D

Materials and Workmanship

Building Regulations 2013

Technical Guidance Document

Comhshaol, Pobal agus Rialtas Áitiúil
Environment, Community and Local Government

Building Regulations 2013

Technical Guidance Document D

Materials and Workmanship

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Building Regulations 2013
Technical Guidance Document D
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Introduction

This document has been published by the Minister for the Environment, Community and Local Government under article 7 of the Building Regulations (as amended). It provides guidance in relation to Part D of the Second Schedule to the Regulations as inserted by the Building Regulations (Part D Amendment) Regulations 2013 (S.I. No. 224 of 2013. The document should be read in conjunction with the Building Regulations 1997 to 2013, and other documents published under these Regulations.

In general, Building Regulations apply to the construction of new buildings and to extensions and material alterations to buildings. In addition, certain parts of the Regulations apply to existing buildings where a material change of use takes place. Otherwise, Building Regulations do not apply to buildings constructed prior to 1 June, 1992.

Transitional Arrangements

In general, this document applies to works where the works commence or takes place, as the case may be on or after 1 July 2013. Technical Guidance Document D - Materials and Workmanship, dated 2000, also ceases to have effect from that date.

The Guidance

The materials, methods of construction, standards and other specifications (including technical specifications) which are referred to in this document are those which are likely to be suitable for the purposes of the Regulations. Where works are carried out in accordance with the guidance in this document, this will, prima facie, indicate compliance with Part D of the Second Schedule to the Building Regulations. However, the adoption of an approach other than that outlined in the guidance is not precluded provided that the relevant requirements of the Regulations are complied with. Those involved in the design and construction of a building may be required by the relevant building control authority to provide such evidence as is necessary to establish that the requirements of the Building Regulations are being complied with.

Existing Buildings

In the case of material alterations or material changes of use of existing buildings, the adoption without modification of the guidance in this document may not, in all circumstances, be appropriate. In particular, the adherence to guidance including codes, standards or technical specifications, intended for application to new work may be unduly restrictive or impracticable. Buildings of architectural or historical interest are especially likely to give rise to such circumstances. In these situations, alternative approaches based on the principles contained in the document may be more relevant and should be considered.

Technical Specifications

Building Regulations are made for specific purposes, e.g. to provide, in relation to buildings, for the health, safety and welfare of persons, the conservation of energy and access for people with disabilities. Technical specifications (including harmonised European product standards, European Technical Assessments, National Standards and Agrément Certificates) are relevant to the extent that they relate to these considerations. Any reference to a technical specification is a reference to so much of the specification as is relevant in the context in which it arises. Technical specifications may also address other aspects not covered by the Regulations.

A reference to a technical specification is to the latest edition (including any amendments, supplements or addenda) current at the date of publication of this Technical Guidance Document. However, if this version of the technical specification is subsequently revised or updated by the issuing body, the new version may be used as a source of guidance provided that it continues to

address the relevant requirements of the Regulations.

A list of other standards and publications that deal with matters relating to this Part of the Building Regulations is included at the end of this document. These standards and publications maybe used as a source of further information but do not form part of the guidance.

Interpretation

In this document, a reference to a section, sub-section, part, paragraph or diagram is, unless otherwise stated, a reference to a section, sub-section, part, paragraph or diagram, as the case may be, of this document. A reference to another Technical Guidance Document is a reference to the latest edition of a document published by the Minister for the Environment, Community and Local Government under article 7 of the Building Regulations 1997. Diagrams are used to illustrate a particular aspect of construction - they may not show all the details of construction.

Part D - The Requirement

Part D of the Second Schedule to the Building Regulations 1997 to 2013 provides as follows:

Materials and workmanship	D1	All works to which these Regulations apply shall be carried out with proper materials and in a workmanlike manner.
Letterplates	D2	A letter plate aperture shall be so positioned at a reasonable height above ground level so as not to endanger the health and safety of persons using such apertures.
Definition for this Part	D3	In this Part, "proper materials" means materials which are fit for the use for which they are intended and for the conditions in which they are to be used, and includes materials which: (a) bear a CE Marking in accordance with the provisions of the Construction Products Regulation; (b) comply with an appropriate harmonised standard or European Technical Assessment in accordance with the provisions of the Construction Products Regulation; or (c) comply with an appropriate Irish Standard or Irish Agrément Certificate or with an alternative national technical specification of any State which is a contracting party to the Agreement on the European Economic Area, which provides in use an equivalent level of safety and suitability. "Agreement on the European Economic Area" means the Agreement on the European Economic Area between the European Union, its Member States and the Republic of Iceland, the Principality of Liechtenstein and the Kingdom of Norway as published in the Official Journal of the European Communities (O.J. No. L1, 03.01.1994, page 3). "Construction Products Regulation" means Regulation (EU) No. 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC.

