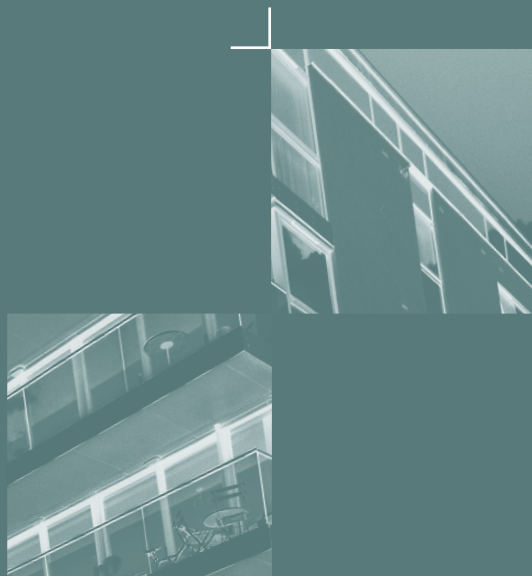


Chapter 1.2

A consistent approach to finishes



1.2

A consistent approach to finishes

CONTENTS

	Clause	Page
DESIGN		
There are no specific Design implications		
MATERIALS		
There are no specific Materials implications		
SITEWORK		
External walls - tolerances	S1	1
External walls - appearance	S2	2
External works	S3	3
Doors and windows	S4	3
Glazing	S5	3
Walls and ceilings - tolerances	S6	4
Walls and ceilings - appearance	S7	4
Floors	S8	4
Tile finishes	S9	5
Joint sealants	S10	5
Other surfaces and finishes	S11	5
Fitted furniture	S12	5
Index		6

SCOPE

This Chapter gives guidance on the suitability of the finishes in new homes.

INTRODUCTION

This Chapter is intended to apply at the time the home is substantially complete ready for its NHBC pre-handover inspection. It will be used by NHBC both during the construction process and when conducting Resolutions under Section 2 of the Buildmark insurance cover.

The Chapter should also be considered in conjunction with relevant performance standards and guidance contained elsewhere in the NHBC Standards. Additional information is also contained in the NHBC publication 'Guide to your new home' relating generally to normal household maintenance.

Some elements may be subject to the effects of normal thermal or drying movement and this may occur both before and after completion. A commentary has been added to a number of clauses to provide background information.

Many sources of information relating to tolerances and finishes have been reviewed in the preparation of this Chapter. The tolerances and finishes given here are considered to be appropriate for the house-building industry and take precedence over other recommendations.

This Chapter is not intended to deal with every situation that may arise and discretion should be exercised in its application in specific circumstances. The nature and extent of work necessary to remedy minor variations from the tolerances and finishes given should be proportionate and appropriate to the circumstances.

SITWORK STANDARDS

EXTERNAL WALLS - TOLERANCES

1.2 - S1 External walls shall be built to appropriate tolerances

Some of the materials used to construct external walls are not uniform because of their manufacturing process, nor are they intended to be. In consequence, some external walls will have variations and irregularities. Where reclaimed materials are used there may be even greater irregularities and these characteristics are often intended as an aesthetic feature. The recommended tolerances are intended to be applied in the spirit of this overall context.

Commentary

- bricks and other materials vary in size and appearance for a number of reasons and in consequence the tolerances and finishes stated may not always be appropriate, especially where reclaimed stock is used. Such materials will need to be considered separately
- the tolerances described generally apply to entire areas of walling, complete panels and the like, and not to the elements of the construction, such as individual bricks
- the tolerances do not apply to design features and similar constructional details which are not intended to lie within the limits stated in this document (e.g. quoins, soldier courses, plinths).

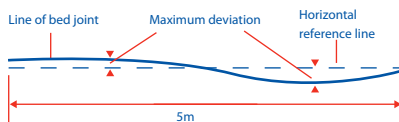
Items to be taken into account include:

Fairfaced masonry

(a) level of bed joints

$\pm 8\text{mm}$ maximum deviation for walls 5m long (a pro rata tolerance is applicable for walls less than 5m long).

$\pm 12\text{mm}$ maximum deviation for walls over 5m long.



