LABC warranty

TECHNICAL MANUAL

VERSION 10

1: TOLERANCES

1. Tolerances

Contents

Limitations of Functional Requirements

1. A more stringent tolerance may be stated within an existing National or European Standard however, for the purposes of coverage under the relevant policy, where we have identified a tolerance requirement, this would be deemed suitable to meet the requirements of this Technical Manual.
2. We only measure tolerances which are identified within this Technical Manual.

Workmanship

No additional requirements.

Materials

No additional requirements.

Design

No additional requirements.

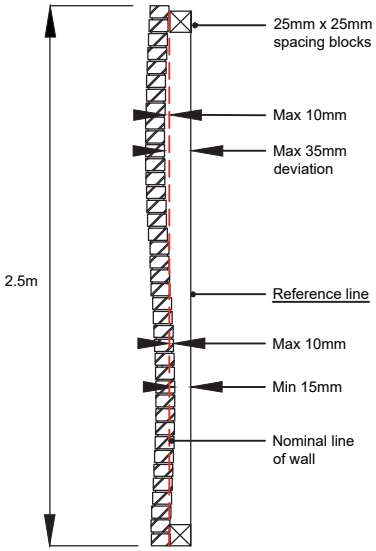
1.

Tolerances

1.1
Tolerances

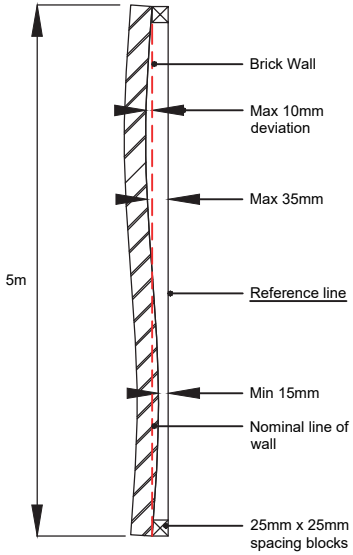
External walls

Brickwork: straightness in section



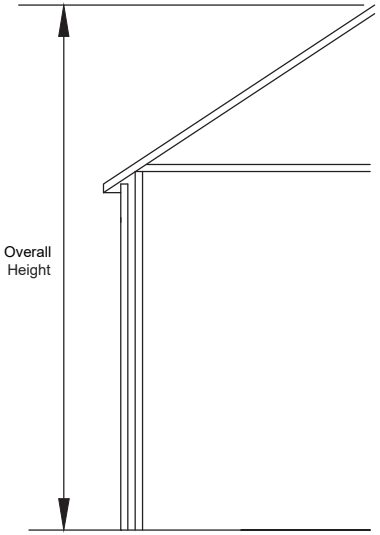
Straightness in section
The maximum deviation is 10mm in any 2.5m height of wall. Using 25mm wide spacing blocks, the masonry line should be anywhere between 15mm and 35mm from the reference line

Brickwork: straightness on plan



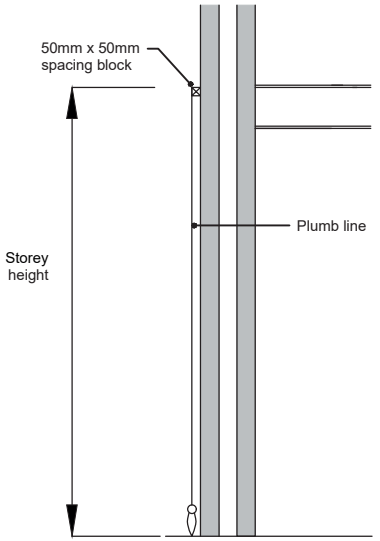
Brickwork straightness in plan
There should be a +/-10mm maximum deviation in any length of wall up to 5m

Plumb of wall: overall height



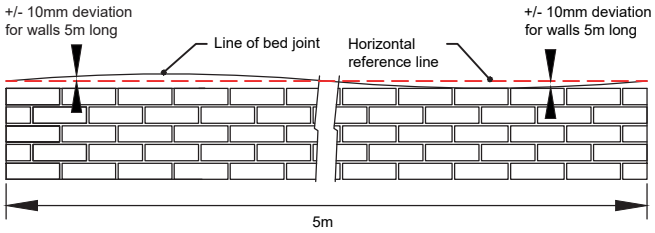
Plumb of wall: overall height
There should be a maximum deviation of 20mm in the overall height of a wall

Plumb line of wall: storey height



Plumb of wall: storey height
The maximum deviation is 10mm in a storey height of approximately 2.5m. Using a 50mm wide spacing block, the plumb bob should be between 40mm and 60mm away from the wall

Level of bed joints



A 10mm deviation is suggested for walls 5m long (a pro rata tolerance is applicable for walls less than 5m long), and a 15mm maximum deviation for walls over 5m long. There should be no recurrent variations in the level of the bed joint line.

