From: STEPHEN SAMUEL
Sent: 24 November 2022 11:33
To: Planning >
Subject: SKA/22/11/24 2021/92/LG@NYMNPA RE: NYM/2022/0697 - CARBON NEUTRAL ENVIRONMENTAL ENERPHIT UPGRADING WORKS AT THE LONG BARN, HAWTHORN HILL FARM, GREEN END, BECK HOLE ROAD, GOATHLAND, WHITBY, NORTH YORKSHIRE, YO22 5LL FOR BECKY HEWITT & PAUL BULLIMORE

Good morning

PLANNING APPLICATION REFERENCE NUMBER NYM/2022/0697

(PLANNING PORTAL REFERENCE NUMBER PP-11566598)

CARBON NEUTRAL ENVIRONMENTAL ENERPHIT UPGRADING WORKS AT THE LONG BARN, HAWTHORN HILL FARM, GREEN END, BECK HOLE ROAD,

F.A.O. MISS LUCY GIBSON, PLANNING OFFICER, NYMNPA, HELMSLEY

We write further to the receipt of an email from you – 17.47 –Thursday, 28th October 2022 the content which is noted.

To this end, we append a .pdf copy of the following revised architectural drawings, comprising:-

2021/92/03D (22.11.22)	**Dwelling Elevations as Existing & Proposed**	**scale 1:100 @ A3**
2021/92/08C (22.11.22)	**Site Plan as Proposed**	**scale 1:200 @A3**
2021/92/11A (22.11.22)	**Barn Elevations as Proposed**	**scale 1:100 @ A3**
2021/92/12A (22.11.22)	**Ground Floor Plan as Proposed**	**scale 1:100 @ A3**

We also append a newly created drawing reference **2021/92/13**, prepared to a scale of 1:100 and entitled **"Garden Sheds Elevations"**, illustrating the collective elevations of the small timber sheds in the rear garden area, that you currently deem to be unauthorised.

The northernmost timber shed replaces an existing dilapidated timber shed of similar size, height, width and mass and houses domestic garden tools on the same concrete base.

The existing timber chicken co-op, designed those domestic chickens is illustrated between the timber sheds.

The southernmost timber shed houses water storage and water filtration equipment, following advice sourced from Scarborough Borough Council Environmental Team.

Their inclusion this Planning Application is made on a retrospective basis, as proposed in your latest correspondence.

REPLACEMENT FENESTRATION

Large scale drawings of the proposed fenestration's appended, as requested.

They will be sourced as timber framed triple glazed from their ULTRA range, manufactured to achieve an intra-high "U" Value of 0.75W/m2K, which will exceed current Building-Regulations-compliant fenestration by a factor of 96% better thermal performance, given they are designed and manufactured to achieve "PassivHaus-standard" compliance.

These timber framed windows and doors will be finished in dark grey paint.

SOLAR PANELS

The solar panel system for the southern facing pitched roof slope of the timber barns is to comprise frameless flexible black thin film integrated photovoltaic solar panels fitted directly onto the external face of the raised seam sheet roof covering system, sourced from BIPCco Limited "The Building Integrated Photovoltaic Company" - www.bipvco.com of Newport , South Wales.

The peel & stick capability of their "Flextron" system, (data sheet appended) with appropriate cells and junction boxes fused to the substrate are proposed, illustrative material being published on their website.

The pantiles for the southern facing pitched roof slope of the existing stone barn residential accommodation will incorporate a variation to this "peel & stick" system of thin film "Metrotile" integrated solar PV panels, a photograph of which is attached.

AIR SOURCE HEAT PUMP

Details of the proposed **LG ”THERMA V” 12kW split hydro-box air source heat pump system,** (ODU unit - 950mm wide x 1380mm high x 330mm deep) are appended, which includes details of the externally sited ODU unit, which in turn supplies zero-carbon low-grade heat to the internal IDU unit, under mains cold water pressure, this low-grade heat collected in the IDU utilised to supply all heating and hot water provision throughout this dwelling.

The position, to scale of the proposed ASHP ODU units are illustrated on the accompanying drawings in plan and elevation.

TIMBER BARNS

To clarify, the existing rectangular 61m2 Timber Barn is to be further waterproofed and insulated and a note has been added to drg ref 2192/12A (22.11.22) - Ground Floor plan as Proposed to this effect.

The pole barn and lean-to attached to the Eastern side is to be utilised for the parking of vehicles and will remain open sided, except where abutted to the rectangular enclosed timber barn.

REPLACEMENT ROOF COVERINGS

The Timber Barns are to contain lightweight raised seam steel sheet roof coverings, colour anthracite.

The Stone Barn is to contain replacement heavy clay pantiles, similar in colour and texture to those existent on site.

We trust this information is sufficient to enable you to issue the requisite Planning “Notice of Decision” at your earliest convenience, for which we thank you, in anticipation early receipt of same from you.

With very best wishes

Stephen N Samuel

Stephen N Samuel RIBA, Chartered Architect

Please reply to:
Stephen N Samuel HND(ArchTech) BA(Hons) DipArch(Leics) RIBA,
Chartered Architect, Architectural Technologist, Surveyor, Adjudicator, HSE Principal Designer (CDM Regulations), Managing Director, for and on behalf of Samuel Kendall Associates Limited: An RIBA Registered Chartered Architects Practise (1843970), operating a policy of continuing professional development, with a penchant for sustainability in architectural design.

"Providing Independent Professional Architectural Service since 1978"

BIPVco
The Building Integrated Photovoltaic Company

NY MNPA
24/11/2022

FLEXTRON
Flexible Photovoltaic Roofing Solution

Flexible, Peel & Stick

BIPVco is a British manufacturer of solar integrated roofing products, utilising market leading technology and processes to make Building Integrated Photovoltaics (BIPV) from conventional building materials; the BIPV functionalised roof works as a building product, whilst converting the building envelope from a liability into an asset by using the roof to generate low carbon electricity.

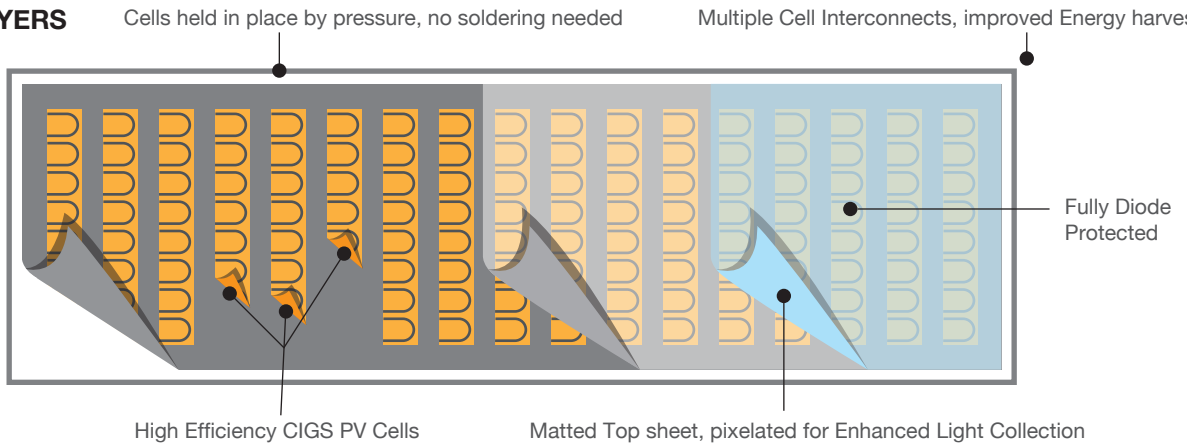
FLEXTRON is a 'peel and stick' module with integrated solar cells. Modules are attached to the approved substrate to create a roofing system that can be installed in the same way as a conventional roof.

FLEXTRON modules can be sold independently or with a roof system as a package.

Key Features

- Cell Efficiency, up to 17%
- Best in class thin film technology
- No ballast, penetrations or racking required
- Low installed weight of less than 3kg/m2
- Improved aesthetics
- Multiple Bypass Diode design to improve performance in shading/low light
- 5 year product warranty & 25 year performance warranty

MODULE LAYERS



FLEXTRON DATA SHEET

Technical Characteristics

Copper Indium Gallium Diselenide thin film flexible solar module desiged to be fitted to approved roofing panels. The modules are delivered with our front or rear mounted junction boxes with IP67 rated terminals housing assembly and quick connect terminals.

Electrical Performance at STC

Front Contact		F13F125B1	F15F245B1	F33F370B1
Rear Contact		F13R125B1	F15R245B1	F33R370B1
Nominal Power	[W]	125	245	370
Power Output Tolerance	[W]		+ / -3%	
Maximum Power Voltage	[V]	31.75	63.50	95.25
Maximum Power Current	[A]	3.86	3.86	3.86
Open Circuit Voltage	[V]	38.92	77.84	116.76
Short Circuit Current	[A]	4.38	4.38	4.38
Maximum Series Fuse Rating	[A]		10	
Maximum System Voltage	[V]		1000	
Cell Efficiency	%		15.5%	
Watts Per Square Metre	W/m²	128	132	139
Cells / Bypass Diodes Per Module		56 / 28	112 / 56	168 / 84

Standard Test Conditions (STC): 1000 W/m2, 25°C cell temperature, AM 1.5 spectrum.

