Heat Network Technical Assurance Scheme

New Build Heat Networks

Technical Specification

Consumer Heat System

Phase 1: Feasibility

HNTAS-NB-TS-CH-P1

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Version History

Revision	Notes	Date
V0.4	Draft issue	05/12/25

Disclaimer

The following HNTAS Code document is published in draft format. This document is intended to give the sector early sight of HNTAS requirements in their current stage of development for the purpose of facilitating sector understanding of the scheme.

Draft Code documents, including Technical Specifications and Assessment Procedures, have been reviewed and consulted on through a series of technical workshops with participation from a range of experts from across the heat network industry. The content of this document is still in development and subject to change. Requirements should not be considered as fixed at this stage.

Changes which may be made to this document in future include those to:

- reflect learnings from the New Build and Existing network pilot programmes;
- align with aspects of HNTAS which are subject to public policy consultation;
- align with new requirements in TS1 and MMS;
- align the terminology of this document with that used in other HNTAS documentation;
- rectify errors in this draft version; and
- improve clarity of contents.

The Key Failures set out in the draft Code documents have been identified as a specific area for review, to ensure that:

- all Key Failures enable a binary assessment;
- Key Failures are only included for genuine issues presenting major risks to KPIs, and that moderate or lower risks are considered via non-conformity processes; and
- Key Failures do not duplicate Technical Requirements unless there is a clear justification to do so.

DESNZ will be welcoming feedback on the information in this document via a change management process. This process will run in parallel to the HNTAS policy consultation and DESNZ invites stakeholders to engage with both, once they are open. You can sign up to receive updates on future detailed draft technical documents as they are published by contacting: heatnetworks@energysecurity.gov.uk.

Please be advised that this document references other HNTAS draft Code documents which have not yet been published. References to other documents will also be subject to change following the publication of updated standards. The final version of this document will be released before the launch of HNTAS.

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Note on Phase 4: Operation (initial) and Phase 5: Operation (ongoing)

The New Build Technical Specification and Assessment Procedures Overview (Phase 0) documents indicate that there are separate New Build Code Documents for Phase 4: Operation (initial) and Phase 5: Operation (ongoing).

These documents have since been consolidated to reduce the number of Code Documents, so the Phase 4: Operation documents cover requirements for New Build networks during both initial and ongoing operation.

This change does not impact the assessment of New Build networks in operation, which still occurs:

- after 1 year of operation; and
- after 2 years of operation.

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Foreword

This Technical Specification forms part of the UK Government's Heat Network Technical Assurance Scheme (HNTAS, The Scheme) delivered by the Department for Energy Security and Net Zero, in partnership with the Scottish Government and Ofgem. The Department for Energy Security and Net Zero appointed FairHeat as technical author for this document.

The Scheme has been designed and developed in consultation with a range of experts across the heat network industry in the form of Technical Sub-Working Groups, culminating in a series of Technical Specifications and Assessment Procedures to facilitate the validation and verification of performance outcomes of Elements within a Heat Network.

This document specifies HNTAS Requirements for a Consumer Heat System Element within a New Build Heat Network in Phase 1: Feasibility.

This document sits within a series of Technical Specifications for a Consumer Heat System, which features within a wider Code documentation structure, as outlined in Table 1.

This Technical Specification has been issued in draft format and will be updated prior to scheme launch.

For further information on the use of this document within the Heat Network Technical Assurance Scheme, please refer to the Heat Network Technical Assurance Scheme – New Build Heat Networks – Scheme Rules – Assessment Regime (HNTAS-NB-SR-XX-AS) document.

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Code Document Structure

Technical Specifications

Document Type	Element		Part/Phase				
			Overview	Phase 1: Feasibility	Phase 2: Design	Phase 3: Construction	Phase 4: Operation
			P0	P1	P2	P3	P4
Technical Specification	Energy Centre	EC	HNTAS-NB-TS-EC-P0	HNTAS-NB-TS-EC-P1	HNTAS-NB-TS-EC-P2	HNTAS-NB-TS-EC-P3	HNTAS-NB-TS-EC-P4
	District Distribution Network	DD	HNTAS-NB-TS-DD-P0	HNTAS-NB-TS-DD-P1	HNTAS-NB-TS-DD-P2	HNTAS-NB-TS-DD-P3	HNTAS-NB-TS-DD-P4
	Substation	SS	HNTAS-NB-TS-SS-P0	HNTAS-NB-TS-SS-P1	HNTAS-NB-TS-SS-P2	HNTAS-NB-TS-SS-P3	HNTAS-NB-TS-SS-P4
	Communal Distribution Network	CD	HNTAS-NB-TS-CD-P0	HNTAS-NB-TS-CD-P1	HNTAS-NB-TS-CD-P2	HNTAS-NB-TS-CD-P3	HNTAS-NB-TS-CD-P4
	Consumer Connection	CC	HNTAS-NB-TS-CC-P0	HNTAS-NB-TS-CC-P1	HNTAS-NB-TS-CC-P2	HNTAS-NB-TS-CC-P3	HNTAS-NB-TS-CC-P4
	Consumer Heat System	CH	HNTAS-NB-TS-CH-P0	HNTAS-NB-TS-CH-P1	HNTAS-NB-TS-CH-P2	HNTAS-NB-TS-CH-P3	N/A

Table 1: New Build Network Technical Specification structure

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Scope

This document specifies the HNTAS Requirements for a Consumer Heat System within a New Build Heat Network in Phase 1: Feasibility.

