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Structural Report on Roof Timbers at Aghadoe House, Aghadoe, Co.Kerry

Date of Report: 10th September 2025
Clients: Simon Gallivan
Date of Survey: 4th March 2025
Report By: **Adrian Sheehan, Consulting Engineer M.I.E.I.**
Reeks Consulting Engineers Ltd.,
Rock Road,
Killarney,
Co. Kerry.



Property Description

- This is a historic building located in the townland of Knoppoge in Aghadoe.
- Our understanding is the original house dates back to.....
- The property has been subject to extensive upgrades and renovations over the years, no more so than when there was a fire in the property in
- I can say without contradiction that the entirety of this roof structure is not the original structure of the house. All roof members have been replaced at one point or another and the timber members are predominantly a pine softwood timber.
- Traditionally older roofs would consist of 'A' trusses of hardwood Irish timber of Oak.
- The roof cladding was traditionally laid on a structure of timber, usually made from rough-hewn, hand-sawn or, from the mid-nineteenth century onwards, machined timbers. Oak was Ireland's first preference for building timber and is found in the few surviving roofs from the medieval period and in several early eighteenth century roofs. However, as charcoal production depleted the forests, oak suitable for construction became increasingly difficult to obtain. From as early as the first quarter of the seventeenth century, timber for building was imported and from the early eighteenth century onwards Ireland relied heavily on imported timber for construction.
- Timber imported into Ireland in the seventeenth century was generally supplied from Norway. From the first quarter of the eighteenth century, it was also imported from Sweden and the Baltic coasts of Poland, Germany and Russia.
- Northern pine or Scots Pine (*Pinus Sylvestris*) was the most common import. It is a pale yellow wood with red annular rings. When cut in planks it was historically known in the timber trade as 'red deal'. Although still frequently referred to as red deal in the trade, its modern name is European redwood. Since it came from mature, slow-grown trees, this timber contained a large percentage of resinous heartwood and has proved very durable. Its durability and availability in long lengths made it particularly suitable for use as beams, joists, and roof rafters.
- From my inspection of the roof timbers, I am of the opinion that the structural timbers in this roof are a Norway spruce (*Picea Abies*) which is a white to pale beige in colour timber with a fine regular grain. Once known as 'white deal', the timber is also referred to as European whitewood and is commonly sold for structural use. As it is neither as strong nor as durable as red deal, it should not be used in repair work to historic roofs except as sarking or decking

Defects

- In assessing the condition of the roof, we noted that the chimneys which are a red brick chimney are completely porous, and this was having a detrimental effect to the timbers which surround same. These timbers will need to be removed in their entirety. (Pictures 1-3).

There are five no chimneys in the roof. Four of these chimneys are located in the roof section we have edged in yellow on the attached *Fig 1 Existing Roof Plan & Proposed Phasing Map for Roof Upgrades*.

- These particular sections have the majority of the hips and valleys all of which have timber defects as a result of water egress.
- As per photos 9&10, these sections of roofs are also affected at the edges of the rafters & ceiling joists, all of which will need replacing.
- There are timber defects at the wall plate also.

One of the more significant things here is that the section of roof, which is outlined in yellow over the hexagonal part of the building, does not replicate the original roof. We would like to draw attention to *Fig 2 Proposed Roof Plan*.

- From research of historical photos, and surveying of the walls in the attic, the proposed alterations are done to replicate the shape and form of the roof.
- Due to the structural repairs which would need to be undertaken to these sections of roof, we would be of the opinion that these sections will need to be replaced.
- Realistically the extent of damage to the valleys and hips will eventually lead to roof failure. We reviewed the repair works as part of the design risk assessment also, and we are of the opinion that the number of timbers to be cut out and replaced would lead to unsafe working conditions.
- As a consequence of this, we are of the opinion that this would be an ideal opportunity to bring the roof back to its original form in the hexagonal section.
- With regards to the flat roof sections, these have completely failed from a weathering point of view, but more so a structural point of view. This failure is now a major issue in the building. The timbers are rotten and will need immediate attention to prevent water entering the building causing damage to internal joinery such as stairs and walls.
- There is in my opinion a safety issue here also, as high winds could potentially create pieces of flying debris.
- With regards to the remainder of the roof. These are the areas outlined in blue.
- While there are some localised repair works required to the areas around the chimney, the areas which adjoin the flat roof, and the areas connected to the

valleys in the previously mentioned sections outlined in yellow, the bulk of this roof is in relatively good condition.

- There are some bracing and reinforcing required, but we would be satisfied that these sections remain in place from a structural point of view.

Conclusion

- We would like to draw attention to *Fig 2 Proposed Roof Plan*.
- It is our recommendation that the sections outlined in yellow have significant structural issues caused by wet rot. There is no immediate risk of collapse, but if left untreated, this will certainly change.
- Having reviewed the works required, we advise total replacement of all flat roof, and a total replacement of the areas outlined in yellow.
- We are reasonably satisfied that the areas outlined in blue can have localised repair works, and localised reinforcing works, and these sections of roof can be retained.

Photo Legend



1)



2)

Photos 1, 2 & 3 show water egress from the chimneys. This has affected the timbers in these areas which will need complete replacement



3)



4)



5)



6)



7)



8)

Photos 4-8 show a selection of photos of the valleys and hip which have excessive water egress. This will require complete replacement in the effected areas. This is very prominent in the areas which require complete replacement



9)



10)

Photos 9&10 show ends of rafters and joists in the section to be replaced which are affected by wet rot. and will require replacement.



11)



12)

A lot of the cause of valleys leaking has been lack of maintenance. The rotting of the fascia & soffits has continued to the rafters & joists as shown in photos 9 & 10.



13)



14)

The flat roof sections have completely failed and require complete replacement. This is common for flat roofs in any case.

