



Heating Design Pack

Project number:

DR24-0522-004

Client:

Parker P&Hs

Revision:

-

Project:

**Benmore Road
Block C**

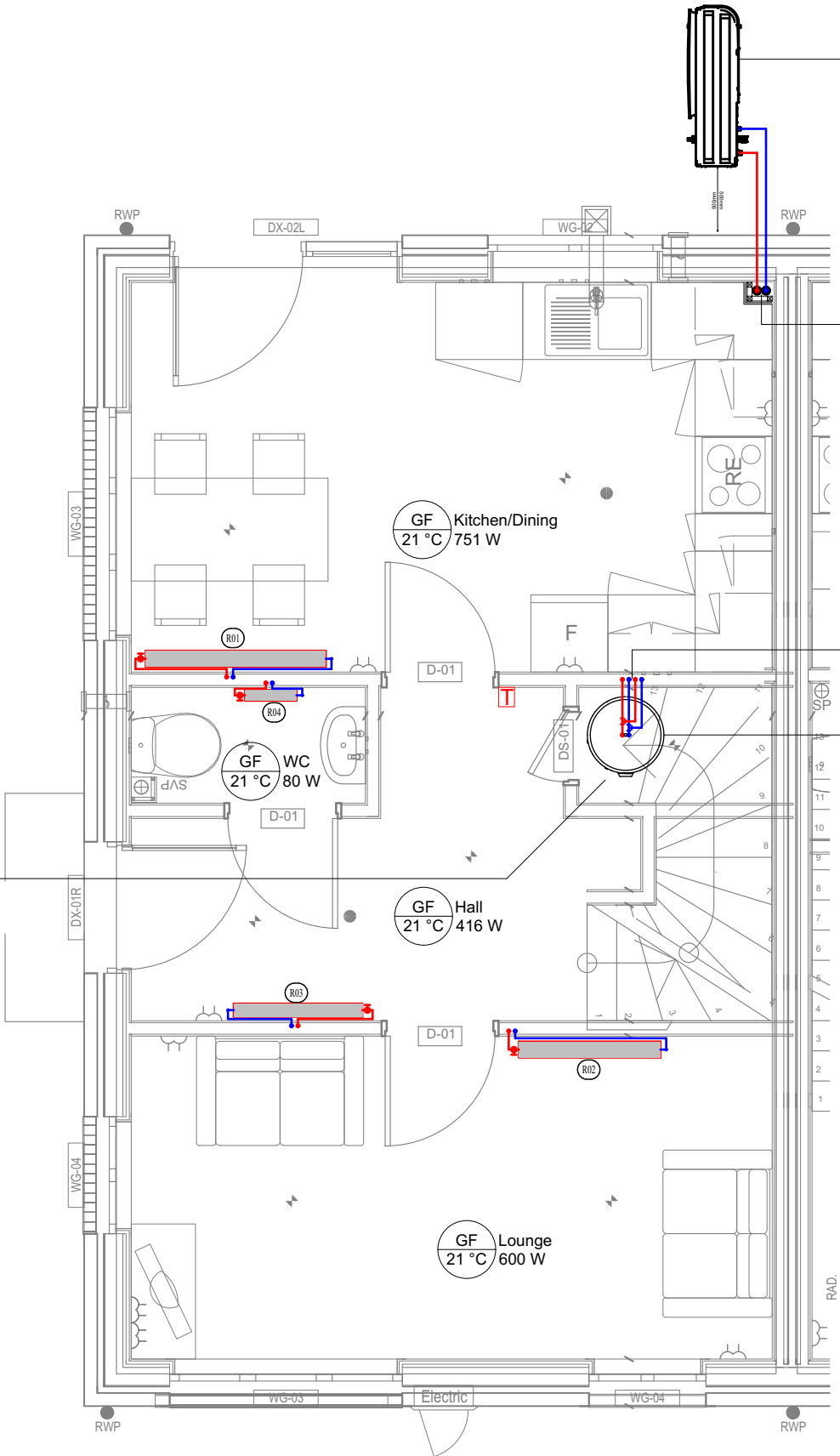
Room name	Kitchen/Dining	Lounge	Hall	WC
Design room temperature	21 °C	21 °C	21 °C	21 °C
Air change rate (per hr)	0.5	0.5	1	1.5
Room area (m²)	15.1	12.5	10.6	1.6
Design heat loss (W)	751	600	416	80