There should not be frequent variations in the level of the bed joints

(b) thickness of bed joints

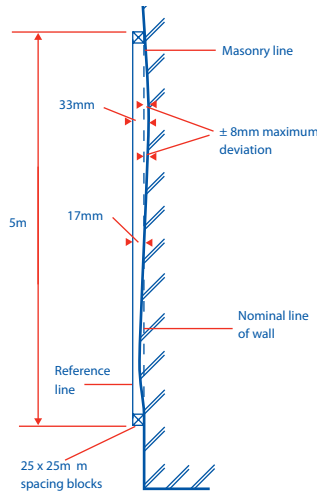
The thickness of an individual bed joint should not vary from the average of any 8 successive joints by more than 5mm.

Commentary

- bricks and other materials vary in size and therefore some variation in the thickness of bed joints is likely.

(c) straightness on plan

$\pm 8\text{mm}$ maximum deviation in any length of wall up to 5m.



Example:
Using 25mm wide spacing blocks, the masonry line should be between 17mm and 33mm from the reference line.

Note:
Spacing block dimensions are a guide only
To suit actual site conditions, final dimensions should ensure reference line is kept clear of the wall face.

(d) perpend alignment in external walls

Vertical alignment of perpend joints should not deviate significantly from the perpendicular.

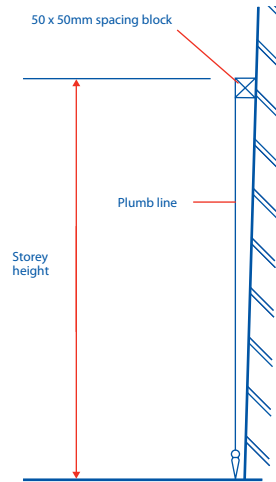
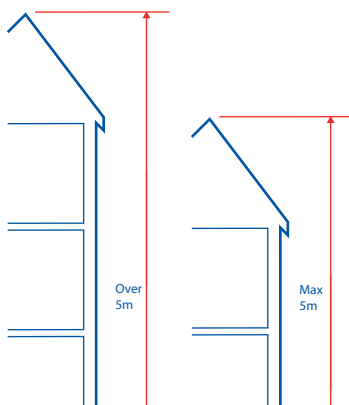
Commentary

- because bricks do vary in length as a result of their manufacturing process, not all perpend joints will align. However, there should not be a cumulative displacement of the perpend joints in a wall.

(e) plumb of wall

Maximum 8mm out of plumb for walls up to 5m in height, limited to 8mm in a storey height (approx 2.5m).

Maximum 12mm out of plumb for walls over 5m in height, limited to 8mm in a storey height (approx 2.5m).

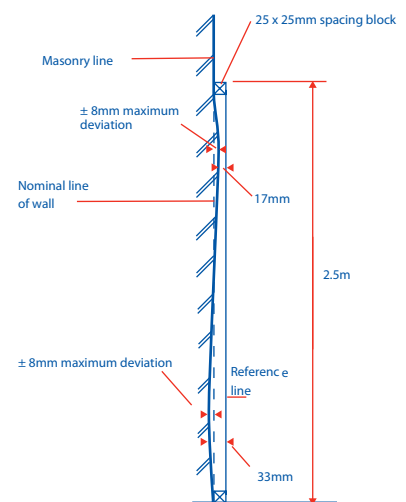


Example:
Using 50mm wide spacing block, the plumb bob should be between 42mm and 58mm from the wall.

Note:
Spacing block dimensions are a guide only
To suit actual site conditions, final dimensions should ensure plumb line is kept clear of the wall face

(f) straightness in section

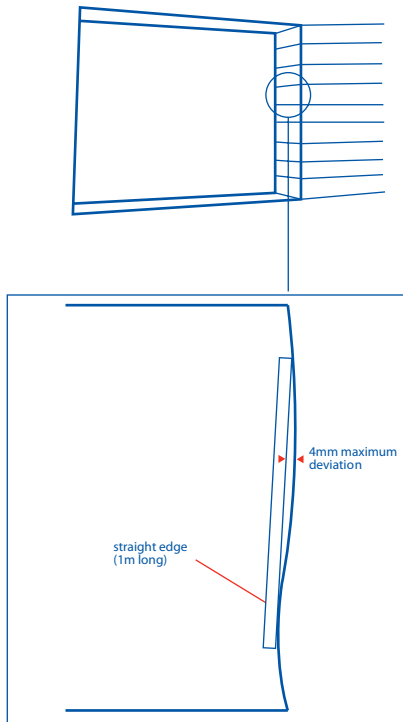
$\pm 8\text{mm}$ maximum deviation in any 2.5m height of wall.



