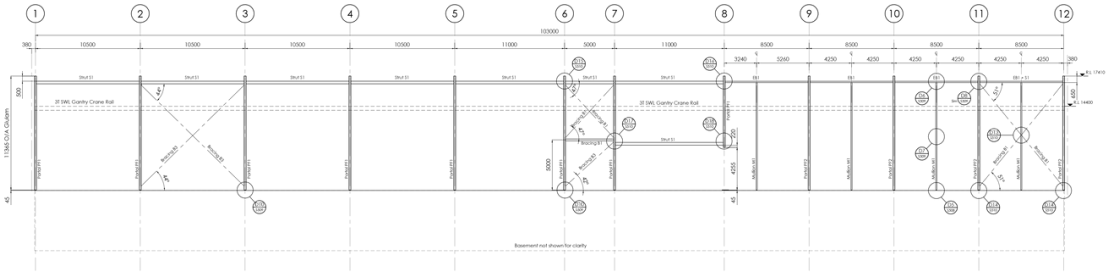


Typical Nailing Patern for Gusset Plates
SCALE 1:10
Note: Pattern will be marked on the Gusset Plates as part of Pre-fabrication. Nails are to be driven at each mark.





Roof Framing Plan
SCALE 1:200
Note: Purlins not shown for clarity



Wall Framing Elevation Grid C
SCALE 1:150
Note: Girts between grids 8-12 not shown for clarity
(Refer to ????? for Girt & Purlin Details)

MID-RISE Wood Construction

MASS TIMBER MATERIALS USED, AND WHERE

Building Info:	The Red Stag sawmill was built in parallel with the 2 original milling lines to maintain production. Because of the very heavy machinery and log movements, to ensure the plant maintained perfect alignment for precision milling the undercarriage of the mill was built on steel and concrete, with the main superstructure above the ground floor built with Glulam. The mill is now the largest in the Southern Hemisphere, milling over 1 million tonnes of logs annually and producing in excess of 600,000m3 of timber. It can process a log every five seconds at maximum pace.
Year built	2014-2015
Dimensions (L/W/knee/apex)	103m/62.1m/16m/24.3m
M3 internal area	117,613m3
Build Cost	$12.1 million
Build Cost /m2	$1,892 (2 levels)
Portal columns	4 x 1080x180 GL10 2 x 900x180 GL10
Portal beams/truss	1080x180 GL10 Portal Frames 900x180 GL10 Portal Frames
Girts	290x45 SG8
Purlins	450x90 GL8 (10.5m span) 360x90 GL8 (8.5m span)
End wall columns	540x115 GL10

MATERIAL SUPPLIER OF MASS TIMBER

Portal columns	TimberLab
Portal beams/truss	TimberLab
Girts	TimberLab
Purlins	TimberLab
End wall columns	TimberLab

DESIGN/CONSTRUCTION TEAM

Main contractor	Hawkins
Engineer	Richard Spiers and Associates
Architect	Millennium Architecture

ABOUT THE MID-RISE WOOD CONSTRUCTION PROGRAMME

Mid-Rise Wood Construction is a six-year partnership between the Ministry for Primary Industries (MPI) and Red Stag Investments Ltd. The aim of this $6.75 million programme is to encourage widespread adoption of precision- engineered timber in mid-rise building construction. Since its inception in 2018, the programme has assembled a pool of New Zealand professionals experienced in mid-rise wood building design and construction to help share and grow knowledge and expertise with the broader industry.

Engineered timber is not only naturally beautiful but also provides a very strong, low carbon and comparably low-cost alternative to steel & concrete. It is easy to transport, relatively light, and has outstanding earthquake and fire resilience. The use of prefabrication can decrease construction time by as much as 30 percent, and reduces costs compared with traditional building methods. Combining cross-laminated timber (CLT), laminated veneer lumber (LVL), glulam and panelised framing timber creates a cost-effective, fast, resilient and sustainable system for mid-rise construction.

For more information, go to www.midrisewood.co.nz