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Sistemi za odvod odpadne vode in kanalizacijo zunaj zgradb

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Drain and sewer systems outside buildings

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Entwässerungssysteme außerhalb von Gebäuden

Réseaux d'évacuation et d'assainissement a l'extérieur des bâtiments

Ta slovenski standard je istoveten z: EN 752:2008

ICS:

93.030 Zunanji sistemi za odpadno vodo External sewage systems

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English Version

Drain and sewer systems outside buildings

Réseaux d'évacuation et d'assainissement à l'extérieur des bâtiments

Entwässerungssysteme außerhalb von Gebäuden

This European Standard was approved by CEN on 24 November 2007.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 752:2008) has been prepared by Technical Committee CEN/TC 165 “Wastewater Engineering”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2008, and conflicting national standards shall be withdrawn at the latest by July 2008.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 752-1:1995, EN 752-2:1996, EN 752-3:1996, EN 752-4:1997, EN 752-5:1997, EN 752-6:1998, EN 752-7:1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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EN 752:2008 (E)**Introduction**

Drain and sewer systems are part of the overall wastewater system that provides a service to the community. This can be briefly described as:

- removal of wastewater from premises for public health and hygienic reasons;
- prevention of flooding in urbanised areas;
- protection of the environment.

The overall wastewater system has four successive functions:

- **Collection;**
- **Transport;**
- **Treatment;**
- **Discharge.**

Drain and sewer systems provide for the collection and transport of wastewater.

Historically, drain and sewer systems were installed because there was a need to remove the polluted water to prevent diseases.

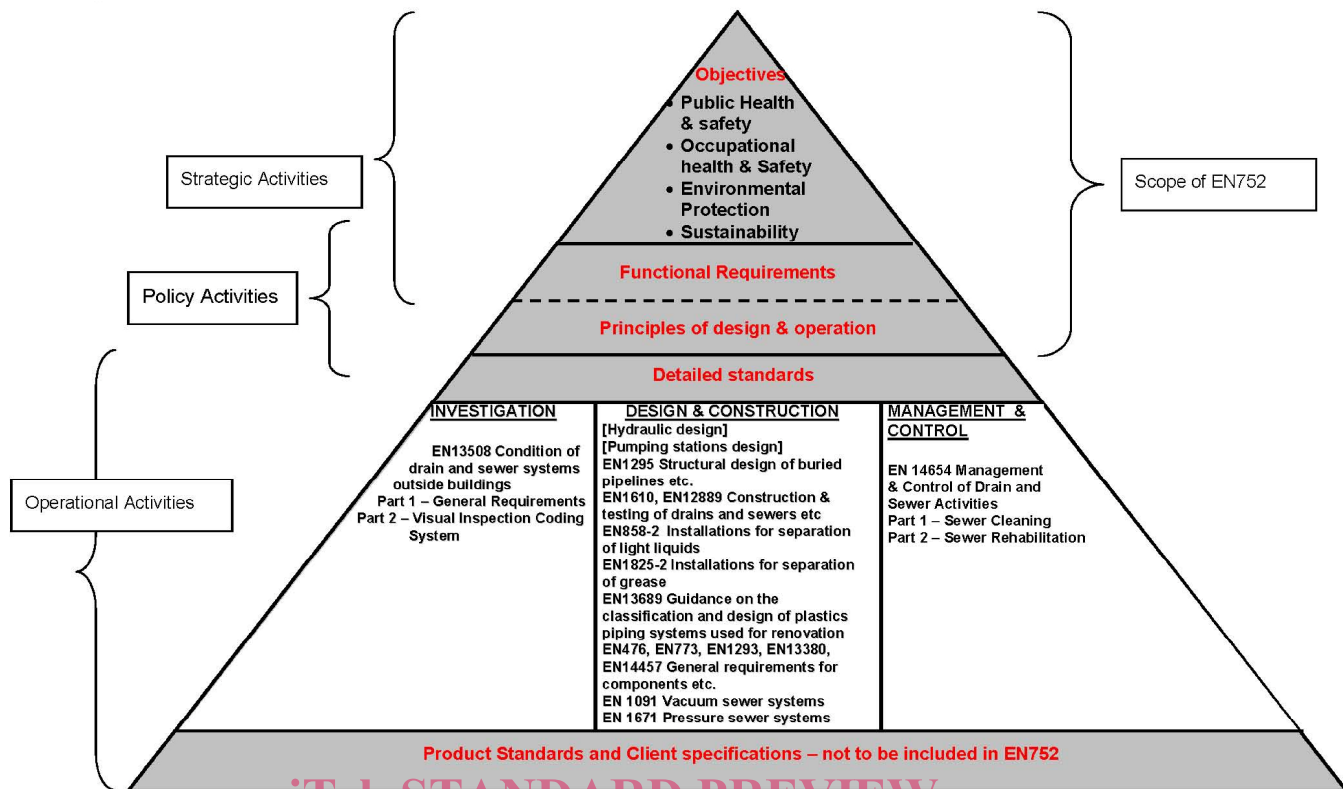
Traditionally, drain and sewer systems were constructed to collect and transport all types of wastewater together irrespective of the initial source. This led to difficulties in handling the peak flows in times of heavy rainfall and to the introduction of combined sewer overflows, which discharged polluted water to surface receiving waters.

