

CONFIRMED
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Guide to

Assessment of suitability of external cavity walls for filling with thermal insulants —

**Part 1: Existing traditional cavity
construction**

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- Association of Consulting Engineers
- Autoclaved Aerated Concrete Products Association
- Brick Development Association
- British Ceramic Research Association
- British Precast Concrete Federation Ltd.
- Building Employers Confederation
- Calcium Silicate Brick Association Ltd.
- Cement and Concrete Association
- Department of the Environment (Building Research Establishment)
- Department of the Environment (Housing and Construction Industries)
- Department of the Environment (Property Services Agency)
- District Surveyors' Association
- Greater London Council
- Incorporated Association of Architects and Surveyors
- Institution of Civil Engineers
- Institution of Structural Engineers

The following bodies were also represented in the drafting of the standard, through sub-committees and panels:

- Aggregate Concrete Block Association
- Association of British Roofing Felt Manufacturers
- Association of Teachers in Technical Institutions
- Consumer Standards Advisory Committee of BSI
- Dry Material Cavity Insulation Council
- Eurisol (UK) Association of Manufacturers of Mineral Fibre Insulation
- Fire Offices Committee
- Institute of Clerks of Works of Great Britain Inc.
- National Cavity Insulation Association
- National Federation of Clay Industries Ltd.
- National House-building Council
- Refractories Association of Great Britain
- Royal Institute of British Architects
- Royal Institution of Chartered Surveyors
- Structural Insulation Association
- Coopted members

This British Standard, having been prepared under the direction of the Civil Engineering and Building Structures Committee, was published under the authority of the Board of BSI and comes into effect on 31 July 1985

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Foreword

This Part of BS 8208 has been prepared under the direction of the Civil Engineering and Building Structures Standards Committee. It has been published in the form of a guide since it provides a check list of factors to be considered rather than a series of recommendations on what actions to take in the event of defects being discovered. It covers existing cavity walls with masonry and/or concrete leaves not exceeding 12 m in height where the cavity is not bridged by vertical members of structural frames. Other Parts of this standard in course of preparation will cover other types of construction. Design and construction of buildings intended to incorporate cavity insulation will be covered in an amendment to BS 5628-3.

The purpose of the assessment described in this standard is to identify any defects in the wall which may need to be rectified and to enable consideration to be given to features which may affect the choice of cavity wall insulation system or impair the moisture resistance of the wall after filling.

In some cases a wall may be found to be totally unsuitable for cavity filling. In other cases it will not be in accordance with the recommendations for particular systems given in the appropriate British Standard or Agrément certificate. In any event it is generally difficult to determine the condition of the cavity.

It has been assumed in the preparation of this standard that the assessment will be carried out by appropriately qualified and experienced people. Because of the complex nature of buildings, certain features may only become apparent at the time of carrying out the work. It is therefore essential that the installation technicians are trained in assessment.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 24, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 8208 gives guidance on factors to be considered when assessing the suitability of existing external cavity walls with masonry and/or concrete leaves for filling with thermal insulants. It applies to cavity walls where:

- a) the height of the cavity wall (see 2.4) does not exceed 12 m;
- b) vertical members of structural frames do not bridge the cavity (see 2.1);
- c) there is no existing cavity insulation.

NOTE 1 This standard does not give guidance on design and construction of buildings intended to incorporate cavity insulation.

NOTE 2 This standard does not give guidance on particular cavity wall insulation systems (see 2.3) and their specific use and limitations.

NOTE 3 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 8208 the definitions given in BS 5628-3 and BS 6100-5 apply together with the following.

2.1

cavity

air space between two leaves of a cavity wall
(See 6.2.)

