
British Standard Code of practice for
**Dry lining and partitioning
using gypsum plasterboard**

Coffrages et cloisonnements en placoplâtre — Code de bonne pratique

Leitfaden für Trockenputz und Trennwände aus Gipskartonplatten

Foreword

This British Standard code of practice has been prepared under the direction of the Cement, Gypsum, Aggregates and Quarry Products Standards Committee.

Dry lining is an alternative to the traditional wet plastering of walls and ceilings to provide surfaces suitable to receive various decorative treatments. The method involves the fixing of a sheet material, which is subsequently jointed in the appropriate manner, to the face of the walls or ceilings. This code confines itself to recommendations for dry lining using gypsum wallboard; it is not intended to apply to other sheet materials.

This code provides guidance on the selection of a dry lining system and lists factors that should be taken into consideration in the selection process. It gives recommendations for methods of dry lining to a variety of solid backgrounds and to timber and metal framing.

Recommendations for on site methods of working are also included together with detailed descriptions of the materials, components and accessories used in the dry lining process.

Appendix A gives recommendations for lighting conditions appropriate to dry lining operations.

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



Amendment No. 1
published and effective from 30 June 1989
to BS 8212 : 1989

Code of practice for dry lining and
partitioning using gypsum plasterboard

Correction

AMD 6245
June 1989

Clause 26.3 Ceilings

After paragraph 4 insert the following.

'NOTE. There are two cases where experience has shown that these fastening recommendations can be modified.

(a) In the case of trussed rafters designed and manufactured in accordance with BS 5268 : Part 3, having a span of not more than 11 m, and being fixed in a building in which the plasterboard ceiling (maximum thickness 12.5 mm) will not be affected by regular foot traffic from above, the face width of the timber should be not less than 35 mm as measured in accordance with BS 4471 : Part 1. No negative tolerance is permissible on the 35 mm dimension.

(b) In the case of a domestic floor joist supporting a plasterboard ceiling the face width of sawn or processed timber should be not less than 38 mm as measured in accordance with BS 4471 : Part 1.'

AMD 6245
June 1989

Table 7. Spacing of timber supports in ceilings

Delete the note at the foot of the table.

BS 8212:1988

BS 8212:1988

BS 8212:1988

Contents

	Page		Page
Foreword		Inside front cover	
Committees responsible		Back cover	
Code of practice			
Section one. General			
1 Scope	2		
2 Definitions	2		
3 Exchange of information	2		
4 Time schedule	3		
Section two. Materials, components and accessories			
5 Materials	4		
6 Components and accessories	4		
Section three. Design			
7 Selection of a dry lining system	6		
8 Thickness of dry lining systems	6		
9 Deviations and tolerances	7		
10 Partitions	9		
11 Provision for services	12		
12 Ceramic wall tiling	12		
13 Decoration	12		
14 Mass/unit area of wall lining and partitioning systems	12		
15 Knocks and abrasions	14		
16 Environmental conditions	15		
17 Sealing	15		
18 Thermal insulation	15		
19 Water vapour checks	15		
20 Sound insulation	15		
21 Fire protection	15		
22 Cavity barriers	16		
23 Movement joints	16		
Section four. Backgrounds			
24 Condition of background	17		
25 Solid backgrounds	17		
26 Timber backgrounds	17		
27 Metal backgrounds	20		
Section five. Site considerations			
28 General	22		
29 Environmental conditions	22		
30 Organization prior to the commencement of dry lining and partitioning works	22		
31 Storage of materials	22		
32 Lighting	23		
33 Scaffolding	23		
34 Hoisting	23		
35 Protection of the work	23		
Section six. Work on site			
36 Cutting and installation of gypsum wallboard	24		
37 Fixing to solid backgrounds	24		
		38 Installation and fixing to timber framing	28
		39 Installation of and fixing to metal framing	31
		40 Jointing	34
		41 Partitions	36
		42 Decoration	39
		Appendix	
		A Lighting for dry lining	40
		Tables	
		1 Design allowance for thickness of linings to solid backgrounds	6
		2 Typical independent wall linings	7
		3 Dry lining to receive ceramic wall tiling	13
		4 Typical mass/unit area of gypsum wallboard wall lining and partitioning systems	14
		5 Lining to solid backgrounds: selection of gypsum based adhesives and pretreatment	18
		6 Spacing of timber supports in walls and partitions	18
		7 Spacing of timber supports in ceilings	20
		8 Spacing of metal supports in walls and partitions	21
		9 Spacing of metal supports in ceilings	21
		10 Fixing with gypsum based adhesives	26
		11 Dimensions of timbers	36
		12 Dimensions of battens and fastenings	39
		Figures	
		1 Deviation band for finished surface of a partition or lining	8
		2 Straightness of walls in any 5 m length	8
		3 Permissible deviations on jointing	10
		4 Straight-edge for measuring deviations at external and internal angles	11
		5 Joints over timber supports in walls and partitions	19
		6 Joints over timber supports in ceilings: fastenings near cut ends of boards	20
		7 Setting out board: external angles and abutments	25
		8 Setting out board: intermediate joints on studs	26
		9 Wall to ceiling junction	27
		10 Suggested adhesive dab fixing pattern for gypsum wallboard and thermal wallboard laminates	28
		11 Channel spacer clip	29
		12 Fixing thermal wallboard laminates with resin based adhesive	30
		13 Typical examples of beam and column encasement	30
		14 Typical steel stud partitions	32
		15 Movement joints	34
		16 Angle jointing	35
		17 Prefabricated gypsum wallboard panel	37
		18 Laminated partition	38

Section one. General

1 Scope

This British Standard code of practice gives recommendations for dry lining to walls, ceilings and partitioning using gypsum wallboard. Composite products such as gypsum plasterboard backed with insulation materials are also included.

