
Cevni sistemi iz polimernih materialov za nizko- in visokotemperaturne odvodne sisteme v zgradbah - Polipropilen (PP) - 6. del: Priporočen postopek za vgradnjo

Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP) - Part 6: Recommended practice for installation

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Plastics piping systems for soil and waste
discharge (low and high temperature) within the
building structure - Polypropylene (PP) - Part 6:
Recommended practice for installation

Systèmes de canalisations en plastique pour l'évacuation des eaux-vannes et des eaux usées (à basse et à haute température) à l'intérieur de la structure des bâtiments - Polypropylène (PP) - Partie 6: Pratiques recommandées pour la pose	Kunststoff-Rohrleitungssysteme für Abwasserleitungen (niederer und hoher Temperatur) innerhalb der Gebäudestruktur - Polypropylen (PP) - Teil 6: Empfehlungen für die Verlegung
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This draft European Standard is submitted to the CEN members for CEN enquiry.
It has been drawn up by Technical Committee CEN/TC 155 .

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN in three official versions
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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

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Foreword

This draft European Standard has been prepared by the Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems", the secretariat of which is held by NNI.

The CEN/TC 155 has decided to submit this draft European Standard to the CEN Public Enquiry.

No existing European Standard is superseded by this standard.

This standard is a Part of a System Standard for plastics piping systems of a particular material for a specified application. There are a number of such System Standards.

System Standards are based on the results of the work undertaken in ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids", which is a Technical Committee of the International Organization for Standardization (ISO).

They are supported by separate standards on test methods and by standards on ancillary equipment, to which references are made throughout the System Standard.

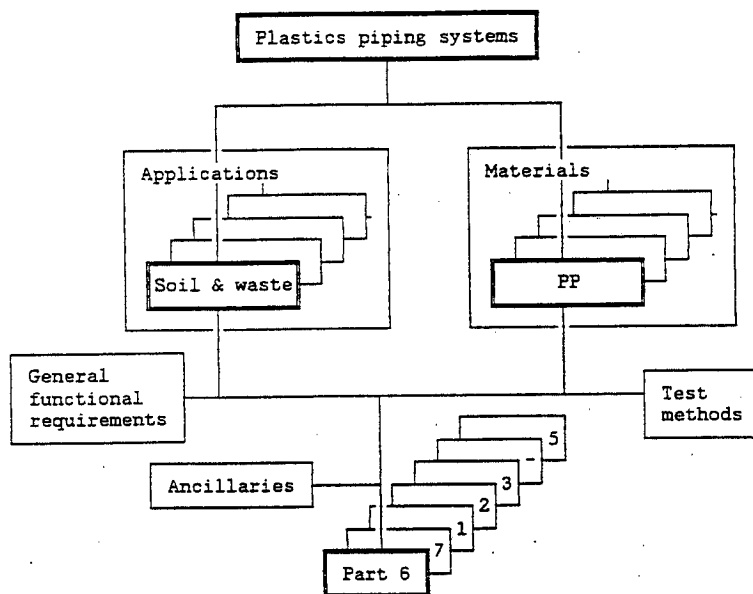
The System Standards are consistent with general standards on functional requirements and on recommended practice for installation.

EN 1451 consists of the following Parts ¹⁾, under the general title Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP)

- Part 1: General
- Part 2: Pipes
- Part 3: Fittings
- Part 5: Fitness for purpose of the system
- Part 6: Recommended practice for installation (this standard)
- Part 7: Assessment of conformity

1) This System Standard does not incorporate a Part 4 : "Ancillary equipment". For ancillary equipment reference is made to separate standards.

The following diagram indicates the place of this standard within the CEN framework for plastics piping systems:



At the date of publication of this standard, System Standards for piping systems of other plastics materials used for the same application are the following:

NOTE: All listed System Standards are under preparation.

