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Email: support@engrteam.com

CLIENT:

ADDRESS:

Little Manor, Barnet Lane, Elstree
WD6 3QU

CONFIDENTIALITY STATEMENT:

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3. THE CONTRACTOR MUST CHECK ALL
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4. THE CONTRACTOR IS RESPONSIBLE FOR
PROVIDING ALL NECESSARY TEMPORARY
SUPPORT TO THE BUILDING AND ANY ADJACENT
STRUCTURES.

GENERAL SPECIFICATIONS

1. GENERAL (ALL SPECIFICATIONS ON THIS SHEET AS APPLICABLE)

A. Work indicated on these drawings is diagrammatic and shall not be scaled. The drawings are intended to convey the scope of work and general arrangement of services. The Contractor shall verify all existing site conditions prior to installation and make all necessary adjustments to complete the works in accordance with the Contract Documents and UK statutory requirements.

B. Provide all labour, materials, plant, tools, equipment, and services necessary for the complete execution of the works in accordance with the Contract Documents. All incidental or supplementary items required for a complete, safe, and operational installation shall be deemed included, whether or not specifically shown or described, at no additional cost to the Employer.

C. All systems and equipment shall be fully installed, tested, commissioned, and left in a complete operational condition to the satisfaction of the Employer. The term "Provide" shall be interpreted as supply, install, test, and commission.

D. All materials and equipment shall be new, of good quality, fit for purpose, and compatible with existing systems where interfaces occur. Installation shall be in accordance with manufacturers' instructions, relevant British Standards, CIBSE guidance, and recognised good engineering practice.

E. Where existing services or building elements obstruct new works, the Contractor shall coordinate and rearrange such items as required, subject to approval by the Contract Administrator, and without additional cost.

F. Written approval shall be obtained prior to cutting or forming penetrations through slabs, walls, ceilings, roofs, or fire compartments. All disturbed finishes shall be reinstated to match existing. All fire-resisting elements shall be reinstated to maintain required fire resistance in accordance with Approved Document B.

G. Maintain the site in a clean and safe condition at all times in accordance with CDM Regulations 2015. Remove waste daily. Upon completion, clear the site of all tools, materials, and debris and leave areas clean and ready for occupation.

2. COORDINATION AND PROGRAMMING

A. The Contractor shall fully coordinate all trades and verify existing conditions to prevent clashes in routing, access, or programme.

B. The Contractor is responsible for coordination between subcontractors, suppliers, statutory authorities, utility providers, the Client, and the Design Team.

C. No installation shall commence until all site dimensions, structural constraints, existing services, and retained fixtures have been verified.

D. Works shall be programmed and phased to minimise disruption to occupied areas. A detailed programme shall be submitted for approval. Temporary partitions or protection shall be provided where required.

E. Provide a minimum of fourteen (14) days' written notice prior to any planned shutdown of utilities. Written approval shall be obtained before shutdown.

F. The Contractor shall be deemed to have inspected the site and fully understood all conditions affecting the works. No claims shall be entertained for failure to do so.

3. STATUTORY COMPLIANCE, PERMITS AND INSPECTIONS (UK)

A. All works shall comply with the latest editions of applicable UK legislation and standards, including but not limited to:

Building Regulations (England/Wales)

Approved Documents A, B, F, G, L, M

BS and EN Standards

CIBSE Guides

Health and Safety at Work Act 1974

CDM Regulations 2015

B. The Contractor shall obtain all required approvals, inspections, and completion certificates from Building Control and relevant Authorities Having Jurisdiction.

C. All works shall comply with statutory utility provider requirements and local authority regulations.

D. Where Contract Documents exceed statutory minimum requirements, the Contract Documents shall take precedence. Any conflict shall be reported in writing prior to installation.

E. The Contractor shall comply with all UK health, safety, and environmental legislation, including COSHH and waste management regulations.

F. All works shall comply with the requirements of relevant utility companies and network operators.

4. WARRANTY

A. All workmanship and materials shall be warranted for a minimum period of twelve (12) months from the date of Practical Completion. Defects arising during this period shall be remedied at no cost to the Employer.

5. SHOP DRAWINGS

A. Submit electronic shop drawings, manufacturers' data sheets, and performance information for all equipment for review and approval prior to installation.

6. RECORD DRAWINGS / AS-BUILT INFORMATION

A. Maintain a complete set of marked-up drawings on site recording all changes. Upon completion, provide electronic and hard-copy as-built drawings and manuals in accordance with CIBSE TM31 / Soft Landings principles, if applicable.

DUCTWORK & INSULATION

SHEET METAL DUCTWORK

A. All ductwork shall be galvanised steel fabricated and installed in accordance with DW/144 and BS EN 1507 / BS EN 12237.

B. All ductwork routes shall be site-verified prior to fabrication.

C. Duct leakage classes shall comply with DW/143. Testing shall be carried out where required.

D. Turning vanes shall be installed in elbows as recommended by DW/144.

E. Flexible duct connections shall be limited in length and installed in accordance with BS EN 13180.

F. Exposed ductwork shall be single-skin galvanised steel with approved seams.

DUCT INSULATION & ACOUSTIC LINING

Thermal Insulation
Insulation thickness shall comply with Approved Document L and CIBSE Guide A.

Insulation Materials
Insulation shall achieve appropriate fire performance in accordance with BS EN 13501-1.

Acoustic Lining
Acoustic lining shall comply with BS EN ISO 11654 and be mould-resistant.

PIPING & INSULATION

REFRIGERANT & CONDENSATE PIPEWORK

1. Refrigerant pipework shall comply with BS EN 378 and manufacturer requirements.

1. Pipe identification shall comply with BS 1710.

3. Pipe routing shall not obstruct equipment servicing.

4. Condensate pipework shall be PVC-U or equivalent and installed to falls per Approved Document H.

5. Traps shall be provided where required.

6. Dissimilar metals shall be isolated to prevent corrosion.

PIPE INSULATION

1. Pipe insulation shall comply with Approved Document L.

2. External insulation shall be weather-protected.

3. Fire stopping shall comply with Approved Document B and BS 476 / BS EN 1366.

MECHANICAL CODE NOTES

1. No ductwork or pipework shall be installed above electrical storage, distribution boards, or control panels in accordance with BS 7671 and good engineering practice.

2. Materials within air plenums shall be non-combustible or achieve Class 0 or Class 1, s.d. reaction to fire in accordance with Approved Document B and BS EN 13501-1.

3. Verify roof warranty status prior to works. Any roof penetration shall be carried out by approved contractors.

4. Ductwork and horizontal pipework shall be installed high as practicable and coordinated to avoid clashes.

5. Provide adequate access for maintenance, filter replacement, valves, and electrical isolation in accordance with CIBSE Guide M.

6. Structural approval shall be obtained for equipment loads exceeding manufacturer or structural limits.

7. Motorised dampers shall be provided on all outdoor air and exhaust air ducts where required by Approved Document F.

8. Provide balancing dampers on all main and branch ducts.

9. Fire dampers shall be installed where ductwork penetrates fire compartments in accordance with BS 9999 and BS EN 1366.

10. Provide access panels for fire, smoke, and control dampers.

11. Access panels shall be provided for all concealed valves and dampers.

12. Provide remote volume control where dampers are inaccessible.

13. External vents shall be corrosion-resistant and suitable for UK environmental conditions.

CONTROLS

1. Controls installation and commissioning shall be undertaken by competent specialists.

2. Thermostats shall be insulated from cold bridging on external walls.

3. Thermostats shall be installed at appropriate heights and coordinated with the Design Team.

4. Provide all required interfaces for full system control.

5. Demonstrate and commission all systems prior to handover in accordance with CIBSE Commissioning Codes.

TESTING & BALANCING

1. Scope
Testing and balancing shall be carried out by competent commissioning specialists in accordance with CIBSE Commissioning Codes A, B, and M.

2. Pre-conditions
All systems shall be complete, clean, and operational prior to commissioning.

3. Documentation
Provide commissioning reports demonstrating compliance with design performance.

4. Recorded Data
Record airflow rates, temperatures, capacities, and electrical data.

5. Functional Testing
Demonstrate heating and cooling operation and record performance results.

ABBREVIATIONS

(E)	EXISTING TO REMAIN	IN WG	INCHES OF WATER GAUGE
(R)	REMOVED AND RELOCATED	KW	KILOWATTS
(RF)	RELOCATED EQUIPMENT	LAT	LEAVING AIR TEMPERATURE
A/J	AIR CONDITIONING UNIT	LBS	POUNDS
F	ABOVE FINISHED FLOOR	LRA	LOCKED ROTOR AMPS
A/H	AIR HANDLING UNIT	LWT	LEAVING WATER TEMPERATURE
BA	BUILDING AUTOMATION SYSTEM	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
BTU/h	BRITISH THERMAL UNITS PER HOUR	MCA	MINIMUM CIRCUIT AMPACITY
CFM	CUBIC FEET PER MINUTE	MIN	MINIMUM
CLG	CEILING	MOCP	MAX OVER-CURRENT PROTECTION
DB	DRY BULB TEMPERATURE	OA	OUTSIDE AIR
DN	DOWN	PD	PRESSURE DROP
EAT	ENTERING AIR TEMPERATURE	PH	PHASE
EF	EXHAUST FAN	PSI	POUNDS PER SQUARE INCH
EFF	EFFICIENCY	RA	RETURN AIR
ESP	EXTERNAL STATIC PRESSURE	RH	RELATIVE HUMIDITY
EWB	ENTERING WET BULB TEMPERATURE	RLA	RUNNING LOAD AMPS
EWT	ENTERING WATER TEMPERATURE	RPM	REVOLUTIONS PER MINUTE
°F	DEGREES FAHRENHEIT	SA	SUPPLY AIR
FLA	FULL LOAD AMPS	SL	SOUND LINING
FPB	FAN POWERED BOX	TYP	TYPICAL
FT	FOOT, FEET	TF	TRANSFER FAN
GPM	GALLONS PER MINUTE	V	VOLT, VOLTS
HP	HORSEPOWER	VAV	VARIABLE AIR VOLUME
HZ	HERTZ (CYCLES PER SECOND)	W/	WITH
IN	INCH, INCHES	WB	WET BULB TEMPERATURE
		WG	WATER GAUGE

