



**SLOVENSKI STANDARD**  
**oSIST prEN 806-2:2024**  
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**Specifikacija za napeljave za pitno vodo v stavbah - 2. del: Načrtovanje**

Specification for installations inside buildings conveying water intended for human consumption - Part 2: Design

Technische Regeln für Trinkwasser-Installationen - Teil 2: Planung

Spécifications techniques relatives aux installations pour l'eau destinée à la consommation humaine à l'intérieur des bâtiments - Partie 2 : Conception

**Ta slovenski standard je istoveten z: prEN 806-2**

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## Specification for installations inside buildings conveying water intended for human consumption - Part 2: Design

Spécifications techniques relatives aux installations d'eau destinée à la consommation humaine à l'intérieur des bâtiments - Partie 2: Conception

Technische Regeln für Trinkwasser-Installationen - Teil 2: Planung

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 164.

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## European foreword

This document (prEN 806-2:2024) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 806-2:2005.

prEN 806-2:2024 includes the following significant technical changes with respect to EN 806-2:2005:

- the document has been fundamentally revised across all chapters;
- the structure has been modified;
- normative references have been updated.

This is the second part of the European Standard EN 806 consisting of 5 parts as follows:

- EN 806-1, *General*
- EN 806-2, *Design*
- EN 806-3, *Pipe sizing – simplified method*<sup>1</sup>
- EN 806-4, *Installation*
- EN 806-5, *Operation and maintenance*

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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<sup>1</sup> EN 806-3 is currently being revised and could appear under a new title with the same EN number.

## prEN 806-2:2024 (E)

### Introduction

Key objectives of the design and installation process for installations inside buildings conveying water intended for human consumption (hereafter referred to as “potable water installations”) have been the functional accomplishment of the water load profiles for hot and cold water while maintaining the quality of “water intended for human consumption” (in the sense of the corresponding European legislative act Directive (EU) 2020/2184 [1]). Lately, further requirements have been added, which can be summarized by the term “sustainability”. They comprise, economic, ecologic and social issues. More precisely, they cover, for example, energy and material efficiency, conservation of resources and life cycle assessment (LCA).

In principle, there’s also the possibility of complying with the intended protection goals of this document by applying other technical measures, technologies, and procedures. In these cases, the resulting conditions shall be verified through tests and/or compliance with relevant standard(s).

NOTE Attention is drawn to national requirements and regulations that can apply.

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## 1 Scope

This document specifies requirements for and gives recommendations on the design of potable water installations according to EN 806-1.

## 2 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.

EN 26, *Gas-fired instantaneous water heaters for the production of domestic hot water*

EN 89, *Gas-fired storage water heaters for the production of domestic hot water*

EN 200, *Sanitary tapware - Single taps and combination taps for water supply systems of type 1 and type 2 - General technical specification*

EN 805, *Water supply - Requirements for systems and components outside buildings*

prEN 806-1:2024, *Specification for installations inside buildings conveying water intended for human consumption — Part 1: General*

EN 817, *Sanitary tapware - Mechanical mixing valves (PN 10) - General technical specifications*

EN 1111, *Sanitary tapware - Thermostatic mixing valves (PN 10) - General technical specification*

EN 1287, *Sanitary tapware - Low pressure thermostatic mixing valves - General technical specification*

EN 1487, *Building valves - Hydraulic safety groups - Tests and requirements*

EN 1488, *Building valves - Expansion groups - Tests and requirements*

EN 1489, *Building valves - Pressure safety valves - Tests and requirements*

EN 1490, *Building valves - Combined temperature and pressure relief valves - Tests and requirements*

EN 1491, *Building valves - Expansion valves - Tests and requirements*

EN 1567, *Building valves - Water pressure reducing valves and combination water pressure reducing valves - Requirements and tests*

EN 1717<sup>2</sup>, *Protection against pollution of water intended for human consumption in potable water installations and general requirements for devices to prevent pollution by backflow*

EN 12056 (all parts), *Gravity drainage systems inside buildings*

EN 12502 (all parts), *Protection of metallic materials against corrosion - Guidance on the assessment of corrosion likelihood in water distribution and storage systems*

EN 12976-1, *Thermal solar systems and components - Factory made systems - Part 1: General requirements*

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<sup>2</sup> Currently under revision at Formal Vote stage: FprEN 1717:2024.

