ARUP

MEPC

NOMA Redfern

Redfern Whitebox – Ventilation Strategy File Note

Reference: RED-ARP-ZZ-ZZ-RP-N-00002

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Job number 283842-60

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1. Introduction

This file note seeks to outline the selection and design of the ventilation strategy for the Redfern building Whitebox space and explain how other options were explored and eliminated from the design process. This file note can be read as a standalone document or as an addendum to the overall MEP Stage 2 report.

2. Options Analysis

Regardless of the extent of the ventilation fit-out to be installed as part of the Whitebox works, as part of the servicing strategy for the space, several options for the ventilation and ductwork routing were explored to find the least obtrusive and form-altering strategy which could be either installed or provided for, while still viably providing the required fresh air to the space.

2.1 Existing Provision

The space currently has little-to-no fresh air ventilation provided, there does exist one approx. 250mmØ duct possibly suitable for toilet extraction connection, however with the usage change to a Whitebox space there is an additional requirement for a further 1600 l/s fresh air supply, and a possible requirement for approx. 700 l/s of kitchen extract ventilation.

Due to this, a new ventilation design including plant equipment and ductwork routing to external is required. Multiple options for this design have been explored to establish the preferred strategy with the least impact on the wider building.



Figure 1 – Existing Ductwork

2.2 Façade Louvres

The first option to be explored was that of a traditional Whitebox retail unit strategy. The air-handling plant would be located locally within the space with exhaust and fresh air intake ducts connecting to louvres installed in the glazed façade of the building. The strategy is outlined below.

