

2070

# Remedial design Interventions to The Old Chapel Residence

Date : 21/02/2022





Front elevation



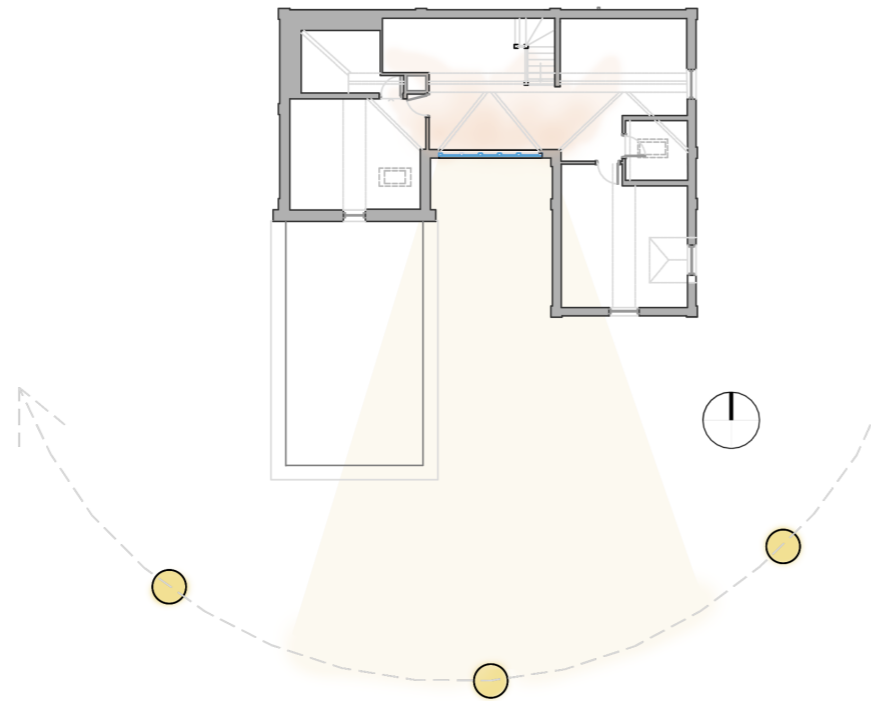
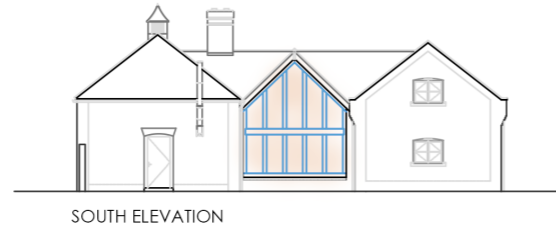
**South facing Glazed gable end**

The existing south facing Glazed gable end is formed of an Oak timber frame with fixed glass that is of inadequate construction quality. There are visible gaps that allow the ingress of water. Daylight gaps are visible at some junctions of mullions / posts.

In addition to the defects above, being south facing, this element is prone to high solar gain and discomfort in the central core of the home on both the ground and first floor zones.

The design interventions proposed are aimed to :

- Minimise solar gain within the home
- Improve ventilation within this area
- Install a superior quality more dependable glazing system that is structurally sound and secure against water ingress while also being airtight.