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EN 12977-1, *Thermal solar systems and components - Custom built systems - Part 1: General requirements for solar water heaters and combisystems*

EN 13618, *Flexible hose assemblies in drinking water installations - Functional requirements and test methods*

EN 14652, *Water conditioning equipment inside buildings — Membrane separation devices — Requirements for performance, safety and testing*

EN 14743, *Water conditioning equipment inside buildings — Softeners — Requirements for performance, safety and testing*

EN 14812, *Water conditioning equipment inside buildings — Chemical dosing systems — Pre-set dosing systems — Requirements for performance, safety and testing*

EN 14897, *Water conditioning equipment inside buildings — Devices using mercury low-pressure ultraviolet radiators — Requirements for performance, safety and testing*

EN 15219, *Water conditioning equipment inside buildings — Nitrate removal devices — Requirements for performance, safety and testing*

EN 15502-1, *Gas-fired heating boilers — Part 1: General requirements and tests*

EN 60335-2-21, *Household and similar electrical appliances — Safety — Part 2-21: Particular requirements for storage water heaters (IEC 60335-2-21)*

EN 60335-2-35, *Household and similar electrical appliances - Safety - Part 2-35: Particular requirements for instantaneous water heaters (IEC 60335-2-35)*

EN IEC 60730-1, *Automatic electrical controls — Part 1: General requirements IEC 60730-1)*

EN IEC 60730-2-9, *Automatic electrical controls — Part 2-9: Particular requirements for temperature sensing control (IEC 60730-2-9)*

EN 61770, *Electric appliances connected to the water mains - Avoidance of backsiphonage and failure of hose-sets (IEC 61770)*

EN ISO 4064-5, *Water meters for cold potable water and hot water - Part 5: Installation requirements (ISO 4064-5)*

### **3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 806-1 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

## 4 Basics requirements for design

### 4.1 Design

For design and construction of a potable water installation two types of installation are considered:

- installation type A: Unvented potable water installations;
- installation type B: Vented potable water installations (see Annex A).

Installation types A and B may be combined.

Potable water installations shall be designed such that the quality of water intended for human consumption can be ensured at any draw-off point for potable water, cold (PWC) and potable water, hot (PWH) and that normal operation of the potable water installation is possible. Therefore, the requirements of EN 806 series and EN 1717 should be fulfilled.

NOTE Attention is draw to the corresponding European legislative act Directive (EU) 2020/2184 [1] or national requirements that can apply.

### 4.2 Optimization of the potable water installation

Design, construction and operation of potable water installations shall be compatible with the expected occupation of the corresponding building type, and the essential parameters needed for design, installation and operation of potable water installations shall be adapted accordingly. Examples of essential parameters are:

- environmental protection and climate protection;
- potable water hygiene (see 4.4.2);
- specific water consumption (water use and equipment)/habits of usage (peak demand, usage profiles);
- specific energy consumption in buildings;
- economic considerations;
- minimizing water volume in the installation;
- sustainability.

Any potable water installation shall be designed in accordance with its relevant parameters. If foreseeable, design concepts should make allowance for possible changes of building occupation – viewed over the entire lifecycle. Methodological bases of integral design and building information modelling (BIM) are recommended as a basis for design to support compliance of later occupation in practice with the data of anticipated water consumption (specification sheet).

NOTE Attention is drawn to national or local regulations in respect to the prevention of proliferation of legionella spez.

The hot potable water installation shall not be used for space heating purposes.

For hygiene, energy efficiency and economic reasons, PWH storage devices and draw-off points should be placed at locations that minimize the total length of the distribution pipework. Such considerations need to be made at the very beginning of the design procedure, in co-operation with the architect.

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Using shorter supply lines should not lead to longer circulation lines. The optimization of the pipes' length shall be performed under consideration of all distribution lines altogether.

### 4.3 Documentation

#### 4.3.1 General

It is indispensable to exchange suitable design documents (e.g. usage agreement) for coordination of the construction progress and for communication between the relevant disciplines.

Designing documents should comprise at least:

- room manuals;
- implementation plans as layouts, and pipe schemes as well as sections with dimension data;
- wall and ceiling cutting and breakthrough plans;
- calculations of pipework, pump designs and designs of other components;
- the essential energy-relevant attributes shall be taken in account;
- performance data for components in the potable water installation, in particular also those components that are manufactured by other disciplines, e.g. potable water heaters.

Optionally or mandatory according to national rules, data can be added for risk analysis regarding water hygiene (see the guidelines for water safety plan concept in buildings according to CEN/TR 17801 [2]).

The graphic symbols according to EN 806-1 shall be applicable for the drawing depiction of the line diagrams.

#### 4.3.2 Room manual

The room manual should contain a description of use and a concept for potable water installation.

A room manual comprises a list of all necessary data that describe the rooms in a building.

The following should be indicated for the potable water installation as a minimum:

- use of the room;
- use of the draw-off points;
- stop valves and automatic control devices;
- draw-off points;
- room temperatures.

Data and information for the required maintenance measures, the sampling points and the necessary measures in case of malfunctions within the potable water installation should be listed in a maintenance plan.

