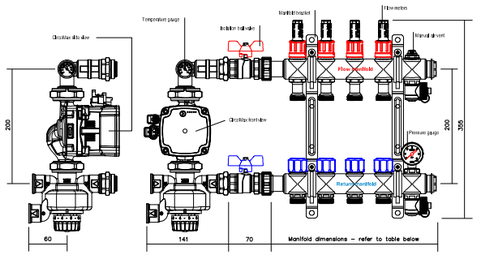
PUMPED UFH MIXING MANIFOLD

(4 port manifold used for example purposes only)

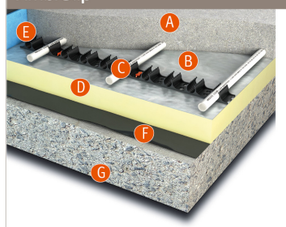


Note: It is recommended that a 2 port motorised zone valve be installed on the primary flow before each manifold to prevent excess water pressure.

No. of ports	2	3	4	5	6	7	8	9	10	11	12
Length (mm)	192	242	292	342	392	442	492	542	592	642	692

MANIFOLD DIMENSIONS TABLE

AmbiClip



- A Floor screed
- B 17mm Ambiente UFH pipe
- C Cliprail
- D Rigid insulation board
- E Border edge insulation
- F Acoustic detail and/or DPM (if required)
- G Concrete subfloor

Pipe Allocation

Room	Manifold	Port	Length	Coil
Games Room	1	1	96	700
Games Room	1	2	108	
Drawing Room	1	3	111	
Drawing Room	1	4	98	
Drawing Room	1	5	110	
Drawing Room	1	6	99	
Bedroom 4	4	4	76	
Lobby / Reception	1	7	81	700
Lobby / Reception	1	8	81	
Lobby / Reception	1	9	83	
Library	1	10	88	
Library	1	11	89	
WC	1	12	33	
Kitchen / Family	2	1	99	
Kitchen / Family	2	2	115	
Laundry	3	1	22	
Kitchen / Family	2	3	98	700
Kitchen / Family	2	4	98	
Utility	2	5	47	
Landing	3	2	120	
Ensuite 3	3	3	46	
Bedroom 3 / Dressing	3	4	120	
Landing	3	5	68	
Bedroom 6	3	6	83	
Bedroom 5	3	7	81	700
Family Bathroom	3	8	56	
Bedroom 2	3	9	107	
Ensuite 2	3	10	64	
Master Ensuite	4	1	69	
Master Bed / Dressing	4	2	113	
Master Bedroom	4	3	117	
Bedroom 4	4	5	75	
Ensuite 4	4	6	48	240
Study	4	7	59	
WC	4	8	21	

MANIFOLD 1				
	Total Output (w)	15634	Flow temp °C	55
	Total Tube Length (m)	1077	Return temp °C	45
	Max Head Loss (kPa)	28.2	Δt °C	10
	Total Water Volume (ltr)	143.9	Pipe diameter (mm)	17
	Total Flow Rate (l/m)	24.6	Total Flow Rate (kg/s)	0.409

Port	Room / Area	Pipe Spacing (mm)	Output (w)	Tube Length (m)	Flow Rate (l/m)	Head Loss (kPa)
1	Games Room	200 / 150	1266	96	2.0	11.1
2	Games Room	200	1424	108	2.2	14.8
3	Drawing Room	200	998	111	1.6	8.8
4	Drawing Room	200	881	98	1.4	6.7
5	Drawing Room	200 / 150	989	110	1.6	8.6
6	Drawing Room	150	890	99	1.4	6.8
7	Lobby / Reception	200	2404	81	3.8	26.5
8	Lobby / Reception	200	2404	81	3.8	26.5
9	Lobby / Reception	200	2464	83	3.9	28.2
10	Library	200	737	88	1.2	3.9
11	Library	200	745	89	1.2	3.9
12	WC	200	432	33	0.7	2.0

MANIFOLD 2				
	Total Output (w)	7499	Flow temp °C	55
	Total Tube Length (m)	457	Return temp °C	45
	Max Head Loss (kPa)	21.7	Δt °C	10
	Total Water Volume (ltr)	61.0	Pipe diameter (mm)	17
	Total Flow Rate (l/m)	11.8	Total Flow Rate (kg/s)	0.196

Port	Room / Area	Pipe Spacing (mm)	Output (w)	Tube Length (m)	Flow Rate (l/m)	Head Loss (kPa)
1	Kitchen / Family	200 / 150	1501	99	2.4	14.9
2	Kitchen / Family	200	1744	115	2.7	21.7
3	Kitchen / Family	200	1486	98	2.3	14.5
4	Kitchen / Family	200	1486	98	2.3	14.5
5	Utility	200	1282	47	2.0	6.3

