



70

GREAT BRIDGEWATER STREET

Visual Mock-Up (VMU) - Report

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01

INTRODUCTION

This report is a response to discussions had on site regarding the Visual Mock-Up (VMU) of the facade as viewed on 19.12.22 by Manchester City Council along with a subsequent meeting with MCC attended by Simten and Savills.

The report outlines the design teams response to the discussions and both previous and subsequent correspondence. This includes a full commentary on the proposed material finish. The document also outlines the plan of action as regards addressing design and quality issues in relation to the existing VMU.

The report also includes details of an additional VMU due to be installed on site end of February 2023. As part of this CGIs of a number of VMU iterations are included as well as photographs of the performance mock-up (PMU) showing a more representative 'typical' two storey facade arrangement. This will also be an opportunity for OMI and the team to present our approach to MCC in order to provide a greater level of context and clarity.

The report is to act as a precursor to subsequent meeting on site to review the new VMU in early March 2023.

The client team are confident that the proposal represents a high quality facade arrangement with the degrees of complexity and clarity of design that reflect the original design concepts. The facade will provide a dramatic change to the area providing an apparently new building whilst at the same time as achieving significant embodied carbon benefits through the retention of the existing structural frame and, as a result, delivering a BREEAM Outstanding retro-fit.

02

MATERIAL FINISH RATIONALE



Above: A salvaged remnant of Havelock Mill's distinctive red frame was relocated to the University of Manchester Institute of Science and Technology (UMIST) as a structural monument and remains today.

The proposed colour is a reference to the structure of Havelock Mill that previously occupied the site, remnants of which were installed as a 'sculpture' as part of the UMIST campus to the south of the city centre.

Our submission documentation provided images with a uniformity of finish to the façade to the building. An assortment of similar, yet dissonant shades of red on the exterior of the building will leave an untidy finish, which is not synonymous with the overall ethos of the new building - namely to combine high quality, modern design with a strong acknowledgement of the site's heritage.

A number of design features have been inspired by the building's previous use as a silk mill, such as the Jacquard loom hole patterning on the exterior and the shape of the lighting in the reception. Uniform silk fibres are considered the highest calibre silk fabric and thus it is extremely important that the exterior of the building has a uniformed finish in order to exude that same sense of quality.

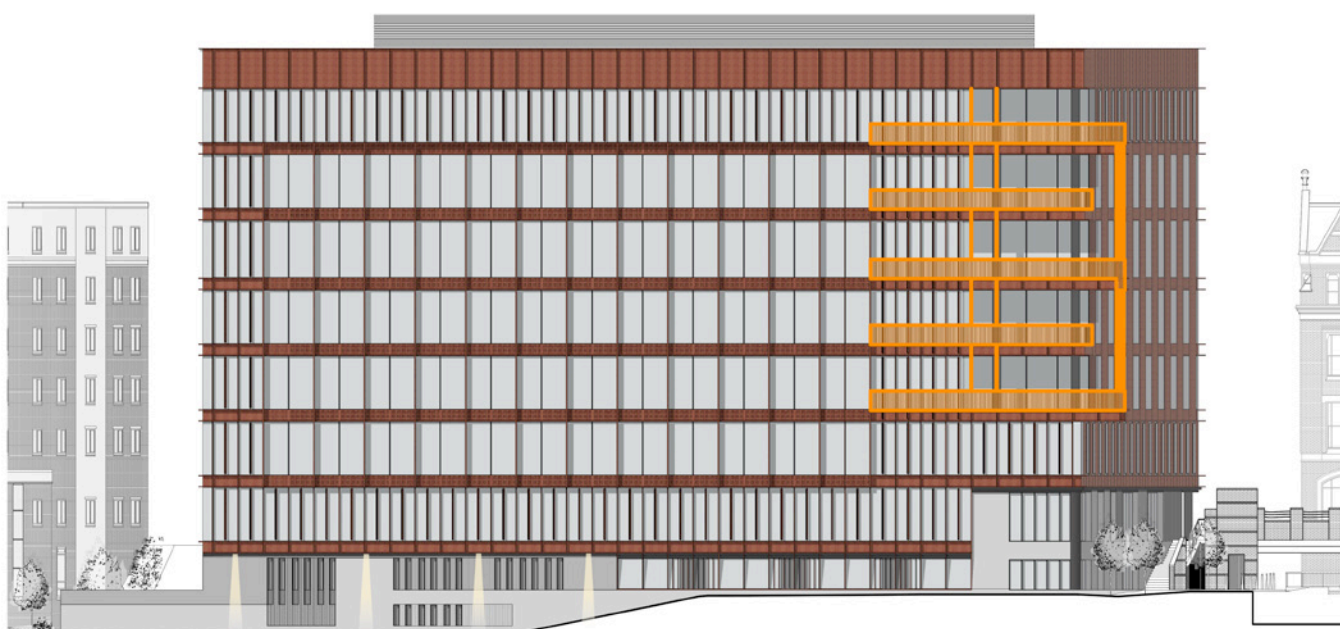
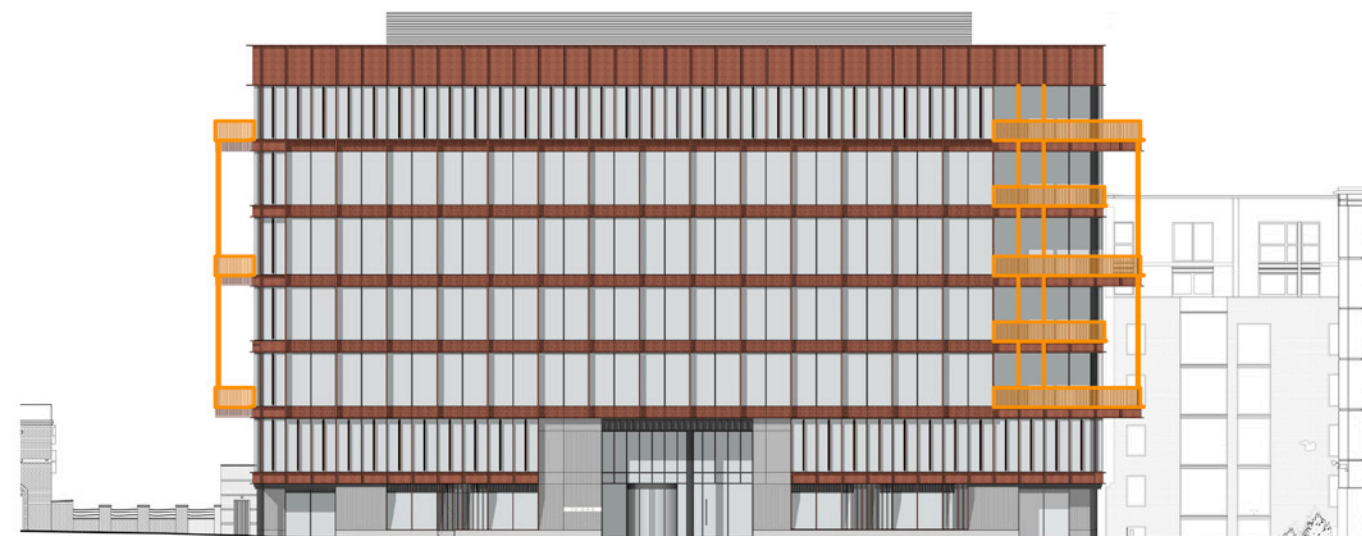
When selecting the façade finish we considered the options, including an anodised finish. This was rejected in favour of a high-quality metallic powder coated finish, which not only provided a shade of red closest to the images in the planning documents, but most importantly ensured that all finishes would be uniform. By way of explanation, there are various metal products across the exterior of the building, including steel balustrade and structural supports across the balconies. Anodising is not technically achievable to a number of elements (particularly the steel balustrades) meaning that these elements would require powder coating. The combination of an anodised and powder coated finish would have resulted in a sub-optimal finish, with differing and dissonant shades of red. This, would deliver an unacceptable finish for the building, hence the project team decided to pursue a finish with a high quality and technically sophisticated powder coating. The drawings on the following pages indicate elements that could not be anodised.

