



SLOVENSKI STANDARD

SIST-TP CEN/TR 13801:2014

01-julij-2014

Nadomešča:
SIST ENV 13801:2001

Cevni sistemi iz polimernih materialov za (nizko- in visokotemperaturne) odvodne sisteme v zgradbah - Plastomeri - Priporočena praksa za vgradnjo

Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Thermoplastics - Recommended practice for installation

Kunststoff-Rohrleitungssysteme zum Ableiten von Abwasser (niedriger und hoher Temperatur) innerhalb der Gebäudestruktur - Thermoplastische Werkstoffe - Empfehlungen für die Verlegung

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 - Thermoplastiques - Pratiques recommandées pour la pose

Ta slovenski standard je istoveten z: CEN/TR 13801:2014

ICS:

23.040.20	Cevi iz polimernih materialov	Plastics pipes
91.140.80	Drenažni sistemi	Drainage systems

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English Version

Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Thermoplastics - 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 - Thermoplastiques - Pratiques recommandées pour la pose

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This Technical Report was approved by CEN on 1 October 2013. It has been drawn up by the Technical Committee CEN/TC 155.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

	Page
Foreword.....	4
Introduction.....	5
1 Scope	6
2 Normative references	6
3 General terminology, terms, definitions, symbols and abbreviations	7
3.1 General terminology.....	7
3.2 Terms and definitions	8
3.3 Symbols	8
3.4 Abbreviations	10
4 Design limits of the system	10
5 Storage, transport and handling	11
5.1 General.....	11
5.2 Transport	11
5.3 Storage.....	12
5.4 Handling on site	13
6 Installation	14
6.1 General recommendations for installation	14
6.1.1 Cutting of pipe.....	14
6.1.2 Chamfering of pipe	15
6.1.3 Fabricating.....	15
6.2 Recommendations for above-ground installation.....	15
6.2.1 General.....	15
6.2.2 Installation of PE and PP pipeworks with non-removable rigid joints	15
6.2.3 Installation with joint design taking account of thermal movement	16
6.2.4 Supports	20
6.3 Recommendations for installation in buried conditions	26
6.3.1 General.....	26
6.3.2 Installation for BD application.....	26
6.3.3 Differential movement - Flexible joints.....	27
6.4 Jointing procedure	28
6.4.1 Jointing with adhesives	28
6.4.2 Jointing with ring seal joints	30
6.4.3 Jointing with butt fusion	32
6.4.4 Jointing with electrofusion couplings.....	34
6.4.5 Jointing with flanges and backing rings	35
6.4.6 Jointing with compression joints.....	35
7 Special precautions	36
7.1 Concreting of thermoplastics systems within the building structure.....	36
7.1.1 General.....	36
7.1.2 Inserting systems in concrete setting at ambient temperature	38
7.1.3 Inserting systems into post-heated concrete	42
7.2 Foaming of thermoplastics systems	42
7.3 Prevention of additional stresses in pipework.....	42
8 Jointing to other materials or other constructions	43
8.1 General.....	43
8.2 Adhesive joints	43
8.3 Ring seal joints	43

8.4	Jointing to non-thermoplastics components	43
8.5	Adaptors	45
9	Fire resistance of pipework	46
10	Testing and inspection of installations	46
10.1	Testing	46
10.2	General inspection	46
11	Maintenance and cleaning of installations	46
11.1	General	46
11.2	Cleaning and descaling techniques	47
12	Chemical resistance of thermoplastics systems	47
13	Recycling of thermoplastics components of the system.....	47
	Bibliography.....	48

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[SIST-TP CEN/TR 13801:2014](https://standards.iteh.ai/catalog/standards/sist/629518d8-e563-4b85-adc1-6f98525017fb/sist-tp-cen-tr-13801-2014)

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CEN/TR 13801:2014 (E)**Foreword**

This document (CEN/TR 13801:2014) has been prepared by Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems", the secretariat of which is held by NEN.

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 ENV 13801:2000.

The revision mainly consists in changing the status from ENV to CEN/TR and the following minor changes:

- a) other materials than PP homopolymer mentioned in 5.1;
- b) update of symbols in Clause 3;
- c) mention of possible local regulations on fire and acoustics in Clause 4;
- d) reference of adhesives standards in 6.4.

