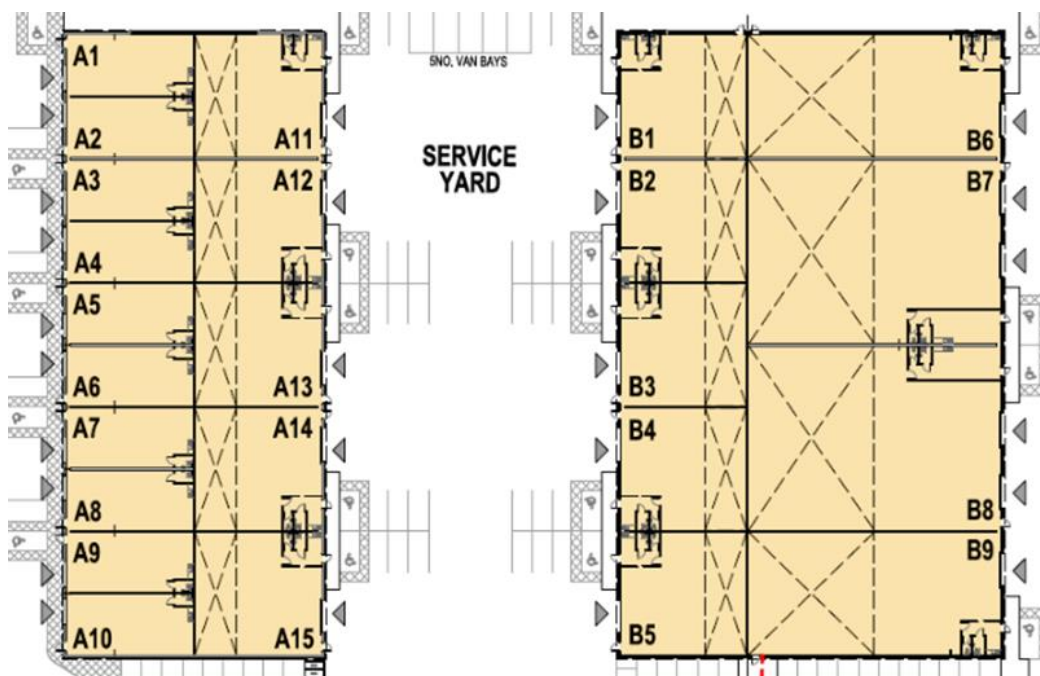


PROJECT | Huyton Trade Industrial Park

ENERGY STATEMENT
PART L 2013 REGULATIONS WITH 2016 AMENDMENTS



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This Version

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1 EXECUTIVE SUMMARY

DSSR have been commissioned by Derwent Development Management Limited to provide the following Energy Statement in support of the planning application for the proposed development of 24 No. speculative flexible employment units at Huyton Industrial Estate, Liverpool.

The following statement highlights how the project team have considered sustainable building design along with the requirements of Part L2 (2013 edition with 2016 amendments) of the Building Regulations, the Non-Domestic Building Services Compliance Guide and Knowsley's Council's local planning policies.

It is acknowledged that from the 15th of June 2022 there was a significant uplift in the required thermal performance of building fabric for new developments under Part L2. Under the transitional agreements put in place, the Huyton Industrial Park development will fall under the previous Part L2A requirements (Part L, 2013 edition with 2016 amendments) if the scheme is on site prior to 15th June 2023. It is the intention for the Huyton development to exceed Part L2A (2013 edition with 2016 amendments) building fabric performance requirements, ensuring energy reductions are secured by passive design measures before energy efficient systems and low and zero carbon technologies are introduced.

The proposed approach to reduce the need for energy in the new industrial units is to improve insulation and air tightness targets beyond the minimum requirements of the Part L2A requirements (2013 edition with 2016 amendments).

The proposed active design solutions for the development are recognised technologies that have been tried and tested. They have been chosen as suitable for installation by the future tenants of the new shell units.

Part L Compliance calculations have been carried out for a sample of units of differing sizes and locations to identify the extent of LZCT requirements, such as solar PV, to meet the Target Carbon Emission Rate and Primary Energy Target set by Part L2A (2013 edition with 2016 amendments) of the Building Regulations.

Based on the proposed passive and active design measures, there is no requirement for solar PV installations for purpose of meeting the legislative Part L 2013 carbon emission targets.

However, the shell development shall facilitate installation of a suitable Low and Zero Carbon Technology as part of the tenant fit out to meet the requirements of the local planning Policy CS23: Renewable and Low Carbon Infrastructure and Regulation 25A of the Building Regulations: Consideration of high-efficiency alternative systems.