A Consumer Heat System is defined as the heating and/or cooling, and hot water systems on the consumer side of a Consumer Connection or Substation.

A detailed definition of the Consumer Heat System is contained within the Heat Network Technical Assurance Scheme – New Build Heat Networks – Technical Specification – Consumer Heat System – Overview (HNTAS-NB-TS-CH-P0) document.

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New Build Heat Networks

There is one stage within Phase 1: Feasibility, which is Stage 1: Concept Design. This is outlined in Figure 1.

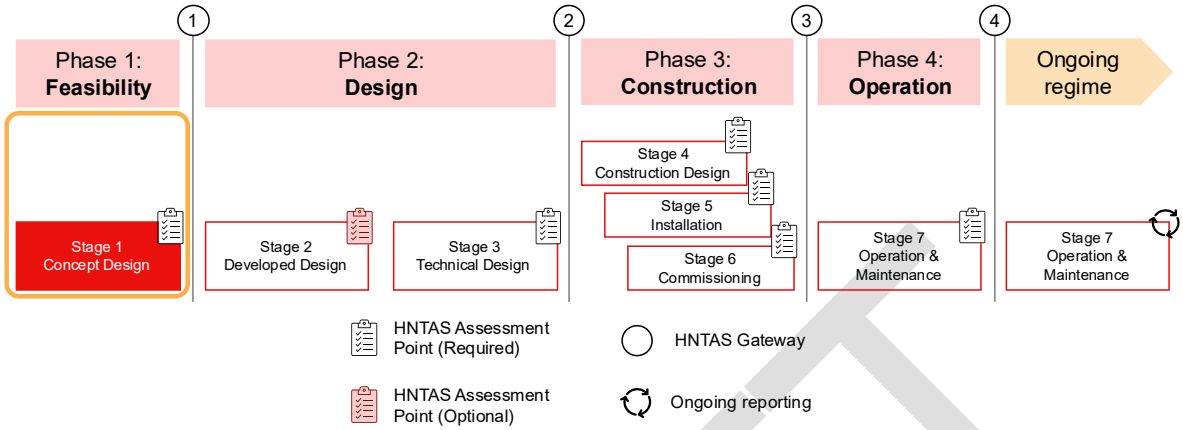

Figure 1: HNTAS New Build regime phases and stages

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References

Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- Heat Network Technical Standard (TS1) (HNTAS, 2025)
- Heat Network Metering and Monitoring Standard (MMS) (HNTAS, 2025)
- Heat Network Technical Assurance Scheme – New Build Heat Networks – Scheme Rules – Assessment Regime (HNTAS-NB-SR-XX-AS)
- Heat Network Technical Assurance Scheme – New Build Heat Networks – Technical Specification – Consumer Heat System – Overview (HNTAS-NB-TS-CH-P0)

Informative references

The following informative references apply to this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- RIBA Plan of Work (RIBA, 2020)

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Terms and Definitions

For the purposes of this document, the terms and definitions given in the Heat Network Technical Assurance Scheme – Terms and Definitions (HNTAS-XX-TD) document apply.

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1. Requirements for Stage 1: Concept Design

1.1. Technical Requirements

The applicable HNTAS Technical Requirements in Table 2 shall be fulfilled.

Technical Requirement		Applicable technical standard(s)	Evidence Requirement(s)
1.1.1.	Operating temperatures shall be determined in accordance with the applicable technical standard(s).	TS1 1.2.1 TS1 1.4.1 TS1 1.4.3 TS1 1.4.5 TS1 1.4.9 TS1 1.4.11 TS1 1.8.4	CH-S1-E01
1.1.2.	The DHW delivery strategy shall be determined in accordance with the applicable technical standard(s).	TS1 1.2.8 TS1 1.2.9 TS1 1.2.10 TS1 1.10.4	CH-S1-E03 CH-S1-E04 CH-S1-E05
1.1.3.	Where radiators are used, radiators and associated valves shall be designed and specified in accordance with the applicable technical standard(s).	TS1 1.2.2 TS1 1.2.3 TS1 1.2.4 TS1 1.2.5 TS1 1.2.6	CH-S1-E03 CH-S1-E04 CH-S1-E06
1.1.4.	For direct space heating systems, working pressures shall be assessed in accordance with the applicable technical standard(s). *Note: it is expected that this assessment is undertaken with consideration for the other Elements present in the Heat Network.*	TS1 1.6.1 TS1 1.6.2 TS1 1.6.3 TS1 1.6.5 TS1 1.16.1	CH-S1-E02
1.1.5.	For direct space heating systems, a Water Quality Statement shall be produced in accordance with the applicable technical standard(s). *Note: it is expected that this is undertaken with consideration for the other Elements present in the Heat Network.*	TS1 1.11.1	CH-S1-E07
1.1.6.	The Technical Parameters Schedule shall be completed with accurate information and references to relevant documentation.		CH-S1-E08