Interior view of the glazed gable construction quality



Exterior view of the South Courtyard Face of the Residence

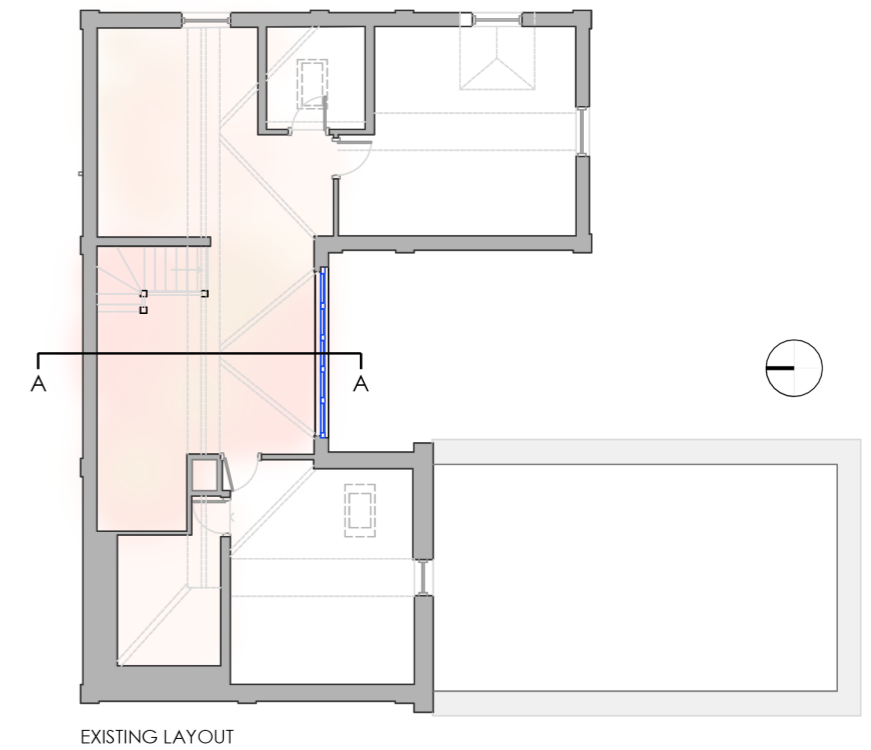
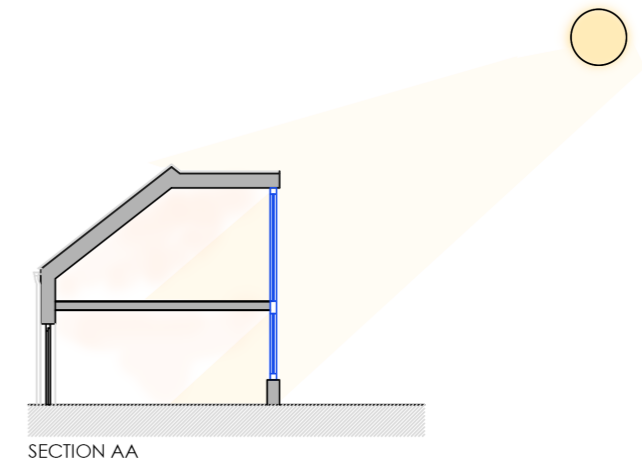
**Insufficient Ventilation**

The common areas on the first floor fall below the sloped roof.

The absence of adequate ventilation in this area makes the space stagnant and relatively uncomfortable.

The design interventions proposed are aimed to :

- Create new manually controllable openings
- Improve ventilation within this area



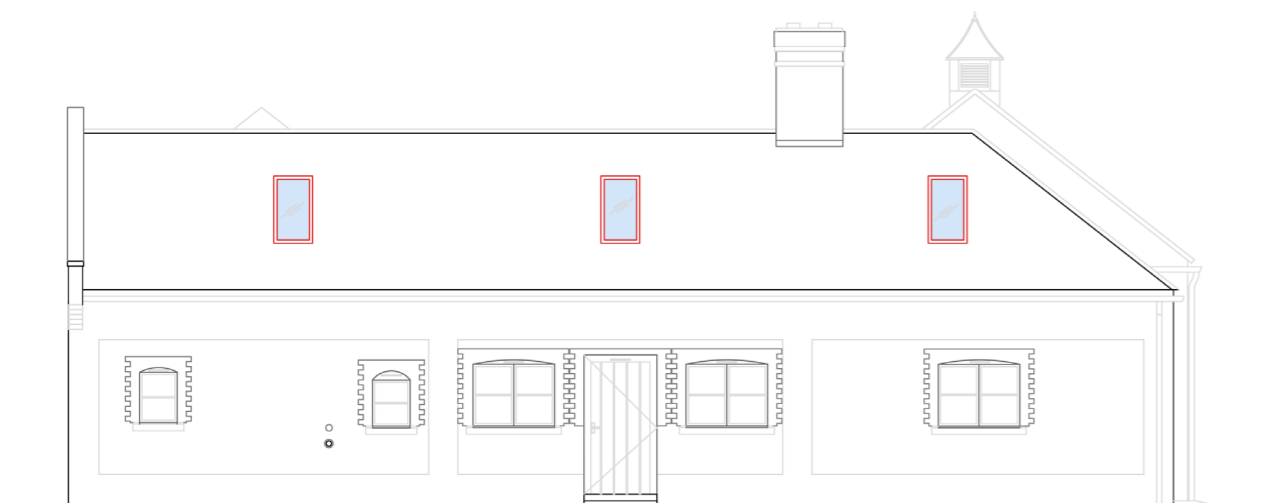
North Facing roof

The proposed design interventions include:

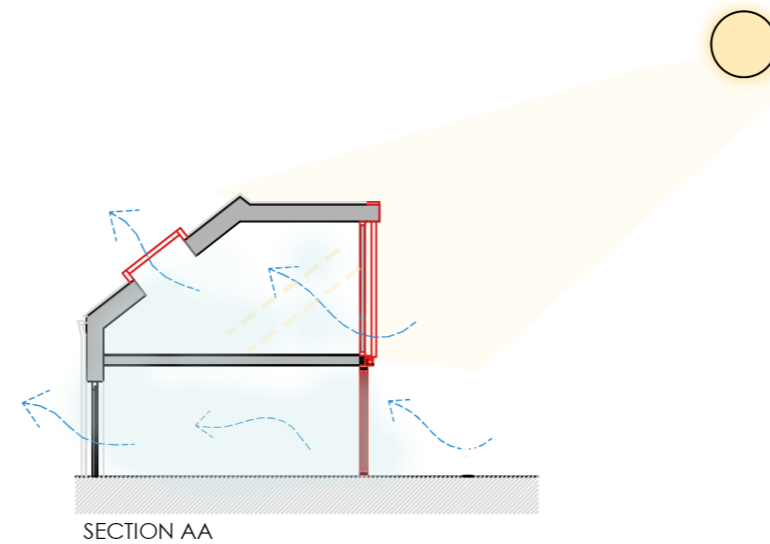
1. The introduction of 3 new roof lights on the north facing slope of the roof to bring in light and ventilation to the office, toilet and lobby on the first floor
2. The removal of the failing Oak framed glazing of the south facing gable end
3. The provision of an aluminium 3 panel glazed sliding door system on the ground floor to offer connectivity from the house to the courtyard.
4. On the first floor, a large glazed panel has been proposed centrally with two small side hung opening windows on both sides to allow ventilation to the first floor. As a shading strategy, vertical fins have been proposed in front of the glazing that will be fixed to a 300mm extension of the roof from above and the floor beam below.



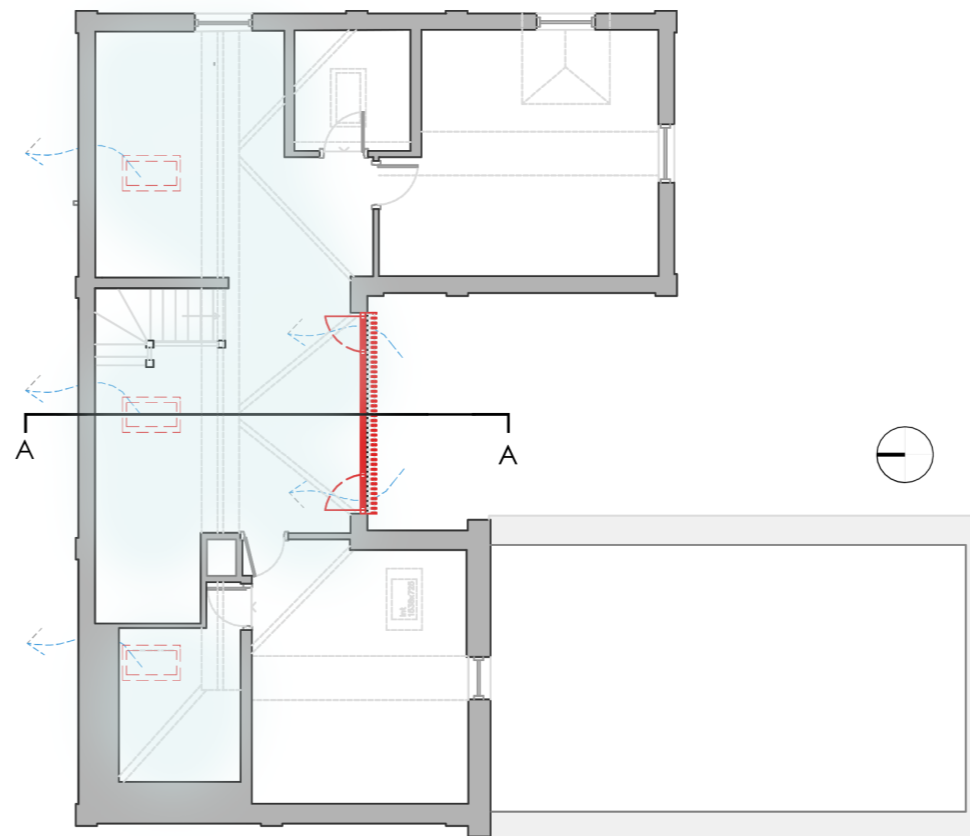
PROPOSED SOUTH ELEVATION



PROPOSED NORTH ELEVATION



SECTION AA



PROPOSED THERMAL + VENTILATION STRATEGY

### Summary

The lack of sufficient fenestrations on the first floor make the existing spaces dark and poorly ventilated. This coupled with the overheating caused by the south facing glazed gable end make the home unpleasant for inhabitation. In addition, the unseasoned oak used for the existing construction of the south facing central gable shows multiple gaps and faults that allow the ingress of water and air into the home.

The interventions proposed are intended to deal with the above design and performance issues.

The roof lights proposed in the northern slope of the roof are to be in the same language as the existing roof lights over the other zones on the first floor. They will provide natural light for internal spaces that currently have none, allowing better access as well as lowering the need for artificial lighting in these areas. The roof lights will also provide better ventilation to these areas, one of which is a shower room.

The south facing gable glazing is proposed to have operable doors that, along with the roof lights, create cross ventilation within the home. Proposed in an aluminium frame, the intention is that the south facing gable is secure and requires minimal maintenance. Shading devices have been proposed to minimize solar gain as well.

Care has been taken to ensure that the language of design solutions is minimal and in step with the existing design language of the residence.