2.2

cavity fill

thermal insulation material installed in external cavity walls after construction

2.3

cavity wall insulation system

particular combination of thermal insulation material, installation equipment, material preparation and injection technique

2.4

height of cavity wall

height of external cavity wall above the lowest horizontal damp-proof course (d.p.c.) measured as shown in Figure 1

3 General

3.1 When assessing the suitability of cavity walls for filling with thermal insulants, the following factors should be considered:

- a) form of construction and site conditions (see clause 4);
- b) age of the building (see clause 5);
- c) condition of cavity (see clause 6);
- d) extent of cavity to be filled (see clause 7);
- e) nature and condition of the outer leaf (see clause 8);
- f) nature and condition of the inner leaf (see clause 9);
- g) services within the cavity (see clause 10);
- h) ventilation through the cavity (see clause 11).

These factors may be assessed in any convenient order, provided that they are all taken into account. All relevant data should be recorded.

3.2 When considering the suitability of a particular cavity wall insulation system, all data recorded during the assessment should be used in conjunction with information on that system given in British Standards, Agrément certificates, etc. However comprehensive the information available, there may be special considerations peculiar to the locality of the building being assessed. Where evidence of satisfactory performance of a given system in that locality cannot be obtained, specialist advice should be sought.

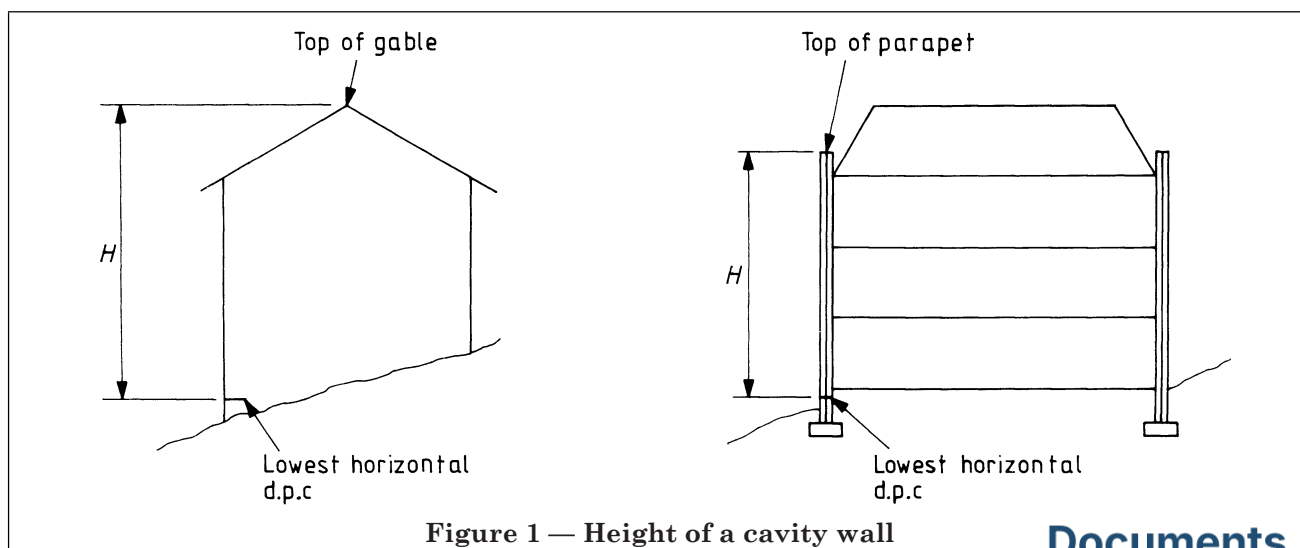


Figure 1 — Height of a cavity wall

4 Form of construction and site conditions

4.1 General

All the factors given in Figure 2 should be considered, referring to 4.2, 4.3 and 4.4 as appropriate.

4.2 Form of construction

Sections of wall not covered by this Part of BS 8208 (see clause 1), e.g. walls of timber frame construction, should be identified and recorded.

4.3 Structural condition

Where there are cracks in the construction generally exceeding 1 mm in width, the cause should be ascertained (see BRE Digest 251) or specialist advice should be sought.

4.4 Assessment of exposure

The exposure to wind-driven rain should be assessed and recorded.