This Technical Report is only a guidance document to be used mainly as a basis for preparing more specific manufacturer's instructions. It is associated with standards for piping systems covering a particular thermoplastic material for a specified application. There are a number of such standards.

It is 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).

This Technical Report is consistent with general standards on functional requirements and on recommended practice for installation.

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Introduction

This Technical Report covers the recommended practice for installation of the thermoplastics piping systems for soil and waste discharge. The most important recommendations are expressed by the use 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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CEN/TR 13801:2014 (E)**1 Scope**

This Technical Report gives the recommended practice for installation of thermoplastics piping systems in the field of soil and waste discharge (low and high temperature) inside buildings (marked with "B") and of soil and waste discharge systems for both inside buildings and buried in ground within the building structure (marked with "BD").

This Technical Report provides material dependent installation techniques but it is important that the general installation practice as given in the relevant parts of EN 12056 for B application are taken into account in manufacturer's instructions, subject to any applicable national and/or local regulations.

This Technical Report is applicable to thermoplastics pipes and fittings as specified in the associated standards EN 1329-1 [1] (PVC-U), EN 1451-1 [2] (PP), EN 1453-1 [3] (PVC-U with structured-wall pipes), EN 1455-1 [4] (ABS), EN 1519-1 [5] (PE), EN 1565-1 [6] (SAN+PVC) and EN 1566-1 [7] (PVC-C), their joints and to joints with components 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);

NOTE 1 See Clause 4 for waste discharge temperature limits.

- b) ventilating pipework associated with a);

- c) rainwater pipework within the building structure (see Figure 1, key 16).

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

SIST-TP CEN/TR 13801:2014

NOTE 2 Only those components as specified in the relevant associated standard with nominal outside diameters equal to or greater than 75 mm (marked with "BD") are intended for use buried in ground within the building structure. The term "within building structure" covers all gravity discharge pipework within a building, including the elements installed below the slab and buried in the ground.

If specified in the relevant associated standard, this Technical Report also covers soil and waste discharge pipework fixed externally onto the building (see Figure 1, key 17). It is not applicable to pipework that passes under the building without any connection from the discharge system.

NOTE 3 According to the associated standards, for external above ground soil and waste discharge, additional requirements depending on the climate, will be agreed between the manufacturer and the user.

According to the associated standards, components conforming to other standards on plastic piping systems may be used with pipes and fittings conforming to a given associated standard, if they conform to the requirements for joint dimensions and functional requirements of the given associated standard.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12056-1:2000, *Gravity drainage systems inside buildings - Part 1: General and performance requirements*

EN 12056-2:2000, *Gravity drainage systems inside buildings - Part 2: Sanitary pipework, layout and calculation*

EN 12056-3:2000, *Gravity drainage systems inside buildings - Part 3: Roof drainage, layout and calculation*

EN 12056-5, *Gravity drainage systems inside buildings - Part 5: Installation and testing, instructions for operation, maintenance and use*