It was later recognised that separate systems, where foul wastewater was kept separate from runoff derived from surface water, would be an improvement over such combined systems.

Although many drain and sewer systems started out as combined systems there are strong arguments for considering the separation of foul wastewater and surface water. The pollutant effects are not the same and the separation of effluents allows for the different treatment for each element of wastewater, providing more environmentally friendly solutions.

This concept is included in the approach of integrated sewer management.

EN 752 provides a framework for the design, construction, rehabilitation, maintenance and operation of drain and sewer systems outside buildings. This is illustrated in the upper part of the diagram below. EN 752 is supported by more detailed standards for the investigation, design, construction, organisation and control of drain and sewer systems such as those listed in the lower part of the diagram. To support these detailed standards information will come from specifications produced by individual organisations for their own use. Product standards should also take into account the functional requirements in EN 752 through EN 476, EN 773, EN 1293, EN 13380 and EN 14457.



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Figure 1 – Pyramid Diagram
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EN 752:2008 (E)**1 Scope**

This European Standard sets out the objectives for drain and sewer systems outside buildings. It specifies the functional requirements for achieving these objectives and the principles for strategic and policy activities relating to planning, design, installation, operation, maintenance and rehabilitation.

It is applicable to drain and sewer systems, which operate essentially under gravity, from the point where wastewater leaves a building, roof drainage system, or paved area, to the point where it is discharged into a wastewater treatment plant or receiving water.

Drains and sewers below buildings are included provided that they do not form part of the drainage system for the building.

2 Normative references

The following referenced documents are indispensable for the application 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 476:1997, *General requirements for components used in discharge pipes, drains and sewers for gravity systems*

EN 858-1, *Separator systems for light liquids (e.g. oil and petrol) — Part 1: Principles of product design, performance and testing, marking and quality control*

EN 858-2, *Separator systems for light liquids (e.g. oil and petrol) — Part 2: Selection of nominal size, installation, operation and maintenance*

EN 1295-1, *Structural design of buried pipelines under various conditions of loading — Part 1: General requirements*

EN 1610, *Construction and testing of drains and sewers*

EN 1825-1, *Grease separators — Part 1: Principles of design, performance and testing, marking and quality control*

EN 1825-2, *Grease separators — Part 2: Selection of nominal size, installation, operation and maintenance*

EN 1990, *Eurocode — Basis of structural design*

EN 1991-1-1, *Eurocode 1 — Actions on structures — Part 1-1: General actions Densities — self-weight, imposed loads for buildings*

EN 1991-1-2, *Eurocode 1 — Actions on structures — Part 1-2: General actions — Actions on structures exposed to fire*

EN 1991-1-3, *Eurocode 1 — Actions on structures — Part 1-3: General actions — Snow loads*

EN 1991-1-5, *Eurocode 1 — Actions on structures — Part 1-5: General actions — Thermal actions*

EN 1991-2, *Eurocode 1 — Actions on structures — Part 2: Traffic loads on bridges*

