

Internal Average Daylight Study

Client: RJE Planning & Developments Ltd
99 Western Road
Lewes
East Sussex
BN7 1RS

Site Details: 34 Eldon Terrace
Reading
RG1 4DX

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Report Details:

Prepared by	Checked by	Date	Job Number	Revision
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1. Introduction & Methodology

Base Energy were instructed by RJE Planning & Developments Ltd to prepare an internal daylight study analysing the basement level flats Kitchen/Living rooms at 34 Eldon Terrace, Reading, RG1 4DX in accordance with BRE Guidelines.

The daylight study is to ensure the comfort, health and safety of building occupants as well as visitors and others within the vicinity is acceptable. It is also to enhance the quality of life in dwellings by recognising those that encourage a healthy and safe internal environment for occupants.

Using industry standard methodology as prescribed by BRE and British Standard guidance – ‘*Site layout planning for daylight and sunlight; a guide to good practice*’ BS209: we have made numerical analyses to ensure compliance with the recommended levels of change in daylight for the habitable rooms of the assess dwelling.

The main criteria used in this analysis to show compliance is the:

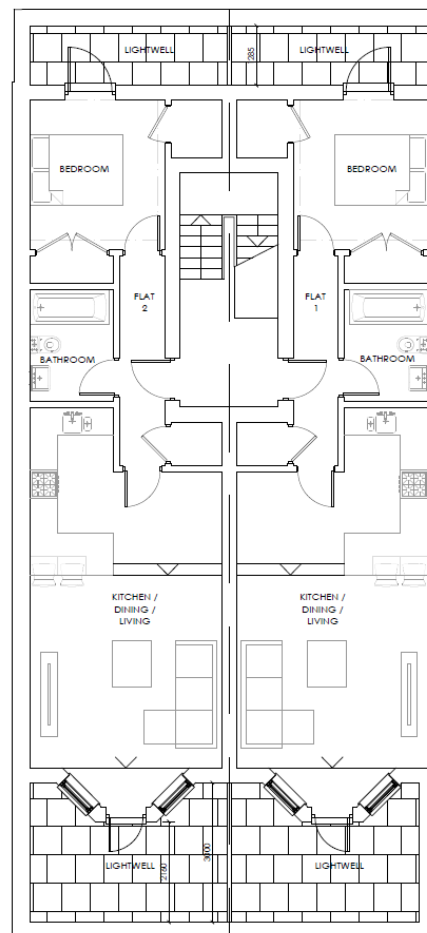
- Average Daylight Factor (ADF)

The ADF is derived from British Standard BS 8206 and is a complex and representative calculation to determine natural internal luminance (daylight). The ADF takes into account such factors as window size, number of windows available to the room, room size and layout, room surface reflectance, and the angle of visible sky reaching the window.

2. Proposed Development

As previously stated, there are 2 basement level flats at 34 Eldon Terrace. Concern being that there may not be adequate internal daylight diffused within the Kitchen/Living Room. Each dwelling is of identical size, shape and orientation.

Basement Dwellings at 34 Eldon Terrace



3. Modelling the site

An analysis model is created of the proposed dwellings and relevant surrounding obstructions allowing analysis, calculations are then run to determine the average daylight factor.

The outputs of those calculations can be exported numerically. Using the BRE guidance which gives absolute figures for the acceptable percentage of daylight, we can then establish if the proposal will have the required daylighting levels stipulated by BRE guidelines.

It is important to note that not all nearby features have been modelled, only those that will affect the daylighting. In accordance with BRE recommendations, trees have been omitted from the calculations.

The reference document for this analysis, BRE Digest 209, provides the methodology for undertaking the calculations as well as benchmark figures for the acceptable reduction in the daylight on existing properties which might be affected by development.

This study has been calculated in accordance with BRE methodology, using

- An CIE overcast sky
- Glass transmission is 0.6 (double glazing with low-emissivity coating)
- Angle of visible sky between 72° and 74°
- Vertical glazed for Unit 1, Sloped for Loft rooms
- Area weighted reflectance of room surfaces at 0.5

For the purposes of this report we have assessed all Kitchen/Living/Dining Room of the left side flat. As both dwellings are identical then the results will apply to both dwellings.