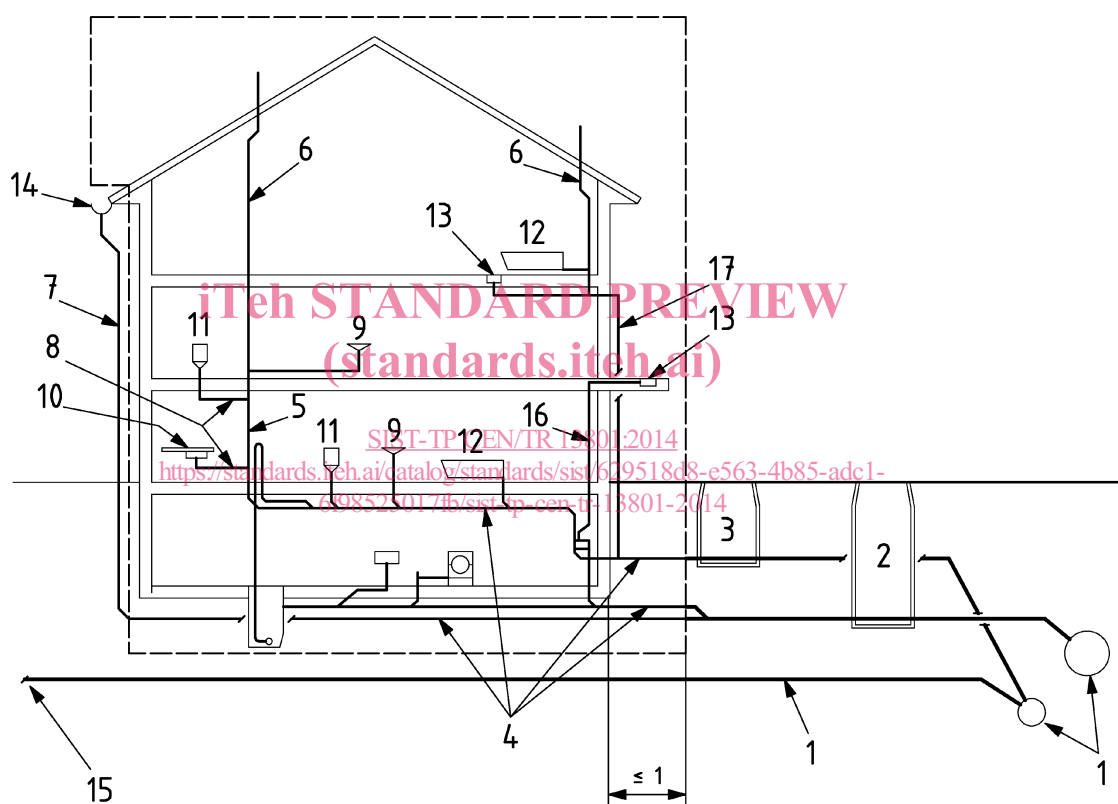
3 General terminology, terms, definitions, symbols and abbreviations

3.1 General terminology

For the general terminology, refer to EN 12056-1:2000, EN 12056-2:2000 or EN 12056-3:2000, where applicable, and see Figure 1 (the figure is schematic only).

Local and/or national regulations may require separate drainpipe systems for foul and rainwater.

Dimensions in metres



Key

1	sewer	7	rainwater downpipe	13	floor gully/trap
2	manhole	8	branch discharge pipe	14	gutter
3	inspection chamber	9	wash basin	15	pipework from other buildings
4	drain	10	sink	16	internal rainwater downpipe
5	discharge stack	11	water closet	17	external discharge stack
6	stack vent	12	bath		

NOTE Key 1, 2, 7 and 14 are not covered by this Technical Report. Key 3 is covered if the distance to the building wall is smaller than or equal to 1 m.

Figure 1 — Terminology for a soil and waste discharge system

CEN/TR 13801:2014 (E)

3.2 Terms and definitions

For the purposes of this document, the terms and definitions given in the relevant associated standard and the following apply.

3.2.1

associated standard

standard which specifies all requirements applicable to pipes, fittings and joints made of a particular material to be installed according to the recommendations of this Technical Report

3.2.2

ring seal socket length

type S, type N or M, or type L

length of a ring seal socket, which is designated as short (type S), normal or medium (type N or type M), or long (type L) in the relevant associated standards

Note 1 to entry: In EN 1329-1, EN 1453-1 and in ISO 8283-4 [13], type N sockets are designated by type M (medium).

3.2.3

flexible leg

L_1 and L_2

free length between two fixed points either sides of a bend of a solvent cement system

Note 1 to entry: The two lengths are designated L_1 and L_2 .

3.2.4

bedding zone

c

thickness of the compacted zone below the pipe when buried within the building structure

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3.2.5

expansion gap

E , E_1 , E_2

distance left during installation between the bottom of a socket and the spigot of the inserted component, allowing expansion of the system

3.3 Symbols

For the purposes of this document, the following symbols apply.

3.3.1 Symbols for installation

c bedding zone (see 6.3.2)

D_{\max} recommended maximum distance between support centres in above-ground installation (see 6.2.4.2)

$L_{c,\max}$ maximum recommended distance between anchored brackets in concreted-in installation (see 7.1.2.7)

L_F free length between fixed points in above-ground installation (see 6.2.3.1)

Y effective sealing length (see 6.2.3.2)

3.3.2 Symbol for sockets for solvent cement jointing

The design symbol (square-shaped) given in Figure 2 signifies a rigid, non-removable connection of two pipes and/or fittings made by means of a solvent cement socket.