Roof mounted photovoltaic (PV) system has been identified as suitable low and zero carbon technology option, which would provide on-site generated electricity and reduce mains electricity consumption. The base built roof structure and access shall allow the installation of a solar PV array system as part of the tenant fit-out for purpose.

At this stage the application is for planning permission in principal. Before development commences further detailed applications may be required.

This Energy Statement relates to the development of 19 No. speculative flexible employment units at Huyton Industrial Estate. Proposal include the development of speculative shell units totalling 7740m² floorspace, inclusive of mezzanine space which will be later fitted out by incoming tenants. Hard landscaping and supporting external service areas with designated parking are included under current proposals.

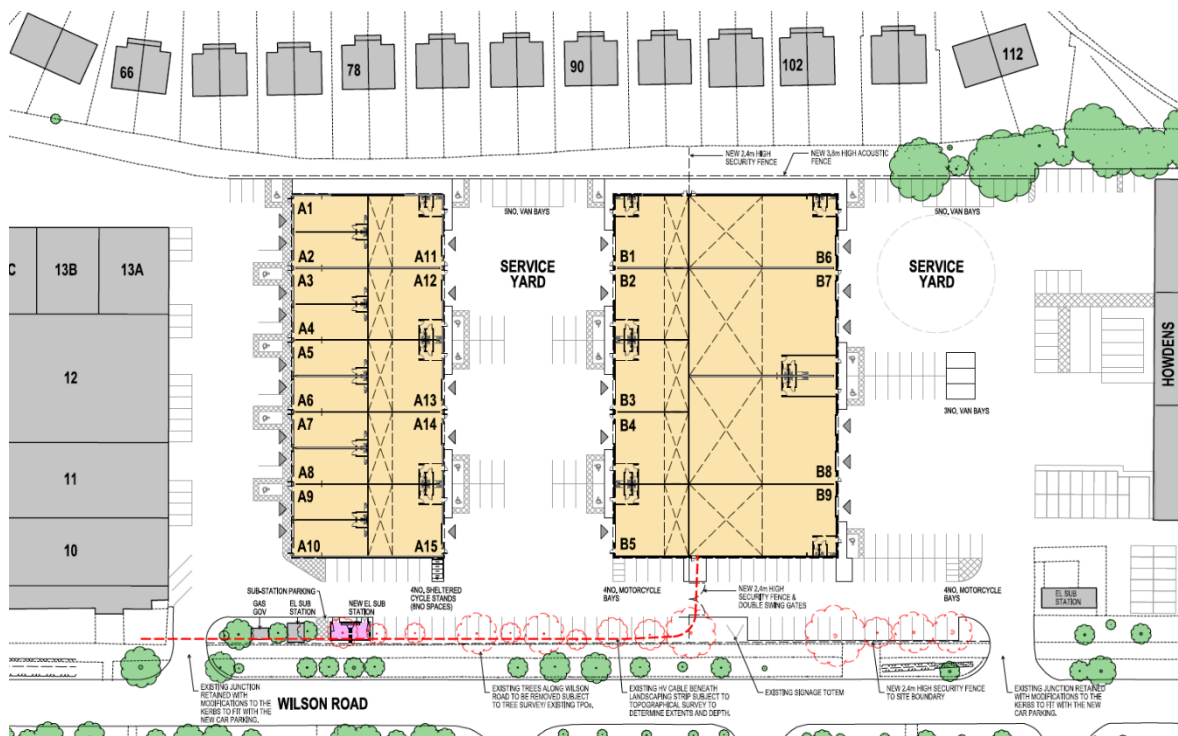


Figure 1 – Proposed Location Plan (RGP Architects on behalf of Derwent Estates Ltd)

- Knowsley Council's Policy CS22: Sustainable and Low Carbon Development
- Knowsley Council's Policy CS23: Renewable and Low Carbon Infrastructure
- Approved Document L2A: Conservation of Fuel and Power in New Buildings Other Than Dwellings



3 PLANNING POLICES & BUILDING REGULATIONS

Section 3.1 and 3.2 of this report highlight the local planning policies and Building Regulations that are applicable to this development in relation to sustainable development, energy, energy efficiency and low and zero carbon technologies.

3.1 Knowsley's Local Development Plan

Knowsley's Local Plan was adopted by the local council in 2016 and sets out the council's vision for development within the area up until 2028. Knowsley Council's Local Plan recognises the importance of sustainable building design and encourages new developments within the council to adopt measures to reduce the carbon emission and provide energy efficient buildings.