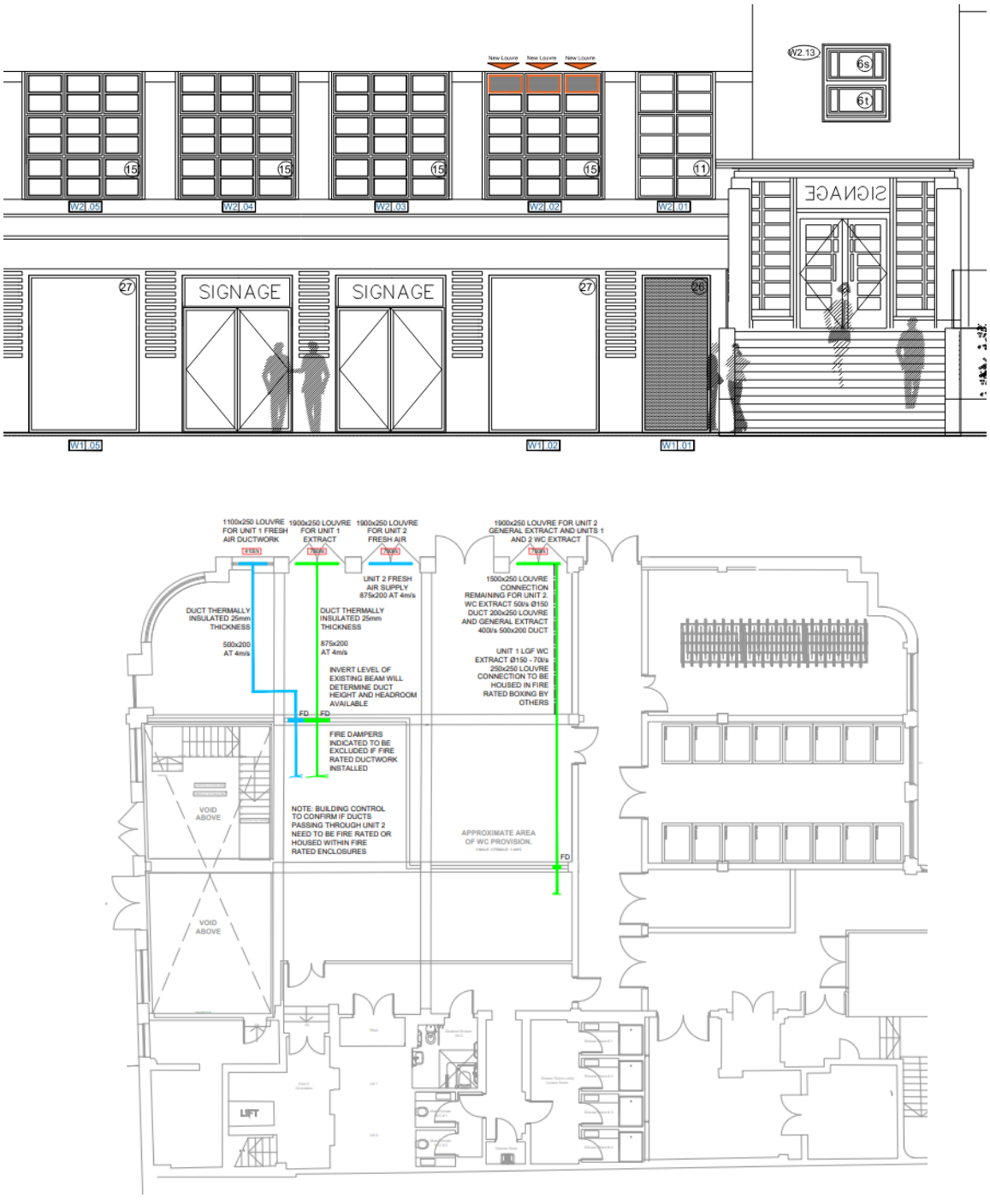


Figure 2 – Outline of façade louvred option

Although this strategy would be able to adequately ventilate the space, the addition of louvres to replace sections of the façade glazing was deemed unacceptable and this option was rejected at a previous design stage. As such the only option remaining is to otherwise route ductwork through the building to external atmosphere.

2.3 Ductwork to Roof Level

With façade altering options being eliminated, it has been decided to utilise the previously un-used lightwell space / external atrium above the 1st floor level to route ductwork up the building to roof level since this is the only other external area adjacent to the space and available to use.

As in the previous option, air-handling plant will still be located within the space, but exhaust and intake ductwork will be routed through the space towards the lightwell area, then upwards through the building to terminate at roof level. This option has been found to be the least altering to the building and the least visually obtrusive ventilation strategy available to serve the space.

The proposed option is outlined in more detail below, and within the MEP Stage 2 report reference: RED-ARP-ZZ-ZZ-RP-N-00001