Example:
Using 25mm wide spacing blocks, the masonry line should be between 17mm and 33mm from the reference line

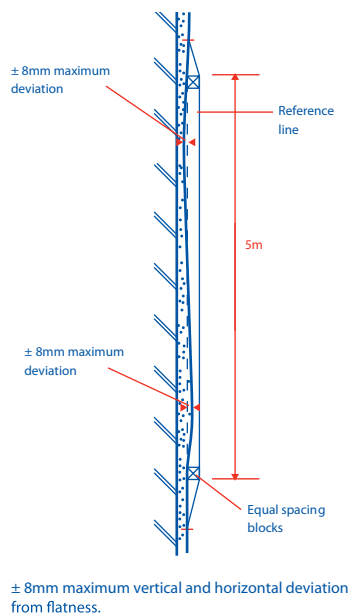
Note:
Spacing block dimensions are a guide only
To suit actual site conditions, final dimensions should ensure reference line is kept clear of the wall face

(g) straightness of external reveals
4mm maximum deviation.



Render

(h) vertical and horizontal flatness
±8mm maximum vertical and horizontal deviation from flatness in 5m (excluding features).



Commentary

- areas of render in close proximity to features (e.g. bell casts), are excluded from the tolerance
- flatness is measured in a similar way to straightness on plan and plumb of masonry.

Curtain walling

(i) line, level, plumb and plane

± 2mm maximum deviation in any one storey height or structural bay width and ± 5mm maximum deviation overall.

These tolerances apply unless otherwise specified in the design.

Rainscreen cladding

(j) line, level, plumb and plane

± 3mm maximum deviation in any one storey height or structural bay width.

These tolerances apply unless otherwise specified in the design.

Brick slip cladding systems

(k) vertical and horizontal flatness

± 8mm maximum vertical and horizontal deviation from flatness in 5m.

(l) level of bed joints

± 8mm maximum deviation in the bed joints in a 5m length (a pro rata tolerance is applicable for walls less than 5m long).

EXTERNAL WALLS - APPEARANCE

1.2 - S2 External walls shall have an appropriate appearance

Appearance should be considered for entire wall areas, panels, interfaces and the like and not for individual units. Consequently, the wall being considered should, where possible, be viewed in daylight from a distance of not less than 10m.

Some variation in colour and texture of external walls is inevitable and in certain cases is a feature.

Items to be taken into account include:

Fairfaced masonry

(a) appearance of fairfaced masonry

Fairfaced masonry should be reasonably uniform in texture, finish and colour. Excessive colour banding should not occur.

With certain walls, such as half brick walls, a fairfaced finish can only be achieved on one face. The other face should be left neat and tidy.

Mortar should be reasonably uniform in texture, finish and colour.

Facing brick units should not have significant cracks in them or other damage such as chips and marks greater than 15mm in diameter.

Commentary

- some mortar blemishes will occur on individual masonry units
- some variation will occur in the texture, finish and colour of mortar
- some variation will occur in the colour of individual masonry units and generally over the wall
- colour banding of fairfaced masonry should be avoided by mixing batches and consignments of bricks
- efflorescence occurs naturally in some types of masonry. It is not harmful and usually disappears over time
- some brick products have natural or design features which may be in excess of 15mm in diameter
- some minor shrinkage cracking may occur between masonry units (bricks and blocks) and mortar joints.

Render

(b) appearance of render

Rendering on walls should be reasonably consistent in texture, finish and colour.

Commentary

- some hairline cracking and crazing is likely to occur in both traditional render and proprietary render systems. Such cracking and crazing should not impair the performance of the render
- crazing, which may occur in the render surface, should not be more than 0.2mm wide
- there may be some colour variation in appearance. This may be due to differences in suction of the background and orientation of the wall
- daywork joints, patching and other repairs may be visible but should not be unduly obtrusive.

Curtain walling

(c) appearance of curtain walling

Installation should ensure that curtain walling systems are within reasonable tolerances and appearance for the materials involved.