It is also worth noting that these figures assume that internal lighting is available to supplement the available daylight. It is considered that if a room has a Daylight Factor of 5%, then it will be sufficiently well lit, even in the absence of electric lighting. It is deemed by the guidance that if the ADF criteria are met, then the occupiers of the dwelling will have sufficient daylight, although it should be noted that these figures are guidelines only, and assumptions have been made on window types.

4. Internal Daylight

Internal daylight levels for the dwelling's kitchen/living/dining room has been calculated in accordance with BRE methodology, using a CIE overcast sky at an illuminance value of 8500 lux. The calculations assume a white ceiling, cream walls and mid-grey carpet or wooden floor.

BS 8206 recommends the following values for particular room types:

- Kitchens/Living/Dining Room: 1.5%-2%
- Bedrooms: 1%

It is deemed by the guidance that if the ADF criteria are met, then the occupiers of the dwelling will have sufficient daylight.

Flat A – Ground Floor 3 Bedroom Apartment	Recommended ADF (%)	Actual ADF (%)
Kitchen/Living/Dining Room	1.5%-2%	1.7%

It can be seen from the results above that the assessed room meets the required internal daylight factor in accordance with BRE Guidelines.

The internal illuminance captures for this room can be seen in Appendix B.

5. Conclusion

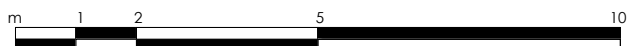
Using industry standard methodology, we have made numerical analyses to calculate the recommended levels of daylight for the rooms detailed above. The main criteria used in this analysis to show compliance is the Internal Average Daylight Factor (ADF) reflected as a percentage.

Full analysis of the dwellings Kitchen/Living Room has been undertaken from information provided in Appendix A.

As can be seen from the results of the analysis that the Kitchen/Living Room meets and exceeds the minimum internal daylight requirements in accordance with BRE Guidelines.

