Report

# Sustainability and Energy Statement – Response to Greater London Authorities' (GLA) Comments

## ST. PANCRAS CAMPUS, CAMDEN

W.RE Developments Ltd.

Report

CONFIDENTIAL

**Revision:** 1.0 - Final
**Issued**: 25 October 2019

Norman Disney & Young
A TETRA TECH COMPANY

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# 1 INTRODUCTION

This report has been produced in response to the comments received by GLA on the Energy and Sustainability Statement for planning prepared by Norman Disney & Young on 9 August 2019 for the purpose of the planning application of St Pancras Commercial Centre development.

## 2 RESPONSES

| Comments / Issues | Response |
|---|---|
| 1. The Energy Hierarchy has been followed; the proposed strategy is generally supported; however, the applicant should submit additional information to ensure compliance with the London Plan policies. | No action required specifically in response to this comment. Additional information will be supplied in response to specific comments. |

| Comments / Issues | Response |
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| 2. The applicant has used the GLA's Carbon Emission Reporting spreadsheet, which has been developed to allow the use of the updated SAP 10 emission factors alongside the SAP 2012 emission factors. This is welcomed, although they should submit the spreadsheet itself rather than a pdf version. They should also note that the non-domestic Be Green carbon emissions do not come through into the reporting tables, and they should address this (it appears that they need to enter 0 into the "Energy generated by renewable" column for retail and light industrial. The link to the spreadsheet can be found here: https://www.london.gov.uk/what-we-do/planning/planning-applications-and-decisions/pre-planning-application-meeting-service-0. This is encouraged to be submitted. | The GLA Carbon Emission Reporting spreadsheet has been updated accordingly. A copy of the spreadsheet is also provided. Please see supporting documentation (Ref 1). |

| Comments / Issues | Response |
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| 3. For the purposes of this assessment, the applicant will be estimating the $CO_2$ emission performance against London Plan policies using the SAP 10 emissions factors. This is welcomed. | No action required. |

| Comments / Issues | Response |
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| **BE LEAN**<br>4. A range of passive design features and demand reduction measures are proposed to reduce the carbon emissions of the proposed development. | No action required. |

| Comments / Issues | Response |
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| **$CO_2$ and Energy Performance**<br><br>**Domestic**<br><br>5. The domestic element development is estimated to achieve a reduction of 7 tonnes per annum (19%) in regulated $CO_2$ emissions compared to a 2013 Building Regulations compliant development. | No action required. |

| Comments / Issues | Response |
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| 6. The applicant should provide the 'be lean' DER and TER output sheets from the modelling software.<br>The DER/TER worksheets are provided attached as supporting documentation (See ref 2).<br><br>7. The applicant has assumed bespoke thermal bridging values; they should confirm their assumption and that the construction type.<br>Approved construction details have been assumed. Construction detail drawings have not been developed at the current stage (RIBA stage 2) as they are part of the RIBA stage 3 and 4 design development.<br><br>**Non-domestic**<br><br>8. The non-domestic element of the proposed development is estimated to achieve a reduction of 35 tonnes per annum (16%) in regulated $CO_2$ emissions compared to a 2013 Building Regulations compliant development.<br>9. The applicant should provide the 'be lean' BRUKL sheets from the modelling software. | The BRUKL documents for the 'Be Lean' stage are provided. Please see supporting documentation (Ref 3). |

| Comments / Issues | Response |
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| **Energy Demand and Fabric Energy Efficiency**<br><br>10. The applicant has provided the predicted energy demand for the development, this is welcomed. | No action required. |

| Comments / Issues | Response |
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| 11. In line with the latest GLA guidance the applicant should report the overall Part L Fabric Energy Efficiency (FEE) performance of the development for both the baseline and the 'be lean' stages of the energy hierarchy in MWh/year and kWh/m$^2$. The percentage of improvement (%) should also be provided. | Please see supporting documentation (Ref 4). Ref 4 includes the block compliance report from SAP 2012, which shows that the area-weighted average DFEE is 34.33 kWh/m$^2$/yr and the area-weighted average TFEE is 40.74 kWh/m$^2$/yr.<br><br>These correspond to area-weighted average DFEE: 91.31MWh/year and TFEE: 108.36 MWh/year. |