HVAC SYMBOLS

SYMBOL	DESCRIPTION
	EXISTING DUCTWORK, EQUIPMENT OR PIPING TO REMAIN
	EXISTING DUCTWORK, EQUIPMENT OR PIPING TO BE REMOVED OR RELOCATED
	NEW OR RELOCATED DUCTWORK, EQUIPMENT OR PIPING
	DUCTWORK WITH SOUNDLINING
	SUPPLY DUCT TURNING UP
	RETURN/EXHAUST DUCT TURNING UP
	SUPPLY DUCT TURNING DOWN
	RETURN/EXHAUST DUCT TURNING DOWN
	TRANSITION IN DUCT, SQUARE TO SQUARE
	TRANSITION IN DUCT, SQUARE TO ROUND
	SQUARE THROAT DUCT ELBOW WITHOUT TURNING VANES
	SQUARE THROAT DUCT ELBOW WITH TURNING VANES
	RADIUS ELBOW
	45 DEGREE TAP
	SPIN-IN RUNOUT FITTING WITH BALANCING DAMPER AND FLEXIBLE DUCT
	CONICAL TAP
	FLEXIBLE DUCT
	FLEXIBLE DUCT CONNECTION
	RECTANGULAR SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
	HUMIDISTAT, THERMOSTAT, CO2 SENSOR
	EXHAUST FAN
	SIDE WALL/DUCT REGISTER
	CFM DESIGNATION SYMBOL & QUANTITY
	KEYED NOTE, DEMOLITION
	KEYED NOTE, NEW WORK
	POINT OF REMOVAL
	POINT OF CONNECTION TO EXISTING
	DIFFUSER OR GRILLE DESIGNATION SYMBOL
	ACCESS DOOR, SIZE ON FLOOR PLANS
	RECTANGULAR SUPPLY AIR DIFFUSER
	VOLUME DAMPER
	FD: FIRE DAMPER SD: SMOKE DAMPER MD: MOTORIZED DAMPER F/SD: COMBINATION FIRE/SMOKE DAMPER BDD: BACKDRAFT DAMPER
	VAV TAG: TYPE, BOX NUMBER AIRFLOW AND KW
	VAV BOX TYPE V-SHUT-OFF TYPE VAV BOX S-SERIES FAN POWERED BOX P-PARALLEL FAN POWERED BOX

REV. NO.	DESCRIPTION	DATE	BY

PROJECT: Multi Floor House		
TITLE: HVAC GENERAL NOTE		
PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36: 1/128" = 1' 0"
DATE : August 28, 2026		
DRAWING NO. H - 0		REV.



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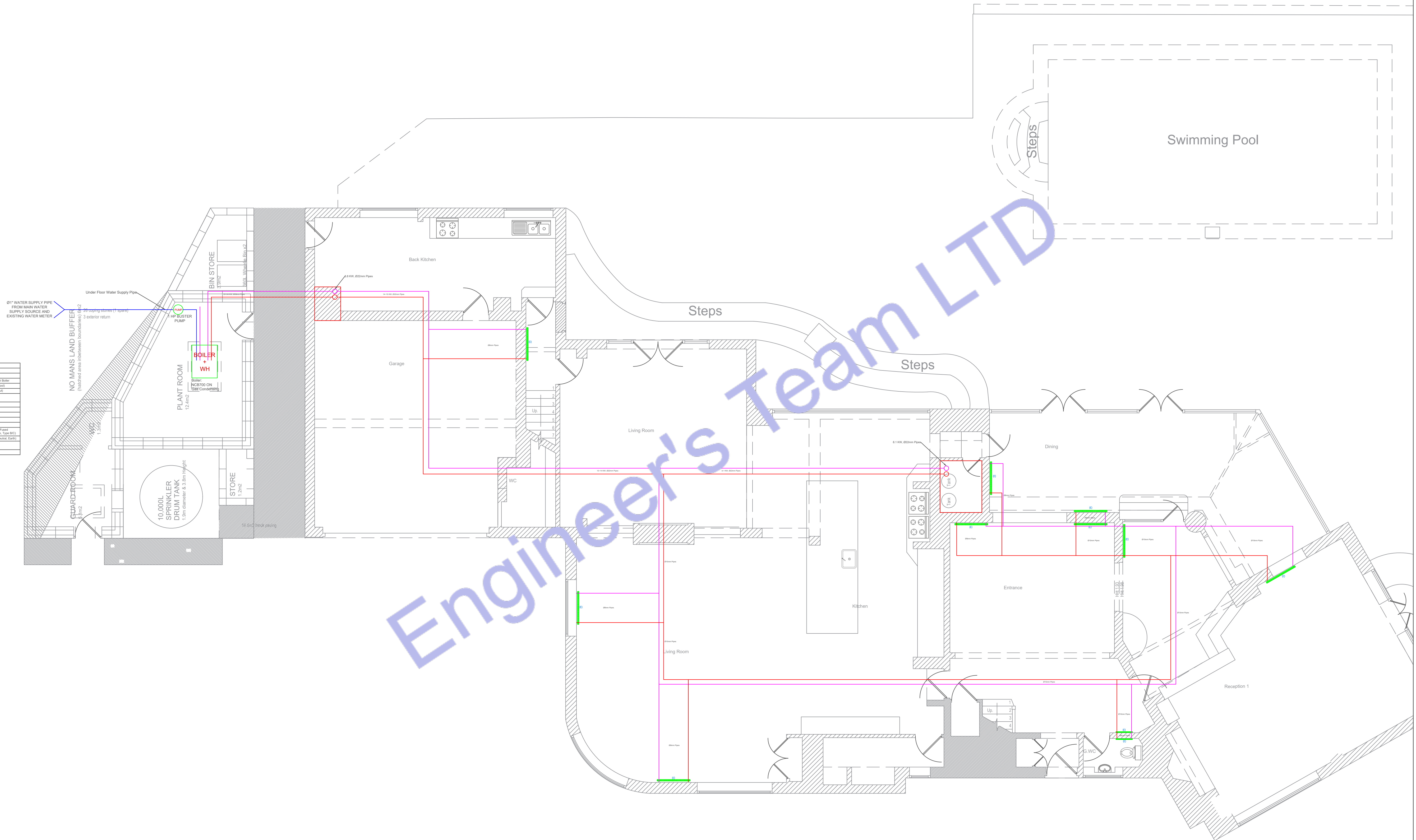
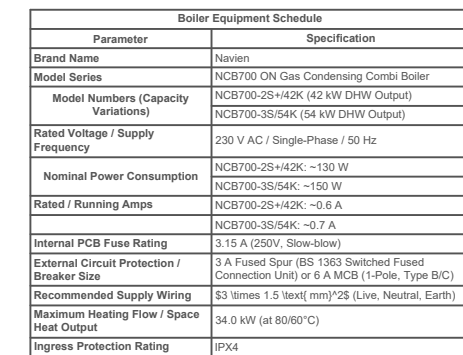
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PROJECT: Multi Floor House		
TITLE: GROUND FLOOR HEATING SYSTEM PLAN		
PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36: $1/128" = 1' 0"$
DATE : August 28, 2026		
DRAWING NO.		REV.
H - 1		



0 GROUND FLOOR HEATING SYSTEM PLAN
SCALE: 1/128" = 1'-0"



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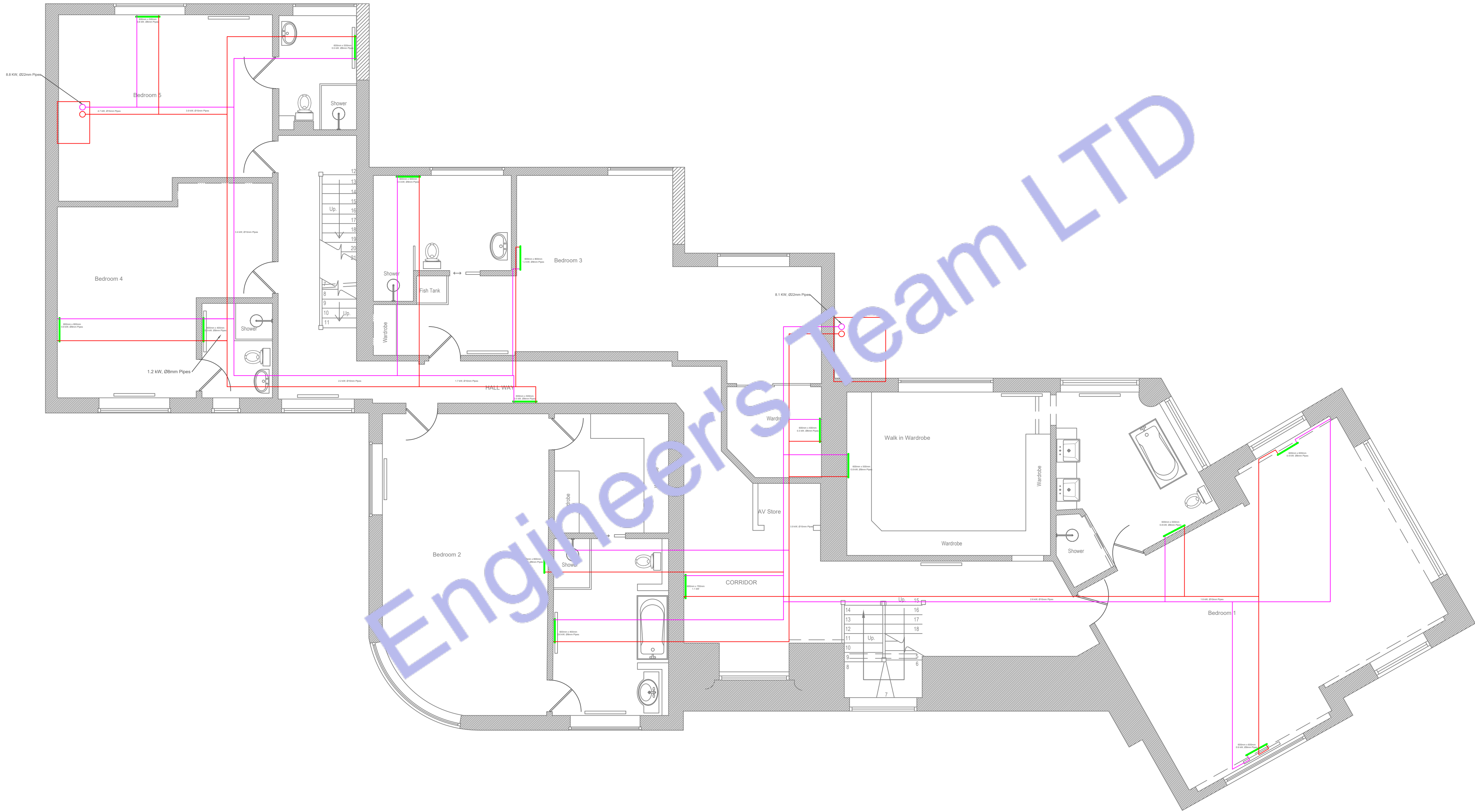
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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: Multi Floor House		
TITLE: FIRST FLOOR HEATING SYSTEM PLAN		
PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36: 1/128" = 1' 0"
DATE : August 28, 2026		
DRAWING NO. H - 2		REV.

