

20/05/2023

Mark Carnell  
Marypole House  
29 Farmer Street  
Bradmore  
Nottingham  
NG11 6PE

Dear Mark,

### **Replacement of roof materials**

This letter is to support your application regarding the change of roof materials. Currently your roof consists of a standing seam zinc metal roof and you wish to change this to a slate roof tile. We have reviewed the existing calculations for the timber frame structure and it has been designed for a lightweight roof construction of  $0.07\text{kN/m}^2$ . The proposed slate tiles have a permanent loading of  $0.20\text{kN/m}^2$ , this is an increase of  $0.13\text{kN/m}^2$  for the entire roof and supporting structure. We have undertaken the following design calculations to understand if the existing structure can support the additional  $0.13\text{kN/m}^2$ . These are as follows:

- Timber beams supporting the proposed roof build up
- Glulam beam at first floor level supporting the timber walls and the associated roof structure
- Roof ridge beam

All the above calculations are within the allowable limitations, however if any additional load was applied to the roof i.e., heavier roof tiles with a proposed permanent roof loading of  $0.40\text{kN/m}^2$ , these would cause the overall roof structure to fail with regards to excessive deflections. The structure has been designed very efficiently in its original state. The proposed roof loading of  $0.20\text{kN/m}^2$  is acceptable however any additional loading to this would cause inherent structural issues.

Yours faithfully

Ben Lancaster MICE