



ISO 30500

**Non-sewered sanitation systems —
Prefabricated integrated treatment
units — General safety and
performance requirements for
design and testing**

*Systèmes d'assainissement autonomes — Unités de traitement
intégrées préfabriquées — Exigences générales de performance
et de sécurité pour la conception et les essais*

**Second edition
2025-07**

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Foreword	vi
Introduction	vii
1 Scope	1
2 Normative references	2
3 Terms, definitions and abbreviated terms	2
3.1 Terms and definitions.....	2
3.1.1 System components.....	2
3.1.2 System inputs and outputs.....	3
3.1.3 System safety and integrity.....	4
3.1.4 System use and impact.....	6
3.2 Abbreviated terms.....	6
4 General requirements	8
4.1 User requirements.....	8
4.2 Metric system.....	8
4.3 Design capacity and operability.....	8
4.3.1 Treatable input.....	8
4.3.2 Treatment capacity.....	8
4.3.3 Menstrual hygiene products.....	8
4.3.4 Overload protection.....	9
4.3.5 Operability following non-usage.....	9
4.3.6 Operability following short-term shutdown.....	9
4.3.7 Operability following long-term shutdown.....	9
4.3.8 Continuous use.....	9
4.3.9 Safe state.....	9
4.4 Performance requirements.....	9
4.4.1 General.....	9
4.4.2 Solid output, effluent and recirculated water requirements.....	9
4.4.3 Odour emissions requirements.....	10
4.4.4 Noise requirements.....	10
4.4.5 Air emissions requirements.....	10
4.5 Expected design lifetime.....	10
4.6 Ergonomic design.....	10
4.7 Secure design.....	10
4.8 Operating conditions.....	10
4.8.1 Ambient temperature range.....	10
4.8.2 Ambient air humidity.....	11
4.8.3 Atmospheric pressure.....	11
4.9 Requirements for NSSS components.....	11
4.9.1 General.....	11
4.9.2 Hygienic design.....	11
4.9.3 Tightness.....	11
4.9.4 Cleanability of surfaces.....	11
4.9.5 Chemical and biological additives.....	12
4.9.6 Requirements for ease of operation.....	12
4.10 Material requirements.....	12
4.10.1 Durability of materials.....	12
4.10.2 Fire resistance of materials.....	12
4.11 Connections and joining elements.....	12
4.12 General safety design requirements.....	13
4.12.1 Safety of edges, angles, and surfaces.....	13
4.12.2 Fire and explosion protection.....	13
4.12.3 Structural integrity.....	13
4.12.4 Prevention of hazardous contact with partially treated liquids and reuse.....	14
4.12.5 Underground systems.....	14

This is a preview of ISO 30500:2025. [Click here to purchase the full version from the ANSI store.](#)

4.13.1	Information and warnings	14
4.13.2	Marking and labelling	15
4.14	Maintenance	15
4.14.1	Reasonable configuration, adjustment, and maintenance activities	15
4.14.2	Location and access of configuration, adjustment, and maintenance points	15
4.14.3	Discharge and cleaning	15
4.14.4	Tools and devices	16
4.14.5	User manual	16
4.14.6	Handling and transport of the NSSS	16
5	Technical requirements	16
5.1	Safety assessment	16
5.2	Operational requirements	17
5.2.1	General	17
5.2.2	Intentional starting of NSSS operation	17
5.2.3	Intentional stopping of NSSS operation	17
5.2.4	Emergency stop	17
5.3	Reliability and safety requirements for energy supply	17
5.3.1	Security of energy supply	17
5.3.2	Safety requirements for electrical energy supply	17
5.3.3	Safety requirements for non-electrical primary energy supply	18
5.4	Mechanical requirements	18
5.4.1	Pressurized or vacuum equipment	18
5.4.2	Pipes, hoses and tanks	18
5.4.3	Moving and rotating parts	18
5.4.4	Backflow prevention	19
5.5	Requirements for radiation	19
5.5.1	High temperatures of parts and surfaces	19
5.5.2	Low temperatures of parts and surfaces	19
5.5.3	Other radiation emissions	19
5.6	Electrical and electronic equipment	19
5.6.1	Safety and reliability of electrical and electronic equipment	19
5.6.2	Control system	19
5.6.3	Safety-related function of the control system	20
5.6.4	Remote Monitoring	20
5.7	Reliability of conveyance devices	21
5.8	Transitions from the backend	21
6	Additional requirements for the frontend	21
6.1	General	21
6.2	Use and operation	21
6.2.1	General usability requirements	21
6.2.2	Accessibility	22
6.2.3	Requirements for ease of cleaning	22
6.2.4	Cultural requirements	22
6.3	Visibility of faeces	22
6.4	Evacuation performance	22
6.5	Integrity against external impacts	23
6.6	Slipping, tripping or falling	23
6.7	Water seal	23
7	Performance testing	23
7.1	General testing requirements	23
7.2	Controlled laboratory testing	24
7.2.1	General	24
7.2.2	Assembly, installation, operation, and maintenance	24
7.2.3	Documentation of input	24
7.2.4	Generated output	25

