DESIGN AND ACCESS STATEMENT

In respect of

>

2 HAMPSTEAD HILL GARDENS, NW3 2PL

On behalf of

MR S PHELAN AND MS A MANDELA

CgMs Ref: ES/10869

Date: January 2010

- 1.1 This planning and listed building consent application is submitted in order to gain consent for external alterations to No.2 Hampstead Hill Gardens, Hampstead. The property is grade II listed and lies within the Hampstead Conservation Area. This application forms part of a wider programme of works to update, restore and improve the building by the new owners who acquired the building in 2009.
- 1.2 The building is Edwardian in style with some Arts and Crafts influences and was built 1880-1887 with the addition of a large conservatory and billiard room in 1901. The building was divided into two separate dwellings in 1952 and consequent alterations to the building have affected the characteristics of special interest. There is a large garden to the rear at lower ground floor level and a small garage to the front, screening views of the conservatory.
- 1.3 Listed Building Consent was granted by Camden Council in November 2009 (2009/3744/LB) for internal alterations to the property and this application builds on the work already being undertaken in order to improve the thermal efficiency of the building and overall appearance.
- 1.4 The alterations proposed within this application include;
 - Addition of lantern to conservatory roof;
 - Addition of solar panels to conservatory roof;
 - Additions of railings and steps to side of conservatory to allow access; and
 - Replacement of single glazing with double glazing (Slimlite Double Glazing Co. Ltd).
- 1.5 The proposed lantern will be located at the centre of the existing flat roof in order to provide light for the conservatory. The original conservatory had a fully glazed, pitched roof (as evidence by original drawings set out in the full Supporting Statement, ES/10869). The proposals do not seek to restore this but to allow more light into the room whilst avoiding any light overspill or overlooking. The lantern is modest in scale and in keeping with the character of the building and area.

A - P

- 1.6 Around the lantern will be 12 solar panels for the generation of electricity. The panels used have been chosen specifically to avoid visual impact on the listed building and conservation area. The panels will lie flat on the roof and not protrude above it, as such they will not change key views within the conservation area and will not harm the listed building.
- 1.7 The insertions of railings and steps alongside the conservatory will allow an access to the conservatory from the front of the building and a more secure walkway than is existing. The railings will also limit the ability to get to the rear garden and the back of the building via this route.
- 1.8 The proposals are intended to improve the thermal efficiency of the building through the installation of Slimlite Double Glazing. This relatively new system allows the existing timber glazing bars to be retained and the insertion of double glazing within them. The effects on the appearance of the building will be minimal. The Slimlite system uses inert gas between two panes allowing a 5mm gap between the two, as apposed to standard double glazing which has a much wider air gap and cannot be installed without major changes in appearance to the building. This type of product has been used in other grade II listed buildings across the country and is sensitive to the historic environment (examples are given in the submitted material).
- 1.9 The alterations do not affect the special interest of the building or the character and appearance of the conservation area. The proposals follow national and local guidance in being informed by thorough historical research to ascertain which elements are original and of significance.
- 1.10 Access arrangements for the building will not change as a result of the proposals.
- 1.11 For full justification and supporting information please see the detailed Supporting Statement by CgMs Ltd (ES/10869).

Slimlite Double Glazed Units are a new concept in the construction of a double glazed units which with a 5mm perimeter seal depth and can be glazed into most single glazed windows.

By using and maximising the latest technology it is possible to construct a double glazed unit with very small cavities or space between the glasses with a 5mm perimeter seal depth and selected insulating inert gas cavity to obtain U-Values to comply with Building Regulations and comparable or better than U-Values obtained by standard units with much wider cavities.

Slimlite Double Glazed Units are constructed with a 4mm clear outer pane with a selected cavity of 4mm, 5mm or 6.5mm, the wider cavity, increases the insulation, with selected cavity insulating inert gas, which only performs in smaller cavities, and inner pane of 4mm Low Emissivity glass.

The emissivity coating is on the inside face into the cavity and reflects the long wave radiation or heat back into the room. The warm edge technology perimeter spacer incorporated, ensures insignificant differential insulation value between edge and centre of glass.