Appendices

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rev no:	A
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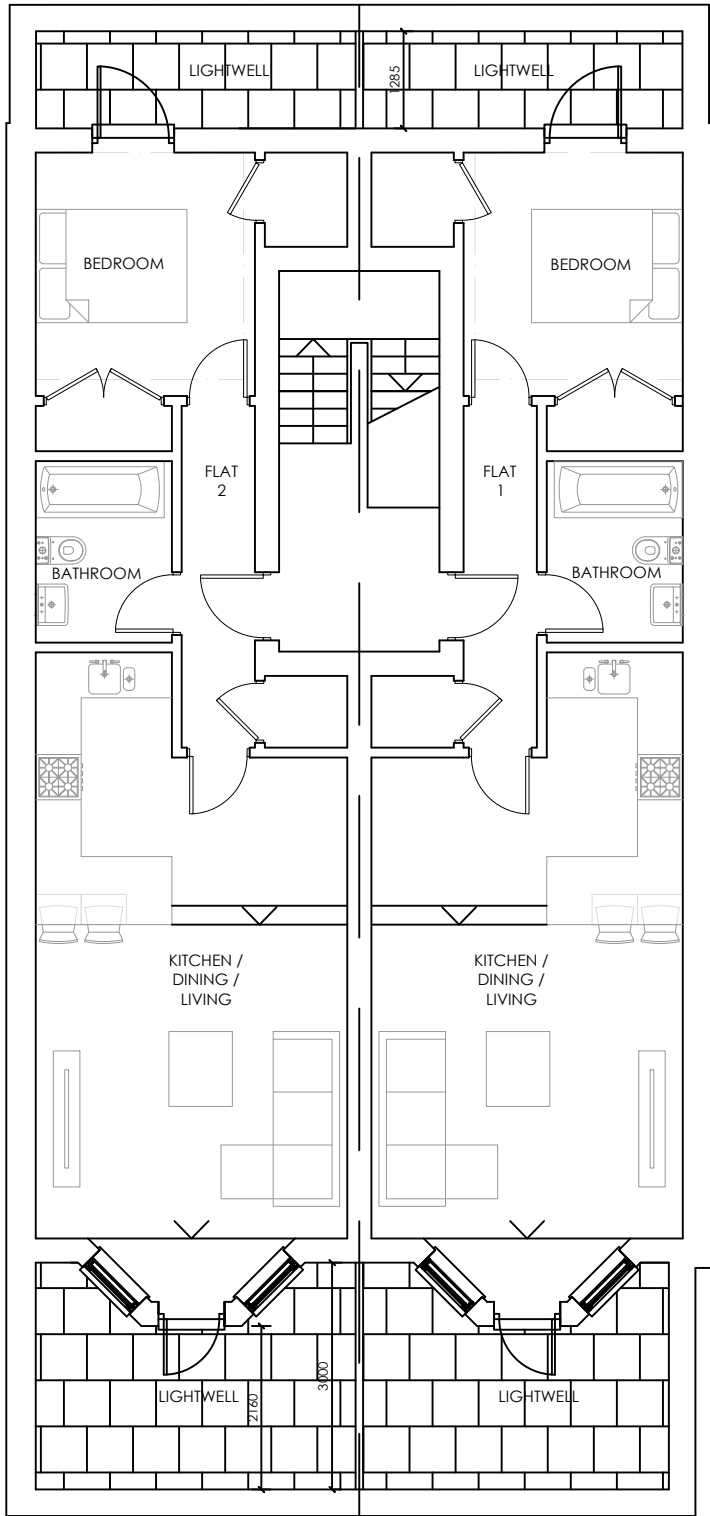
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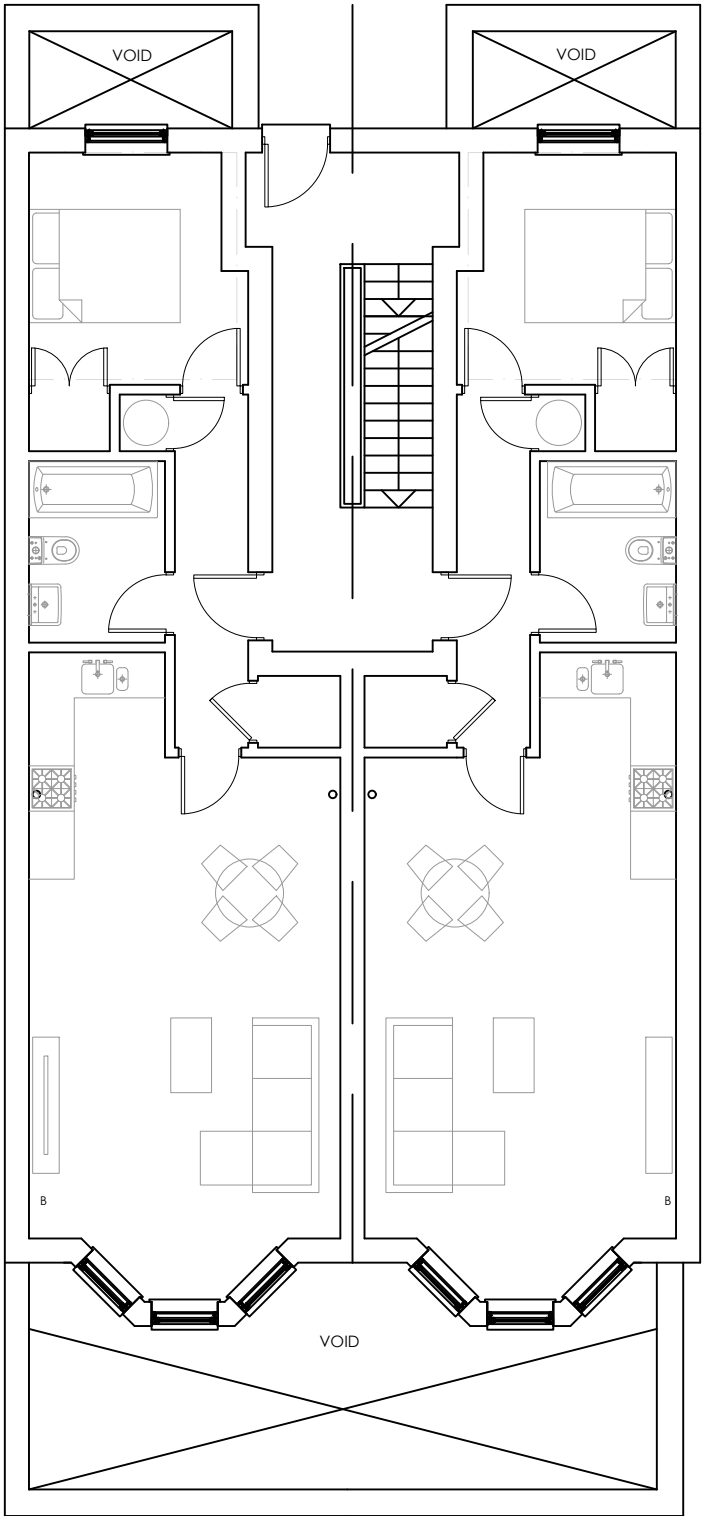
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drawing title:	dwg no:	1522-PR-311	rev no:	A
	BASEMENT & GROUND FLOOR - PROPOSED			
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BASEMENT LEVEL - PROPOSED