This code does not deal with linings to heated ceilings.

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

2 Definitions

For the purposes of this code the definitions given in BS 1191 : Parts 1 and 2, BS 1230 : Part 1, BS 4022, BS 4049 and BS 6100 : Part 1 apply together with the following.

2.1 face. Surface of gypsum plasterboard on which the paper extends continuously to cover the edges.

2.2 back. Surface of gypsum plasterboard having a double thickness of paper along the two edges.

2.3 insulating gypsum wallboard. Gypsum wallboard backed with a film having a surface of low emissivity, e.g. aluminium, to improve thermal insulation when used in conjunction with an air space.

2.4 thermal wallboard laminate. Gypsum wallboard backed with an insulating material such as expanded polystyrene, polyurethane, phenolformaldehyde foam or man-made mineral fibre materials.

2.5 predecorated gypsum wallboard. Gypsum wallboard faced with either paper or cloth backed vinyl film.

2.6 prefabricated gypsum wallboard panel partitions. Prefabricated gypsum wallboard panels, manufactured in accordance with the requirements of BS 4022 and nailed to timber framing members.

2.7 laminated gypsum plasterboard partitions. Three or more layers of gypsum wallboard bonded together with gypsum based adhesive and fixed at the perimeter to a steel or timber frame.

2.8 relocatable partitions. Partitions that permit reassembly after removal and relocation.

2.9 metal furring channel. Galvanized steel section for the attachment of wallboard linings to solid backgrounds.

2.10 resilient fixing channel. Galvanized steel section for securing gypsum wallboard to the supporting background by a resilient mounting.

2.11 nailable fixing plug. Galvanized steel nail with an expandable plastics sleeve.

2.12 general purpose bonding compound. Adhesive made from retarded calcium sulphate hemihydrate and additives.

2.13 multi-purpose adhesive. Adhesive made from retarded calcium sulphate hemihydrate, additives and lightweight aggregate.

2.14 thermal wallboard laminate adhesive. Adhesive made from synthetic resin emulsion with fillers used for bonding thermal wallboard laminates to plastered walls.

2.15 resilient wallboard adhesive. Adhesive made from synthetic rubber/resin used to bond plasterboard to plasterboard.

2.16 decorative textured coating. Plastics based textured coating used as a decorative finish.

3 Exchange of information

When preparing dry lining details the designer should take into account the following points.

(a) The choice of dry lining systems to be used in various parts of the building depends on functional requirements and the nature of the background. The background, including building and manufacturing tolerances, and its dry lining should therefore receive consideration together.

This is particularly important where plasterboard is to be fixed to trussed rafters. A thickness of rafter complying with the requirements of BS 5268 : Part 3 and perfectly adequate from a structural point of view may be unsuitable to permit adequate fixing of the end of the plasterboard in accordance with the recommendations given in 26.3.

(b) The type of surface finish and any other points affecting the final appearance, particularly the compatibility of the dry lining with the proposed decorative finish.

(c) The area and types of finish and thickness required together with sufficient details of the nature of the surfaces to be dry lined and the junctions with window frames, door frames, ceilings and linings, so that the most suitable dry lining materials and methods can be selected.

(d) The effect of the thickness of the dry lining on:

- (1) the finished sizes and heights of rooms or other spaces;
- (2) the thickness of grounds; timber framing requirements;
- (3) frames which are to be flush both sides in thin walls and partitions;
- (4) the positioning of frames and other joinery relative to dry lining faces;
- (5) grooves in joinery that are to receive dry lining;
- (6) the positioning of and provision of adequate support for heating appliances and other installations, fixtures and fittings;
- (7) any other items, the specifications for which can be drawn up in detail only after the dry lining thicknesses have been determined.

(e) The preparation of the different building surfaces to receive the various types of cornices, arrises, corner treatments, metal accessories (such as angles and beads), expansion joints, coves, mouldings, dado treatments and enrichments.

(f) The work in other trades, particularly in connection with service pipes, conduits and wiring, that are to be covered by or contained in the dry lining; the pre-determined position of any heating appliances and their dry lining treatment. Care should be taken not to destroy the structural integrity of the dry lining or partitioning.

(g) The suitability of materials that may be in contact with different types of dry lining, as well as of any protective treatment that may be necessary.

Exchange of pertinent information should take place as soon as possible after contract among those responsible for the execution of backgrounds, the dry lining, internal plastering and subsequent decoration and with other trades whose work will affect or be affected by the dry lining. The dry lining contractor should be furnished with all necessary specifications and appropriate working drawings and he should visit the site to acquaint himself with building progress.