Anodising is normally used on metallic colours (e.g. silver, bronze and gold) and is much less commonly used on metalwork that is in non-metallic colours such as green or red – in this case the red colour is an important aspect of the design and stems from the previous building on the site (Havelock Mill).

Unlike a residential building which requires metal purge vent panels and vertical spandrel panels, 70 GBS is predominantly glass with an applied red 'grid'; there are few solid 'flat' panels on the project (the exception being at parapet level). Typical spandrels are perforated and the fin detailing, both vertically and horizontally, further enhances the colour variations/reflections.

The chosen finish is not entirely flat (as some traditional PPC products are) and incorporates a lasting, coloured, soft and natural metallic sheen. This high quality durable powder metallic coating with a long life has been selected to form a protective layer creating a lasting, coloured, soft and natural metallic sheen. This sheen offers a dynamic play of light on adjacent surfaces and in combination with the various vertical, horizontal and oblique facade elements, will vary with the changing light conditions throughout the day and across the different seasons of the year. The precedent and photographs taken of the PMU provided in the report demonstrate this fact.

The project also includes PPC aluminium finishes down to relatively low levels and at terrace levels, both areas have a small risk of minor damage, PPC is far easier to repair than anodised, which, when scratched can be a significant issue to repair and, as a result, can leave unsightly damage being left unaddressed over a long period.



02

REF - 70 GBS-VMU-ZZ1

ELEVATION DRAWINGS

Location of Steel Facade Elements

KEY

Steelwork

Elements that can not be anodised



NOTE - Overlay on approved planning elevations



02

REF - 70 GBS-VMU-ZZ2

ELEVATION DRAWINGS

Location of Steel Facade Elements

KEY

Steelwork

Elements that can not be anodised



NOTE - Overlay on approved CGI view

03

MATERIAL FINISH PRECEDENT

There are numerous examples of PPC being used on high quality buildings in prominent locations, one precedent that has been used regularly by OMI Architects when discussing the scheme's design development during pre-application meetings with MCC is the RIBA Award winning R7 building at Kings Cross, London, which uses the same range of PPC finish (albeit a different colour) as being proposed in this scheme. The building is also made up externally of steel and aluminium components and as a consequence the PPC was selected to bring uniformity to the scheme.

In Manchester city centre the recently completed MMU Grovesnor East Arts + Humanities Building by Allies and Morrison also incorporates PPC aluminium cladding. On this project a copper coloured paint finish specified to the external aluminium elements. Occupying a key corner site where campus meets city, the new building establishes a civic presence for MMU on a key route into the city centre.

The reference to Havelock Mill is continued internally with the interior colour palette also following the external finish. The external PPC finish is carried on through to internal steelwork and finishes to tie the scheme together. Again, this approach follows key projects as R7 and also the Grovesnor East MMU building.



03

REF - 70 GBS-VMU-ZZ3

PRECEDENT IMAGERY

R7, Kings Cross, London

architect:

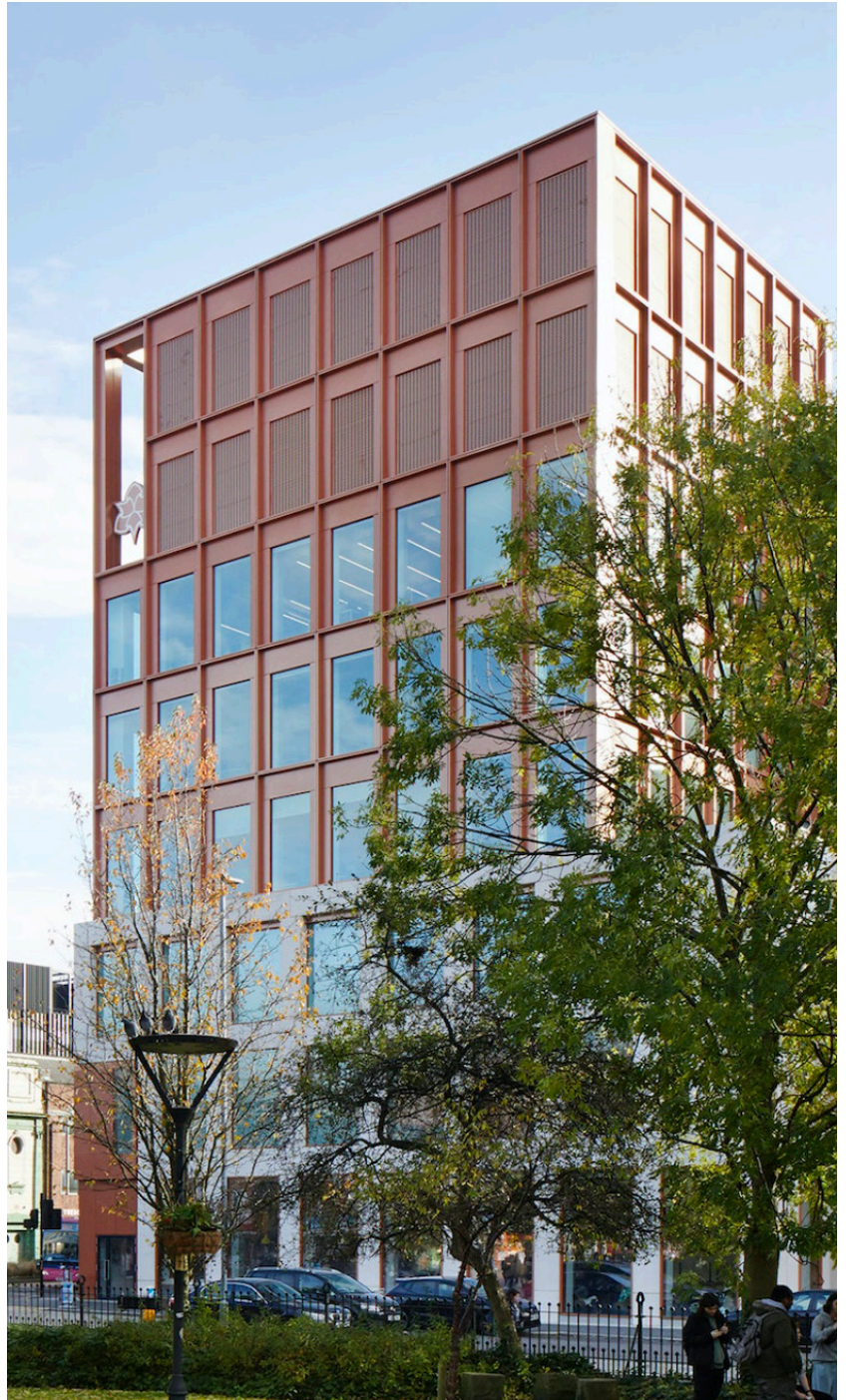
Morris & Company

completed:

2017

Colour:

PPC Interpon D2525 YW107I Etna
and Y2200I Pink Metallic



03

REF - 70 GBS-VMU-ZZ4
PRECEDENT IMAGERY
Grosvenor East Building, Manchester
architect:
Allies & Morrison
completed:
2020
Colour:
PPC Tyger Drylac Marrone 630



03

70 GBS INTERIOR ENTRANCE CGI

It is proposed that internal metal work receives the same finish as the external façade, this approach seeks to bring one homogeneous approach to the building. As noted externally, steelwork cannot be anodised but PPC is a far more robust finish as it can be cleaned and repaired if damaged.

