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Ein Cyf \ Our ref: 18018/E/01
Dyddiad \ Date: 29th January 2018

I sylw \ For the attention of: **Fiona McAlpine**

Dear Fiona

Parthed \ Re: **HAFOD ADAMS, LLANARMON DC.**

Datrys undertook a structural inspection of Hafod Adams, Llanarmon DC on the 24th January 2018. The purpose of the inspection was to determine the structural condition of the building prior to its conversion.

The inspection was of a visual nature undertaken with spirit level and tape measure. We were able to gain access to all areas.

Structural Form

Hafod Adams is a rectangular two storey detached building which sits on a relatively flat plot of land positioned between a dwelling (of the same name) and a river. The building is of stone construction and is split into two rooms at ground and first floor levels by a stone partition wall. The roof had been removed for replacement prior to the inspection but would have comprised slate tiles with timber rafters and purlins. The property was once a dwelling but appears to have been vacant for a considerable period of time and has deteriorated.

The walls are approximately 600mm thick. The stone is exposed to all external elevations apart from the east elevation which is pointed and painted. Internally the walls are generally plastered. There is a fireplace with built-in stone oven to the southern end of the building with a timber beam supporting the chimney wall over.

Some of the lintels to the first floor walls have been removed during the roof works but those that are remaining are timber.

The first floor comprises timber joists spanning east-west supported mid span by a timber beam. There is no longer a ground floor construction, just earth.

Observations

The observations from our inspection are detailed below. Photographs referred to are appended.

- The timber lintels appear satisfactory.
- The stone walls are generally plumb and free from defects.
- The existing purlins (2 remain in-situ on the roof) are decaying (photograph 2).
- The first floor timber joists do not show signs of any defects but they are flexible suggesting that the timbers are undersized.
- There are a number of hairline cracks within the internal plaster of the first floor walls (photograph 9).
- There is a vertical crack to the north east corner of the north ground floor room (photograph 17).
- There is some cracking of the plaster within the ground floor partition wall (photograph 16).
- All walls above first floor level lean outward slightly.

Discussion

Considering the age of the property and its close location to the river, there are no structural defects of note and the walls are in good condition, are generally plumb and are free from defects. Their outward lean above first floor is common with this type of property and is due to the open nature of the cut roof with cant purlins. As the walls are thick and strong however, the imperfection is not of concern.

There will not be a foundation to the walls and it is likely that they do not extend very far below the ground surface. Therefore excavation of the ground internally during any refurbishment works should be minimised if possible otherwise underpinning will be required.

The cracks within the walls are likely to be within the plaster layer only and are not of structural concern.

With regard to the timbers within the property, the timber beam over the fireplace appears to be structurally sound and can remain. The timber lintels also appear to be sound however this

was from visual inspection only and more detailed intrusive uncovering and investigation may prove otherwise and consideration should be given to their replacement.

The two remaining purlins on the roof have been exposed to the weather but have also been decaying for a considerable period of time and should be replaced.

The first floor joists flex under load and we would recommend their replacement. The timber floor beams appear to be ok to retain but you should seek the advice of a timber specialist such as Timberwise or Kimberley Gulf if this is to be the case.

Conclusion & Recommendations

Hafod Adams is structurally sound and suitable for conversion. We would recommend that following actions are undertaken to ensure long term structural performance.

- Replace roofs with new construction
- Replace floor joists
- Replace timber lintels and floor beams or commission a timber specialist to assess their condition.
- Remove and replace all plaster internally.

I trust that the above adequately explains the findings of our investigation. If you have any queries or require further explanation then please don't hesitate to contact me.

Yours sincerely,



Warren Lewis
BEng (Hons) CEng MStructE AMInstLM

APPENDICES

Photographs



Photograph 1: The chimney stack to the south gable.



Photograph 2: The south gable viewed from first floor level.



Photograph 3: The south gable viewed from first floor level.



Photograph 4: The central partition first floor looking north east.



Photograph 5: The north gable from the first floor.



Photograph 6: The east wall from first floor level.



Photograph 7: The west wall from first floor.



Photograph 8: The central partition first floor looking south west.



Photograph 9: The central partition first floor looking south.



Photograph 10: The west elevation from first floor level.



Photograph 11: View from ground floor south room looking west.



Photograph 12: View from ground floor south room looking north east.



Photograph 13: The fireplace and oven to the south room, ground floor.



Photograph 14: The north room looking east.



Photograph 15: The north room looking west.



Photograph 16: The partition wall from the north room looking south.



Photograph 17: North east corner of the north room.



Photograph 18: The west elevation.



Photograph 19: View of the north gable.



Photograph 20: View of the south gable.