F.A.O London Borough of Camden

Issued via E-Mail

13th February 2017

Dear Sir/Madam,

NRG Consulting - Energy Statement – Agar Grove Estate (Phase 1a) – Addendum Letter

In relation to your comments on our submitted Energy Statement (ref: ES/AG/201609 – BC) we can formally reply as follows:

London Borough of Camden Comments	NRG Reply
It looks like some of the u-values and the thermal bridging y-value in the original Max Fordham statement is slightly better than what is currently being proposed.	The original Max Fordham Energy Statement was based upon Design Stage assumptions and generic "whole scheme" U-values U-Values for elements such as Floors and Windows. Our calculations are based on the actual calculated U-Values and supplied Manufacturer Data: some have come out slightly better than assumptions, such as Windows. Elements such as the External Wall U-Value have been affected by the availability of Insulation suitable for use above 18m (in terms of combustibility and approval under Part B of the Building Regulations).
1.16 m^3/hm^2@50Pa for air permeability proposed, which is very low. However, I noted that for Passivhaus the standard is 0.6. How will this impact the scheme's ability to achieve PassivHaus certification?	The air tightness proposed in the NRG statement is the same as the Passivhaus standard, it is just a different unit of measurement: Passivhaus uses air changes per hour: (n50) ≤ 0.6 h^{-1} @ 50 Pa Part L of the Building Regulations uses m^3/hm^2 @ 50 Pa Therefore the proposed 1.16 m^3/hm^2@50Pa is equivalent to 0.6 h^{-1} @ 50 Pa.

They've not provided a review on how they are performing against PassivHaus criteria though they have confirmed it will be certified by WARM via a compliant PHPP Model being undertaken by the PassivHaus Assessors (Architype). Are they confident that what is proposed will achieve PassivHaus certification? Can they provide this evidence to us they are on track to achieve this?Their current energy statement doesn't make this clear.	Yes, Passivhaus will be achieved. Confirmation and evidence is contained within the Appendices of this letter from WARM, the Passivhaus Certifier for the scheme.
They are now only implementing solar PV and no solar thermal – is this still proposed for the other phases? We will want to know how this impacts the scheme's ability to secure PassivHaus certification.	The other phases will have standalone Energy Reports to meet the requirements of the Planning Condition. Passivhaus Certification can be achieved without Solar Thermal and the removal has no detrimental effect.
They are proposing 25 panels, south facing, inclined 15-35 degrees will provide 7.25 kWp. This is not meeting the 20% reduction from renewables (which was proposed in the Max Fordham energy strategy). Again will this shortfall be made up in other phases?	The other phases will have standalone Energy Reports to meet the requirements of the Planning Conditions should they deviate from the approved Max Fordham Strategy.
The communal boiler efficiency is very high – higher than what was included in the Max Fordham statement. How are they going to achieve this?	Please find the datasheet proposed boiler is Remeha Quinta Pro 115 attached in the Appendices. For communal boilers, the seasonal efficiency is used and there is no SEDBUK efficiency like for domestic boilers, hence the difference.
They've not really commented overheating risk mitigation.	The original submission of the Max Fordham statement and the Planning Application was judged to have satisfied any risk of Overheating to the scheme.

In relation to the comment regarding the Report not achieving a 20% reduction in CO2 (after Be Lean measures) via Renewable Energy, this was noted. However, the overall Part L target reduction can be met without this level of PV via the enhanced energy efficiency measures we are implementing to achieve the Passivhaus standard. This is via

Good levels of insulation with minimal thermal bridges
Passive solar gains and internal heat sources
Excellent level of airtightness
Triple Glazed Windows
MVHR

Therefore with this level of investment in Energy Efficiency it was seen as counterproductive (and not necessary for Passivhaus or the overall Part L target) to implement further PV.

This is referenced in Camden CP3 on Sustainability (2013), the relevant Sustainability Document at the time of Planning Application states on Page 43:

When assessing the feasibility and viability of renewable energy technology, the Council will consider the overall cost of all the measures proposed and resulting carbon savings to ensure that the most cost effective carbon reduction technologies are implemented in line with the energy hierarchy.

Please note that this Report and some of the issues contained above we discussed and agreed in principle between NRG Consulting, Hill Partnerships and London Borough of Camden at a Meeting held at London Borough of Camden Offices on July 25th 2016.

I trust this is sufficient. Any further queries, please do not hesitate to contact me directly,

Regards

Ryan Thrower
For NRG Consulting

Appendix 1 – Boiler Datasheet
Appendix 2 – Confirmation from WARM that Passivhaus Certification will be achieved for Phase 1a.

cc:
Matt Daley, Odran McShane, Nick Lewis – Hill Partnership - Letter and Attachments
Ann-Marie Fallon, Iona Campbell, Robert White – NFC Homes - Letter and Attachments

Appendix 1

This is a quick reference specification sheet; full details can can be found in the Quinta Pro installation/service guide via **remeha.co.uk/documents.**

QUINTA PRO 115

TECHNICAL SPECIFICATION SHEET

June 2016

OVERVIEW

MODEL : Quinta Pro 90	GC No. N/A
Rated Output kW (80/60°C)	107
Rated Output kW (50/30°C)	114
Weight (dry) kgs	68
Overall Dim WxHxD mm	500x750x500
No of sections : One piece castin	
SBEM Seasonal Efficien. %: GCV(1)	95.44
Efficiency -Full Load 100%: NCV(4)	97.1
Efficiency -Part Load 30%: NCV(5)	108
Stand-by Heat Loss kW :	0.123