Table 2: Technical Requirements for the Consumer Heat System at Stage 1: Concept Design

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1.2. Performance Monitoring Requirements

The applicable Performance Monitoring Requirements in Table 3 shall be fulfilled.

Performance Monitoring Requirement		Applicable technical standard(s)	Evidence Requirement(s)
1.2.1.	The KPIs to be measured at the Commissioning Stage for the Consumer Heat System shall be identified. A KPI Schedule shall be produced. The KPI Schedule shall contain: 1. the identified applicable KPIs at Commissioning Stage; 2. the thresholds for each KPI at Commissioning Stage (based on the level of information available at this stage); 3. the location for measuring each KPI.		CH-S1-E09

Table 3: Performance Monitoring Requirements for the Consumer Heat System at Stage 1: Concept Design

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1.3. Key Failures

The applicable Key Failures listed in Table 4 shall not be present.

Key Failure		Outcome to avoid	Evidence Requirement(s)
1.3.1.	Inappropriate selection of space heating and/or DHW temperature profiles.	High DHW and space heating temperatures increase the required temperature from the Distribution Network, which increases heat losses and reduces heat generation efficiency of the Heat Network. High DHW temperatures also generate scalding risks.	CH-S1-E01
1.3.2.	Architectural consideration not given to DHW delivery strategy during the Concept Design stage, to ensure acceptable DHW delivery times can be achieved in the Developed Design and Technical Design stages.	Extended DHW delivery times due to long pipework distances between DHW generation point and DHW outlets, resulting in poor consumer outcomes.	CH-S1-E03 CH-S1-E04 CH-S1-E05

Table 4: Key Failures for the Consumer Heat System at Stage 1: Concept Design

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1.4. Evidence Requirements

The applicable Evidence Items listed in Table 5 shall be provided to demonstrate fulfilment with the Technical Requirements, Performance Monitoring Requirements, and avoidance of Key Failures.

Evidence Item		Detailed description and requirements
CH-S1-E01	System operating temperature assessment	Report highlighting the operating temperature design criteria. This shall include rationale for the temperatures specified.
CH-S1-E02	System pressure assessment	Assessment of working pressures in the system. Shall include: • calculation of the System Maximum Working Pressure; • calculation of the Local Maximum Working Pressure; • identification of the risks that arise as a result of calculated working pressures; • assessment of the likelihood and impact of the identified risk; • mitigation of the risks posed by working pressures (where appropriate).
CH-S1-E03	Schematic(s)	Consumer Heat System schematic(s) to the detail required by RIBA Stage 2 (RIBA, 2020) as a minimum. A schematic shall be provided for each Consumer Heat System type (e.g. each flat type).
CH-S1-E04	Drawing(s)	Consumer Heat System drawing(s) to the detail required by RIBA Stage 2 (RIBA, 2020) as a minimum. This shall include layouts and sections. The required drawings shall be provided for each Consumer Heat System type (e.g. each flat type).
CH-S1-E05	Consumer Heat System DHW delivery strategy	Shall outline an indicative overview of the DHW delivery strategy selected.
CH-S1-E06	Space heating emitter schedule and specification	Shall contain a schedule of heat emitters, which shall contain • the emitter type(s); • emitter connection arrangement; • method of room temperature control; • presence and type of towel rails. Where there are associated radiator valves, shall contain:

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Evidence Item		Detailed description and requirements
		• type of radiator valves; • location and orientation of radiator valves.
CH-S1-E07	Water Quality Statement	Shall include: • the type of water quality system to be followed; • preliminary selection of fill water source; • preliminary selection of the material of plant, equipment, and distribution pipework; • initial performance specification for water treatment and conditioning; and • a spatial assessment of the plant room considering the spatial dimensions and maintenance requirements for water quality equipment, transportation and storage of chemicals and equipment and plant room accessibility requirements.
CH-S1-E08	Technical Parameters Schedule	Schedule which outlines all technical parameters in one location, with reference to applicable documents.
CH-S1-E09	KPI Schedule	A schedule of all KPIs required to be measured at Commissioning Stage for the Consumer Heat System. The KPI Schedule shall contain: 1. the identified applicable KPIs at Commissioning Stage; 2. the thresholds for each KPI at Commissioning Stage (based on the level of information available at this stage); 3. the location for measuring each KPI.

Table 5: Evidence Requirements for the Consumer Heat System at Stage 1: Concept Design

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