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Irish Standard  
I.S. EN 1538:2010

# Execution of special geotechnical work - Diaphragm walls

## I.S. EN 1538:2010

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English Version

## Execution of special geotechnical work - Diaphragm walls

Exécution des travaux géotechniques spéciaux - Parois  
moulées

Ausführung von Arbeiten im Spezialtiefbau - Schlitzwände

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## Foreword

This document (EN 1538:2010) has been prepared by Technical Committee CEN/TC 288 "Execution of special geotechnical works", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by March 2011, and conflicting national standards shall be withdrawn at the latest by March 2011.

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 1538:2000.

The general scope of TC 288 is the standardisation of the execution procedures for geotechnical works (including testing and control methods), and of the required material properties. WG15 has been charged to revise EN 1538:2000, with the subject area of both retaining and cut-off diaphragm walls. This standard does not address the execution of barrettes, which is covered by EN 1536, *Execution of special geotechnical work — Bored piles*.

The design, planning and execution of retaining and cut-off diaphragm walls call for experience and knowledge in this specialised field. The execution phase requires skilled and qualified personnel and the present standard cannot replace the expertise of specialist contractors.

The document has been prepared to stand alongside EN 1997-1, *Eurocode 7: Geotechnical design — Part 1: General rules* and EN 1997-2, *Eurocode 7: Geotechnical design — Part 2: Ground investigation and testing*. This standard expands on design only where necessary (e.g. the detailing of reinforcement) and provides full coverage of the construction and supervision requirements.

This standard contains additional requirements on concrete complementing the respective provisions of EN 206-1 and of EN 13670. The three standards are not yet fully accorded. It is anticipated that during future revisions several provisions now contained in EN 1538, e.g. in 6.1, 6.3 and 8.8 could be transferred to EN 206-1 and EN 13670.

This document was revised by a working group comprising delegates from 11 European countries. The comments from 13 European countries have been received and taken into account.

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, 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.

## 1 Scope

This European Standard establishes general principles for the execution of diaphragm walls as either retaining walls or cut-off walls.

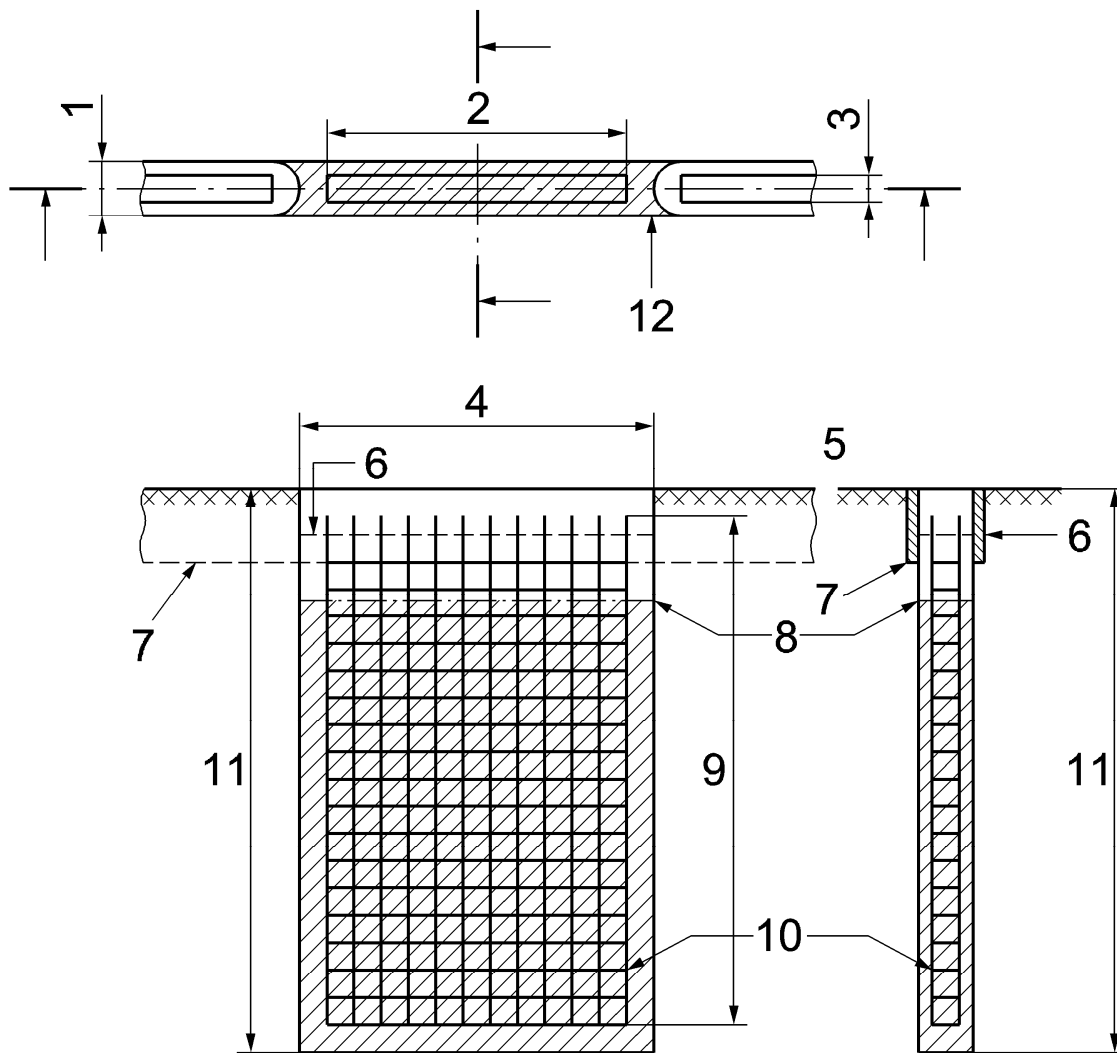
NOTE 1 This standard covers only structures constructed in a trench excavated with a support fluid or in dry conditions, where soil is removed and replaced by concrete or slurry and with wall thickness  $B \geq 40$  cm.

NOTE 2 Diaphragm walls can be permanent or temporary structures.

NOTE 3 The following types of structure are considered:

- a) retaining walls: usually constructed to support the sides of an excavation in the ground. They include:
  - 1) cast in situ concrete diaphragm walls;
  - 2) precast concrete diaphragm walls;
  - 3) reinforced slurry walls;
- b) cut-off walls: usually constructed to prevent migration of groundwater, clear or polluted, or of other contaminants present in the ground. They include:
  - 1) slurry walls (possibly with membranes or sheet piles);
  - 2) plastic concrete walls.

NOTE 4 Walls formed shallow vertical trenches (typically excavations with a ratio of depth over thickness  $D/B < 5$  or  $D < 5$  m) are not covered by this standard.



**Key**

- |   |   |
|---|---|
| 1 Wall thickness ( $B$ )                  | 7 Guide-wall                            |
| 2 Horizontal length of reinforcement cage | 8 Cut off level                         |
| 3 Cage width                              | 9 Vertical length of reinforcement cage |
| 4 Length of panel                         | 10 Reinforcement cage                   |
| 5 Platform level                          | 11 Depth of excavation ( $D$ )          |
| 6 Casting level                           | 12 Concave portion of curved joints     |

**Figure 1 — Geometry of a panel**





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