- | | |
|---------------|---|
| EN 1329 | Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Unplasticized poly(vinyl chloride) (PVC-U) |
| EN 1453 | Plastics piping systems with structured wall pipes for soil and waste discharge (low and high temperature) within the building structure - Unplasticized poly(vinyl chloride) (PVC-U) |
| EN 1519 | Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polyethylene (PE) |
| EN 1455 | Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Acrylonitrile-butadiene-styrene (ABS) |
| EN [155wi006] | Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Chlorinated poly(vinyl chloride) (PVC-C) |
| EN [155wi117] | Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Styrene copolymer blends (SAN+PVC) |

Introduction

The System Standard, of which this is Part 6, specifies the requirements for a piping system and its components made from polypropylene (PP). The piping system is intended to be used for soil and waste discharge systems (low and high temperature) inside buildings (marked with "B") and for soil and waste discharge systems for both inside buildings and buried in ground within the building structure (marked with "BD").

For material and components requirements and test methods are specified in Parts 1 to 3 of this System Standard. Characteristics of fitness for purpose (mainly for assemblies) are included in part 5. Part 7 covers the requirements for the assessment of conformity.

This Part of EN 1451 covers the recommended practice for installation of the plastics piping system.

In this standard, the most important recommendations are expressed by the use of "should" or of the imperative. These are strongly recommended. Guidance for installation is presented, e.g. by the use of "may" or "is recommended", for consideration as a matter of judgement in each case.

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1 Scope

This Part of EN 1451 specifies the recommended practice for installation of polypropylene (PP) piping systems in the field of soil and waste discharge (low and high temperature) inside buildings (marked with "B") and for soil and waste discharge systems for both inside buildings and buried in ground within the building structure (marked with "BD").

NOTE 1: This document provides for installation techniques but it is important that the manufacturer's fixing instructions and material handling advice are taken into account to ensure reliable and trouble-free drainage systems.

In conjunction with one of the Parts 1 to 3, 5 and 7 of EN 1451, and with the applicable Part(s) of EN [155wil32], it is applicable to PP pipes, fittings, ancillary equipment and their joints and to joints with components (marked with "B" or "BD") of other plastics and non-plastics materials intended to be used for the following purposes:

- a) soil and waste discharge pipework for the conveyance of domestic waste waters (low and high temperature);
- b) ventilation pipework associated with a);
- c) rainwater pipework within the building structure (figure 2).

It is applicable to pipes and fittings, which are marked with "B", intended to be used above ground only and to pipes and fittings, which are marked with "BD", intended to be used above and buried in ground within the building structure.

NOTE 2: For use buried in ground within the building structure are intended only those components with nominal outside diameters equal to or greater than 75 mm (marked with "BD").

NOTE 3: The term "within building structure" refers to all gravity discharge pipework within a building, including the elements installed below the slab and buried in ground. Pipework that passes under the building without any connection from the discharge system is excluded (see 3.1).

This standard is also applicable to the techniques of jointing to components made from materials other than PP.

NOTE 4: Components conforming to any of the referred Systems Standards listed in the foreword can be used with pipes and fittings conforming to EN 1451, provided they conform to the requirements for

joint dimensions of the applicable part(s) of EN 1451 and to the requirements of EN 1451-5.

2 Normative references

This standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter.

For dated references, subsequent amendments to, or revisions of, any of these publications apply to this standard only when incorporated in it by amendment or revision.

For undated references the latest edition of the publication referred to applies.

NOTE: All listed European Standards are under preparation

- | | |
|-------------------|---|
| EN 1046 | <i>Plastics piping and ducting systems - Plastics systems outside building structures - Recommended practice for installation above and below ground.</i> |
| EN 1451-1 | <i>Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP) - Part 1: General</i> |
| EN 1451-2 | <i>Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP) - Part 2: Pipes</i> |
| EN 1451-3 | <i>Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP) - Part 3: Fittings</i> |
| EN 1451-5 | <i>Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP) - Part 5: Fitness for purpose of the system</i> |
| ISO 8283-3 | <i>Plastics pipes and fittings - Dimension of sockets and spigots for discharge systems inside buildings - Part 3: Polypropylene (PP)</i> |
| ISO/TR 10358:1993 | <i>Plastics pipes and fittings - Combined chemical-resistance-classification table.</i> |

3 Terminology, definitions, symbols and abbreviations

For the purposes of this standard, the following definitions, symbols and abbreviations apply.

