	Project Lodge for				Job Nr. P8243	
	Section Design Philosophy				Sheet Nr. 2	
	Calcs By RWS	Date 01/07/2021	Checked By NJH	Date 02/07/21	Approved By	Date

Design Philosophy

The unit consists of a single storey timber frame structure designed to be constructed in two halves on site in compliance with the construction test required under section 13 (1a) of the Caravan Act 1968. The roof ridge beams, the floor central beams and the gable panels are joined together on site to form the complete structure. The structure is supported on raised plinths to enable the insertion of lifting beams. The floor edge beams and central beam and the roof ridge beam are capable of supporting the structure during lifting of the structure either as a whole or split into two halves. An appropriate number of lifting beams will be required depending on the length of the building and the disposition of joints in the floor edge beams and central beam and also the roof ridge beam.

Roof:

The roof is formed of trussed-rafters at 36 degree pitch supporting a lightweight covering. The roof is either sarked with 15mm OSB to provide a diaphragm or has standard truss bracing.

Floors:

The floor consists of open-web joists supporting a structural deck. The structural deck forms a diaphragm between walls. The floors span between the external wall and internal load bearing wall. Additional beams are incorporated in the floors to support the joists.

Walls:

The external walls are formed from 38x140 C16 studs at centres detailed in the calculations. The internal central load bearing wall is formed from 38x63 C16 studs at centres detailed in the calculations, the wall is doubled either side of the centre. Lintels over door or window openings are initially sized using 44x194 C24, if required for the loading pattern these are changed to glulam. The roof ridge beam is form from 2nr 44x240 GL24h glulam or larger depending on the design. Vertical loads are transferred through the studs, beams and top and bottom wall plates forming the wall panels, to the soleplate and the foundations.

Racking Walls:

The lateral wind loads are resisted by racking (shear) walls. The wind load on the external walls is transferred to the racking walls by the floor and roof diaphragms. All the external walls are sheathed with OSB, the thickness of the OSB and nailing pattern is determined in the calculations. If necessary, additional internal walls are sheathed in OSB to provide the overall racking resistance. Sliding resistance of the racking walls is provided by positive connection to the support plinths. A sliding check is also performed between the wall panel and the soleplate with frictional resistance and nailing providing the necessary factor of safety. Resistance against overturning is taken into account in the racking resistance calculations by not allowing any uplift on the leading ends of the walls

Disproportionate Collapse

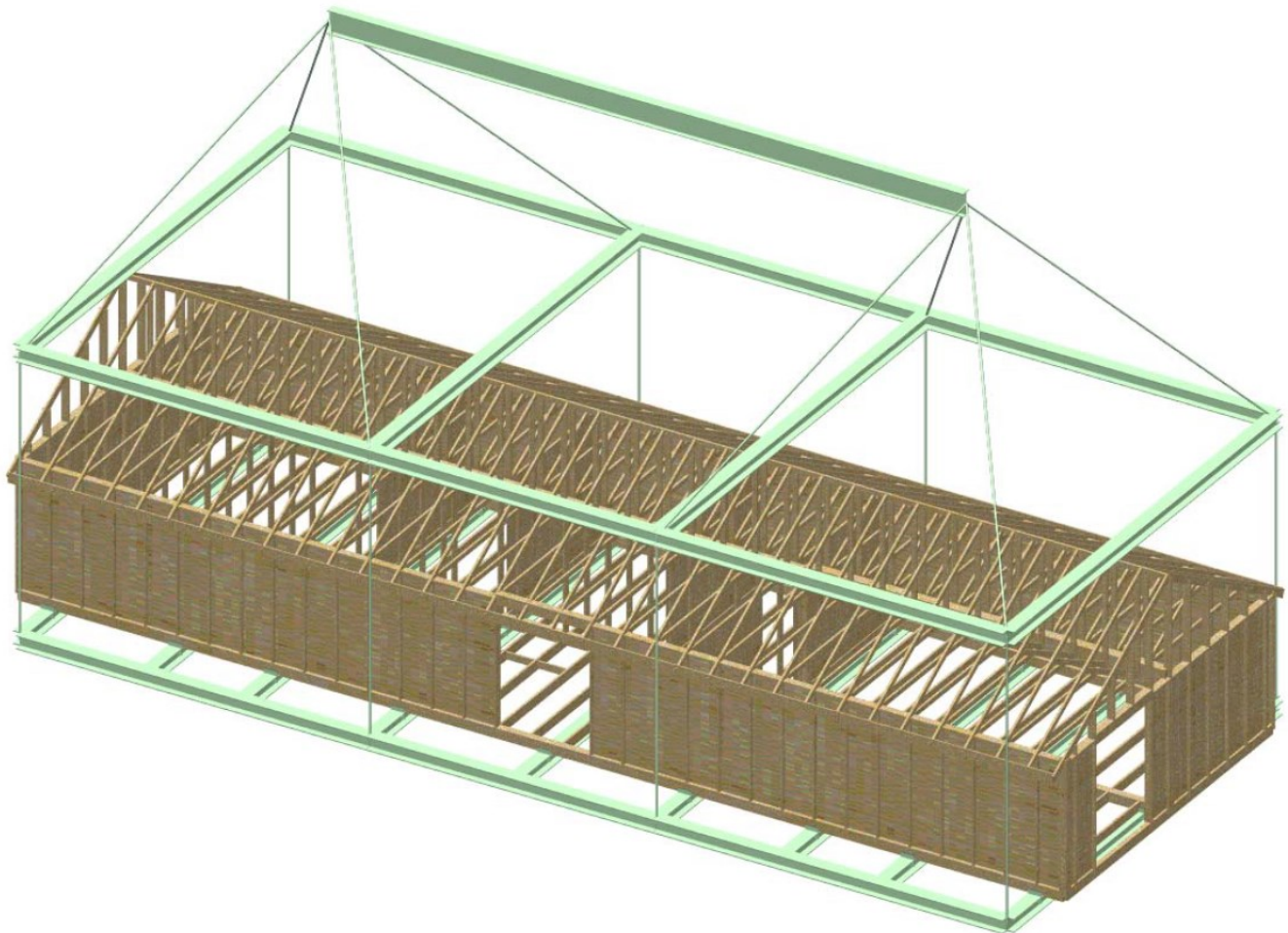
In accordance with Section A3 of the Building Regulations, this building falls within Building Class 2A and effective anchorage of the suspended floors to the walls should be provided. The nature of timber frame construction means that the floors are tied to the walls since the floor diaphragm extends into the wall and is nailed to the wall panels. This provides effective anchorage and therefore the building complies with class 2A