A record should be kept of all dates in connection with the construction and preparation of backgrounds and of the different operations of dry lining and decoration in the various parts of the building.

There should be a full exchange of information regarding site conditions.

4 Time schedule

When preparing a time schedule for the building operations it should be ensured that the various trades follow one another in correct sequence and that they do not interfere unduly with each others' work.

The time schedule for the whole of the building work should be planned in the initial stages before operations are begun and in consultation with those who will be responsible for carrying out the work of each of the trades concerned.

The time schedule should allot times for the construction and preparation of the backgrounds to receive dry lining and allow sufficient intervals for drying out, either by natural or artificial means, after the structure has been made weatherproof, so that the dry lining work may proceed without subsequent damage to it or its decoration.

The time schedule should provide for the completion of the works of preceding trades prior to commencement on site of the dry lining contractor.

Sufficient areas of work should be made available in sequence so that the dry lining or partitioning work can start and continue as part of the programme. All concerned should be aware that, after having agreed a programme, it is not always possible to increase or decrease labour on site at short notice, just as and when work is available.

It is essential that the areas to be dry lined or partitioned are watertight, weatherproof and dry. This is of particular importance as dry lining materials are vulnerable to wet or high humidity conditions. Screeds should be completed and dry before partitions and linings are erected.

Door frames, window frames and other joinery first fixings should be in position. The relevant first fixings of other trades and services should be finished prior to the commencement of dry lining work. Where door frames are a second fixing operation, provision should be made for their installation.

On projects where hollow metal stud plasterboard partitions are specified to be erected between the structural soffitt and the floor, the metal framework and plasterboard to one side should be fixed prior to the installation of any horizontal or vertical services to ensure that proper fixing and alignment of the partition can be achieved. The period of partial completion should be kept to a minimum. The primary support members for suspended ceilings should also be in position prior to the installation of services.

Sufficient working areas should be clear and clean prior to the commencement of the dry lining and partitioning work.

The time schedule should also allow for the necessary drying out time after completion of dry lining using a water mixed joint system, prior to the application of decoration or other finishes. This is of particular importance in the winter period as the hardening and drying time of many materials used in the wet treatment of joints is dependent on atmospheric conditions.

The time schedule should be carefully planned to avoid the risk of serious damage to the dry lining by subsequent work and to avoid any question of last minute alterations in the sequence of operations. If permanent decoration is delayed the boards should be given an appropriate treatment (see clause 42).

Allowance should also be made in the time schedule for decorators' preparatory work which may become necessary if finished and jointed wallboard surfaces are likely to be subjected to adverse atmospheric conditions or damage by other trades. This is particularly relevant for long term contracts.

Section two. Materials, components and accessories

5 Materials

5.1 Gypsum plasterboard

Gypsum plasterboard for dry lining and partitioning should comply with the requirements of BS 1230 : Part 1 and the recommendations of BS 4606 and should be one of the following types.

- (a) *Gypsum wallboard*. Gypsum wallboard (type 1) can be used for dry lining walls, ceilings and roofs, for the construction of partitions and cavity barriers and for encasing steel beams and columns.
- (b) *Gypsum wallboard F*. Gypsum wallboard F (type 5) should be used in the same situations as gypsum wallboard when a greater degree of fire protection is required.
- (c) *Moisture resistant gypsum wallboard*. Moisture resistant gypsum wallboard (type 3) resists absorption of water both by its paper surface and core and can be used as a backing for ceramic tiles as a form of sheathing and for other applications where there is a risk of gypsum wallboard being exposed to moisture.

NOTE 1. See table 1 of BS 1230 : Part 1 : 1985 for gypsum wallboard types.

NOTE 2. All the above types of gypsum plasterboard are available with square or tapered edges.

5.2 Composite board

Gypsum wallboard which has a material attached to the face or the back as a secondary operation of manufacture should be one of the following.

- (a) Insulating wallboard.
- (b) Thermal wallboard laminate.
- (c) Predecorated wallboard.
- (d) Prefabricated wallboard panels.

NOTE. Insulating wallboard and thermal wallboard laminate are available with an integral vapour check.

Prefabricated gypsum wallboard panels should comply with the requirements of BS 4022. They can be used in conjunction with timber perimeter framing and jointing battens to provide hollow plasterboard partitions and wall linings.

Where thermal wallboard laminates incorporate a backing of man-made mineral fibre the backing should be of sufficient density to resist compression under normal usage.

5.3 Gypsum cove

Lightweight gypsum cove such as a gypsum core encased in a paper liner suitable to receive direct decoration can be used as a cornice at the angle between wall and ceiling. It should be fixed with a suitable adhesive.

6 Components and accessories

6.1 Framing members

Framing members should be selected from the following.

- (a) *Timber framing*. Structural timber, e.g. framed walls, partitions and floor and ceiling joists should be in accordance with BS 5268 : Part 2 and should be a suitable size on the face to permit the plasterboard to be adequately fixed (see clause 26).

All timber sizes should be in accordance with the dimensions for softwood given in BS 4471. For basic sizes reference should be made to table 1 of BS 4471 : 1987. For finished sizes after planing reference should be made to table 3 of that standard.

