



**NSAI**  
Standards

Irish Standard  
I.S. EN 1610:2015

# Construction and testing of drains and sewers

## I.S. EN 1610:2015

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):*

*NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.*

*This document is based on:*

EN 1610:2015

*Published:*

2015-09-02

*This document was published under the authority of the NSAI and comes into effect on:*

2015-09-21

ICS number:

93.030

NOTE: If blank see CEN/CENELEC cover page

NSAI  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

Sales:  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

## National Foreword

I.S. EN 1610:2015 is the adopted Irish version of the European Document EN 1610:2015, Construction and testing of drains and sewers

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with this document does not of itself confer immunity from legal obligations.**

*In line with international standards practice the decimal point is shown as a comma (,) throughout this document.*

This page is intentionally left blank

EUROPEAN STANDARD

**EN 1610**

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2015

ICS 93.030

Supersedes EN 1610:1997

English Version

## Construction and testing of drains and sewers

Mise en oeuvre et essai des branchements et  
canalisations d'assainissement

Einbau und Prüfung von Abwasserleitungen und -  
kanälen

This European Standard was approved by CEN on 24 July 2015.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

<b>Contents</b>	<b>Page</b>
European foreword.....	5
<b>1</b> Scope.....	<b>6</b>
<b>2</b> Normative references.....	<b>6</b>
<b>3</b> Terms and definitions.....	<b>6</b>
<b>4</b> General.....	<b>8</b>
4.1 Technical principles.....	8
4.2 Safeguarding design decisions.....	9
4.3 Short sections of trench.....	9
<b>5</b> Construction components and materials.....	<b>10</b>
5.1 General.....	10
5.2 Materials used for embedment.....	10
5.2.1 General.....	10
5.2.2 Native soil.....	10
5.2.3 Imported materials.....	10
5.3 Materials used for main backfill.....	12
<b>6</b> Construction of trench.....	<b>12</b>
6.1 General.....	12
6.1.1 Introduction.....	12
6.1.2 Working space and soil compaction.....	12
6.1.3 Transmission of load between trench support system and soil.....	12
6.1.4 Installing and removing the trench support system.....	13
6.2 Trenches.....	13
6.3 Trench width.....	13
6.3.1 Maximum trench width.....	13
6.3.2 Minimum trench width.....	13
6.3.3 Determination of trench width.....	15
6.4 Trench stability.....	15
6.5 Trench bottom.....	15
6.6 Dewatering.....	16
<b>7</b> General principles of embedment and support.....	<b>16</b>
7.1 General.....	16
7.2 Bedding construction types.....	17
7.2.1 Bedding construction type 1.....	17
7.2.2 Bedding construction type 2.....	17
7.2.3 Bedding construction type 3.....	17
7.3 Special methods of bedding or support.....	18
<b>8</b> Installation.....	<b>18</b>
8.1 General.....	18
8.2 Setting out.....	18
8.3 Delivery, handling and transportation on site.....	18
8.4 Storage.....	18
8.5 Lifting of components.....	19
8.6 Laying.....	19
8.6.1 General.....	19

8.6.2	Line and level .....	19
8.6.3	Jointing .....	19
8.6.4	Socket holes .....	19
8.6.5	Pipe cutting .....	20
8.6.6	Provisions for future connections .....	20
8.6.7	Other instructions .....	20
8.7	Special forms of constructions.....	20
8.7.1	Pipelines above ground.....	20
8.7.2	Pipelines within protective pipes.....	20
8.7.3	Brick and in situ concrete sewers.....	20
8.7.4	Pipelines through, under or close to structures.....	20
8.8	Supporting and anchoring.....	20
8.9	Manholes and inspection chambers .....	21
9	Connection to pipes and manholes .....	21
9.1	General .....	21
9.2	Connection by junctions.....	21
9.3	Connection by connecting fittings .....	21
9.4	Connection by saddle fittings .....	22
9.5	Connection by welding.....	22
9.6	Connection to manholes and inspection chambers.....	22
10	Testing during construction .....	22
11	Backfilling.....	22
11.1	General .....	22
11.2	Compaction .....	22
11.3	Embedment and initial backfill .....	23
11.4	Main backfill.....	23
11.5	Removal of trench support system.....	23
11.6	Surface reinstatement.....	24
12	Final inspection and/or testing of pipelines and manholes after backfilling.....	24
12.1	General .....	24
12.2	Visual inspection.....	24
12.3	Leaktightness .....	24
12.4	Embedment and main backfill .....	24
12.4.1	General .....	24
12.4.2	Compaction .....	24
12.4.3	Pipe deformation .....	24
13	Procedures and requirements for testing gravity pipelines.....	25
13.1	General .....	25
13.2	Testing with air (method "L") .....	25
13.3	Testing with water (method "W").....	28
13.3.1	Test pressure.....	28
13.3.2	Conditioning time .....	29
13.3.3	Test requirements.....	29
13.3.4	Testing time .....	29
13.4	Testing individual joints .....	30
14	Testing of pressure pipelines.....	30
15	Qualifications .....	30
Annex A (informative)	Dewatering .....	31
A.1	General .....	31