General

0.1 Materials include products, components, fittings, items of equipment and backfilling for excavations.

Materials should be: -

(a) of a suitable nature and quality in relation to the purposes and conditions of their use, and

(b) adequately mixed or prepared, and

(c) applied, used or fixed so as to perform adequately the functions for which they are intended.

Materials used in building work should, as far as is practicable, be free of chlorofluorocarbons (CFCs).

Construction Products Regulation

0.2 The Construction Products Regulation (CPR) (Regulation (EU) No. 305/2011), as referred to in D3 (a) and (b) lays down conditions for the placing or making available on the EU market of construction products by establishing harmonised rules on how to express the performance of construction products in relation to their essential characteristic and on the use of CE Marking on those products.

The CPR is directly applicable in its entirety in Irish law. However, European Union (Construction Products) Regulations 2013 (S.I. No. 225 of 2013) set out national rules regarding market surveillance and penalties etc.

The CPR repeals the Construction Products Directive (89/106/EEC). From 1 July 2013, the CPR requires that construction products covered by a harmonised standard (hEN)[1] have a Declaration of Performance (DoP) and a CE Marking[2] when the product is placed on the EU market (See 0.4 below).

Where a construction product is not covered or not fully covered by a hEN, the CPR provides a voluntary route to CE Marking. By obtaining a European Technical Assessment (ETA) for the product, from a Technical Assessment Body, on the basis of a European Assessment Document (EAD), a manufacturer can make a DoP and affix a CE Marking to the product.

In general, the CE marking will provide basic information on the manufacturer, the product itself, any third party involved in the assessment, along with the reference number of the DoP, the hEN or EAD applied and the levels or classes of the performance declared. The CE marking will be found on the product, its label, the packaging or accompanying documents.

The DoP for the product will contain more detailed information on the product, its performance and those responsible for the various assessment tasks. The DoP is drawn up by the manufacturer, who, in doing so, assumes responsibility for the conformity of the product with the declared performances. The DoP may be a paper or an electronic document.

0.3 While the CPR, as referred to in D3 (a) and (b), deals with the placing and making available of construction products on the market, it should be noted that compliance with the CPR or CE marking by itself does not necessarily indicate that the material is suitable for use in works. Therefore, when incorporating a product into construction works, it is essential that the declared performance of a product is fit for the use in which it is intended.

[1] A list of the harmonised standards under the Construction Products Regulation can be found on the New Approach and Designated Organisations (NANDO) information system website at: http://ec.europa.eu/enterprise/newapproach/nando/index.cfm?fuseaction=cpd.hs&cpr=Y

[2] Except where special provisions apply in Regulation (EU) No. 305/2011.

Technical Specifications

0.4 European standards developed in response to a mandate, from the European Commission, are called 'Harmonised Standards' (hENs). These standards support the implementation of European legislation e.g. the CPR.

Harmonised standards (hENs) under the CPR, developed by European Committee for Standardization (CEN), provide the manufacturer with a route to make a declaration of performance (DoP) for a particular construction product and to affix CE marking. This information is contained in Annex ZA of the standard. A list of the hENs under the CPR can be found on the New Approach and Designated Organisations (NANDO) information system website[3].

0.5 There are also non-harmonised European Standards (ENs), which in the case of construction related standards, are developed by CEN. They do not have an Annex ZA and do not provide a route to CE Marking.

0.6 In Ireland, all European Standards (both harmonised and non-harmonised standards) are given the status of national standards (I.S. ENs) and any conflicting national standards/ technical specifications are withdrawn, by the National Standards Authority of Ireland (NSAI).