- (b) *Metal framing*. A variety of non-loadbearing plasterboard lined steel framed partition, separating walls and lining systems are available to meet specifiers' requirements.

Metal framing members should be manufactured from hot dip galvanized steel of minimum thickness 0.55 mm and coating grade G275 complying with the requirements of BS 2989, cold rolled to a profile with flanges not less than 31 mm wide. They can be used in conjunction with galvanized steel channel of similar minimum thickness to provide a framework to which one or more layers of plasterboard can be screw fixed. Relocatable and loadbearing partition systems based on metal studs and channels are available. Independent wall linings using 'I' profile studs which impart greater stiffness can accommodate gypsum plasterboard fixed from one side only.

- (c) *Metal furring channels*. Metal furring channels provide framing systems to walls and for suspended ceilings. The steel sections should be of minimum thickness 0.55 mm complying with the requirements of BS 2989.

For walls the channel should be of a suitable profile to provide an upstand with a minimum bearing surface of 40 mm and have a series of slots on its long edges to provide a key for the gypsum adhesive dabs used to secure and align the channels to solid backgrounds.

For ceilings the channel should be of suitable profile to provide an upstand with a minimum bearing surface of 50 mm when used to provide a horizontal framing system.

- (d) *Resilient fixing channel*. Resilient fixing channel can be used to improve the sound insulation performance of timber frame construction and should be of thickness 0.45 mm to 0.55 mm complying with the requirements of BS 2989 having a freestanding flange of minimum width 44 mm.

(e) *Channel to engage with 19 mm wallboard.* Channel to engage with 19 mm wallboard should be of a minimum thickness of 0.7 mm complying with the requirements of BS 2989 and should be capable of taking an insert of 19.5 mm to 21 mm thickness, with 19 mm (minimum) supporting flanges.

(f) *Movement joint section.* Movement joint sections should be stainless steel or zinc alloy sections profiled to incorporate a tapering recess between perforated shoulders to provide a featured movement joint.

6.2 Adhesive fixing materials

The following adhesive fixing materials should be used.

(a) Gypsum based adhesives

- (1) General purpose bonding compound.
- (2) Multi-purpose adhesive.

(b) Resin based adhesives

- (1) Thermal wallboard laminate adhesive.
- (2) Resilient wallboard adhesive.

6.3 Mechanical fixing devices

The following mechanical fixing devices should be used.

(a) *Plasterboard nails.* Nails used for fixing gypsum plasterboard and gypsum wallboard laminates to timbers should be hot dip galvanized, zinc electroplated or sheradized steel. Nails should have a shank of minimum finished diameter 2.5 mm and a head of minimum diameter 7.0 mm. Minimum length of nails should be as follows.

Board thickness 9.5 mm	Not less than 30 mm
Board thickness 12.5 mm	Not less than 40 mm
Board thickness 15 mm	Not less than 40 mm
Board thickness 19 mm	Not less than 50 mm
Double board thickness 12.5 mm on 12.5 mm	Not less than 50 mm
Double board thickness 12.5 mm on 19 mm	Not less than 65 mm
Double board thickness 15 mm on 15 mm	Not less than 65 mm

For thermal laminate boards, nails of a length at least 25 mm more than the total laminate thickness should be used.

(b) *Double headed nails.* Hot dip galvanized steel double headed nails can be used to provide a temporary support where levelling pads are used in the fixing method with gypsum adhesives.

(c) *Drywall screws.* Screws used for fixing gypsum wallboard and gypsum wallboard laminates to metal or timber should be zinc electroplated or black phosphate oiled steel self drilling and tapping drywall screws having trumpet countersunk and cross punched heads. Minimum lengths of screws should be as follows.

	metal	timber
Board thickness 9.5 mm	22 mm	32 mm
Board thickness 12.5 mm	22 mm	36 mm
Board thickness 15 mm	25 mm	36 mm

	metal	timber
Board thickness 19 mm	32 mm	42 mm
Double board thickness 12.5 mm on 12.5 mm	36 mm	50 mm
Double board thickness 12.5 mm on 19 mm	42 mm	60 mm
Double board thickness 15 mm on 15 mm	42 mm	60 mm

The length of screws used for fixing thermal wallboard laminates to metal and timber should be at least 10 mm and 25 mm greater respectively than the thickness of the laminate.

(d) *Framing screws.* Framing screws for fixing metal to metal should be zinc electroplated or black phosphate oiled steel self drilling and tapping screws with cross punched low profile or pan heads. They should be fully threaded to the flat underside of the head to facilitate the pulling together of metal framing sections.

6.4 Surface treatment materials

6.4.1 Dual purpose primers. As a single application, dual purpose primer equalizes suction and provides an even texture. It also facilitates the removal of wallpaper. If used in two applications it provides additional resistance to moisture vapour movement.

6.4.2 Decorative textured coatings. Decorative textured coatings are used, in conjunction with the manufacturer's proprietary tape (not necessarily complying with BS 6214), as an alternative to jointing tapered edge boards and decorative treatments.

Ready-mixed finishing compounds should not be used for bedding the tape.

6.5 Jointing materials

The following jointing materials should be used for seamless jointing.

(a) *Jointing tape.* Jointing tape should comply with the requirements of BS 6214. It should be embedded in jointing compound to reinforce joints and internal angles to resist cracking.