PLUMBING LEGEND	
	BALL VALVE (BV)
	GATE VALVE (GV)
	RADIATOR
	BOILER & WATER HEATER
	PIPE TURNING UP
	PIPE TURNING DOWN
	EXISTING PIPE
	NEW PIPE
	BOILER & WATER HEATER

LINES TYPE LEGEND	
	COLD WATER LINE (CWL)
	HOT WATER LINE (HWL)



1 FIRST FLOOR HEATING SYSTEM PLAN
SCALE: 1/128" = 1'-0"



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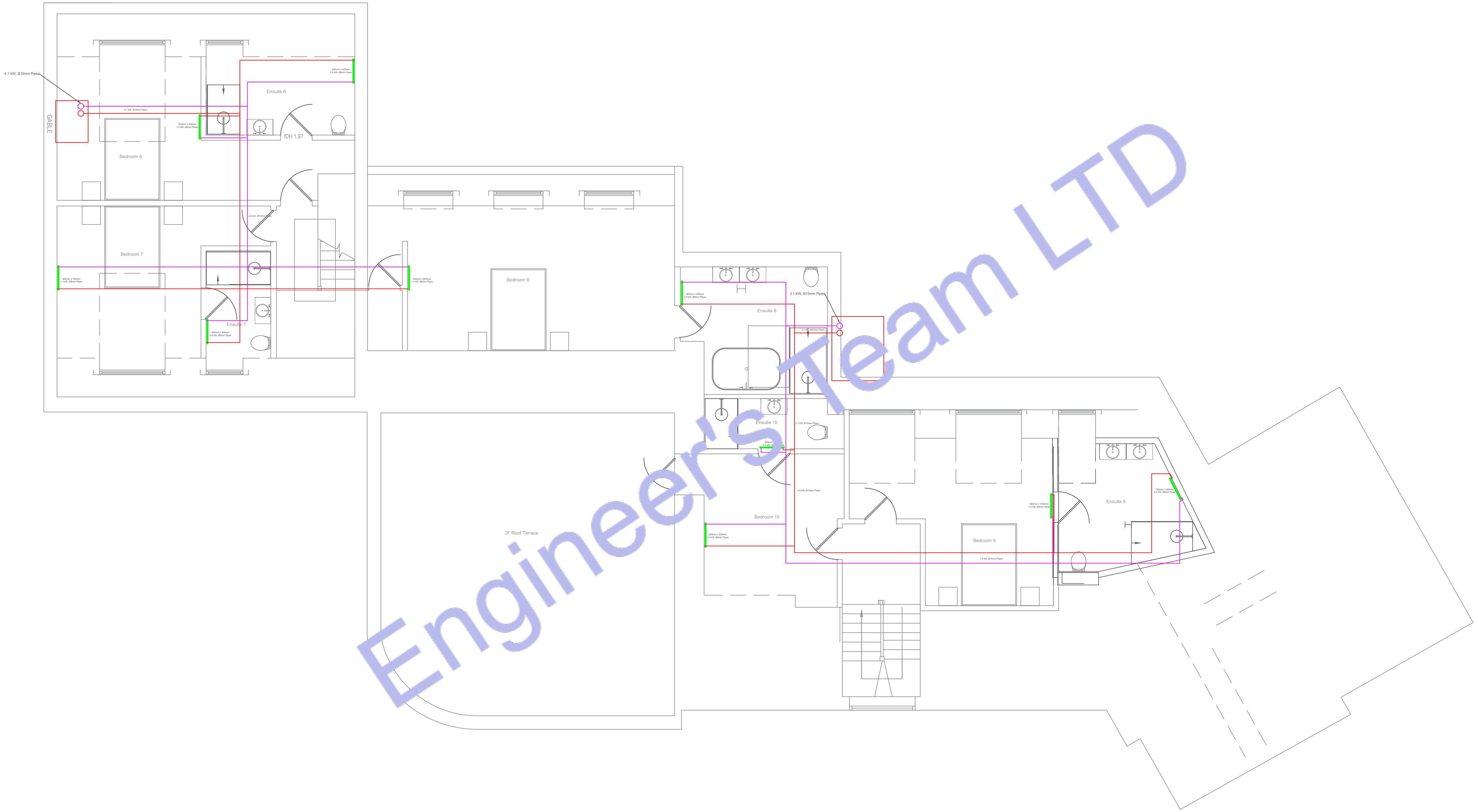
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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: Multi Floor House		
TITLE: SECOND FLOOR HEATING SYSTEM PLAN		
PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36: 1/128" = 1' 0"
DATE : August 28, 2026		
DRAWING NO. H - 3		REV.

PUMPING LEGEND	
	BALL VALVE (BV)
	GATE VALVE (GV)
	RADIATOR
	BOILER & WATER HEATER
	PIPE TURNING UP
	PIPE TURNING DOWN
	EXISTING PIPE
	NEW PIPE
	BOILER & WATER HEATER
LINES TYPE LEGEND	
	COLD WATER LINE (CWL)
	HOT WATER LINE (HWL)



2 SECOND FLOOR HEATING SYSTEM PLAN
SCALE: 1/128" = 1'-0"



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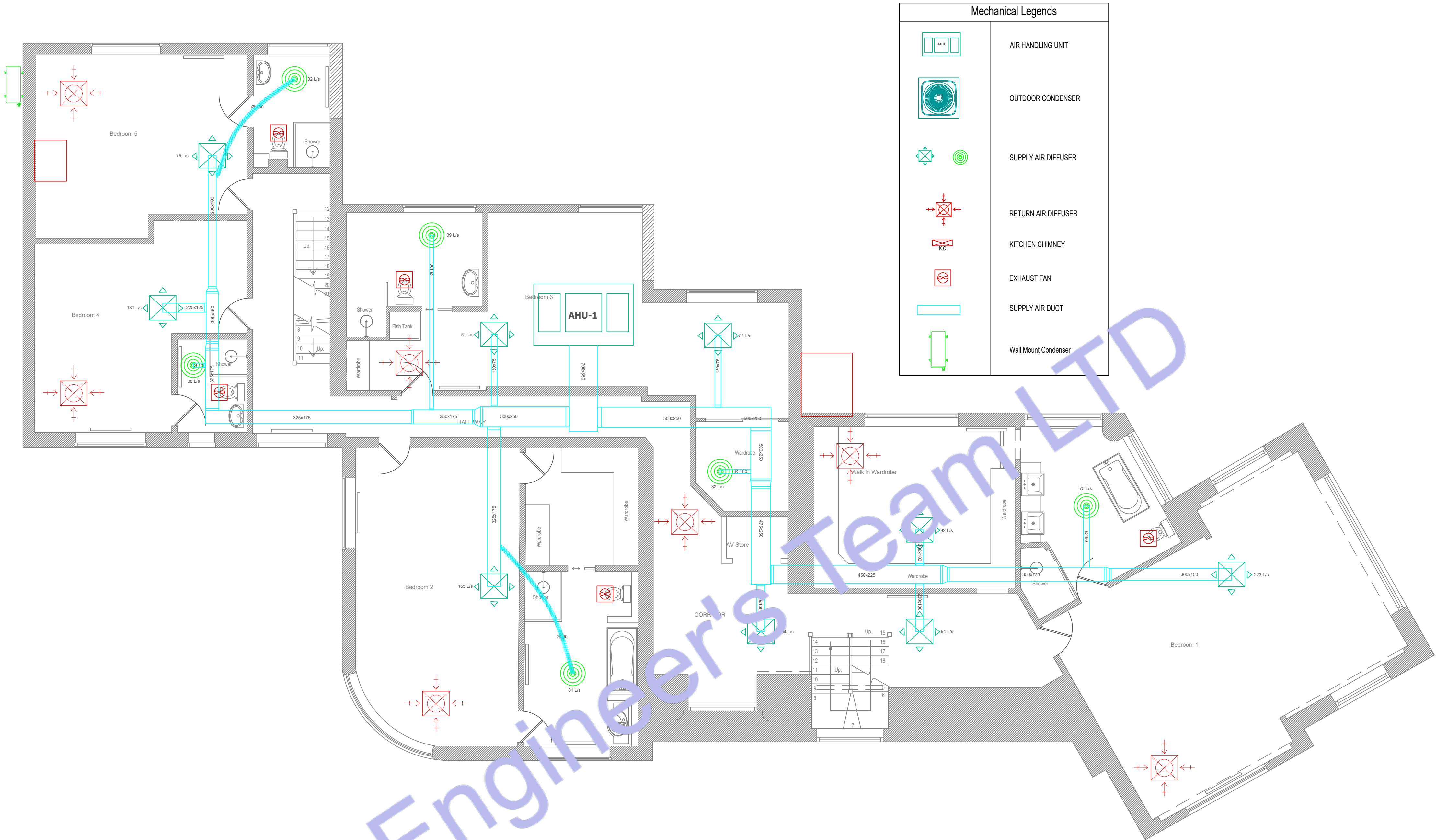
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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: Multi Floor House		
TITLE: FIRST FLOOR HVAC SYSTEM PLAN		
PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36: 1/128" = 1' 0"
DATE : August 28, 2026		
DRAWING NO. H - 4		REV.