Thermal Characteristics

NOCT	[°C]	56.2
Temperature Coefficient of P_{MPP}	[% / °C]	-0.268
Temperature Coefficient of V_{OC}	[% / °C]	-0.209
Temperature Coefficient of I_{SC}	[% / °C]	-0.0007
Module operating range	[°C]	-40 to +85

Physical & Mechanical Specifications

Length	mm	2609	5067	2609
Width	mm	358	358	990
Module Area	m²	0.934	1.81	2.58
Thickness, Maximum at J-Box, Module	mm		19	
Thickness, laminate without adhesive	mm		2.5	
Thickness, laminate with adhesive	mm		3.5	
Weight (Module without adhesive)	kg	2.08	4.05	5.76
Weight (Module with adhesive)	kg	3.56	6.91	9.84
Weight / Area (Module without adhesive)	kg / m²		2.23	
Weight / Area (Module with adhesive)	kg / m²		3.81	
Junction Box Type			IP67	
Cell Type		Copper Indium Gallium Diselenide (CIGS)		
Certification		IEC 61730-1, IEC 61730-2, IEC 61646, KIWA		
MCS		MCS 017 (TUV SUD / BABT)		
Quality System		ISO 9001 (SGS)		
Warranty		5 year product, 10 / 25 year performance		

businessGreen TECHNOLOGY AWARDS 2016 WINNER

Powered by MiaSolé A Hanergy Company

kiwa

APPROVED PRODUCT MCS BABT

MADE IN BRITAIN

IEC

CE

BIPVco, G Cell Building, Imperial Park, Newport, NP10 8AS Phone: (+44) 01633 654226 Email: Sales@bipvco.com **www.bipvco.com**

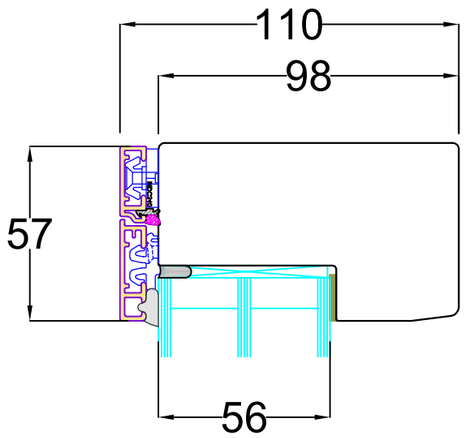
NYMNPA

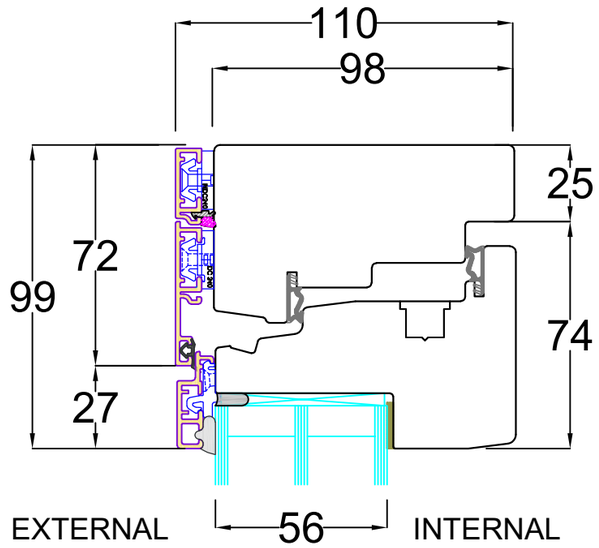
24/11/2022

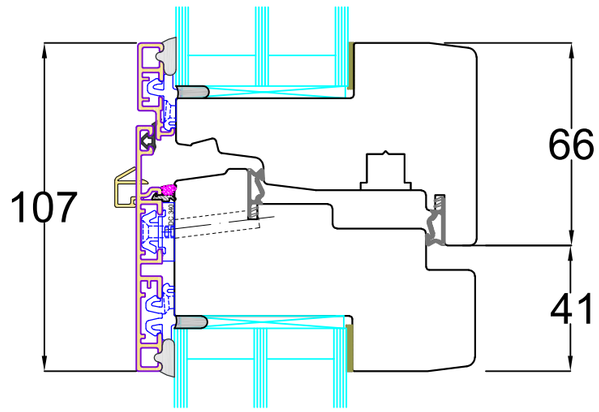
Drawing Title: GBS Windows and doors sections master 01.dwg

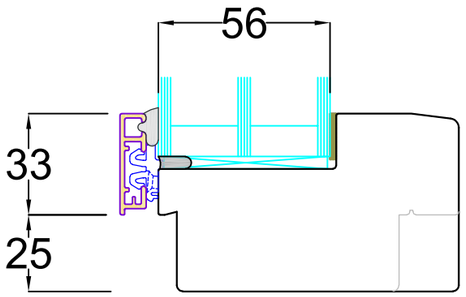
General Notes:

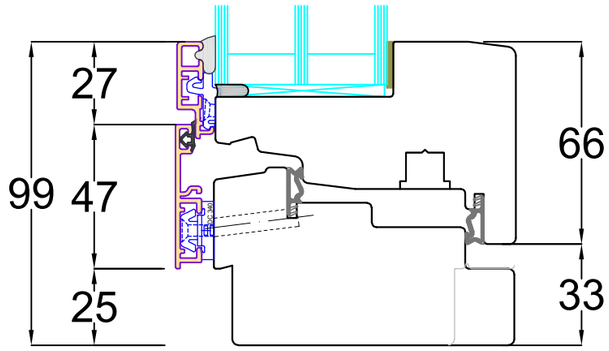
1:4 @A3



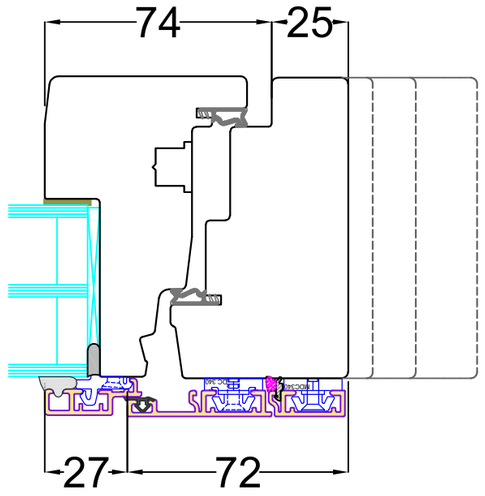




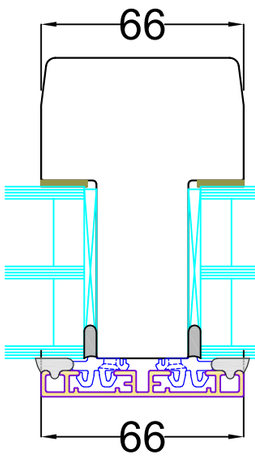




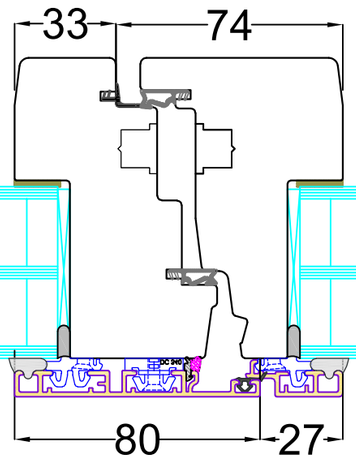
PLEASE NOTE: FRAMES CAN BE EXTENDED TO ALLOW FOR FINISHING



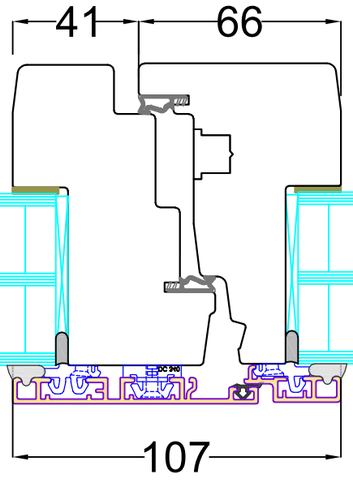
MULLION FIXED/FIXED



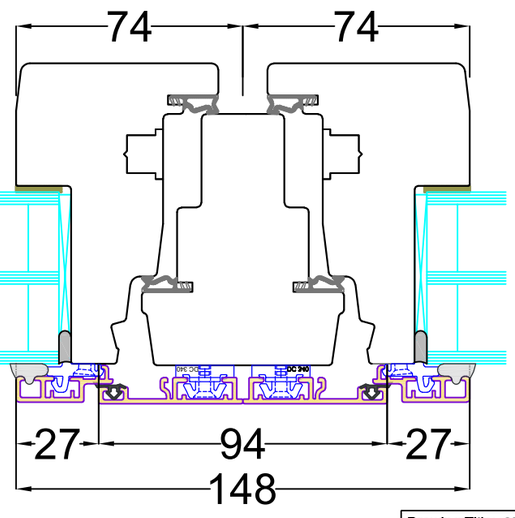
MULLION OPEN/FIXED



FLOATING MULLION



MULLION OPEN/OPEN



Drawing Title: GBS Windows and doors sections master 01.dwg

A3 | LS

Notes:

Contact us:
Phone: 01484 463336
Web : www.greenbuildingstore.co.uk
Email: windows@greenbuildingstore.co.uk
Social:

Green Building Store
Heath House Mill
Heath House Lane
Golcar, Huddersfield
West Yorkshire
HD7 4JW

GBS Windows and doors sections master 01.dwg

GBS Windows and doors sections master 01.dwg

NY MNPA

24/11/2022

LG
Life's Good

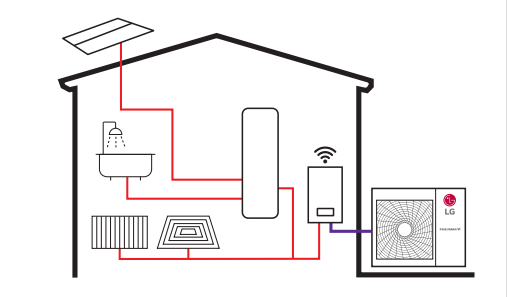
THERMA V™

R32 R410A

Products in this brochure contain fluorinated greenhouse gases.

LG'S THERMA V SPLIT AT A GLANCE

The LG THERMA V Split is a hydro box type comprising a separate indoor and outdoor unit, which are connected by refrigerant piping. Hydronic components such as plate heat exchanger, expansion tank and water pump are located within the indoor unit, making the unit capable of withstanding freezing outside ambient temperatures.