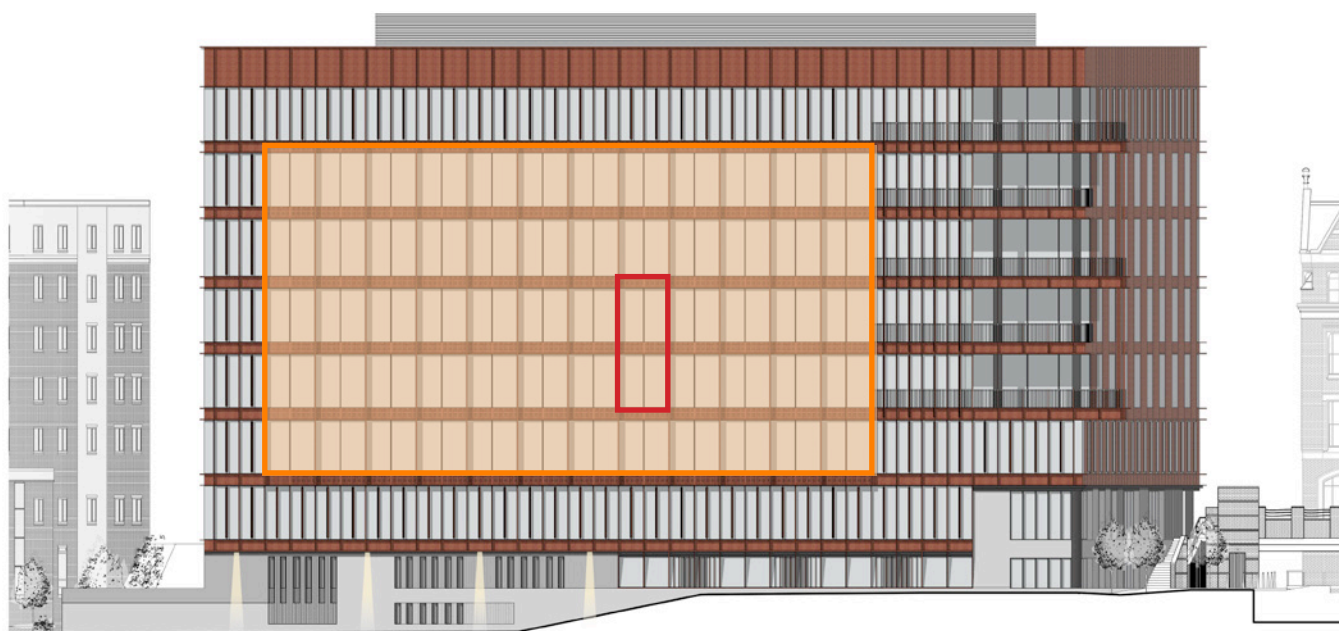
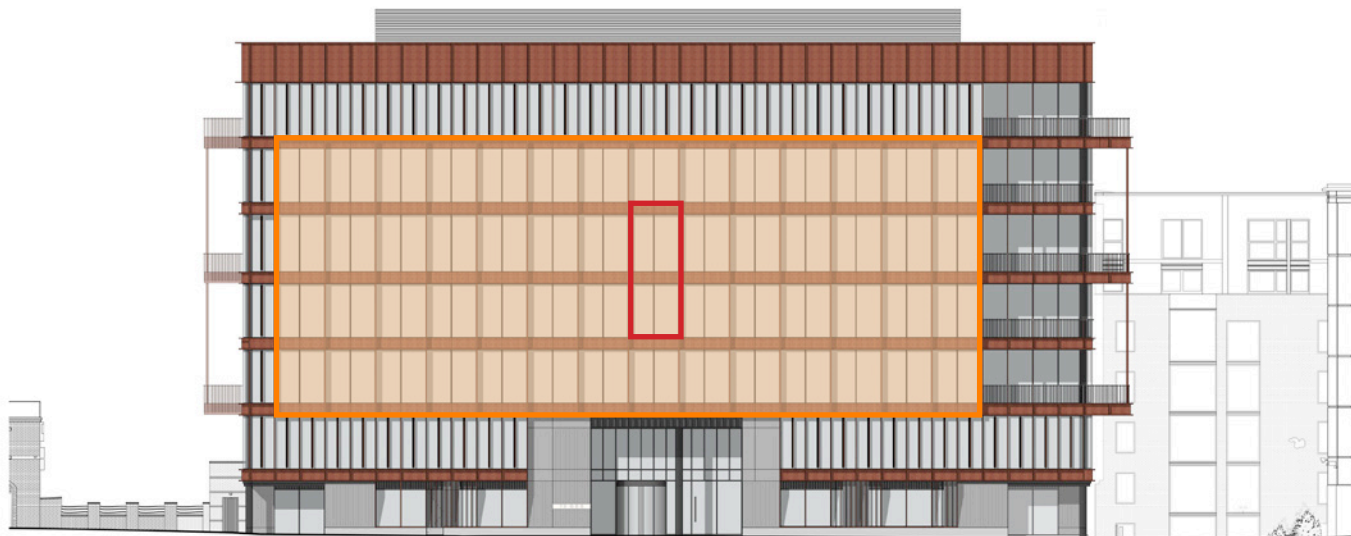
04

ADDITIONAL MOCK-UP (VMU - 2)

The existing VMU was developed and designed to indicate as many junction details as possible within a restricted section of facade. This has allowed the team to inspect all relevant details at full scale. However, we acknowledge the current VMU attempted to demonstrate too many joint conditions and as a consequence does not provide a clear representation of the overall building. It should be noted that this close proximity of numerous junction types is a microcosm and that, in the final installation, these details do not occur within the same close proximity.

To address this 'unrepresentative' element of the VMU an additional VMU is being prepared. It is representative of a section taken from the main body of the facade as indicated on the below elevation mark-up.

The intention is to demonstrate the typical panel arrangements when shown across multiple floor levels and with full, 4m storey-height, predominantly glazed panels. This will clearly show how the number of junctions appear when viewed across a full scale arrangement, most notably show how the vertical fin has just a single floor level joint.



04

REF - 70 GBS-VMU-ZZ1
ELEVATION DRAWINGS
ADDITIONAL VMU
KEY



TYPICAL PANEL LOCATION ON FACADE



EXTENT OF VMU 2

NOTE - Overlay on approved planning elevations

05

VISUALLY CORRECTED VMU - 1

As previously noted, the existing VMU was developed and designed to indicate as many junction details as possible within a restricted section of facade.

Consequently we have updated the CGI of the existing showing it enlarged to include two full-height panels, each one 4m high in line with the proposed floor to floor heights. The image below was prepared for the original VMU and the updated images can be viewed on the following pages.