1 FIRST FLOOR HVAC PLAN
SCALE: 1/128" = 1'-0"

HVAC Equipment Schedule													
Parameter	Equipment Tag / Identifier	Application / Duty	System Classification	Manufacturer / Brand	Outdoor Unit Model Number	Indoor Hydro Unit Model Number	Nominal Thermal Capacity	Electrical Supply (Voltage / Phase)	Nominal Running Current	Maximum Operating Current	Recommended Breaker Size (MCB)	Minimum Supply Cable Cross-Section	Refrigerant Type
System 1 (22 kW High-Temp)	HVAC 1	High-Temperature Space Heating & Domestic Hot Water	Air-to-Water High-Temp Split Kit	Trianco	Activair 22 kW Outdoor	T22-HP-SPLIT Hydro Kit	22.0 kW	400V AC / 3-Phase + N + E / 50 Hz	~15.2 A per phase	~26.0 A per phase	32 A (3-Pole, Type C Curve)	5 x 6.0 mm ² (3P+N+E)	R290 (Propane)
System 2 (12 kW / 14 kW 3-Phase)	HVAC 2	Space Heating & Cooling / Low Ambient Heating	Air-to-Water Inverter Split System	Panasonic	WH-UQ12HE8 (12 kW) / WH-UX12HE8 (14 kW)	WH-SQC12H9E8	12.0 kW – 14.0 kW	400V AC / 3-Phase + N + E / 50 Hz	~5.5 A – 7.2 A per phase	~13.0 A per phase (with backup heater active)	16 A or 20 A (3-Pole, Type C Curve)	5 x 2.5 mm ² or 5 x 4.0 mm ² (3P+N+E)	R410A / R32 (depending on exact generation)
													Maximum Flow Temperature Up to 70°C – 75°C
													Control Integration / Interface Pre-plumbed System / Weather Comp
													Panasonic Smart Cloud / CZ-TAW1 / Modbus



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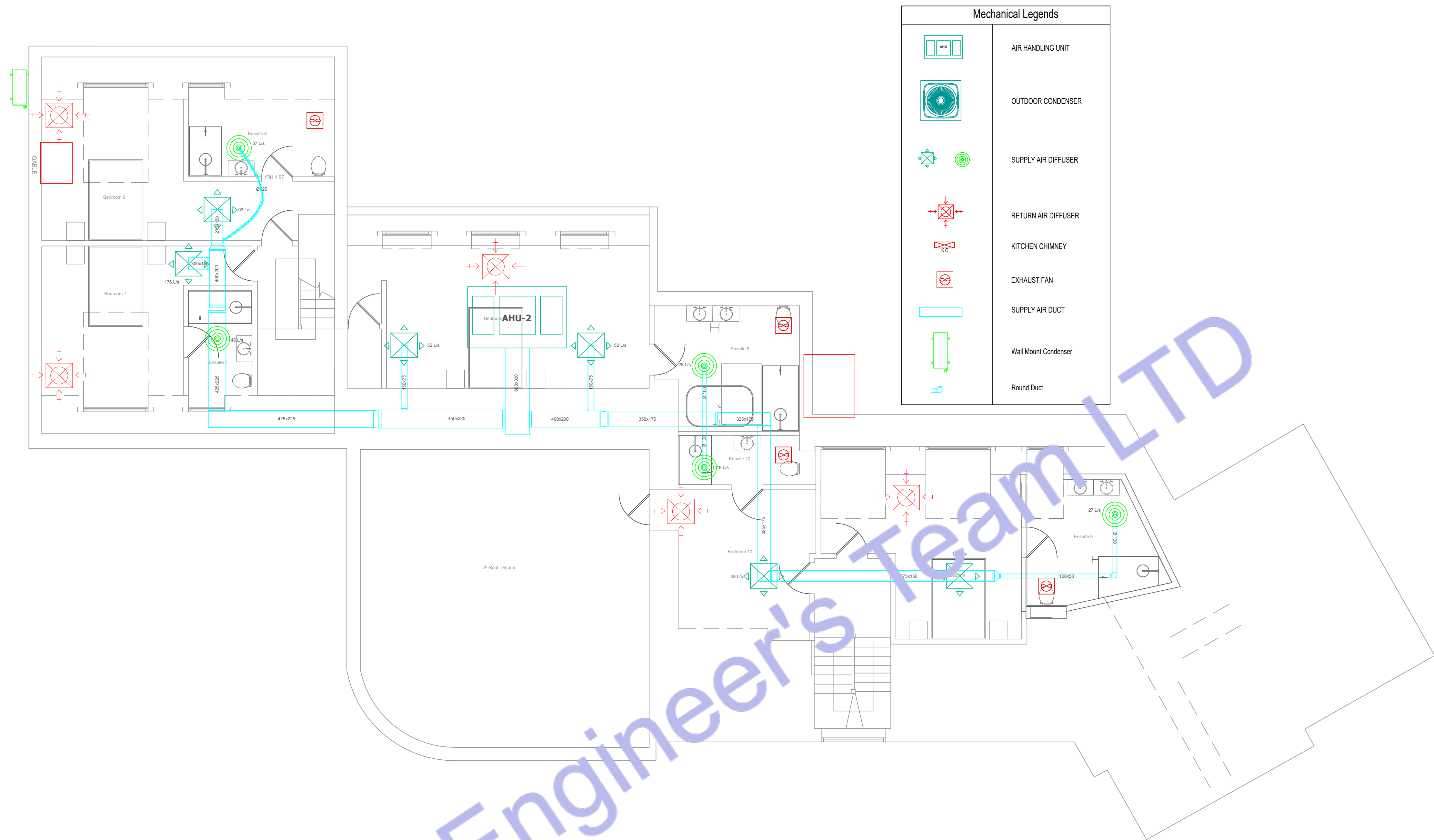
PROJECT:
Multi Floor House

TITLE:
SECOND FLOOR HVAC PLAN

PROJ. NO. PROJ. ENGR. SCALE @ 24X36:
1/128" = 1' 0"

DATE :
August 28, 2026

DRAWING NO. REV.
H - 5



2 SECOND FLOOR HVAC PLAN
SCALE: 1/128" = 1'-0"

Exhaust Fan Schedule						
Ref.	Brand	Model	Airflow	Power	Rated Current	Supply
EFK-01	Manrose	XF150T	30 L/s	25 W	0.11 A	230 V, 1Ø
EFB-01	Manrose	XF100T	15 L/s	15 W	0.08 A	230 V, 1Ø



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Air System Sizing Summary for HVAC 1

Project Name: 246_Fate_Little Manor, Barnet Lane, Elstree WD6 3Q
Prepared by: Engineer's Team

08/15/2026
05:32PM

Air System Information

Air System Name: HVAC 1
Equipment Class: SPLT AHU
Air System Type: SZCAV
Number of zones: 1
Floor Area: 243.9 m²
Location: London - Heathrow, United Kingdom

Sizing Calculation Information

Calculation Months: Jan to Dec
Sizing Data: Calculated
Zone L/s Sizing: Sum of space airflow rates
Space L/s Sizing: Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load: 21.0 kW
Sensible coil load: 18.8 kW
Coil L/s at Jul 1500: 1306 L/s
Max block L/s: 1306 L/s
Sum of peak zone L/s: 1306 L/s
Sensible heat ratio: 0.894
L/s (kW): 62.1
m³/kW: 11.6
W/m²: 86.2
Water flow @ 5.6 K rise: N/A
Load occurs at: Jul 1500
OA DB / WB: 26.9 / 18.8 °C
Entering DB / WB: 24.8 / 17.1 °C
Leaving DB / WB: 12.9 / 12.0 °C
Coil ADP: 11.3 °C
Bypass Factor: 0.120
Resulting RH: 46 %
Design supply temp.: 12.8 °C
Zone T-stat Check: 1 of 1 OK
Max zone temperature deviation: 0.0 K

Central Heating Coil Sizing Data

Max coil load: 14.8 kW
Coil L/s at Des Htg: 1306 L/s
Max coil L/s: 1306 L/s
Water flow @ 11.1 K drop: N/A
Load occurs at: Des Htg
W/m²: 60.6
Ent. DB / Lvg DB: 18.1 / 27.5 °C

Supply Fan Sizing Data

Actual max L/s: 1306 L/s
Standard L/s: 1302 L/s
Actual max L/s (m³): 5.35 L/s (m³)
Fan motor BHP: 0.00 BHP
Fan motor kW: 0.00 kW
Fan static: 0 Pa