| Comments / Issues | Response |
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| **Cooling and Overheating**<br><br>12. The demand for cooling and the overheating risk will be minimised through a low glazing g-value, external shading and consideration of opening areas.<br>**Domestic**<br><br>13. The applicant has completed the domestic overheating checklist to identify potential site-specific risks which may lead to overheating, this is welcomed. | No action required. |

| Comments / Issues | Response |
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| 14. A Dynamic Overheating Analysis has been undertaken to assess the overheating risk within the dwellings using the CIBSE TM59 methodology and the London Design Summer Year 1 (DSY1) weather file: 2020s, High emission, 50% percentile scenario. The applicant should also investigate the risk of overheating using the DSY 2 & 3 weather files. | The overheating risk in the proposed apartments has also been investigated using the DSY 2 and 3 weather files.<br>The results indicated that the operative temperatures in the proposed apartments are likely to exceed the overheating risk criteria, when the DSY 2 and 3 weather files are used.<br><br>The Energy Assessment Guidance recognises in section 9.14 that passing the criteria for the DSY2 and DSY 3 weather files is challenging. On this basis the design has implemented all measures possible to reduce the risk of overheating in line with the cooling hierarchy, as detailed in the Sustainability and Energy Statement, section 6, page 31, and also outlined below: |

| Comments / Issues | Response |
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| | 1. *Minimising internal heat generation through energy efficient design:*<br>Heat generation in the proposed Development has been minimised through the provision of fully insulated pipework to reduce heat losses and highly efficient LED lighting to reduce internal heat gains. Risers have been appropriately located within the building, to minimise the pipework running horizontally within the floor plate hence reducing the chance of heat losses from hot water pipework to main occupied spaces. The risers are located away from living room areas and bedrooms, being in cupboards in the corridors, therefore, they are away from the main occupied spaces of the apartments.<br><br>2. Reducing the amount of heat entering the building in summer<br>Careful consideration has been given to design and optimisation of the proportions of the openings at the residential blocks, to effectively control solar gains, without compromising the internal daylight levels and the energy/carbon performance of the apartments.<br>The openings in the majority of the apartments are shaded by the balconies of the floor above. At the top floor apartments, where wide overhangs cannot be specified,<br>due to planning restrictions, the openings are smaller, or have different configuration than those at the floors below, to reduce the overheating risk in these apartments. The glazing is proposed to have a low g-value (0.40) to reduce heat gains. The proposed g-value is optimised considering both how overheating risk and how useful solar gains can be utilised to reduce heating demand during winter and hence maintain a good carbon/energy performance for the residential units. A lower g-value would have a negative impact in the SAP calculation and carbon emissions of the residential units, because it would increase significantly the heating demand due to the very limited solar gains.<br>Additionally, the building fabric is proposed to have high levels of thermal insulation and low U-values, which prevent heat transfer through the fabric.<br><br>Therefore, the building fabric parameters have been optimised to effectively control solar heat |

| Comments / Issues | Response |
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| | gains throughout the year.<br><br>It should be noted that internal blinds have not been assumed in the thermal model. Internal blinds can interfere with the natural ventilation strategy, as referenced by CIBSE TM 59. Considering that the effectiveness of internal blinds in controlling solar gains depend on the occupant's behaviour and preferences and hence relying on internal blinds to demonstrate compliance with the overheating risk would not be suitable.<br><br>3. Use of thermal mass and high ceilings to manage the heat within the building<br>The use of exposed thermal mass at the apartments is considered limited, as ceilings will be installed to allow for electrical and mechanical services installation.<br><br>4. Passive ventilation<br>The apartments will comprise openable windows for purge ventilation, to tackle the overheating risk during hot periods. A natural ventilation strategy for purge ventilation is feasible for the proposed apartments, as security risks and external noise levels are considered minimal in the area surrounding the site. The potential for cross ventilation has been maximised where possible, by placing windows at both aspects of the apartments to enhance air movement within the space and remove excess heat more effectively from the space.<br><br>5. Mechanical ventilation with Heat Recovery<br>The air tight building envelope of the proposed apartments (which is particularly required to reduce reliance on heating via passive design measures) will benefit the operation of a mechanical ventilation with heat recovery (MVHR) system to provide background ventilation to the apartments. The MVHR system is particularly beneficial in central London housing developments because:<br>- It enhances Indoor Air Quality by the additional supply of fresh air in all occupied areas<br>- It recovers heating from the extracted air and reduces heating demand during the winter period, whilst ensuring |

