

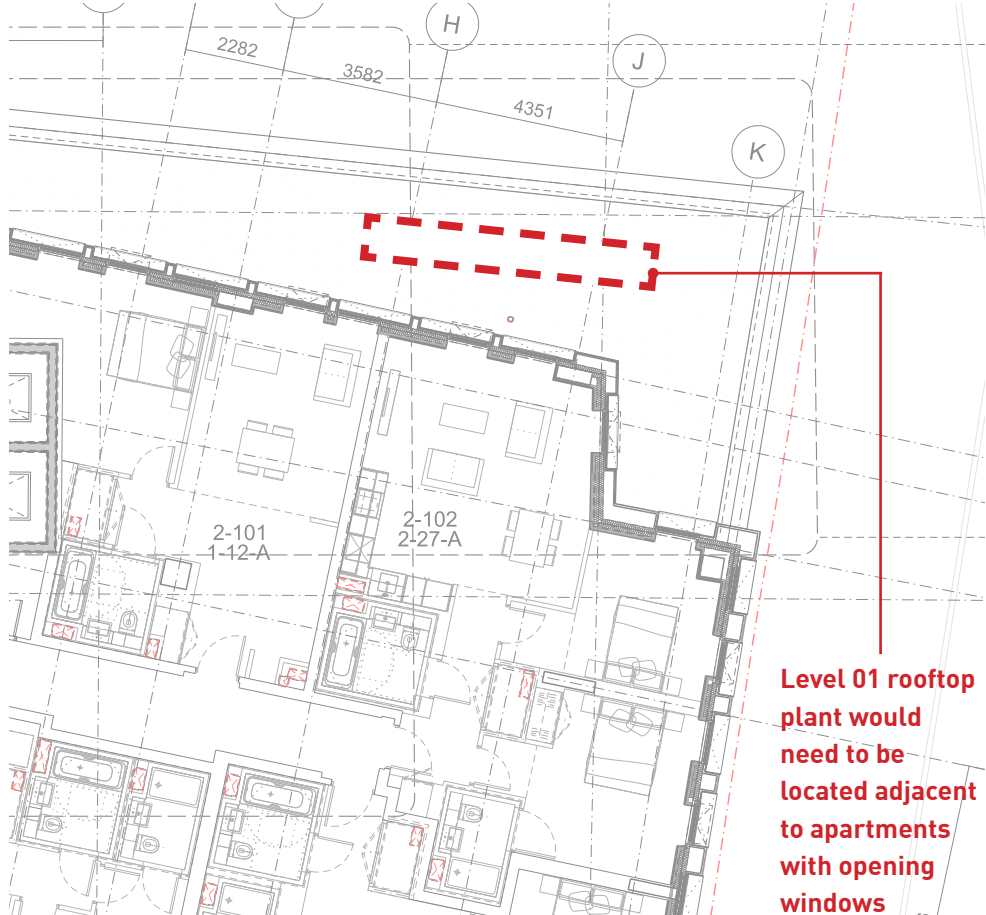
OPTION 02 - LOW LEVEL ROOF DISCHARGE



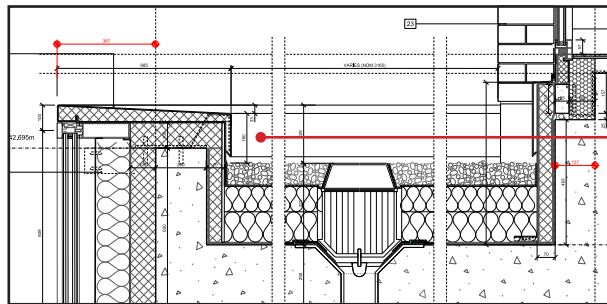
Example of rooftop acoustic attenuator



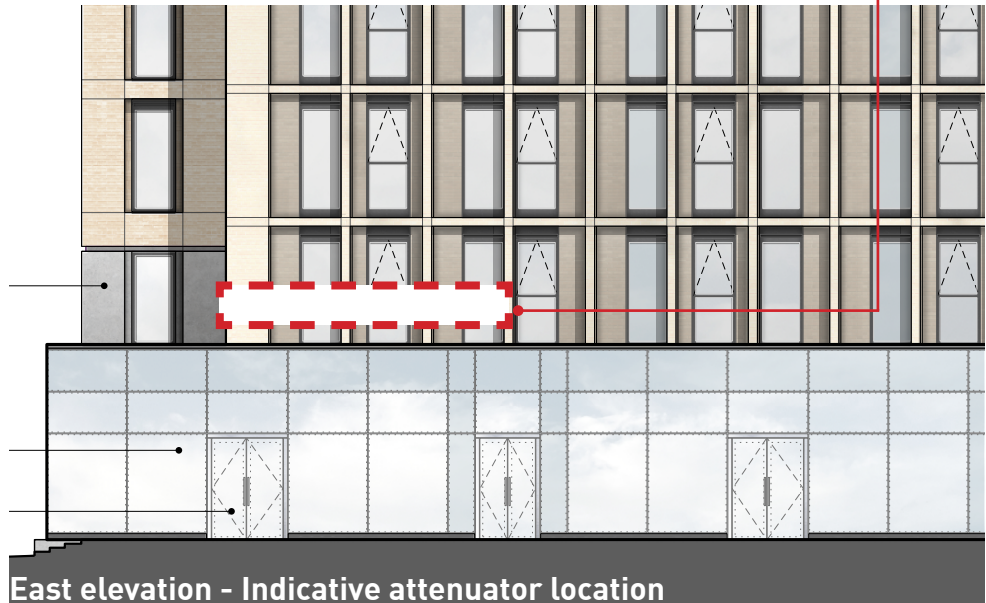
Indicative Level 01 Plant Location