EN 1991-4, *Eurocode 1 — Actions on structures — Part 4: Silos and tanks*

- EN 1992-1-1, *Eurocode 2 — Design of concrete structures — Part 1-1: General rules and rules for buildings*
- EN 1992-1-2, *Eurocode 2 — Design of concrete structures — Part 1-2: General rules - Structural fire design*
- EN 1992-3, *Eurocode 2 — Design of concrete structures — Part 3: Liquid retaining and containment structures*
- ENV 1993-1-1, *Eurocode 3 — Design of steel structures — Part 1-1: General rules and rules for buildings*
- EN 1994-1-1, *Eurocode 4 — Design of composite steel and concrete structures — Part 1-1: General rules and rules for buildings*
- EN 1996-1-1, *Eurocode 6: Design of masonry structures — Part 1-1: General rules for reinforced and unreinforced masonry structures*
- EN 1997-1, *Eurocode 7: Geotechnical design — Part 1: General rules* EN 1998-1, *Eurocode 8: Design of structures for earthquake resistance — Part 1: General rules, seismic actions and rules for buildings*
- EN 1998-3, *Eurocode 8: Design of structures for earthquake resistance — Part 3: Assessment and retrofitting of buildings*
- EN 1998-1, *Eurocode 8: Design of structures for earthquake resistance — Part 1: General rules, seismic actions and rules for buildings*
- EN 1999-1-1, *Eurocode 9: Design of aluminium structures — Part 1-1: General structural rules*
- EN 12889, *Trenchless construction and testing of drains and sewers*
- EN 13508-2, *Condition of drain and sewer systems outside buildings — Part 2: Visual inspection coding system*
- EN 14654-1, *Management and control of cleaning operations in drains and sewers — Part 1: Sewer cleaning*

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3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

aerobic

dissolved oxygen is present

[EN 1085:2007, definition 4100]

3.2

aesthetic

<of pollution> aspects sensed by sight or smell, e.g. floating solids, oil films or bank-side litter

3.3

air valve

valve used to allow air to escape from or enter into a rising main

3.4

anaerobic

dissolved oxygen, nitrate, nitrite and sulfate is absent

[EN 1085:2007, definition 4120]

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- 3.5
backdrop manhole**
manhole with a connection, by means of a vertical pipe, at or just above invert, from a drain or sewer at a higher level
- 3.6
backwater level**
elevation of the surface of the wastewater predicted or occurring in a drain or sewer system due to the hydraulic conditions downstream
- 3.7
biochemical oxygen demand (BOD)**
concentration of dissolved oxygen consumed under specific conditions (t days at 20 °C with or without nitrification inhibition) by the biological oxidation of organic and/or inorganic matter in water
- [EN 1085:2007, definition 3110]
- 3.8
catchment area**
area draining to a drain, sewer or watercourse
- [EN 1085:2007, definition 1270]
- 3.9
cleaning ball**
spherical device, having an indented surface, designed to be carried through a drain or sewer by the flow to facilitate removal of sediments
- 3.10
confined space**
space in which the ventilation is restricted to the extent that special safety precautions need to be taken
- [EN 1085:2007, definition 2130]
- 3.11
combined sewer overflow**
device, on a combined system that relieves the system of excess flow
- [EN 1085:2007, definition 2110]
- 3.12
combined system**
drain and sewer system designed to carry both foul wastewater and surface water in the same pipeline(s)
- [EN 1085:2007, definition 2110]
- 3.13
common trench**
trench in which more than one pipe is located
- 3.14
dam board**
removable plank or section placed across a sewer or drain to divert or hold back the flow
- 3.15
depression storage**
precipitation retained in surface hollows that does not contribute to runoff
- 3.16
design life**
notional lifetime of an asset used for the purposes of design

3.17**detention tank**

tank or reservoir for the temporary storage of wastewater

[EN 1085:2007, definition 2240]

3.18**domestic wastewater**

water discharged from kitchens, laundry rooms, lavatories, bathrooms, toilets and similar facilities

[EN 1085:2007, definition 2030]

3.19**drain**

pipeline, usually underground, designed to carry wastewater from a source to a sewer

[EN 1085:2007, definition 2250]

3.20**drainage service**

natural or artificial system for the draining of a catchment area

3.21**dry weather flow**

flow not affected by rainfall or snow melt

[EN 1085:2007, definition 3050]

3.22**dry well**

dry chamber forming part of a pumping station and containing pumping equipment, normally used in conjunction with a wet well

3.23**duty point**

rate of flow and the corresponding total head for which a pump is designed or selected

3.24**exfiltration**

escape of wastewater from a drain or sewer system into surrounding ground

[EN 1085:2007, definition 2230]

3.25**extraneous water**

unwanted flow in a drain or sewer system

3.26**explosion proof**

protected from causing ignition of flammable gases

3.27**flooding**

condition where wastewater and/or surface water escapes from or cannot enter a drain or sewer system and either lies on the surface or enters buildings (see also surface flooding)

3.28**flow balancing**

reduction in peak discharge by means of temporary storage of flow

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