(b) *Jointing compounds.* Jointing compounds should comply with the requirements of BS 6214 and should be used for bedding and finishing.

(c) *External angle corner tape.* External angle corner tape, which has two parallel flexible hot dip galvanized, zinc electroplated steel or painted steel reinforcement strips bonded to the paper, can be used to reinforce external angles.

6.6 Sealants

Elastomeric sealants can be used at the perimeter of the dry lining or partitioning to provide an airtight construction.

6.7 Beads

Galvanized steel beads, e.g. edge beads and corner beads, should comply with the requirements of BS 6452 : Part 1. Plastics extrusions in various profiles can be used as trim edge beads and joint battens.

Section three. Design

7 Selection of a dry lining system

The following factors can influence the choice of a dry lining system and should be considered:

- (a) type of building, occupancy and use;
- (b) thickness of dry lining system;
- (c) accuracy of background;
- (d) provision for services;
- (e) decoration;
- (f) loadings, reduction of dead load;
- (g) exposure to knocks and abrasions;
- (h) space utilization;
- (i) temperature and humidity conditions;
- (j) sealing;
- (k) thermal insulation;
- (l) sound insulation;
- (m) fire protection, fire resistance, surface spread of flame, cavity barriers.

It is important that a decision is made as early as possible as to whether the dry lining system is to be applied as a finish to a masonry constructed building design, or incorporated as an integral part of the building to take full advantage of the systems available, e.g. non-loadbearing partitions and wall and ceiling linings incorporating thermal and sound insulation.

8 Thickness of dry lining system

8.1 General

The overall projection of the lining will vary according to the type of dry lining system selected. An allowance should be made for the insulation material where appropriate, the fixing method, plus any tolerance which might be associated with the particular type of background (see section four).

8.2 Linings to solid backgrounds

Where the direct bond method of fixing to solid backgrounds is used, generally, the thickness of gypsum based adhesive will be not less than 10 mm or more than 25 mm. Where a resin based adhesive is used its thickness will be approximately 3 mm. The minimum design allowances from the face of the background to the face of the lining should be as given in table 1.

8.3 Independent wall linings

Various methods of providing independent wall linings are available. These may take the form of plasterboard systems assembled in situ or framing systems based on timber or metal studs.

Prefabricated gypsum wallboard panels manufactured in accordance with BS 4022 in thicknesses of 50, 57 and

Table 1. Design allowance for thickness of linings to solid backgrounds

Lining	Minimum design allowance	
	Gypsum based adhesives	Resin based adhesives
9.5 mm gypsum wallboard	20	13
12.5 mm gypsum wallboard	23	16
25 mm thermal wallboard laminate	35	28
32 mm thermal wallboard laminate	42	35
40 mm thermal wallboard	50	43
50 mm thermal wallboard laminate	60	53

63 mm should be constructed using timber perimeter framing and intermediate timber joint battens.

Laminated linings should be constructed using 19 mm gypsum wallboard (plank), positioned vertically, and fixed to perimeter timber framing. Channels to engage 19 mm wallboard (see 6.1(e)) folded back to back should be fixed to the edge of adjoining planks to provide alignment and support at mid-height. A further layer of plank, with joints staggered, should be stuck with a gypsum based adhesive and secured to the perimeter framing.

Loadbearing or non-loadbearing timber stud frames should have studs positioned at centres not exceeding 600 mm. Gypsum wallboard should have a minimum total thickness of 12.5 mm and should be positioned vertically unless additional timber supports have been provided to coincide with the horizontal joint in the boards. Where more than one layer is required, bound edges should be staggered.

Non-loadbearing metal stud frames should be assembled to provide stud supports at (nominal) 600 mm centres. Gypsum wallboard should have a minimum total thickness of 12.5 mm and should be positioned vertically and screwed to the framing. Where more than one layer is required, bound edges should be staggered.

Most metal framing systems are designed for partition use with boards fixed to both sides. A significant reduction in strength can, therefore, be expected when boards are fixed to one side only of metal framing. The maximum heights will therefore depend upon the structural strength of the metal frame sections. Fixings to the structure from the steel framework may be provided which will impart extra stability and increase maximum heights.

Recommendations for minimum thickness and maximum height of independent wall linings are given in table 2.

Table 2. Typical independent wall linings

Minimum thickness	Description	Maximum height
mm		m
42	Laminated gypsum plank	2.6
50	Prefabricated gypsum wallboard panel	2.4
57	Prefabricated gypsum wallboard panel	2.7
63	Prefabricated gypsum wallboard panel	3.6
60	Galvanized steel 'I' section, minimum 48 mm with 12.5 mm gypsum wallboard	2.7
73	Galvanized steel 'I' section, minimum 48 mm with two layers of 12.5 mm gypsum wallboard (joints staggered)	3.0
72	Galvanized steel 'I' section, minimum 60 mm with 12.5 mm gypsum wallboard	3.6
85	Galvanized steel 'I' section, minimum 60 mm with two layers of 12.5 mm gypsum wallboard (joints staggered)	4.2
79	Galvanized steel 'C' section, 48, 60 and 70 mm with two layers of 9.5 mm gypsum wallboard one layer of 12.5 mm gypsum wallboard one layer of 15.0 mm gypsum wallboard or two layers of 12.5 mm gypsum wallboard	*
81	Timber stud 75 mm wide with one layer of 9.5 mm wallboard	2.4
100	Timber stud 89 mm wide with one layer of 12.5 mm wallboard	3.0

* Suitable to any height for wall lining applications if adequately supported at 1 m intervals or if boxed with mid-height support fixing up to 3 m intervals.