| Comments / Issues | Response |
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| | supply of conditioned fresh air (via the heat recovery) when temperatures outside are low.<br>- It reduces further the risk of overheating (by pass function during summer period) via the provision of additional fresh air.<br><br>The ventilation rates supplied by the MVHR system, have been calculated so that they tackle the overheating risk, without requiring the operation of boost mode, which is in accordance with the CIBSE TM59 guidance. The MVHR system will comprise summer bypass to prevent overheating during summer months.<br><br>Therefore, the proposed strategy has implemented all measures that are technically feasible, within the context of the limitations imposed by the planning requirements on external shading (i.e. wide overhangs are not permitted on the top floor apartments) and optimised them against various environmental parameters including energy consumption, carbon emissions and daylight, along with the overheating risk criteria. |

| Comments / Issues | Response |
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| 15. The results show that the design proposals are anticipated to meet the CIBSE recommendations for comfort against DSY1, assuming natural ventilation i.e. occupants can open the windows, however, also requires mechanical ventilation; reliance on this is not encouraged. It is unclear whether internal blinds have been assumed. Therefore, the applicant should consider further passive design measures in line with Policy 5.9, to reduce the reliance on mechanical ventilation and ensure all units pass the requirements with this features at a minimum. | The cooling hierarchy recognises the use of mechanical ventilation *''to make use of 'free cooling' where the outside air temperature is below that in the building during summer months. This will require a by-pass on the heat recovery system for summer mode operation.''.*<br>The proposed strategy has maximised all other measures (the window-to-wall ratio has been optimised to provide adequate internal daylight levels, shading from balconies and reduced window area in the top floor apartments, where wide overhangs are not permitted due to planning restrictions, high thermal mass, dual aspect apartments), as described above.<br>The apartments are predominantly naturally ventilated, with supplementary mechanical ventilation with heat recovery (with summer bypass) to be also proposed. The supply rates of the MVHR system have been suitably specified to assist in tackling the overheating risk, without a boost ventilation mode, which is in accordance with the CIBSE TM59 guidance. |

| Comments / Issues | Response |
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| 16. It is not expected that 'active cooling' will be proposed for any residential developments. | No cooling is proposed. |

| Comments / Issues | Response |
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| **Non-domestic**<br><br>17. The area weighted average (MJ/m2) and total (MJ/year) cooling demand for the actual and notional building should be provided and the applicant should demonstrate that the actual building's cooling demand is lower than the notional. | The area weight average and total cooling demand for the actual and notional building is summarised in the following table: |

St Pancras Commercial Centre - Cooling demand breakdown

| Building type | Area ($m^2$) | National ($MJ/m^2$) | Proposed ($MJ/m^2$) | National (MJ/annum) | Proposed (MJ/annum) |
|---|---|---|---|---|---|
| Offices | 14,779.0 | 93.58 | 67.03 | 1,383,032.42 | 990,591.44 |
| Retail | 777.5 | 227.94 | 179.88 | 177,228.40 | 139,855.25 |
| Light Industry | 2,947.9 | 5.17 | 8.86 | 15,243.07 | 26,120.82 |
| **Total:** | **18,504.4** | **85.14** | **62.50** | **1,575,503.89** | **1,156,567.52** |