0.7 Traditionally, national standards/ technical specifications for construction products used in Ireland e.g. Irish standards (I.S.), Standard Recommendations (S.R.) or British Standards (BS) etc., are prescriptive in nature, specifying testing methods and the performance requirements of construction products for particular intended uses. In contrast, the hENs and some ENs provide harmonised testing methods, performance declaration methods and conformity assessment rules. For many construction products, the hENs and ENs do not set minimum performance levels or threshold levels for specific intended uses.

0.8 In this regard, the NSAI has produced additional national guidance for some hENs and ENs in the form of National Annexes or Standard Recommendations (SRs) which provide guidance on the appropriate minimum performance levels for specific intended uses of the products in Ireland. Where a construction product is covered by such guidance, compliance with the National Annex/ Standard Recommendation in so far as it relates to the product may be used to demonstrate that the product, when incorporated into construction works is fit for the use for which it is intended. In the absence of such guidance, when incorporating a product into construction works, it is essential that the declared performance of a product is fit for the use in which it is intended. A list of additional guidance to the hENs and ENs can be viewed on the NSAI website www.nsai.ie.

0.9 National standards/ technical specifications not covered by a European standard will continue to exist. Compliance with these documents may be used to demonstrate that the product is fit for the use in which it is intended.

0.10 The process of Agrément certification applies to those products and processes which do not fall within the scope of existing construction standards, either because they are innovative or because they deviate from established norms. NSAI Agrément assesses, specifies testing, and where appropriate, issues Agrément certificates confirming that new building products, materials, techniques and equipment are safe and fit for purpose in accordance with the Irish Building Regulations and with the terms of the certificate. Such certificates may be in addition to, but not conflict with, CE marking.

[3]The New Approach and Designated Organisations (NANDO) information system website may be found at: http://ec.europa.eu/enterprise/newapproach/nando/index.cfm?fuseaction=cpd.hs&cpr=Y

0.11 Requirement D3(c) refers to an equivalent level of safety and suitability. The National Standards Authority of Ireland may be consulted for advice in relation to equivalence with an Irish technical specification.

Powers of Inspection by Authorised Persons

0.12 Section 11 of the Building Control Acts 1990 and 2007 (No. 3 of 1990 and No. 21 of 2007), empowers an authorised officer of a building control authority to take action in relation to construction works, including the taking of samples of materials, as may be necessary to establish whether or not the requirements of the Building Regulations are being complied with.

Tolerances

0.13 All building dimensions, including those for components, materials and spaces, are subject to the tolerances of normal building practice. These tolerances are applicable to all dimensions specified in the Technical Guidance Documents where a minimum or maximum is not specified. BS 6954: Tolerances for building, describes the nature of dimensional variability in building and the purposes for which it has to be quantified. It also defines the factors to be taken into account in the evaluation, specification and verification of tolerances for the manufacture of building components and for site work. It applies to components and buildings generally, including those designed in accordance with the principles of modular co-ordination.

Section1
Materials

Fitness of Materials

1.1 Requirement D3 defines what is meant by "proper materials" for use in works. In assessing the fitness for use and conditions of use of a material/ product, consideration should be given to durability, safety, local climatic conditions (e.g. wind driven rain, humidity etc.) and other such issues.

While the primary route for establishing the fitness of a material for its intended use is through the recognised standardisation procedures referred to in paragraphs (a), (b) or (c) of Requirement D3, other methods may also be considered in establishing fitness including: -

(a) Independent certification schemes by approved bodies e.g. the National Standards Authority of Ireland (NSAI). Such certification schemes may provide information on the performance of a product or certify that the material complies with the requirements of a recognised document and indicates it is suitable for its intended purpose and use. Accreditation of the body, by a member of the European cooperation for Accreditation (EA) such as the Irish National Accreditation Board (INAB), offers a way of ensuring that such certification can be relied on. All such certification schemes may be in addition to, but not conflict with, CE marking;

(b) Tests and calculations carried out by an accredited laboratory, showing that the material is capable of performing the function for which it is intended. Accreditation by a member of the European cooperation for Accreditation (EA) such as the Irish National Accreditation Board (INAB) offers a way of ensuring that tests are conducted in accordance with recognised criteria and can be relied on;

(c) Performance in use, i.e. that the material can be shown by experience, such as its use in a substantially similar way in an existing building, to be capable of enabling the building to satisfy the relevant functional requirements of the Building Regulations.