Typical Lifting Arrangement

A typical lifting beam arrangement is given below. If required, this would need to be assessed for each individual lodge to determine the particular beam arrangement, but the principal would be similar.

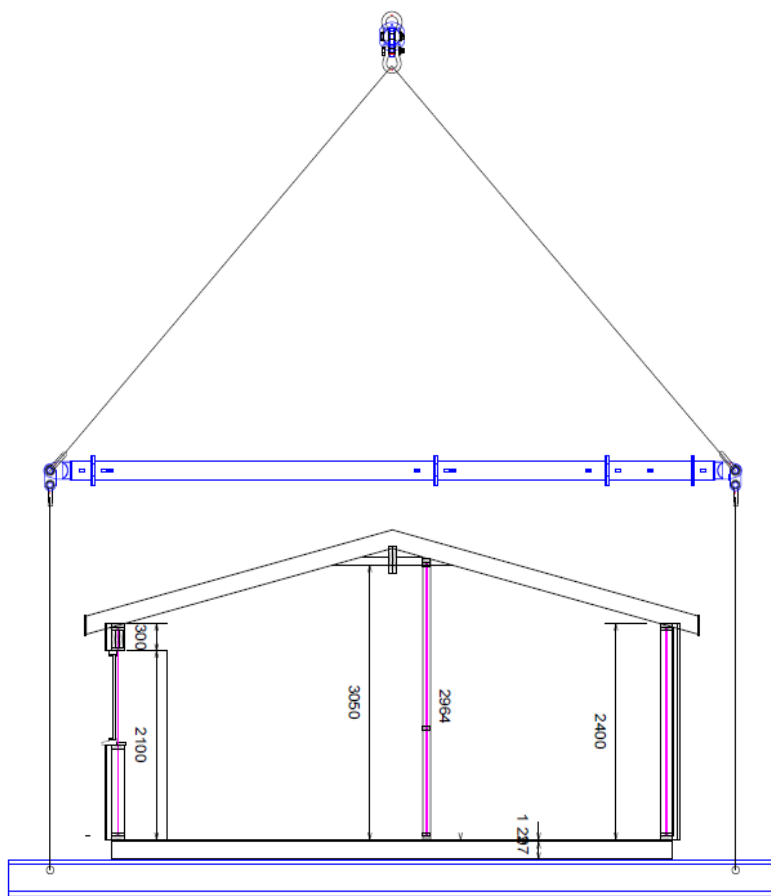
The actual lifting beam and upper cradle would need to be assessed by the crane lift company



URBAN MARQUE

BESPOKE TIMBER BUILDINGS

Lifting Cradle—Designed by: City Lifting Ltd Essex



SPECIFIC NOTES:
ALL A.O.D LEVELS TO BE CONFIRMED. GROUND
TO BE MADE LEVEL AND COMPACTED TO SUIT ALL
CRANE LOADS BY CLIENT.

City Lifting

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