| Comments / Issues | Response |
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| 18. A Dynamic Overheating Analysis to assess the overheating risk should be carried out. This should follow the CIBSE TM52 methodology for the London Design Summer Year 1 (DSY1) weather file: 2020s, High emission, 50% percentile scenario. The applicant should also investigate the risk of overheating using the DSY 2 & 3 weather | The building design has been optimised and the weighted cooling demand has been reduced by 26.6% over the notional building. Glazing with low g-value has been proposed to mitigate the high solar gains.<br><br>The predominant use of the building is offices and due to the associated high loads, it is suggested that mechanical cooling will be |

| Comments / Issues | Response |
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| files. | provided to ensure the occupants' thermal comfort.<br><br>An overheating study following the CIBSE TM52 guidance has not been deemed to add value to the development as due to the nature and location of the building a natural ventilation strategy would not be feasible. This was included in NDY's report introducing the energy strategy principles and approach to GLA during the pre-application stage. |

| Comments / Issues | Response |
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| **BE CLEAN**<br><br>**<u>District heating</u>**<br><br>19. The applicant has identified the Somers Town Energy district heating network within the vicinity of the development although Camden Borough have confirmed that the connection is not currently feasible although the network may be expanded in the direction of the proposed development.<br><br>20. The applicant is not proposing a site wide heat network and is instead proposing multiple separate heating systems, including one for the office, a communal network for the affordable residential units and individual heating systems for the market units. This is not acceptable. As the development is within a district heating opportunity the applicant is required to provide a site-wide heat network served by a single energy centre to future proof the development for easy connection to a wider heat network should one become available. Capped-off connections should be provided to the shell retail and light industrial units. Evidence is required to demonstrate that a site-wide network is provided:<br>• A drawing showing the route of the heat network linking all buildings/uses on the site should be provided.<br>• Further information on the floor area, internal layout and location of the energy centre should be provided. | The commercial block and residential blocks are each served by communal heating, cooling and DHW systems in each building. The market units will utilise a communal system, not individual. Systems for the residential blocks are provided with solar thermal collectors. These systems, although not interconnected with each other, could be connected to a future 5th generation heat network. As discussed in the response to Issue 21 below, this would only occur in a major refurbishment should a suitable heat network be extended near to the site.<br><br>We have communicated with Camden Council to understand expected timeframes for future expansion of the existing Somers Town Energy heat network which is the nearest heat network. We also understand that the nearest pipework to this site is in Chalton Street, over 600 m away. While we understand there is ambition to extend this pipework northwards in the future but we also understand there are no firm expansion plans. |

| Comments / Issues | Response |
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| 21. Indicative information on the network's operating temperatures (flow and return temperatures) should be submitted as well as detailed information on the anticipated distribution heat losses. The applicant should design the system in such a way that losses are minimised as far as possible. The applicant should provide a commitment to ensure that the development is designed to allow future connection to a district heating network; for instance, the Somers Town Energy network. They should not assume the future connection will be a 5th generation low temperature network. Drawings demonstrating how the site is to be future-proofed for a connection to a district heating network should be provided; these should include space provision for heat exchangers in the plant room, isolation valves, safe-guarded pipe route to the site boundary etc. | The current energy strategy is based on using low grade heat generated by air source heat pumps (ASHPs) in accordance with the all-electric strategy of the London Plan and decarbonization of the electricity grid. While the proposed design will be compatible with the next generation of heat networks (5th generation), where ambient temperature is used in conjunction with heat pumps, connection would only be made with major refurbishment of the scheme including plant replacement.<br><br>A 5th generation network would need to be extended near the site for connection to a heat network to be feasible. By the time such a network becomes available (perhaps decades away), the objectives of the scheme may have changed or new technologies become available.<br><br>The current design does not incorporate gas-fired boilers and associated plantrooms which would ordinarily be sited in a basement plantroom to serve a site-wide network. Such a plantroom could be oversized to account for future installation of heat exchangers (energy substation). In the scenario of future connection to a heat network, boilers would be removed and heat exchangers installed. In practice, there may an area swap to permit staging and continuity of energy supply to the building.<br><br>Under the current design where |

