



254 KILBURN HIGH ROAD

Introduction

Walker Mower have been appointed to design the plant requirements for the building in detail. The plant requirements have been subject to further studies to improve efficiency and rationalise spacial arrangement. Informed by a multi-disciplinary team as the design has moved from RIBA stage 4 to 5, it has become apparent from the results and findings of these studies, that the location of the necessary plant to serve the building is not feasible and a revised strategy was necessary.

Summary

The permitted scheme allows for essential services, plant and lift overruns sitting at roof level within a plant room. The consultant team has considered this arrangement as part of a wider maintenance strategy exercise against space available at roof level and its suitability for housing plant equipment.

Plant Requirement

The main plant will be the energy centre and due to its physical size, weight of plant and maintenance, would require a room of circa 10m² and 3m in height. This room will house all the heating boilers, CHP, buffer vessels, pumps, filtration, pipework and controls to heat the residential properties.

The electrical switch room, tank room with boosted water will be housed adjacent the electrical Sub-Station which also has to be on ground floor as required by UKPN to serve the development and possibly the surrounding area in the future.

Assessment

When assessing the space available at roof level and the current servicing strategy, the consultant team observed the following:

- Weight of the plant on structure. There are two buffer vessels, each holding 4000L of water, so the weight of this water alone is 8 tons. The boilers are 450kg and the CHP engine is 1010kg, plus the ancillary equipment and pipework would add up to over 10 tons in total.
- Plant installation at roof level relies on scaffolding or crane access in conflict with the construction methodology and sequencing of works for other elements of the proposed build.
- Some of the plant equipment to be accommodated at roof level is bulky. The buffer vessels are both 1850mm high by 1830mm diameter, the boiler cascade is 3895mm wide by 496mm deep by 1766mm high and the CHP is 1800mm by 882mm by 1334mm high. Should the need to replace any of this plant equipment arise, a mobile crane will need to be deployed. The site at 254 Kilburn high Road is constrained by the surrounding buildings thus limiting the opportunity for a mobile crane to be accommodated within the front courtyard.

- Plant replacement strategy will also have to consider the vertical transportation strategy for the building. Passenger lifts weight capacity is limited, making them unsuitable for moving heavy equipment. Any replacement plant will have to travel via the communal staircases attracting high risk of damages.
- The boilers and CHP engine located within the plant room require gas supplies for fuel. Gas will run at street level from Kilburn High Road within a 4-inch diameter pipe and vertically within the building to feed the equipment within the plant room at roof level. Such arrangement comes at higher risk of gas exposure for the building residents at all floors.
- The buffer vessels at roof level will store large volumes of water. A volume of 8000L of water will always be stored at roof level. Any leak or catastrophic fail will put the residential apartments below at high risk of damages due to water ingress.

The above assessment concluded that the plant should not be located at the top of the building and would be better sited at a lower level.

Proposed Plant Locations

Responding to the findings in the assessment of situating the plant and services on the roof, the team took a site-wide overview to establish whether the plant and services may be located in a more appropriate location within the permitted building or elsewhere within the site.

The building services and plant strategy was also rationalised to reduce space requirements and improve efficiency.

The space available at ground floor level was further reviewed against the building services and plant strategy to investigate options to relocate all plant equipment from the top floor to the ground floor.

When assessing the proposed relocation of plant and services at ground floor, the team identified the following improvements and benefits to the scheme:

- Improved access for maintenance,
- Plant replacement can occur at grade without any impact on the vertical transportation strategy,
- All maintenance and replacements can be segregated from residents and members of the public.
- Reducing the interaction with residential spaces allows for better management of risk, leading to improved safety.

The plant equipment can be accommodated at ground floor level as following:

- Boilers, plant and gas meters by core C. This allows a reduced run of heating pipes as they feed the residential apartments at each level
- The CHP will also be located within the plant room by Core C to function alongside the boilers housed in the same location and take advantage of the MEP risers running vertically up the building for the flues.
- Intake room by the cycle enclosure within the external single storey outbuilding. Incoming services from Kilburn High Road will be able to feed this room running exclusively under the courtyard in front of the main building.

- Water tank room by the cycle enclosure within the external single storey outbuilding. Potential leaks will not affect the residential apartments within the main building.

Conclusions

After careful consideration of the points arising from the above assessments, the consultant team propose to accommodate the plant and services at ground floor. Plant will be situated in two locations at ground floor – partly within the footprint of the building and partly in the separate freestanding building located in the courtyard space.

Yours sincerely
For and on behalf of
Walker Mower Partnership Ltd



David Spalding
Managing Director

Enc.