3.1 General terminology for sanitary pipework above-ground, sanitary appliances and building drainage

For the general terminology, see figures 1 and 2 (the figures are diagrammatic only).

National regulation may require separate drainpipe systems for foul and rainwater.

Key

- 1 - Public sewer
- 2 - Manhole (or inspection chamber)
- 3 - Drain (or house connection)
- 4 - Main discharge and vent pipe (or stack)
- 5 - Primary vent pipe
- 6 - Vent terminal
- 7 - Stack vent secondary
- 8 - Branch discharge pipe
- 9 - Branch vent pipe
- 10 - Trap
- 11 - Floor gully/trap
- 12 - Bath
- 13 - Wash basin
- 14 - Sink
- 15 - Bidet
- 16 - Water closet (WC)
- 17 - Urinal

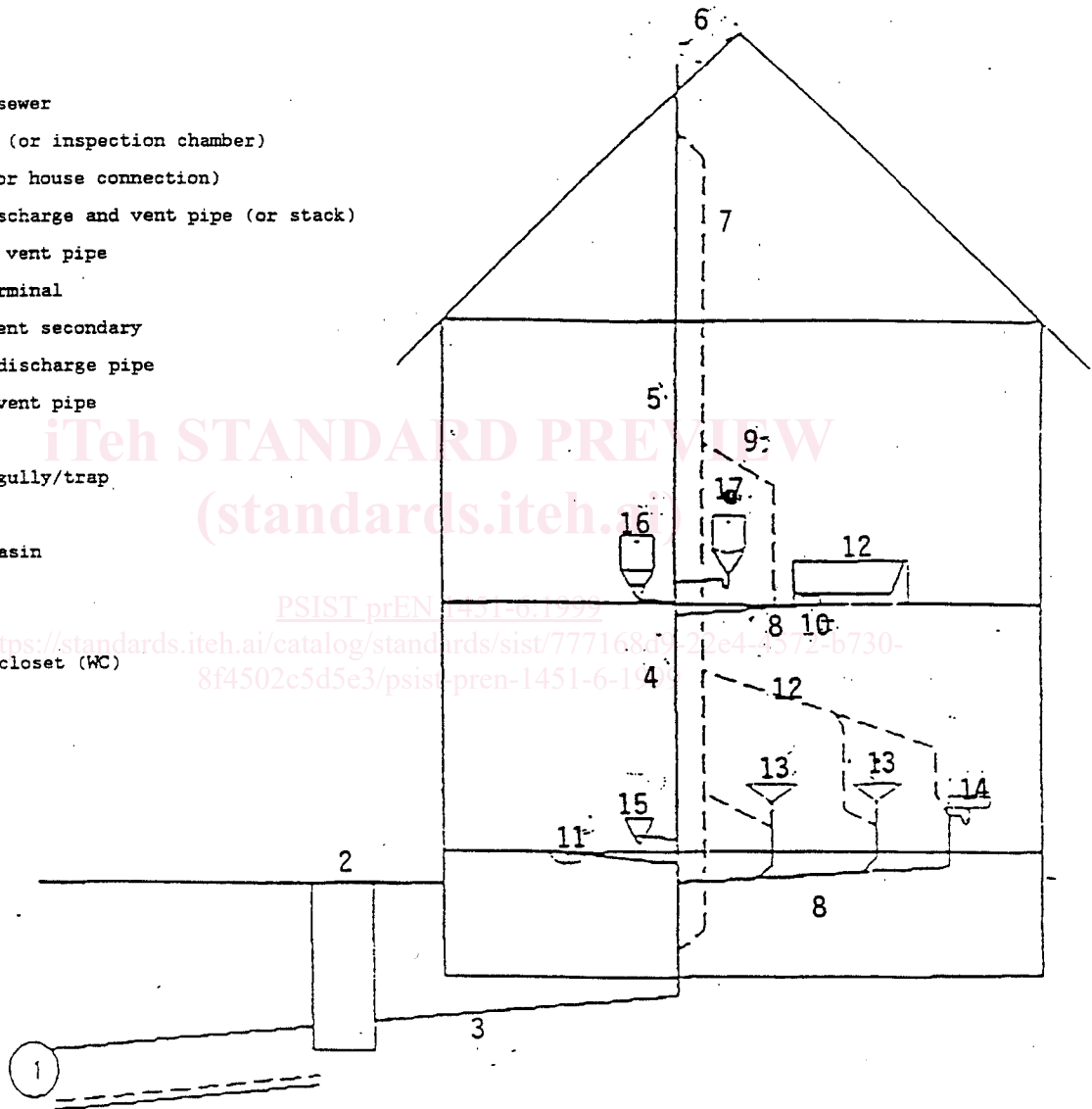
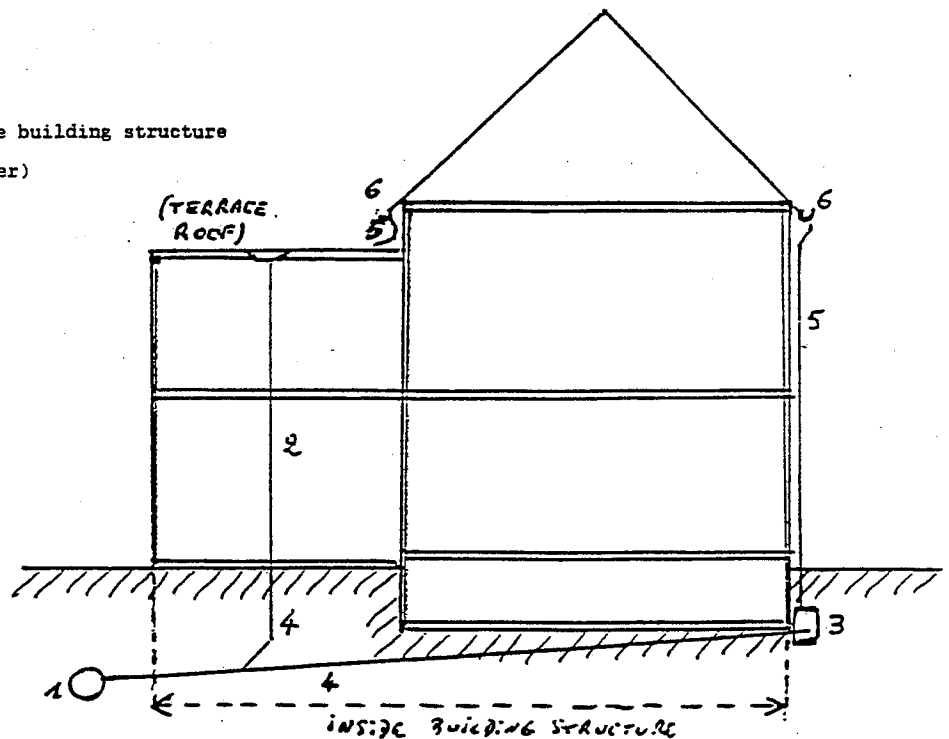


