Supplementary Design Statement.

Highland Folk Museum Store, Aultlarie Croft, Kingussie Road,

Newtonmore.

Introduction

This supplementary design statement considers the rationale for a number of minor changes to the approved consent ref 2011/0418/DET dated 23rd May 2012, and forms part of an application for a 'Non-Material Variation' to that consent.

The project has been issued in accordance with approved tendering processes followed by the Highland Council, and has been awarded as a 'design and build' contract. The 'design and build' contractor is Robertson Northern, and their appointed design team include HRI-architects Ltd as lead consultant. Following further technical analysis a number of variations are proposed to ensure a robust and durable asset is delivered, and to ensure that the finished building is of the highest build quality without compromising the visual aesthetic.

The package that accompanies this Supplementary Design Statement illustrates in some detail the outcome of this appraisal and proposed revision, and also aims to purify the conditions of the original consent noted above. In terms of the 'Non-Material Variation' the specific issues involved are as follows;

1. Height of the building.
2. The removal of the timber cladding to the pitched roofs.
3. The removal of the sedum roof and the revision of the profile of the flat roof.
4. Confirmation of the colours and materials for the external windows and doors, timber cladding, rainscreen cladding and the roofing materials as required in Condition 5 of the consent.

Condition 5 requires written approval of the proposed materials and in many ways the 'Non-Material Variation' could be considered an extension of this process since the overall form of the building is unchanged from the approved design.

1. Height of building

It is understood that the scale and mass of the building, while approved, was of some concern to the CNPA officials. This has been noted and a determined effort has been undertaken to distil the design to achieve some reduction in the height of the building without reducing the space required for this important collection.

The design team have explored the possibility of reducing the level of the ground floor. Our design engineers, Waterman, have reviewed the requirements of SEPA and by means of a process of consultation have determined that the floor level may be reduced from the 234.700m AOD originally consented to 234.350m AOD without risk of flooding in the anticipated 1 in 200 year flood event. The response letter from SEPA dated 21 May 2011 is included in the package that confirms that SEPA have 'no objections' to the proposed floor level of 234.350m AOD.

Fig. 1 Photomontage showing proposed building viewed from the A86 at the main entrance to the site.

In addition to this reduction in height, other approaches to the problem have been considered. A proposal to remove the sedum roof (discussed later) reduces the weight of the flat roof and this has the net effect of reducing the construction depth both in terms of structure and pitch. This results in the overall height of the building at the pitched roofs being lowered by approximately 550mm, and the height of the flat roof by approximately 900mm. This process reduces the overall impact of the building and as can be seen from the photomontage illustration the building nestles lower into the landscape and does not break the skyline when viewed from the A86 road to the north-west of the site.

The reduction in height of the building has suggested that the original proportions be reviewed and accordingly the heights of the windows have been adjusted to ensure that the original pleasing proportions remain.

Proposal

- Reduce height of pitched roofs by 550mm.
- Reduce height of flat roof by 900mm.

2. Removal of the sedum roof and alteration to the flat roof profile.

Sedum roofs require a certain amount of regular maintenance, increase the load on the building, and require specific sub-structure/fabric constructions to be adopted, all of which add cost and raise the risk associated with the solution. Whilst an attractive solution, it has proved to be the case that the sedum roof cannot in fact be seen from the road or the cycle track and our client is of the view that it does not represent a responsible way for a local authority to be spending money and therefore should be omitted from the scheme.

The nature of the collection that will be stored, especially at the upper floor level, is particularly susceptible to water damage and as such the very best efforts must be made to provide the most reliable design and construction solution that can mitigate the possibility of water ingress. The profile of the roof previously consented, a series of four shallow pitched roofs, works particularly well for sedum but does raise the height and therefore the visual impact of the roof when viewed from the A86 and the adjacent cycle path. Therefore it is essential to note that the removal of the sedum alone is not sufficient since the single ply roofing material proposed lacks some visual quality. As a consequence, we have reviewed the profile of the roof to create a situation where the single ply roofing material would be generally unseen when viewed from the elevated A86 and adjacent cycle path during the winter months, and invisible during the leaf growing season.

Fig. 2 Part of the water susceptible collection.

We have consulted with the manufacturers of the single ply roofing membrane products to determine the most effective way to ensure the prevention of water ingress. The previous profile and form is complex and in short the numerous changes in direction increase the risk associated with potential water ingress.

Following this advice, we have simplified the profile as indicated on the roof plan (drawings I/6787/06 & 11) to a shallow pitch roof with the ridge running parallel to the main pitched roofs. This roof is located lower than the parapet thus reducing the opportunity to view the membrane from anywhere other than from above.

