CIBSE Domestic Heat Pump Design and Installation Guide

19 November 2026



CIBSE

Domestic Building Services Panel

CIBSE | 91-94 Saffron Hill | London | EC1N 8QP

cibse.org/dbsp

Agenda

- Introduction
- Overview of the Guide
- Panel Discussion
- Audience Q&A



Introducing the **Domestic Heat Pump Design and Installation Guide 2026**

CIBSE

Domestic Building Services Panel

CIBSE | 91-94 Saffron Hill | London | EC1N 8QP

cibse.org/dbsp

Introducing the **Domestic Heat Pump Design and Installation Guide 2026**

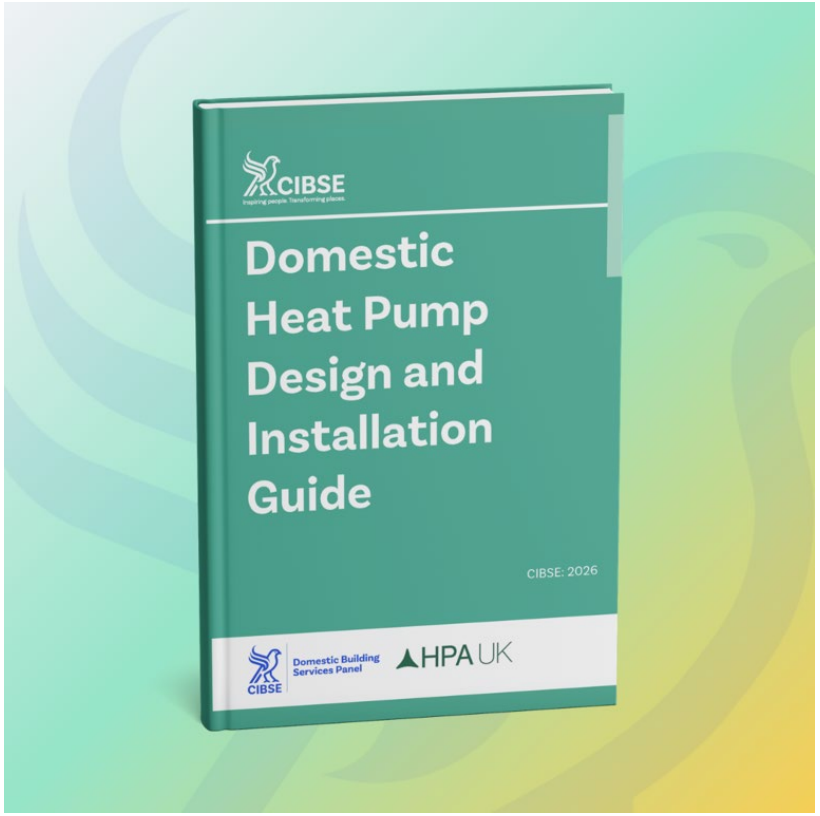
(1st edition)

What is the guide?

- Collaboration between CIBSE and the Heat Pump Association UK
- Developed with input from across the industry
- Companion publication to the CIBSE Domestic Heating Design Guide, providing:
  - Heat pump focus
  - Installation guidance
  - Lower, more approachable technical level