| Comments / Issues | Response |
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| | heating plant is roof mounted due to the use of ASHPs, there is no exchangeable basement plant space. Any safeguarded space would preclude the use of this space in the meantime.<br><br>Please refer to Ref 8 showing a possible space in the basement for future heat exchangers and associated pumps, along with the pipework route to link all buildings. This would consume approx. 50 m2 of space for plant and another 20 m2 for access for equipment, personnel and pipework to the building. As there are no clear plans for extension of a heat network near the site, is it not appropriate to provide soft-spots in the building construction as the locations of incoming pipework are unknown. |

| Comments / Issues | Response |
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| **BE GREEN**<br><br>22. The applicant has investigated the feasibility of a range of renewable energy technologies and is proposing to install Solar thermal panels and Heat Pumps. | No action required. |

| Comments / Issues | Response |
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| 23. A reduction in regulated $CO_2$ emissions of 66 tonnes per annum (30%) will be achieved through this third element of the energy hierarchy | No action required. |

| Comments / Issues | Response |
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| **Heat pumps**<br><br>24. Centralised heat pumps are being proposed in the form of Air Source Heat Pumps to some elements | The heat pump's total capacity is 1400 kW Cooling, 1200 kW Heating. |

| Comments / Issues | Response |
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| of the development. For office areas, Heat Recovery ASHPs will provide space heating (SCOP 3.58) and cooling (SEER (4.11). Water source heat pumps and thermal store will provide the DHW (SCOP 3.34), served by the LTWH loop. It is assumed the retail and industrial units will have local ASHPs, being shell units. The residential units have separate strategies, with a centralised network with ASHPs provided to heat the affordable units (SCOP 1.76), and individual heat pumps provided for the market units for heating and cooling (SCOP 3.12, SEER 3.43). Once the comments on the site wide network in the Be Clean section have been addressed, further information on the centralised heat pumps should be provided including:<br>a. The heat pump's total capacity (kWth)..<br>b. An estimate of the heating and/or cooling energy (MWh/annum) the heat pumps would provide to the development and the percentage of contribution to the site's heat loads. | Please refer to table 11 of the Energy strategy and sustainability statement report. Heat pumps will provide 100% of the development's heating and cooling load. |

| Comments / Issues | Response |
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| c. Details of how the Seasonal Coefficient of Performance (SCOP) and Seasonal Energy Efficiency ratio (SEER) has been calculated for the energy modelling. This should be based on a dynamic calculation of the system boundaries over the course of a year i.e. incorporating variations in source temperatures and the design sink temperatures (for space heat and hot water). | The SCoP and SEER figures for the heating, cooling and DHW hot water plant has been extracted from the manufacturers' data sheets.<br>For the commercial building this is as follows:<br>Heating/ Cooling: Rhoss TXAETY-4400 ASDP1<br>DHW: EW-HT-0512 |

| Comments / Issues | Response |
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| d. Manufacturer datasheets showing performance under test conditions for the specific source and sink temperatures of the proposed development and assumptions for hours spent under changing source | The manufacturers' data sheets are provided. See supporting documentation (ref 5). DHW is provided by utilising the pre-heated hot water loop from the |

| Comments / Issues | Response |
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| temperatures. Whether any additional technology is required for hot water top up and how this has been incorporated into the energy modelling assumptions. | heat recovery chiller plant, while the dedicated DHW heat pump tops up the load. |

| Comments / Issues | Response |
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| e. An estimate of the expected heating costs to occupants, demonstrating that the costs have been minimised through energy efficient design. The cost estimate should include for annual fuel costs, any available subsidies e.g. RHI, annual operations and maintenance costs, annual meter reading and billing administration costs, and plant replacement costs. | The costs resulting from the operation of the proposed heating system (heating provided via ASHPs and DHW via solar thermal panels and ASHPs) have been compared against the costs that would result from a gas boiler system providing both heating and DHW. Ref 7 provides the detailed calculations, which show that the proposed system would result in marginally higher running costs compared to a gas boiler system, based on current gas and electricity prices (market average prices for domestic consumers). The proposed system has been estimated to result in operational costs at the range of £174 per year, while the gas boiler system is estimated to result in operational costs at the range of £142 per year. The marginal cost uplift of £32 per year is not considered significant and hence is not anticipated to have a negative impact on the affordability of the flats. Considering also the higher carbon emissions reduction and low impact on air quality resulting from the proposed system compared to a gas boiler system, the proposed solution is considered to be more beneficial, from a |