Policy CS22: Sustainable and Low Carbon Development and Policy CS23: Renewable and Low Carbon Infrastructure are the key policies which Knowsley Council aim to shape new development in the local area in a sustainable manner. Sections 3.1.1 and 3.1.2 provide details on how the proposed development at Huyton Industrial Park will align with the Council's sustainable development objectives.

3.1.1 Policy CS22: Sustainable and Low Carbon Development

3.1.1.1 Sustainable Construction Principals

Knowsley Council recognise the construction and operation of new and existing developments are a major contributor to greenhouse gas emissions. Policy CS22 of Knowsley's Local Plan Core Strategy (2016) seeks to ensure all new developments are designed to limit carbon dioxide emissions and use energy efficiently to help mitigate the impacts of climate change.

Policy CS22 of Knowsley's Local Plan (2016) requires all new developments to reduce energy demands via consideration and adoption of the following key construction principals, where relevant:

- a. Designing new buildings for flexible uses throughout their lifetime;
- b. Avoiding the creation of adverse local climate conditions by using natural systems to avoid internal overheating and excessive heat generation;
- c. Ensuring developments are comfortable and safe for users;
- d. Making the most effective and sustainable use of water, aggregates and other resources;
- e. Limiting energy use by incorporating high standards of insulation, heat retention, natural ventilation and passive solar techniques
- f. Landscaping (including measures such as green walls or roofs) to create shelter and reduce any heat island effect;
- g. Using sustainable materials from local suppliers where possible;
- h. Supplying energy efficiently and incorporating decentralised energy systems, using renewable and low carbon energy where feasible;
- i. Managing flood risk, including through the use of Sustainable Drainage Systems (SuDS) and flood resilient design for infrastructure and property;
- j. Promoting sustainable waste practices in new and existing developments.



To demonstrate compliance with Knowsley's planning policy CS22: Sustainable and Low Carbon Development, the development shall better on the Part L2 (2013) building fabric performance requirements.

It is acknowledged that from the 15th of June 2022 there was a significant uplift in the required thermal performance of building fabric for new developments under Part L2. Under the transitional agreements put in place, the Huyton Industrial Park development will fall under the previous Part L2A requirements (Part L, 2013 edition with 2016 amendments) if the scheme is on site prior to 15th June 2023. It is the intention for the Huyton development to exceed Part L2A (2013 edition with 2016 amendments) building fabric performance requirements, ensuring energy reductions are secured by passive design measures before energy efficient systems or technologies are introduced.

After passive design solutions (higher levels of building fabric thermal performance) have been implemented, all building services provided as part of the base build works and later tenant fit-out works, shall comply with or exceed the relevant Part L2A requirements, ensuring energy efficiency within the development is maximised in the most efficient manner.

Furthermore, under future tenant fit-out works, there shall be a requirement to for incoming tenants to install appropriate low and zero carbon technologies. This shall demonstrate compliance with Knowsley Council's requirement for utilising renewable and low carbon technologies.

Details of how this development shall comply with Policy CS22: Sustainable and Low Carbon Development are further discussed within Section 4 of this Statement.

3.1.1.2 Low Carbon Development, Community Energy Fund and Allowable Solutions

Knowsley Council acknowledge that Government targets for carbon emission reductions in new developments are expected to be implemented through updates to the Building Regulations.

Policy CS22 of Knowsley's Local Plan (2016) requires all new developments to reduce their carbon emissions through compliance with Building Regulations. Policy CS22 notes where this is not technically feasible or economically viable to meet the requirements on site, contributions to the Council's Community Energy Fund may be accepted as one of a range of options under the Government's proposed 'Allowable Solutions' mechanism.

The proposed development at Huyton Industrial Park shall meet and exceed compliance with the Building Regulations that are applicable to the scheme and therefore there is no intension or requirement for the 'Allowable Solutions' mechanism to be adopted as a route to compliance.

3.1.1.3 Priority Zones and Decentralised Energy Networks

Policy CS22: Sustainable and Low Carbon Development of Knowsley Council's Local Plan (2016) supports the development of decentralised energy networks in key priority zones. Knowsley Industrial Park and Knowsley Business Park have been identified as the key areas where decentralised energy networks should be developed.

The proposed development at Huyton Industrial Park falls outwith this priority zone. Furthermore, with regards to the opportunities for decentralised energy networks in the local area, this has been reviewed by a CIBSE Heat Network Consultant, and it has been confirmed the site is not currently suitable for the development of a decentralised energy network.