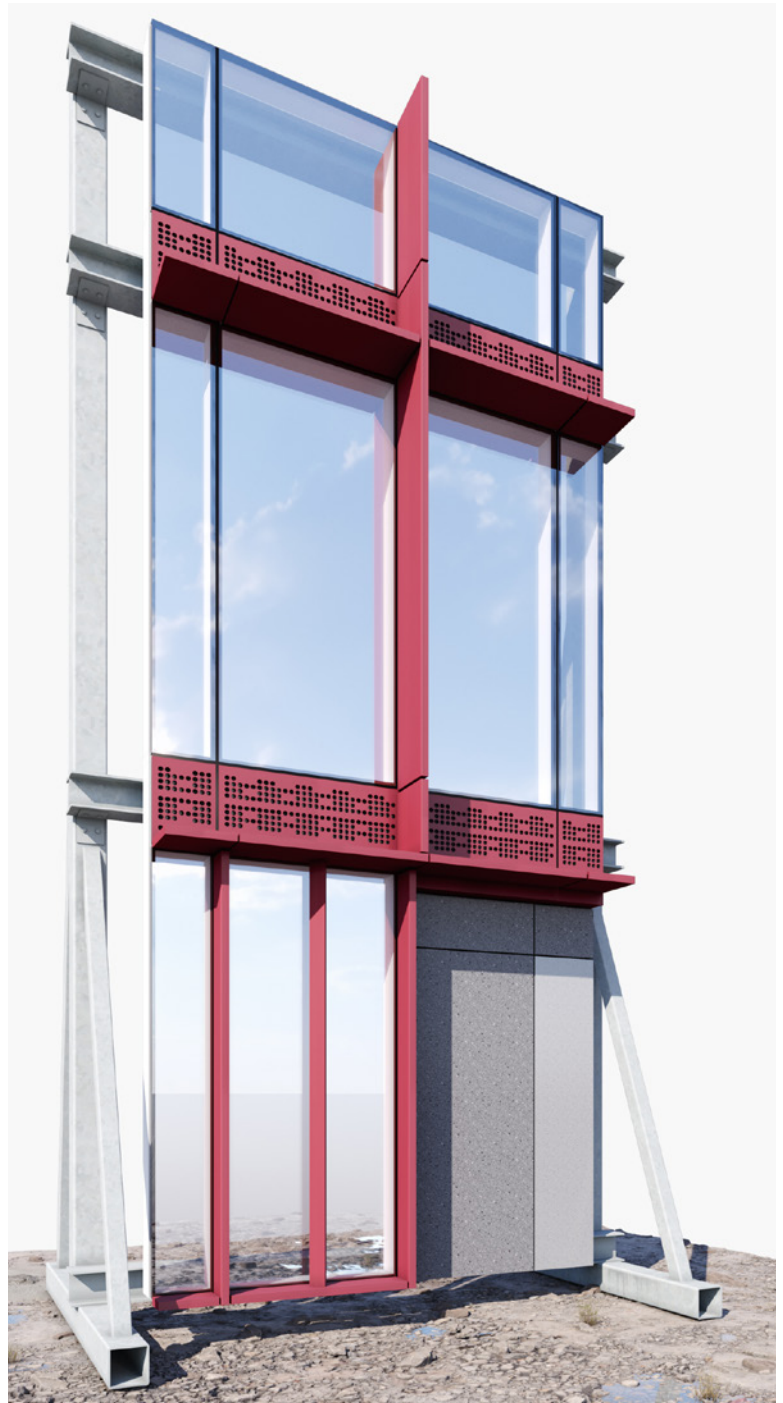


05

REF - 70 GBS-HS-ZZ8
CGI IMAGES

Left. CGI view of Existing VMU on site

Right. CGI view of Existing VMU on site.
Corrected to incorporate actual floor to floor heights of 4m



05

REF - 70 GBS-HS-ZZ8
CGI IMAGES

Left. CGI view of Existing VMU on site

Right. CGI view of Existing VMU on site.
Corrected to incorporate actual floor to floor heights of 4m

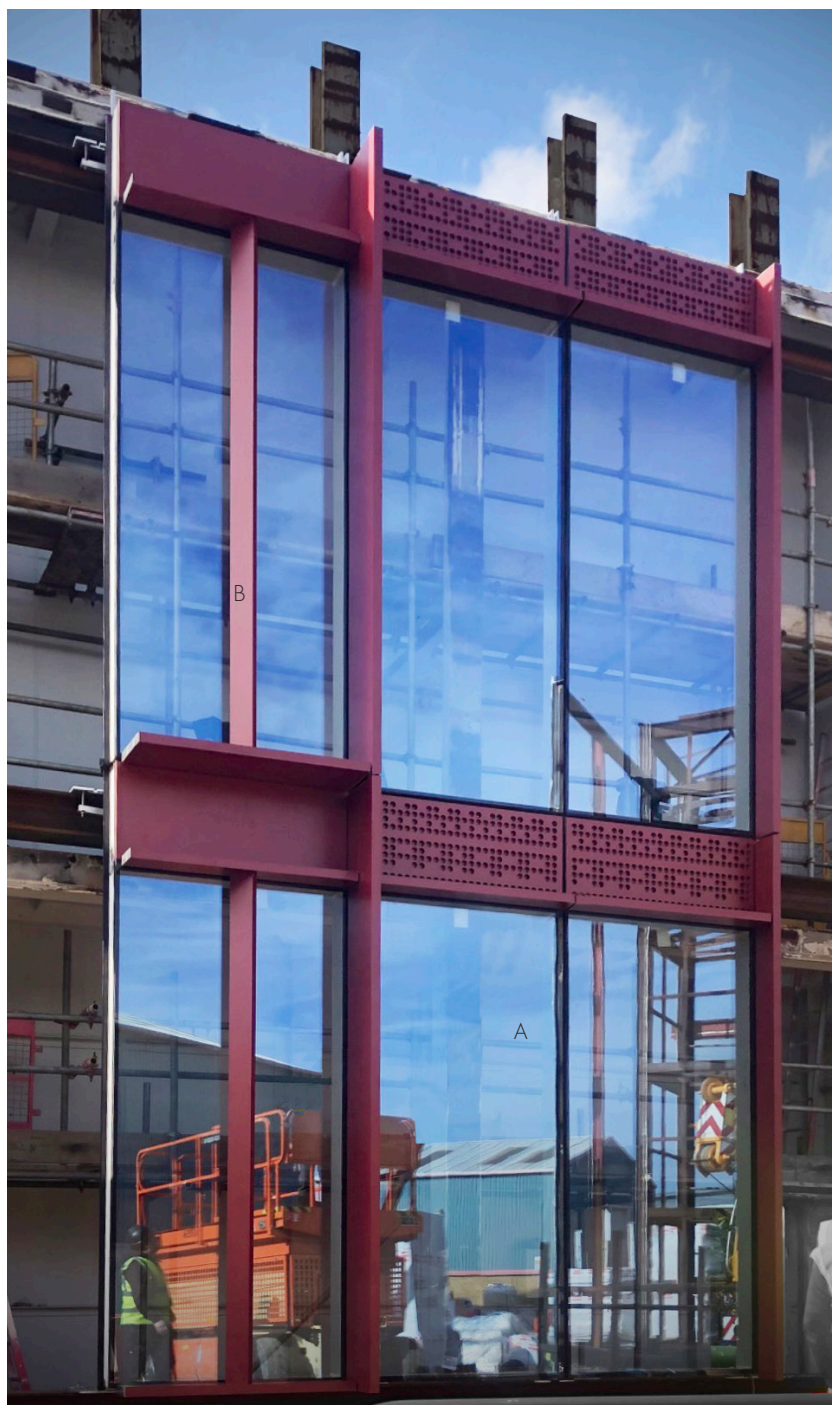
06

PERFORMANCE MOCK-UP (PMU)

The following section provides images of the performance mock-up (PMU) which has been installed on a test site to ensure the facade achieves the necessary technical and robustness requirements.