**EN 1610:2015 (E)**

<b>A.2</b>	<b>Sump pumping from trench bottom.....</b>	<b>31</b>
<b>A.3</b>	<b>Deep wells.....</b>	<b>31</b>
<b>A.4</b>	<b>Vertical well points.....</b>	<b>32</b>
<b>A.5</b>	<b>Horizontal pipe dewatering .....</b>	<b>32</b>
<b>A.6</b>	<b>Eductor well pointing .....</b>	<b>32</b>
<b>Annex B (informative) Abstract from DIRECTIVE 2014/25/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors and repealing Directive 2004/17/EC (Text with EEA relevance) .....</b>		
		<b>33</b>
<b>Annex C (informative) Manufacturer's Instructions .....</b>		
		<b>34</b>
<b>Annex D (informative) Additional national public documents .....</b>		
		<b>35</b>
<b>D.1</b>	<b>France.....</b>	<b>35</b>
<b>D.2</b>	<b>Germany .....</b>	<b>35</b>
<b>D.3</b>	<b>The Netherlands .....</b>	<b>35</b>
<b>D.4</b>	<b>Austria.....</b>	<b>35</b>
<b>D.5</b>	<b>Switzerland: .....</b>	<b>36</b>
<b>D.6</b>	<b>Sweden.....</b>	<b>36</b>
<b>D.7</b>	<b>UK.....</b>	<b>36</b>
<b>Bibliography.....</b>		<b>38</b>



## **European foreword**

This document (EN 1610:2015) 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 March 2016, and conflicting national standards shall be withdrawn at the latest by March 2016.

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 1610:1997.

The main changes with respect to the previous edition are listed below:

- updating of references and their associated requirements;
- addition of requirements for the soil-pipe-system.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## EN 1610:2015 (E)

### 1 Scope

This European Standard is applicable to the construction and related testing of drains and sewers usually buried in the ground and usually operating under gravity but up to 0,5 kPa when surcharged.

The construction of pipelines operating under pressure is covered by this European Standard together with EN 805 as appropriate (e.g. for testing).

This European Standard is applicable to drains and sewers installed in trenches, under embankments or above ground. For trenchless construction EN 12889 applies. Additionally, other local or national regulations may apply, e.g. concerning health and safety, pavement reinstatement and requirements for tightness testing.

NOTE Further information is given by reference to national documents listed in Annex D.

### 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 476:2011, *General requirements for components used in drains and sewers*

EN 752, *Drain and sewer systems outside buildings*

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

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

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. The same definitions apply for trenches with vertical or sloping sides and for pipes laid below embankments. Some of these terms are illustrated in Figure 1.

#### 3.1

##### **bedding**

part of the construction which supports the pipe between the trench bottom and the sidefill or initial backfill

Note 1 to entry: The bedding consists of upper and lower bedding. In the case of the pipe laid on natural trench bottom, the trench bottom is the lower bedding.

#### 3.2

##### **compaction layer thickness**

thickness of each new layer of fill material prior to its compaction

#### 3.3

##### **depth of cover**

vertical distance from the top of the pipe barrel to the surface

#### 3.4

##### **embedment**

fill around the pipe including bedding, sidefill and initial backfill

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
  - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-