Underfloor Heating Outputs

Manifold	Room	Floor Detail	Pipe Diameter (mm)	Room Area (m²)	UFH Area (m²)	Room Design Temperature (°C)	Flow / Return Temperature (°C)	Floor Covering	Floor Covering Resistance (m²K/W)	Pipe Spacing (mm)	Design Output (w)	Floor Temp(°C)
1	Games Room	AmbiClip	17	41.4	41.4	21	55 / 45	Timber	0.15	200/150	2691	27.0
	Lobby / Reception	AmbiClip	17	57.7	50.5	18	55 / 45	Ceramic	0.00	200	7272	31.3
	Drawing Room	AmbiClip	17	57.8	57.8	21	55 / 45	Timber	0.15	200/150	3757	27.0
	WC	AmbiClip	17	3.7	3.0	18	55 / 45	Ceramic	0.00	200	432	31.3
	Library	AmbiClip	17	22.8	22.8	21	55 / 45	Timber	0.15	200	1482	27.0
2	Kitchen / Family	AmbiClip	17	81.6	72.3	21	55 / 45	Ceramic	0.00	20/150	6218	29.0
	Utility	AmbiClip	17	13.2	8.9	18	55 / 45	Ceramic	0.00	200	1282	31.3
TOTAL				278.2	256.7						23133	

Note

Underfloor Heating output has been calculated based on the criteria detailed in the tables in relation to design temperature, floor covering resistance and flow / return temperatures. These outputs should be checked against the heat losses to ensure they will meet demand.

SYSTEM INFORMATION

NOTES

THIS DRAWING IS CONFIDENTIAL AND THE COPYRIGHT PROPERTY OF AMBIENTE UNDERFLOOR HEATING. IT IS NOT TO BE DISCLOSED, LOANED OR COPIED WITHOUT WRITTEN PERMISSION. THESE DRAWINGS ARE INTENDED FOR GUIDANCE PURPOSES ONLY AND THUS PIPEWORK MAY ALTER FROM THAT SHOWN UPON INSTALLATION. DETAILS OF ANY ALTERATIONS DURING INSTALLATION SHOULD BE NOTIFIED TO AMBIENTE UNDERFLOOR HEATING.
ALL DRAWINGS ARE BASED UPON THE INFORMATION SUPPLIED SO THE CLIENT SHOULD SATISFY THEMSELVES THAT THE DESIGN MEETS ALL THE REQUIREMENTS. IF NO SECTION OR ELEVATION DRAWINGS ARE SUPPLIED IN NO WAY CAN HEATLOSS CALCULATIONS BE GUARANTEED.
SCREED DEPTH AND PIPE POSITIONS MAY ALTER FROM THAT SHOWN SO CARE MUST BE TAKEN WHEN FIXING TO THE FLOOR.
AMBIENTE DESIGNS SHOULD BE FOLLOWED EXACTLY TO ENSURE EVEN HEAT DISTRIBUTION. ANY QUERY/CLAIM SUGGESTING TO THE CONTRARY SHOULD BE SUPPORTED WITH CLEAR INSTALLATION PHOTOGRAPHY TO ENSURE PIPEWORK HAS BEEN INSTALLED CORRECTLY AND IN ACCORDANCE WITH THIS DESIGN.

PRIOR TO THE COMMENCEMENT OF WORKS

THE BUILDING SHOULD BE WATERTIGHT AND THE INTENDED HEATED FLOOR AREA SWEPT AND CLEAR OF OTHER TRADES. ANY HOLES THROUGH WALLS NECESSARY FOR THE UNDERFLOOR HEATING PIPEWORK ARE TO BE MADE PRIOR TO THE INSTALLATION DATE.

WATER CONTENT OF PIPEWORK

1 METRE OF 17MM PIPE HOLDS 0.14 LITRES OF WATER
1 METRE OF 16MM PIPE HOLDS 0.11 LITRES OF WATER
1 METRE OF 12MM PIPE HOLDS 0.06 LITRES OF WATER

UNDERFLOOR HEATING SYSTEM

WE RECOMMENDED HANGING THE MANIFOLD AT A MINIMUM OF 250MM FROM THE FINISH FLOOR LEVEL. ACCESS TO THE MANIFOLD IS ESSENTIAL. UNDERFLOOR HEATING PIPEWORK SHOULD NOT RUN UNDER ANY FIXED APPLIANCES SUCH AS TOILETS OR KITCHEN UNITS UNLESS SPECIFICALLY STATED OTHERWISE. AMBIENTE SHOULD BE INFORMED OF ANY FIXING POINTS THAT AREN'T INDICATED ON OUR DRAWING.
UNLESS CLEARLY INDICATED THE ASSUMPTION IS MADE THAT THE FLOOR IS FLAT, LEVEL AND FREE FROM OTHER SERVICES THAT COULD INTERFERE WITH THE PIPEWORK LAYOUTS. NO ALLOWANCE HAS BEEN MADE TO INCORPORATE ANY SUCH ITEMS.