The installation is a three bay, two storey section of facade and shows a representative typical section of the proposed facade. The images are included here to show the various joints in context and how the vertical fins are jointed only at floor level.

Finally, all joints and gaskets are in line with those that have been installed on the existing VMU and will be installed on the additional VMU-2.



06

REF - 70 GBS-VMU-ZZ9

IMAGE

Photograph view of PMU

MATERIALS

Clear glass

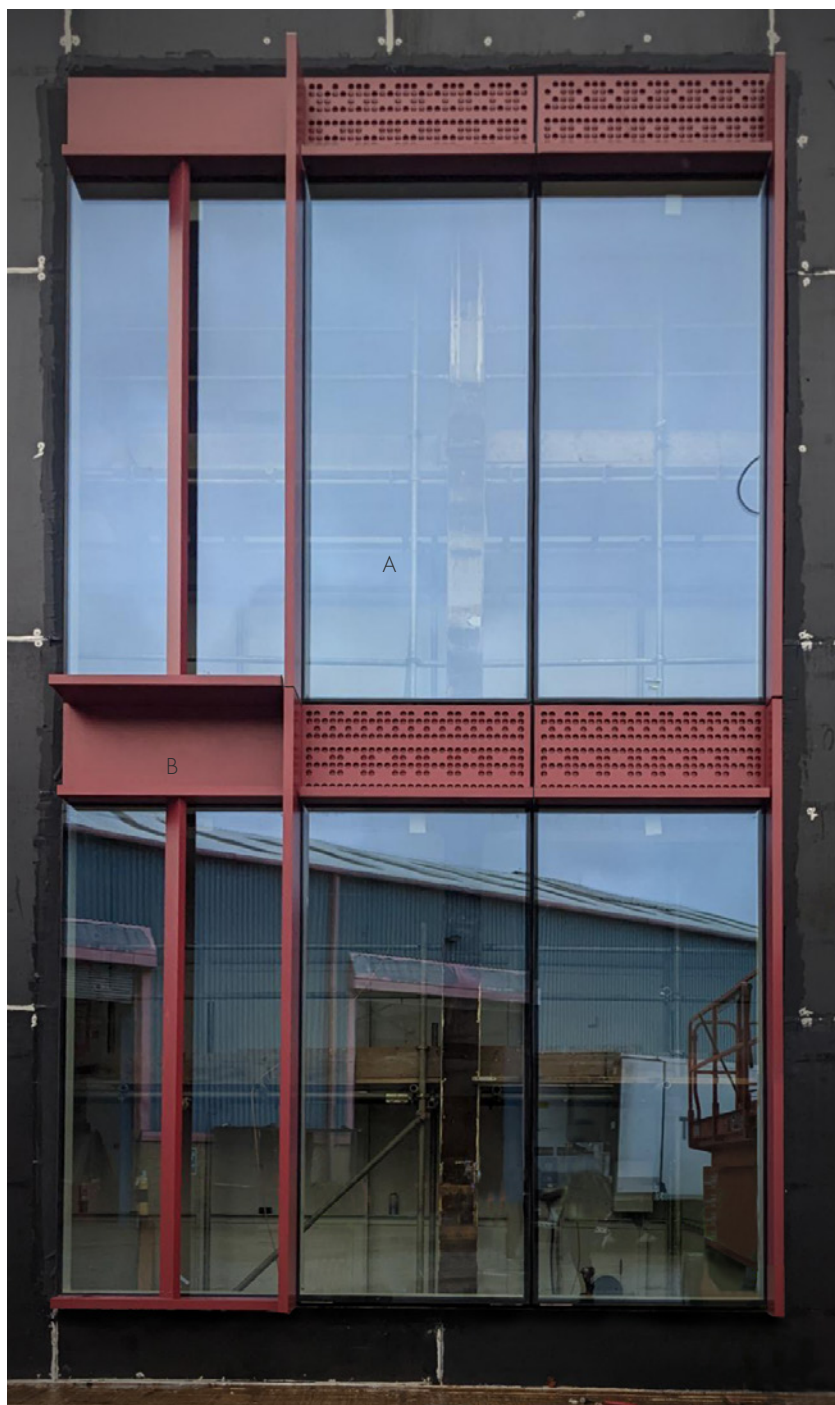
PPC aluminium

PPC D2525 -YW2851 -RAL 3032 (30% matt)

A -

B -

NOTE - PMU (Performance Mock-Up) represents a typical bay and a half of the facade over two stories; all joints and fin sizes are in line with VMU.



06

REF - 70 GBS-VMU-ZZ10**IMAGE**

Photograph view of PMU

MATERIALS

A - Clear glass
 B - PPC aluminium
 PPC D2525 -YW2851 -RAL 3032 (30% matt)

NOTE - PMU (Performance Mock-Up) represents a typical bay and a half of the facade over two stories; all joints and fin sizes are in line with VMU.

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VMU COMMENTS RESPONSE

The following pages include specific responses to the comments received subsequent to the on site review of the VMU that took place 19.12.22:-

We intend to address the elements on the Visual Mock-Up (VMU) discussed on site as follows:-

- B Joint Arrangement**
Included below is a full demonstration of the practical and maintenance requirements for the various joint sizes across the project and which are included within the VMU.
- C Fixing Locations & Visibility**
Included below is a series of diagrams showing the visibility of these fixings when positioned in the correct vertical position on the facade.
- D VMU Remedial Works**
Included below is a series of annotated images of the VMU indicating the necessary remedial works required to demonstrate the quality assurance controls that will be adhered to during the facade installation. These works relate to the following:-

Junction of unitised to precast concrete - the detail as installed is not correct and this will be removed and addressed; included below is the proposed sectional detail of the corrected installation.

Stack-joint gasket - as noted the gasket at 'floor' level on the VMU (left hand panels) is poorly installed and this will be re-set to rectify this issue.

Fin alignment - minor deflection between horizontal fins will be adjusted to ensure full alignment.