NOTE The latest method for assessing exposure to wind-driven rain is described in DD 93. For comparisons between values obtained using this method and an earlier method described in BS 5618, see Appendix A.

5 Age of the building

5.1 General

All the factors given in Figure 3 should be considered, referring to 5.2 or 5.3 as appropriate.

A check should be made to see whether there is any evidence of dampness. Where necessary, remedies should be recommended.

5.2 Design details

It is helpful to check original drawings and/or obtain confirmation from the builder that the building was built following the recommendations of the relevant standards, e.g. BS 5390, BS 5628-3, BS 8110.

5.3 Construction defects

Where less than 3 years has elapsed since first occupancy, there may be defects in the construction which will result in water penetration during spells of bad weather. Such spells may not occur during this initial 3 year period; equally, other defects, e.g. settlement, may not have become apparent.

The older the building, the more likely it is that the building will have been subjected to spells of bad weather and also that construction defects will have become apparent. (Cavity wall construction was introduced towards the end of the last century.)

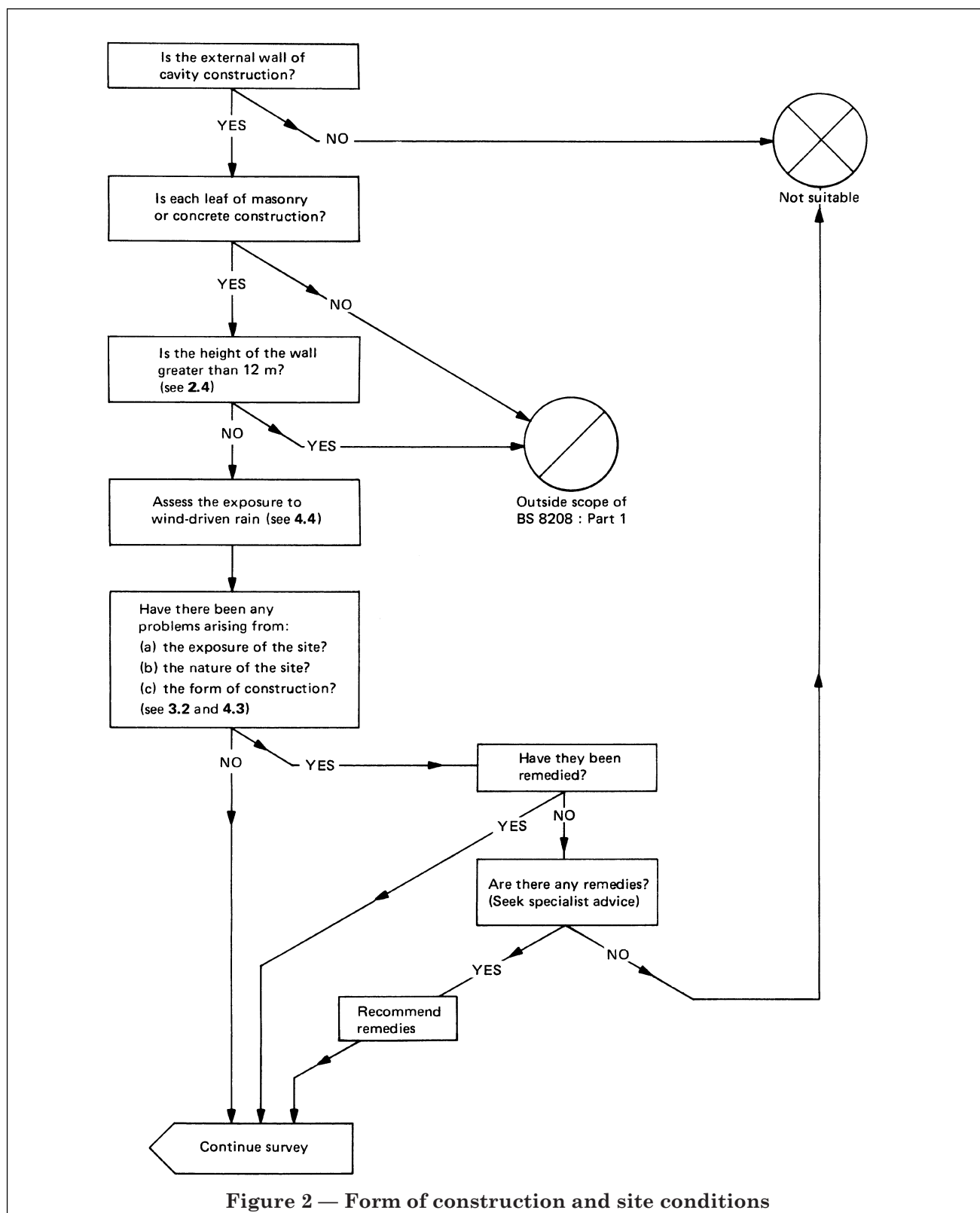


Figure 2 — Form of construction and site conditions

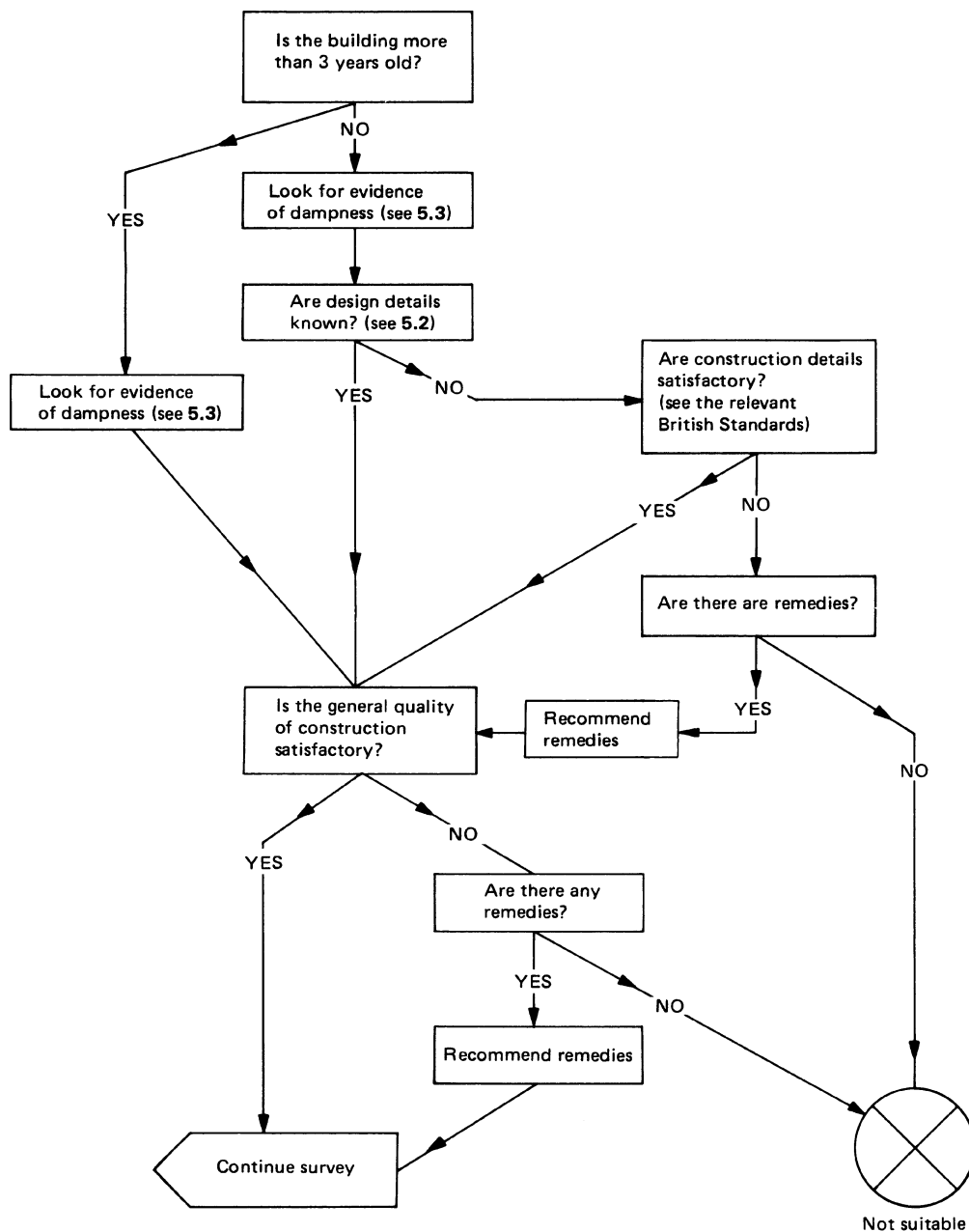


Figure 3 — Age of the building

6 Condition of cavity

6.1 General

All the factors given in Figure 4 should be considered, referring to 6.2 and 6.3 as appropriate.

6.2 Cavity width