Currently, there are no existing sources of waste heat that could be utilised for the proposed development and it is unlikely the units being constructed will be producers of any significant quantities of waste heat. The existing and proposed heat demand density for the development is low, and along



with the likely phased occupation of multiple tenants, the viability of providing a new decentralised energy scheme or connecting to an existing district heating scheme would be difficult.

3.1.2 Policy CS23: Renewable and Low Carbon Infrastructure

Knowsley Council encourages the introduction of renewable energy generation in new developments, however they acknowledge that some renewable energy installations may conflict with planning policies such as those aiming to protect the openness and use of the land in the Green Belt and the character and setting of urban neighbourhoods. Policy CS23: Renewable and Low Carbon Infrastructure balances these considerations and aims to support of introduction of low carbon infrastructure in the area in respect to meeting national targets for renewable energy generation.

Policy CS23: Renewable and Low Carbon Infrastructure confirms that proposals to produce and distribute decentralised, low carbon and renewable energy will be supported by the Council, provided that they do not cause significant harm to:

- a. landscape character;
- b. Aviation and transport safety;
- c. Historical and cultural assets;
- d. Public amenity and living conditions; or
- e. Openness and amenity of the Green Belt, except in very special circumstances.

Although the installation of low and zero carbon generating technologies shall be the responsibility of future tenants, the base build design shall allow for the future installation of solar photovoltaic panels. Roof loadings shall ensure the future installation of this type of technology is technical viable and be able to generate a sufficient proportion of the developments operational energy demands.

3.2 Building Regulations - Part L

Part L Building Regulations set out the minimum energy efficiency standards for buildings and seek to ensure all new developments are built to specific energy performance standards. The main objectives of Part L Regulations are as follows:

- Further the conservation of fuel and power in buildings
- Set minimum fabric performance standards
- Set minimum energy efficiency requirements

3.2.1 Approved Document Part L2

All new developments in England are required to be designed and constructed in such a way to meet overriding Part L objectives. At the time of construction, all new non-domestic buildings must demonstrate compliance with each applicable Regulation within Approved Document L2A.

The intention of Part L2A is limiting building energy demands by addressing the performance of the building fabric and fixed building services, as a well as compliance with a carbon dioxide emission standard. This is achieved by setting limits on the carbon dioxide emission rates of new buildings (Regulations 35, 24 and 25), and minimum and maximum values allowed for the performance of the building fabric.



Due to the timing of this project it is pertinent to highlight there was a significant update to Part L2 which took effect 15th June 2022. Transitional arrangements dictate that where a building notice or an initial notice has been given to a local authority before 15th June 2022 and works on site starts before 15th June 2023, the development can demonstrate compliance via Part L2 (2013).

The timing of this project means Part L2A (2013 edition with 2016 amendments) parameters shall apply to this development, provided on site works commence prior to 15th of June 2023. Section 4 of this Energy Statement provides further detail on sustainable design measures adopted for this development to secure compliance with Part L2A (2013 edition with 2016 amendments) requirements.

3.2.2 Non-Domestic Building Services Compliance Guide

The Building Services Compliance Guide (2013) provides detailed guidance for the installation of fixed building services in both new and existing non-domestic buildings in England. Guidance is given in relation to the design, installation and commissioning of space heating, domestic hot water, mechanical ventilation, comfort cooling and interior lighting, as well as providing guidance on the generation of low carbon heat by heat pumps and CHP systems.

The incoming tenants shall be responsible for the installation of fixed building services to each unit. Therefore all incoming tenants shall be required to provide fixed building services in accordance with current guidance as detailed within the Non-Domestic Building Services Compliance Guide (2013).

4 PROPOSED ENERGY STRATEGY

The following Section details the proposed Energy Strategy for the Huyton Industrial Park development and the approach that will be taken under proposed works. Figure 2 shows the Energy Hierarchy methodology that shall be adopted for this development. This strategy considers the reduction of energy demands using passive design, then active design measures to reduce the energy consumption of the development, followed by the opportunity to adopt low and zero carbon technologies, in line with Knowsley Council's Local Plan Core Strategy Policy CS22: Sustainable and Low Carbon Development.