Today it is necessary for double glazed units to comply with Building Regulations (noted below) in respect of U-Values which are slightly different between Scotland and England. Slimlite Double Glazed Units can comply with both these regulations as noted.

Building Regulations - Required U-Values

Document J Scotland. Timber or U.P.V.C. windows

With Sedbuck boiler rating U-Value 2.0Without Sedbuck boiler rating U-Value 1.8

Document L England, Timber or U.P.V.C. windows

With Sedbuck boiler rating U-Value 2.2Without Sedbuck boiler rating U-Value 2.0

Construction (BS EN 1279 Compliant)

4mm Low E/ Cavity, gas/ 3 or 4mm clear float or reproduction crown sheet

Slimlite plus (Low Emissivity)

3.0mm Cavity U-Value 2.1 4.0mm cavity U-Value 1.9 5.0mm cavity U-Value 1.8 6.0mm cavity U-Value 1.6

Window weights for sash and case require adjustment when Slimlite or any double glazed units are fitted to the sashes, which approximately doubles the weight, and can be calculated as noted below. The best weights are extruded lead weights with a centre hole for rope, for easy adjustment and cutting to any length.

Most existing sash and case today will have cast iron weights. A corresponding length of lead weight of approximately the same diameter or size as cast iron is around twice the weight of the cast iron. By replacing with lead ensures that the weight is the same length approximately and therefore the sashes will have the same amount of opening travel.

Calculation

1mm thickness of glass (1 metre x 1 metre) 1m2 weighs 2.5Kg.

1

Example

Unit Construction 4mm Glass/4mm Cavity, gas/4mm Glass Calculation 1000mm x 1000mm = $1m2 \times 8 (4 + 4) \times 2.5kg = 20Kg$.

To calculate the overall weight of sash including the frame multiply the glass thickness x 2.67Kg as a rough guide.

Timber Windows

Timber provides one of the best insulation values of any material used in the construction of a window and has been used extensively over the last hundred years. Unfortunately it is not maintenance free, hence the surge in U.P.V.C. windows.

Most timber windows in the past and even recently have been single glazed because of the inability of bulky standard double glazed units with 10mm deep perimeter seals to be glazed into timber windows particularly with astragals and not acceptable by Planning Authorities for conservation, listed or graded buildings.

This new innovative Slimlite Double Glazed Units opens up many possibilities for the timber manufacturer of windows.

It is no longer necessary to apply adhesive astragals to a standard double glazed unit to effect a 'Georgian Look' as Slimlites will fit into the rebates of an astragal which usually has a 7mm rebate depth, which prevents the 5mm overall perimeter seal being visible and a rebate astragal width of around 20mm which can accommodate a Slimlite overall thickness of 12mm with a front putty or bead of around 6mm or more.



There is of course enormous potential in the replacement of Slimlite into single glazed windows, as Slimlite will fit into most single glazing rebates.

However in England some single glazed timber windows tend to have smaller rebates than in Scotland and it may be necessary to router 2mm or 3mm from the rebate without detracting from the physical appearance of the windows.

Most timber windows constructed for single glazing would have rebate depths of at least 7mm and glazing width rebate of approximately 20mm (see sketch).

New technology Slimlite Double Glazed Units with a 5mm perimeter seal depth and overall thickness of 12mm, can be glazed into most single glazing rebates or new timber windows which are manufactured to maintain the slim astragal appeal.

When Slimlite Double Glazed Units are glazed into a timber window, they are undetectable unless from close up examination.

Given the Governments drive to reduce carbon dioxide emissions, Planning and Conservation Authorities should consider the use of Slimlite Double Glazed Units in Conservation and Listed or Graded Buildings as there is no change to the physical appearance of a window, but provides serious reduction in energy requirement and therefore reduction in carbon dioxide emissions.

Advantages

Rising Energy Costs

A recent commissioned report claims that since de-regulation of prices in 2002 and from 2002 to 2005 average energy prices have risen by about 60% more than inflation.

Investment Return

Figures published in 2005 stated that replacing single glazing with Low E Double Glazed Units will provide payback in 3 years, presumably less in 2008.

