



NSAI
Standards

Standard Recommendation
S.R. 50-4:2021

Building services - Part 4: Heat pump systems in dwellings

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Contents

	Page
Foreword.....	7
Acknowledgements.....	8
Introduction.....	9
1 Scope	10
2 Normative references	11
3 Terms, definitions, symbols and abbreviated terms	11
4 Heat pump fundamentals	13
4.1 General	13
4.2 Heat pump concepts	13
4.2.1 General	13
4.2.2 Basic thermodynamics	14
4.2.3 Refrigerant gases and properties	15
4.3 Heat pump cycles.....	16
4.3.1 General	16
4.3.2 Vapour-compression heat pump cycle	16
4.3.3 Transcritical heat pumps.....	18
4.3.4 Absorption heat pumps.....	18
4.4 Measures of performance.....	20
4.4.1 General	20
4.4.2 Performance factors.....	20
4.4.3 Coefficient of Performance (COP).....	20
4.4.4 Seasonal Coefficient of Performance (SCOP).....	20
4.4.5 Seasonal Performance Factor (SPF).....	21
4.4.6 Primary Energy Ratio (PER)	22
4.4.7 Seasonal Primary Energy Ratio (SPER)	22
4.5 Efficient heat pump system.....	22
4.5.1 General	22
4.5.2 External factors on the heat pump operation	22
4.5.3 Internal factors on the heat pump operation	24
4.5.4 Fixed and variable output heat pumps	24
4.5.5 Other system components.....	25
4.5.6 Buildings suitable for heat pumps.....	25
4.6 Heat sources/types of heat pump.....	26
4.6.1 General	26
4.6.2 Heat sources	26
4.6.3 Heat sinks	29
4.6.4 Other types of heat pumps	30
5 Design	31
5.1 System overview	31
5.1.1 General	31
5.1.2 Sankey diagram of a heat pump for heating	32
5.2 Heat pump feasibility	33

5.2.1	General.....	33
5.2.2	Heat loss assessment of a dwelling.....	33
5.2.3	DHW assessment.....	39
5.2.4	Energy efficiency.....	41
5.2.5	Emitters and distribution systems.....	42
5.2.6	Buffer tank/thermal storage.....	46
5.2.7	Determine the system size/capacity.....	47
5.2.8	Technical and logistical checks for system viability.....	48
5.3	Detailed system design.....	51
5.3.1	General.....	51
5.3.2	Emission and distribution system design.....	52
5.3.3	DHW system design.....	57
5.3.4	Air source systems.....	66
5.3.5	Ground source systems.....	67
5.3.6	Controls.....	73
5.3.7	Hydraulic design.....	75
5.4	Final estimate of performance.....	87
5.5	Legislation and regulation.....	87
5.5.1	Building regulations and energy performance.....	88
6	Installation.....	89
6.1	General.....	89
6.2	Internal Installation work within the dwelling.....	89
6.2.1	Indoor heat exchanger unit and associated plant equipment.....	89
6.2.2	Heat emitters and distribution system.....	91
6.2.3	Distribution systems.....	93
6.2.4	DHW system installation.....	95
6.2.5	Controls.....	96
6.3	External installation work.....	98
6.3.1	Monobloc and split air source heat pumps.....	98
6.3.2	Split system specific installation.....	99
6.3.3	Ground source heat pump system specific installation.....	100
6.3.4	Other Heat pump types.....	103
7	Commissioning.....	104
7.1	System overview checks.....	104
7.1.1	General.....	104
7.1.2	Electrical system.....	104
7.1.3	Control system.....	104
7.1.4	Refrigeration circuit.....	105
7.1.5	Hydraulic system.....	105
7.1.6	GHE specific commissioning aspects.....	106
7.2	Pre-commissioning checks for water-based heat distribution systems (including DHW systems).....	106
7.2.1	Objective.....	106
7.2.2	State of the system.....	106
7.2.3	Water tightness test.....	107
7.2.4	Pressure testing.....	107
7.2.5	System flushing and cleaning.....	107
7.2.6	System filling and venting.....	107
7.2.7	Frost precautions.....	107
7.2.8	Operational checks.....	108
7.2.9	Static completion records.....	108
7.3	Pre-commissioning checks for air-based space heat distribution systems.....	108

