



London School of Economics:

New Academic Building

Design and Access and Planning Statement
For the installation of roof-mounted PV System

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1. Application Overview

Site address: LSE Building: New Academic Building, 54 Lincoln's Inn Fields, London, WC2A 3LJ

Proposal: Installation of roof mounted solar panel arrays

Building Name	Panel Specification	Number of Panels	Estimated Annual Energy Generation	Estimated Annual Carbon Saving
New Academic Building	Hyundai Multi Crystalline HiS-M230SG (230w)	8	1.6MW	86gkg

2. Project Overview

Myriad CEG are applying on behalf of the London School of Economics (LSE) to install solar PV panels on a number of their buildings. Several separate applications are to be submitted to cover these projects.

This application seeks the installation of solar PV arrays on New Academic Building, which is located on Lincoln Inn Fields. The installations will consist of one row of panels on the building roof; it is estimated that the panels will produce a combined total of 1.6MW of electricity annually.

In accordance with PPS22 Renewable Energy Companion Guide, the economic, social and environmental benefits of this proposal should be considered as material in determining this application. The PV panels will generate electricity using the sun's rays – this is an abundant natural resource. It is non-polluting, clean and sustainable.

LSE are committed to reducing their carbon footprint and providing a renewable source of energy across their campus. This particular installation will contribute to their achievement of this aim, saving an estimated 86gkg of CO₂ per year.

3. Site Location

LSE Buildings:
New Academic Building
Lincoln Inn Fields
London
WC2A 3LJ



Figure 1: Google map showing location of New Academic Building

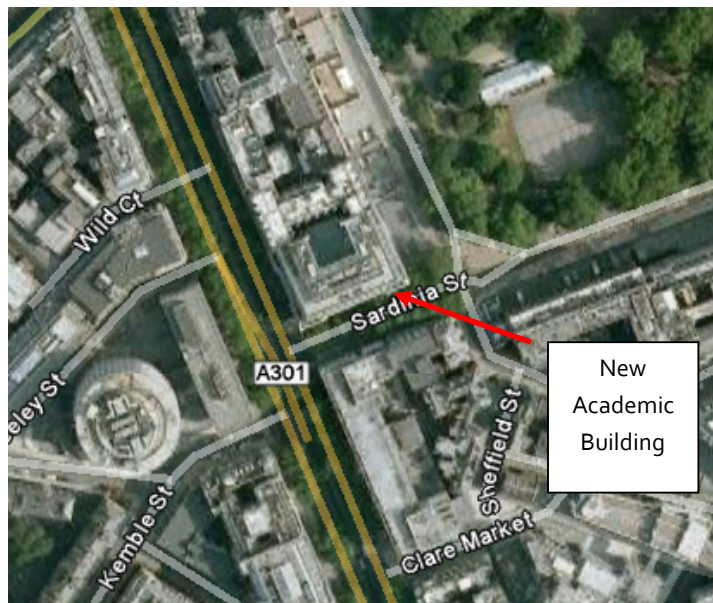


Figure 1: Google Earth map showing location of New Academic Building

4. Proposal

This planning application seeks the installation of one solar PV array on the roof of the New Academic Building.

4.1 Amount and Layout

A panel arrays will be mounted on the building roofs as follows.

New Academic Building

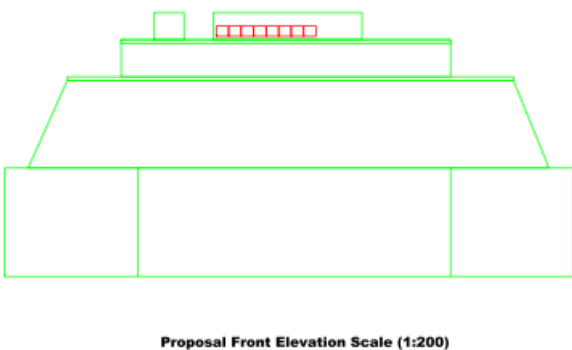
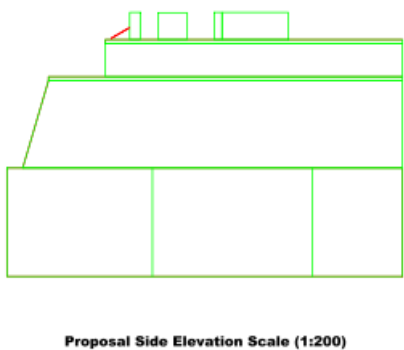
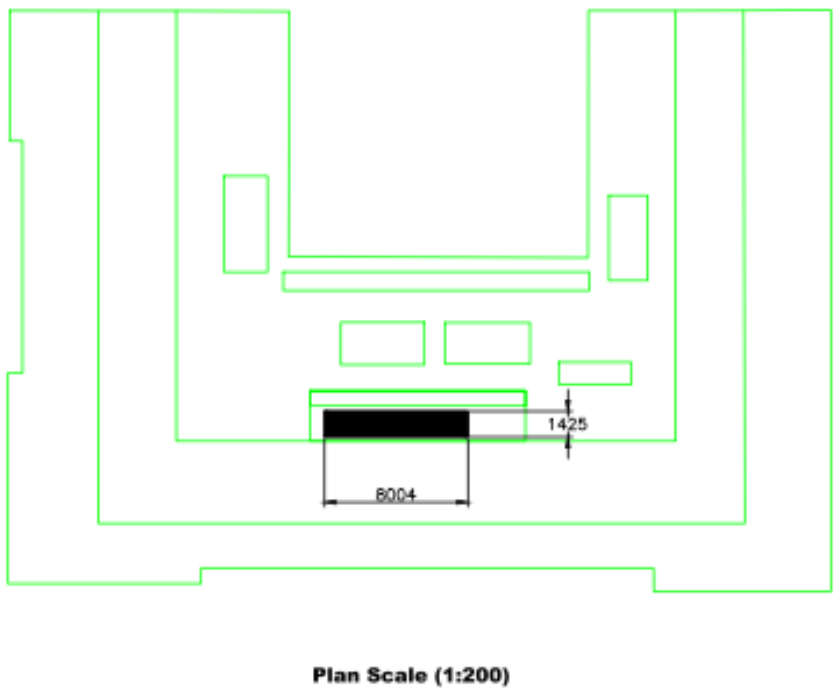