GROUND FLOOR PLAN - PROPOSED (UNCHANGED)



REAR LIGHTWELL:AS BUILT



REAR LIGHTWELL: PROPOSED

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34 ELDON TERRACE
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dwg no:

1522-PR-321

rev no:

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drawing title:

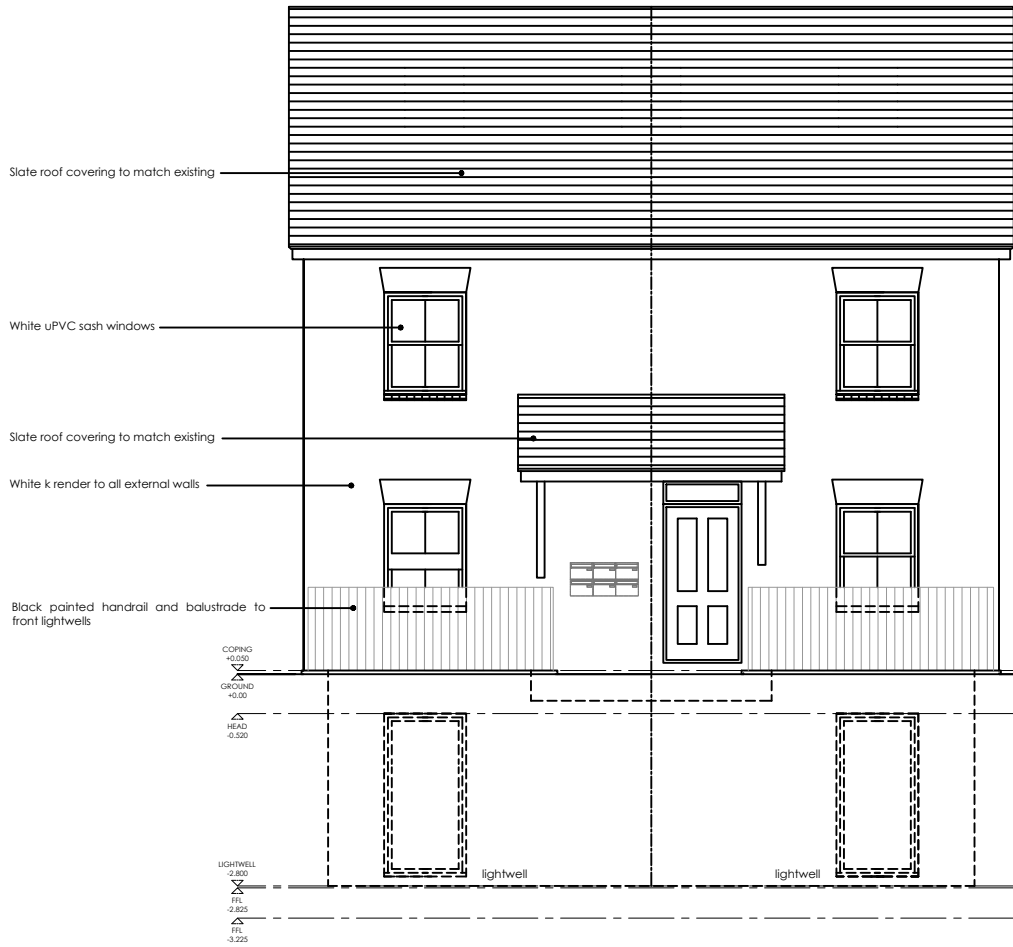
ELEVATIONS -
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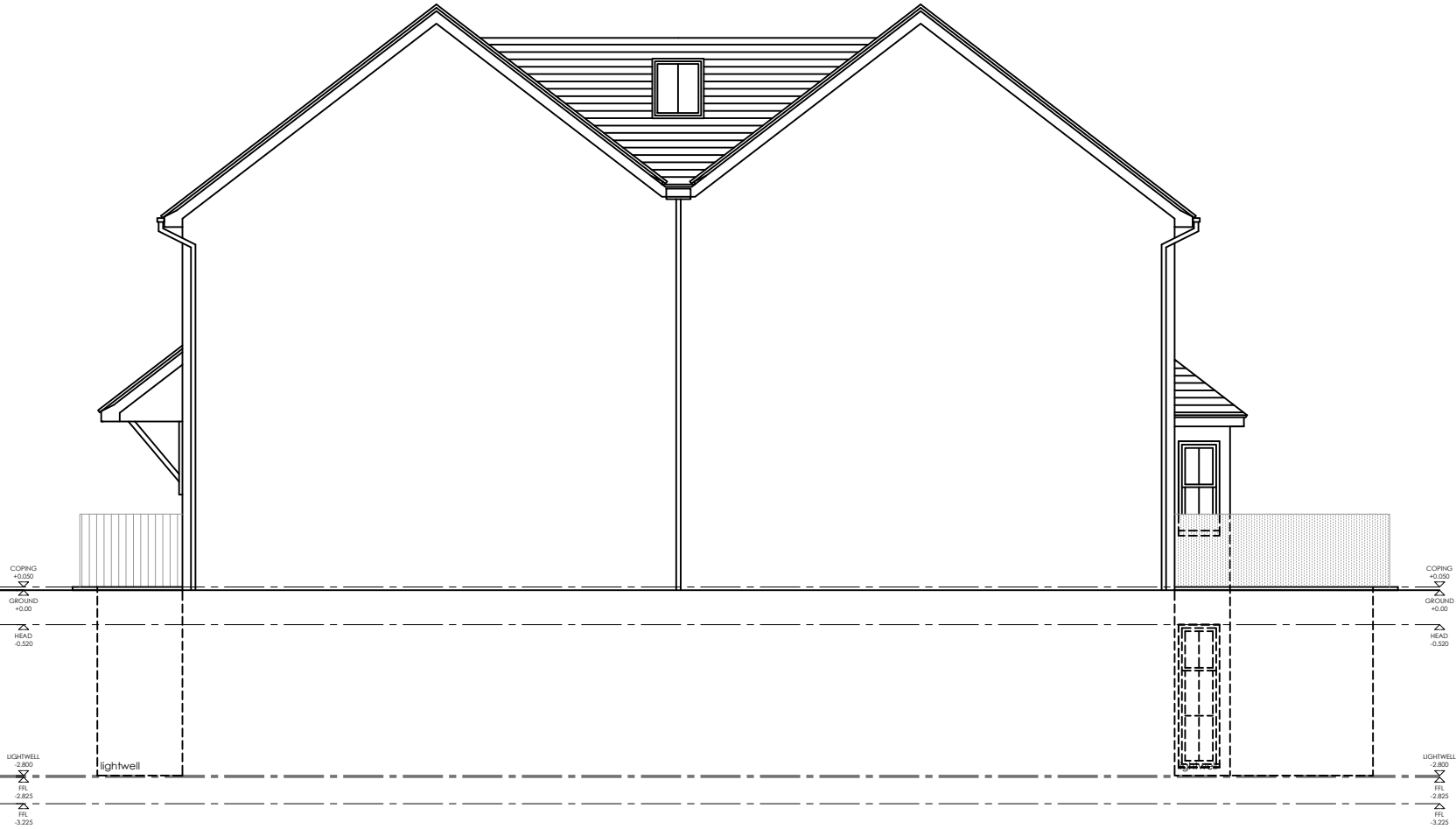
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FRONT ELEVATION - PROPOSED