Carbon Emissions

Replacing one square metre of single glazing with Low E Double Glazing will produce a saving of approximately 90Kg of carbon dioxide emissions per year.

The average small house single glazed with around 15m2 of glazing will save 1350 Kg of emissions per year, by installing Low E advanced double glazing or Slimlite.

There are thousands of listed buildings mostly single glazed in the UK today, where the amount of carbon dioxide emission is very substantial.

It is estimated that total emissions from residential buildings in the UK amount to 86 million tonnes

Advantages of using Slimlite units

Will Comply with Building Regulations Document J Scotland and Document L England for improved thermal insulation.

- 5mm perimeter seal of Slimlite Double Glazed Units enables them to be glazed into 7mm deep glazing rebates.
- The smaller cavities between the glass reduces the required glazing width rebates and enables slimmer sections to be used.
- The only double glazed unit that can be glazed into most standard astragals.
- Can be glazed into most existing single glazing glass rebates.

11-FEB-2007 14:14 From:

.

.



To:902033933668

Page: 1/2

Unit 2, Forth Industrial Estate, Sealcarr Street, Granton, Edinburgh EH5 IRF

Tel. 0131 551 2931 Fax. 0131 551 2932 Free Phone. 0800 316 6031 Email. mail@slimliteglass.co.uk Web. www.slimliteglass.co.uk

JL/JM

9 November 2009

TO WHOM IT MAY CONCERN

With reference to list of properties approved by planning, please find attached list of Grade II and Conservation areas which have used Slimlite Double Glazed Units.

Yours faithfully,

Granted UK Patent

Slimlite®

~

.

Grade II Listed Buildings

Mr. P Kirby, Strategic Director and Chief Planner Broadland District Council Thorpe, Lodge, 1 Yarmouth Road, Thorpe, St Andrew, Norwich NR7 0DU Address of Property: Owls Barn. Lingwood Road, Blofield, Norwich, NR13 4LL

Chris France, Director of Planning and Sustainable Development Dartmoor National Park Authority Parke Bovey Tracey Newton Abbot DEVON TQ13 9JQ Address of Property: Higher Hele Farm, Cornwood, Devon

Alison Cummings (Oliver Peel), Conservation Officer, Ashford Borough Council Ashford Borough Council, Civic Centre, Tannery Lane, Ashford TN23 1PL Address of Property: The Dovecote, Church Lane, Hothfield, Nr. Ashford, Kent, TN26 1EL

47 Ridgemount Gardens, London, WC1E 7AT

Highbury Stadium, London

Apprentice Store, Bath

Conservation

43a Redcliffe Gardens, London, SW10 9JH

3 Shamrock Street, Clapham SW4

15 Quentin Road, London, SE13 5BQ

Flat 9, 61/62 Leinster Square, London, W2

286 Beulah Hill, London, SE19 3HF



.



HIT Photovoltaic Module

Photovoitaic Module Power 215N

Module Efficiency: 17.1% Cell Efficiency: 19.3% Power Output - 215 Watts



SANYO HIT® Solar Cell Structure



SANYO'S Proprietary Technology

HIT solar cells are hybrids of mono crystalline silicon surrounded by ultra-thin amorphous silicon layers, and are available solely from SANYO.

Unnecessary Section When Using SANYO

High Efficiency

HIT[®] Power solar panels are leaders in sunlight conversion efficiency. Obtain maximum power within a fixed amount of space. Save money using fewer system attachments and racking materials, and reduce costs by spending less time installing per watt. HIT Power models are ideal for grid-connected solar systems, areas with performance based incentives, and renewable energy credits.

Power Guarantee

SANYO's power ratings for HIT Power panels guarantee customers receive 100% of the nameplate rated power (or more) at the time of purchase, enabling owners to generate more kWh per rated watt, quicken investments returns, and help realize complete customer satisfaction.

Temperature Performance

As temperatures rise, HIT Power solar panels produce 10% or more electricity (kWh) than conventional crystalline silicon solar panels at the same temperature.

Valuable Features

The packing density of the panels reduces transportation, fuel, and storage costs per installed watt.