LG'S THERMA V R32 Split / R410A Split

Enhanced installation flexibility

- Refrigerant pipes connects IDU & ODU
- Hydronic components built into IDU : plate heat exchanger, water pump, back up heater, expansion tank, air vent, etc
- User-friendly installation settings interface

High efficiency & operational range

- SCOP up to 4.65 (average climate / low temp. application) : A+++
- 100% Heating capacity at -7℃ outdoor temperature (except for 16kW R410A Split)
- Leaving water temperature up to 65℃ (R32) / 57℃ (R410A)
- Expanded operative range of solar thermal system

Innovative design & technology

- Built-in water flow & pressure sensors to monitor real-time water circuit
- Advanced water pump control (optimal flow rate, fixed capacity, fixed flow rate, fixed ΔT)
- Enhanced 2nd circuit control logic

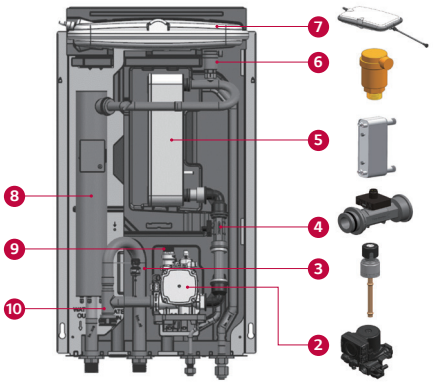
	Indoor Unit	Outdoor Unit
1Ø	HN091MR NK5	HU051MR U44 HU071MR U44 HU091MR U44

	Indoor Unit	Outdoor Unit
1Ø	HN1616M NK5	HU121MA U33 HU141MA U33 HU161MA U33
3Ø	HN1636M NK5	HU123MA U33 HU143MA U33 HU163MA U33

Capacity Range [kW]	Phase		5	7	9	12	14	16
R32 Split	1Ø	Heating	● (5.5)	● (7.0)	● (7.0)			
R410A Split	1Ø / 3Ø	Heating				● (12.0)	● (14.0)	● (16.0)

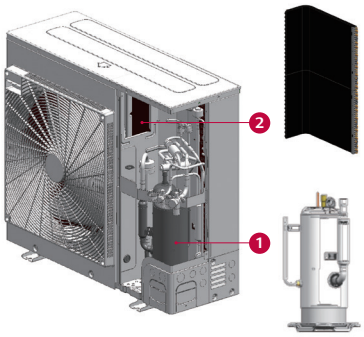
KEY COMPONENTS

1 Air temp sensor integrated



1. RS3 (Standard III) (attached on the front panel)
2. Water pump (GRUNDFOS)
3. Water pressure sensor (SENSATA)
4. Flow sensor (SIKA)
5. Plate type heat exchanger (ref/water)
6. Air vent valve
7. Expansion vessel (8l)
8. Back up electric heater (6kW)
9. Safety valve
10. Strainer

1. R1 compressor
2. Black Fin heat exchanger (ref/air)



* Illustrated based on R32 Split outdoor unit.
* For R410A Split, Gold Fin heat exchanger is applied.

EXCELLENT PERFORMANCE & EFFICIENCY

- R1 compressor
- Flash gas injection* (* R32 Split only)
- Wide operation range
- Black Fin heat exchanger* (* R32 Split only)
- Solar thermal
- Energy state
- Modbus communication

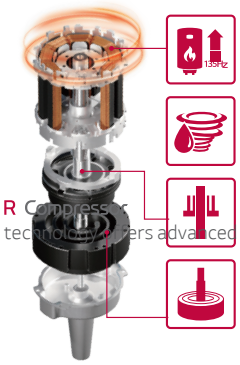
EASY INSTALLATION

- LG heating configurator* (* will be supported from 3Q 2021)
- Clip connection
- Flexible piping design

USER CONVENIENCE

- Intuitive interface
- LG ThinQ
- Mixing circuit
- Various control options
- Flow sensor
- Pressure sensor
- 3rd party boiler
- Energy monitoring
- Seasonal auto mode
- Low noise mode
- Advanced pump control

R1 Compressor™ LG'S REVOLUTIONARY TECHNOLOGY



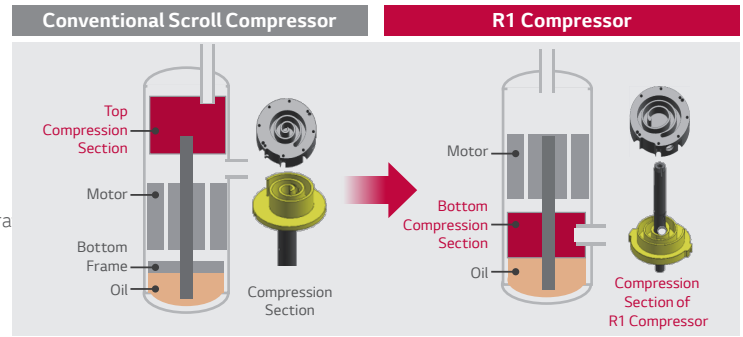
R Compressor technology offers advanced efficiency, reliability and operation

Extended operation range (Max. 135Hz)

Centrifugal oil return & Oil separating guide for oil discharge reduction

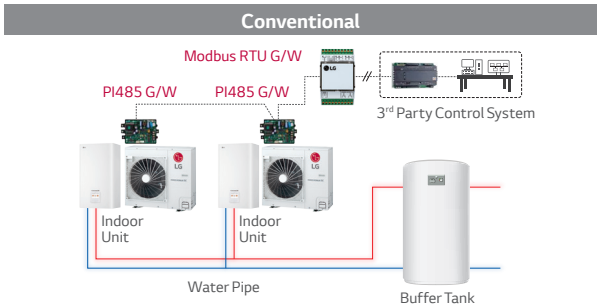
Shaft-through structure & Support both ends of shaft
- Solid compressor operation
- assuming higher durability

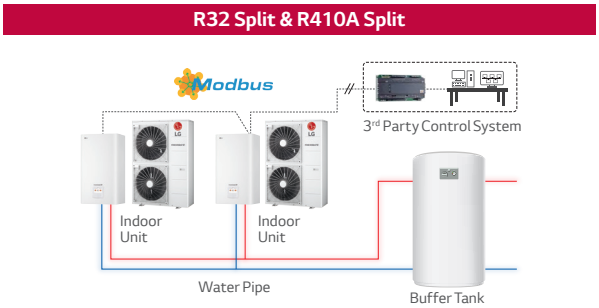
Bottom compression & Simple structure
- Lower noise & Vibration
- Less weight
- Superior reliability



MODBUS COMMUNICATION

Considering the units in parallel installation, it is required to think how to control them. The R32 Split & R410A Split can be connected to 3rd party control system using Modbus protocol directly, without Modbus RTU gateway and PI485 gateway. Moreover, The R32 Split & R410A Split is able to support much more functions than conventional one using new Modbus memory map.





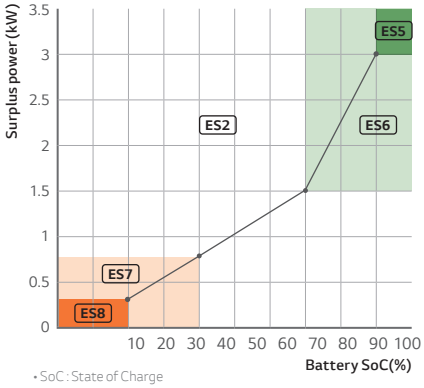
ENERGY STATES INTERLOCK

The R32 Split & R410A Split provide provides energy state interlock function that enables customers to use as much as possible of their own renewable energy. It can shift set points depending on input signal from Energy Storage System (ESS) or any other third-party device using Modbus or Digital 230V inputs.

Energy States	Description				Operation
	Smart Grid (Contact)		ESS (Modbus)		
	Operation Mode	Power Supply Status	Operation Mode	Battery Charged Status	
ES1	Operation Off				Forced off to avoid peak load
ES2	Normal		Normal		Normal operation
ES3*	On Recommend				Changed target temperature higher (Heating : +2°C / DHW : +5°C)
ES4*	On Command				Changed target temperature higher (DHW : 80°C)
ES5**			On Command (Step2)		Changed target temperature higher (Heating : +5°C, DHW : +30°C)
ES6**			On Recommend (Step1)		Changed target temperature higher (Heating : +2°C, DHW : +10°C)
ES7**			Energy Saving		Changed target temperature lower (Heating : -2°C)
ES8**			Super Energy Saving		Changed target temperature lower (Heating : -5°C)

* Contact signal designated ES3 and ES4 can be changed to ES5 ~ ES8.
** Offset values of heating and DHW are changeable.
*** Therma V can connect not only ESS but also 3rd party controller through Modbus, in that case, ES1 to ES8 are used.

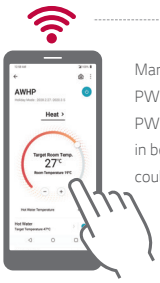
[Area of Energy State for ESS]



- SoC : State of Charge
- Surplus Power (SP) = PV Power – Load Power
- Area of Energy State for ESS can be adjusted by ESS.

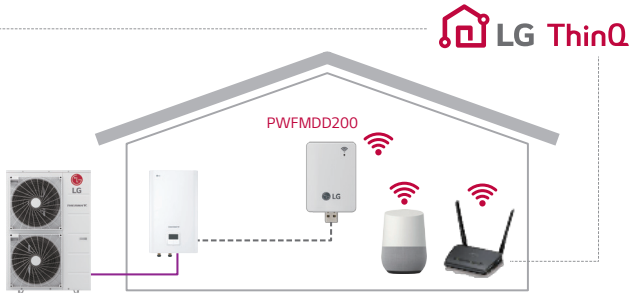
LG ThinQ SEAMLESS CONNECTIVITY

LG ThinQ allows users to monitor and control compatible LG products remotely, so they can set the temperature and regulate the use of their THERMA V anytime, anywhere. LG ThinQ technology also works with voice activation with Google Home.



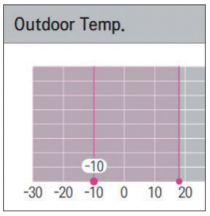
Mandatory accessory :
PWFMDD200 (LG Wi-Fi Modem)
PWYREW000 (10m extension connect cable in between THERMA V indoor and LG Wi-Fi Modem) could be required depends on installation condition.

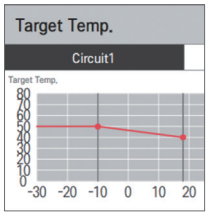
* Search "LG ThinQ" on Google market or App store, then download the app.
* Google home voice is supported in United Kingdom, France, Germany, Spain, Italy, Austria, Ireland, Portugal.



SEASONAL AUTO MODE

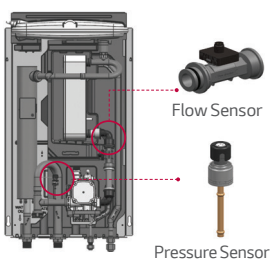
In this mode, the target temperature will vary according to the outdoor temperature automatically. This function can be conveniently set using visualised graphics.

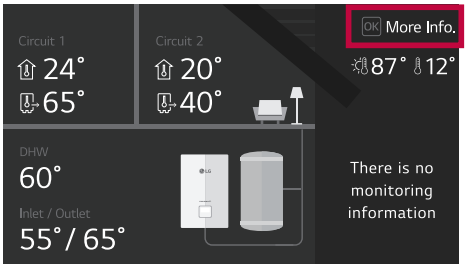


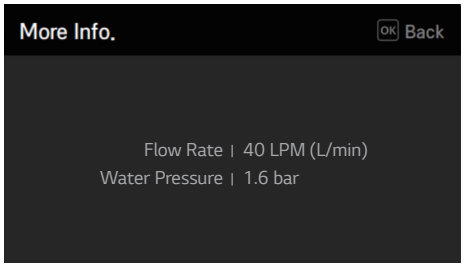


WATER CIRCUIT MONITORING

It is possible to monitor via remote controller not only temperature of water circuit but also flow rate and pressure.
This information is not only useful to the installer during installation, but also helps to periodically clean the strainer.