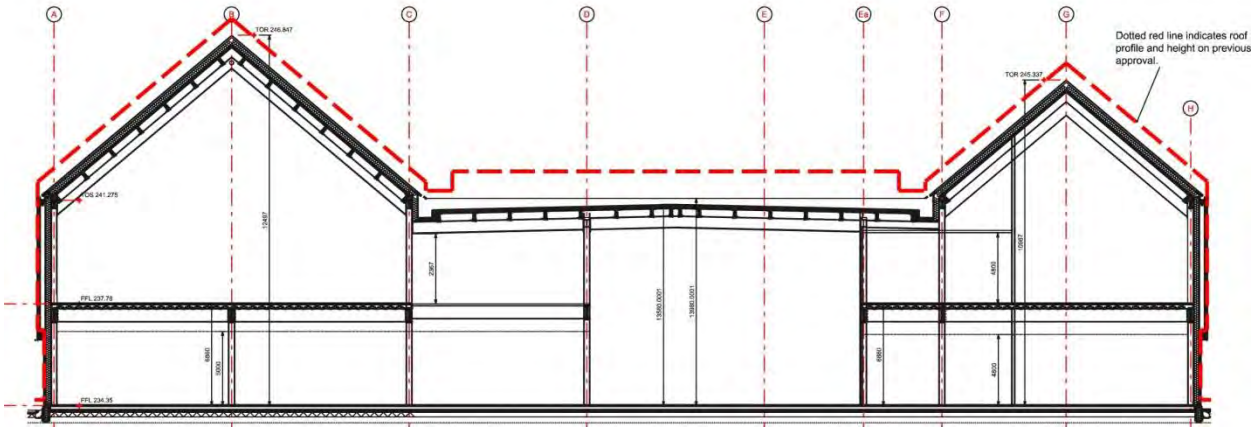

Fig. 3 Proposed lowered section with previously consented outline shown dotted.

We have revised the sections, and projected the viewing angles from the raised A86 and the slightly lower cycle path and this indicates that the single ply roofing cannot be seen when viewed end on. It is just possible to see the single ply roofing material from the junction of the site entrance since the road level rises at this point, but this is an oblique view and the flat roof is difficult to view since it will be obscured by the pitched roof of the office/administration wing of the building that projects forward. In addition, the density of the mature silver birch trees even without leaves will dissipate the remaining view to the extent that the single ply roofing material would be almost impossible to see. The photomontage above illustrates this point effectively.

Fig. 4 Section through flat roof showing viewing lines of visibility from the A86 and cycle path.

We would therefore submit that the revised flat roof solution incorporating a light grey (nearest equivalent RAL7047) Sarnafil single ply roofing material on a lowered roof pitch that minimises the opportunity to be seen coupled with the increased durability and essential reduced costs and the assistance this provides to the overall lowering of the building is a sound pragmatic solution to a difficult problem.

Proposal

- Remove Sedum from the central roof.
- Remove small pitched bays from the central roof.

- Introduce Sarnafil single ply membrane, colour; light grey, on simpler shallow fall roof, per drawings l/6787 - 06 rev 1, 08 rev 2 and 09 rev 3.

3. **Removal of timber cladding from the pitched roofs.**

Timber cladding was indicated on the previous consented drawings. However, upon detailed examination and consultation with Dr Ivor Davies of Napier University Wood School, it has become apparent that while timber cladding can be used on pitched roofs there is an anticipated higher risk of failure especially when replacing the timber cladding. Due to the priceless nature of the buildings contents any cladding system that has an inherent risk associated with its durability and ability to keep out water should be avoided if at all possible.

The original design intent was for an agricultural aesthetic that reflects the pragmatic highland approach to construction, build with what you have to hand, and with lightweight materials that can be easily and cheaply transported. Agricultural buildings in the Highlands tend to have a ridged or profiled sheet material for the roof cladding. This was sometimes, but not always, taken down the walls too. Early examples used corrugated steel/tin cladding. This developed into corrugated asbestos or asbestos cement cladding during the mid 20th century and as asbestos became outlawed was generally replaced with profiled steel, aluminium or cement fibre.

Fig 5. Corrugated tin roof on stone byre.

Fig 6. Asbestos roof cladding & timber sidings.

Early examples were self-coloured tin using the natural oxidation process developed a rust colour. Asbestos, and cement fibre has a light grey appearance that often develops moss growth due to the absorbent nature of the material, and steel /aluminium cladding in more recent times are coloured often strongly with greens and greys.

Fig 7. Corrugated/profiled/seamed metal cladding with a generally grey appearance.