3. Proposed Services

3.1 Ventilation

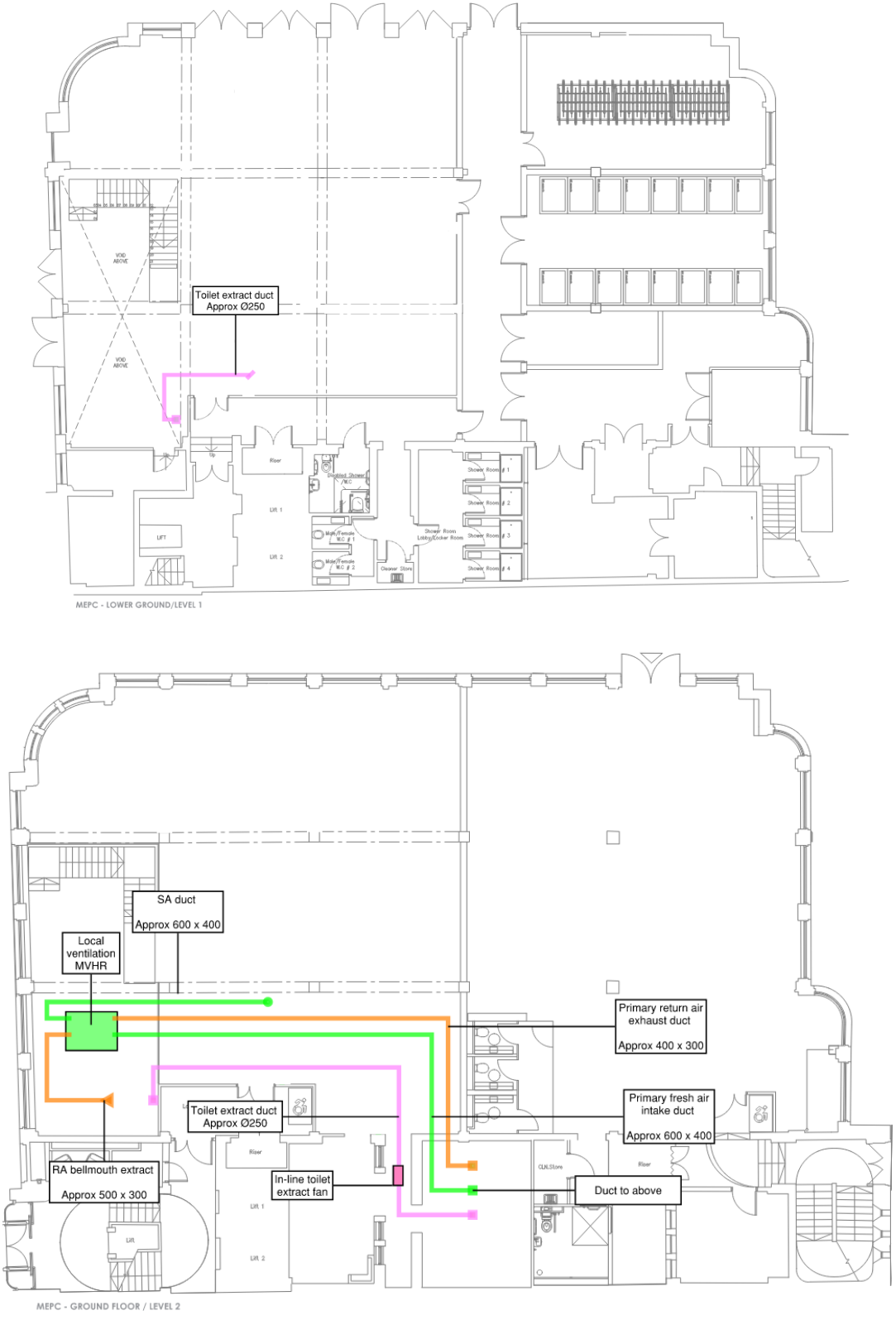


Figure 3 – Ventilation Proposal Sketch

Option 1

- Installation of primary intake and exhaust ductwork to air handling equipment also installed within the space.
- Installation of any required secondary ductwork from air handling equipment to serve the space.
- Installation of extract ductwork with in-line fans to serve toilet areas.

Option 2

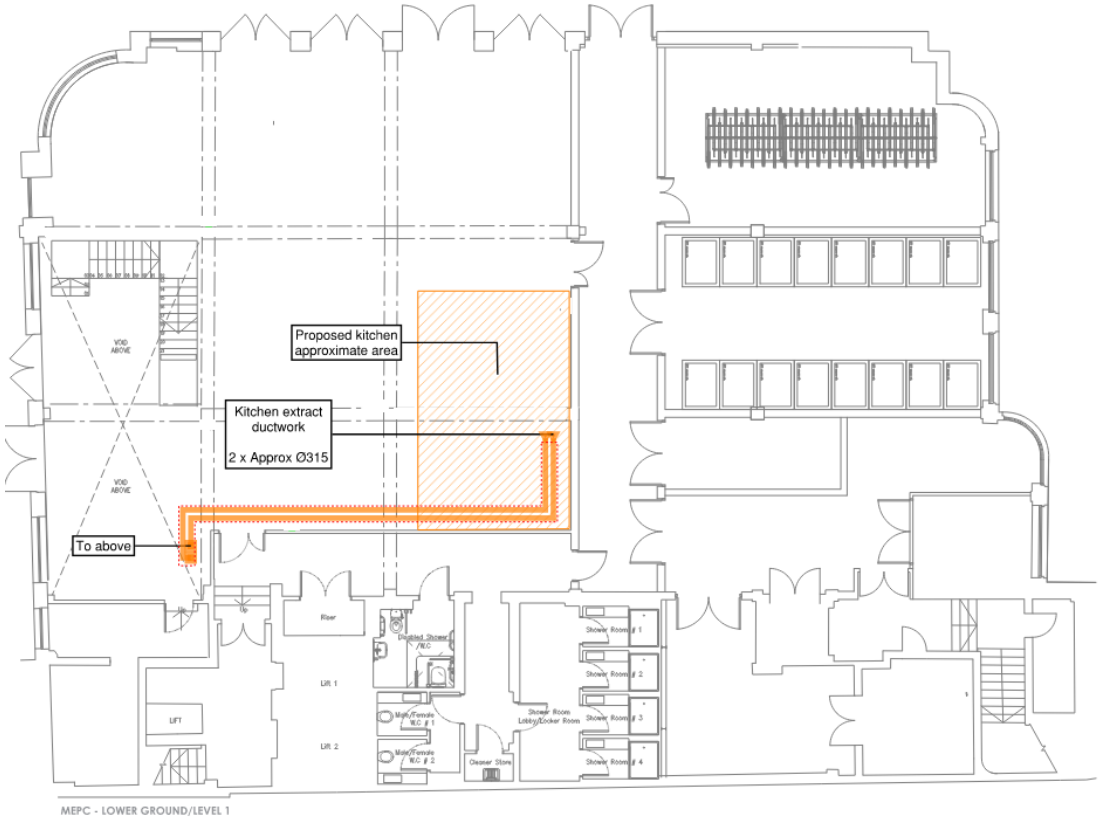
- Installation of exhaust and intake points for future ductwork connections only.
- Routes for primary ductwork identified for future fit-out, and space allowance made for future installation of ventilation equipment and secondary ductwork.

Currently, no face louvres have been identified, any additional louvre space during future fit-out would pose a significant issue for the approval of planning permission.

Whether the ductwork is installed as part of the Whitebox works or deferred to the client, ductwork height will need to be minimised because of the retrained ceiling height on level 1.