Thickness of bed joint

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

Perpendicular alignment

Vertical alignments of perpend joints should not deviate from the perpendicular to an extent which impairs the structural stability of the wall.

As a result of the manufacturing process, not all bricks are uniform in length. Therefore, not all perpend joints will align. However, there should be no collective displacement of the perpend joints in a wall.

Rendered walls (plain)

Unless otherwise specified, apply the render coats to produce as flat a surface as possible, and where appropriate check the surface by measuring between the face and any point along a 1.8m straight edge placed against it. The flatness of the rendered finish will depend upon the accuracy to which the background has been constructed, the thickness of the render specified and whether grounds and linings are provided and fixed to a true plane. For render less than 13mm thick, a no tolerance limit is realistic. Significant cracks in the render, or other damage, such as chips and marks greater than 15mm in diameter, are considered unacceptable.

Fair-faced brickwork and blockwork

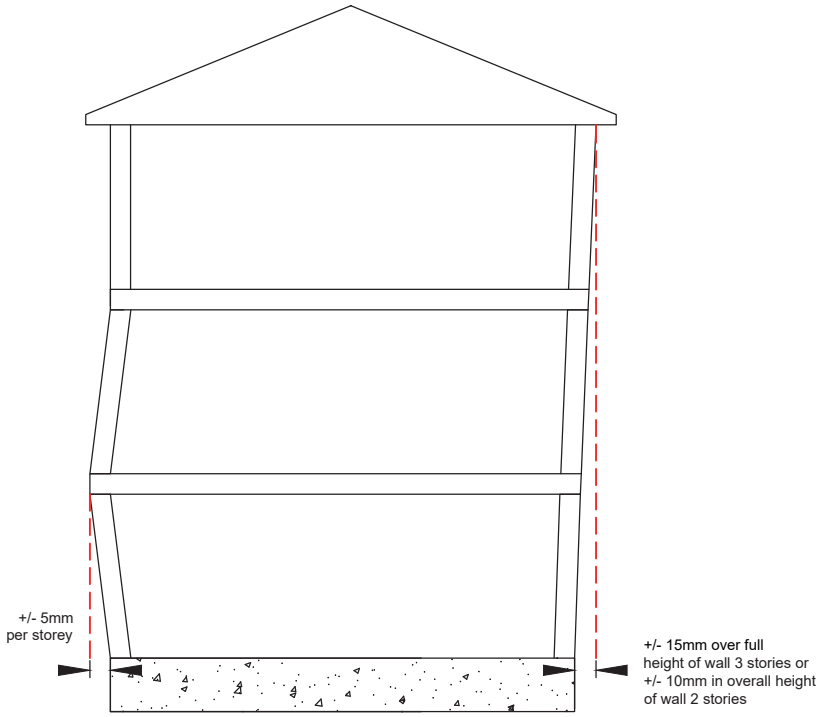
Fair-faced masonry should be completed to a reasonable level, ensuring texture, finish and appearance are consistent. A reasonable appearance for single leaf 102.5mm brick walls should be to have one finished side only. A neat and tidy finish should be applied to the other side. Shrinkage due to drying out could lead to the fracturing of un-plastered blockwork walls, although cracks of up to 3mm are generally normal due to thermal movement and drying shrinkage.

Tile hanging

The uniform appearance is to be maintained for panels of tile hanging, especially at abutments.

Steel frame

Steel frame: wall panel erection tolerances



Site tolerances

It is essential that the accuracy of setting out foundations and ground beams are checked well in advance of materials being delivered to site.

For accurate erection of the frame the following tolerances are required at the level of the base of the wall frame:
- Length of wall frame: +/-10mm in 10m.
- Line of wall frame: +/-5mm from outer face of plate.
- Level of base of wall frame: +/-5mm over complete wall line.