It is essential to estimate the cavity width as described in Appendix B and record the results. Unless there appears to be a continuous cavity at least 40 mm in width for the whole wall or the cavity width appears to be less than 40 mm at isolated points *only*, the wall should be treated as unsuitable for filling.

There will be a high risk of mortar bridging the cavities, e.g. on the wall ties, if the cavity width is generally less than 40 mm. Particular attention should be given to natural stone walls and walls built with snapped headers [see Figure 10(b) and Figure 10(c)].

6.3 Cavity bridges

6.3.1 Any ducts, flues, trunking around vents or other features that bridge the cavity should be identified and recorded.

NOTE 1 There could be an increased risk of water penetration becoming apparent after installing cavity fill unless features bridging the cavity have an adequate fall towards the outer leaf or suitable damp-proof systems have been provided.

NOTE 2 Debris left in the cavity during the construction of the wall, particularly around features that bridge the cavity, e.g. d.p.cs, lintels, wall ties, can cause problems of rain penetration.

6.3.2 In older buildings a check should be made to see whether the construction includes Rat-trap bond or bricks used as wall ties [see Figure 10(a)], or any headers in the outer leaf [see Figure 10(b)] that bridge the cavity.

Where bricks bridge the cavity, the wall should be treated as unsuitable for filling.

6.3.3 Where there are parapets, a check should be made to see whether cavity trays have been used (see Figure 11). If they have not, remedies should be recommended or the wall should be treated as unsuitable for filling.