Note: Schemes which comply with the relevant recommendations of I.S. EN ISO 9001: 2008 Quality management systems are intended to ensure that materials can be expected to be of consistent quality. They are not intended to show that the materials conform to an appropriate technical specification.

Resistance to Moisture

1.2 Where any material is likely to be adversely affected by condensation, by moisture from the ground or by airborne moisture such as rain or snow: -

(a) the construction should prevent the passage of moisture to the material, or

(b) the material should be treated or otherwise protected from moisture.

See also Technical Guidance Document C – Site Preparation and Resistance to Moisture.

Resistance to Subsoil

1.3 Any material in contact with the ground, or in the foundations, should be capable of resisting attacks by deleterious material in the subsoil such as sulfates (see also Technical Guidance Document C – Site Preparation and Resistance to Moisture).

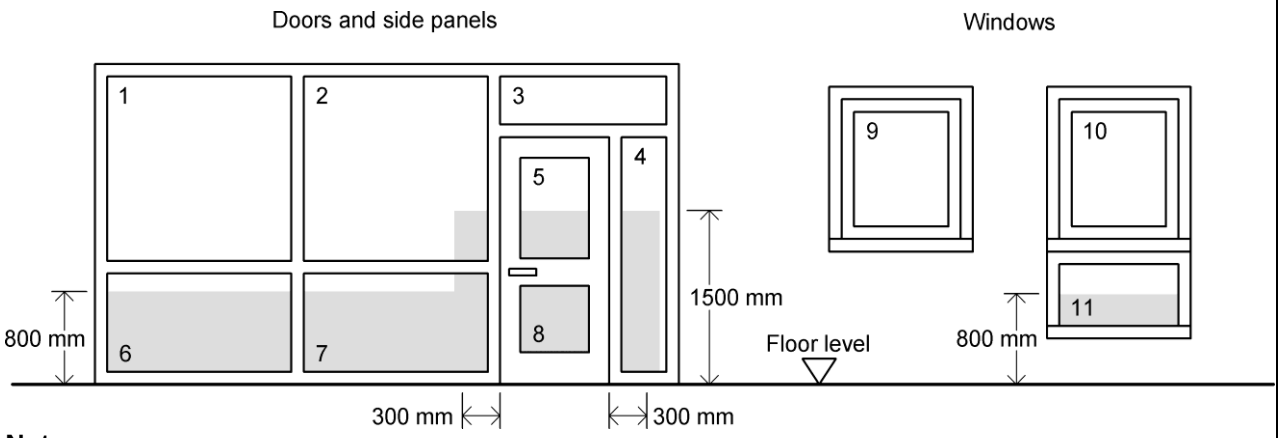
High Alumina Cement

1.4 High alumina cement should not be used in structural work, including foundations.

Glazing

1.5 Any unguarded glazing, in critical locations in doors and door side panels, at low level in walls and partitions should be safety glazing in accordance with the recommendations of BS 6262, Part 4. Diagram 1 shows the critical locations in terms of safety. (See also Technical Guidance Document M – Access and Use for manifestation of glazing and Technical Guidance Document K – Stairways, Ladders Ramps and Guards for safety glazing in the context of stairways, ramps and guards)