9 Deviations and tolerances

NOTE. The tolerances given in clause 9 do not include residual deflections resulting from, for example, heavy fittings.

9.1 Background

Deviations from verticality or straightness of a wall lining system will depend primarily on the trueness of the background to which it is fixed (see item (d) of clause 24 and 25.2).

Dry linings which are fixed by nails, screws or thin contact adhesives will always follow the contour of the solid background or framing to which they are applied.

A satisfactory finish to dry lining, to the tolerances given in 8.2, can only be obtained if the alignment of the background is such that any deviation in excess of those required for the final finish can be accommodated by the method of fixing of the wallboard.

9.2 Setting out of partitions and independent linings

Where the framework of a partition or a lining is independent of the structure, the deviation from the setting out positions should be within the following tolerances:

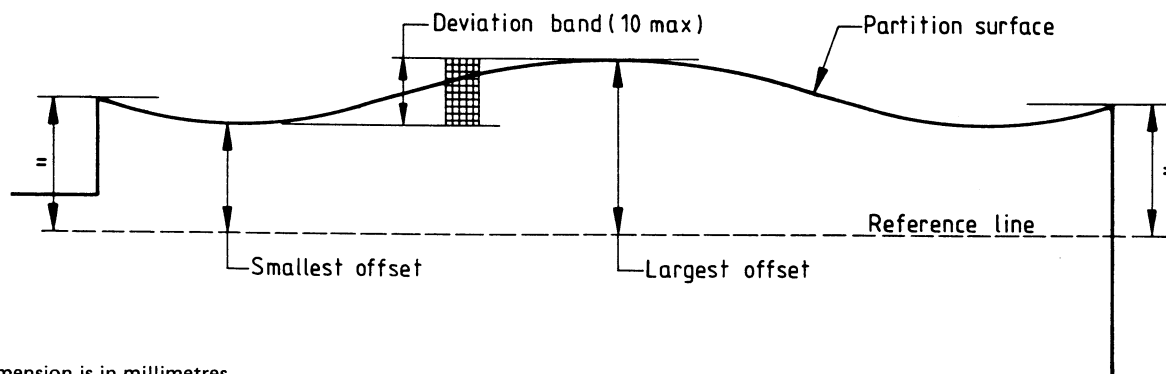
- (a) the offset on plan from an agreed line or position, measured at the setting out level (ceiling or floor) ± 3 mm
- (b) the offset from vertical, measured above or below the setting out position (ceiling or floor) ± 5 mm

9.3 Finished surfaces of partitions and independent linings

The deviations in the position of a finished surface of a partition or lining from the straight line connecting end points of the partition should be within a band of 10 mm as shown in figure 1.

The measurements should be taken at approximately 600 mm above finished floor level and should be accompanied by measurements of the partitions or linings vertically at the measuring points and should be within the 10 mm band.

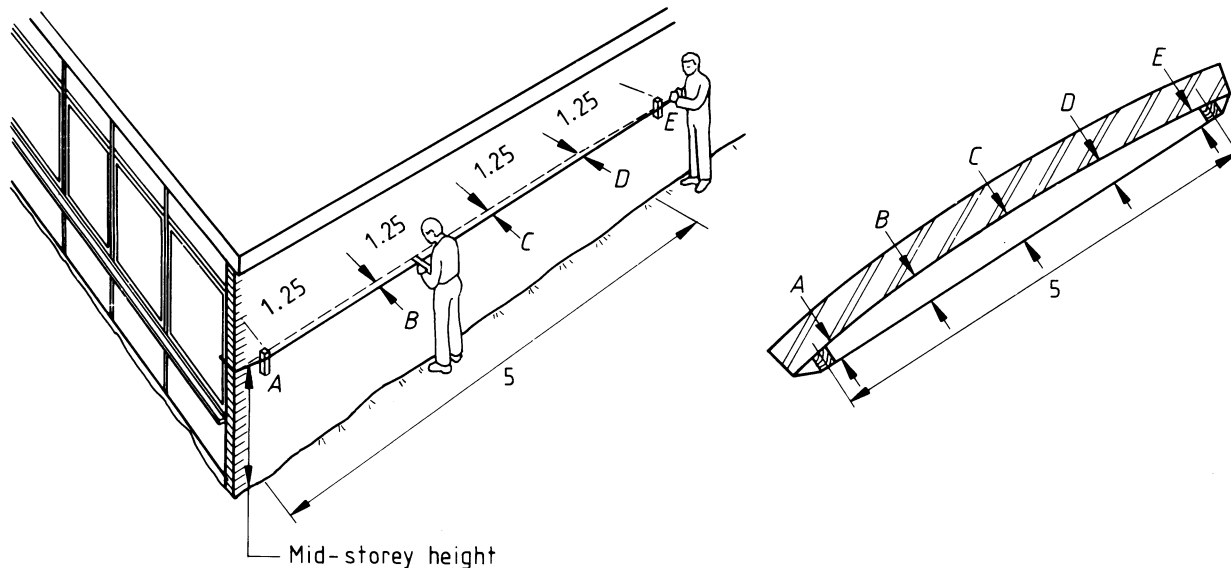
The method of measurement should be by laser or optical instruments. In small buildings, e.g. housing, a simplified method of measurement may be used on partition or lining runs up to 5 m (see figure 2).