6.3.4 A check should be made to see whether cavity trays have been provided above suspended floor slabs or ring beams. The construction should be such that the water cannot track back along the underside of the floor or ring beam onto the inner leaf. If this is not the case, remedies should be recommended or the wall should be treated as unsuitable for filling.

7 Extent of cavity to be filled

7.1 General

All the factors given in Figure 5 should be considered, referring to 7.2, 7.3, 7.4 or 7.5 as appropriate.

7.2 Cavity extending below ground level

If the cavity extends significantly more than 0.5 m below ground level in a basement wall, procedures to prevent cavity fill entering the cavity below external ground level should be recommended.

7.3 Protection of the top of the fill

It is essential to determine whether the underside of a feature, e.g. sill, floor slab, roof or gutter, would permit water to penetrate the cavity at that level by acting as a bridge. If so, remedies should be recommended, e.g. where a concrete gutter terminates the cavity (see Figure 12), the gutter should be lined to prevent joints between sections leaking, or the wall should be treated as unsuitable for filling.

Measures may be required to prevent water tracking across the top of the fill, e.g. installing a cavity tray which does not discharge water into the fill.

NOTE Figure 13 shows unusual gable walls and their suitability for filling.

7.4 Vertical closers

The need for a vertical closer to prevent encroachment of fill where the cavity wall extends beyond the limits to be filled, e.g. in attached dwellings, should be recorded.

7.5 Sealing of cavities

It is essential to ascertain whether the head of the cavity is sealed. If it is unsealed, a record should be made in cases where sealing is not practicable.