BS EN 12317-2:2010

BSI Standards Publication

Flexible sheets for waterproofing — Determination of shear resistance of joints

Part 2: Plastic and rubber sheets for roof waterproofing

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National foreword

This British Standard is the UK implementation of EN 12317-2:2010. It supersedes BS EN 12317-2:2000 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/546/2, Plastics and rubber sheets for Waterproofing.

A list of organizations represented on this committee can be obtained on request to its secretary.

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

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Contents

Page

Foreword

This document (EN 12317-2:2010) has been prepared by Technical Committee CEN/TC 254 “Flexible sheets for waterproofing”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by January 2011, and conflicting national standards shall be withdrawn at the latest by January 2011.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 12317-2:2000.

This European Standard “*Flexible sheets for waterproofing - Determination of shear resistance of joints*” consists of two parts:

- *Part 1: Bitumen sheets for roof waterproofing;*
- *Part 2: Plastic and rubber sheets for waterproofing.*

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Introduction

This European Standard is intended for characterisation of plastic and rubber sheets as manufactured or supplied before use. This test method relates to products or to their components where appropriate, and not to waterproofing membrane systems composed of such products and installed in the works.

This test is intended to be used in conjunction with EN 13956, *Flexible sheet for waterproofing — Plastic and rubber sheets for roof waterproofing — Definitions and characteristics*.

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1 Scope

This European Standard specifies a method for determining the resistance to shearing of joints between two adjacent sheets of the same plastic or rubber sheets for roof waterproofing.

NOTE The shearing characteristics of a joint between two widths of plastic or rubber sheets vary considerably depending on the material, method of jointing, the size of the overlap and the workmanship.

2 Normative references

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

EN 13416, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Rules for sampling*

EN ISO 7500-1, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/ compression testing machines — Verification and calibration of the force-measuring system (ISO 7500-1:2004)*

3 Terms and definitions

For the purposes of this document, the following term and definition apply.

3.1
shear resistance
maximum tensile force required to extend a prepared joint test specimen, in shear, until it breaks or separates

4 Principle

The principle of the test is to pull a specimen of a joint in shear at a constant speed until it breaks or separates. The tensile force is continuously recorded throughout the test.

5 Apparatus

Tensile testing machine equipped with a continuous recording of force and corresponding extension and capable of maintaining a uniform speed of grip separation as specified below.

The tensile testing machine shall have a sufficient loading capacity in excess of 2000 N and a grip separation speed of (100 ± 10) mm/min. The width of grips shall not be less than 50 mm.

The tensile testing machine shall be equipped with grips of a type, which maintain or increase the clamping pressure as a function of the increase of the force applied to the test specimen. The test specimen shall be held so that it does not slip in the grips more than 2 mm.

The method of gripping shall not induce premature rupture close to the grips.

The force measuring system shall meet at least Class 2 of EN ISO 7500-1 (i.e. ± 2 %).

6 Sampling

Samples shall be taken in accordance with EN 13416.

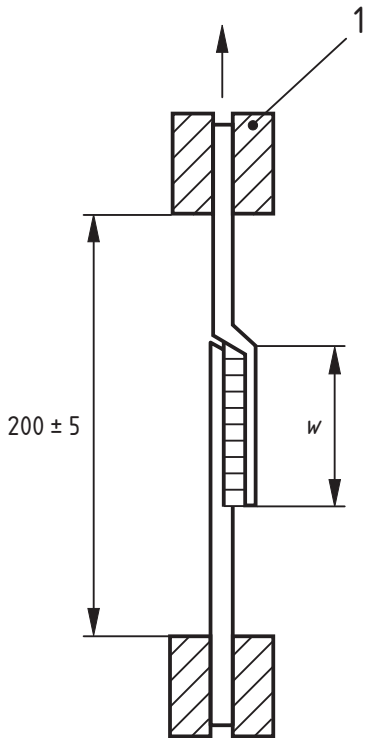
7 Preparation of test pieces and test specimens

Test pieces to be used for jointing should be previously conditioned for at least 20 h at (23 ± 2) °C and at a relative humidity between 30 % and 70 %.

Test pieces of the sheet are joined by the method(s) to be used for installation, both for side lap and end lap jointing, with an overlap that is specified for the product. After jointing, the test piece shall be conditioned for a minimum of 2 h at (23 ± 2) °C and at (50 ± 5) % RH before testing unless the manufacturer recommends differently.

From each of these joint test pieces five rectangular test specimens (50 ± 1) mm wide shall be taken perpendicular to the joint. They shall have such a length, so that the ends of the initial distance between the two grips is (200 ± 5) mm with the joint in the middle (see Figure 1).

Dimensions in millimetres



Key
1 grip
w width of joint

Figure 1 — Shear strength testing of joint

8 Procedure

The test specimen shall be firmly held in the grips of the tensile testing machine, taking care that the longitudinal axis of the test specimen, the axis of the tensile testing machine and the grips are correctly aligned.