Given the risk associated with timber over-cladding, and the fact that the early maintenance associated with timber will inevitably be costly, we seek to find a more robust and appropriate roof cladding solution. Aluminium has very good durability, can be recycled, and achieves a good BREEAM Green Guide rating. Even more importantly, this solution is robust and weather-tight and has very low maintenance costs during its life. These are extremely important factors for the Highland Folk Museum and the Highland Council as funders.

Fig 8. Kalzip standing seam aluminium roofing – greys to a natural finish blending with the sky.

In terms of colour, we wish to achieve a solution that creates a natural and agricultural aesthetic. The application of colour to the aluminium cladding is slightly at odds with the simple traditions of agriculture and reduces the recyclability of the material at end of the buildings life. The buildings are of a simple down-to-earth practical nature, un-necessary embellishments are disregarded and this building seeks to reflect this tradition. Grey is a common and appropriate colour for the highlands, being neutral against a beautiful landscape. Aluminium, once past its initial dulling process usually within the first year, takes on a subtle natural patina that still has the ability to acknowledge the colour of the sky at any given time thus merging the roof with the sky more than any other material. The selection of a mill finish aluminium material ensures that the natural oxidising process will provide an aesthetic that compliments the timber wall cladding and this process will allow the facades, including the roof to evolve throughout the early life of the building. The immediate lustre of the aluminium will have begun to dull before the building is handed over as it will have been in the elements for 6-8 months.

We therefore propose a Kalzip or similar mill finish standing seam aluminium roof material that provides a robust weather-tight solution and that reflects the simple traditions of the Highland agricultural vernacular.

Proposal

- Introduce mill finished standing seam aluminium cladding to pitched roofs in lieu of timber over-cladding.

4. Materials and colours generally.

The use of natural materials such as timber for the wall cladding will quickly turn from the freshly cut reddish brown into a silvery grey. This natural weathering process again reflects the tradition of the Highland vernacular of simply enclosing a building with a basic material and letting nature take its course. This process is continued with the use of mill finish aluminium that based upon previous design solutions creates a visual effect that allows the building to settle into the landscape without vying for visual dominance.

Fig 9. Natural mill finish aluminium roof sheeting and untreated larch cladding greying to a natural colour.

This process is a design leader that influences the colour choices for the remainder of the materials. It is therefore our proposal that the rainscreen cladding be a mixture of complementary greys from light to dark in a random pattern.

Fig 10. Rainscreen cladding of Rockpanel in a range of greys to compliment the natural grey of the timber.

The aluminium clad doors and windows would be a mid-grey colour to give subtle definition against the more neutral tones of the remainder of the building.

Fig 11. Mid grey doors and window frames to compliment the natural timber colour.

Proposal

- Purify condition 5, by confirming cladding colours as indicated on coloured drawings numbers l/6787 – 08A and 09A (a range of light to mid greys – refer to enclosed samples).

Condition 4

We note the requirement to cover the blockwork shown on the North East elevation with a render/wet harl finish. We also understand that there was an intention that climbing plants such as ivy could climb up this wall. Ivy and other climbers while adding somewhat to the visual aesthetic are notoriously invasive and can, if left to their own devices, begin to adversely affect the fabric of the building. This would pose a costly approach in both terms of ongoing general maintenance and in a worst case scenario the future repair of the fabric.

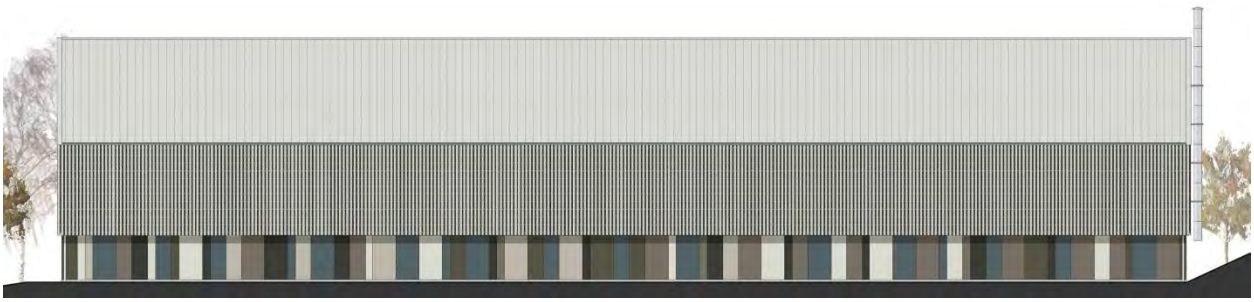

Fig 12. Render replaced with rainscreen cladding to harmonise with remainder of the building.

Having considered the aesthetic we would propose to improve upon this and provide a continuation of the coloured rainscreen panels on the South East and North West elevations thus harmonising the materials throughout.

Proposal

- Purify condition 4 by replacing render with coloured rainscreen panels.