HEAT LOSS SUMMARY
External Design Temperature -5 °C
Heat loss for Ground floor 1847 Watt
Total area of Ground floor 39.8 m²

Overall Property Heatloss at -5.0°C = 3582 Watts

Edition	Details	Date

Please Ensure Cylinder Cupboard Can Accommodate Pre Plumbed Cylinder Prior To Installation (550mm D x 1545mm H)



4kW Daikin Altherma LT Monobloc Heatpump sited on suitable concrete base including drainage. 28mm Copper Htg F&R to be insulated with a minimum of 20mm PVC coated external grade insulation

28mm Primary Htg F&R TA to Cylinder (Boxing Required)

28mm Primary Htg F&R FA to Cylinder, 28mm Htg F&R TA to Radiators

28mm Primary F&R from Monobloc splits 28mm to Cylinder 28mm to Heating Zone via 3-port valve

RADIATOR SCHEDULE
Stelrad Elite Radiators
Flow Temperature 45 °C
Return Temperature 40 °C

Room name	Kitchen/Dining	Lounge	Hall	WC
Radiator number	R01	R02	R03	R04
Heat output required (W)	751	600	416	80
Radiator output (W)	907	692	458	154
Height (mm)	700	600	600	700
Length (mm)	1400	1100	1000	400
Type	K2	K2	P+	K1
Product code	8640	8571	8552	8595

NOTE:-
All radiators on Ground floor served via 15mm Htg F&R FA except where noted. All plastic pipes behind wall surfaces should be identifiable with a detector by applying metallic tape or similar unless the pipe has a metal layer built into its construction.

Daikin Airconditioning UK Ltd, The Heights, Brooklands, Weybridge, Surrey, KT13 0NY
www.daikin.co.uk Tel 0845 6419000 Fax 0845 6419009

In partnership with

NC DESIGNS
BUILDING SERVICES DESIGNERS
Sterling House
19-23 High Street, Kidlington
OXON OX5 2DH
Tel : 01865 375444

Client:

Parker P&Hs

Project:

Benmore Road

Title:

Block C
Heating Network
Ground Floor

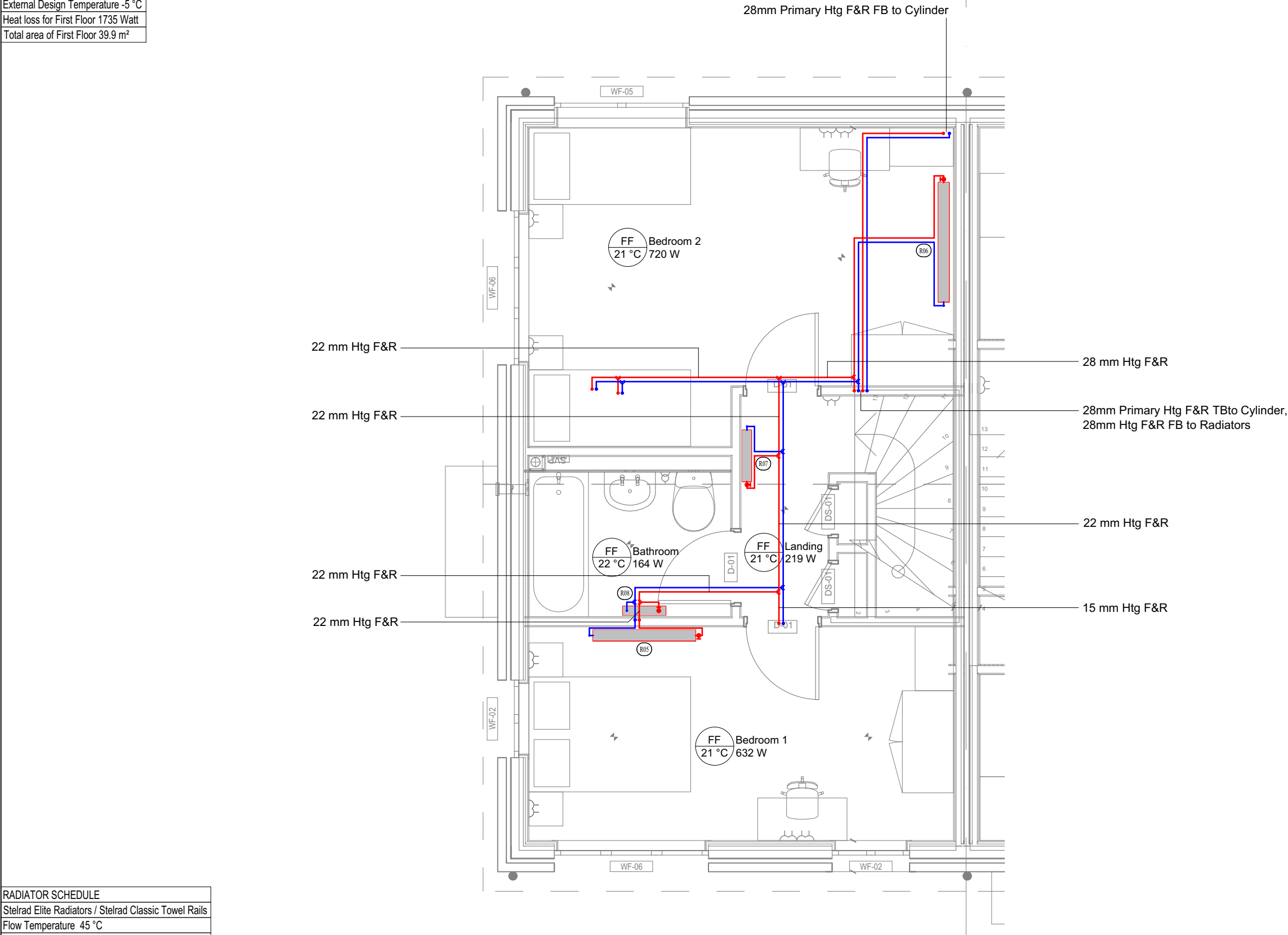
Drawn	JR	Checked	MT
Scale	1:50 @ A3	Date	05.06.2024
Drawing No.	DR24-0522-004 / 03-01	Edition	-