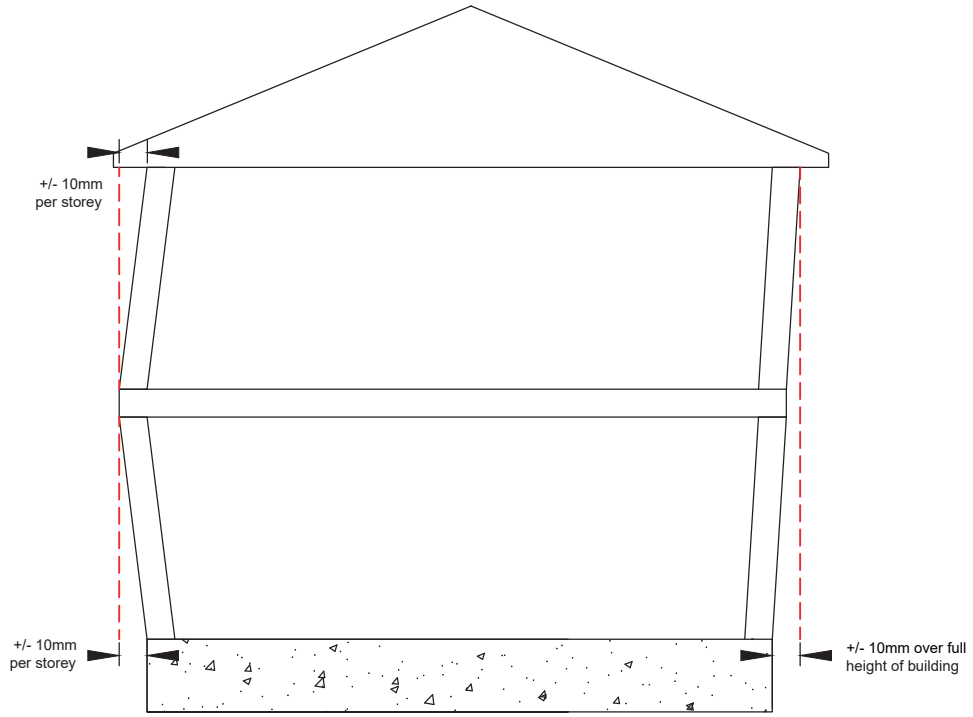
Metal stud framework

The wall panel usually consists of a head rail, base rail (sole plate) and possibly horizontal noggins at mid-height, together with vertical wall studs.

Vertical tolerances are:
- +/-15mm in overall height of wall 3 storey or;
- +/-10mm in overall height of wall 2 storey or;
- +/-5mm in storey height (approx. 2.5m).

Timber frame

Timber frame: wall panel erection tolerances



Manufacturing tolerances

Based on the tolerances given in prEN 14732 (dated 17/12/2013) wall panels shall be manufactured to the following tolerances:
- Length: +3mm, -3mm.
- Height: +/-2mm.
- Diagonals should be equal, acceptable deviation is +/-5mm.
- Opening dimensions: 0mm, +5mm.

Foundations

It is important that the tight tolerances for timber frame are understood, getting the location and level of the foundation correct is one of the most important parts of the build process. The foundations or upstands that support the timber frame should be set out to the dimensions noted on the timber frame drawings:
- Within +/-10mm in length, width and line.
- Diagonals should be within +/-5mm up to 10m, and +/-10mm more than 10m.
- Levelled to +/-5mm from datum.

Location

Sole plates should:
- Be levelled to +/-5mm from datum.
- Not overhang or be set back from the foundation edge by more than 10mm.
- Be set out within +/-10mm in length and in line within +/-5mm, as defined by the timber frame drawings.
- Diagonals should be within +/-5mm up to 10m, and +/-10mm for more than 10m.

Wall panel erection tolerances

Wall panels should be erected to the following tolerances:
- +/-10mm from plumb per storey height.
- +/-10mm from plumb over the full height of the building.
- +/-3mm from line of sole plate, with maximum +/-5mm deviation from drawing.
- +/-5mm from line at mid height of wall panel.
- Inside faces of adjacent wall panels should be flush Adjacent wall panels should be tightly butted.

Curtain walling

Tolerances

Design should allow for the line, level, plumb and plane of the completed curtain wall to be within the acceptable tolerances of:

- Line: +/-2mm in any one storey height or structural bay width, and +/-5mm overall.
- Level: +/-2mm of horizontal in any one structural bay width, and +/-5mm overall.
- Plumb: +/-2mm of vertical in any one structural bay width, and +/-5mm overall.
- Plane: +/-2mm of the principle plane in any one storey height or structural bay width, and +/-5mm overall.