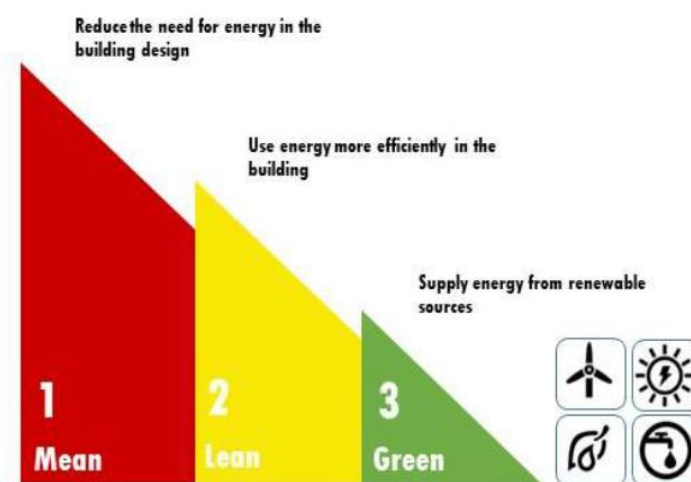


Figure 2 – Energy Hierarchy

4.1 Suitability of Low and Zero Carbon Technologies

The Huyton Industrial Park development shall adopt local low and zero carbon generating technologies as part of tenant fit-out works. The nature of the proposed development means the extent of landlord fixed building services works will be limited, however it is accepted that low and zero carbon technologies shall be required under the future the tenant fit-outs.



Although it will be the incoming tenant's responsibility to provide low and zero carbon technologies, an assessment of suitable technologies for this specific site has been carried out.

Taking into consideration the requirement for the building to include low and zero carbon technologies, it is clear that technologies such as biomass boilers, biofuel combined heat and power (CHP) units and fuel cells are not best suited for this site as these types of technologies require a constant base thermal load to operate at optimum efficiency and to ensure that they provide a cost-effective solution. It is expected the development will have low summertime demands and therefore these technologies are not deemed to be appropriate for the future tenant fitout.

Other low and zero carbon options such as micro-hydro and micro-wind are not viable for this specific site location as there are no local water sources for hydro, and the location within a wider industrial park limits the opportunity to harness reliable wind power.

Heat recovery systems and heat pumps such as VRF or DX air sourced heat pumps (ASHPs) with ventilation heat recovery are considered to be a viable solution for this type of development where the tenant fit-out calls for heating to the warehouse area. These types of systems provide heat for space heating requirements and can provide heat to temper the supply air of ventilation systems. They can also be used as a pre-heat to domestic hot water installations where there is sufficient demand.

Of the applicable heat pump options (air and ground), air source heat pumps, whilst these have a slightly lower coefficient of performance than ground source heat pumps, would be the most suited solution as no groundworks would be required in the adjacent existing car park area.

It is acknowledged that Knowsley Council support and encourage the use of local low and zero carbon technologies throughout the council area and roof mounted technologies such as solar thermal or photovoltaics (solar PV) are deemed highly appropriate for this type of development. Therefore, the development shall be designed to accommodate the additional structural loads associated with this type of technology.

The initial review of suitable low and zero carbon technologies has identified solar PV as the most appropriate type of technology for this development. The base build works shall facilitate the future installation of these technologies under future fit-out works.

4.2 Sustainable Energy, Energy Hierarchy and Proposed Energy Strategy

4.2.1 Mean Measures - Minimising Energy Demand

The development shall minimise energy demand in line with Knowsley Council's Policy CS22: Sustainable and Low Carbon Development through compliance with Part L2 performance requirements.

The proposed development shall improve upon fabric performance requirements as set out in Part L2A (2013 edition with 2016 amendments) by exceeding the Part L2A minimum fabric insulation and air tightness targets. Table 1 summarises Part L2A limiting fabric parameters which will apply to the development and those which are currently proposed for the development.



Table 1 – Part L2 Fabric Requirements

Construction	Part L2 (2013)- Maximum allowable U-Value (W/m2K)	Proposed Performance (W/m2K)
Ground Floor	0.25	0.22
Roof (Flat)	0.25	0.18
External Walls	0.35	0.26
Windows	2.20	1.60
Doors	2.20	2.20
Rooflights	2.20	1.80
Vehicle Access Doors	1.50	1.50
Air Permeability	10 m ³ /(h/m ²) @50Pa	5 m ³ /(h/m ²) @50Pa

With regards to the proposed rooflights, there is a balance to be made between optimizing natural light but minimise the impact of excessive solar gains during the summer and potential risk of overheating. The proposed rooflight spec shall include for some form of solar treatment, achieving a solar factor of $g=0.48$ and a visible light transmittance of $t=58\%$ or better.

4.2.2 *Lean Measures – Maximising Energy Efficiency*

The development shall maximise energy efficiency in line with Knowsley's Policy CS22:Sustainable and Low Carbon Development through compliance with Part L (2013 edition with 2016 amendments) Carbon emission and Primary Energy targets, as well as by maintaining minimum energy efficiency standards as outlined in the Approved Document L2A.