Room name	Bedroom 1	Bedroom 2	Landing	Bathroom
Design room temperature	21 °C	21 °C	21 °C	22 °C
Air change rate (per hr)	0.5	0.5	1	0.5
Room area (m²)	12.5	16.8	6.1	4.5
Design heat loss (W)	632	720	219	164

HEAT LOSS SUMMARY
External Design Temperature -5 °C
Heat loss for First Floor 1735 Watt
Total area of First Floor 39.9 m²

RADIATOR SCHEDULE
Stelrad Elite Radiators / Stelrad Classic Towel Rails
Flow Temperature 45 °C
Return Temperature 40 °C

Room name	Bedroom 1	Bedroom 2	Landing	Bathroom
Radiator number	R05	R06	R07	R08
Heat output required (W)	632	720	219	164
Radiator output (W)	755	880	275	269
Height (mm)	600	600	600	1744
Length (mm)	1200	1400	600	500
Type	K2	K2	P+	Straight White
Product code	8572	8573	8548	148074



Overall Property Heatloss at -5.0°C = 3582 Watts

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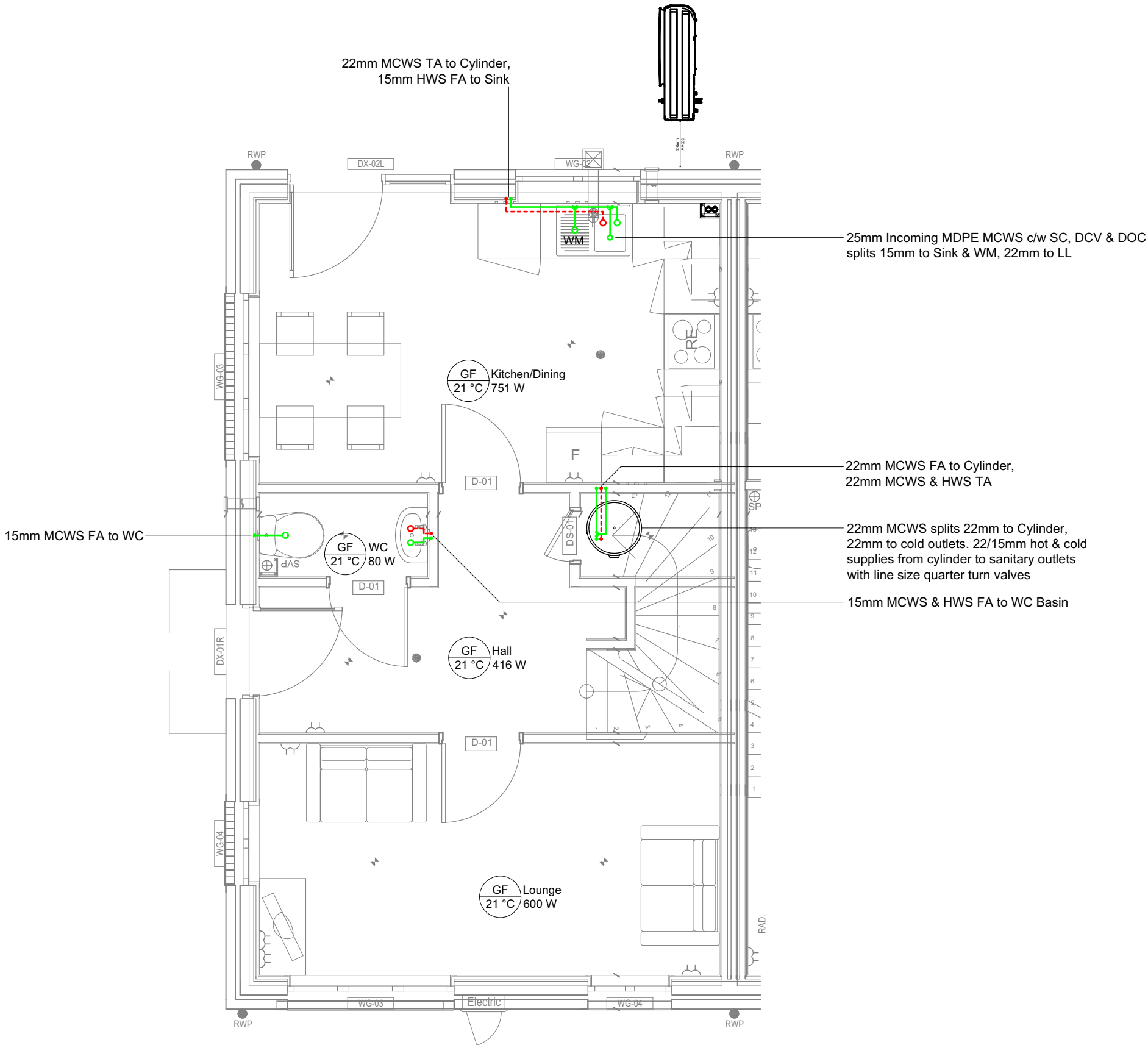
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Client:		Parker P&Hs	
Project:		Benmore Road	
Title:		Block C Heating Network First Floor	
Drawn	JR	Checked	MT
Scale	1:50 @ A3	Date	05.06.2024
Drawing No.	DR24-0522-004 / 03-02	Edition	-