Rain screen cladding systems

Design should allow for the line, level, plumb and plane of the completed curtain wall to be within the acceptable tolerances of:

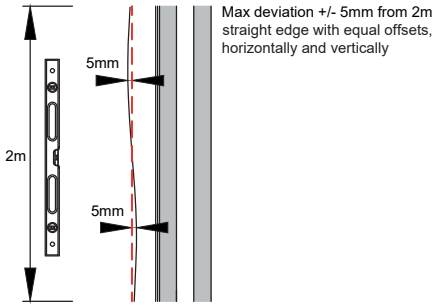
- Line: +/-2mm in any one storey height or structural bay width, and +/-5mm overall.
- Level: +/-2mm of horizontal in any one structural bay width, and +/-5mm overall.
- Plumb: +/-2mm of vertical in any one structural bay width, and +/-5mm overall.
- Plane: +/-2mm of the principle plane in any one storey height or structural bay width, and +/-5mm overall.

Internal walls and ceilings

Walls and ceilings (plastered and dry lined)

There should be no sharp differences of more than 4mm in any 300mm flatness of wall; the maximum deviation is +/-5mm from a 2m straight edge with equal offsets, horizontally and vertically, for all wall and ceiling surfaces.

Flatness of internal wall



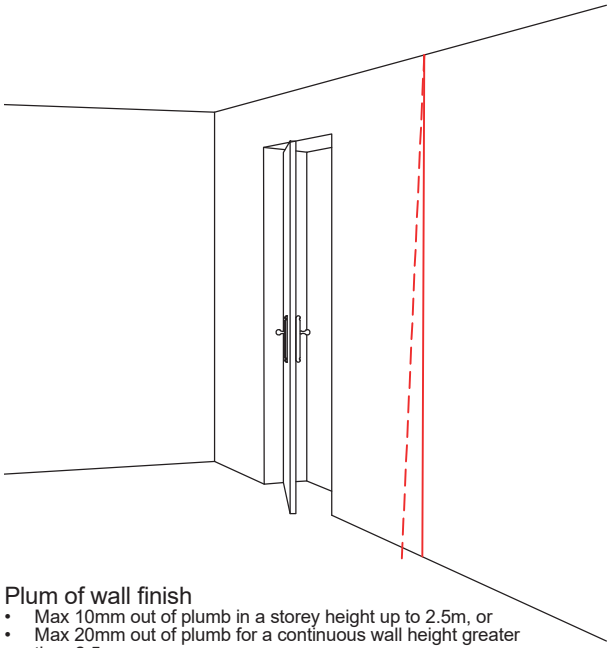
Max deviation +/- 5mm from 2m straight edge with equal offsets, horizontally and vertically

Non load-bearing timber partitions

Partitions should be robust and form a smooth, stable, plane surface to receive decoration:

- Supporting members should be accurately spaced, aligned and levelled.
- The tolerance of horizontal straightness of a partition should be +/-10mm over a 5m length.
- The deviation in vertical alignment of a partition in any storey height should be +/-10mm.

Plum of internal wall



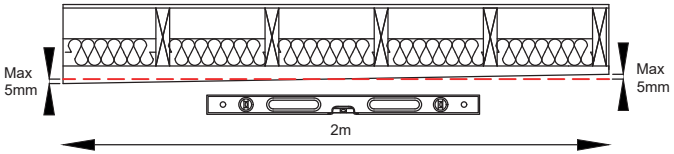
Plum of wall finish

- Max 10mm out of plumb in a storey height up to 2.5m, or
- Max 20mm out of plumb for a continuous wall height greater than 2.5m

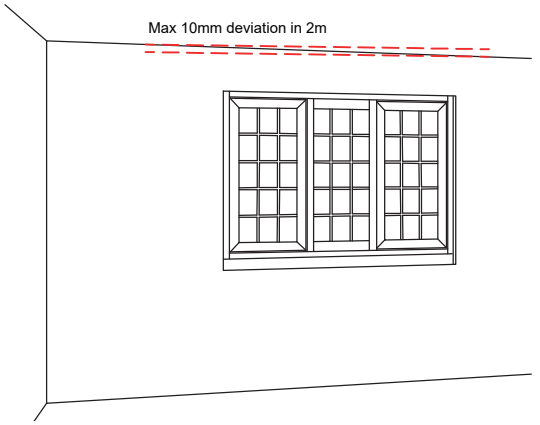
Junctions

If there are changes in the construction materials used due to shrinkage and the differential movement of materials; small cracks (up to 3mm wide) may become visible in the surface at wall, floor and ceiling junctions.