| Comments / Issues | Response |
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| | holistic perspective, without compromising the affordability of the apartments. |

| Comments / Issues | Response |
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| f. The expected heat source temperature and the heat distribution system temperature with an explanation of how the difference will be minimised to ensure the system runs efficiently. | The entire low temperature hot water system shall operate at a nominal 45°C. Losses are minimised by ensuring insulation is installed in accordance with current regulations and standards. Pipework reticulation will be optimised to reduce unnecessary distribution and heat loss. Heating water piping insulation materials shall be of:<br>• mineral fibre insulation having:<br>i. a thermal conductivity not exceeding 0.037 W/mK at a mean temperature of 50oC<br>ii. a nominal density of 120 kg/m3 for rockwool<br>• Flexible closed cell nitrile rubber insulation having:<br>• flexible closed cell nitrile rubber insulation having:<br>i. a thermal conductivity not exceeding 0.038 W/mK at a mean temperature of 20oC<br>• close fitting pre-formed sections with facings<br>• a minimum wall thickness which is the greater of:<br>i. as scheduled and/or shown on the drawings<br>ii. as required by the referenced Standards/Codes |

| Comments / Issues | Response |
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| | iii. as required by the following table: |

| Pipe Size (DN) | Fluid Temperature (°C) | Insulation Thickness (mm) | |
|---|---|---|---|
| | | Glasswool and Rockwool | Flexible Closed Cell Nitrile Rubber |
| Less than 65 | 30 to 100 | 25 | 25 |
| >65 to 150 | 30 to 100 | 25 | 25 |
| >150 to 300 | 30 to 100 | 38 | 50 |

| Comments / Issues | Response |
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| g. A commitment to monitor the performance of the heat pump system post-construction to ensure it is achieving the expected performance approved during planning. (It is recommended that boroughs condition this). | The heat pumps will be monitored post-construction to confirm that expected performance as estimated at planning stage can be achieved. |

| Comments / Issues | Response |
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| **Solar Panels**<br>26. 96 $m^2$ of solar thermal panels are proposed on the roof of the residential building, which corresponds to 3 $m^2$ per apartment. The applicant should confirm the kWh of annual renewable energy generation. | The total output of the solar thermal system proposed at the marketable apartments block has been calculated at 16,674 kWh/year.<br>The total output of the solar thermal system proposed at the marketable apartments block has been calculated at 12,596 kWh/year.<br>In total, the solar thermal system produces 29,270 kWh/year for both marketable and affordable apartments. |

| Comments / Issues | Response |
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| 27. 118 $m^2$ of net PV area is being proposed to the office building roof. The applicant should confirm the kWh of annual renewable energy | The contribution is 12,222 kWh/year, offsetting 6.34 tones of $CO_2$ per year under |

| Comments / Issues | Response |
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| generation. | the updates described in the response to 28 below. |

| Comments / Issues | Response |
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| 28. It appears that there may be additional room for solar panels and a detailed roof layout (with labelled areas showing uses) should be provided demonstrating that the roof's potential for a PV and solar thermal installation has been maximised. The applicant is required to maximise the on-site savings from renewable energy technologies, regardless of the London Plan targets having been met, and therefore the PV proposals should be reviewed. | Updated plans have been provided to ensure that that the contribution of renewables has been maximised. Please see attached supporting documentation (ref 6). At the same time, the team has optimised allocation of PVs on the roof of the commercial block to ensure any overshading is minimised. As such the effective roof area of PVs is proposed to be 100m2 panel area. Although this is less than the previously suggested 100 m2, the team is proposing the installation of high efficiency PV panels (19%). The following PV properties have been assumed for the energy model.<br><br>This would increase the contribution of renewables to 12,222 kWh/year, offsetting 6.34 tones of $CO_2$ per year.<br><br>• PV panel area: 100 $m^2$<br>• PV panel type: Monocrystalline silicon<br>• Module nominal efficiency: 19%<br>• Orientation: South facing<br>• Tilt: 30% |