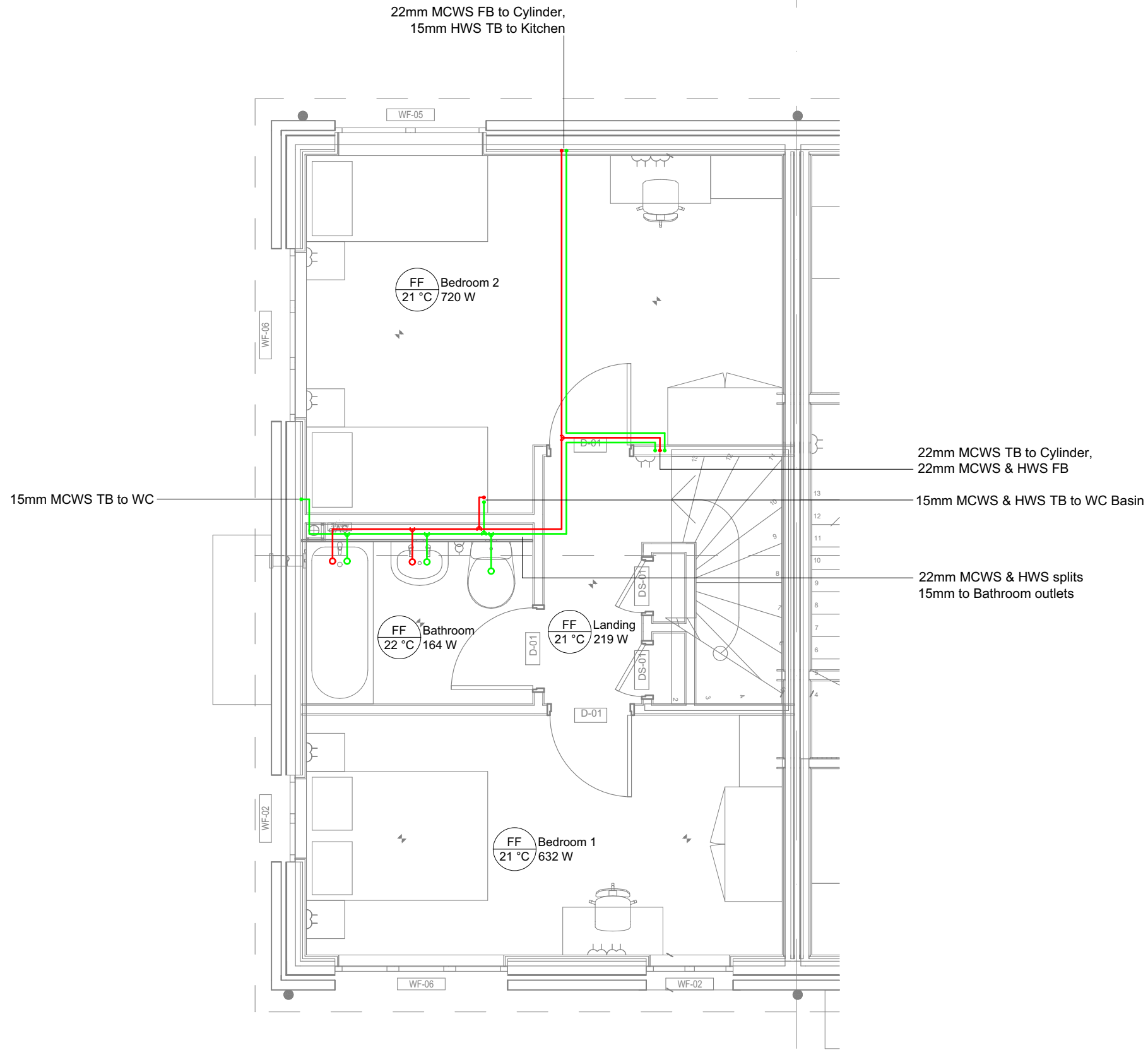
NOTE:-
All radiators/towel-rails on First floor served via 15mm Htg F&R
All plastic pipes behind wall surfaces should be identifiable with a detector by applying metallic tape or similar unless the pipe has a metal layer built into its construction.

Safety Discharge Pipe from Cylinder Unit must be installed and sized in accordance with G3 of the Building Regulations. The best possible route to be arranged on site and approved by local Building Control.



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Daikin Airconditioning UK Ltd, The Heights, Brooklands, Weybridge, Surrey, KT13 0NY www.daikin.co.uk Tel 0845 6419000 Fax 0845 6419009 In partnership with NC DESIGNS BUILDING SERVICES DESIGNERS Sterling House 19-23 High Street, Kidlington OXON OX5 2DH Tel : 01865 375444		
Client: Parker P&Hs		
Project: Benmore Road		
Title: Block C Hot & Cold Network Ground Floor		
Drawn	JR	Checked MT
Scale	1:50 @ A3	Date 05.06.2024
Drawing No.	DR24-0522-004 / 03-03	Edition -

Safety Discharge Pipe from Cylinder Unit must be installed and sized in accordance with G3 of the Building Regulations. The best possible route to be arranged on site and approved by local Building Control.

