

Rationale For Location of Chiller Plant on Barlow Roof.

The Cooling Plant for the project consists of 2 No packaged air-cooled Chillers. Each chiller is approximately 5.8m x 2.2m x 2.5m high. This plant requires a significant volume of air for heat rejection to atmosphere. For this reason, they are normally located externally on roof areas.

However, for a number of reasons considered early in the process, the Chiller plant is located within the Barlow House Roof Void, with the Rear Section removed and replaced with a discharge louvre for heat rejection. This location had been resolved and was shown on the Planning Application.

The reasons for final location on Barlow were:

- West Chambers North end flat roofs discounted due to visual impact and structural implications of plant area on Midland Rd.
- West Chambers South End Roof discounted due to existing roof profile.
- South Chambers roof discounted visual impact and structural implications of plant area on Euston Rd
- Ticket office roof discounted due to Hammer Beam roof.
- West Wing: The existing Station footings do not have capacity for the addition of plant area loadings at Roof Level of West Wing.

As part of the original assessment, we also considered the use of multiple small chiller units to fit within the Roof Timber grid. However, with the separation between, and clearance around, each of the small units, the space is not sufficient to accommodate the required capacity."

Attached sketch indicates the space required for an equivalent installation based on smaller units. Due to the requirement to provide space around each individual unit, the overall footprint significantly increases. This then takes most of the space for the adjacent pump room and the main ventilation Plena.

A further implication is the need to use the Northern hip roof for air intake/discharge louvres, as the whole of the rear roof is used up for heat rejection.

This does not comply with the original aim of keeping all interference with the roof on the rear elevation to the Station.