Figure 2 — Design symbol for solvent cement joint

3.3.3 Symbols for sockets for ring seal jointing

The design symbols (cup-shaped) given in Figure 3 signify a non-rigid, removable connection of two pipes and/or fittings made by means of a rubber seal in a type S, type N, type M or type L socket, respectively.

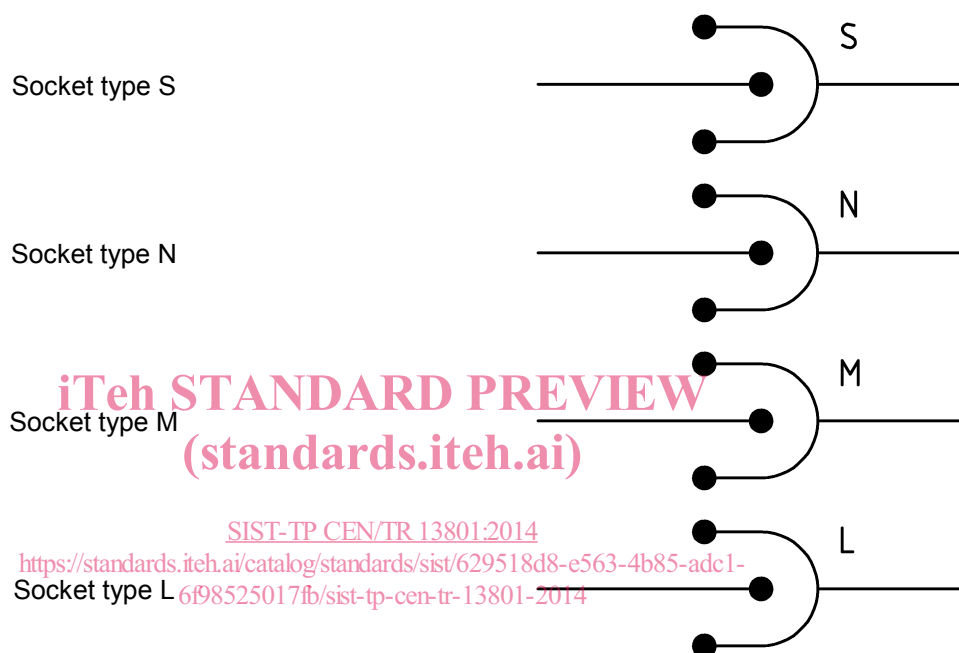


Figure 3 — Design symbols for ring seal joint

3.3.4 Symbol for butt-fusion joint

The design symbol given in Figure 4 signifies a rigid, non-removable connection of two pipes and or/fittings made after fusion by means of a heating plate.

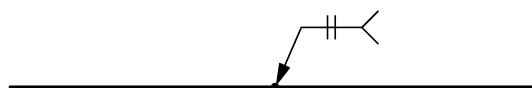


Figure 4 — Design symbol for butt-fusion joint

3.3.5 Symbol for electrofusion coupling

The design symbol given in Figure 5 signifies a rigid, non-removable connection of two pipes and/or fittings made by means of integral electrically powered fusion.

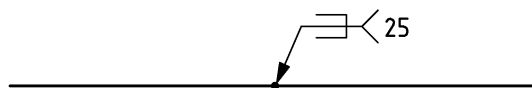


Figure 5 — Design symbol for electrofusion coupling

CEN/TR 13801:2014 (E)

3.3.6 Symbol for flange and backing ring joint

The design symbol given in Figure 6 signifies a rigid connection of two pipes and/or fittings made by means of bolts and nuts.

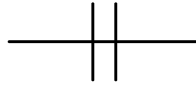


Figure 6 — Design symbol for flange and backing ring joint

3.3.7 Symbol for compression joint

The design symbol given in Figure 7 signifies a rigid connection of two pipes and/or fittings made by means of thread, rubber ring and screw.