Rainscreen cladding

(d) appearance of rainscreen cladding

Installation should ensure that rainscreen cladding systems are within reasonable tolerances and appearance for the materials involved.

Brick slip cladding systems

(e) appearance of brick slip cladding systems

Installation should ensure that brick slip cladding systems are within reasonable tolerances and appearance for the materials involved.

Timber cladding

(f) appearance of timber cladding

Some variation in colour may occur in uncoated timber exposed to the weather.

The rate and extent of colour change will vary between species and can sometimes vary even within the same species.

Commentary

- the effects of normal weathering may cause certain uncoated timber, over time, to develop a silver/grey colour.

Tile hanging

(g) appearance of tile hanging

Panels of tile hanging should be reasonably uniform in appearance, particularly at abutments.

Commentary

- certain handmade tiles vary in size and may not be of a uniform appearance
- some variation in colour may occur in tiles.

Cast stone sills

(h) appearance of cast stone sills

Conspicuous surface abrasions and chips caused during installation should be removed in accordance with the manufacturer's recommendations which may include filling, polishing out, re-spraying or painting as appropriate.

Commentary

- cast stone is manufactured with natural products and colour variations are inevitable
- efflorescence, fungicidal growth and colour variation may occur due to orientation, shading and pollution.

EXTERNAL WORKS

1.2 - S3 External works shall have an appropriate finish

Items to be taken into account include:

(a) drives, paths, decks, terraces and balconies - variations in surface finish

Variations in the surface should not exceed $\pm 10\text{mm}$ maximum deviation from a 2m straightedge with equal offsets provided correct gradients have been used.

Commentary

- some minor variations in surface levels including scuffing and pitting may arise due to settlement, natural ground movement and car and light vehicle use. In gravel and other loose surfaces, displacement of stone etc. will occur
- localised falls into gulleys and channels are acceptable.

(b) drives, paths, decks, terraces and balconies - standing water

Surfaces should minimise the potential for standing water.

Commentary

- one hour after rain has stopped, areas of temporary standing water should not be deeper than 5mm or exceed 1m^2 . Temporary standing water is not permitted adjacent to entrance doors.

(c) covers to drainage systems

Covers to the drainage system should align with the adjacent ground or surface finish.

Covers to drainage channels should be set below the adjacent ground.

Commentary

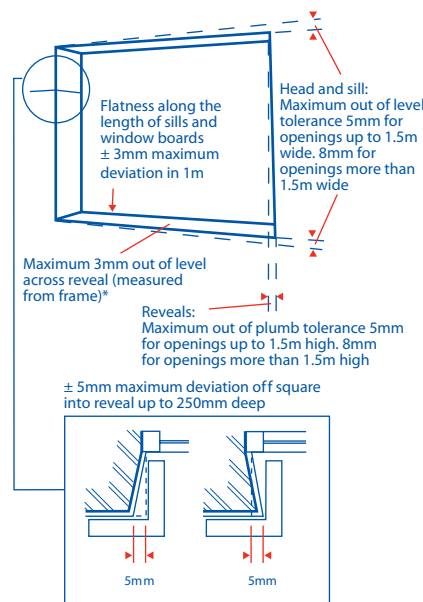
- in hard landscaping, some settlement of the area immediately around the cover may occur. The difference in height between a cover and the adjacent hard surfaces should be set to allow for future settlement
- in soft landscaping, such as lawned areas, some settlement of the ground may occur.

DOORS AND WINDOWS

1.2 - S4 Doors and windows shall be installed to appropriate tolerances

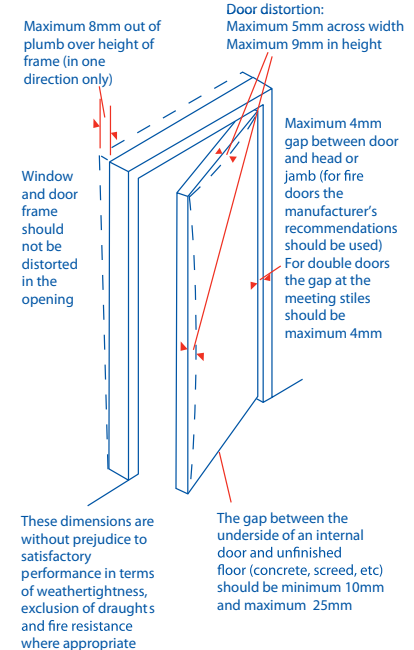
Items to be taken into account include:

(a) openings in walls (including external openings viewed from the inside)

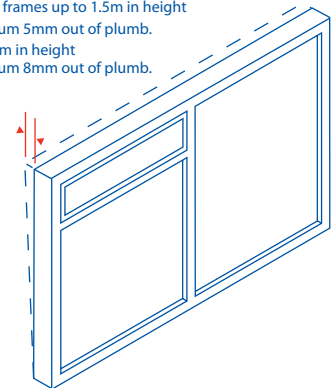


*Tiled sills, for example, in bathrooms may be intentionally laid sloping away from the window

(b) gaps and distortion



Window frames up to 1.5m in height
- maximum 5mm out of plumb.
Over 1.5m in height
- maximum 8mm out of plumb.



GLAZING

1.2 - S5 Glass shall be free of undue defects

The following are acceptable if they are neither obtrusive nor bunched:

- bubbles or blisters
- hairlines or blobs
- fine scratches not more than 25mm long
- minute particles

The above does not apply within 6mm of the edge of the pane, where minor scratching is acceptable.

Commentary

- glass should be viewed in daylight from within the room and at least 2m from the panes (3m for toughened, laminated or coated glass) facing the glass.

WALLS AND CEILINGS - TOLERANCES

1.2 - S6 Wall and ceiling finishes shall be built to appropriate tolerances

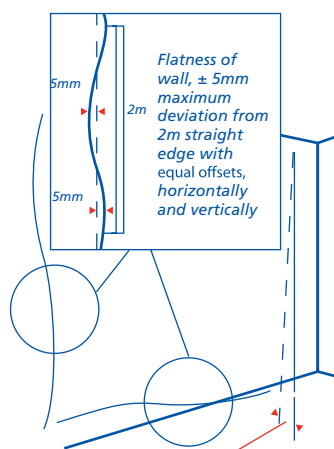
Items to be taken into account include:

Plastered and dry lined

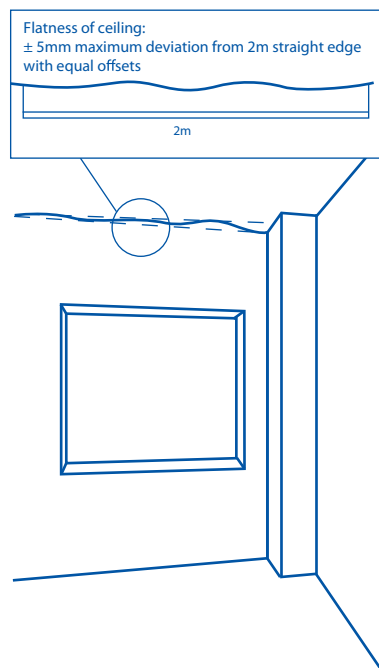
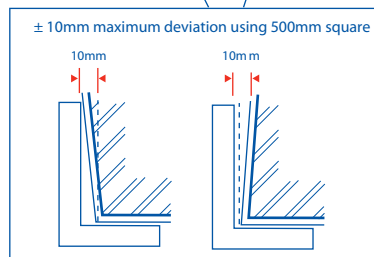
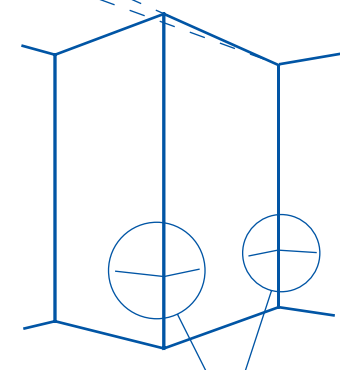
(a) wall and ceiling surfaces

The deviation of board joints in walls and ceilings should not exceed 3mm when measured using a 450mm straightedge with equal offsets.

The deviation of board joints in walls and ceilings should not exceed 3mm when measured using a 450mm straightedge with equal offsets.