It has been calculated at this time that the space will require at least 1600l/s general fresh air provision, with an additional supply and extract of 120l/s to serve bathrooms. If ductwork is not installed at this stage, then limitations outlined here must be included in the tenant fit-out guide.

3.2 Kitchen Extract Ventilation



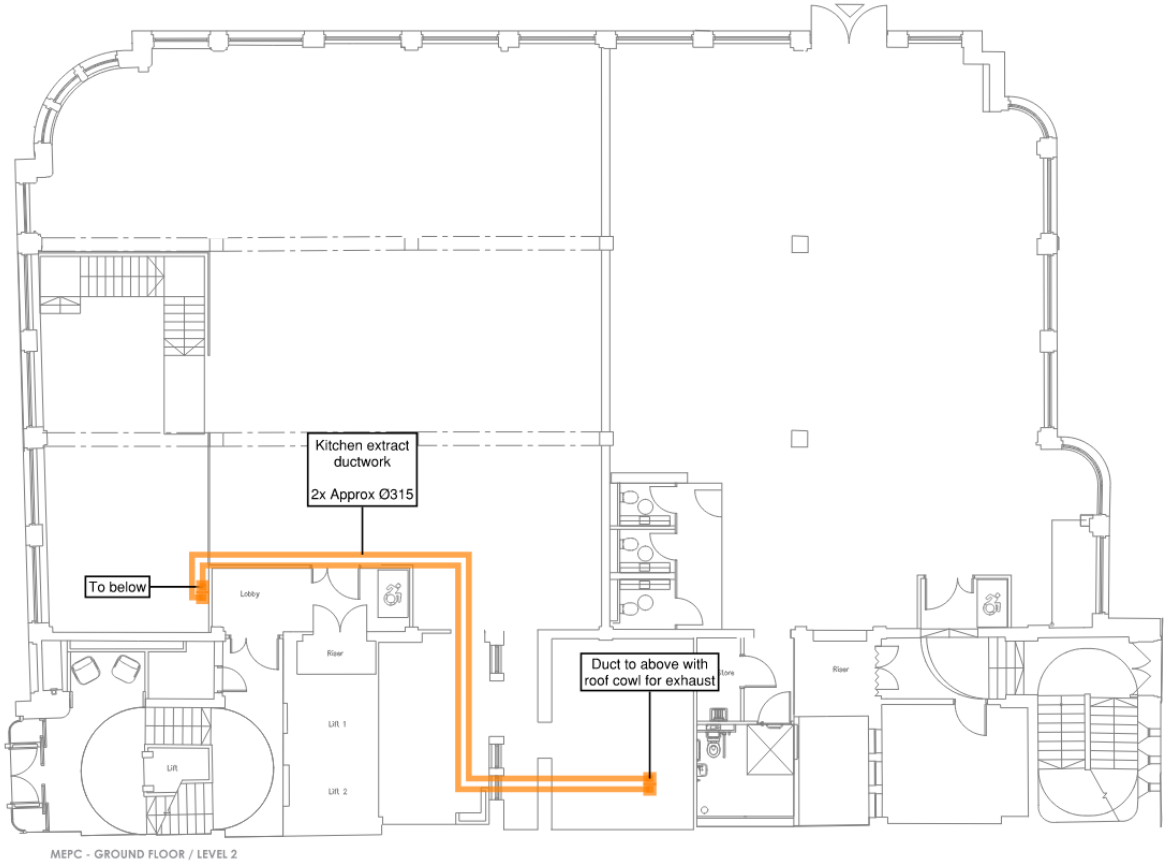


Figure 4 – Kitchen Ventilation Proposal Sketch.

Option 1

- Installation of kitchen extract fans.
- Installation of primary kitchen extract ductwork routed to external exhaust point.

Option 2

- Identification of ductwork route and kitchen location for future fit out.

Currently, a route for kitchen extract ductwork to exhaust without using louvres on the façade has been identified, this route passes through roof and into the external atrium above ground floor / level 2 where it can reach to upper roof level as required.

Whether the ductwork is installed as part of the Whitebox works or deferred to the tenant, as with the general ventilation, ductwork height will need to be minimised because of the retrained ceiling height on level 1.

Kitchen extract ductwork has been assumed to be fire rated along the entire length on the assumption that the route to external through the atrium / light-well would take it through a fire compartment.

It has been calculated at this time that a full catering kitchen in the space would require approximately 700l/s kitchen extract provision, with an additional supply matching this volume would be required to be added to the general ventilation to provide make-up air for this kitchen extract. If ductwork is not installed at this stage, then limitations outlined here must be included in the tenant fit-out guide.