Outdoor Ventilation Air Data

Design airflow L/s: 138 L/s
L/s (m³): 0.57 L/s (m³)
L/s/person: 5.31 L/s/person

Hourly Analysis Program 5.10

Page 1 of 14

Zone Sizing Summary for HVAC 1

Project Name: 246_Fate_Little Manor, Barnet Lane, Elstree WD6 3Q
Prepared by: Engineer's Team

08/15/2026
05:32PM

Air System Information

Air System Name: HVAC 1
Equipment Class: SPLT AHU
Air System Type: SZCAV
Number of zones: 1
Floor Area: 243.9 m²
Location: London - Heathrow, United Kingdom

Sizing Calculation Information

Calculation Months: Jan to Dec
Sizing Data: Calculated
Zone L/s Sizing: Sum of space airflow rates
Space L/s Sizing: Individual peak space loads

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/s (m ²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
Zone 1	1306	1306	5.35	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible Peak Load (kW)	Time of Peak Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m ²)
Zone 1	16.4	Jul 1500	11.4	243.9

Space Loads and Airflows

Zone Name / Space Name	Mult	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/s (m ³)
Zone 1							
F Bedroom (1)	1	3.0	Jun 1500	223	1.8	41.4	5.38
F Bedroom (2)	1	2.2	Jun 1500	165	1.3	28.3	5.84
F Bedroom (3)	1	1.4	Jun 1500	102	1.2	28.7	3.66
F Bedroom (4)	1	1.8	Sep 1500	131	0.8	21.2	6.18
F Bedroom (5)	1	1.0	Jun 1500	75	0.8	22.3	3.35
F CORRIDOR	1	2.5	Sep 1500	188	1.1	27.3	6.89
F Ensuite (1)	1	1.0	Jun 1500	75	0.8	11.3	6.63
F Ensuite (2)	1	1.1	Sep 1500	81	0.8	12.1	6.87
F Ensuite (3)	1	0.5	Jun 1500	39	0.5	8.4	4.59
F Ensuite (4)	1	0.5	Sep 1500	38	0.3	4.0	9.49
F Ensuite (5)	1	0.4	Jun 1500	32	0.5	5.3	6.12
F HALL WAY	1	0.5	Aug 1500	39	0.8	8.9	4.39
F WALK IN WARDROBE	1	1.2	Jun 1800	92	0.8	19.8	4.63
F WARDROBE	1	0.3	Jul 1800	29	0.3	4.9	5.31

Hourly Analysis Program 5.10

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Air System Design Load Summary for HVAC 1

Project Name: 246_Fate_Little Manor, Barnet Lane, Elstree WD6 3Q
Prepared by: Engineer's Team

08/15/2026
05:32PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 26.9 °C / 18.8 °C			HEATING DATA AT DES Htg HEATING OA DB / WB -3.9 °C / -6.1 °C		
	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
ZONE LOADS						
Window & Skylight Solar Loads	57 m ²	8960	-	57 m ²	-	-
Wall Transmission	498 m ²	1158	-	498 m ²	4693	-
Roof Transmission	244 m ²	431	-	244 m ²	622	-
Window Transmission	57 m ²	265	-	57 m ²	4785	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	31 m ²	74	-	31 m ²	1329	-
Floor Transmission	0 m ²	0	-	0 m ²	0	-
Partitions	303 m ²	0	-	303 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	2100 W	1693	-	0	0	-
Task Lighting	2100 W	1874	-	0	0	-
Electric Equipment	2600 W	2369	-	0	0	-
People	26	1558	1647	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	16380	1647	-	11438	0
Zone Conditioning	-	18400	1647	-	10706	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Return Fan Load	1306 L/s	0	-	1306 L/s	0	-
Ventilation Load	138 L/s	392	576	138 L/s	4084	0
Supply Fan Load	1306 L/s	0	-	138 L/s	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	16380	1647	-	14790	0
Central Cooling Coil	-	1871	222	-	0	0
Central Heating Coil	-	0	-	-	14790	0
>> Total Conditioning	-	1871	222	-	14790	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Hourly Analysis Program 5.10

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Air System Sizing Summary for HVAC 2

Project Name: 246_Fate_Little Manor, Barnet Lane, Elstree WD6 3Q
Prepared by: Engineer's Team

08/15/2026
05:33PM

Air System Information

Air System Name: HVAC 2
Equipment Class: SPLT AHU
Air System Type: SZCAV
Number of zones: 1
Floor Area: 192.4 m²
Location: London - Heathrow, United Kingdom

Sizing Calculation Information

Calculation Months: Jan to Dec
Sizing Data: Calculated
Zone L/s Sizing: Sum of space airflow rates
Space L/s Sizing: Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load: 12.7 kW
Sensible coil load: 11.4 kW
Coil L/s at Jul 1500: 792 L/s
Max block L/s: 792 L/s
Sum of peak zone L/s: 792 L/s
Sensible heat ratio: 0.893
L/s (kW): 62.3
m³/kW: 15.1
W/m²: 66.2
Water flow @ 5.6 K rise: N/A
Load occurs at: Jul 1500
OA DB / WB: 26.9 / 18.8 °C
Entering DB / WB: 25.0 / 17.2 °C
Leaving DB / WB: 13.1 / 12.2 °C
Coil ADP: 11.5 °C
Bypass Factor: 0.120
Resulting RH: 46 %
Design supply temp.: 12.8 °C
Zone T-stat Check: 1 of 1 OK
Max zone temperature deviation: 0.0 K

Central Heating Coil Sizing Data

Max coil load: 10.6 kW
Coil L/s at Des Htg: 792 L/s
Max coil L/s: 792 L/s
Water flow @ 11.1 K drop: N/A
Load occurs at: Des Htg
W/m²: 56.2
Ent. DB / Lvg DB: 17.5 / 28.6 °C

Supply Fan Sizing Data

Actual max L/s: 792 L/s
Standard L/s: 790 L/s
Actual max L/s (m³): 4.12 L/s (m³)
Fan motor BHP: 0.00 BHP
Fan motor kW: 0.00 kW
Fan static: 0 Pa

Outdoor Ventilation Air Data

Design airflow L/s: 103 L/s
L/s (m³): 0.53 L/s (m³)
L/s/person: 5.71 L/s/person

Hourly Analysis Program 5.10

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Zone Sizing Summary for HVAC 2

Project Name: 246_Fate_Little Manor, Barnet Lane, Elstree WD6 3Q
Prepared by: Engineer's Team

08/15/2026
05:33PM

Air System Information

Air System Name: HVAC 2
Equipment Class: SPLT AHU
Air System Type: SZCAV
Number of zones: 1
Floor Area: 192.4 m²
Location: London - Heathrow, United Kingdom

Sizing Calculation Information

Calculation Months: Jan to Dec
Sizing Data: Calculated
Zone L/s Sizing: Sum of space airflow rates
Space L/s Sizing: Individual peak space loads

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/s (m ²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
Zone 2	792	792	4.12	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible Peak Load (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m ²)
Zone 2	10.0	Jul 1500	8.0	192.4

Space Loads and Airflows

Zone Name / Space Name	Mult	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/s (m ³)
Zone 2							
Bedroom (10)	1	0.6	Jul 1500	48	0.5	12.2	3.91
Bedroom (6)	1	1.2	Jun 1500	93	1.0	22.5	4.15
Bedroom (7)	1	2.4	Sep 1500	176	1.1	18.0	9.80
Bedroom (8)	1	1.4	Jun 1500	103	1.1	32.2	3.19
Bedroom (9)	1	1.6	Jun 1500	123	1.5	19.8	6.20
Ensuite (10)	1	0.2	Aug 1500	18	0.3	3.7	4.86
Ensuite (6)	1	0.5	Jun 1500	37	0.5	11.1	3.32
Ensuite (7)	1	0.6	Sep 1500	46	0.4	5.6	8.21
Ensuite (8)	1	0.4	Jul 1500	28	0.4	10.4	2.70
Ensuite (9)	1	0.4	Jun 1500	27	0.4	5.2	8.15
2F Roof Terrace	1	1.3	Jul 1500	94	0.8	51.7	1.82

Hourly Analysis Program 5.10

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Air System Design Load Summary for HVAC 2

Project Name: 246_Fate_Little Manor, Barnet Lane, Elstree WD6 3Q
Prepared by: Engineer's Team

08/15/2026
05:33PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 26.9 °C / 18.8 °C			HEATING DATA AT DES Htg HEATING OA DB / WB -3.9 °C / -6.1 °C		
	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
ZONE LOADS						
Window & Skylight Solar Loads	35 m ²	3033	-	35 m ²	-	-
Wall Transmission	383 m ²	895	-	383 m ²	3610	-
Roof Transmission	201 m ²	354	-	201 m ²	512	-
Window Transmission	35 m ²	160	-	35 m ²	2888	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	24 m ²	56	-	24 m ²	1014	-
Floor Transmission	0 m ²	0	-	0 m ²	0	-
Partitions	197 m ²	0	-	197 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	1657 W	1248	-	0	0	-
Task Lighting	1657 W	1430	-	0	0	-
Electric Equipment	2150 W	1914	-	0	0	-
People	18	879	957	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	9969	957	-	8023	0
Zone Conditioning	-	11084	957	-	7579	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Return Fan Load	792 L/s	0	-	792 L/s	0	-
Ventilation Load	103 L/s	277	400	103 L/s	3034	0
Supply Fan Load	792 L/s	0	-	792 L/s	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	11371	1357	-	10613	0
Central Cooling Coil	-	11371	1357	-	0	0
Central Heating Coil	-	0	-	-	10613	0
>> Total Conditioning	-	11371	1357	-	10613	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Hourly Analysis Program 5.10