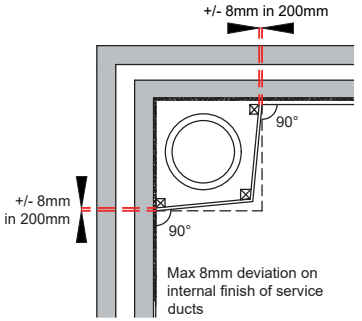
Flatness of ceiling



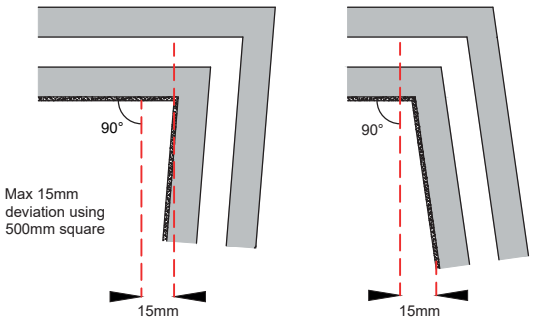
Level of ceiling



Service ducts



Internal corners

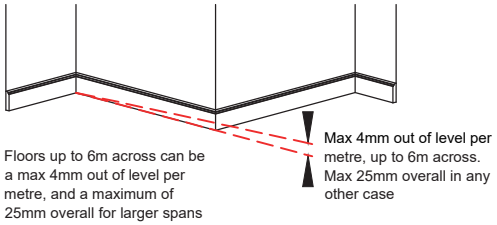


Floors

Level

Floors up to 6m across can be a maximum of 4mm out of level per metre, and a maximum of 25mm overall for larger spans. The effects of normal drying shrinkage on screeded floors could cause some fracturing. Shrinkage of timber floors and staircases is a natural occurrence when drying out, which could result in the squeaking of materials as they move against each other. This again is a natural occurrence, and cannot be eliminated entirely.

Level of floor



Deflection

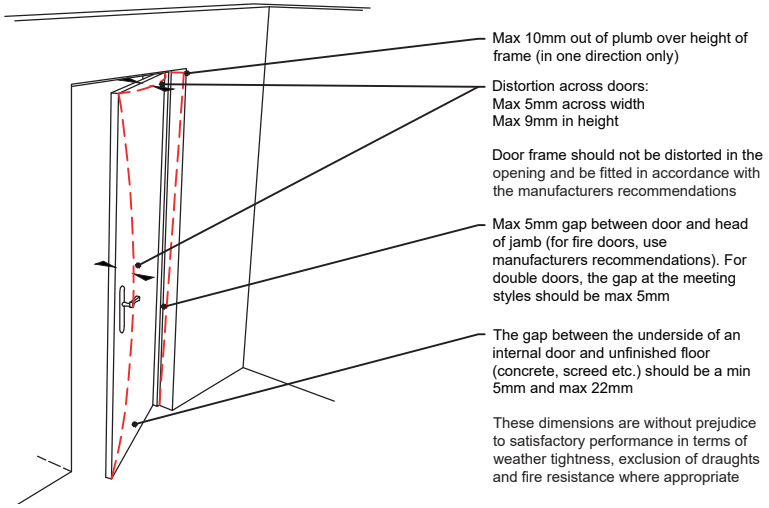
For upper floors (intermediate floors), designers and engineers must observe our tolerances requirements in this Technical Manual for levelness of floors. Although a joist might be designed using British standards or Eurocodes to meet permissible deflections; our tolerances requirement will take precedence.

Doors and Windows

Doors

Reference of +/-3mm maximum deviation in 1m head and sill. The maximum out of level tolerance is 5mm for openings up to 1.5m wide, and 8mm for openings more than 1.5m wide.