Where building services are provided under landlord works (e.g. base build shell unit), these shall comply with all recommended minimum energy efficiency standards for new buildings. For example, providing LED lighting which meets minimum efficacy standards with appropriate controls.

It is accepted that the landlord is responsible for bringing services into the unit which will terminate at an agreed location and incoming tenants shall be responsible for the fit-out of the newly constructed units. Although prospective tenants are currently unknown, a typical fit out of this type of warehouse unit will include the following energy efficient systems:

- LED lighting and associated lighting controls, such as Daylight Dimming in the Warehouse and Presence Detection in toilet and circulation areas.
- Where space heating is required to the warehouse area, employment of a low energy electric heating solution such as an air source heat pump solution.



- Electric point of use domestic water generation with no or minimum (up to 10 litre) storage volume.

The incoming tenants shall ensure all newly provided fixed building services are in accordance with the relevant energy efficiency standards as required by the relevant Approved Document L2A requirements.

4.2.3 Green Measures – Low and Zero Carbon Technologies

Knowsley's Local Plan as referenced in Policy CS22: Sustainable and Low Carbon Development notes the requirement for all new developments to consider the installation of low and zero carbon technologies for the purpose of lowering carbon dioxide emissions in support of Government emission reduction targets. This requirement is also reflected in Regulation 25A of the Building Regulations: Consideration of high-efficiency alternative systems.

As noted above in Sections 4.2.1 and 4.2.2 of this Statement, consideration has been given to passive and active design methods which will reduce the demand for energy consuming building services such as heating, cooling, mechanical ventilation and lighting. In turn, this will reduce the carbon emissions associated with the development's regulated energy demands.

The nature of the proposed development means that landlord building services works will be minimal. This enables a future tenant to install services which meet their own specific needs and it should be recognised that there is limited opportunity to incorporate renewable or low and zero carbon technologies into the landlord's base build works.

However, it is acknowledged that any unit fit-out without Low and Zero Carbon Technologies would not meet the Target Carbon Emission Rate and Target Primary Energy Rate set by Part L of the Building Regulations (2013 edition with 2016 amendments). It is therefore necessary for future tenants to incorporate some form of Low and Zero Carbon Technologies (LZCTs) for Part L (2013 edition with 2016 amendments) compliance.

Roof mounted photovoltaic (PV) systems have been identified as suitable low and zero carbon technology option, which would provide on-site generated electricity and reduce mains electricity consumption. PV panels should be mounted on suitable frame support system, facing south-east where possible in line with the slope of the roof. The roof structure shall be constructed in such a way to facilitate the installation of a future PV array.

5 PRELIMINARY PART L 2013 COMPLIANCE CALCULATIONS (SBEM)

Part L Compliance calculations have been carried out for a sample of units of differing sizes and locations to identify the extent of solar PV required to meet the Target Carbon Emission Rate and Primary Energy Target set by Part L2A (2013 edition with 2016 amendments) of the Building Regulations. The following image highlights the eight sample units for which Part L calculations have been carried out (highlighted red).

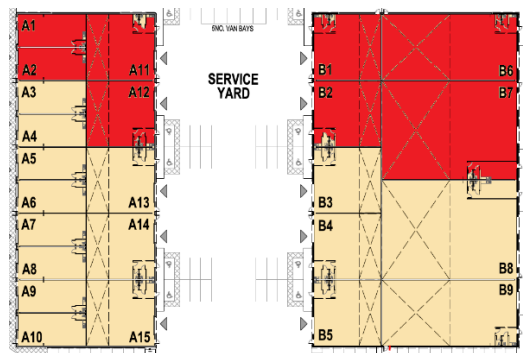


Figure 3 – Sample Unit Selection for Testing

Using the approved Dynamic Simulation Model (DSM) software IE<VE>, a Part L compliance model has been generated for each of the eight sample shell units under assessment, based on an example specification for the fit out installation of the Building Services. Specific building data has been used in combination with industry standards, assumed 'typical values' and standardised data from the National Calculation Methodology (NCM) databases to generate a detailed energy model of the proposed shell unit development.

The images below show the building as currently modelled in the approved dynamic simulation software IES<ve>.