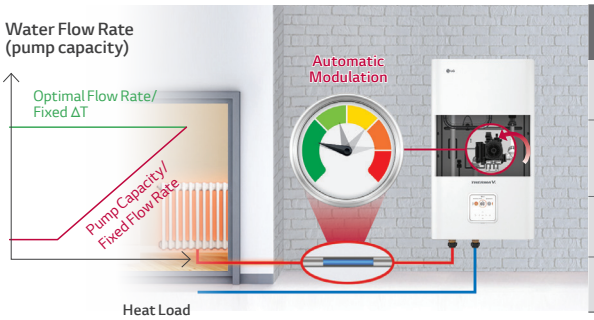






ADVANCED PUMP CONTROL OPTIONS

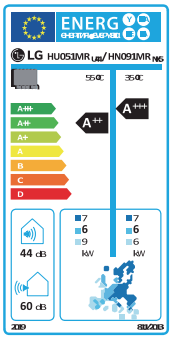
Various pump control options are possible for the user's convenience. With the the R32 Split & R410A Split, the water flow rate can be changed as per heat load condition, therefore it makes more energy efficient operation during low load condition.

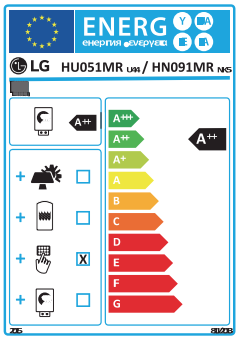


Options	Description	Water Flow Change as per load condition
Pump Capacity	It operates with the capacity set for the water pump. (range 10 ~ 100%)	No
Fixed Flow Rate	Automatically controlled to maintain the set flow rate. (R32 Split range : 8 ~ 26 LPM / R410A Split range : 17 ~ 46 LPM)	No
Fixed ΔT*	Automatically controlled to maintain the set ΔT. (range 5 ~ 13)	Yes
Optimal Flow Rate (default)	ΔT is changed as per Target Temp.	Yes

SEASONAL ENERGY EFFICIENCY

Description			Indoor Unit / Outdoor Unit	HN091MR NK5 HU051MR U44	HU071MR U44	HU091MR U44
Space Heating (According to EN14825)	Average Climate Water Outlet 35°C	SCOP	-	4.65	4.65	4.65
		Seasonal Space Heating Efficiency (ηs)	%	183	183	183
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+++	A+++	A+++
	Average Climate Water Outlet 55°C	SCOP	-	3.23	3.23	3.23
		Seasonal Space Heating Efficiency (ηs)	%	126	126	126
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A++	A++	A++





* 5kW 1Ø model. * A+++ to D scale.

011-1W0315

R1Compressor™ Black Fin LG ThinQ

* EHPA label under development.

PRODUCT SPECIFICATION

R32 Split

INDOOR UNIT

Technical Specification			Indoor Unit	HN091MR NK5
Operation Range (Leaving water temp.)	Heating	Min. ~ Max.	°C DB	15 ~ 65
	Domestic Hot Water	Min. ~ Max.	°C DB	15 ~ 80 2)
Flow Sensor	Measuring Range	Min. ~ Max.	ℓ/min	5 ~ 80
	Flow (Trigger point)	Min.	ℓ/min	7
Water Pressure Sensor	Measuring Range	Min. ~ Max.	bar (G)	0 ~ 20
Expansion Vessel	Volume	Max.	ℓ	8
Safety Valve	Pressure Limit	Upper Limit	bar	3
Piping Connections	Water Circuit	Inlet	mm (Inch)	Male PT 25.4(1)
		Outlet	mm (Inch)	Male PT 25.4(1)
	Refrigerant Circuit	Gas	mm (Inch)	Ø 15.88 (5/8)
		Liquid	mm (Inch)	Ø 9.52 (3/8)
Sound Power Level	Heating	Rated	dB(A)	44
Dimensions	Unit	W x H x D	mm	490 x 850 x 315
Weight	Unit		kg	37.6
Wiring Connections	Power and Communication Cable (Included Earth, H07RN-F)		mm² x cores	0.75 x 4C
Back-up Heater	Type		-	Sheath
	Number of Heating Coil		EA	2
	Capacity Combination		kW	3.0 + 3.0
	Heating Steps		Step	2
	Power Supply		V, Ø, Hz	220-240, 1, 50
	Rated Current		A	25.0
	Power Supply Cable (included earth, H07RN-F)		mm² x cores	4.0 x 3C

1) When fan coil unit not used. 2) DHW 58 ~ 80°C operating is available only when the booster heater is operating.

OUTDOOR UNIT

Technical Specification		OAT	LWT	Indoor Unit	HN091MR NK5		
				Outdoor Unit	HU051MR U44	HU071MR U44	HU091MR U44
Nominal Capacity	Heating	7°C	35°C	kW	5.50	7.00	9.00
		7°C	55°C	kW	5.50	7.00	9.00
		2°C	35°C	kW	3.30	4.20	5.40
Nominal Power Input	Heating	7°C	35°C	kW	1.12	1.43	1.94
		7°C	55°C	kW	1.57	1.57	1.57
		2°C	35°C	kW	0.94	1.20	1.54
COP	Heating	7°C	35°C	W/W	4.90	4.90	4.65
		7°C	55°C	W/W	3.50	3.50	3.50
		2°C	35°C	W/W	3.52	3.51	3.50
Operation Range (Outdoor temp.)	Heating	Min. ~ Max.		°C DB	-25 ~ 35		
Compressor	Type			-	Hermetic Sealed Scroll		
Refrigerant	Type			-	R32		
	GWP (Global Warming Potential)			-	675		
	Precharged Amount			g	1,500		
	t-CO2 eq			-	1.013		
Piping Connections	Outer Diameter	Gas		mm (Inch)	Ø 15.88 (5/8)		
		Liquid		mm (Inch)	Ø 9.52 (3/8)		
	Length	Standard		m	5		
		Max.		m	50		
	Level Difference	Max.		m	30		
	Chargeless-Pipe Length			m	10		
	Additional Charging Volume			g/m	30		
Rated Water Flow Rate (at LWT 35°C)				ℓ/min	15.81	20.12	25.87
Sound Power Level	Heating	Rated		dB(A)	60		
Sound Pressure Level (at 1m)	Heating	Rated		dB(A)	52		
Dimensions	Unit	W x H x D		mm	950 x 834 x 330		
Weight	Unit			kg	60.0		
Power Supply	Voltage, Phase, Frequency			V, Ø, Hz	220 ~ 240, 1, 50		
	Rated Running Current	Heating		A	5.0	6.3	8.6
	Recommended Circuit Breaker			A	16	20	25
Wiring Connections	Power Supply Cable (included earth, H07RN-F)			mm² x cores	4.0 x 3C		

1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound power level is measured on the rated condition in according with ISO 9614 standard. Therefore, these values can be increased owing to ambient conditions during operation.
4. Performances are based on the following conditions (It is according to EN14511) : • Interconnected pipe length is standard length and difference of elevation (outdoor ~ indoor unit) is 0m.

Performance Table for Heating Operation

Maximum Heating Capacity (Including Defrost Effect)

HU051MR U44 + HN091MR NK5

Outdoor Temperature	LWT 30°C	LWT 35°C	LWT 40°C	LWT 45°C	LWT 50°C	LWT 55°C	LWT 60°C	LWT 65°C
	TC	TC	TC	TC	TC	TC	TC	TC
-25°C DB	4.02	3.90	3.78	3.66	-	-	-	-
-20°C DB	4.64	4.51	4.38	4.26	4.13	-	-	-
-15°C DB	5.26	5.12	4.99	4.85	4.72	4.58	-	-
-7°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	-
-4°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	-
-2°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	-
2°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
7°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
10°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
15°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
18°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
20°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
35°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50

HU071MR U44 + HN091MR NK5

Outdoor Temperature	LWT 30°C	LWT 35°C	LWT 40°C	LWT 45°C	LWT 50°C	LWT 55°C	LWT 60°C	LWT 65°C
	TC	TC	TC	TC	TC	TC	TC	TC
-25°C DB	5.00	4.85	4.71	4.56	-	-	-	-
-20°C DB	5.58	5.43	5.27	5.11	4.95	-	-	-
-15°C DB	6.17	6.00	5.83	5.66	5.49	5.32	-	-
-7°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	-
-4°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	-
-2°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	-
2°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
7°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
10°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
15°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
18°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
20°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
35°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00

PRODUCT SPECIFICATION

R410A Split

INDOOR UNIT

Technical Specification			Indoor Unit	HN1616M NK5	HN1636M NK5
Operation Range (Leaving water temp.)	Heating	Min. ~ Max.	°C DB	15 ~ 57	
	Domestic Hot Water	Min. ~ Max.	°C DB	15 ~ 80 [2]	
Flow Sensor	Measuring Range	Min. ~ Max.	ℓ/min	5 ~ 80	
	Flow (Trigger point)	Min.	ℓ/min	15	
Water Pressure Sensor	Measuring Range	Min. ~ Max.	bar (G)	0 ~ 20	
Expansion Vessel	Volume	Max.	ℓ	8	
Safety Valve	Pressure Limit	Upper Limit	bar	3	
Piping Connections	Water Circuit	Inlet	mm (Inch)	Male PT 25.4(1)	
		Outlet	mm (Inch)	Male PT 25.4(1)	
	Refrigerant Circuit	Gas	mm (Inch)	Ø 15.88 (5/8)	
		Liquid	mm (Inch)	Ø 9.52 (3/8)	
Sound Power Level	Heating	Rated	dB(A)	44	
Dimensions	Unit	W x H x D	mm	490 x 850 x 315	
Weight	Unit		kg	40	41
Wiring Connections	Power and Communication Cable (Included Earth, H07RN-F)		mm² x cores	0.75 x 4C	0.75 x 4C
Back-up Heater	Type		-	Sheath	Sheath
	Number of Heating Coil		EA	2	2
	Capacity Combination		kW	3.0 + 3.0	2.0 + 2.0 + 2.0
	Heating Steps		Step	2	2
	Power Supply		V, Ø, Hz	220-240, 1, 50	380-415, 3, 50
	Rated Current		A	25.0	8.7
	Power Supply Cable (included earth, H07RN-F)		mm² x cores	4.0 x 3C	2.5 x 4C

1) When fan coil unit not used. 2) DHW 50 ~ 80°C operating is available only when the booster heater is operating.