Each test specimen shall be marked at the grips in order to identify any slippage out of the grips.

The clear distance between the grips shall be between 3 and 4 times the width of the joint with a minimum of 120 mm and a maximum of 200 mm. No preload shall be applied.

The test is carried out on a test specimen at a temperature of (23 ± 2) °C and at a constant separating speed for the grips of (100 ± 10) mm/min.

The applied tensile force shall be recorded continuously until the test specimen ruptures or shears.

The mode of failure shall be recorded.

9 Expression of results

9.1 Jointing information

State all relevant information on the formation and the conditioning of the joint.

9.2 Evaluation

The mode of failure of each of the specimens shall be reported (see Annex A).

The shear resistance of the specimen is the maximum force recorded during the test.

List the individual values for each set of five specimens in Newton. Calculate and state the shear resistance of the joint as the mean value to the nearest Newton. Calculate and state the standard deviation.

Disregard any test result where the test specimen breaks less than 10 mm from the grips or slips by more than the permitted limit within the grips of the tensile testing machine, and retest with a replacement specimen.

9.3 Precision of the test method

No information is available at this time.

10 Test report

The test report shall include at least the following information:

a) reference to this document (EN 12317-2) and any deviation from it;

b) all details necessary to identify the product tested;

c) all details of how the weld was carried out;

d) information on sampling in accordance with Clause 6;

e) details of preparation of the test specimen in accordance with Clause 7;

f) test results in accordance with Clause 9;

g) the shear resistance and the failure mode;

h) any peculiarities in the method employed or encountered during the test;

i) date of the test(s).

Annex A
(informative)

Failure modes

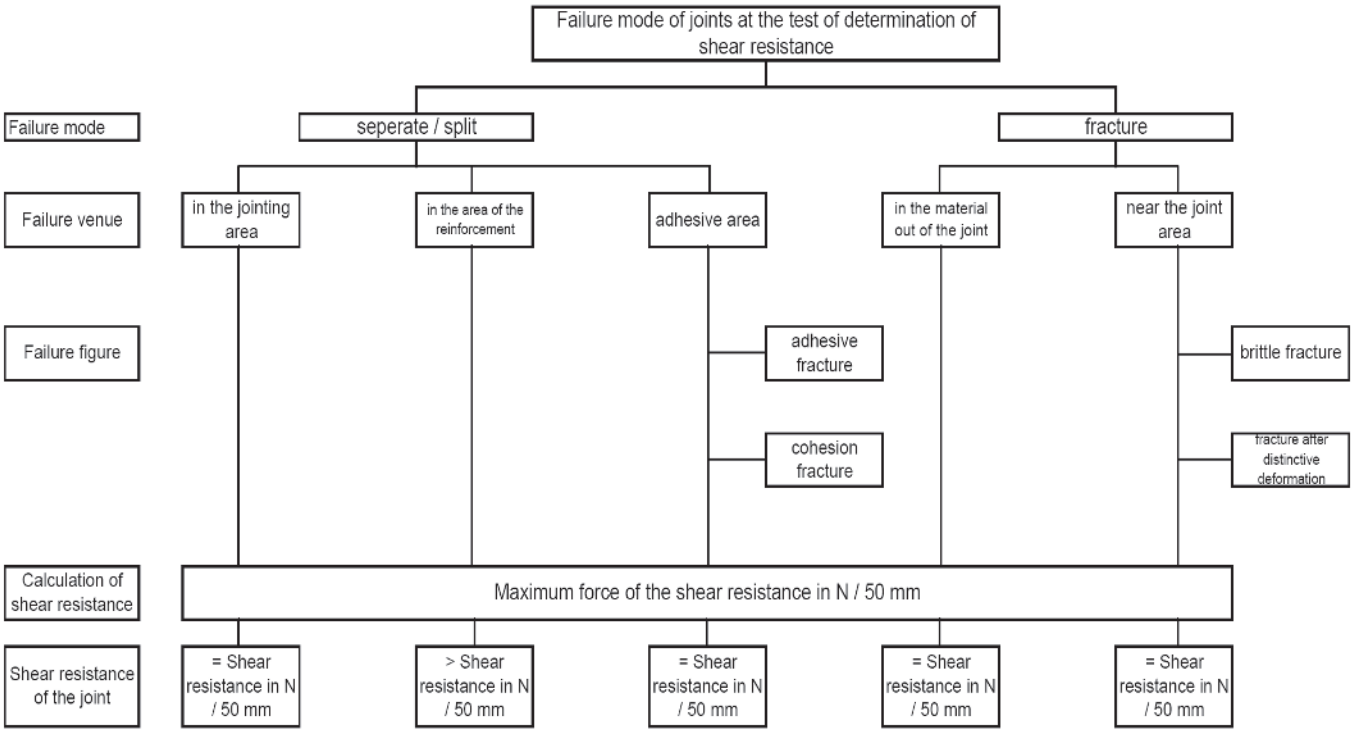


Figure A.1 – Failure modes

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