Diagram 1 Critical glazing locations in internal and external walls *Par. 1.5*

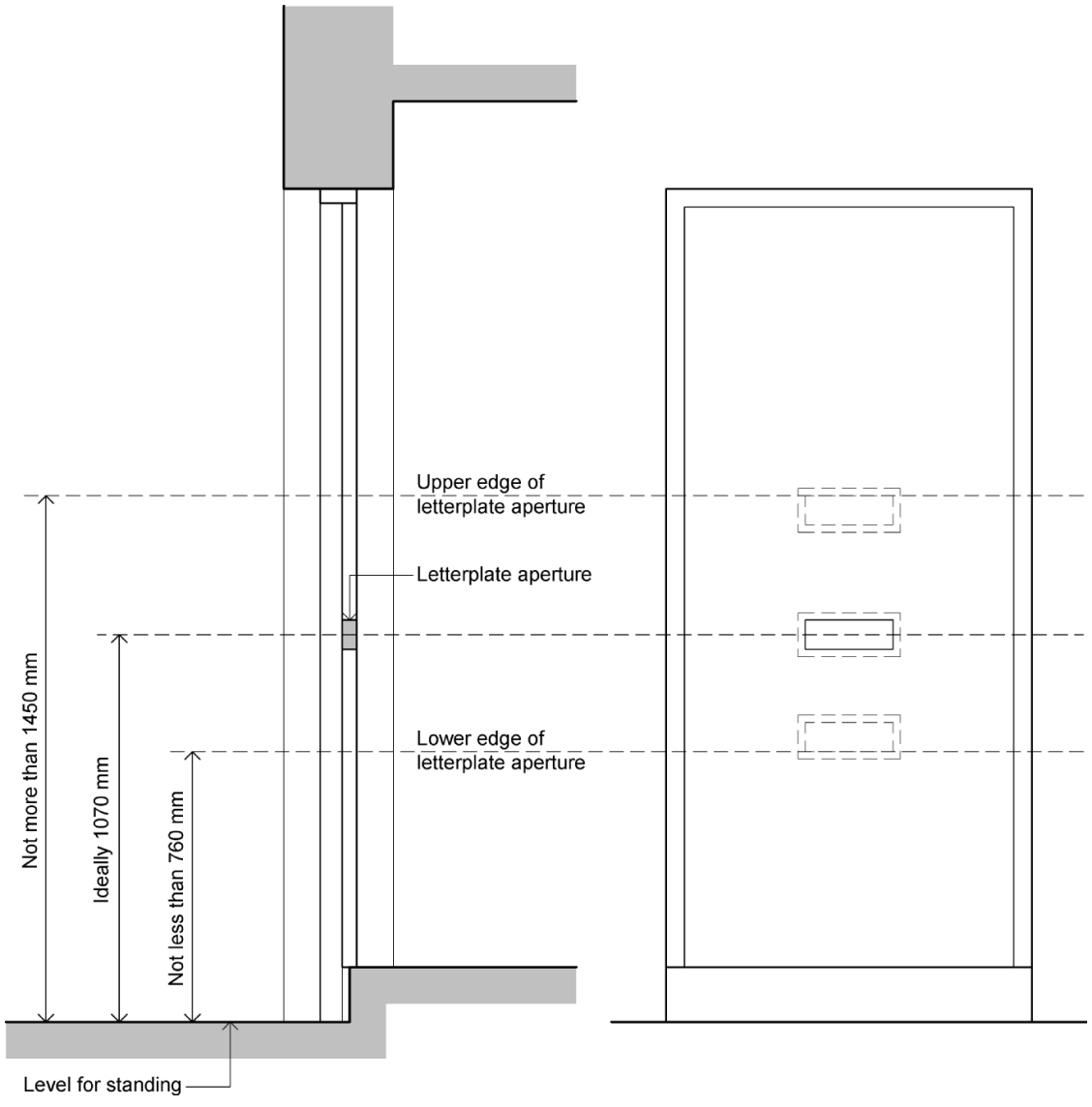


Note:
The shaded areas show critical locations in terms of safety. Glazing areas numbered 2, 4, 5, 6, 7, 8 and 11 should be in accordance with the recommendations of BS 6262, Part 4.

Letter Plates

1.6 Letter plates should conform to I.S. EN 13724: 2013, and should be positioned in accordance with Diagram 2.

Diagram 2 Positioning of Letter Plate *Par. 1.6*



Section 2
Workmanship

Adequacy of Workmanship

2.1 A proper standard of workmanship and the appropriate use of any material is essential to achieving compliance with the requirements of the Regulations.

2.2 The conditions of use of particular materials and in some cases the methods of achieving proper standards of workmanship are contained in technical specifications referred to in Requirement D3.

BS 8000 Workmanship on building sites, which gathers together guidance from other British Standards Institution Codes and Standards, gives guidance on basic workmanship for conventional types of building work.

Agrément Certificates issued by NSAI Agrément may specify workmanship for the products covered by the certificates.