OUTDOOR UNIT

Technical Specification		OAT	LWT	Indoor Unit	HN1616M NK5 (1Ø) HN1636M NK5 (3Ø)		
				Outdoor Unit	HU121MA U33 (1Ø) HU123MA U33 (3Ø)	HU141MA U33 (1Ø) HU143MA U33 (3Ø)	HU161MA U33 (1Ø) HU163MA U33 (3Ø)
Nominal Capacity	Heating	7℃	35℃	kW	12.00	14.00	16.00
		7℃	55℃	kW	11.00	11.50	12.00
		2℃	35℃	kW	11.00	12.00	13.80
Nominal Power Input	Heating	7℃	35℃	kW	2.64	3.17	3.76
		7℃	55℃	kW	4.31	4.51	4.71
		2℃	35℃	kW	3.04	3.32	3.83
COP	Heating	7℃	35℃	W/W	4.55	4.41	4.26
		7℃	55℃	W/W	2.55	2.55	2.55
		2℃	35℃	W/W	3.62	3.61	3.60
Operation Range (Outdoor temp.)	Heating	Min. ~ Max.		°C DB	-25 ~ 35		
Compressor	Type			-	Hermetic Sealed Scroll		
Refrigerant	Type			-	R410A		
	GWP (Global Warming Potential)			-	2088		
	Precharged Amount			g	2,500		
	t-CO2 eq			-	5.219		
Piping Connections	Outer Diameter	Gas		mm (Inch)	Ø 15.88 (5/8)		
		Liquid		mm (Inch)	Ø 9.52 (3/8)		
	Length	Standard / Max.		m	7.5 / 50		
	Level Difference	Max.		m	30		
	Chargeless-Pipe Length			m	7.5		
	Additional Charging Volume			g/m	40		
Rated Water Flow Rate (at LWT 35°C)				ℓ/min	34.50	40.25	46.00
Sound Power Level	Heating	Rated		dB(A)	63	64	65
Sound Pressure Level (at 1m)	Heating	Rated		dB(A)	55	56	57
Dimensions	Unit	W x H x D		mm	950 x 1,380 x 330		
Weight	Unit			kg	1Ø : 84.8, 3Ø : 85.4		
Power Supply	Voltage, Phase, Frequency			V, Ø, Hz	220-240, 1, 50 / 380-415, 3, 50		
	Rated Running Current	Heating		A	1Ø : 11.5, 3Ø : 6.6	1Ø : 13.8, 3Ø : 8.0	1Ø : 16.3, 3Ø : 9.4
	Recommended Circuit Breaker			A	1Ø : 40, 3Ø : 20	1Ø : 40, 3Ø : 20	1Ø : 40, 3Ø : 20
Wiring Connections	Power Supply Cable (included earth, H07RN-F)			mm² x cores	1Ø : 6.0 x 3C, 3Ø :2.5 x 5C		

1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound power level is measured on the rated condition in according with ISO 9614 standard. Therefore, these values can be increased owing to ambient conditions during operation.
4. Performances are based on the following conditions (It is according to EN14511) :
   • Interconnected pipe length is standard length and difference of elevation (outdoor ~ indoor unit) is 0m.
5. This product contains fluorinated greenhouse gases.

Performance Table for Heating Operation

R410A Split

Maximum Heating Capacity (Including Defrost Effect)

HU121MA U33 + HN1616M NK5 / HU123MA U33 + HN1636M NK5

Outdoor Temperature	LWT 30°C	LWT 35°C	LWT 40°C	LWT 45°C	LWT 50°C	LWT 55°C
	TC	TC	TC	TC	TC	TC
-25°C DB	11.25	10.95	10.22	9.85	-	-
-20°C DB	12.00	11.32	10.90	10.32	-	-
-15°C DB	12.00	11.66	11.45	11.16	11.13	-
-7°C DB	12.00	12.00	12.00	12.00	12.00	11.24
-4°C DB	12.00	12.00	12.00	12.00	12.00	11.98
2°C DB	12.00	12.00	12.00	12.00	12.00	12.00
7°C DB	12.00	12.00	12.00	12.00	12.00	12.00
10°C DB	12.00	12.00	12.00	12.00	12.00	12.00
15°C DB	12.00	12.00	12.00	12.00	12.00	12.00
18°C DB	12.00	12.00	12.00	12.00	12.00	12.00
20°C DB	12.00	12.00	12.00	12.00	12.00	12.00
35°C DB	12.00	12.00	12.00	12.00	12.00	12.00

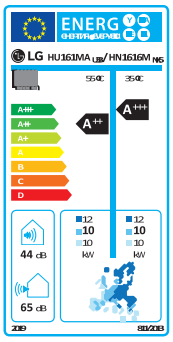
HU141MA U33 + HN1616M NK5 / HU143MA U33 + HN1636M NK5

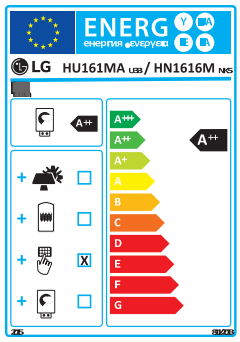
Outdoor Temperature	LWT 30°C	LWT 35°C	LWT 40°C	LWT 45°C	LWT 50°C	LWT 55°C
	TC	TC	TC	TC	TC	TC
-25°C DB	11.25	11.17	10.79	10.32	-	-
-20°C DB	12.11	11.98	11.54	10.90	-	-
-15°C DB	13.06	12.99	12.77	12.27	12.42	-
-7°C DB	14.00	14.00	14.00	13.64	13.09	11.67
-4°C DB	14.00	14.00	14.00	14.00	14.00	12.67
2°C DB	14.00	14.00	14.00	14.00	14.00	13.98
7°C DB	14.00	14.00	14.00	14.00	14.00	14.00
10°C DB	14.00	14.00	14.00	14.00	14.00	14.00
15°C DB	14.00	14.00	14.00	14.00	14.00	14.00
18°C DB	14.00	14.00	14.00	14.00	14.00	14.00
20°C DB	14.00	14.00	14.00	14.00	14.00	14.00
35°C DB	14.00	14.00	14.00	14.00	14.00	14.00

Note
1. DB : Dry Bulb Temperature (°C), LWT : Leaving Water Temperature (°C), LPM : Liters Per Minute (l/min), TC : Total Capacity (kW)
2. Direct interpolation is permissible. Do not extrapolate.
3. Measuring procedure follows EN-14511.
   - Rated values are based on standard conditions and it can be found on specifications.
   - Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   - In accordance with the test standard (or nations), the rating will vary slightly.
4. The shaded areas are not guaranteed continuous operation.

SEASONAL ENERGY EFFICIENCY

Description			Indoor Unit	HN1616M NK5 (1Ø) HN1636M NK5 (3Ø)		
			Outdoor Unit	HU121MA U33 (1Ø) HU123MA U33 (3Ø)	HU141MA U33 (1Ø) HU143MA U33 (3Ø)	HU161MA U33 (1Ø) HU163MA U33 (3Ø)
Space Heating (According to EN14825)	Average Climate Water Outlet 35°C	SCOP	-	4.65	4.61	4.56
		Seasonal Space Heating Efficiency (ηs)	%	183	182	179
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+++	A+++	A+++
	Average Climate Water Outlet 55°C	SCOP	-	3.36	3.37	3.32
		Seasonal Space Heating Efficiency (ηs)	%	131	132	130
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A++	A++	A++





* 16kW 1Ø model. * A+++ to D scale.

011-1W0190

R410A 57°C A+++ R1Compressor™ LG ThinQ

* EHPA and MCS label under development.

Renewable technology

Comfortable home

Lower bills

Reduce carbon emissions

LG
Life's Good

LG Electronics
Air Conditioning and Energy Solutions

Web: www.lg.com/uk/heating

For continual product development, LG reserves the right to change specifications without any notice.

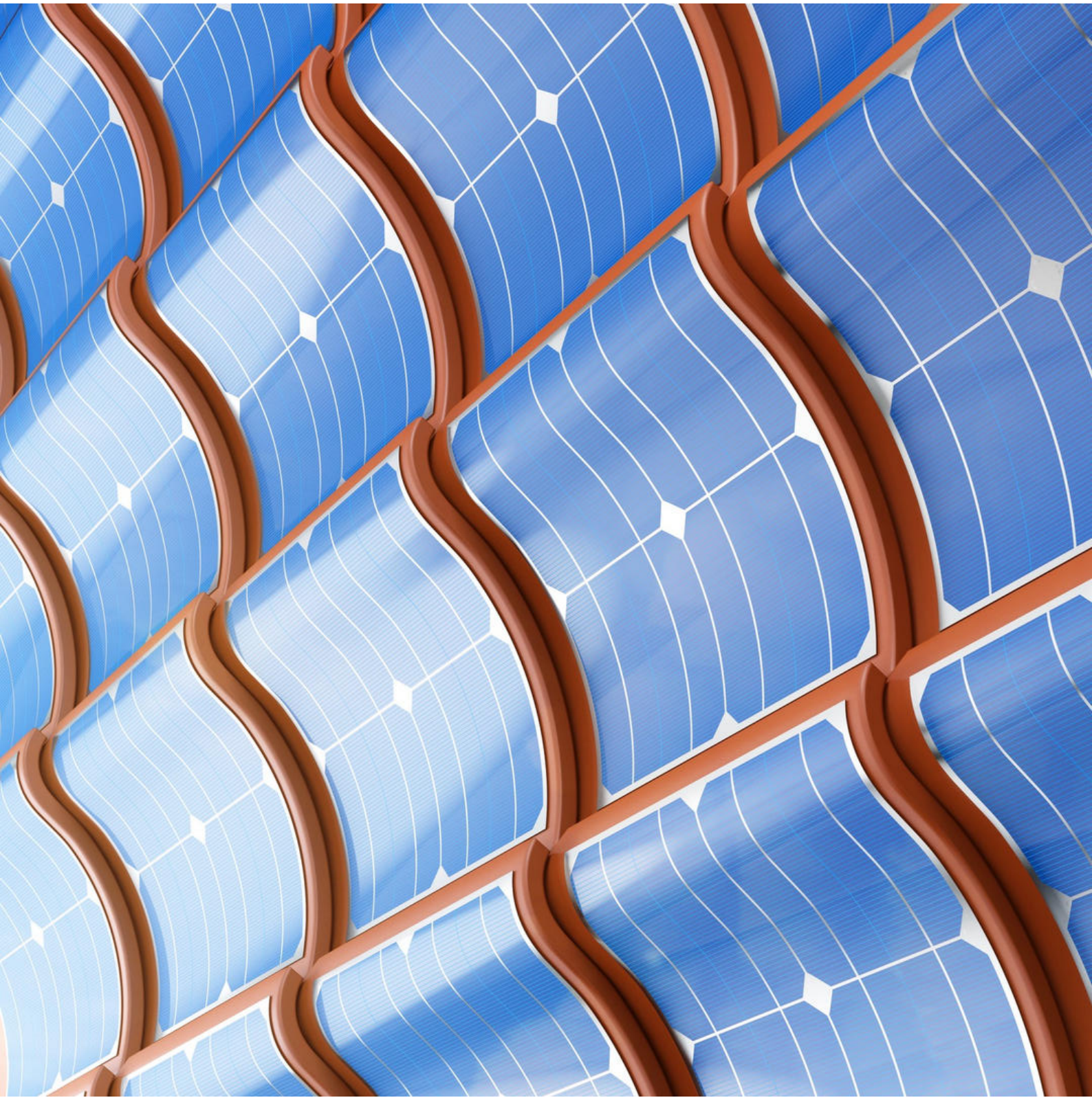
Information on the complete range of LG Air Conditioning and Energy Solutions is available on our website. You can also download from PDF versions from our website. Whilst every care has been taken in the preparation of this catalogue, some changes may have occurred since publication. LG Electronics cannot accept responsibility for errors and omissions.