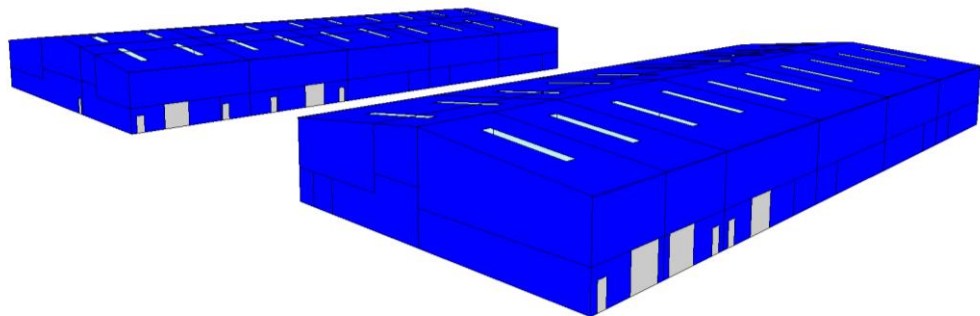


Figure 4 – Proposed development as modelled in IES VE.

Table 2 indicates the level of solar PV provision required for Part L 2013 compliance along with the Part L 2013 carbon emission results:



Table 2 – Sample Units Part L 2013 Compliance Results Summary

Sample Shell Units	PV Requirement	Part L2 Results							
Unit A1	None	Part L2 (2013) - England - Analysis Results <table> <tr> <td>Building Emissions Rate</td> <td>31.1 kg.CO2 / m2</td> <td rowspan="3"> Did the analysis pass? YES View Compliance Doc </td> </tr> <tr> <td>Notional Building Emissions Rate</td> <td>33.1 kg.CO2 / m2</td> </tr> <tr> <td>Target Emissions Rate (TER)</td> <td>33.1 kg.CO2 / m2</td> </tr> </table>	Building Emissions Rate	31.1 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc	Notional Building Emissions Rate	33.1 kg.CO2 / m2	Target Emissions Rate (TER)	33.1 kg.CO2 / m2
Building Emissions Rate	31.1 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc							
Notional Building Emissions Rate	33.1 kg.CO2 / m2								
Target Emissions Rate (TER)	33.1 kg.CO2 / m2								
Unit A2	None	Part L2 (2013) - England - Analysis Results <table> <tr> <td>Building Emissions Rate</td> <td>24.1 kg.CO2 / m2</td> <td rowspan="3"> Did the analysis pass? YES View Compliance Doc </td> </tr> <tr> <td>Notional Building Emissions Rate</td> <td>29.7 kg.CO2 / m2</td> </tr> <tr> <td>Target Emissions Rate (TER)</td> <td>29.7 kg.CO2 / m2</td> </tr> </table>	Building Emissions Rate	24.1 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc	Notional Building Emissions Rate	29.7 kg.CO2 / m2	Target Emissions Rate (TER)	29.7 kg.CO2 / m2
Building Emissions Rate	24.1 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc							
Notional Building Emissions Rate	29.7 kg.CO2 / m2								
Target Emissions Rate (TER)	29.7 kg.CO2 / m2								
Unit A11	None	Part L2 (2013) - England - Analysis Results <table> <tr> <td>Building Emissions Rate</td> <td>26.1 kg.CO2 / m2</td> <td rowspan="3"> Did the analysis pass? YES View Compliance Doc </td> </tr> <tr> <td>Notional Building Emissions Rate</td> <td>28.9 kg.CO2 / m2</td> </tr> <tr> <td>Target Emissions Rate (TER)</td> <td>28.9 kg.CO2 / m2</td> </tr> </table>	Building Emissions Rate	26.1 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc	Notional Building Emissions Rate	28.9 kg.CO2 / m2	Target Emissions Rate (TER)	28.9 kg.CO2 / m2
Building Emissions Rate	26.1 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc							
Notional Building Emissions Rate	28.9 kg.CO2 / m2								
Target Emissions Rate (TER)	28.9 kg.CO2 / m2								
Unit A12	None	Part L2 (2013) - England - Analysis Results <table> <tr> <td>Building Emissions Rate</td> <td>24.9 kg.CO2 / m2</td> <td rowspan="3"> Did the analysis pass? YES View Compliance Doc </td> </tr> <tr> <td>Notional Building Emissions Rate</td> <td>28.2 kg.CO2 / m2</td> </tr> <tr> <td>Target Emissions Rate (TER)</td> <td>28.2 kg.CO2 / m2</td> </tr> </table>	Building Emissions Rate	24.9 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc	Notional Building Emissions Rate	28.2 kg.CO2 / m2	Target Emissions Rate (TER)	28.2 kg.CO2 / m2
Building Emissions Rate	24.9 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc							
Notional Building Emissions Rate	28.2 kg.CO2 / m2								
Target Emissions Rate (TER)	28.2 kg.CO2 / m2								
Unit B1	None	Part L2 (2013) - England - Analysis Results <table> <tr> <td>Building Emissions Rate</td> <td>26.2 kg.CO2 / m2</td> <td rowspan="3"> Did the analysis pass? YES View Compliance Doc </td> </tr> <tr> <td>Notional Building Emissions Rate</td> <td>26.8 kg.CO2 / m2</td> </tr> <tr> <td>Target Emissions Rate (TER)</td> <td>26.8 kg.CO2 / m2</td> </tr> </table>	Building Emissions Rate	26.2 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc	Notional Building Emissions Rate	26.8 kg.CO2 / m2	Target Emissions Rate (TER)	26.8 kg.CO2 / m2
Building Emissions Rate	26.2 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc							
Notional Building Emissions Rate	26.8 kg.CO2 / m2								
Target Emissions Rate (TER)	26.8 kg.CO2 / m2								
Unit B2	None	Part L2 (2013) - England - Analysis Results <table> <tr> <td>Building Emissions Rate</td> <td>25.7 kg.CO2 / m2</td> <td rowspan="3"> Did the analysis pass? YES View Compliance Doc </td> </tr> <tr> <td>Notional Building Emissions Rate</td> <td>26.5 kg.CO2 / m2</td> </tr> <tr> <td>Target Emissions Rate (TER)</td> <td>26.5 kg.CO2 / m2</td> </tr> </table>	Building Emissions Rate	25.7 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc	Notional Building Emissions Rate	26.5 kg.CO2 / m2	Target Emissions Rate (TER)	26.5 kg.CO2 / m2
Building Emissions Rate	25.7 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc							
Notional Building Emissions Rate	26.5 kg.CO2 / m2								
Target Emissions Rate (TER)	26.5 kg.CO2 / m2								
Unit B6	None	Part L2 (2013) - England - Analysis Results <table> <tr> <td>Building Emissions Rate</td> <td>21.0 kg.CO2 / m2</td> <td rowspan="3"> Did the analysis pass? YES View Compliance Doc </td> </tr> <tr> <td>Notional Building Emissions Rate</td> <td>23.3 kg.CO2 / m2</td> </tr> <tr> <td>Target Emissions Rate (TER)</td> <td>23.3 kg.CO2 / m2</td> </tr> </table>	Building Emissions Rate	21.0 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc	Notional Building Emissions Rate	23.3 kg.CO2 / m2	Target Emissions Rate (TER)	23.3 kg.CO2 / m2
Building Emissions Rate	21.0 kg.CO2 / m2	Did the analysis pass? YES View Compliance Doc							
Notional Building Emissions Rate	23.3 kg.CO2 / m2								
Target Emissions Rate (TER)	23.3 kg.CO2 / m2								