Level 01 Roof - Indicative attenuator location



200mm perimeter upstand above finished roof level



East elevation - Indicative attenuator location

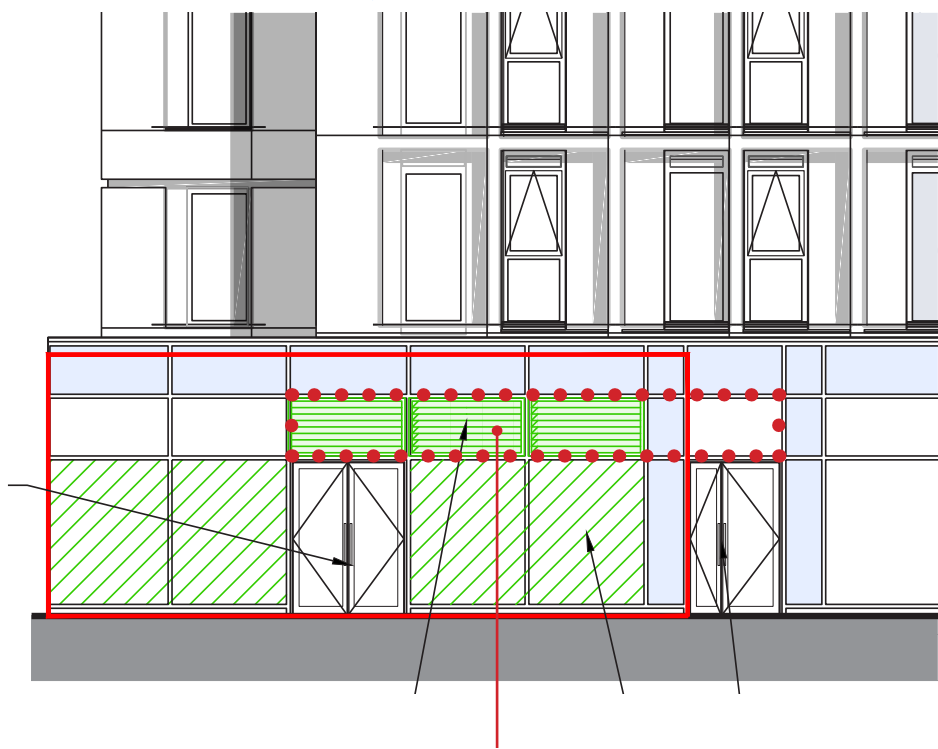
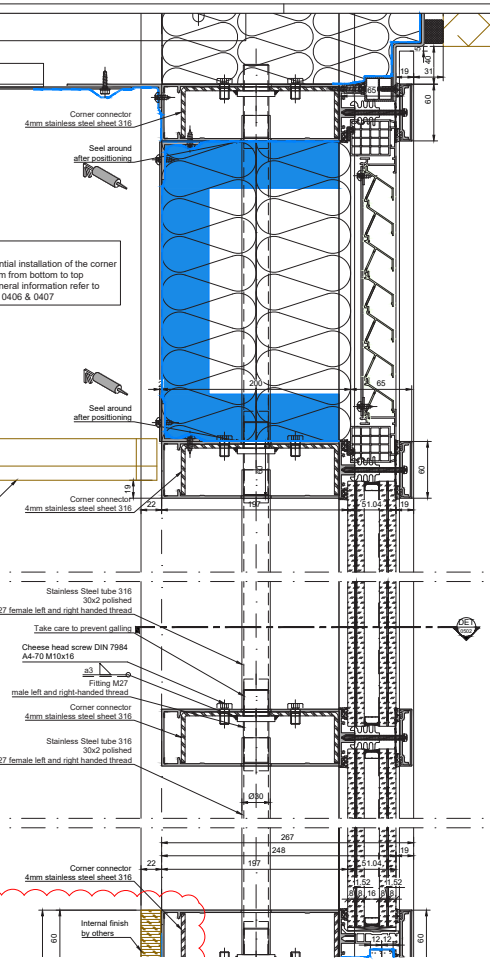
Low Level Roof (Level 01)

