

GUIDE TO STANDARDS AND TOLERANCES FOR DOMESTIC BUILDING CONTRACTS SIGNED ON OR AFTER 1ST MAY 1996

APPLICATION

This document provides guidelines when assessing whether or not the builder has complied with the plans and specifications set out in the contract and whether or not implied standards of workmanship have been maintained.

There may be individual cases for which these guidelines cannot be used. Tolerances referred to are not applicable if alternative tolerances are specified in the contract provided that at all times construction is in accordance with relevant building regulations and standards which were made under the Building Act 1993.

Australian Standards that are referenced in this document are referenced in the Building Code Of Australia. They are indicated by AS followed by the appropriate reference number.

These Standards & Tolerances are interim guidelines and shall be reviewed on a yearly basis and at appropriate intervals thereafter.

The previous Standards and Tolerances Guide dated December 1992 issued by the Housing Guarantee Fund shall apply to all contracts entered into prior to 1st May 1996.

APPLIANCES

Defects occurring in appliances will only be considered the builders liability if the actions of the builder have contributed to the defect.

BRICKWORK

Brickwork Distress

Where distress is rated at Category 2 or more (ie. cracks of more than 5mm; refer AS.2870.1 -1988 Residential Slab & Footings. Immediate rectification works will be required in accordance with Appendix A - AS.2870.1 -1988

Bed Joints and Perpend

Where brickwork is to match existing bond and gauge in the case of renovations and or additions then those dimensions shall prevail.

Unless special circumstances exist the following table shall apply.

TOLERANCES IN MASONRY CONSTRUCTION

Item	Tolerance
* Horizontal position of any masonry element specified or shown in plan at its base or at each storey level	± 15 mm
* Deviation within a storey from a vertical line through the base of the member	± 10 mm per 3 m of height or 0.05 times thickness of walls, whichever is less
* Deviation from vertical in total height of building (from base)	± 25 mm
* Relative displacement between load-bearing walls in adjacent storeys intended to be in vertical alignment	± 10 mm
* Deviation (bow) from line in plan in any length up to 10 m	Single curvature: ± 10 mm Multiple curvature: (see Note 1)
* Deviation of bed joint from horizontal, or from the level specified or shown in elevation	± 10 mm in any 10 m length ± 15 mm total
* Deviation from specified thickness of bed joint	± 3 mm average in any 3 m length
* Deviation from specified thickness of perpend	- 5, + 10 mm
* Deviation from width of cavity	± 15 mm

NOTES:

1. For walls with multiple curvature in plan,, the permitted displacement of any point over a length of 10 m shall be such that all points on the surface of a wall lie within two lines in plan 15 mm apart parallel with the nominal centre line of the wall.

2. Tighter tolerances than these may be required where statutory requirements are to be met, such as at property boundaries or in relation to minimum dimensions of rooms.

Brickwork Facing

Bricks shall generally be laid with true brick face outwards. Brick faces shall be cleaned and free of excess mortar unless otherwise specified.

Brick Sills

Distortion of window frames and or dislodgment of sill bricks shall be a defect where such distortion and or dislodgment was caused by lack of **initial** sill brick clearance from the window sill.

Concrete Slab Floor System

For houses that have a concrete slab on ground a minimum sill gap clearance of 6 mm shall apply.

Timber Framed Floor Systems

Initial clearance should be calculated on the basis of 8% of the total depth of the subfloor frame timbers if unseasoned or 3% where seasoned sub-floor frame timbers are used.

Upper storey

Upper storey sill gap clearances shall be increased in accordance with amounts set out in timber framed floor systems above.

Flashings

Built in flashings shall be provided above all openings in brickwork except where the top of the opening is within 400 mm from an eave and the eaves overhang a minimum of 400 mm. Weepholes shall be provided wherever inbuilt flashings are installed.

Flashings shall be provided to all timber window sills and shall be installed so as to drain any moisture to the external face of the dwelling.

Heads and sides of openings to be adequately flashed or sealed so as to prevent the ingress of rain or moisture.

Mortar

Mortar shall generally be mixed in accordance with the requirements of the Building Code of Australia, as applicable but in any case (eg for houses up to 2 storeys in height the minimum acceptable mortar mix is 10:1:1:) Refer to AS. 3700 -1988 Masonry Code or the BCA Vic variation. B1.3 (q) (1)

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Damproof courses

To be in accordance with the Building Code of Australia, as applicable.

Raking of Joints

Raking of mortar joints shall not be closer than 5 mm to any perforation in cored masonry and consideration be taken into account of the structural and fire resistance design of masonry. Raking of mortar joints in masonry units shall not exceed 10 mm depth.