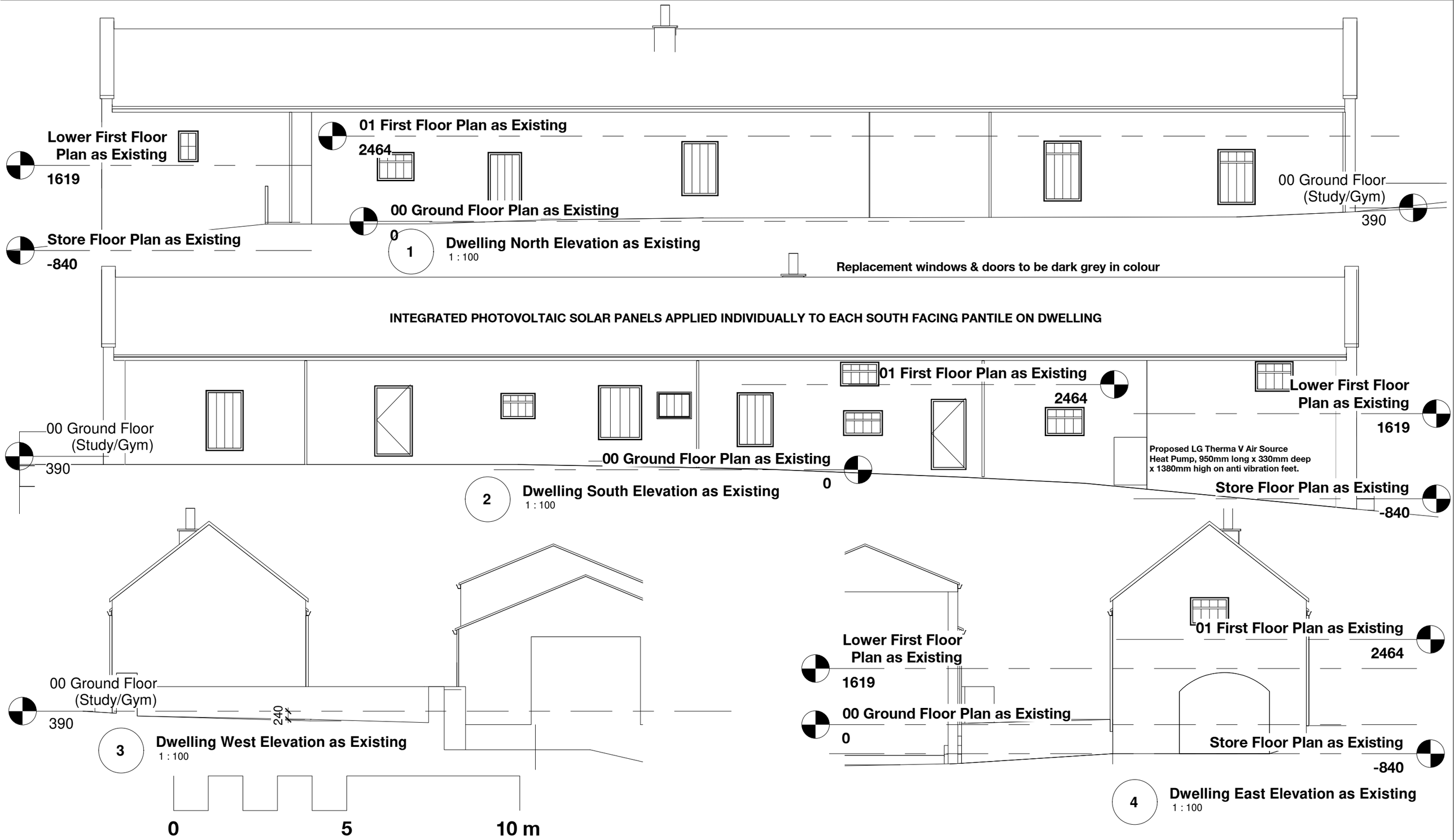
LG Electronics UK Limited have been working closely with their supplier's to reduce their environmental impact on the world.

Products in this brochure contain fluorinated greenhouse gases (R410A / R134a / R32)

Distributed by

LGUKTHVSLTL_09_21v1





NYMNPA
24/11/2022

SAMUEL KENDALL ASSOCIATES LTD

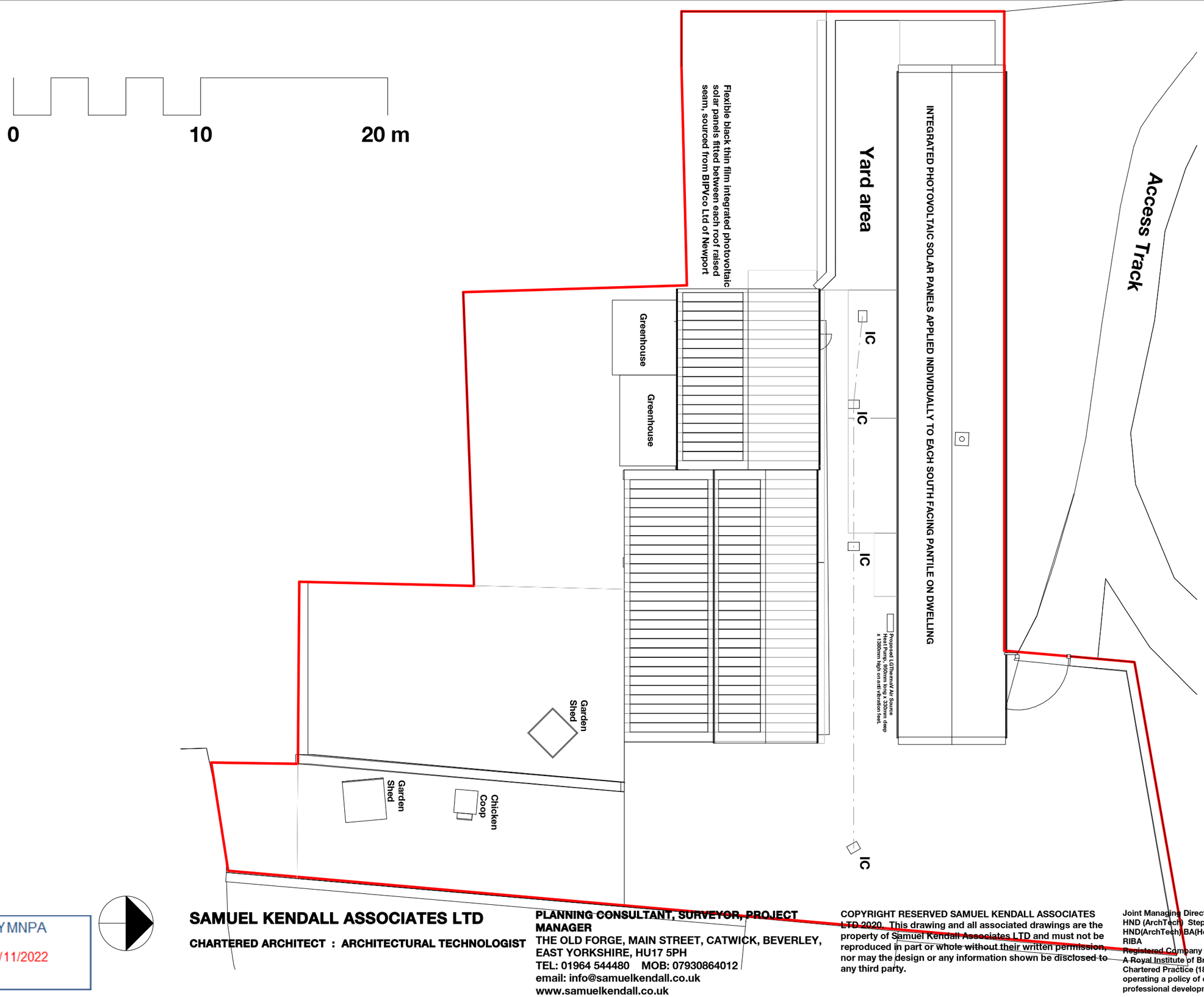
CHARTERED ARCHITECT : ARCHITECTURAL TECHNOLOGIST

PLANNING CONSULTANT, SURVEYOR, PROJECT MANAGER
THE OLD FORGE, MAIN STREET, CATWICK, BEVERLEY, EAST YORKSHIRE, HU17 5PH
TEL: 01964 544480 MOB: 07930864012
email: info@samuelkendall.co.uk
www.samuelkendall.co.uk

Joint Managing Directors: Linda Samuel HND (ArchTech) Stephen N Samuel HND(ArchTech) BA(Hons) DipArch(Leics) RIBA
Registered Company Number 559 1217
A Royal Institute of British Architects Chartered Practice (1843970) operating a policy of continuing professional development.