An alternative option, to discharge at level 01 roof, has also been explored and discounted for a number of reasons which are summarised as follows:

- > The lower level roof has a low waterproof upstand at perimeter (see adjacent perimeter detail) and is not designed to visually screen plant equipment at roof level. Any plant located on the low level roof would be highly visible from Whitworth Street and / or Princess Street, and therefore considered visually unacceptable.
- > Furthermore, a lack of any parapet detail means safe access for cleaning and maintenance of plant would be difficult, with additional fall restraint systems and / or barriers required at lower roof level which would also be visually obtrusive.
- > Tesco's M&E consultant has confirmed this option would require two apertures at roof level of circa 1.5m x 1.5m, and two external ductwork systems roughly 1.8m high x 1.5m wide x 3.4m long, plus inclusion of a 1.8m long acoustic attenuator. Visually this would be highly intrusive and similar to the examples shown adjacent.
- > The distance between the outlets and the residential windows would be small, potentially impacting daylight and sunlight in neighbouring apartments.
- > The close proximity to the residential apartments combined with the additional length of run and change in direction will result in additional attenuation to the roof mounted ducting / cowl, thus increasing the bulk and visibility of the discharge further.
- > Structural openings through the flat roof would also mean breaking the waterproof substrate and the concrete slab which is undesirable in terms of increasing risk of water ingress.
- > Fire separation would need to be considered as the fire strategy confirms this roof to provide 120 mins compartmentation. The vibration transmission coming from this system would be high due to direct fixings to the roof. Anti vibration pads may mitigate this issue but would elevate plant higher above roof level. Regardless, this could create unwanted structure borne transmission to the adjacent apartments.
- > A design of this nature would also be subject to further review of loads on the roof, as yet not undertaken given the additional unfavourable issues noted.

This option has therefore been discounted as not being technically feasible, or visually acceptable.

OPTION 03 - GROUND LEVEL VENTILATION



The minimum louvre area (shown green) would be extended to the dotted zone spanning over external doors.

Minimum required louvre coverage

Approx. louvre area viewed from Whitworth St

Ground Floor Louvres

The only viable option, and therefore the proposed solution, is to provide additional louvres within the framework of curtain walling at ground floor level.

Whilst there is a small band of existing louvre around the ground floor curtain walling at high level to Princess St and part of Whitworth St, this is being used to enable intake air to be drawn in to ventilate the Tesco front and back of house spaces, but these louvres are not sufficient in size to deal with extract ventilation to the store.

We are also proposing that additional louvre areas are not located on street facing elevations to Princess Street or Whitworth St; but rather to the oblique elevation addressing the courtyard entrance from Whitworth St, to minimise their visibility. The adjacent image shows the oblique viewpoint towards this elevation.

The weathertight louvres will be colour matched to the existing dark grey curtain walling frames, and as dark textured infills will be only subtly different in appearance to the adjacent back painted glazed panels.

Integration of overlaid perforated aluminium panels was considered, but the M&E consultant confirms that the design must incorporate all of the designated louvre area, otherwise the plant will not function correctly. Therefore introduction of additional perforated panels would require significantly more louvre to be introduced to the existing facade which is undesirable.

SimpsonHaugh would be supportive of a small single zone of louvre which incorporates the single louvre panel currently located above the adjacent corridor door. The louvre area required to service the plant is shown on the adjacent Tesco elevation drawing in green; however we would support the additional conversion to louvre of the small back painted panel adjacent, to provide a single zone that spans both doors in the courtyard elevation. The glazed elevations addressing the street and corner would be maintained with this proposal, which is shown dotted red on the adjacent images.

The accompanying Noise Impact Assessment also proves that external noise levels will be 5dB below the octave band L90 values and internal noise levels within the residential apartments are inaudible with this solution.

This option is therefore proposed to provide ventilation to the Tesco Bakery plant requirements, on the basis we feel it is both technically and architecturally acceptable.