Unit B7	None	Part L2 (2013) - England - Analysis Results <table><tr><td>Building Emissions Rate</td><td>21.9</td><td>kg.CO2 / m2</td></tr><tr><td>Notional Building Emissions Rate</td><td>23.3</td><td>kg.CO2 / m2</td></tr><tr><td>Target Emissions Rate (TER)</td><td>23.3</td><td>kg.CO2 / m2</td></tr></table> Did the analysis pass? YES View Compliance Doc	Building Emissions Rate	21.9	kg.CO2 / m2	Notional Building Emissions Rate	23.3	kg.CO2 / m2	Target Emissions Rate (TER)	23.3	kg.CO2 / m2
Building Emissions Rate	21.9	kg.CO2 / m2									
Notional Building Emissions Rate	23.3	kg.CO2 / m2									
Target Emissions Rate (TER)	23.3	kg.CO2 / m2									

The preliminary Part L (2013 edition with 2016 amendments) energy calculations highlight that based on the proposed passive & active design measures, there is no requirement for roof mounted solar PV for purpose of meeting the Part L 2013 carbon emission targets.

Preliminary Part L EPC calculations demonstrate that an EPC B rating can be achieved for the shell industrial units.

6 CONCLUSION

This speculative industrial development will be constructed to enable future tenants to achieve the minimum energy requirements of Part L2A of the 2013 Building Regulations as well as meeting the requirements of Knowsley's Local Plan (2016).

This will be achieved by meeting and exceeding the minimum Part L2A (2013 edition with 2016 amendments) standards required for the building fabric, but also by constructing a shell that allows for the future installation of suitable LZCGT's as part of the consequential improvements.

The shell development shall facilitate the infrastructure to allow a suitable Low and Zero Carbon Technology such as solar PV to be installed as part of the tenant fit out to allow meet the requirements of the local planning Policy CS23: Renewable and Low Carbon Infrastructure and Regulation 25A of the Building Regulations: Consideration of high-efficiency alternative systems.

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