RIBA Chartered Practice

CLIENT	PROJECT	SHEET	Date	Project number	Scale (@ A3)
B HEWITT & P BULLIMORE 06.04.22.	**PROPOSED ALTERATIONS AT THE LONG BARN, BECK HOLE ROAD, GOATHLAND, WHITBY, NORTH YORKSHIRE, YO22 5LL**	**Dwelling Elevations as Existing & Proposed**	22.11.22.	2021/92	1 : 100
All dimensions are to be checked on site prior to commencement of the works, any error or omission immediately reported to Samuel Kendall Associates Ltd. All services shown are approximate and the principal contractor is to establish the true positions prior to the commencement of any works on site.			Revision Description Planning revisions.	DWG No. 03	REV D



NYMNPA

24/11/2022

SAMUEL KENDALL ASSOCIATES LTD

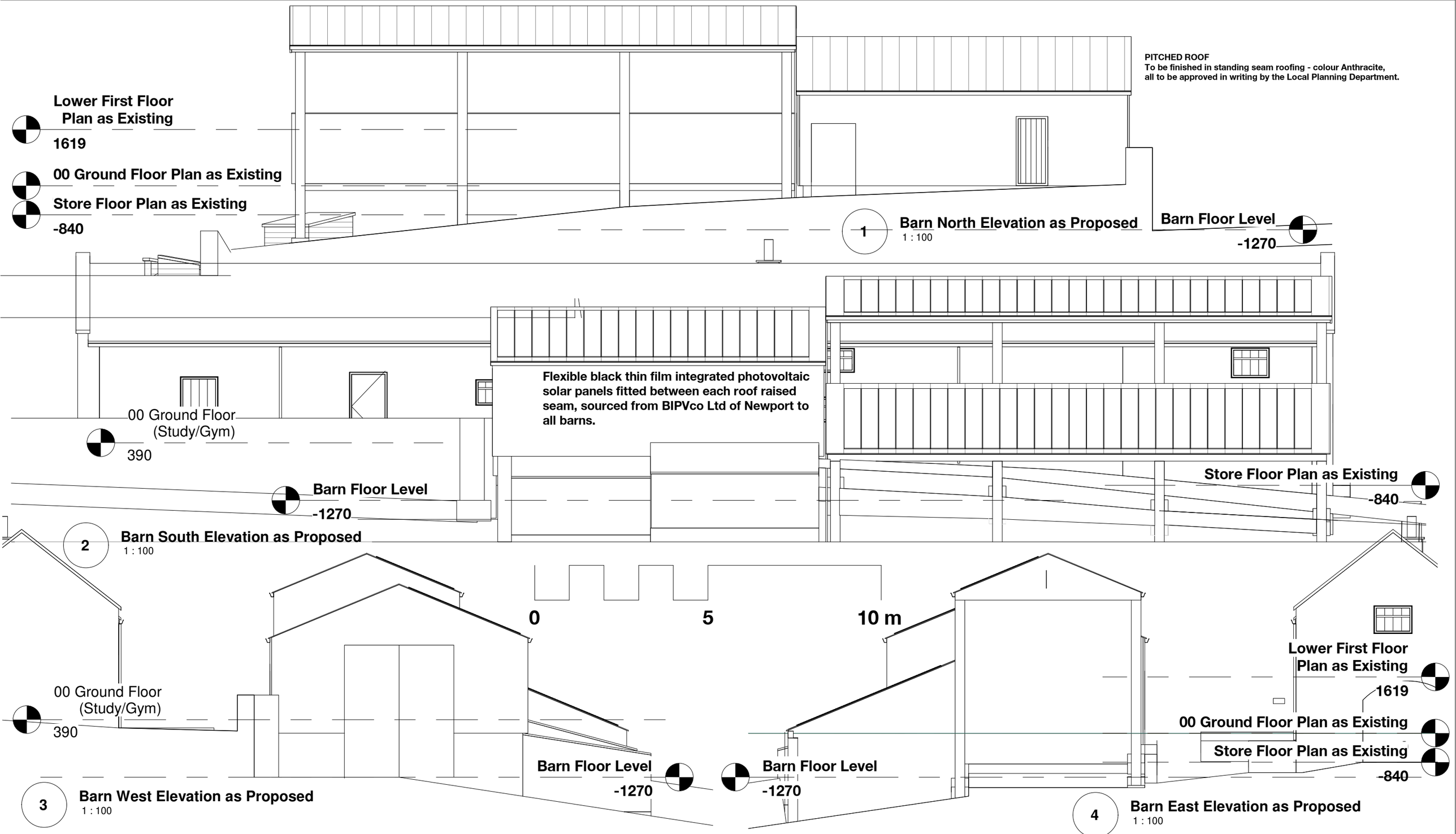
CHARTERED ARCHITECT : ARCHITECTURAL TECHNOLOGIST

PLANNING CONSULTANT, SURVEYOR, PROJECT MANAGER
THE OLD FORGE, MAIN STREET, CATWICK, BEVERLEY, EAST YORKSHIRE, HU17 5PH
TEL: 01964 544480 MOB: 07930864012
email: info@samuelkendall.co.uk
www.samuelkendall.co.uk

Joint Managing Directors: Linda Samuel HND (ArchTech) Stephen N Samuel HND(ArchTech) BA(Hons) DipArch(Leics) RIBA
Registered Company Number 559 1217
A Royal Institute of British Architects Chartered Practice (1843970) operating a policy of continuing professional development.

RIBA Chartered Practice

CLIENT	PROJECT	SHEET	Date	Project number	Scale (@ A3)
B HEWITT & P BULLIMORE 06.04.22.	**PROPOSED ALTERATIONS AT THE LONG BARN, BECK HOLE ROAD, GOATHLAND, WHITBY, NORTH YORKSHIRE, YO22 5LL**	**Site Plan as Proposed**	22.11.22.	2021/92	1 : 200
All dimensions are to be checked on site prior to commencement of the works, any error or omission immediately reported to Samuel Kendall Associates Ltd. All services shown are approximate and the principal contractor is to establish the true positions prior to the commencement of any works on site.			Revision Description Planning revisions.	DWG No. 08	REV C



NYMNPA
24/11/2022

SAMUEL KENDALL ASSOCIATES LTD

CHARTERED ARCHITECT : ARCHITECTURAL TECHNOLOGIST

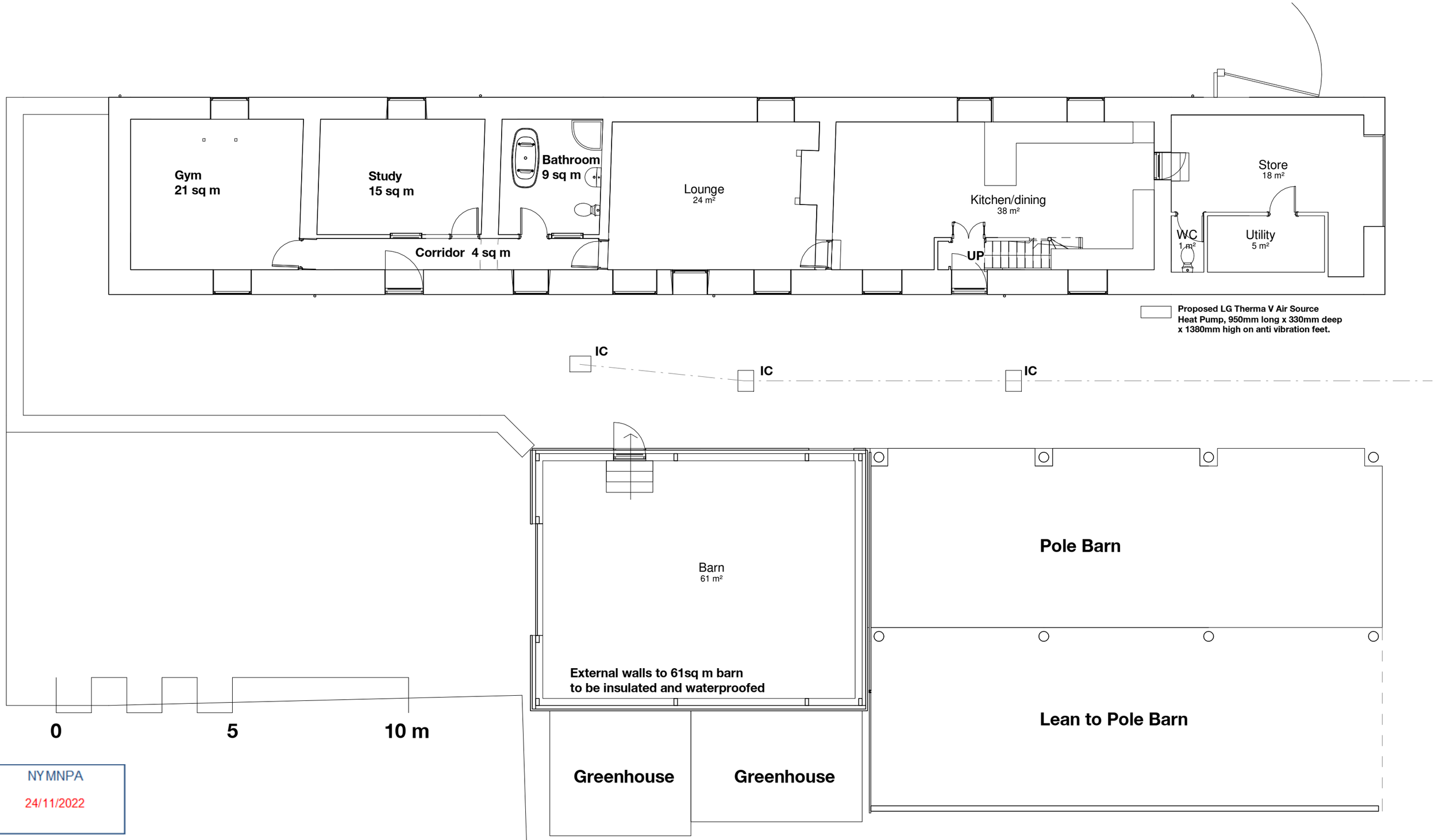
PLANNING CONSULTANT, SURVEYOR, PROJECT MANAGER
THE OLD FORGE, MAIN STREET, CATWICK, BEVERLEY, EAST YORKSHIRE, HU17 5PH
TEL: 01964 544480 MOB: 07930864012
email: info@samuelkendall.co.uk
www.samuelkendall.co.uk

Joint Managing Directors: Linda Samuel HND (ArchTech) Stephen N Samuel HND(ArchTech) BA(Hons) DipArch(Leics) RIBA
Registered Company Number 559 1217
A Royal Institute of British Architects Chartered Practice (1843970) operating a policy of continuing professional development.