PRESSURE TESTING

A PRESSURE TEST OF A MINIMUM OF 4 BAR AND A MAXIMUM OF 6 BAR MUST BE APPLIED TO ALL THE UNDERFLOOR HEATING PIPEWORK PRIOR TO AND DURING FLOOR FIXING.

SCREED CURING

A CURING PERIOD OF 21 DAYS FOR CEMENT SCREEDS AND 7 DAYS FOR ANHYDRITE SCREEDS MUST ELAPSE BEFORE HEAT CAN BE APPLIED FOR PRECONDITIONING. CEMENT SCREEDS REQUIRE CURING UNDER A POLYTHENE SHEET FOR THE FIRST 7 DAYS AFTER LAYING TO ACHIEVE OPTIMUM STRENGTH. HEAT SHALL BE APPLIED TO THE FLOOR SCREED INITIALLY USING WARM WATER AT 35°C ON THE FIRST DAY AFTER WHICH THE FLOW TEMPERATURE CAN BE RAISED BY 3°C PER DAY UNTIL THE DESIGN TEMPERATURE IS REACHED.

AMBIENT TEMPERATURES

THE UNDERFLOOR HEATING PIPEWORK SHOULD NOT BE LAID WITH AMBIENT TEMPERATURES OF BELOW 0°C. SCREEDS SHOULD NOT BE LAID WITH AMBIENT TEMPERATURES OF BELOW 5°C.

WOOD FLOORS

BEFORE TIMBER FLOORING IS LAID UPON HEATED SCREEDS, THE SCREED MUST HAVE BEEN CURED AND CONDITIONED TO A MOISTURE CONTENT OF APPROXIMATELY 0.5% (CARBIDE METHOD) BY HEATING TO THE OPERATING CONDITION FOR 5 DAYS. IT IS NOT RECOMMENDED TO LAY TIMBER FINISHES WHOSE MOISTURE CONTENT EXCEEDS 8-9% (BY VOLUME) AS THE RISK OF WARPING AND SHRINKAGE DAMAGE WILL BECOME UNACCEPTABLE.
THE OPERATIONAL SURFACE TEMPERATURE OF WOOD FLOORS SHOULD NOT EXCEED 27°C AS THIS CARRIES A RISK OF SHRINKAGE. SUBSEQUENT COOLING MAY RESULT IN SWELLING AS EXTRA MOISTURE BECOMES ABSORBED INTO THE WOOD FROM THE ATMOSPHERE.
THE TIMBER FLOOR MANUFACTURERS INSTRUCTIONS MUST PREVAIL IN ALL ASPECTS.

CERAMIC TILES ON WOODEN FLOORS

BATHROOM RENOVATION PROJECTS CONTAINING CERAMIC FLOOR TILES ON TIMBER SUB-FLOORS REQUIRE EXTRA CARE. ALL FLOOR BOARD SUBSTRUCTURES SHOULD BE REPLACED OR OVERLAID WITH SHEETS OF WPB PLYWOOD TO ENSURE MINIMUM FLEXURAL MOVEMENT AND THIS SHOULD BE SECURED USING ADHESIVE OR SCREWS AT 150MM SPACING. CERAMIC TILE ADHESIVE MUST CONTAIN A FLEXIBLE LATEX ADMIXTURE TO PERMIT MICRO-MOVEMENT OF TILES DURING NORMAL OPERATION OF THE FLOOR HEATING SYSTEM. FAILURE TO CARRY OUT THESE INSTRUCTIONS COULD RESULT IN DAMAGE TO THE PIPEWORK, SCREED OR FLOOR COVERING.

REV	DESCRIPTION	DATE

ambiente
more than underfloor

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PROJECT
Westwood

TITLE
Ground Floor
Proposed Underfloor Heating Layout

DRAWING NUMBER	REVISION	PROVISIONAL ☐ CONSTRUCTION ☐ AS INSTALLED ☐
18868-RT-01	00	

SCALE	DATE	DRAWN	CHECKED
1:75 @ A1	05 July 16	JU	RT