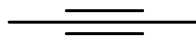
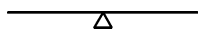


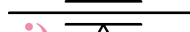
Figure 7 — Design symbol for compression joint

3.3.8 Symbols for brackets

The design symbols for brackets given in Figure 8 signify an anchor bracket or a guide bracket, respectively.



a) Anchor bracket (for fixed point)



b) Guide bracket (for free movement of pipe)

Figure 8 — Design symbols for brackets
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3.4 Abbreviations

For the thermoplastics materials, the following abbreviations apply:

ABS	acrylonitrile-butadiene-styrene
PE	polyethylene
PP	polypropylene
PP-H	polypropylene homopolymer
PVC-C	chlorinated poly(vinyl chloride)
PVC-U	unplasticised poly(vinyl chloride)
SAN+PVC	styrene copolymer blend

4 Design limits of the system

Discharge systems of thermoplastics are primarily designed for intermittent waste discharges from domestic origin including from washing and dishwashing machines. Discharge systems of PE, PP, and PVC-C are also designed for discharges from public laundries, launderettes or other installations where long periods of high

temperature discharge occur. For the design of systems for other discharges than domestic waste, see Clause 12 and manufacturer's recommendations.

Apply the requirements for the calculation of the flow capacity of plumbing installations, as specified in relevant European Standards, subject to any applicable national and/or local regulations.

Design of the systems should take into account applicable national regulations with regard to reaction to fire and fire resistance.

Design of the systems should take into account applicable national regulations on acoustic of the building, including provision on mounting and fixing, acoustic properties of the products and noise protection.

NOTE Among European Standards, EN 12056-2 and EN 12056-3 are primarily applicable for flow capacity calculation.

5 Storage, transport and handling

5.1 General

Attention is drawn to any relevant local and/or national safety regulations.

Avoid damage to the surfaces and ends of pipe and fittings.

Loading and handling of components made of PP-homopolymers (marked PP-H) for which performance impact testing is carried out at 23 °C (see EN 1451-1) is not recommended at ambient temperatures lower than +5 °C. For components made of other materials (e.g. PVC, PP-copolymers), follow the manufacturer's instructions regarding installation at low temperature.

Support pipes with sockets and with pre-assembled fittings, in such a way that they are protected from damage and that the ends are free from loading, e.g. by alternating the socket and non-socket ends in given or adjacent layers.

5.2 Transport

Load pipes and fittings in such a way that no damage occurs during transport (see Figure 9).

Stack the pipes at a maximum stacking height of 1,5 m unless otherwise specified in the manufacturer's instructions, for example when transporting caged bundles.

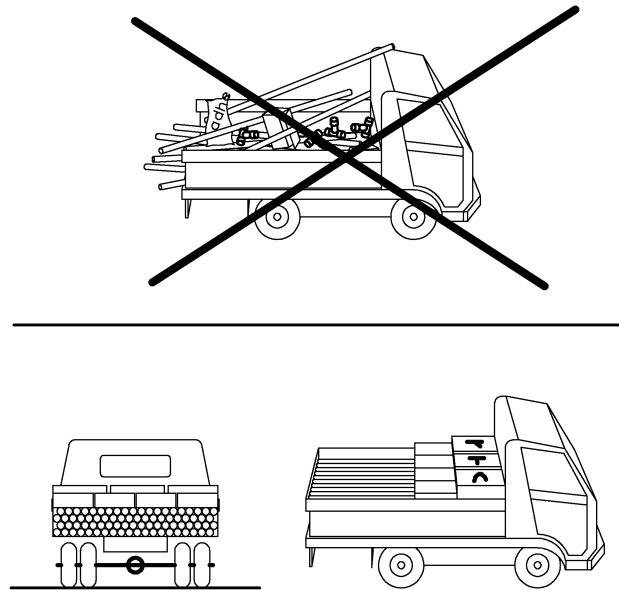


Figure 9 — Loading for transport

5.3 Storage

Do not carelessly unload pipes and fittings (see Figure 10).

Provide a storage area free from substances harmful to the relevant thermoplastics (see Clause 12), comprising smooth and level ground or a flat timber base to avoid the risk of bent or damaged pipes. Where PE pipes are supplied in coils, store them either stacked flat one on top of the other, or (chiefly for sizes greater than DN 90) vertically in purpose-built racks or cradles.

Avoid storage in direct sunlight over a period longer than one year. Where long-term storage and/or strong sunlight is expected, screening from the direct rays of the sun is recommended, except for black-coloured PE components.

Recommended maximum stacking height is 1,5 m [see Figure 10, detail a)] unless otherwise stated in the manufacturer's instructions, for example when stacking caged bundles [see Figure 10, detail b)].