Voids

Filling of voids (eg putlog holes) shall be carried out using a mortar mix and colour consistent with the mortar composition in the remainder of the brickwork.

CONCRETE PAVING/DRIVEWAYS

For verandahs, garages, carports, paving, patios, driveways etc; any uncontrolled cracking of concrete will be considered a defect if the builder did not make allowance for shrinkage or general movement of the concrete (ie slip joints around verandah posts, control joints, isolation joints etc.) or where uncontrolled cracking is the result of inappropriate construction.

CONCRETE SLAB DISTRESS

Where distress is rated at Category 3 or more (ie. cracks of more than 2 mm; refer AS.2870.1-1988 Residential Slab & Footings. Immediate rectification works will be required.

If distress is rated at less than Category 3, the defect may be monitored for an appropriate period of time to allow an assessment of the damage. If, at the end of the monitoring period, the distress rating is assessed as Category 2 or above this will be considered a defect.

CONDENSATION

Condensation on walls, windows and in bathrooms is usually caused by conditions beyond the builder's control and will not usually be considered a defect. Roof condensation may be considered a defect if caused by incorrect positioning of sarking, or vapour barrier. The effects of condensation may be considered a defect if the builder has not allowed for moist air from service areas to be vented to outside air or through adequate natural ventilation of the roof space.

DOORS

Door handles and latches

Door handles and latches will operate as intended by the manufacturer however general wear and tear will not be considered to be poor workmanship on behalf of the builder..

Doors and door frames

Unless specified in the contract, or where an increased clearance is required for:

- removable toilet doors;
- return air ventilation for ducted heating or air-conditioning units; or
- inlet ventilation to rooms where the only ventilation is provided by ventilated skylights.

A maximum gap of 3mm will be allowed between the top and sides of all internal swing doors and the door jamb and a maximum gap of 20mm between the bottom of the door and the top of any finished floor covering unless otherwise specified.

Doors and windows which bind or jam, as a result of the builder's work, shall be considered as defects.

Warpage of internal doors will not exceed 6mm over the door's height.

External doors shall be appropriate for their intended purpose and shall be installed in accordance with the manufacturers recommendations.

EXTERNAL WALL CLADDINGS

Claddings will be supplied and installed in accordance with the manufacturer's recommendations and data sheets.

FIREPLACES

Design of fireplaces shall be in accordance with SAA.HB 33-1992. Domestic Open Fireplaces.

Smoking fireplaces

Smoking fireplaces will be considered defective if the cause is attributable to builder-supplied design and/or construction and poor workmanship exists.

FIXING

Gaps between mouldings, and between mouldings and other fixtures which exceed 1mm and appear within the first 12 months will be considered defects. After the first 12 months a gap of more than 2mm is a defect.

FOOTINGS AND FOUNDATIONS

Natural movements of the site soils shall not exceed the parameters as outlined in AS2870.1-1988 Residential Slabs and Footings. Surface movements shall be applicable to the site classification as identified by foundation data.

Foundation movements which are the result of localised drying caused by the effects of trees or excessive wetting caused by inappropriate or lack of site drainage will be considered a defect and where such factors were not considered at design stage and only if those factors could have reasonably be known at that stage.

Distress

Where natural movements of the soil do not exceed the parameters as referenced in AS2870.1-1988 and where such movements have caused distress to the fabric of the building, this will be considered to be a defect unless appropriate construction methods were adopted to accommodate those movements such as the provision of isolation or movements joints.

Designed Footing Systems:

Where footing systems are designed by a qualified Engineer or where standard footing designs have been used in accordance with AS. 2870 - 1988 such design shall take into account all factors that may affect the performance of the footing system, but only if such factors are obvious at the design stage. Appropriate foundation data is to be obtained.

Foundation and Site Drainage - Maintenance

Where defects have been caused by the lack of proper maintenance of foundations and/or site drainage (where not the responsibility of the builder) such defects shall not be attributed to the workmanship of the Builder. The CSIRO publication "Guide to Home Owners on Foundation Maintenance and Footing Performance" shall be used as a guide.

FLOOR AND WALL TILING

Tiling will be considered defective where:

- a. the builder supplied and laid the tiles, and
 - (i) any of the materials are defective, and/or
 - (ii) the application of adhesive, tiles or backing sheet is not carried out in accordance with manufacturer's instructions, and/or
 - (iii) there are defective works beneath the tiling system.
- b. the owner supplied the tiles and the builder laid the tiles and carried out all preparatory works, and
 - (i) any materials not supplied by the owner are defective, and/or
 - (ii) application of adhesive, tiles or backing sheets is not carried out in accordance with manufacturer's instructions, and/or
 - (iii) there are defective works beneath the tiling system.
- c. the owner supplied and laid the tiles and the builder carried out all preparatory works other than the tile laying, and there are defective works beneath the tiling system (eg. faulty stud work and trimming, nogging work, or concrete slab failure.)