2.3 If other methods are being used, it may be possible to demonstrate that the workmanship satisfies the relevant requirement by: -

(a) quality assurance schemes, i.e. the method is covered by a scheme which complies with the relevant recommendations of I.S. EN ISO 9001: 2008 Quality management systems; or

(b) performance in use i.e. by showing, such as in an existing building, a previous use of the method of workmanship is capable of performing the function for which it is intended.

2.4 Tests can be used to show that workmanship is appropriate. Guidance on tests currently used to demonstrate compliance are detailed in the relevant Technical Guidance Document to the Building Regulations e.g. air permeability pressure tests are described in TGD L 2011 - Conservation of Fuel and Energy.

2.5 To ensure a proper standard of workmanship, it is essential that persons are competent, possessing sufficient training, experience and knowledge appropriate to the nature of the work he or she is required to perform and having particular regard to the size and complexity of such works.

Standards and publications

Standards referred to:

I.S. EN ISO 9000: 2005 - Quality management systems. Fundamentals and vocabulary.

I.S. EN ISO 9001: 2008/AC: 2009 - Quality management systems. Requirements.

I.S. EN 13724: 2013 Postal services – Apertures of private letter boxes and letter plates – Requirements and test methods

BS 6262 - Glazing for buildings Part 4: 2005 - Code of practice for safety Human impact.

BS 6954 - Tolerances for building Part 1: 1988 (1994) - Recommendations for basic principles for evaluation and specification.

BS 6954 - Tolerances for building Part 2: 1988 (1994) - Recommendations for statistical basis for predicting fit between components having a normal distribution of sizes.

BS 6954 - Tolerances for building Part 3: 1988 (1994) - Recommendations for selecting target size and predicting fit.

BS 8000-1: 1989 - Workmanship on building sites. Code of practice for excavation and filling.

BS 8000-2-1: 1990 - Workmanship on building sites. Code of practice for concrete work. Mixing and transporting concrete. AMD 9324 1997.

BS 8000-2-2: 1990 - Workmanship on building sites. Code of practice for concrete work. Sitework with in situ and precast concrete.

BS 8000-3: 2001 - Workmanship on building sites. Code of practice for masonry.

BS 8000-4: 1989 - Workmanship on building sites. Code of practice for waterproofing.

BS 8000-5: 1990 - Workmanship on building sites. Code of practice for carpentry, joinery and general fixings.

BS 8000-6: 1990 - Workmanship on building sites. Code of practice for slating and tiling of roofs and claddings.

BS 8000-7:1990 Workmanship on building sites. Code of practice for glazing.

BS 8000-8: 1994 - Workmanship on building sites. Code of practice for plasterboard partitions and dry linings.

BS 8000-9: 2003 - Workmanship on building sites. Cementitious levelling screeds and wearing screeds. Code of practice.

BS 8000-10: 1995 - Workmanship on building sites. Code of practice for plastering and rendering. AMD 9271 1996.

BS 8000-11: 2011 - Workmanship on building sites – Internal and external wall and floor tiling. Ceramic and agglomerated stone tiles, natural stone and terrazzo tiles and slabs, and mosaics. Code of practice.

BS 8000-12: 1989 - Workmanship on building sites. Code of practice for decorative wallcoverings and painting.

BS 8000-13: 1989 - Workmanship on building sites. Code of practice for above ground drainage and sanitary appliances.

BS 8000-14: 1989 - Workmanship on building sites. Code of practice for below ground drainage.

BS 8000-15: 1990 - Workmanship on building sites. Code of practice for hot and cold water services (domestic scale).

BS 8000-16: 1997+A1:2010 - Workmanship on building sites. Code of practice for sealing joints in buildings using sealants.

Legislation referred to:

Building Control Act 1990 and 2007 (S.I. No. 3 of 1990 and S.I. No. 21 of 2007)

Building Regulations (Part D Amendment) Regulations 2013 (S.I. No. 224 of 2013)

Construction Products Regulations (EU) No. 305/2011

Construction Products Directive (89/106/EEC)

European Union (Construction Products) Regulations 2013 (S.I. No 225 of 2013)

Other standards and publications

Construction Products Regulation Information Note

http://www.environ.ie/en/DevelopmentHousing/BuildingStandards/ConstructionProductsRegulationCPR/

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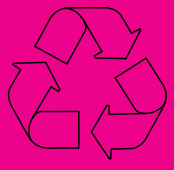

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