RIBA Chartered Practice

CLIENT	PROJECT	SHEET	Date	Project number	Scale (@ A3)
B HEWITT & P BULLIMORE 06.04.22.	**PROPOSED ALTERATIONS AT THE LONG BARN, BECK HOLE ROAD, GOATHLAND, WHITBY, NORTH YORKSHIRE, YO22 5LL**	**Barn Elevations as Proposed**	22.11.22.	2021/92	1 : 100
			Revision Description Planning revisions.	DWG No. 11	REV A

All dimensions are to be checked on site prior to commencement of the works, any error or omission immediately reported to Samuel Kendall Associates Ltd. All services shown are approximate and the principal contractor is to establish the true positions prior to the commencement of any works on site.



NYMNPA
24/11/2022

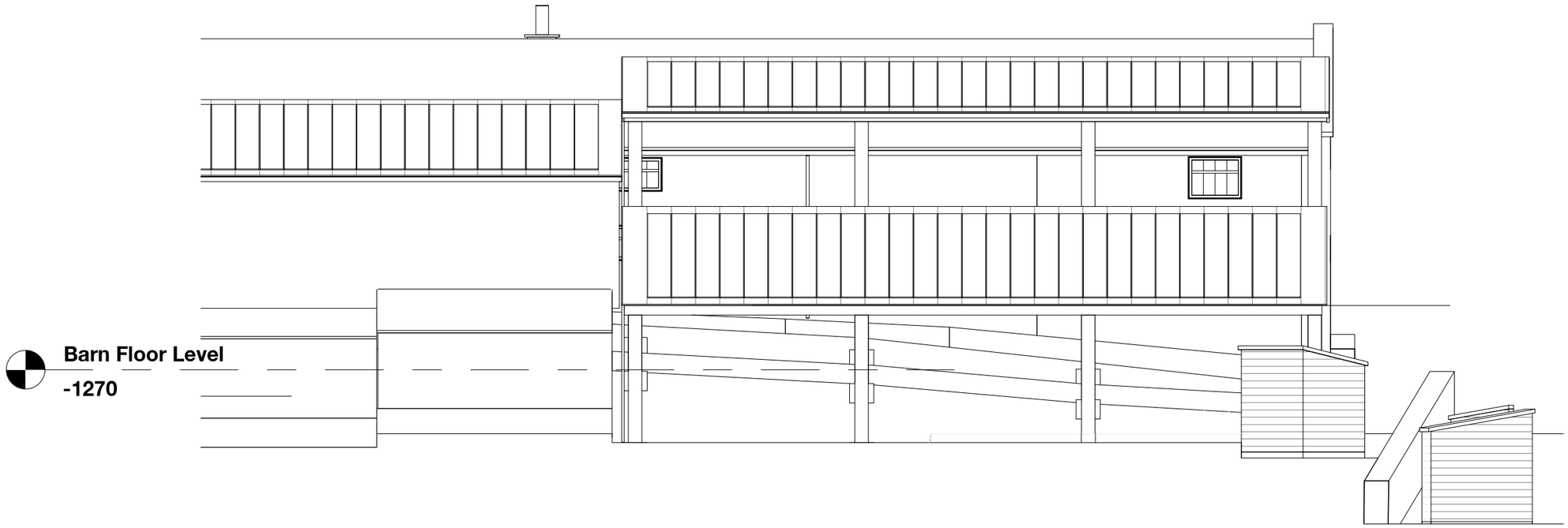
SAMUEL KENDALL ASSOCIATES LTD
CHARTERED ARCHITECT : ARCHITECTURAL PLANNING CONSULTANT, SURVEYOR, PROJECT

THE OLD FORGE, MAIN STREET, CATWICK, BEVERLEY, EAST YORKSHIRE, HU17 5PH
TEL: 01964 544480 MOB: 07930864012 email: info@samuelkendall.co.uk

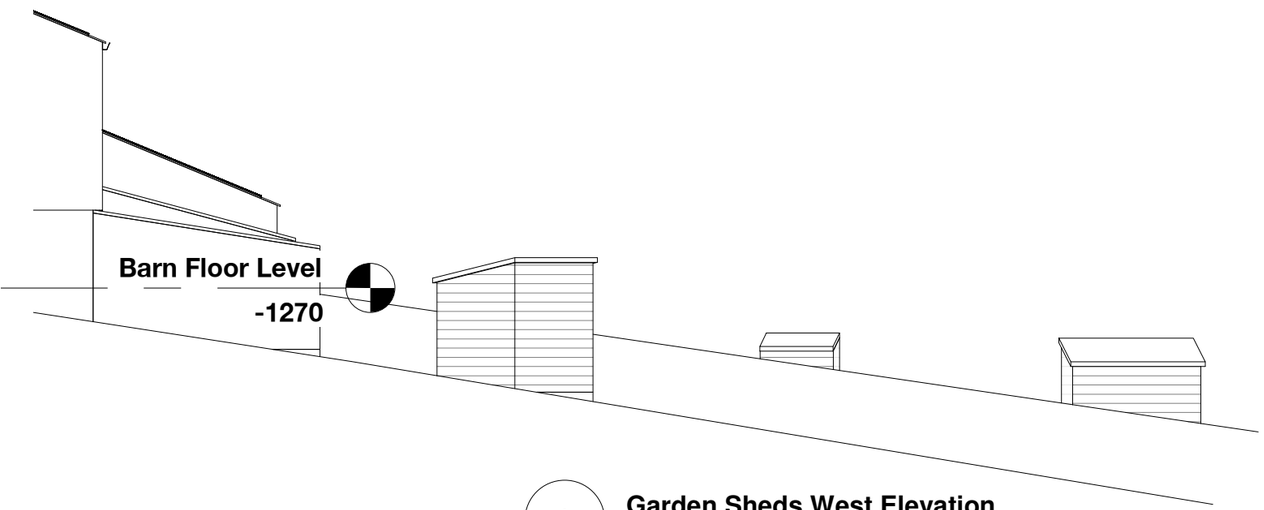
Joint Managing Directors: Linda Samuel HND (ArchTech) Stephen N Samuel HND(ArchTech) BA(Hons) DipArch(Leics) RIBA
Registered Company Number 559 1217
A Royal Institute of British Architects Chartered Practice (1843970), operating a policy of continuing professional development.

RIBA Chartered Practice

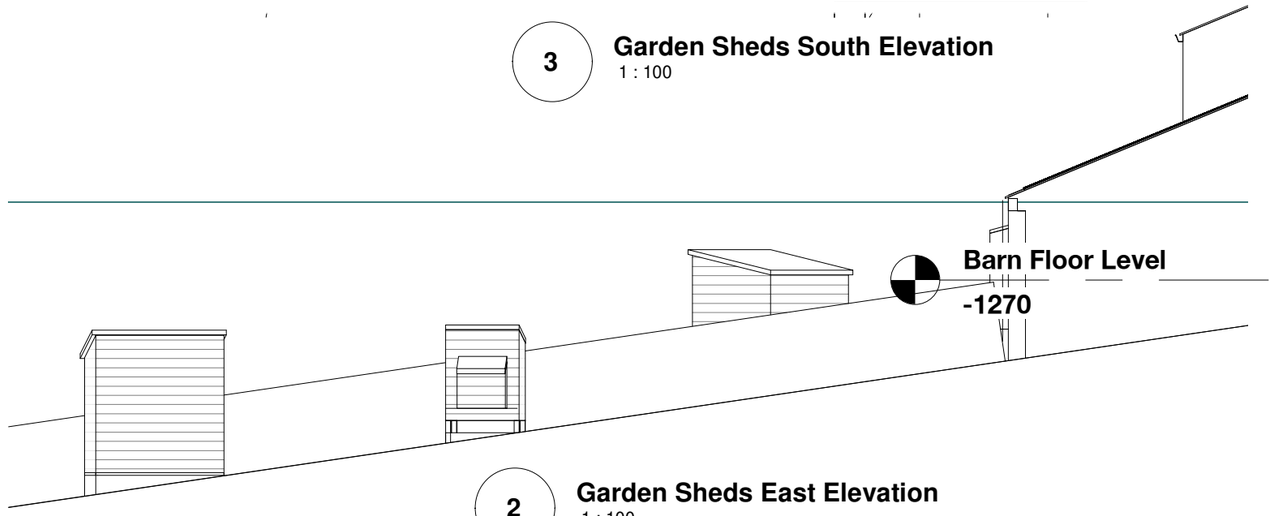
CLIENT	PROJECT	SHEET	Date	Project number	Scale (@ A3)
B HEWITT & P BULLIMORE 06.04.22.	**PROPOSED ALTERATIONS AT THE LONG BARN, BECK HOLE ROAD, GOATHLAND, WHITBY, NORTH YORKSHIRE, YO22 5LL**	**Ground Floor Plan as Proposed**	22.11.22.	2021/92	1 : 100
All dimensions are to be checked on site prior to commencement of the works, any error or omission immediately reported to Samuel Kendall Associates Ltd. All services shown are approximate and the principal contractor is to establish the true positions prior to the commencement of any works on site.			Revision Description Planning revisions.	DWG No. 12	REV A



3 Garden Sheds South Elevation
1 : 100



1 Garden Sheds West Elevation
1 : 100



2 Garden Sheds East Elevation
1 : 100

NYMNPA
24/11/2022

SAMUEL KENDALL ASSOCIATES LTD
CHARTERED ARCHITECT : ARCHITECTURAL TECHNOLOGIST

PLANNING CONSULTANT, SURVEYOR, PROJECT MANAGER
THE OLD FORGE, MAIN STREET, CATWICK, BEVERLEY, EAST YORKSHIRE, HU17 5PH
TEL: 01964 544480 MOB: 07930864012
email: info@samuelkendall.co.uk
www.samuelkendall.co.uk

Joint Managing Directors: Linda Samuel HND (ArchTech) Stephen N Samuel HND(ArchTech) BA(Hons) DipArch(Leics) RIBA
Registered Company Number 559 1217
A Royal Institute of British Architects Chartered Practice (1843970) operating a policy of continuing professional development.

RIBA Chartered Practice

CLIENT	PROJECT	SHEET	Date	Project number	Scale (@ A3)
B HEWITT & P BULLIMORE 06.04.22.	**PROPOSED ALTERATIONS AT THE LONG BARN, BECK HOLE ROAD, GOATHLAND, WHITBY, NORTH YORKSHIRE, YO22 5LL**	**Garden Sheds Elevations**		2021/92	1 : 100
All dimensions are to be checked on site prior to commencement of the works, any error or omission immediately reported to Samuel Kendall Associates Ltd. All services shown are approximate and the principal contractor is to establish the true positions prior to the commencement of any works on site.			Revision Description	DWG No. 13	REV