Figure 3: CAD plan showing panel locations on the New Academic Building

Each PV panel measures 1645mm x 992mm, with a depth of 35mm as shown below:

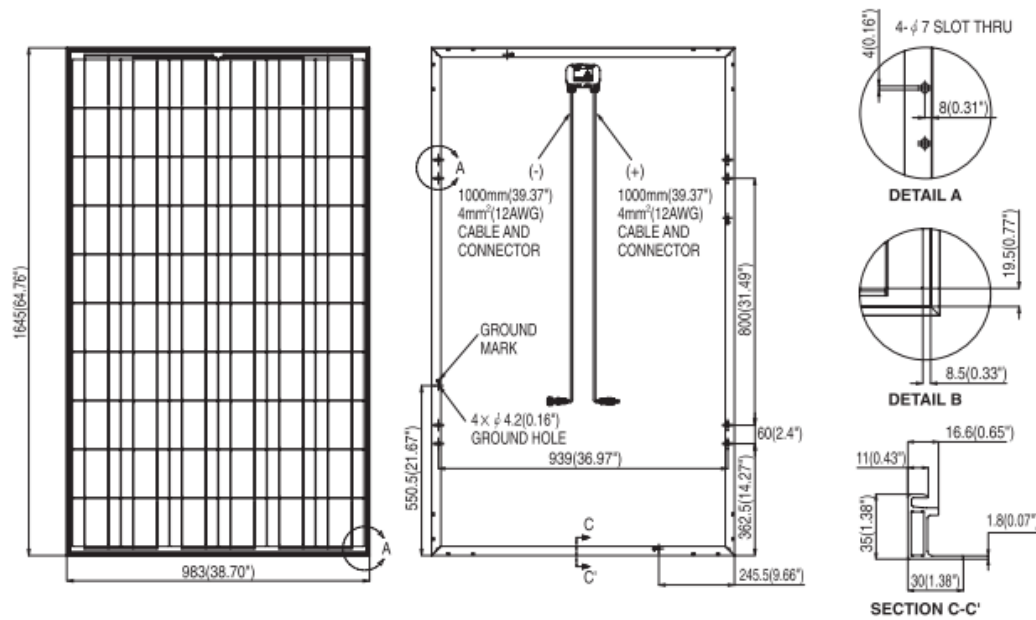


Figure 4: Panel measurements

The total roof space taken up by the panels on the roof slopes is 12.94m².

4.2 Scale and Appearance



Figure 5: Solar panel appearance

The proposed solar panels are dark grey on dark grey mounting. The dark colour is standard across the solar panel industry as this colour allows the optimum amount of energy to be produced. The grey

mounting fits in with most roof colourings and is considered to have the least visual impact. The panels will protrude only slightly above the roof line, with a depth of just 35mm.

The panels are made from high transmission low-iron tempered glass. The frames are clear anodized alloy which resists rusting.

4.3 Visual Impact

The panels will be mounted on the existing building roof. Due to the heights of the building concerned and the built up nature of the surrounding streets, it will not be possible to see the panels from the majority of public vantage points at street level. The panels will sit on the flat portion of the building roof and will protrude only a very small amount above the roof surface.

The image below shows the location of the panels.



Figure 6: Google 3D image of buildings showing roof locations of PV panels

It is possible that the panels may be visible from the upper floors of taller surrounding buildings. The panels will make up only a very small portion of the total roof space. Furthermore the design and colour of the panels means that they blend in with standard roofing materials and do not result in a harmful visual impact.

It is considered that the visual impact of the panels will be negligible and certainly not harmful. The roof as it stands has no aesthetic value to speak of, meaning the panels will not be harmful to the overall character and appearance of the building or surrounding street scene.