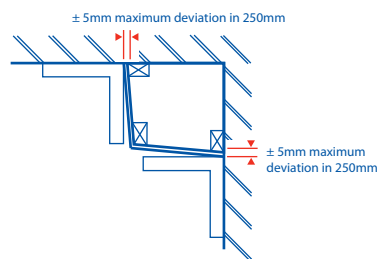


Plumb of wall finish:
Maximum 8mm out of plumb in a storey height up to 2.5m - maximum 12mm out of plumb for a continuous wall height greater than 2.5m



Duct casings

(b) squareness



Skirtings

(c) gaps

The gap between the floor finish (without coverings) and between the bottom of the skirting should not exceed 5mm.

Commentary

- the gap between the floor finish and the skirting may increase because of normal drying out, shrinkage and/or deflection, particularly in timber floors
- a gap may occur between the wall finish and skirting due to drying out, shrinkage and fixing position.

WALLS AND CEILINGS - APPEARANCE

1.2 - S7 Wall and ceiling finishes shall have an appropriate appearance

Items to be taken into account include:

Plastered and dry lined

(a) appearance of wall and ceiling surfaces

Surfaces should be reasonably uniform although there may be minor textural differences around lights and other

fittings. There should be no visible gaps between fittings and the wall/ceiling (e.g. around switch plates).

In plastered walls and ceilings some tooling marks may be visible.

Commentary

- in general wall surfaces, some cracking (up to 2mm wide) is likely due to shrinkage and differential movement of materials
- at wall, floor and ceiling junctions where there are changes in the construction materials, small cracks (up to 2mm wide) may appear in the surface as a result of shrinkage and differential movement of materials
- jointing tape should be fully covered and not be obtrusive in the finished wall or ceiling surface
- small cracks may occur in wall finishes which pass across floors (e.g. in staircase walls)
- where stair strings abut a wall, a crack of up to 4mm may appear as a result of shrinkage of materials.

Duct casings

(b) appearance of duct casings

Duct casings, access covers and any associated framing should be neat and tidy and have an appropriate decorative finish.

Blockwork walls in garages

(c) appearance of blockwork walls in garages

Cracks (up to 2mm) wide in unplastered blockwork walls may be evident due to thermal movement and drying shrinkage.

Skirtings

(d) joints

Joints in skirtings are likely in long lengths of walls. Joints should present a continuous appearance when viewed from a distance of 2m in daylight. Some initial shrinkage of the skirting may already be evident at completion of the property.

Commentary

- gaps in skirtings may appear at joints and corners due to shrinkage.

FLOORS

1.2 - S8 Floors shall be built to appropriate tolerances

Items to be taken into account include:

(a) level of floor

Maximum 4mm out of level per metre for floors up to 6m across, and maximum 25mm overall in any other case.

Commentary

- the effects of normal drying shrinkage on screeded floors may cause minor cracking

- timber floors and staircases naturally shrink as they dry. As this drying occurs, it may result in squeaking components as they move against each other. This is natural and to be expected, and cannot be totally eliminated.

(b) flatness of floor

±5mm maximum deviation from a 2m straightedge with equal offsets.

(c) underfloor service ducts

Service ducts should be constructed so that the cover is level with the adjacent floor finish provided by the builder.

Commentary

- drying shrinkage of the floor may result in minor differences in level between the floor and duct cover. This may become evident with some types of thin floor coverings, and the choice of covering should take this into account.

CERAMIC, CONCRETE, TERRAZZO AND SIMILAR TILE FINISHES

1.2 - S9 Tiling shall have an appropriate appearance

Items to be taken into account include:

(a) tile joints

Tile joints should be straight in alignment unless the tiles are, by design, irregular in shape.

The width of floor tile joints should not be less than 3mm, unless otherwise specified by the manufacturer.

The width of wall tile joints should not be less than 1mm. This relieves any local stress that may occur.

Joints in floor tiles should generally not exceed the tile thickness, but wider joints, up to 10mm, may be necessary to accommodate dimensional irregularities in some tiles.

Where tiles have dimensional irregularities the joint dimensions should be "evened out" to maintain a regular appearance.

(b) overall variation in surface level of wall and floor tiles

± 3mm maximum deviation from a 2m straightedge with equal offsets.

(c) variations in surface level between adjacent wall or floor tiles

1mm for joints less than 6mm wide.
2mm for joints more than 6mm wide.