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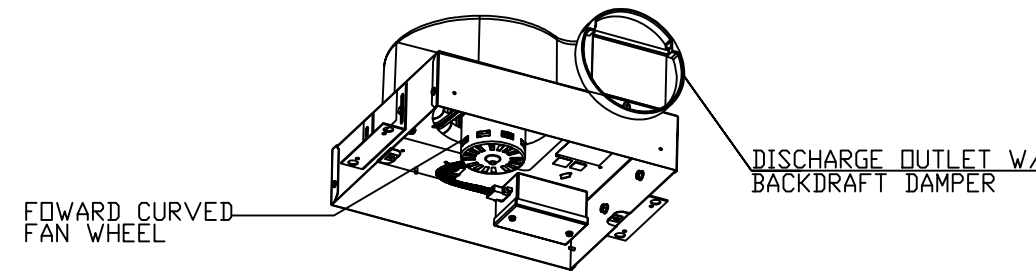
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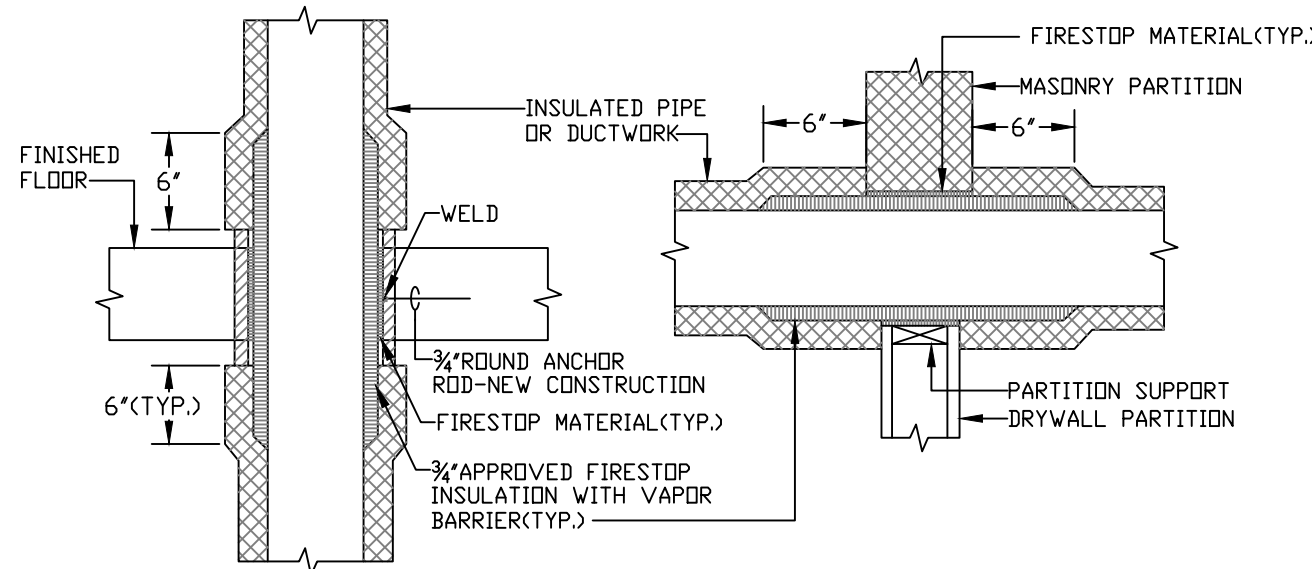
REV. NO.	DESCRIPTION	DATE	BY

PROJECT: Multi Floor House		
TITLE: HVAC INSTALLATION INSTRUCTION		
PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36: N/A
DATE : August 28, 2026		
DRAWING NO. H - 7		REV.



CEILING FAN DETAIL

NOT TO SCALE
CEILING RADIATION DAMPERS SHALL BE
INSTALLED IN ACCORDANCE WITH UL 555C



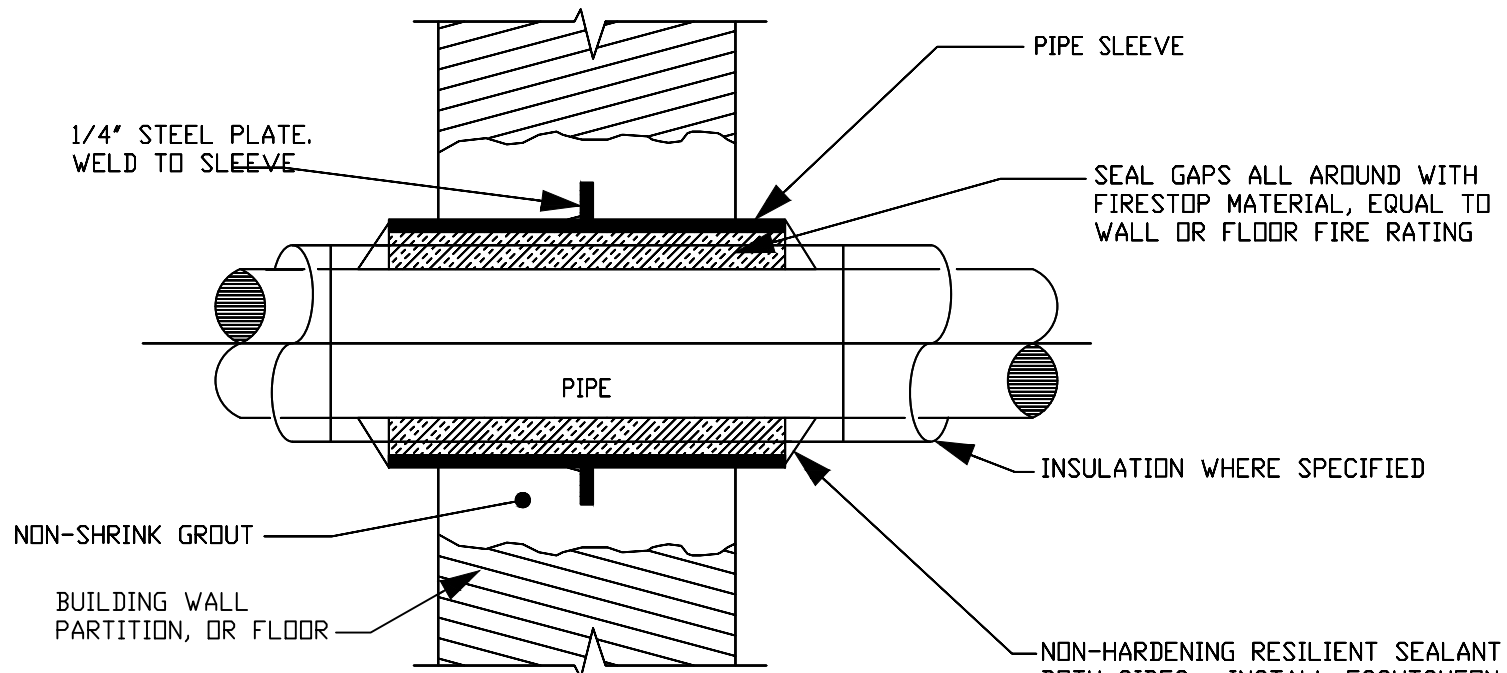
FLOOR OR DECK PENETRATION
NOTE:

PARTITION OR CHASE PENETRATION

APPLICABLE TO PENETRATIONS OF ALL FIRE RATED MEMBRANES, IN ACCORDANCE WITH
2012 IBC 714. REFER UL LISTED FIRE STOPPING SYSTEMS UL-1479, UL-2043