Dimension is in millimetres.

NOTE. The deviation band is the zone between two parallel lines within which all the points of the surface under consideration lie. Where setting out positions/setting out lines are not available, the horizontal deviation band for a partition/lining surface should be taken to be that deviation band parallel to a line joining the two extreme points of the surface. In the vertical direction the deviation band is always vertical rather than parallel to the line joining the top and bottom of the surface.

Figure 1. Deviation band for finished surface of a partition or lining



All dimensions are in metres.

NOTE. To measure the straightness of a wall, stretch a nylon line tightly over two timber pieces of equal size (about 25 mm square) placed at the ends. The tension will hold the blocks in position. Measure the distance between the line and the wall face at the five quarter points. Avoid small surface irregularities and in brick and block walls measure to a brick or block face, not to a joint.

Measure the straightness of at least 30 (preferably 50) walls of similar construction.

Measure the straightness over 5 m length of wall on one side only. (A long wall may be divided into several 5 m lengths.)

Tools required

Fine nylon line or similar: breaking strain about 10 kg, from fishing tackle shops.

Rule graduated in mm, from builder's or tool merchants.

Timber pieces 25 mm X 25 mm X 150 mm.

Steel tape with metric graduations: either a pocket tape or a normal steel tape may be used.

Figure 2. Straightness of walls in any 5 m length

9.4 Finished surfaces of linings to solid backgrounds

Provided the trueness of the solid background is such that it can be accommodated within the thickness of the particular adhesive used (see 8.2), the deviations in the position of the finished surface should be as given in 9.3.

Where the trueness of the background cannot be corrected by the thickness of adhesive (see 8.2) consideration should be given to the following measures:

- (a) correction of the background to which the lining is to be applied;
- (b) adjustment of framing members, window boards, linings and grounds around openings in the background;
- (c) modifications which may be required to accommodate the position of services, e.g. switch boxes have to be packed out or chased in.

The above measures are likely to lead to an increase in the width of the zone occupied by the wall and may have an effect on adjacent components such as suspended ceiling grids.

9.5 Localized build-up of the surface

9.5.1 Crown of joint. The maximum increase should not exceed 3 mm when measured using a 450 mm straight-edge. Measurements should be taken with the ends supported on board to board surfaces, see figure 3(a).

9.5.2 External angles. The maximum increase should not exceed 4 mm projection from either face when measured as shown in figure 3(b) using the external angle reference edge shown in figure 4.

9.5.3 Internal angles. The maximum increase should not exceed 5 mm projection from either face when measured as shown in figure 3(c) using the internal angle reference edge shown in figure 4.

9.5.4 Boxed studs. The increased thickness of the partition should be not more than 4 mm.

9.5.5 Around openings (door heads, access panels and backing plates). The maximum increase should allow the partition or lining to comply with 9.3.

9.6 Thickness of partitions

The thickness of a partition in its finished state should be within a tolerance of ± 5 mm.

9.7 Prepared openings in partitions

Door, access panel or other openings in partitions should be within the following tolerances:

- width – 0, + 10 mm
- height – 0, + 5 mm.

10 Partitions

10.1 General

Timber and steel frameworks can be used for the fixing of gypsum wallboard to form a lightweight internal partition system. The system allows for services to be installed within the framework.

Various requirements for sound insulation and fire resistance can be achieved by the use of different thicknesses and combinations of gypsum wallboard linings. The system is normally constructed with taped joints to give a flush finish. It can be used to carry fixtures and fittings including for example wash basins, shelving and pictures.

10.2 Proprietary partitions

A large number of gypsum plasterboard lined partitions have been developed using proprietary systems. As a general guideline for the selection of a suitable partition system, the designer or other specifier should follow the recommendations of BS 5234.

In many cases, basic partition constructions have either been modified or embellished by plastics or metal trims in order to upgrade the appearance, but it does not always follow that the properties remain the same. In such instances, the designer should ensure that the claims being made for the system have been substantiated. Similarly the ability of a relocatable partition system to achieve the minimum specified performance levels when reassembled should be examined prior to selection.

10.3 Trueness of partitions

Deviations of completed partitions should be within the tolerances given in 9.2 to 9.7.

When other components are applied onto or immediately adjacent to the partition surface, e.g. ceiling/wall junctions, rigid skirtings, architraves and worktops, the use of an intermediary component, e.g. shadow batten or foam strip, should be considered.