Quality Products Made in USA

SANYO silicon wafers located inside HIT solar panels are made in California and Oregon (from October 2009), and the panels are assembled in an ISO 9001 (quality), 14001 (environment), and 18001 (safety) certified factory. Unique eco-packing minimizes cardboard waste at the job site. The panels have a Limited 20-Year Power Output and 5-Year Product Workmanship Warranty.



Increased Performance with SANYO



Power 215N

Electrical Specifications

1 4

Dependence on Temperature

Model	HIT Power 215N or HIP-215NKHA5	
Rated Power (Pmax) ¹	215 W	
Maximum Power Voltage (Vpm)	42.0 V	
Maximum Power Current (Ipm)	5.13 A	
Open Circuit Voltage (Voc)	51.6 V	
Short Circuit Current (Isc)	5.61 A	
Temperature Coefficient (Pmax)	-0.336%/ °C	
Temperature Coefficient (Voc)	-0.143 V/ °C	
Temperature Coefficient (Isc)	1.96 mA/ °C	
NOCT	114.8°F (46°C)	
CEC PTC Rating	199.6 W	
Cell Efficiency	19.3%	
Module Efficiency	17.1%	
Watts per Ft. ²	15.85 W	
Maximum System Voltage	600 V	
Series Fuse Rating	15 A	
Warranted Tolerance (-/+)	-0% / +10%	

Mechanical Specifications

Internal Bypass Diodes	4 Bypass Diodes	
Module Area	13.56 Ft ² (1.26m ²)	
Weight	35.3 Lbs. (16kg)	
Dimensions LxWxH	62.2x31.4x1.8 in. (1580x798x46 mm)	
Cable Length +Male/-Female	40.55/34.6 in. (1030/880 mm)	
Cable Size / Connector Type	No. 12 AWG / MC4 [™] Locking Connectors	
Static Wind / Snow Load	60PSF (2880Pa) / 39PSF (1867Pa)	
Pallet Dimensions LxWxH	63.2x32x72.8 in. (1607x815x1850 mm)	
Quantity per Pallet / Pallet Weight	34 pcs./1234.5 Lbs (560 kg)	
Quantity per 53' Trailer	952 pcs.	

Operating Conditions & Safety Ratings

Ambient Operating Temperature	-4°F to 115°F (-20°C to 46°C) ²	
Hail Safety Impact Velocity	1" hailstone (25mm) at 52 mph (23m/s)	
Fire Safety Classification	Class C	
Safety & Rating Certifications	UL 1703, cUL, CEC	
Limited Warranty	5 Years Workmanship, 20 Years Power Output	

Dimensions Unit: inches (mm)







Dependence on Irradiance







SANYO Energy (U.S.A.) Corp. Solar Division

2600 Network Blvd., Suite 600 Frisco, TX 75034, U.S.A. www.sanyo.com/solar solar@sec.sanyo.com

© SANYO Energy (U.S.A.) Corp. All Rights Reserved. 3/1/2009





HIT photovoltaic module

HIP-215NKHE5 HIP-214NKHE5

The SANYO HIT (Heterojunction with Intrinsic Thin layer) solar cell is made of a thin mono crystalline silicon wafer surrounded by ultra-thin amorphous silicon layers. This product provides the industry's leading performance and value using state-of-the-art manufacturing techniques.



HIT Solar Cell Structure

۲



Development of HIT solar cell was supported in part by the New Energy and Industrial Technology Development Organization (NEDO).

Benefit in Terms of Performance

The HIT cell and module have very high conversion efficiency in mass production.

Model	Cell Efficency	Module Efficency
HIP-215NKHE5	19.3%	17.1%
HIP-214NKHE5	19.2%	17.0%

High performance at high temperatures Even at high temperatures, the HIT solar cell can maintain higher efficiency than a conventional crystalline silicon solar cell.



Environmentally-Friendly Solar Cell

More Clean Energy

HIT can generate more clean Energy than other conventional crystalline solar cells.

Special Features

SANYO HIT solar modules are 100% emission free, have no moving parts and produce no noise. The dimensions of the HIT modules allow space-saving installation and achievement of maximum output power possible on given roof area.