We believe, the above points notwithstanding, that the VMU represents a high quality facade arrangement with the degrees of complexity and clarity of design that reflect the original design concepts. The facade will provide a dramatic change to the area providing an apparently new building whilst at the same time as achieving significant embodied carbon benefits through the retention of the existing structural frame and, as a result, delivering a BREEAM Outstanding retro-fit.



JOINT ARRANGEMENTS

The fin joint sizes are a result of two factors determining the need to maintain this spacing. Firstly a detailed structural analysis has been undertaken to establish the likely movement of the new and existing structural elements. This determined the parameters of the new facade system and the movement it would be required to accommodate and the tolerance of the new and existing elements.

In addition to the impact of the structural movement the effect of weather, most pertinently wind, has also been carefully considered to ensure no damage occurs under any such conditions.

The 15mm joint gap is a result of this detailed work but an additional factor has been ensuring the ease of replacement should fins become damaged - ensuring replacement is practical and without unnecessary dismantling of adjacent elements will ensure the longevity of the building. Any additional gaskets would be impractical to install, would easily be damaged due to the building movement and would likely cause a significant long term maintenance issue as these moved, fell out of place or distorted over time.

At all stages the team has sought to minimise joints whilst working within the parameters of an existing buildings limitations.

Finally, we would add that the VMU was designed to include as many junctions as practicable and therefore the quantity of joints is greater across a relatively small area than would appear on the installed facade. The additional VMU and the imagery of the VMU-2 (section 04), CGI of visually corrected VMU (section 05) and images of the PMU (section 06) above demonstrate the minimal impact of the joints when viewed at full scale.



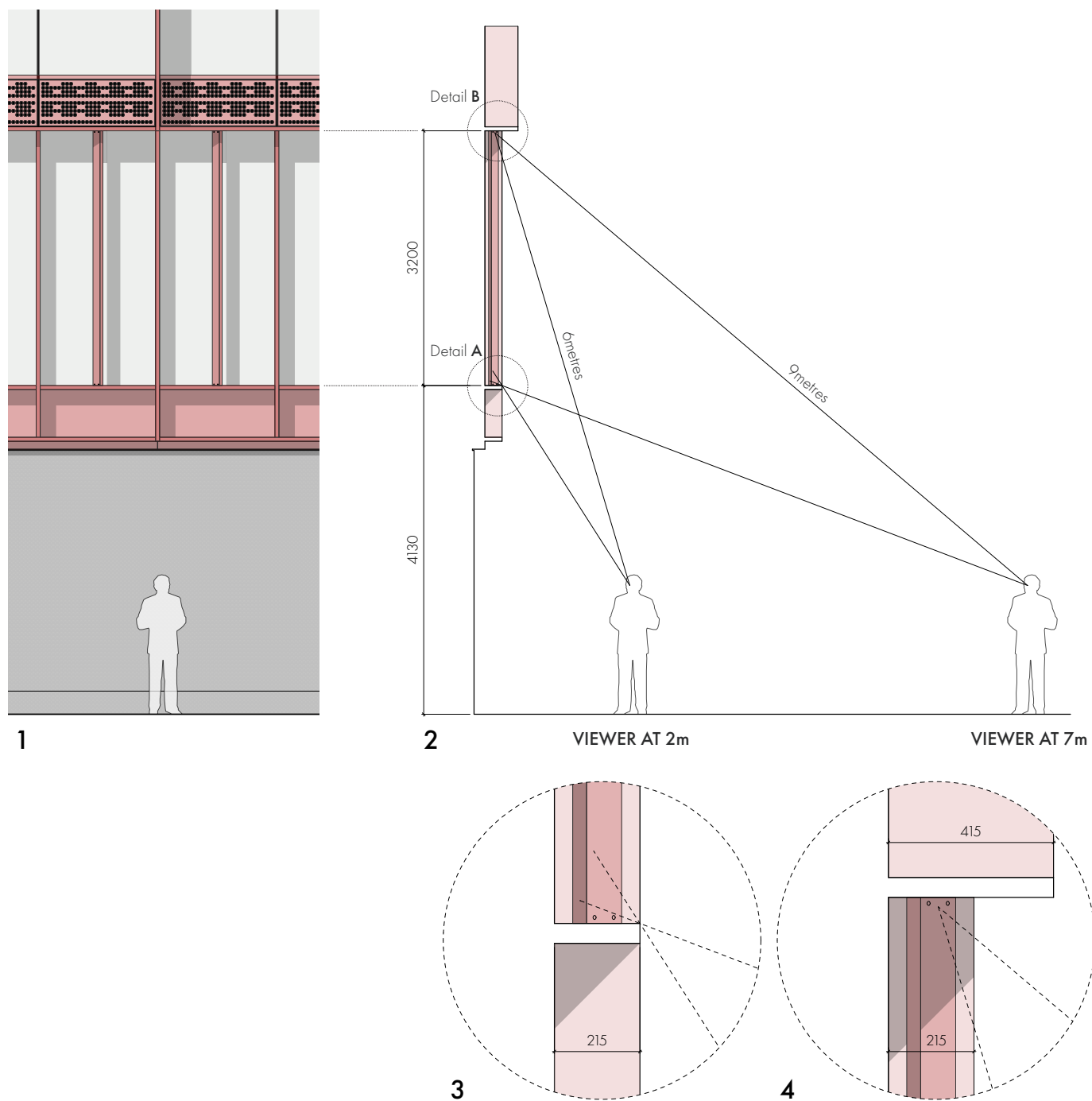
FIXING LOCATIONS & VISIBILITY

Care has been taken throughout the facade design process to minimise the need for any visible fixings. However, where a secondary, intermediate rotated fin spans between expressed transom fins a fixing is required to ensure the robustness of the arrangement is maintained and can withstand the potential loads imposed upon it.

The fixing size has been kept to a minimum and the exposed elements are colour and finish matched to the surrounding elements.

The below diagrams demonstrate that the fixings, when viewed from street-level are not visible at the base and, when they occur at the head, these are within the shadow area of the protruding fin above.

Finally, as the fins are rotated the fixings themselves are not viewed straight-on but obliquely resulting in the half the fixings being concealed to the rear and therefore not visible externally.