This is a preview of ISO 30500:2025. [Click here to purchase the full version from the ANSI store.](#)

7.2.7	Testing sequence and duration.....	25
7.2.8	Loading pattern.....	27
7.2.9	Performance requirements during laboratory testing.....	27
7.3	Field verification of performance.....	32
7.3.1	General.....	32
7.3.2	Class 1 and Class 4 NSSS.....	33
7.3.3	Class 2 and Class 3 NSSS.....	33
8	Sustainability	34
8.1	General.....	34
8.2	Recovery of nutrients.....	34
8.3	Water consumption and recirculated water.....	34
8.3.1	Calculations.....	34
8.3.2	Water consumption.....	34
8.3.3	Recirculated water.....	34
8.4	Energy consumption and energy recovery.....	34
8.4.1	Calculations.....	34
8.4.2	Energy consumption.....	34
8.4.3	Direct and indirect energy recovery.....	35
8.5	Recurring operational requirements.....	35
8.6	Life cycle assessment.....	36
Annex A (normative) Test methods and additional testing requirements		37
Annex B (normative) Risk assessment and list of significant hazards		70
Annex C (normative) User manuals		76
Annex D (informative) Sustainability measures		79
Annex E (informative) Design considerations		81
Annex F (informative) Health and environmental parameters — Notes and references		84
Annex G (informative) Remote monitoring		86
Annex H (informative) Guidelines for electrically operated spray toilet seat used for frontends of NSSS — comfortability aspects		92
Annex I (normative) Alternative feedstocks and characterisation		94
Annex J (informative) Summary of parameters declared by manufacturer and parameters tested by third-party laboratory		98
Bibliography		99

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This document was prepared by Project Committee ISO/PC 305, *Sustainable non-sewered sanitation systems*.

This second edition cancels and replaces the first edition (ISO 30500:2018), which has been technically revised.

The main changes are as follows:

- Clause 2 normative references have been updated;
- Clause 3 terms and definitions have been updated;
- technical information throughout the document has been aligned with the state of art;
- the bibliography has been updated.

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It is estimated that 1,5 billion people do not have access to basic sanitation systems. The devastating consequences of the lack of sanitation facilities include an estimated 2,0 billion people globally using a source of drinking water that is faecally contaminated, and in March of 2024, the World Health Organization (WHO) reported that around 444,000 children under 5 years of age dying per year, primarily from dysentery-like diarrhoeal diseases.

In March 2013, the United Nations (UN) issued a global call to action to eliminate the practice of open defecation by 2025. However, by 2018, the plan to end open defecation had been extended to 2030 and beyond. Although open defecation is often associated with low-income regions, it is also an increasing problem in urban areas of higher-income regions, where the provision of public toilets has been reduced for economic reasons.^[158] The UN and regional sanitation leaders have concluded that areas where open defecation is common have the highest levels of child death and disease, as a result of ingesting human faecal matter that has entered the food or water supply. A lack of safe, private sanitation is also associated with the highest overall levels of malnutrition, poverty and disparity between rich and poor, and makes women and girls more vulnerable to violence.

On 1 January 2016, the 17 UN Sustainable Development Goals (SDG) were launched, including SDG 6: Ensure access to water and sanitation for all. The SDGs are a set of goals to end poverty, protect the planet and ensure prosperity for all as part of the new UN sustainable development agenda.

Targets 6.2 and 6.3 of SDG 6 state:

- by 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations;
- by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

In May 2024, the UN released the report *United Nations System-Wide Strategy for Water and Sanitation*, which highlighted that progress on SDG 6 was "off-track." To accelerate progress, the report identifies five Global Accelerators, including innovation.^[156] In this context, the purpose of this document is to support the development of stand-alone sanitation systems designed to address sanitation needs while promoting economic, social and environmental sustainability through strategies that include minimizing resource consumption (e.g. water, energy) and converting human excreta to safe output.

This document is intended to promote the development and implementation of prefabricated integrated treatment units as non-sewered sanitation systems (NSSS), notably where other sanitation systems are not cost effective, unavailable or impractical. This aims to ensure human health and safety as well as protecting the environment.