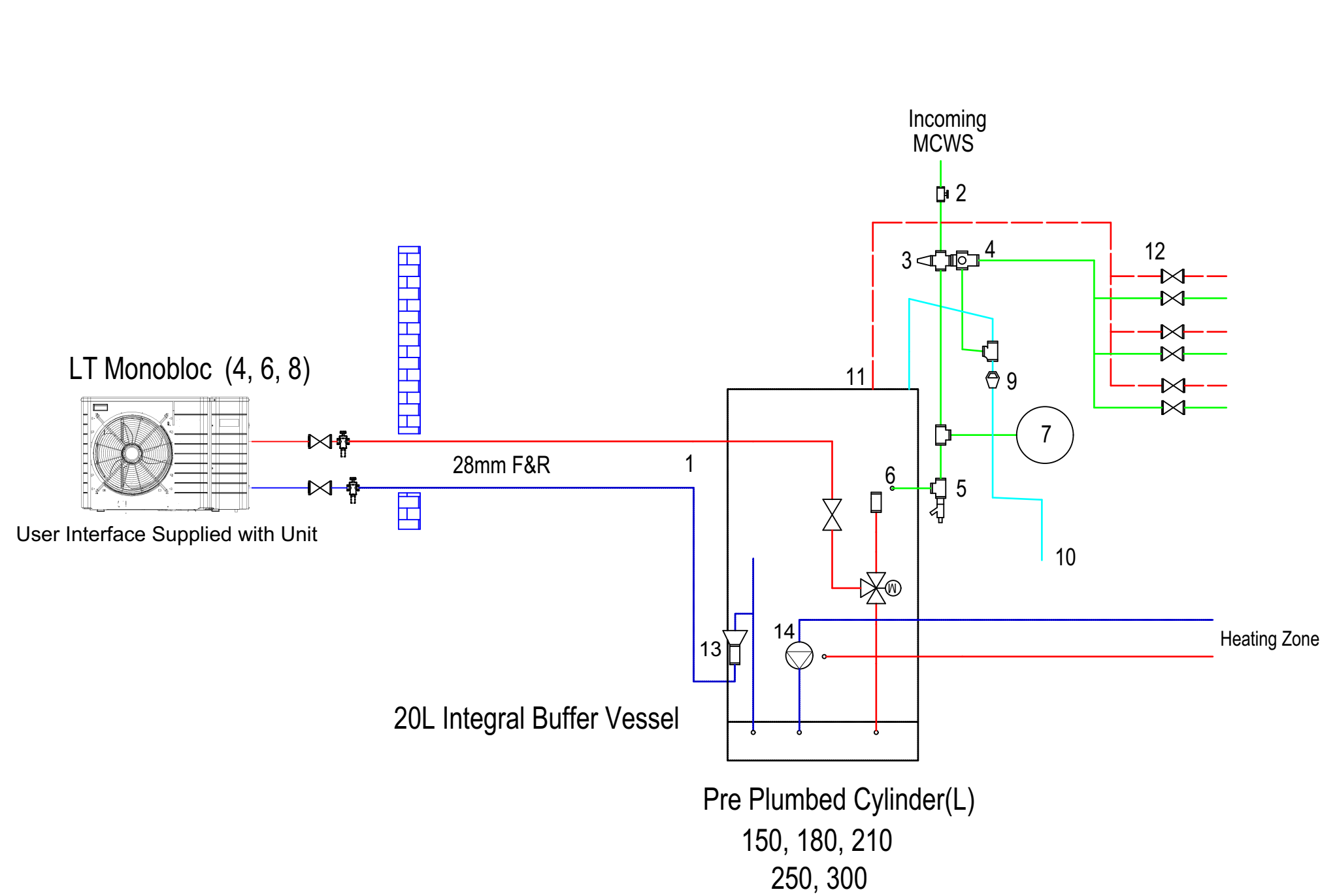


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Drawn	JR	Checked MT
Scale	1:50 @ A3	Date 05.06.2024
Drawing No.	DR24-0522-004 / 03-04	Edition -

Disclaimer:
This is a generic schematic and should only be used as a guideline.

Simplified Installation Schematic

Single Cylinder - Single Heat Pump



Pre-Plumbed Cylinder Supplied with:

- 22 mm mixing valve
- 28 mm compression fitting (35 mm extended)
- 3 port ESBE valve
- Magnetic filter
- System pump
- Daikin Altherma Monobloc wiring centre
- Drain Cock
- Single Stat

*Please note that a secondary return can be found on cylinder vessel sizes greater than 210l

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Project:		Benmore Road	
Title:			
Block C Simplified Installation Schematic			
Drawn		JR	Checked MT
Scale	1:50 @ A3	Date	05.06.2024
Drawing No.		Edition	-
DR24-0522-004 / 03-05			

1	Primary F&R connect on to cylinder
2	Isolation valve (not supplied)
3	Inlet control set. Incorporating pressure reducing valve, expansion relief valve, water inlet & outlet
4	Balanced cold water supplies
5	Drain point (not supplied)
6	Cold water inlet
7	Expansion valve. To be connected between combination valve & cylinder
8	Temperature & pressure relief valve
9	Tundish with safety discharge
10	Safety discharge, to terminate in accordance with G3.
11	Hot water outlet
12	Balanced HWS & MCWS to all outlets c/w line size quarter turn isolation valves
13	TF1 Filter
14	System Circulation Pump

Maximum pipe length between
Monobloc and Cylinder = 25m (+EKTESE1 – Extension Cable)

	Height (mm)	Width (mm)	Depth (mm)	MINIMUM CLEARANCES AROUND EXTERNAL UNIT TO MANUFACTURERS RECOMMENDATIONS
Outdoor Unit	770	1250	362	

1. These designs are indemnified by the designer, however a duty of care is to be employed by all parties involved in the supply and installation of the system.