Dimensions in metres

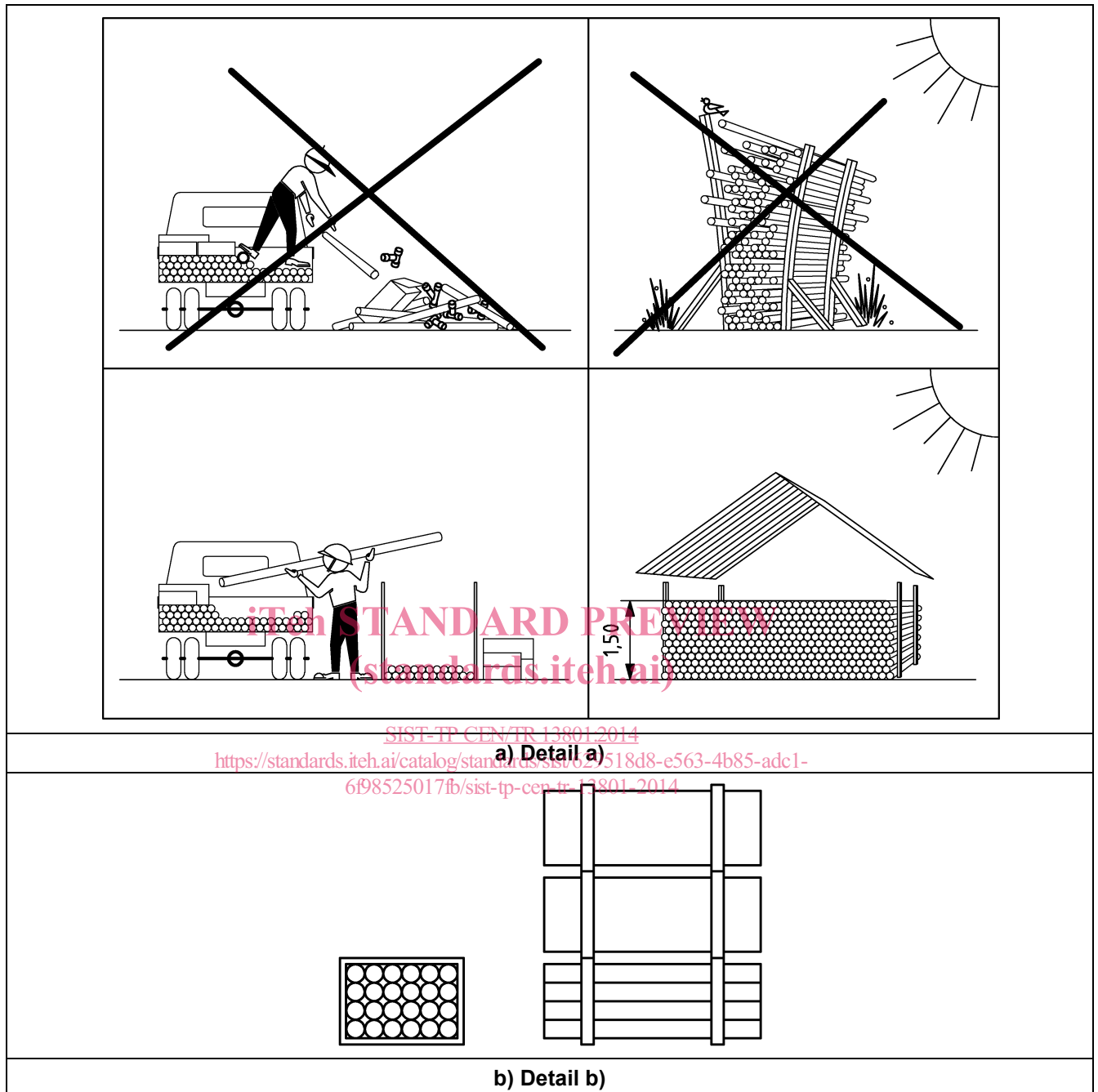


Figure 10 — Storage on site

5.4 Handling on site

To avoid risk of damage, carry, not drag, pipes and fittings to the work place (see Figure 11).

NOTE Careless handling might lead to damaged materials and faulty installations.