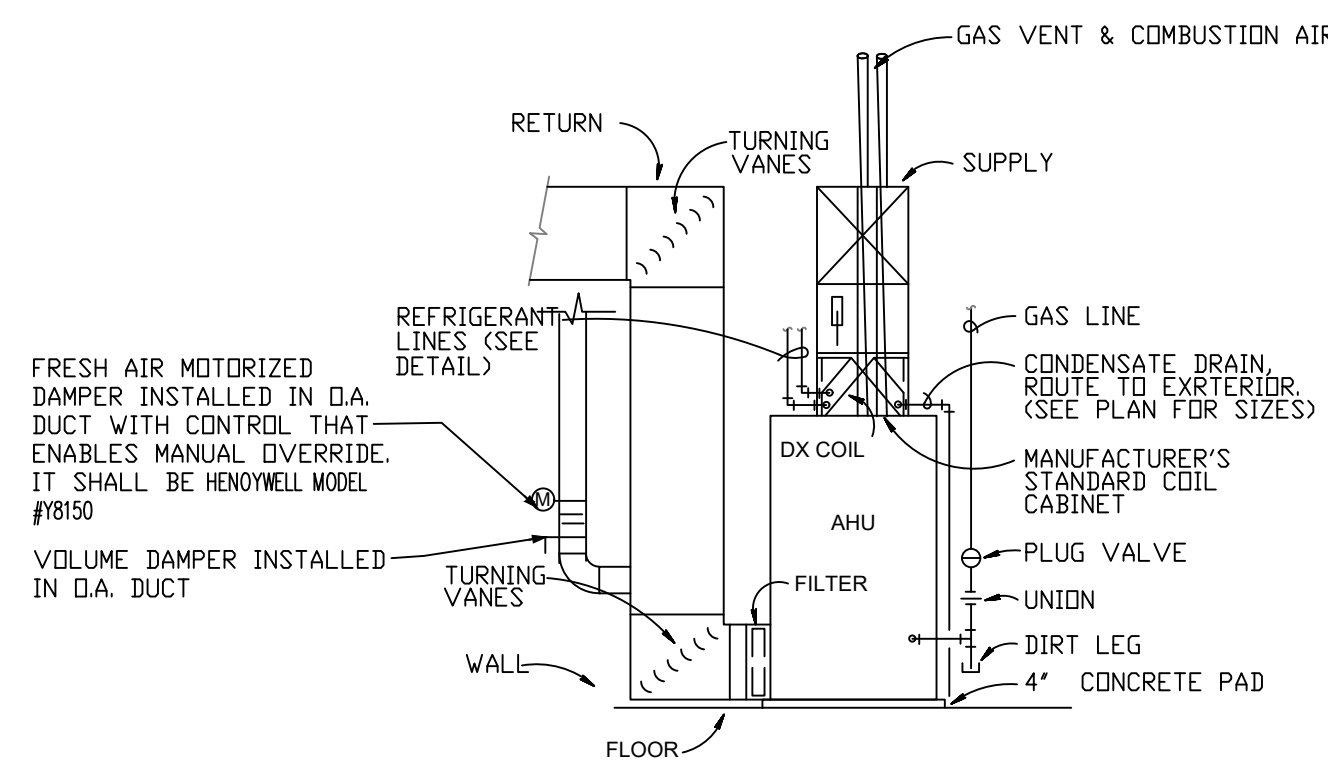
PENETRATION OF FIRE/SMOKE BARRIERS

NOT TO SCALE



INTERIOR MASONRY WALL AND FLOOR PENETRATION

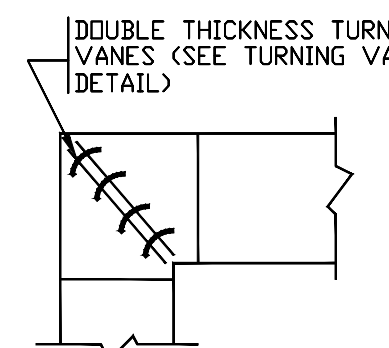
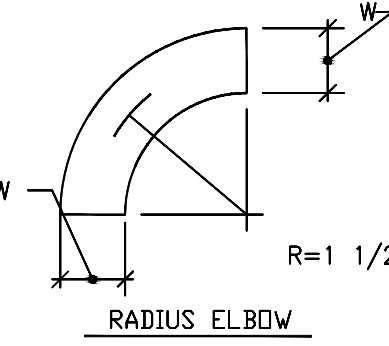
NOT TO SCALE



GAS-FIRED AIR HANDLING UNIT DETAIL

N.T.S.

LOW VELOCITY ELBOWS

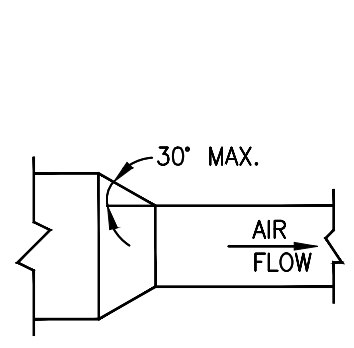
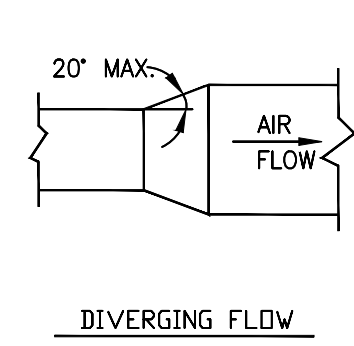


RECTANGULAR ELBOW

LOW VELOCITY TRANSITIONS, OFFSETS AND ELBOWS

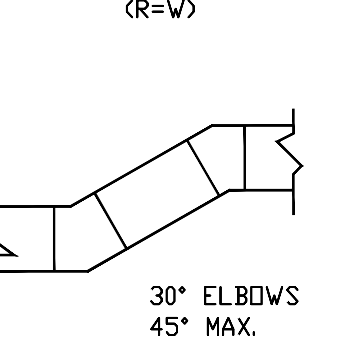
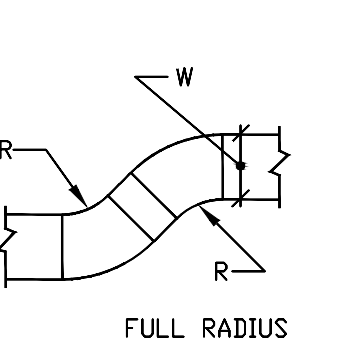
NOT TO SCALE

LOW VELOCITY TRANSITIONS

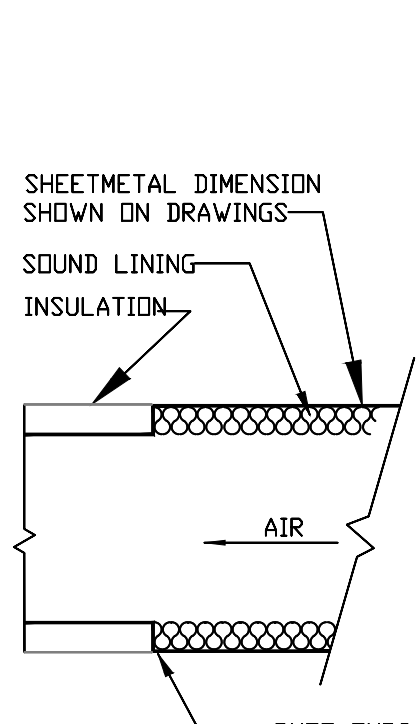


CONTRACTION FLOW

LOW VELOCITY OFFSETS

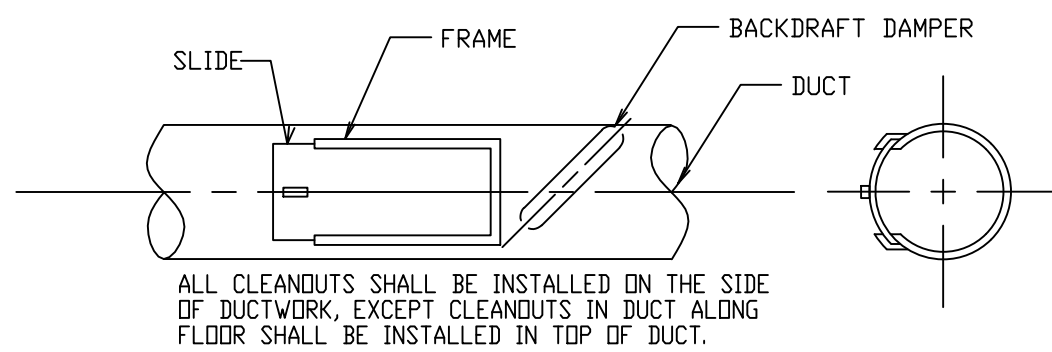


30° ELBOWS 45° MAX.