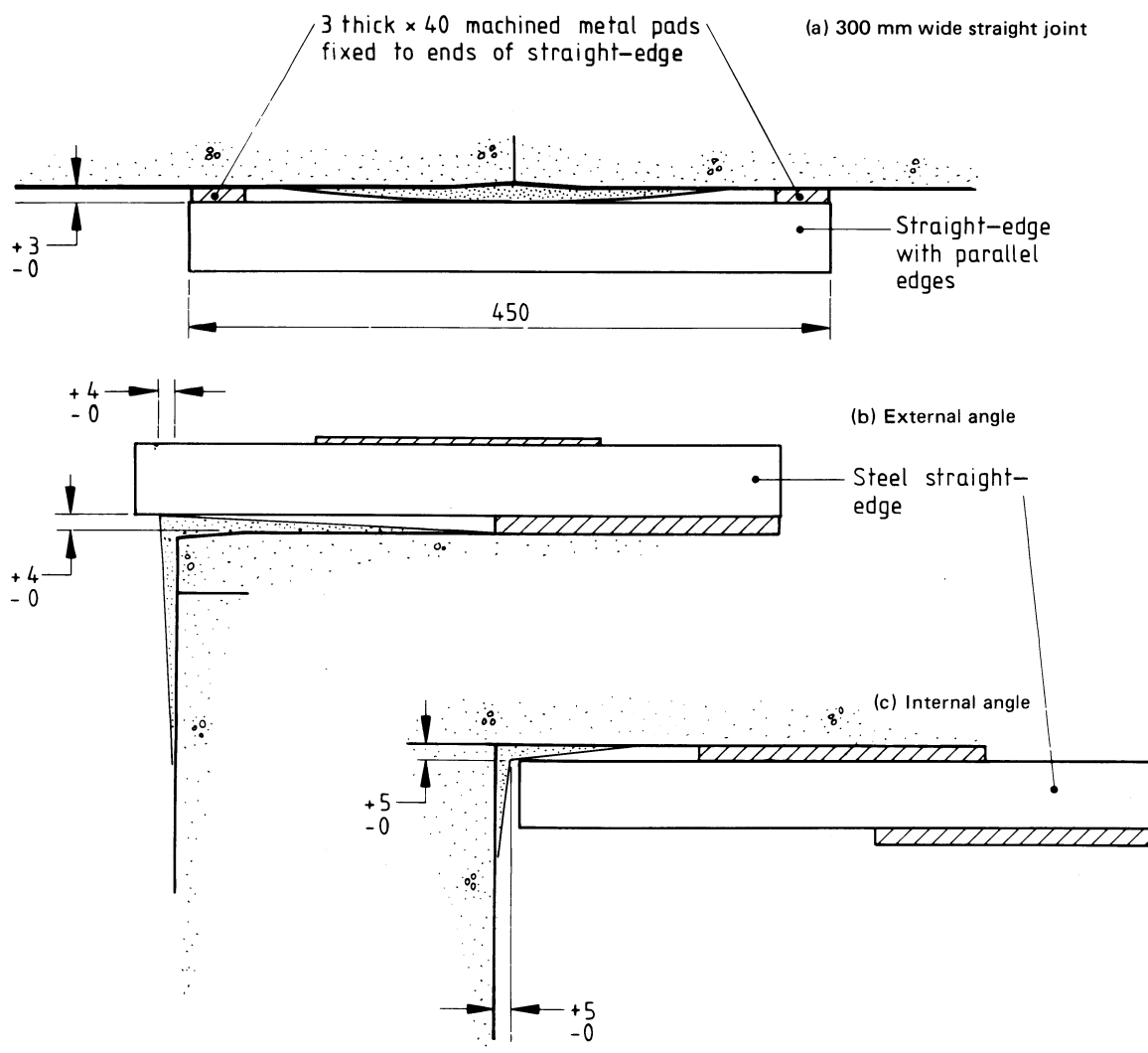
NOTE. These tolerances do not include residual deflections resulting from, for example, heavy fittings.

The installation of services within the partitions and door frames, access panels, noggins, etc. may have an effect on the final construction line and perpendicular finish. Particular attention should be paid to the following items.

- (a) The degree and multiplicity of services resulting in cutting away of the main metal framing within the partition to the extent of impairing the stability requirements of the partition.
- (b) Size and intensity of perforations through the partition, e.g. door openings, pre-plumbed panels, glazed screens, etc.

- (c) Increase of residual deflection in partitions where areas of framing are unboarded or only boarded on one side.
- (d) The installation of large timber elements within the cavity which can set up extensive drying out movements and cause deflection in the partition line.
- (e) The installation of suspended ceilings at differing heights on either side of the wall causing reverse pressures and deflection in partitions.
- (f) Surface loadings on the partitions and subsequent effect on the residual deflection.

- (g) Atmospheric conditions. (See clause 29.)
- (h) The construction of metal framing over door heads, sills and around perforations of similar type gives rise to a localized build up of metal and subsequently leads to tolerances outside those given in this clause.
- (i) Where partitions exceed 3.6 m in height the tolerance will again increase.
- (j) The taping and filling of joints and external and internal angles creates a crowning effect (see clause 9).
- (k) In general the dimensions of the floor and ceiling channel will be greater than that of the stud.



All dimensions are in millimetres.

NOTE. For illustration purposes jointing material thickness shown is exaggerated.

Figure 3. Permissible deviations on jointing