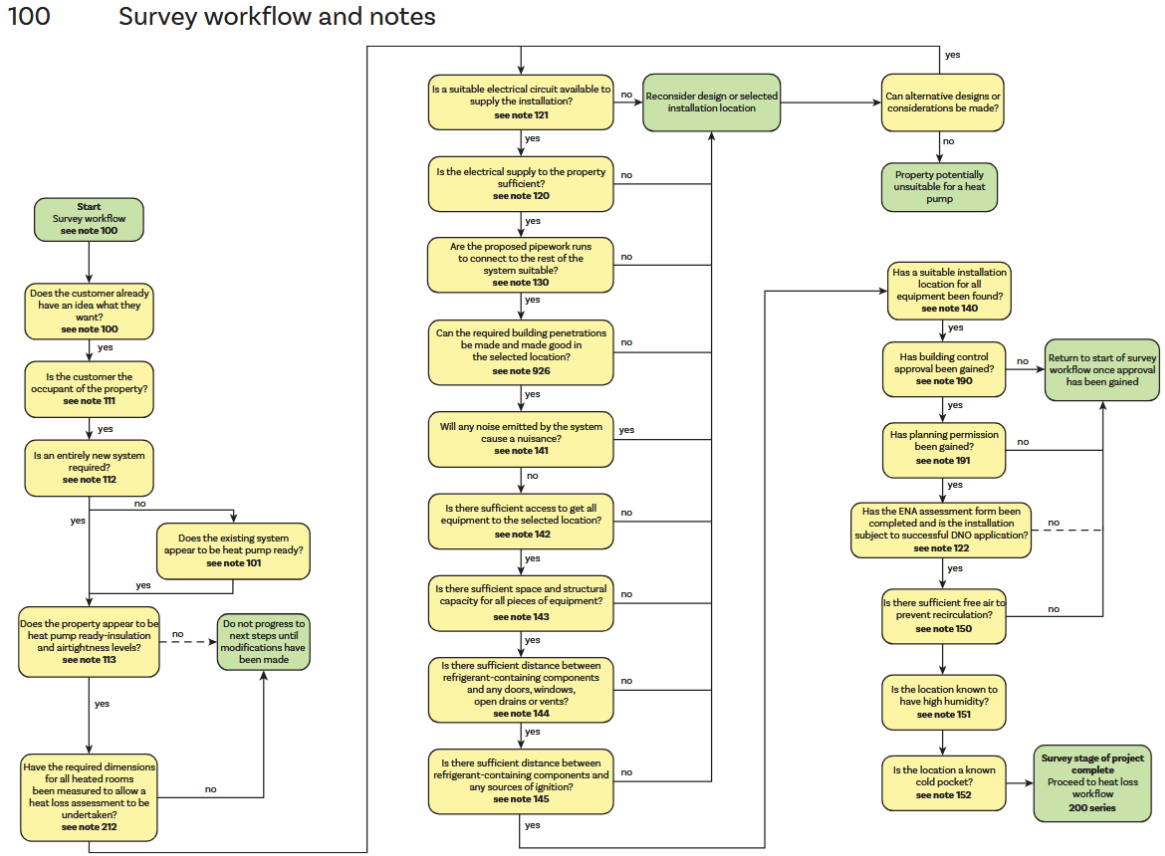
What does the guide provide?

- Guidance throughout the process: Survey → Design → Installation → Commissioning
- Practical, accessible and system-focused guidance
- A clear flow through the process



Domestic Heat Pump Design and Installation Guide 2026 Sections and Workflows

Sections
000 - General
100 - Survey
200 - Heat loss
300 - Sizing of new heat emitter
400 - Sizing of reused heat emitter
500 - DHW cylinder sizing
600 - Control strategy
700 - Pipework sizing
800 - Heat pump and component sizing
900 - Installation



Domestic Heat Pump Design and Installation Guide 2026 Notes

Note 142: Safe access

Overview

Plan carefully for the delivery, movement, installation and removal of heavy or awkward equipment. Use mechanical aids where possible, check access routes and load-bearing capacity, and carry out risk assessments for manual handling or work at height. Proper planning reduces hazards, protects workers and ensures safe, efficient installation.

Guidance for users of this guide

- Plan every stage: delivery → movement → installation → maintenance → removal.
- Focus on eliminating or reducing risks before work begins.
- Good practice means protecting yourself and others, so everyone finishes safely.

Survey and planning considerations

During the survey stage, assess whether equipment can be:

- delivered close to the installation point
- safely moved into position
- installed and maintained
- removed (old equipment; see note 994)

During the assessment:

- Check access routes, including:
  - doorways, hallways and stairs
  - pathways and external access
  - floor strength and load-bearing capacity.
- Ensure that:
  - the equipment
  - any lifting/transport aids.

Domestic Heat Pump Design and Installation Guide 2026 Key assumptions

Key assumptions

The method presented in this guide assumes that the space heating and domestic hot water system:

- uses a domestic heat pump, which is defined as not exceeding 45 kW_{th}
- has a total design heat load not exceeding 70 kW_{th}
- does not include thermal storage
- is designed for a maximum space heating flow temperature of 55 °C
- operates with a temperature differential (ΔT) of 5 °C
- uses a hermetically sealed monobloc air-to-water heat pump (split and hybrid systems are not currently covered)
- allows the heat pump to provide variable flow temperatures across the system
- use a single circulator, controlled by the heat pump, to deliver the required flow rate throughout the entire system.

Domestic Heat Pump Design and Installation Guide 2026 Simplifications

Domestic Heating Design Guide 2026

$$f1 = \left(\frac{\text{MW-AT}_{actual}}{\text{MW-AT}_{catalogue}}\right)^{n.}$$

Equation 5.3

where:

$MW\text{-}AT_{actual}$ is the actual mean water to air temperature differential in °C (as required, see section 5.5.1)

$MW\text{-}AT_{catalogue}$ is the catalogue mean water to air temperature differential in °C (as specified in the manufacturer's literature)

n is the n-coefficient for the radiator as tested by the manufacturer in accordance with BS EN 442-1 (see note below and manufacturer's literature, typically 1.3 for a steel panel radiator).