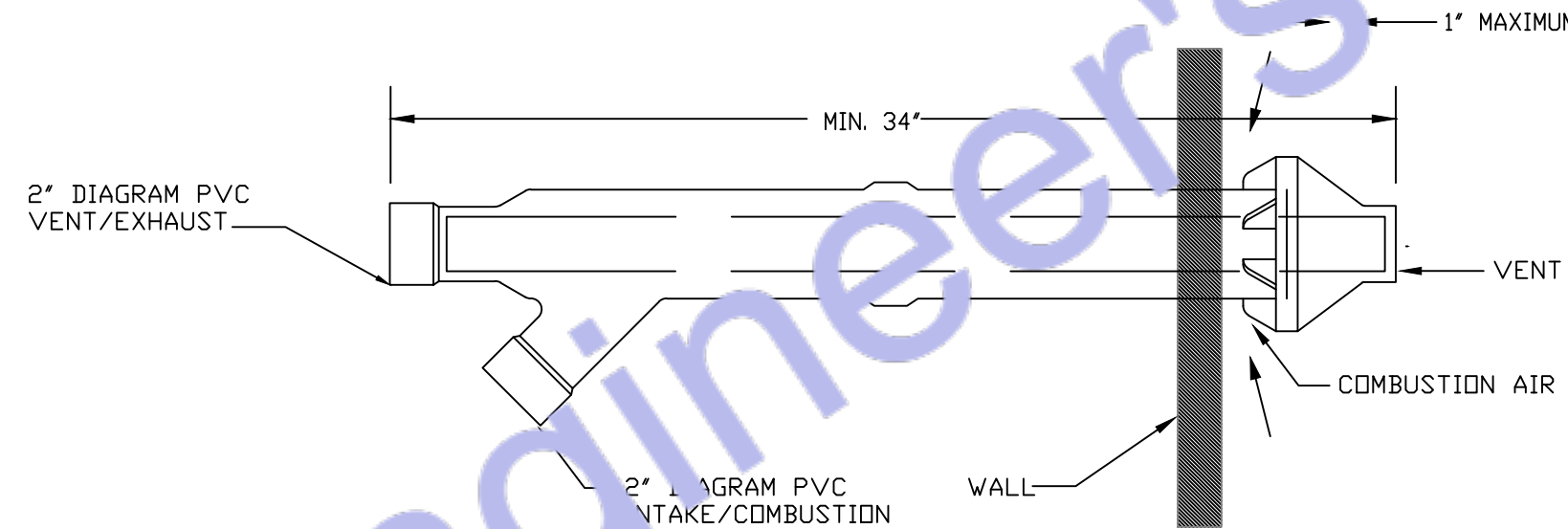
TYPICAL SOUND LINING DETAIL

NOT TO SCALE



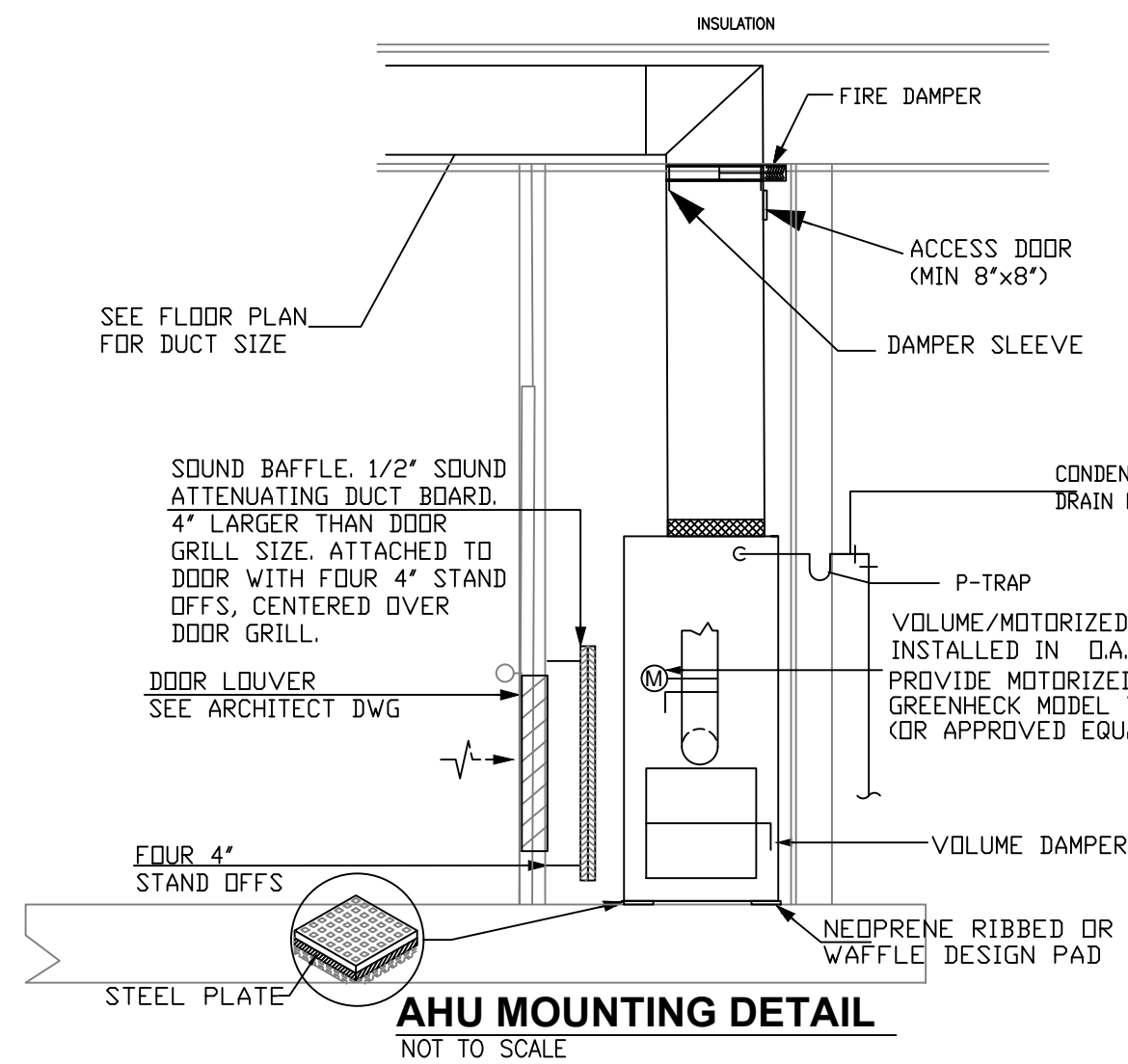
CLEAN OUT / INSPECTION DETAIL

NO SCALE



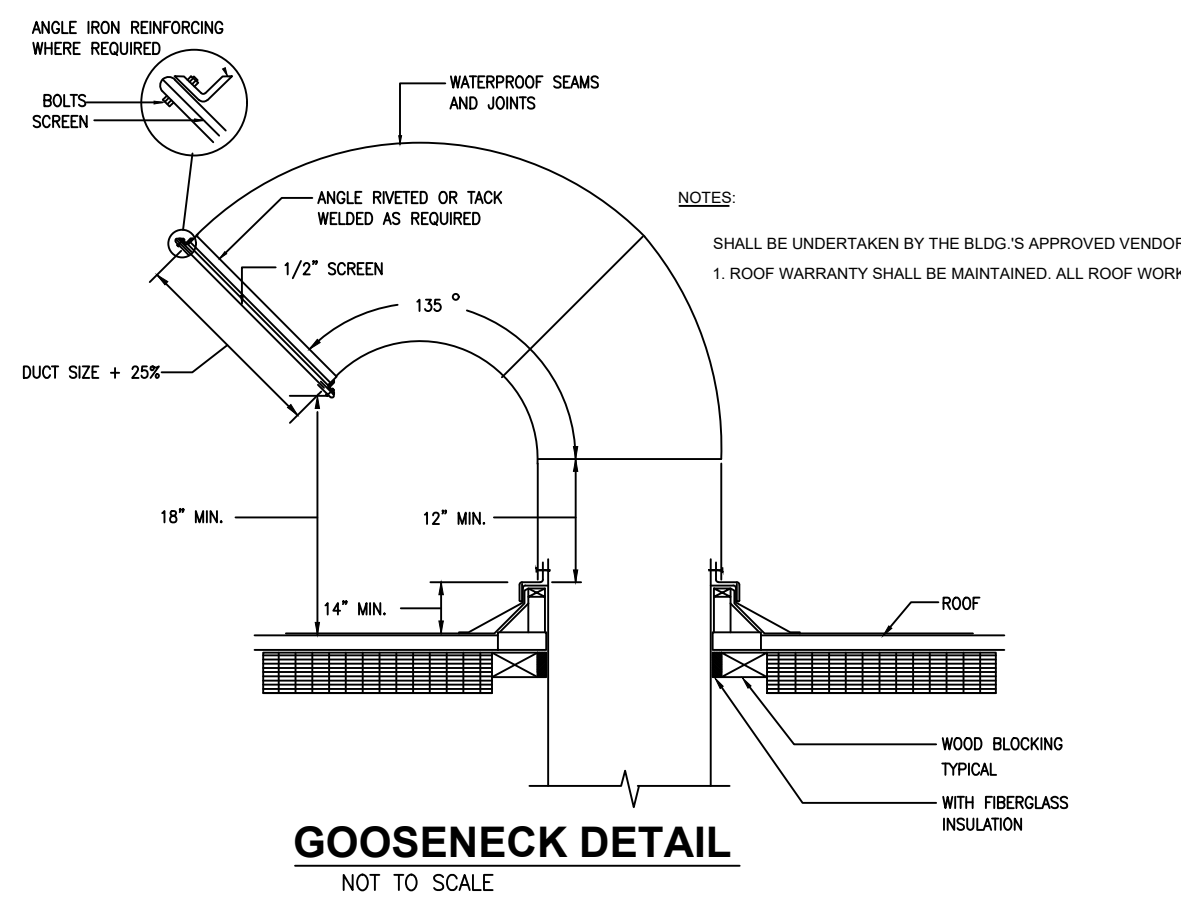
HORIZONTAL VENT TERMINAL/COMBUSTION AIR INLET

NOT TO SCALE
UL-PLASTIC PIPE AND FITTINGS USED TO VENT APPLIANCES SHALL BE INSTALLED IN
ACCORDANCE WITH THE APPLIANCE MANUFACTURER'S INSTRUCTIONS. PLASTIC PIPE VENTING
MATERIALS LISTED AND LABELED IN ACCORDANCE WITH UL 1738 SHALL BE INSTALLED IN
ACCORDANCE WITH THE VENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. FLUID PVC PIPING
SHALL NOT BE USED FOR COMBUSTION GAS VENTING.



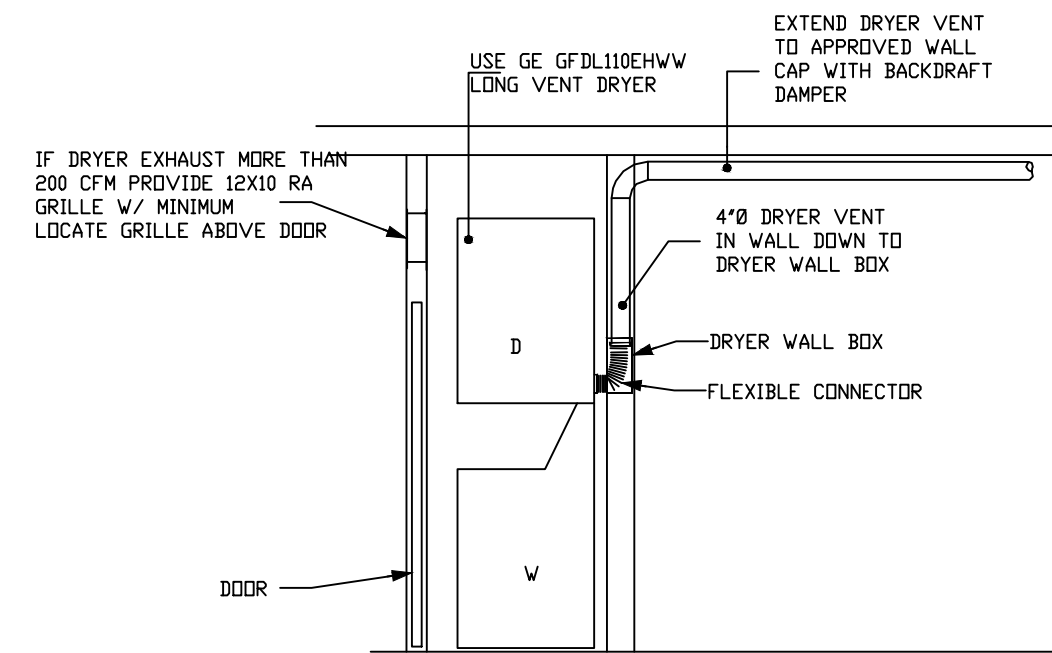
AHU MOUNTING DETAIL

NOT TO SCALE



GOOSENECK DETAIL

NOT TO SCALE



DRYER DETAIL

NOT TO SCALE



Designed By Engr. Al Amin (MEP Engineer | Director - Engineer's Team LTD)

 support@engrteam.com

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