

TACP

LRC Building, Llysfasi

Pre-Planning Structural Inspection Report

RP-16024-001

Issue 1

November 2024



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This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

I Executive Summary

JP Structural Design Ltd was appointed to undertake a pre-planning structural assessment of an existing library and resource building and to assess its suitability for refurbishment and/or extension. The inspection was carried out on 24th October 2024 and comprised a visual inspection of the external elevations and an internal inspection of the visible structural elements.

During the visual survey, structural defects were noted including:

- Roof ridge showing signs of extreme deflection/ sagging;
- Evidence of water ingress from roof;
- Signs of movement to external walls;
- Visible leaning to sections of walls;
- Damaged and insufficient existing timber lintels;

The structural defects observed throughout the existing building render the option of refurbishment and conversion of the building unviable.

2 Introduction

- 2.1 JP Structural Design Ltd was appointed to undertake a structural assessment of an existing building at the following address:

Coleg Cambria - Llysfasi

Ruthin Road

Llysfasi

Ruthin

LL15 2LB

- 2.2 A visual survey was undertaken on 24th October 2024 by Lee Murphy, Structural Engineer for *JP Structural Design Ltd*.
- 2.3 This report presents the observed defects, the high-level observations and recommendations for the construction works.

3 Survey Extent

- 3.1 The structural inspection was undertaken from ground level where accessible. The survey was limited to the structural elements that were visible/ accessible. The survey focussed on the structural condition of the external elevations and the internal structural elements only and no trial pits were undertaken to expose foundations and no specialist investigations were undertaken such as timber rot/infestation surveys or asbestos materials assessment.
- 3.2 The survey inspection focussed on structural items only and did not include a review of non-structural items such as rainwater goods, cladding, flashings, or window/door casements.
- 3.3 Below is a plan view depicting the extent of the building intended to be converted and therefore the extent of the survey.



- 3.4** A visual inspection was undertaken which means that we did not take up floor coverings or floorboards, move furniture or remove the contents of cupboards. Also, we did not remove secured panels or undo electrical fittings. We inspected roofs and other surfaces on the outside of the building from ground level. We were not able to assess the condition of the roof structure concealed by the ceiling finishes.

4 Existing Structural Form

- 4.1 The existing building is formed in load bearing masonry supporting a roof structure formed in timber purlins and rafters supported off timber trusses.
- 4.2 The following photos indicate the typical external elevations of the building surveyed:



Figure 1: View of Gable Elevation



Figure2: View of Side Elevation

5 Survey Observations

5.1 The building was observed to be constructed in load-bearing masonry.

5.2 During the visual survey, several structural defects were observed, namely:

- Roof ridge showing signs of extreme deflection/ sagging;
- Evidence of water ingress from roof;
- Signs of movement to external walls;
- Visible leaning to sections of walls;
- Damaged and insufficient existing timber lintels;

5.3 Structural Inspections

5.3.1 Typical defects observed during the external inspection are presented in the following photos:



Observation 1:

- *Visible deflection of existing roof purlins.*
- *Undersized roof structure causing deflection.*



Observation 2:

- *Damp stains on ceiling, sign of leaking roof.*
- *Remedial works previously carried out on existing truss.*



Observation 3:

- *Signs of movement at timber joint, remedial works carried out to tie timbers together using steel bracket.*



Observation 4:

- *Visible deflection and twisting to timber purlins.*
- *Undersized purlins causing deflection.*



Observation 5:

- *Signs of movement at timber joint, remedial works carried out to tie timbers together using steel bracket.*



Observation 6:

- *Signs of movement at timber joint, remedial works carried out to tie timbers together using steel bracket.*



Observation 7:

- *Signs of movement at timber joint, remedial works carried out to tie timbers together using steel bracket.*
- *Signs of lean to timber upright post.*



Observation 8:

- *Signs of movement at timber joint, remedial works carried out to tie timbers together using steel bracket.*
- *Section loss of timber upright post.*
- *Upright timber splitting.*



Observation 9:

- *Bracing appears to be installed as a remedial solution to building movement.*



Observation 10:

- *Damp stains on ceiling, sign of leaking roof.*



Observation 11:

- *Bracing appears to be installed as a remedial solution to building movement.*



Observation 12:

- *Cracking to wall, signs of movement.*



Observation 13:

- *Timber rafters appear undersized, this may contribute to the roof deflection.*



Observation 14:

- *Mould and vegetation on the windows, signs of water ingress.*



Observation 15:

- *Deflection of existing timber lintel over window.*
- *Parrass plates installed to tie and remedy movement to the building.*



Observation 16:

- *Deflection of existing timber lintel over window.*
- *Pattress plates installed to tie and remedy movement to the building.*



Observation 17:

- *Visible deflection to existing roof.*



Observation 18:

- Slight visible lean to existing wall.



Observation 19:

- Slight visible lean to existing wall.



Observation 20:

- Visible defined deflection to existing roof.
- Lean to existing gable.
- Pronounced leaning to existing stonework built up to the ridge.



Observation 21:

- Deflection of existing timber lintel over window.



Observation 22:

- Visible lean to existing wall.



Observation 23:

- *Deflection of existing timber lintel over window.*
- *Splitting to timber lintel.*



Observation 24:

- *Visible defined deflection to existing roof.*



Observation 25:

- *Slight visible lean to existing wall.*



Observation 26:

- *Visible defined deflection to existing roof.*
- *Deflection of existing timber lintel over window.*
- *Pattress plates installed as a sign of movement to the building.*



Observation 27:

- *Slight visible lean to existing wall.*
- *Deflection of existing timber lintel over window.*
- *Pattress plates installed to tie and remedy movement to the building..*



Observation 28:

- *Slight visible lean to existing wall.*
- *Pattress plates installed to tie and remedy movement to the building.*



Observation 29:

- *Slight visible lean to existing wall.*
- *Pattress plates installed to tie and remedy movement to the building.*

6 Defects Summary

6.1 Defects Summary Table

Typical Defect/Observation	Comments
Undersized/ excessive deflection of timber roof structure	<ul style="list-style-type: none"> • Timber roof structure members show signs of excessive deflection, timber sections appear to be undersized. • Extensive strengthening works would be required to bring the structure up to current standards. No capacity to add an additional floor within the existing building.
Evidence of water ingress from roof structure	<ul style="list-style-type: none"> • Damp stains visible on ceilings at multiple locations. • Roof leaking, this has been confirmed by staff who were working whilst the survey was carried out. • Mould and vegetation on rooflights.
Signs of movement to external walls and internal timber support columns	<ul style="list-style-type: none"> • Remedial works already carried out to prevent further movement to upright timbers. • Bracing, assumed retrofitted, to prevent any more movement to the building. • Visible patters plates throughout, sign of movement to the building.
Damaged and insufficient timber lintels	<ul style="list-style-type: none"> • The existing timber lintels show signs of deflection. • Timber lintels are visibly splitting.
Visible leaning to existing stone walls	<ul style="list-style-type: none"> • External walls appear to be leaning. Significant remedial works would be required to increase structural capacity of walls and their ability to support additional load.

7 Summary and Conclusions

- 7.1 The defects observed are widespread throughout the building and therefore are likely to necessitate large sections of demolition and rebuild.

- 7.2 The structural issues observed would prevent the successful conversion of the building. The option of refurbishing or remodelling the existing building for use as an accommodation block is effectively rendered unviable due to the extent of the structural defects throughout the building.