Domestic Heat Pump Design and Installation Guide 2026

Table 300-3 Actual to catalogue radiator output conversion table

Based on MWT 70 °C (ΔT50, 75/65/20 °C)

Catalogue Radiator Output (W)	System Flow Temperature (°C)					
Actual Radiator Output (W)	30	35	40	45	50	55
100	1,478	704	440	312	238	190
200	2,956	1,408	880	624	476	380
300	4,433	2,112	1,321	936	713	570
400	5,911*	2,815	1,761	1,248	951	760
500	7,389*	3,519	2,201	1,560	1,189	950
600	8,867*	4,223	2,641	1,872	1,427	1,140
700	10,344*	4,927	3,081	2,184	1,664	1,329
800	11,822*	5,631*	3,522	2,496	1,902	1,519
900	13,300*	6,335*	3,962	2,808	2,140	1,709
1000	14,778*	7,039*	4,402	3,120	2,378	1,899
1100	16,255*	7,742*	4,842	3,433	2,616	2,089
1200	17,733*	8,446*	5,283*	3,745	2,853	2,279
1300	19,211*	9,150*	5,723*	4,057	3,091	2,469
1400	20,689*	9,854*	6,163*	4,369	3,329	2,659
1500	22,166*	10,558*	6,603*	4,681	3,567	2,849
1600	23,644*	11,262*	7,043*	4,993	3,804	3,039
1700	25,122*	11,966*	7,484*	5,305*	4,042	3,229
1800	26,600*	12,669*	7,924*	5,617*	4,280	3,419
1900	28,077*	13,373*	8,364*	5,929*	4,518	3,609
2000	29,555*	14,077*	8,804*	6,241*	4,756	3,799
2100	31,033*	14,781*	9,244*	6,553*	4,993	3,988
2200	32,511*	15,485*	9,685*	6,865*	5,231*	4,178

Domestic Heat Pump Design and Installation Guide 2026 Simplifications

Domestic Heating Design Guide 2026

Table 5-4 Mass flow rate of water (kg/s) in copper pipes (15–54 mm). See notes after Table 5-6

Pressure loss (m(hd)/m)	Mass flow rate (kg/s) at given pipe diameters							Velocity (m/s)
	15 mm	22 mm	25 mm	28 mm	35 mm	42 mm	54 mm	
		0.3 m/s				0.5 m/s		
0.007	0.0319	0.0947	0.1383	0.1926	0.3489	0.5904	1.2055	
0.008	0.0345	0.1023	0.1493	0.2080	0.3765	0.6374	1.2993	
0.009	0.0369	0.1095	0.1598	0.2225	0.4024	0.6805	1.3878	
0.010	0.0393	0.1163	0.1698	0.2363	0.4273	0.7225	1.4726	
0.011	0.0416	0.1230	0.1793	0.2495	0.4510	0.7624	1.5534	
0.012	0.0437	0.1293	0.1885	0.2622	0.4738	0.8006	1.6309	
0.013	0.0458	0.1354	0.1973	0.2745	0.4958	0.8373	1.7056	
0.014	0.0478	0.1412	0.2058	0.2863	0.5170	0.8733	1.7777	
0.015	0.0498	0.1469	0.2141	0.2977	0.5375	0.9078	1.8475	
0.016	0.0517	0.1525	0.2221	0.3089	0.5573	0.9413	1.9153	
0.017	0.0536	0.1578	0.2299	0.3197	0.5769	0.9739	1.9811	
0.018	0.0554	0.1631	0.2375	0.3302	0.5958	1.0057	2.0449	
0.019	0.0571	0.1682	0.2450	0.3405	0.6142	1.0367	2.1078	1.0 m/s
0.020	0.0589	0.1732	0.2522	0.3505	0.6322	1.0669	2.1689	
0.021	0.0605	0.1781	0.2593	0.3604	0.6499	1.0964	2.2283	
0.022	0.0622	0.1829	0.2662	0.3700	0.6671	1.1254	2.2871	
0.024	0.0654	0.1922	0.2797	0.3886	0.7006	1.1815	2.4005	
0.026	0.0685	0.2012	0.2927	0.4066	0.7328	1.2355	2.5096	
0.028	0.0715	0.2098	0.3053	0.4240	0.7639	1.2878	2.6149	
0.030	0.0744	0.2182	0.3175	0.4409	0.7941	1.3384	2.7174	
0.032	0.0772	0.2264	0.3293	0.4572	0.8232	1.3875	2.8165	
0.034	0.0799	0.2343	0.3408	0.4731	0.8518	1.4352	2.9128	
0.036	0.0826	0.2420	0.3519	0.4886	0.8794	1.4816	3.0065	
0.038	0.0852	0.2496	0.3629	0.5037	0.9065	1.5268	3.0979	1.5 m/s
0.040	0.0878	0.2570	0.3735	0.5184	0.9329	1.5713	3.1872	
0.042	0.0902	0.2642	0.3839	0.5328	0.9587	1.6145	3.2745	
0.044	0.0927	0.2712	0.3941	0.5469	0.9839	1.6569		
0.046	0.0951	0.2781	0.4041	0.5608	1.0086	1.6984		
0.048	0.0974	0.2849	0.4140	0.5743	1.0329	1.7390		
0.050	0.0997	0.2915	0.4236	0.5876	1.0568	1.7789		
0.052	0.1020	0.2981	0.4330	0.6007	1.0802	1.8181		
0.054	0.1042	0.3045	0.4423	0.6136	1.1032	1.8567		
0.056	0.1064	0.3108	0.4515	0.6262	1.1258	1.8945		
0.058	0.1086	0.3170	0.4605	0.6386	1.1480	1.9318		