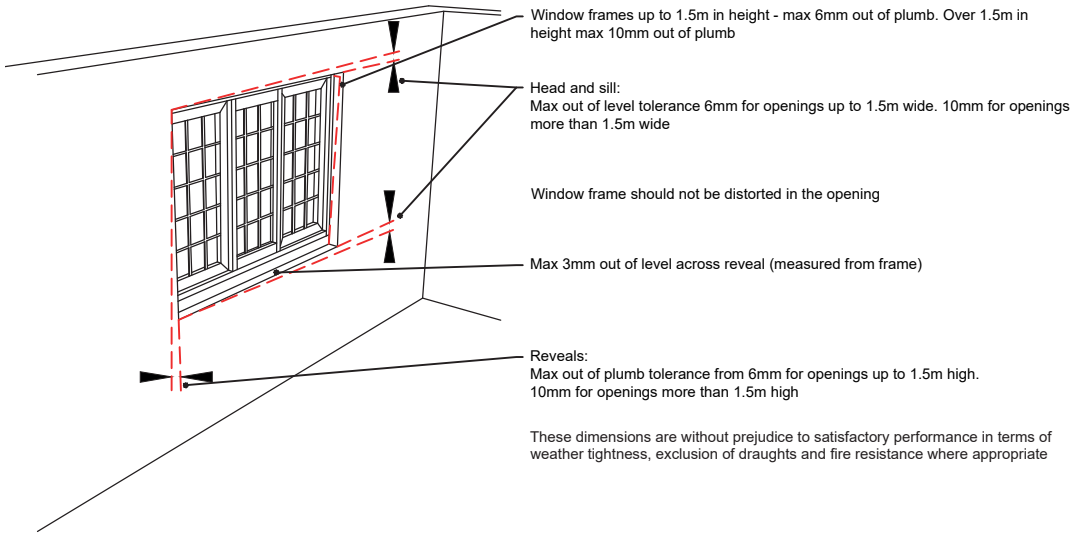
Gaps and distortion in doors



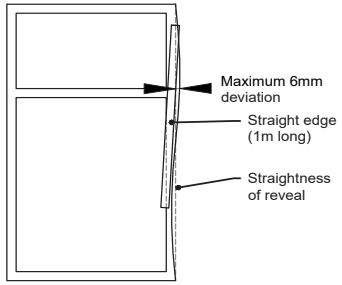
Windows

For square reveals, a maximum +/-8mm deviation off square is applicable for a reveal up to 200mm deep.

Distortion in window reveals



Straightness of external reveals



Glazing

Glass must meet the visual assessment criteria of CWCT Technical Note 35 (TN 35). The total number of faults permitted in a glass unit shall be the sum total of those permitted by the relevant BS EN Standard for each pane of glass incorporated into the unit concerned.

Acceptable faults include:

- Bubbles or blisters.
- Hairlines or blobs.
- Fine scratches not more than 25mm long.
- Minute particles.

When assessing the appearance of glass:

- The viewing distance used shall be the furthest stated in any of the BS EN Standards for the glass types incorporated in the glazed unit. In the event of doubt, the viewing distance shall be 3m.
- The viewing shall commence at the viewing distance, and shall not be preceded by viewing at a closer distance.
- The viewing shall be undertaken in normal daylight conditions, without use of magnification.
- The above does not apply within 6mm of the edge of the pane, where minor scratching is acceptable.

Scratches on doors, windows and frames

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

- Surface abrasions caused during the building-in process should be removed in accordance with the manufacturer's instructions, which may include polishing out, re-spraying or painting.
- In rooms where there is no daylight, scratches should be viewed in artificial light from fixed wall or ceiling outlets, and not from portable equipment.

Finishes

Skirtings
It is possible that there will be joints in skirtings on long walls. When viewed from a distance of 2m in daylight, joints will need to show a consistent appearance. It is anticipated that there will be some initial shrinkage of the skirting after occupation of the building.

Finishes and fitted furniture
Fitted furniture with doors and drawers should be aligned vertically, horizontally and in plan. It should also function as designed by the manufacturer. Adjacent doors and/or drawers with any gaps between them should be consistent. At the intersection of adjacent worktops, there should not be a visible change in level.

Painted and varnished surfaces
All surfaces should be reasonably smooth as practicably possible when viewed in daylight from a 2 metre distance and not by shining any artificial light onto the surface. Significant nail holes, cracks and splits should not be seen and should be filled to reduce their visible appearance. Colour, texture and finish should be reasonably consistent and any joints are to be filled where necessary.

Knots in timber
Some seeping of resin from knots is a natural occurrence that may cause paintwork discolouration both internally and externally. The standard will be met providing the Developer finishes the timber in accordance with Functional Requirements.

External Works

Drives and paths: standing water
Surface variation should not exceed +/-10mm from a 2m straight edge with equal offsets. Some fracturing or weathering may also appear if using natural stone due to the make-up of the material. This tolerance applies to principle pathways and driveways to the building that are required to meet the standards of Part M (Access to and use of buildings).

Drainage system covers
Drainage system covers in hard standing areas should line up neatly with the adjacent ground.

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