| Comments / Issues | Response |
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| Comments / Issues | Response |
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| **DOMESTIC CARBON SAVINGS**<br><br>Based on the energy assessment submitted at stage I, the table below shows the residual $CO_2$ emissions after each stage of the energy hierarchy and the $CO_2$ emission reductions at each stage of the energy hierarchy for the domestic buildings.<br><br>Table: $CO_2$ emission reductions from application of the energy hierarchy<br><br>An on-site reduction of 22 tonnes of $CO_2$ per year in regulated emissions compared to a 2013 Building Regulations compliant development is expected for the domestic buildings, equivalent to an overall saving of 55%. | No action required. |

| | Total residual regulated $CO_2$ emissions | Regulated $CO_2$ emissions reductions | |
|---|---|---|---|
| | (tonnes per annum) | (tonnes per annum) | (per cent) |
| Baseline i.e. 2013 Building Regulations | 40 | | |
| Energy Efficiency | 32 | 7 | 19% |
| CHP | 32 | 0 | 0% |
| Renewable energy | 18 | 15 | 37% |
| **Total** | | 22 | 55% |

| Comments / Issues | Response |
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| 29. The carbon dioxide savings exceed the on-site target set within Policy 5.2 of the London Plan. | No action required. |

| Comments / Issues | Response |
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| 30. The domestic buildings are required to meet the zero carbon target as the application was received by the Major on or after the 1st October 2016. The applicant should therefore ensure that the remaining regulated CO2 emissions are met through a contribution to the borough's offset fund. | No action required. |

| Comments / Issues | Response |
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| 31. The applicant is required to confirm either the amount of funding that will be paid into the borough's carbon offset fund or that an agreement has been reached with the borough that the applicant will undertake a carbon reduction project off-site to meet the shortfall. In both cases evidence | Camden Property Holdings will review the calculated cash-in-lieu contributions proposed together with the planning consultant and liaise directly with the council to |

| Comments / Issues | Response |
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| of correspondence with the borough confirming the approach should be provided. | arrange payment. |
| **NON-DOMESTIC CARBON SAVINGS**<br><br>Based on the energy assessment submitted at stage 1, the table below shows the residual $CO_2$ emissions after each stage of the energy hierarchy and the $CO_2$ emission reductions at each stage of the energy hierarchy for the non-domestic buildings.<br><br>Table: $CO_2$ emission reductions from application of the energy hierarchy<br><br>32. An on-site reduction of 86 tonnes of $CO_2$ per year in regulated emissions compared to a 2013 Building Regulations compliant development is expected for the non-domestic buildings, equivalent to an overall saving of 39%. | No action required. |

| | Total residual regulated $CO_2$ emissions | Regulated $CO_2$ emissions reductions | |
|---|---|---|---|
| | (tonnes per annum) | (tonnes per annum) | (per cent) |
| Baseline i.e. 2013 Building Regulations | 223 | | |
| Energy Efficiency | 188 | 35 | 16% |
| CHP | 188 | 0 | 0% |
| Renewable energy | 137 | 51 | 23% |
| **Total** | | 86 | 39% |

| Comments / Issues | Response |
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| 33. The carbon dioxide savings exceed the target set within Policy 5.2 of the London Plan. | No action required. |

| Comments / Issues | Response |
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| **34.** All comments above should be addressed before compliance with London Plan energy policy can be verified.<br>**Recommended conditions / section 106 clauses**<br>*Optional* | Comments addressed above. |

## NORMAN DISNEY & YOUNG

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### NDY QA SYSTEM

| | |
|---|---|
| Revision No: | 1.0 |
| Revision Date: | 25 October 2019 |
| Reason Description: | Final |
| File Location: | \\ndy.group\lon\w\U141xx\U14103\001\00\24_Reports |
| Filename: | rp191023u0007 |
| Client Name: | W.RE Developments Ltd. |
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