2. The heatloss calculations have been carried out in strict accordance with BS EN 12831. Full heat loss calculations at both design external temperature and MCS design external temperature are available from NC Designs on request.

3. Minimum Building Regulations U values will be used in the absence of actual U values provided to the design team.

4. Intermittent heating allowance made by increasing external air temperatures as per table 2 of MIS 3005.

5. Designs will only be zoned to achieve 'Time and Temperature' zone control if required by the SAP calculations.

6. Hot water cylinders have been sized based on 50L of hot water per person @ 55°C in accordance with MIS 3005 v4.1 - section 4.2.3. Occupancy based on number of bedrooms +1. Cylinders sized to have a minimum re-heat time of 2.5 hours as recommended by the Plumbing Engineering Services Design Guide. Cylinder sizing does not meet the requirements of BS 8558 'with mixing' or BS EN 15450:2007. HWS being stored at 55°C will utilise the immersion heater.

7. Designs are based on information received at the time of design. If at a later date a problem arises out of a lack of information or drawings at design stage the design service cannot be held responsible.

8. Heating system to be commissioned and balanced in accordance with BS EN 14336:2004. System to be flushed in accordance with BS7593:2019 and the inhibitor used should be in accordance with the manufacturers recommendations.

9. System to comply with materials & installation specification for domestic central heating BS EN 12828:2003 and 14336:2004. Plastic pipework to be installed in accordance with BS5955-8:2001. Heat pump design & installation to comply with BS EN 15450:2007.

10. Hot & cold water services must comply with BS8558, BS EN 806, The Water Regulations Guide and Building Regulations.

11. The installation must comply with the manufacturer's installation instructions, current British Standards, MCS Standards, Water Authority Regulations and codes of practice.

12. The location of the heat pump is based on information provided to the design team via drawings or stated on the design request form. The installer is to ensure heat pump location achieves the minimum noise requirements set out in MCS 020 Planning Standards.

13. Minimum water volume as detailed on design drawings to be maintained at all times. It is the installer's responsibility to ensure that the minimum water volume is achieved.

14. The heating system has been based on a flow and a return temperature which is stated on the design.

15. Positions of room stats indicated on design drawings are notional positions only. Considerations to be made in regards the buildings orientation and subsequent solar gains prior to final locations which are to be agreed on site.

16. Where thermostatic radiator valves are installed the room(s) containing the room thermostat(s) are to have 2 No LSV's.

17. All pipework to be insulated in accordance with Building Regulations, the TIMSA Guide for achieving compliance with Part L of the Building Regulations, BS 5422:2009, BS EN 14336:2004, BS8558, BS EN 806, and the Water regulations Guide.

18. All pipework to be laid to fall to permit ease of draining and venting with air vents at high points and drain cocks at all low points.

19. Safety valve discharge pipe termination locations to be agreed with local building control before commencement of contract.

20. Hot and cold water services designs are based on a minimum dynamic incoming MCWS pressure of 1.5 bar being available at the highest point in the system and that a line size meter and supply connection can be obtained. If the above cannot be met, or if sanitary ware requiring constant high flow rates and pressure are required then a break tank & booster set will have to be used. It is the developers/contractors responsibility to instruct the design team if a boosted supply is required.

21. It is the developer/installer's responsibility to ascertain the water hardness and specify a suitable scale reducer if required.

22. Ballofix isolating valves incorporating flow restrictors shall be provided to all sanitary fittings. Flow rates to be as determined to comply with Code for Sustainable Homes or Building Regulations as applicable. Note that with low flow rate taps fitted there will be a delay in hot water reaching outlets and consideration should be given for a pumped secondary return or trace heating.

23. All necessary check valves etc to be installed as required to ensure compliance with BS8558, BS EN 806 and the Water Regulations Guide. All valves shall be in positions that are readily accessible.

24. Where plastic pipework is used for hot water services it must be rated at a minimum of 8 bar @70oC

25. Cold supply shown to WM only. Hot water supply to be added if both hot & cold fill appliances are to be used.

26. WWHR - Where waste water heat recovery units have been requested we have designed the system accordingly but this may have an impact on the performance of the hot and cold system for which we cannot be responsible for.

27. Where traditional joists are used, they are to be notched/drilled in accordance with Building Regulations and NHBC recommendations. Where TJI or Ecojoists are used particular care to be given to pipework clipping to ensure a neat and tidy installation with no high points.