Electrical and Mechanical Characteristics HIP-215NKHE5, HIP-214NKHE5

0

	Models	HIP-xxxNKHE5	Reference data for model HIP-215NKHE5
Electrical data	215	214	
Maximum power (Pmax) [W]	215	214	Dependence on irradiance
Max, power voltage (Vpm) [V]	42.0	41.9	Cell temperature: 25°C
Max power current (lpm) [A]	5.13	5.12	6.00 1000W/m ²
Open circuit voltage (Voc) [V]	51.6	51.5	
Short circuit current (Isc) [A]	5.61	5.60	5.00
Warranted min. power (Pmin) [W]	204.3	203.3	
Maximum over current rating [A]		15	4.00
Output power tolerance [%]	rading [A] 15 e [%] +10 / -5 (dc) 1000		E 300
Max system voltage [Vdc]			
Temperature coeff of Pmax [%/°C]	-0	30	2.00
Temperature coeff of Voc [V/°C]	-0.129	-0129	
Temperature coeff. of loc [m/ /°C]	168	168	1.00 200W/m ²
	1.03	1.00	
NOCI [C]	4	2	0.00
Note 1: Standard test conditions: Air mass 1.5, Irrac Cell temperature = 25 °C.	diance = 1000 vv/m		0 10 20 30 40 50 60
Note 2: The values in the above table are nominal.			Voltage [V]
1280 A A	4-07 (-) (-) (-) (-) (-) (-) (-) (-) (-) (-)	or	
Front Side	Back	side Weight: 15 kg	Certificates IEC 61730 IEC 61215 ed. 2 IEC 61730 IEC 61215 ed. 2 Sufficiency States Sufficiency States
uarantee	Section B-B	Unit: mm	

Power output: 10 years (90% of Pmin), 20 years (80% of Pmin) Full conditions are available on our website.

CAUTION! Please read the operating instructions carefully before using the products.

Due to our policy of continual improvement the products covered by this brochure may be changed without notice.

SANYO Component Europe GmbH Solar Division

.

Stahlgruberring 4 81829 Munich, Germany Tel.+49-(0)89-460095-0 Fax.+49-(0)89-460095-170 http://www.sanyo-solar.eu email: info.solar@sanyo-solar.eu



SANYO Electric Co., Ltd. Solar Division

http://www.sanyo.com/solar email: homepage_solar@sanyo.com 10/09

۲

Sean Phelan and Audrey Mandela Waverley Cottage Apartment 1 24 Merton Rise London NW3

Listings Department Camden Council 6th Floor Town Hall Extension Development Control Argyle Street WC1H 8ND

26th January 2009

Statement of Intention 2 Hampstead Hill Gardens, London NW3 2PL

Dear Sir/ Madam,

I am writing to you to outline our statement of intent for the proposed works to 2 Hampstead Hill Gardens.

We would like to undertake measures to this Grade II property to create a more eco-friendly environment without compromising the historical character of the building.

We are passionate about the environment and also about historical architecture so have employed historical specialists, CgMs, as consultants on the job.

To make the property more eco-friendly, we would like to be able to generate our own energy on site and have thought hard about which route to go down. We have considered a number of options such as ground-source heat pumps and solar thermal energy, but rejected them because of the potential disruption to neighbours and inconsistency with the appearance of the house. We now believe that installing Solar PV panels is the best way to generate our own energy: we hope to be able to power a large proportion of our home's electricity by fitting these panels flat to the conservatory roof. Although fitting them horizontally, will mean that the panels will not be able to perform at their most efficient capability, by having them at a near zero degree angle, we will be able to keep them hidden so as not to mar the appearance of the exterior of the building. In the same vein we intend to invest in a Victorian lantern for the conservatory roof inspired by the plans of the roof from 1901 that we found amongst the documents left at the property.

Within the property, we are looking to install an intelligent heating and electrical system to guarantee that each room can be controlled individually to make sure they are run in the most energy efficient way. All kitchen appliances will be A+ rated.

We will have LED lighting throughout the property and are sourcing antique or FSC regulated furniture.

We are taking every precaution to preserve the historical importance of the house; we consider this a priority. We hope that you will take this into account when considering our Listed Building applications.

Yours sincerely,