#### 4.3.3 System manual

The system manual consists of documentation regarding design, implementation, operation and maintenance.

The system manual is compiled not later than the time of commissioning.

#### 4.3.4 Maintenance plan

Proper maintenance is necessary for fault-free technical functioning in order to protect the health and safety of the consumers. Each component of the potable water installation requires individual measures in order to ensure a sustainable function. Inspections, maintenance, improvements and repairs are available as measures. The resultant tasks should be considered individually for each single component. Specifications and intervals can be found in EN 806-5 and the relevant manufacturer documents. It is necessary to include requisite maintenance measures for the selected components when designing a potable water installation. In particular, access points, intervals and space requirement for later interventions should be considered during the design. Information on the necessary measures should be gathered and summarized in a maintenance plan. This maintenance plan shall be validated regularly.

#### 4.4 Preservation of potable water quality

##### 4.4.1 Connection to a service pipeline

Potable water installations shall not have any negative impact on potable water supply – in particular on the public water supply – e.g. in form of impairment or pressure surges. (see EN 1717)

Where a private water supply is to be used in addition to water supplied by a statutory water supplier there shall be no cross connection of these systems, without suitable backflow protection in accordance with EN 1717.

Where pipelines are laid within the premises but outside of buildings, requirements from this document and EN 805 shall be observed where applicable (see also prEN 806-1:2024, Figure 1 and prEN 806-1:2024, Clause 6).

##### 4.4.2 Hygiene

###### 4.4.2.1 General

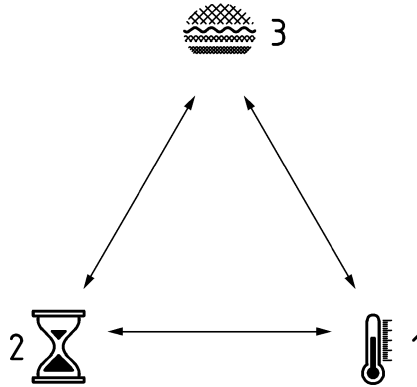
The requirements on the quality of water intended for human consumption shall be met at any draw-off point of the potable water installation.

NOTE The Directive (EU) 2020/2184 [1] contains information on the quality of water intended for human consumption. For nations not covered by the directive national regulations contain this information.

Adverse changes to potable water quality shall be avoided. These include excessive microbial proliferation or the proliferation of pathogens. In order to prevent unacceptable support of microbial proliferation in potable water installations, the following principles shall be observed:

- 1) prevent temperatures that promote microbial proliferation;
- 2) prevent stagnation periods;
- 3) minimize nutrient input.

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**Key**

- 1 temperature
- 2 time/stagnation
- 3 nutrients

**Figure 1 — Factors influencing bacterial proliferation**

Hygiene rules are considered together with other design rules regarding users' comfort and energy efficiency. Optimal balance has to be found keeping hygiene with highest priority.

#### 4.4.2.2 Operating temperature

Potable water installations shall be designed and installed such that the PWC temperature does not exceed 25 °C at any point during normal operation. Therefore, cold and hot water supply pipework shall be laid such that unacceptable external heating of PWC can be avoided (see 4.5). If necessary other appropriate measures (e.g. PWC circulation, flushing or a process combination of cooling and flushing) shall be applied.

30 s after fully opening any draw-off fitting or 3 l discharged, whichever occurs first (for PWH, see Annex B), the water temperature should not exceed 25 °C for PWC at the draw-off points and should not be less than 55 °C for the PWH system.

NOTE 1 Attention is drawn to local or national regulations that can apply.

NOTE 2 It is emphasized that national residual standards can contain stricter requirements.

PWH systems shall have the facility to enable the temperature at the extremities and all draw-off points of the installation to be raised to 70 °C for at least 5 minutes for disinfection purposes. If the heating system installed cannot reach the required temperature, an external heating source can be connected temporarily.

In normal operation the temperature of the water heater shall be set such that the PWH temperature does not fall below 55 °C at any point within the whole PWH-system. All supply pipelines of the PWH installation which are not included in a PWH-C installation shall not exceed a volume of 3 l. These should not be thermally insulated in order to cool down as quickly as possible, (see also 6.3.1)

#### 4.4.2.3 Minimizing Stagnation

The potable water installation shall be designed such that regular water exchange occurs in all supply pipes, especially in main branch and branch pipes. To ensure that water volumes are completely exchanged during expected use, pipe dimensions and flow paths shall be selected as small as possible in relation with the calculation (see EN 806-3). . When infrequently used draw-off points (e.g. protection unit for heating system supply connections, single taps, garden taps) are installed, the pipe shall be connected as short as possible to the distributing pipe.