BURNER TYPE PRE MIX

Std Fuel Available	Naural Gas
Fuel Consumption M^3/h	11.7 NG max
Fuel Consumption M^3/h	4.5 LPG max
Flame Protection	Ionisation
Ignition	Electrinic
Noise level dB(A) at 1 metre	51
Optional Fuel	Propane
LGP adjustment (*)	
Gas Connection size BSP	3/4" (M)
Min/Max Gas pressure mbar	17 - 25 NG
Min/Max Gas pressure mbar	37 - 50 LPG
NOx (dry, 0% O_2) EN483 EN 15420	35

CONCENTRIC FLUE/AIR INLET (#)

Flue diameter mm I/D	100
Air inlet diameter mm I/D	150
Mass flue gas flow rate kg/hr	23 - 178
Flue gas temperature °C	30 - 72
Maximum counter pressure PA	220

CONTROL/OPTIONS

STANDARD - On/Off, 0-10v dc, Open Therm
High limit protection and low water protection
Volt free common alarm and boiler run indication
Manual o/ride
Modulating (18 - 100%, avg.)
Hot water priority facility (3 way valve or pump)
Two Safety Interlocks
Hours run indication
Flue - concentric connection (***) (#)

OPTIONAL - Optimising compensators for single and multiple boilers
Cascade kits - multiple boiler pipework kits
Low loss headers
Outside sensor for simple weather compensation
Hot water priority kits - pump or valve kits
Relay kits for single and multiple controls - 230v switching relay

ERP DATA - ECO DESIGN

Useful Efficiency -Full Load (GCV)% (2)	87.5
Useful Efficiency -Part Load (GCV)% (2)	97.3
Sound Power Levels L_{wa} Indoors dB	59

HYDRAULICS

Water contents ltrs	9.4
Resistance @ 11°C mbar	826
Resistance @ 20°C mbar	250
Nom Flow Rate @ 11° C l/s	2.33
Nom Flow Rate @ 20° C l/s	1.28
Min Flow Rate m3/hr	0.4
Condensate Connection	3/4" OD
Connection Size " BSP	1 1/4" (M)
Std Operating Temp °C	20 - 90 (**)
Max Operating Temp °C	90 (3)
High Limit Set Point °C	110 (3)
Max operating pressure bar	4
Min operating pressure bar	0.8
Min operating pressure bar	0.5 o/v

ELECTRICAL

Power Supply	230v - 1 ph - 50 hz
Start Current amps	1.8
Power Consumption W	45 - 199
Modulating input V dc	0 - 10
Fuse Rating amps	6.3
Controls Voltage	24 (max 4va)
Insulation Class IP	X4D

(1) In accordance with the Non Domestic Building Services Compliance Guide 2013 Edition-For use in England
(2) In accordance with EU 811 & 812 / 2013 Energy Labeling Regulations
(3) In accordance with EU 813 & 814 / 2013 Eco Design Regulations
(4) @ 80/60 °C Nett (EN 92/42)
(5) @ 50/30 °C nett (92/42)
(*) See installation and service manual
(**) Open vented option maximum operating temperature 75°C high limit 95°C
(***) For conventional or room sealed operation
(#) Flue adaptor available for CLV systems

Appendix 2

WARM: Low Energy Building Practice

Passivhaus Compliance Review of

Block A
Agar Grove

for:
London Borough of Camden

January 2017
Year/Job Number: 2013 082
Written: LM
Checked: SG

No.3 Admirals Hard, PLYMOUTH, PL1 3RJ U.K.
Tel +44 (0)1752 542 546 Email info@peterwarm.co.uk
WARM COMPANY (SW) LIMITED Reg 7676841
Directors: Sally Godber, Sue Johns, Mike Roe, Peter Warm.
Member, Association for Environment Conscious Building
Passivhaus Trainers and Certifiers

Introduction

WARM are appointed to certify the achievement of the Passivhaus standard for Agar Grove block 1A. The key criteria for Passivhaus certification are :

- heating energy less than15kWh/m^2.yr OR heating load less than 10W/m^2
- overheating less than 10 % of the year at over 25ºC
- primary energy consumption less than 120 kWh/m^2a
- air pressure test result n_{50} less than 0.6 h^{-1}

The 15kWh/m^2.yr heating energy target is based on the estimated number of kWh of annual heat demand for every m^2 of treated floor area. The primary energy target covers all energy use for the building including heating, hot water, lighting, appliances etc. Primary energy is the term used for the energy consumed at source, taking into account all energy from extraction to use. For each unit of electricity used in the building an additional 1.6 units are consumed in fuel extraction, generation, distribution and conversion losses. Gas is more efficient with an additional 0.1 units used.

Summary

Heating Energy

Our estimated heating energy is **15.0 kWh/m^2.yr**. This is below the upper limit of **15.5 kWh/m^2.yr**. The information provided is of a good quality and is largely complete, but some minor pieces of design evidence are still outstanding. These are outlined in detail in the latest Evidence Register, but broadly speaking we are awaiting:

- GA drawings of the riser pop ups
- A few thermal bridge calculation reports/length measurements.
- Evidence of the conductivity of different insulation types

Based on our assumptions we expect the building to pass the heating energy demand target.

Overheating

Overheating is defined as the internal temperature being above 25ºC. The Robinson Associate's report on their dynamic simulation demonstrates that with set assumptions the homes will be above 25degC for less than the Passivhaus upper limit of **10%**. Because of the existence of the dynamic simulation the building has not been modelled for overheating in PHPP.

Primary Energy

We have received all information required to calculate the Primary Energy. The Primary Energy is calculated at **120.7 kWh/m^2.yr** in our PHPP, which is only just higher than the upper limit of **120 kWh/m^2.yr**. We expect a minor design change would allow the heating energy to fall below the limit.