Minimum water volume to be achieved at all times

Type of heat pump	Volume per unit (L)
LT Split (4, 6, 8)	10
LT Monobloc (4, 6, 8)	10 or 20 if no Back-up Heater
R-Split (11, 14, 16)	20
LT Monobloc (9, 11, 14, 16)	20
HT Split (11, 14, 16)	20
Hybrid (5, 8)	13.5

Minimum insulation thickness in accordance with BS5422:2009							
	Thermal Conductivity (W/(m2)(K))					Maximum Permissible Heatloss (W/m)	
Pipe Diameter	0.025	0.030	0.035	0.040	0.045		
10mm	5mm	6mm	8mm	11mm	14mm	7.32	
15mm	7mm	9mm	12mm	15mm	20mm	7.89	
22mm	8mm	11mm	14mm	18mm	23mm	9.12	
28mm	10mm	12mm	16mm	20mm	24mm	10.07	
35mm	11mm	14mm	17mm	22mm	25mm	11.08	

Insulation to be applied to the following pipes:-

1) All refrigerant pipework from heatpump to hydrobox

2) All Primary pipework (Monoblocs & Pipework from Hydrobox to Cylinder)

3) All pipes connected to the hot water storage vessel (at least 1 metre from their point of connection to the cylinder or up to the point where they become concealed.

4) Hot water flow and return pipes where secondary circulation is specified.

5)Maximum uninsulated hot water deadlegs are 12m for 15mm & 22mm pipe and 8m for 28mm pipes.

6) All pipework in unheated areas (garages, roofspaces, voids).

Insulation thickness and thermal conductivity to comply with BS 5422, Water Regulations and TIMSA compliance document.

Additional insulation may be required to other pipes in certain situations. Refer to BS8558; BS EN806; BS EN 12828; BS EN 14336 and Domestic Compliance Guide.

SC = STOPCOCK
DOC = DRAIN OFF COCK
DCV = DOUBLE CHECK VALVE
WM = WASHING MACHINE
DW = DISHWASHER
C/W = COMPLETE WITH
F.A. = FROM ABOVE
F.B. = FROM BELOW
T.A. = TO ABOVE
T.B. = TO BELOW

MCWS = MAINS COLD WATER SUPPLY
HWS = HOT WATER SUPPLY
F&R = FLOW AND RETURN
T = ROOM THERMOSTAT

— = REFRIGERANT PIPEWORK
— = HEATING FLOW
— = HEATING RETURN
— = MCWS PIPEWORK
- - - - - = HWS PIPEWORK
- - - - - = HWSR PIPEWORK

EQUIPMENT SCHEDULE

Heatpump	1No. EDLA04EV3 LT Daikin Monobloc (4kW), 1No. K.HOSE750EL Flexi Hose with Elbows, 1No. UK.FF600H150 Flexi Feet 1No. K.SLEEVE Through-Wall Insulation Sleeves
Cylinder	1No. Daikin UK.PPC180/R32SS 180l pre-plumbed Indirect Mains Pressure Unvented Cylinder. Water to be stored at 55°C.
Radiators	Stelrad Elite Radiators as per schedule.
Towel Rails	Stelrad Classic White Straight Towel Rails as per schedule.
Pump	Incorporated in Monobloc unit
Sealed system kit	7L expansion vessel included in Monobloc unit
Controls	MMI User Interface included with outdoor unit, 1No. Daikin Madoka BRC1HHDW/K/S
Service valves	To be manufactured by Reliance Water Controls incorporating flow restrictors as required.
Radiator valves	TRV's & LSV's to all radiators except those in rooms containing room thermostats. These radiators are to have WH & LS valves fitted.
Thermostatic blending valve	Honeywell TMV 2 Blending valves or brassware with thermostatic valves conforming to 2010 Building Regulation Part G clauses 3.65-3.68 to be fitted to Baths
Defrost cycle	Minimum water volume for the defrost cycle to be achieved via pre-fitted 20l buffer Vessel included with Cylinder
Water Treatment	Fernox F3 Cleaner, Fernox F1 Protector & Fernox F7 Biocide
Anti-Freeze	1No. UK.AFVALVE2/JKT Anti-freeze valve pack with compression fittings & jackets (pack contains 2 valves)

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Block C
Equipment Schedule

DrawnJR

CheckedMT

Scale1:50 @ A3

Date05.06.2024

Drawing No.
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Edition
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