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7.3.1	Objective	108
7.3.2	State of the system & cleanliness	108
7.3.3	Air regulating devices and other components within airways	109
7.3.4	Visual checks for air tightness	109
7.3.5	Fan checks	109
7.3.6	Electrical checks.....	109
7.3.7	Frost precautions.....	109
7.3.8	Operational checks	109
7.3.9	Static completion records.....	109
7.4	Setting into operation	109
7.4.1	General	109
7.4.2	Balancing flow rates	110
7.4.3	Adjusting of controls	110
7.5	Handover	110
7.5.1	Objective	110
7.5.2	Documents for operation, maintenance and use	110
7.5.3	Instructions on operation and use	110
7.5.4	Hand over documentation.....	111
7.6	Typical commissioning checklist checks	111
8	Maintenance	111
8.1	General	111
8.2	Overview and general maintenance	112
8.3	Refrigeration system checks	112
8.4	GHE specific checks.....	113
8.4.1	General	113
8.4.2	Ground water systems	114
8.5	Distribution system and control checks.....	114
8.6	Overall system performance checks.....	114
8.7	Additional checks	115
Annex A (informative) Thermodynamics, refrigerant gases and other measures of performance		116
A.1	Thermodynamics.....	116
A.1.1	2 nd Law of thermodynamics	116
A.1.2	Other measures of performance	116
A.2	Refrigerants.....	117
A.2.1	Refrigerant gases and their properties	117
A.2.2	Refrigerant gas states in a heat pump system.....	119
A.2.3	Selected refrigerant critical properties.....	121
Annex B (informative) Safety classification and information about refrigerants.....		122
Annex C (informative) Supplementary heat pump information		133
C.1	Ground Source Heat Pumps	133
C.1.1	Vertical borehole system	133
C.1.2	Horizontal (loop) indirect system	133
C.2	Water source heat pumps.....	134
C.2.1	Aquifer re-injection (open loop)	134
Annex D (informative) U-values		135
Annex E (informative) Heat pump energy calculations.....		138
E.1	Heat losses from a dwelling.....	138
E.2	New build dwelling heat loss calculation.....	140
E.2.1	Design heat loss.....	140

E.2.2 Design transmission heat losses (single zone)..... 140

E.2.3 Ventilation heat losses (single zone) 143

E.2.4 Additional heating up requirements (single zone)..... 143

E.2.5 Design space heating requirement (single zone) 143

E.2.6 Space heating requirement for retrofit dwelling and reference dwelling 143

E.3 Emitter design guide 145

E.3.1 Radiator sizing (single zone) 145

E.3.2 UFH sizing 147

E.3.3 Design space heating requirement (entire dwelling) 150

E.3.4 Heat loss indicator (HLI) 155

E.3.5 Estimated annual space heating energy consumption 157

E.4 DHW energy calculation (based on the methodology set out in I.S. EN 15450) 160

E.4.1 Determine number of persons 160

E.4.2 Hot water demand 160

E.4.3 DHW storage tank sizing 160

E.4.4 Heat pump capacity required 161

E.5 Heat pump capacity required for annual space heating and DHW 161

Annex F (informative) Noise levels in the vicinity 163

Annex G (normative) Examples of thermal conductivity and volume-related specific heat capacity of the underground (from prEN 17522)..... 164

Annex H (informative) Commissioning checklist 166

Bibliography 169

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List of figures

Figure 1 — Heat pump and refrigerator designation	14
Figure 2 — Subcritical vapour-compression cycle	17
Figure 3 — Absorption heat pump cycle.....	19
Figure 4 — Key values and system boundaries	21
Figure 5 — COP vs output temperature for heat input temperature of 0 °C.....	23
Figure 6 — Example of operating range of a unit in heating mode	24
Figure 7 — Heat pump heating system with vertical borehole heat exchanger(s).....	28
Figure 8 —Heat pump heating system with horizontal located heat exchanger	29
Figure 9 — Typical key elements of a heat pump system.....	31
Figure 10 — Example of energy balance of generating subsystem for heating.....	33
Figure 11 — Monovalent DHW - mixed storage systems.....	59
Figure 12 — DHW charging system	61
Figure 13 — DHW direct flow with energy storage tank, central system.....	61
Figure 14 — General sizing methodology	70
Figure 15 — Heat pump system installation with buffer storage tank connected in series, with space heating and domestic hot water production.....	78
Figure 16 — Pump curve for standard circulating pump	82
Figure 17 — Example of heat pressure calculation	83
Figure 18 — Heat pump system schematic with conventional heat source, plate heat exchanger with buffer storage tank connected in parallel, without domestic hot water production, space heating only	85
Figure A.1 — Refrigeration charts.....	119
Figure A.2 — Vapour-compression cycle - Simplified pressure-enthalpy diagram.....	120
Figure E.1 — Living room with 3 external walls and pitched ceiling.....	139
Figure E.2 — Full floor plans (new build dwelling, deep and shallow retrofit dwellings, and reference existing dwelling)	151
Figure E.3 — Apartment floor plans	152
Figure E.4 — 2006 bungalow.....	152
Figure E.5 — Semi-detached dwelling floor plans	153

List of tables

Table 1 — Types of refrigerants	15
Table 2 — Refrigerant selection criteria.....	16
Table 3 — Heat pump types and heat sources	26
Table 4 — Heat sinks.....	30
Table 5 — Internal design temperatures and indicative ventilation rates.....	37
Table 6 — Ventilation arising from chimneys and flues.....	38

Table 7 — Values for calculation of domestic hot water requirements per day 62

Table 8 — DHW delivery temperature, cold water supply temperature 62

Table 9 — Standby losses..... 64

Table 10 — Pipework types and the standard of manufacture that they adhere to..... 75