SIDE ELEVATION - PROPOSED



REAR ELEVATION - PROPOSED

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dwg no:

1522-PR-331

rev no:

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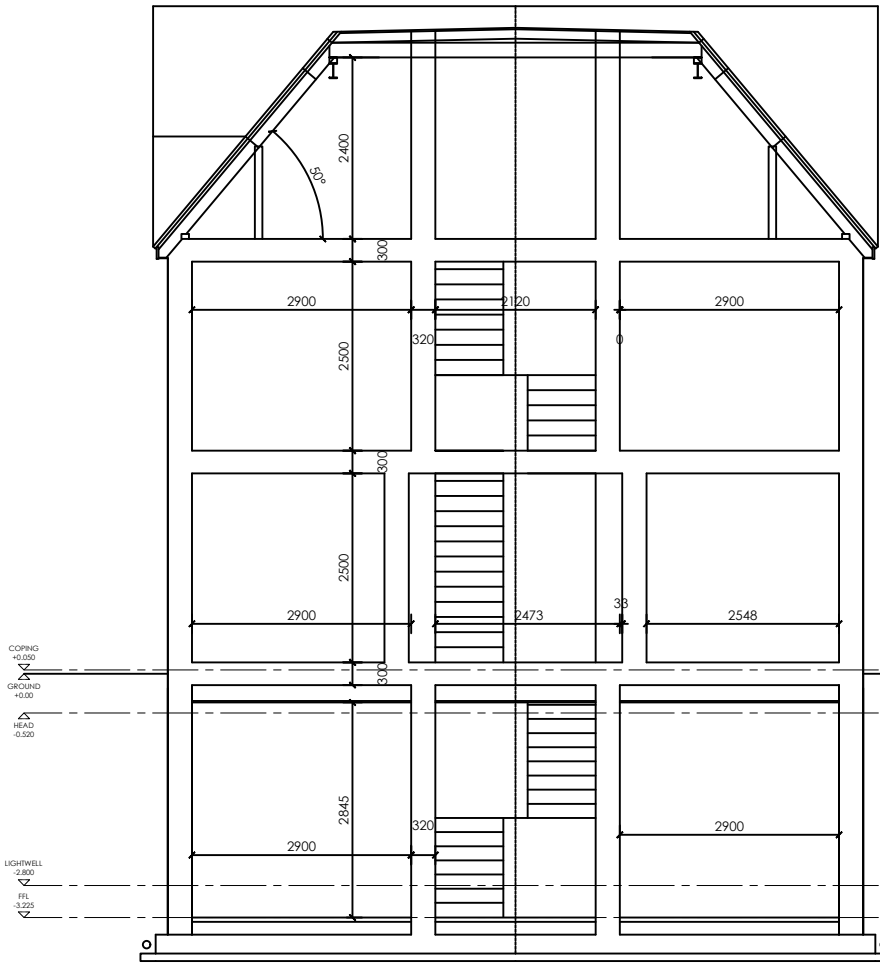
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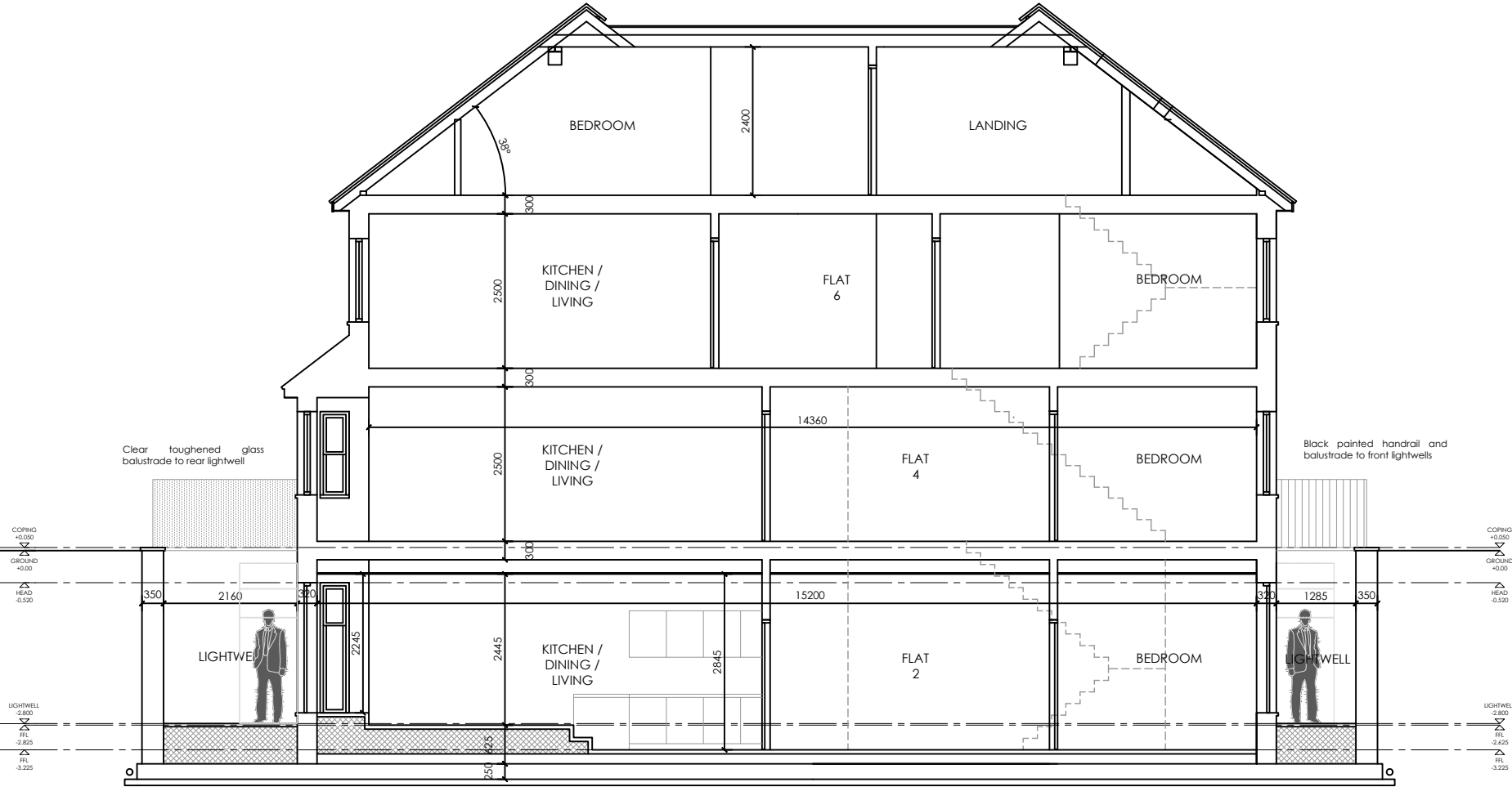
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SECTION AA - PROPOSED (UNCHANGED)



SECTION BB - PROPOSED



Appendix A: Proposed Plans

Appendix B: Illuminance Plans

Basement Level - Kitchen/Living/Dining Room