JOINT SEALANTS

1.2 - S10 Joint sealants shall have a neat and tidy appearance

Items to be taken into account include:

(a) appearance of joint

Sealants should be tooled to remove blisters and irregularities, and achieve a compact, smooth neat surface finish.

Commentary

- joints should normally be viewed from a distance of 2m (e.g. external window and door frames), but may be less depending on the location (e.g. showers and baths).

OTHER SURFACES AND FINISHES

1.2 - S11 Other surfaces and finishes shall have an appropriate appearance

Items to be taken into account include:

(a) painted and varnished surfaces

Surfaces should be reasonably smooth and free from nail holes, cracks and splits. Open joints should be filled. Colour, texture and finish should be reasonably uniform.

Commentary

- surfaces should be viewed in daylight from a distance of 2m and not by shining artificial light on the surface. Wall lights or uplighters should be switched off
- painted and varnished surfaces should be free from conspicuous runs and prominent brush marks. There should be no bare or starved areas
- timber surfaces may show limited raised grain and the colour and texture may also vary
- drying shrinkage of timber may cause cracking of the paint finish, particularly where joints occur in plaster and woodwork
- where painted surfaces are touched-up, minor colour variations will occur
- external finishes will dull over time depending on a number of factors such as exposure to sunlight, rain and pollutants.

(b) knots in timber

Some exudation of resin from knots may occur and may cause discoloration of paintwork, both internally and externally.

Commentary

- because timber is a natural material some resin is likely to exude from knots even though modern primers contain a knotting compound to limit the effect.

(c) garage floors

Where garage floors have not been sealed, dusting may occur.

(d) socket, switch and other service outlets

Where there are two or more adjacent outlets they should be aligned horizontally.

FITTED FURNITURE

1.2 - S12 Fitted furniture shall have an appropriate appearance

Items to be taken into account include:

(a) appearance

Doors and drawers of fitted furniture should be visually aligned vertically, horizontally and in plan, and operate as intended by the manufacturer.

Gaps between adjacent doors and/or drawers should be uniform.

There should be no significant difference in level at the intersection of adjacent worktops.

Commentary

- no dimensional tolerance has been set for gaps between adjacent doors and/or drawers or for their alignment because some variation will be necessary to take account of adjustments as part of the fitting process
- no dimensional tolerance has been set for the abutment of adjacent worktops because of the variety of materials available and because minor variations, even with manufactured products, are inevitable and small differences in height may be unavoidable
- fitted furniture should normally be viewed from a distance of 2m.

(b) scratches

Factory-finished components should not have conspicuous abrasions or scratches when viewed in daylight from a distance of 0.5m.

Commentary

- conspicuous surface abrasions caused during installation should be removed in accordance with the manufacturer's recommendations which may include filling, polishing out, re-spraying or painting as appropriate
- in rooms or areas where there is no daylight, scratches should be viewed in artificial light from fixed wall or ceiling outlets and not from portable equipment.

INDEX

B

Bed joints	1
Brick slip cladding systems	2

C

Cast stone sills	3
Ceramic, concrete, terrazzo and similar tile finishes	5
Covers to drainage systems	3
Curtain walling	2

D

Doors and windows	3
Drives, paths, decks, terraces and balconies	3
Duct casings	4

E

External reveals, straightness	2
External walls, appearance	2
External walls, tolerances	1
External works	3

F

Fairfaced masonry	1, 2
Fitted furniture	5
Flatness of floor	5
Floors	4

G

Garage floors	5
Garages, blockwork walls	4
Gaps and distortion	3
Glazing	3

J

Joint sealants	5
----------------	---

K

Knots in timber	5
-----------------	---

L

Level of bed joints	1
Level of floor	4

O

Openings in walls	3
Other surfaces and finishes	5

P

Painted and varnished surfaces	5
Perpend alignment	1
Plumb of wall	1

R

Rainscreen cladding	2
Render	2

S

Scratches	5
Skirtings	4
Sockets, switches and other service outlets	5
Standing water	3
Straightness on plan	1
Straightness in section	1

T

Thickness of bed joints	1
Tile hanging	3
Tile joints	5
Timber cladding	3

U

Underfloor service ducts	5
--------------------------	---

V

Variations in surface finish	3, 5
------------------------------	------

W

Walls and ceilings, appearance	4
Wall and ceiling surfaces	4
Walls and ceilings, tolerances	4