Overall, the impact of the panels on the surroundings is considered to be negligible. The installed panels will alter the appearance of the existing roofs by only a very small amount.

4.4 Landscaping

There is no additional landscaping proposed as part of this application.

4.5 Access

The proposal will have no impact on existing site access arrangements and will take advantage of these for delivery and installation of the PV system.

5. Photovoltaic Technology

5.1 Overview

Solar PV panels are unique among renewable energy technologies in that in addition to generating electricity from daylight, they can also be used as a building material in their own right. PV can either be roof mounted or free-standing in modular form, or integrated into the roof or facades of buildings.

5.2 Technology

PV systems exploit the direct conversion of daylight into electricity in a semi-conductor device. The most common form of device comprises a number of semi conductor cells which are interconnected and encapsulated to form a solar panel or module. There is considerable variation in appearance, but many PV panels are dark in colour and have low reflective properties. A number of panels are typically connected together to form an array, which can vary from a few square metres to several hundred square metres.

PV modules can be fitted on top of an existing roof using a low support structure. In this case, the panels will typically lie flush with the existing roof and not protrude above the roofline. Alternatively, and particularly in new buildings, they may form all or part of the weatherproofing element of the roof, replacing conventional slates or tiles.

Connections between individual panels are either in the support structure, or inside the roof void, and are rarely visible from the exterior of the building.

5.3 Siting Issues

For best performance, PV modules should be installed on a slight incline (between 10 and 60 degrees) and orientated facing south. Although roof mounted PV is the most common, modules can also be mounted on the sides of buildings, or on free standing support structures on the ground. Shadows from buildings, trees or other structures can significantly reduce performance of the PV system and planners and designers should take reasonable steps to minimize permanent overshadowing of the PV.

PV technology can provide a very useful contribution to renewable energy targets. LPAs should encourage the incorporation of PV systems where appropriate.

6. Planning Policy Context

6.1 National Planning Policy

PPS 22: Planning for Renewable Energy - In 2004 national government issued '**PPS 22 Planning for Renewable Energy**' and its associated '**Companion Guide**'. These two documents provide the national framework within which local planning authorities decide on individual planning applications. The ministerial statement made by Yvette Cooper formalised government support for PPS22, It also encouraged local planning authorities to include in their local development frameworks policies requiring new developments to generate at least 10% of their own energy from on site renewable sources. The Government believes that climate change is the greatest long-term challenge facing the world today. Addressing climate change is therefore the Government's principal concern for sustainable development. Policies and priorities for action, both in the UK and internationally, are set out in the Climate Change Programme and the report of the 2006 Energy Review.

In particular the following elements of Planning Policy Statement 22 are seen as relevant to this case,

Key Principle V1: Small-scale projects can provide a limited but valuable contribution to overall output of renewable energy and to meet energy needs both locally and nationally. Planning Authorities should not therefore reject planning applications simply because the level of output is small.

Paragraph 18: Local planning authorities and developers should consider the opportunity for incorporating renewable energy projects in all new developments. Small-scale renewable energy schemes utilising technologies such as solar panels, Biomass heating, small-scale wind turbines, **photovoltaic cells** and combined heat and power schemes **can be incorporated both into new developments and some existing buildings. Local planning authorities should specifically encourage such schemes through positively expressed policies in local development documents.**

PPS 1: Delivering Sustainable Development, Planning and Climate Change- Supplement to PPS1.

Sets out how planning should contribute to reducing emissions and stabilising climate change and take into account the unavoidable consequences. It notes that tackling climate change is a key Government priority for the planning system. Core Strategy policies should be designed to promote and not restrict renewable and low-carbon energy and supporting infrastructure. **A**

proposal that will contribute to the delivery of the Key Planning Objectives set out in this PPS should expect expeditious and sympathetic handling of the planning application.

Furthermore pg14 states that Planning Authorities should ensure any approach to protecting landscape and townscape is consistent with PPS22 and does not preclude the supply of any type of renewable energy other than the most exceptional circumstances.

6.2 Local Planning Policy

Camden Council are currently using the adopted 'Camden LDF – Camden Development Policies' document to guide development decisions in the area. The following policies are considered particularly relevant to this application:

- DP22 – Promoting Sustainable Design and Construction
- DP24 – Securing High Quality Design

7. Conclusion

Planning policy at both local and national level supports the installation of renewable technologies wherever possible, and where there will be no harmful impact on the surrounding landscape. The proposed PV arrays will have a limited impact on the roofs of the buildings, appearing from anything but close range, as a standard roofing material. The social, economic and environmental impacts of the proposal are material to this application and should be considered.

LSE are committed to reducing their carbon footprint and securing reliable and cost effective energy at their buildings. The panels will produce approximately 1.6MW per year, which equates to an annual carbon saving of 869kg. PPS22 Renewable Energy, and current government thinking, is clear that appropriately sited renewable energy installations should be encouraged wherever possible.

8. Additional Information

If during the course of the application any additional information is required or if any issues arise, we would ask that Myriad CEG be contacted at the earliest opportunity in order to reach a resolution.