However, this document does not attempt to exhaustively address sustainability concerns with respect to NSSS.

The concept of the NSSS is indicated in [Figure 1](#), showing the integration of the frontend(s) and backend(s) along with the input and output. Inputs entering the NSSS primarily comprise of human faeces and urine, menstrual blood, bile, flushing water, anal cleansing water, toilet paper and other bodily fluids/solids. Outputs exiting the NSSS include the products of the backend treatment process such as solid output and effluent, as well as noise, air and odour emissions.

By design, NSSS operate without being connected to a networked sewer or networked drainage systems. The NSSS can be either manufactured as one package or manufactured as a set of prefabricated components designed to be assembled without further fabrication or modification that influences the system function. The prefabricated components of NSSS are intended to require minimal work to be integrated and quickly provide fully functioning sanitation systems.

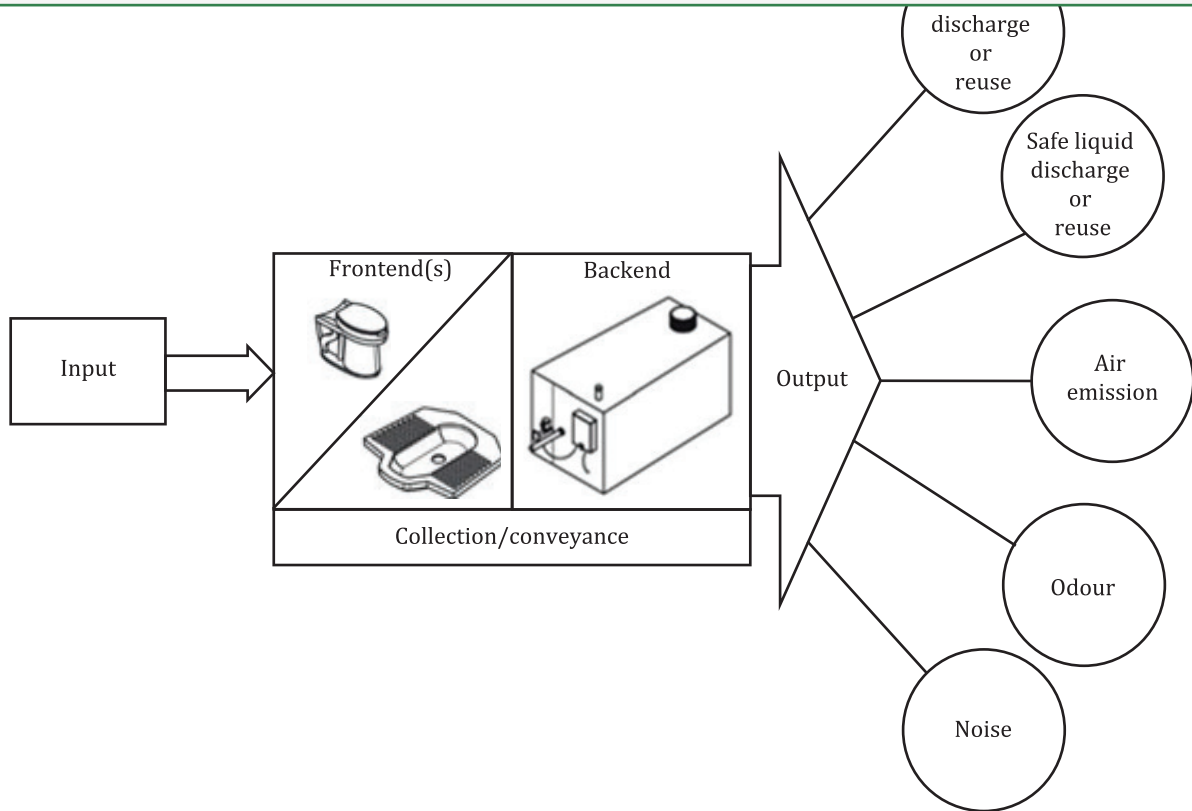


Figure 1 — Concept of a NSSS

In NSSS, the frontend includes user interfaces such as a urinal, squatting pan, or sitting pan, which can apply evacuation mechanisms ranging from conventional flush, pour flush and dry toilets to novel evacuation mechanisms such as those employing mechanical forces requiring little to no water. Conventional and novel evacuation mechanisms can be combined with urine diversion applications (e.g. urine diversion flush toilet, urine diversion dry toilet). Backend treatment technologies and processes of NSSS range from biological or chemical to physical unit processes (e.g. anaerobic and aerobic digestion, combustion, electrochemical disinfection, membranes). Some systems can use only one of these technologies or processes while others can apply various unit processes in combination through several treatment units.