Domestic Heat Pump Design and Installation Guide 2026

Table 700-2 Pipe sizing table (copper 4–35mm, 5 °C ΔT, six elbows)

Heat carrying capacity (W) - up to	Length (m) - up to*	Diameter									
		4mm	5mm	6mm	8mm	10mm	15mm	22mm	25mm	28mm	35mm
		Resistance (m)									
100	5	7.3	1.5	-	-	-	-	-	-	-	-
	10	9.7	2	-	-	-	-	-	-	-	-
	15	12.1	2.5	-	-	-	-	-	-	-	-
	20	14.5	3	-	-	-	-	-	-	-	-
200	5	-	5.7	2	-	-	-	-	-	-	-
	10	-	7.5	2.7	-	-	-	-	-	-	-
	15	-	9.4	3.3	-	-	-	-	-	-	-
	20	-	11.2	4	-	-	-	-	-	-	-
300	5	-	12.8	3.8	0.8	-	-	-	-	-	-
	10	-	16.5	5.1	1	-	-	-	-	-	-
	15	-	20.2	6.3	1.3	-	-	-	-	-	-
	20	-	23.9	7.6	1.5	-	-	-	-	-	-
400	5	-	-	6.9	1.2	0.4	-	-	-	-	-
	10	-	-	8.9	1.6	0.5	-	-	-	-	-
	15	-	-	10.9	2	0.7	-	-	-	-	-

Domestic Heat Pump Design and Installation Guide 2026 Installation

General Information				
Customer Name				
Installation Address and postcode				
Company Name				
Company Address				
Company Telephone				
Commissioning Engineer Name			Commissioning Date	
MCS Company Registration No. (if applicable)				
F-Gas certification number (Refrigerant Split HP only)				
G3 Certification number (if applicable)				
DNO notified and approved	☐ Yes	☐ No*		
Installation complies with Building Regulations	☐ Yes	Building Regs Notification Number (if applicable)		
Incoming mains water quality checked as per manufacturer instructions	☐ Yes	☐ No*		
System Schematic reference number (optional)				
System Design				
Property Design Heat Loss	(kW)			
Outdoor Design Temperature	(°C)			
Design flow temp at Outdoor Design Temp	(°C)			
Heating Delta T	(K)			
Have heat emitters been sized to meet the design heat loss (Y/N)	☐ Yes ☐ No*	Do all emitters heat-up evenly with similar dT across flow return	☐ Yes	
Heat Pump System Type				
System function type – HEATING	☐ Heat Pump only	OR	☐ Hybrid (fossil fuel boiler)	
System function type – DHW	☐ Heat Pump only	OR	☐ Hybrid (fossil fuel boiler)	
Heat Pump Outdoor Unit Information				
Outdoor Unit Manufacturer		Model No		
Outdoor Unit Type	☐ Mono ☐ Split	Serial No		
Refrigerant Type		Refrigerant weight total	kgs	
Product MCS Certificate No. (if applicable)				
Pipework Insulated [Note A]	☐ Yes	☐ No*		
De-frost/Condensate Provision	☐ Yes	☐ No*		
Minimum clearances around unit provided	☐ Yes	☐ No*		
Anti-Vibration Installed	☐ Yes	☐ No		

Domestic Heat Pump Design and Installation Guide 2026 Launch

Available now

- Available for sale via the CIBSE Knowledge website
- PDF only
- Free for CIBSE members
- 50% discount for non-members until 31 Dec 2026

Thank you



CIBSE

Domestic Building Services Panel

CIBSE | 91-94 Saffron Hill | London | EC1N 8QP

cibse.org/dbsp