Table A.1 — Critical properties of selected refrigerants..... 121

Table B.1 — Refrigerant designations 122

Table B.2 — Refrigerant designations of R400 blends..... 126

Table B.3 — Refrigerant designations of R 500 blends ^a..... 131

Table D.1 — Typical U-values for new build dwellings 135

Table D.2 — Typical U-values for retrofitted dwellings 136

Table D.3 — Typical U-values for older dwellings 136

Table D.4 — U-values for windows 137

Table D.5 — U-values for doors 137

Table E.1 — U-values used in worked examples 140

Table E.2 — Additional factors to consider 144

Table E.3 — Design space heating requirement..... 144

Table E.4 — Flow and return temperatures for different applications (from I.S. EN 14511:2018) 145

Table E.5 — Correction factors for emitter sizing..... 146

Table E.6 — Emitter sizing for single zone 146

Table E.7 — Emitter quantity calculation for different dwellings (single zone)..... 147

Table E.8 — UFH output table for different mean water temperatures, design room temperatures, UFH pipe spacing and floor covering resistances 149

Table E.9 — U-values for additional buildings 153

Table E.10 — Zone uses - typical dwelling..... 154

Table E.11 — Heat loss indicator for example dwellings..... 155

Table E.12 — Full dwelling space heating requirements..... 156

Table E.13 — Electricity consumption for design space heating requirement vs COP 157

Table E.14 — Estimated annual space heating consumption..... 158

Table E.15 — Associated estimated electricity costs and carbon emissions of dwellings..... 159

Table E.16 — Heat pump design capacity 162

Table F.1 — Maximum noise emission from residential and mixed zones (residential and commerce) 163

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Foreword

This document (S.R. 50-4:2021) is a Standard Recommendation and has been prepared by the National Standards Authority of Ireland Technical Committee 31: *Building services*, Sub-committee 6, *Heat pumps*.

This is the first edition of S.R. 50-4 and forms part of the S.R. 50 series of Standard Recommendations for building services. The series consists of the following parts:

- *Part 1: Water based heating systems in dwellings,*
- *Part 2: Thermal solar systems,*
- *Part 3: Water supply for domestic use within dwellings and their curtilages,*
- *Part 4: Heat pump systems in dwellings.*

In preparing this document the assumption has been made that the user has suitable knowledge and understanding of the subject.

Compliance with this document does not of itself confer immunity from legal obligations.

This document has been drafted in line with international standards practice. The following representation of numbers and numerical values apply:

- The decimal point is shown as a comma (,) throughout this document,
- Each group of three digits reading to the left or to the right of a decimal sign are separated by a space from the preceding digits or following digits respectively.

The following verbal forms are used:

- “should” indicates a recommendation,
- “may” indicates a permission,
- “can” indicates a possibility or a capability.

Information marked as “NOTE” is for guidance in understanding or clarifying the associated recommendation.

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- Engineers Ireland
- ESB Group
- Geothermal Association of Ireland
- Glen Dimplex
- Heat Pump Association of Ireland
- IBEC
- KSN Energy
- Limerick Institute of Technology
- NSAI Gas Standards Technical Committee
- NSAI Electrical Installations Technical Committee
- Solas
- Tipperary Energy Agency

In drafting this document, a period of public consultation was undertaken. The National Standards Authority of Ireland also wishes to acknowledge the contributions made by the public during this period.

Introduction

The Climate Action Plan 2019 (CAP 2019) charted a course towards ambitious decarbonisation targets. Detailed implementation maps for actions, including timelines and responsible organisations, were set out in the accompanying Annex of Actions.

The publication of this document is in support of CAP 2019 *Action 66: Roadmap to develop supply chain to support the phase out of fossil fuel boilers in new dwellings.*

Early review and consultation with relevant stakeholders supported a decision to extend the scope of this document to include existing dwellings.

The focus in this document is on the transfer of heat from a heat pump system to a dwelling and how the components of the heat pump operate to deliver this heat efficiently. The thermal performance and heat distribution system of a dwelling will have an impact on the success of a heat pump system, therefore designing and installing a heat pump system can involve more steps than for the case of a traditional heating appliance.

This document concentrates on the types of heat pump that are the most common to be installed in dwellings to provide space heating and/or domestic hot water.

1 Scope

This document gives guidelines for the design, installation, commissioning, and maintenance of heat pump systems with an effective rated output up to 70 kW in new and existing dwellings.

This document is applicable to:

- heat pump systems that are intended to serve as the principal source of space heating of a dwelling and/or domestic hot water demand of a dwelling,
- heat pump systems which use the following sources for heat,
 - air,
 - water,
 - ground,
 - air being expelled from the same dwelling by a ventilation system,
- packaged heat pumps, split and multi-split heat pumps,
- heat pumps which are driven by electricity or heat, including absorption heat pumps,
- distribution systems suitable for heat pump systems.

This document does not give guidance on heat pumps used for the purposes of cooling and, it does not apply to heat pumps used in district heating or group heating schemes.

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