REF - 70 GBS-VMU-ZZ11
SECTION & ELEVATION DRAWINGS
Location of Fixings

KEY

- 1 - Typical elevation
Indicating position of rotated fins relative to ground level
- 2 - Typical section
Sight lines of ground level viewer indicated
- 3 - Detail A
Base fixing positions (concealed from view)
- 4 - Detail B
Top fixing positions (in shadow zone)

NOTE - Sections based on typical height of rotated fins from ground level - rotated fin arrangements do also occur at higher levels



VMU REMEDIAL WORKS

The following page indicates the items on the existing VMU that will be addressed in line with the comments received; in summary these are:-

1. Amended detail at junction of unitised curtain wall and precast panels to ensure VMU is an accurate representation of the detail as proposed
2. Reinstall gasket at movement joints to ensure alignment is straight and consistent
3. Ensure all fins are correctly aligned



D

REF - 70 GBS-VMU-ZZ12

IMAGE

Photograph view of VMU

NOTE - The VMU was designed to include as many junctions as practicable and therefore the quantity of joints is greater across a relatively small area than would appear on the installed facade.



REF - 70 GBS-VMU-ZZ13

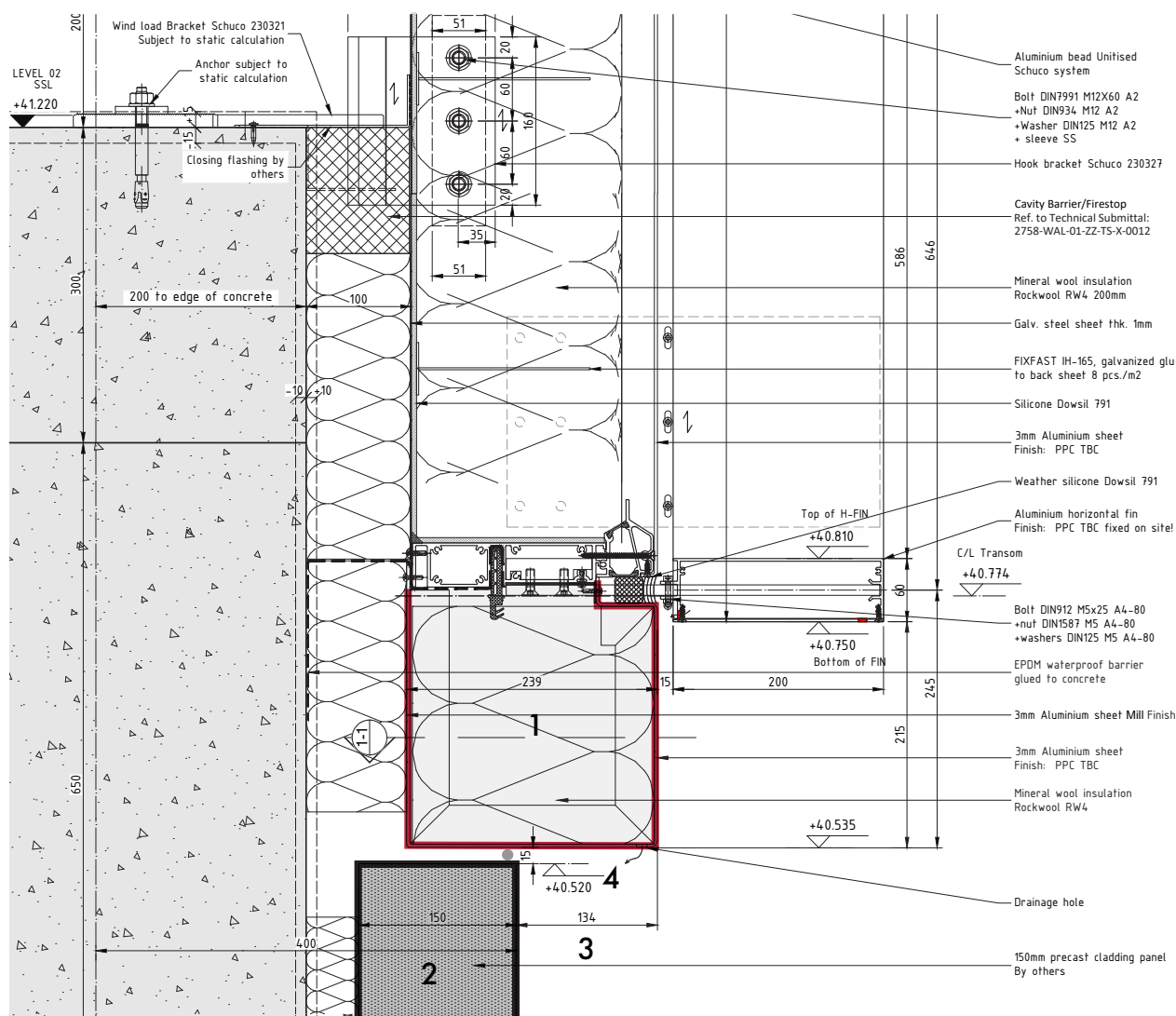
IMAGE

View of VMU

MATERIALS

- 1 - Junction of unitised to precast concrete
Review and amend detail - see drawing on following page
- 2 - Stack-joint gasket
Quality assurance issue - notify contractor and correct
- 3 - Joint Alignment
Quality assurance issue - notify contractor and correct

NOTE - The VMU was designed to include as many junctions as practicable and therefore the quantity of joints is greater across a relatively small area than would appear on the installed facade.



Precast Panel / Unitised Panel Junction Detail

KEY

- 1 - Unitted base flashing - PPC aluminium
PPC D2525 -YW2851 -RAL 3032 (30% matt)
- 2 - Precast Panel
Dark Grey - Honed (polished) - MS728
- 3 - Precast Panel set-back (134mm)
As per installed on VMU
- 4 - Precast & Aluminium Joint (15mm)
Filled with black silicone sealant (as per panel joints)

NOTE - Detail section indicates typical vertical junction detail - flashing and sealant arrangement applies in both horizontal and vertical plane

