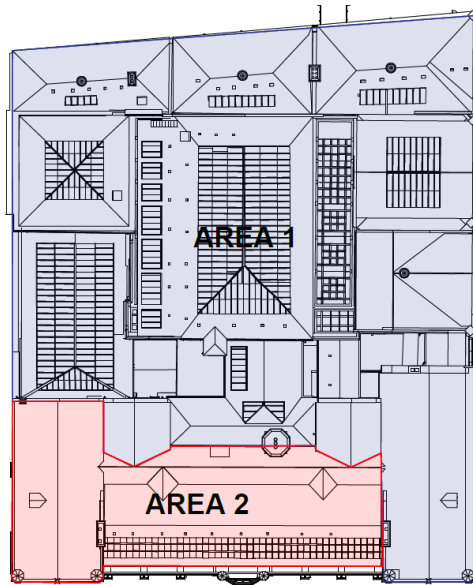


MMU Grosvenor Building – Roof Insulation Appraisal

Original brief, including the Objectives & Constraints, is as follows:

- To upgrade the main roof to achieve as higher 'U' value as possible to reduce heat loss, and to assist with the new heating design proposals.
- To achieve this by working from above. No access from below due to existing (heritage) ceilings and confined spaces.
- To achieve this by not (if possible) raising the height of the existing roof.
- To achieve this by also reducing / eliminating the risk of condensation
- To achieve this by not having roof ventilation if possible. Note: One of the main causes of water penetration into the building currently is through the existing roof slate vents.

The University's insurers have requested a higher fire rating for any new insulation than that required for statutory compliance i.e. Building Regulations Part B, therefore, alternative proposals, along with the current proposals, are listed in the table below for comparison & consideration.



Roof Area	Current Design			Alternative Design - <i>(To meet insurance requirements)</i>		
	Design	'U' Value	Fire Rating	Design	'U' Value	Fire Rating
Area 1 Insulation products for 90% of the total roof area.	75mm PIR rigid slab insulation between the roof spars.	0.34 W/m2-K	Class E <i>(Meets Building Regs (Statutory) compliance but does not meet the Insurer's requirements)</i>	70mm Rockwool Flexi	0.58 W/m2-K	Class A1 – non-combustible <i>(Meets both Building Regs (Statutory) compliance & Insurer's requirements)</i>
Area 2 Insulation products for 10% of the total roof area.	TLX Gold insulating breathable membrane. Two roof areas.	0.69 W/m2-K	Class E <i>(Meets Building Regs (Statutory) compliance but does not meet the Insurer's requirements)</i>	No insulation (just waterproof membrane)	0.00 W/m2-K	Not applicable – Remains as existing roof build up.