Figure 1: Example of a soil and waste discharge system

Key

- 1 - Public sewer
- 2 - Rainwater pipework within the building structure
- 3 - Manhole (or inspection chamber)
- 4 - Drain
- 5 - Rainwater downpipe
- 6 - Gutter



NOTE: Rainwater downpipes fixed externally onto the building (key 5), and gutters (key 6), are not covered by this standard.

Figure 2: Example of rainwater pipes outside the building and within the building structure

3.2 Definitions, symbols and abbreviations

For the purposes of this standard, the definitions given in Parts 1, 2 and 3 of EN 1451 apply, together with the following.

3.2.1 Definitions

3.2.1.1 socket length (type L or type N): A length in relation with the length of engagement, A, of a ring seal socket, as specified in EN 1451-2, which is designated either normal (type N), or long (type L) for extra long expansion.

3.2.1.2 bedding zone (c): The height of the compacted zone below the pipe when buried within the building structure.

3.2.1.3 expansion gap (E , E_1 , E_2): The distance between the bottom of a socket and the spigot of the inserted component allowing expansion of the system.

3.2.2 Symbols

3.2.2.1 Symbols for installation

- c: bedding zone
- E: expansion gap (see 6.1.3)
- E_1, E_2 : expansion gap (see 7.4)
- $L_{c,max.}$: maximum recommended distance between anchored brackets in con-
creted-in condition (see 9.1.1.5)
- LF: free length between fixed points in above-ground condition (see
6.1.3)
- $L_{max.}$: maximum recommended distance between support centres in above-
ground condition (see 7.2)

3.2.2.2 Sockets for ring seal jointing (see figure 4)

The design symbols for type N and type L ring seal sockets are given in figure 3.

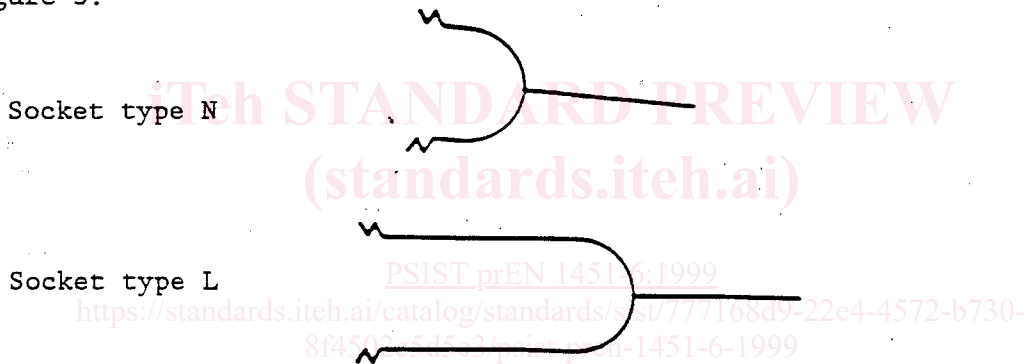


Figure 3: Design symbols for ring seal sockets

3.2.2.3 Brackets (see figure 4)

Design symbols for brackets are given in figure 4.

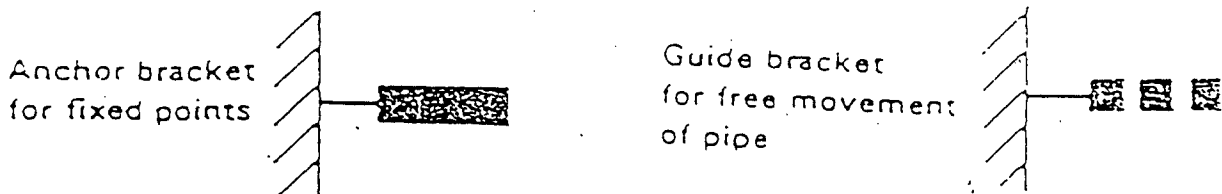


Figure 4: Design symbols for brackets

4 Design

4.1 Discharge systems of PP are primarily designed for waste discharges from domestic origin, including from washing and dishwashing machines, but are also designed for discharges from public laundries and launderettes. For the design of systems for other discharges see clause 14.

4.2 The requirements for the calculation of the flow capacity of plumbing installations, specified in other European Standards and/or in national or local regulations, should be applied.

5 Storage, transport and handling

Reasonable care should be taken to avoid damage to the smooth surfaces and ends of pipe and fittings in order to ensure trouble-free jointing.

For pipes of PP homopolymers (marked PPH), for which impact testing is carried out at 23 °C (see EN 1451-2), loading and handling should not be done by ambient temperatures lower than +5 °C, because of lower impact strength at lower temperature.

Pipes with end treatment, such as socketing, forming and flanging, or pre-assembled fittings should be stacked or supported in such a way that the ends are free from loading and are protected from damage. Additional protection may be provided, if necessary.

5.1 Loading and transport

Loading of pipes and fittings should be carried out carefully so that no damage occurs during transport (see figure 5).

Avoid rough handling, bending of pipe and contact with sharp objects. If pipes have socket ends they should be stacked in accordance with the manufacturer's instructions.