Where the owner installs the substrate, it is the owner's responsibility to ensure that the substrate has been installed in accordance with the manufacturer's instructions and that the framing is satisfactory for the fixing of the substrate .

Defects

Cracked, loose or drummy tiles will be considered a defect if occurring within the first 12 months provided the cause is attributed to the builder. After the first 12 months and subject to the above, these items will only be considered a defect if more than 10% of the tiled area is affected.

Tile matching

Where tile matching is no longer possible, a practical approach may be adopted and where possible, a slightly different tile may be used, provided that the tile separation joint can be isolated, for example, by means of an aluminium channel of the shower screen , separating doorway , wall or similar.

Cracked, loose or drummy floor tiles

Where a defect relates to cracked, loose or drummy floor tiles, supplied and laid by an owner, on a concrete slab provided by the builder, the builder will be liable to rectify the cause and consequential damage (see **Concrete Slab Distress**). If the method of tiling application, adhesive and/or bedding used is not in conformity with manufacturer's instructions then the builder's liability extends to that of slab rectification only.

Shower Screens

Fair wear and tear of shower screen components will not be considered a defect. Cracking of shower screens and cracking of shower glass will not be considered to be a defect where such cracking has been caused by factors other than the Builders workmanship or a manufacturing process.

Shower bases

Shower bases which crack, leak or don't perform as intended will be considered defective if not installed in accordance with manufacturers requirements.

FLOORS

Gaps in Exposed Timber Flooring

A total measurement of gaps between four consecutive boards in timber strip flooring of more than 3mm is a defect in areas other than those which may be affected by direct sunlight. For a claim where most of the timber floor area is tight, but gaps greater than the maximum allowed are visible in areas affected by direct sunlight, the gaps are not a defect.

Particle board Flooring

Particle board flooring will be installed in accordance with the manufacturer's recommendations and data sheets together with AS.1860-1991.

Nail Popping

If in timber floors nail heads can be detected through floor coverings or nail popping is clearly visible in exposed flooring, this will only be considered a defect if occurring within the first 18 months after construction and only where the Builder laid the floor covering or polished the floor as part of the contract.

Where owners have polished exposed flooring or laid floor coverings after completion of the Builders works, due consideration shall be given by the owners in regards to the effects of shrinkage of the floor frame and the subsequent effects of nail popping.

Squeaking Floors

If floors squeak in high pedestrian traffic areas within the first 18 months then a defect exists. After 18 months, squeaking floors will not be considered a defect unless caused by bad workmanship of the builder. Normal timber shrinkage is not considered to be bad workmanship of the builder.

Floor levels - Concrete and Timber - As Built

Generally, the floor is to be within $\pm 10\text{mm}$ of level over the entire floor and at all times, within $\pm 5\text{mm}$ of level over any 3 metre length.

GLAZING

Scratched glazing which has been caused by the Builder due to inappropriate protection or method of cleaning will be considered a defect. Glazing defects shall be viewed under normal daylight conditions. Replacement of defective glass is not required in instances where the scratches can be buffed out without affecting the integrity of the glass.

HANDOVER ITEMS

Items accepted, in writing by owners at handover (ie items accepted on a signed Practical Completion sheet) will not subsequently be considered as defects. This normally refers to incomplete or substandard works and defects in items such as baths, basins, appliances, tiling and laminated bench tops, which the owner could reasonably have been expected to have noticed at handover.

LYCTUS BORER

Evidence of Lyctus borer will not be considered a defect.

METAL FRAMING

Steel framing shall be suitable for the particular application and installed in accordance with the manufacturers specifications. Where defects arise due to the effects of thermal/structural movements of the framing members and no allowance has been made for such movements then the consequential damage shall be attributed to the builders poor workmanship.

PAINTING

Painted or stained surfaces should last externally 2 years and internally 3 years. Clear coatings should last externally 1 year and internally 2 years, all subject to normal conditions.

Coatings used are to be suitable for the relevant conditions and are to be applied in accordance with recognised trade practices and to manufacturers' instructions.

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PLASTER

Plaster works will conform with the manufacturer's recommendations and data sheets.

Peaking or Jointing

If plaster peaking or jointing is obvious in normal daylight conditions, it will be considered a defect. CSIRO Report No L8 'Illumination and decoration of flat surfaces' will be used as a guide.

Plaster Cracking

- (a) Hairline cracking is not a defect except where such cracking occurs in recessed and butt joints.
- (b) Diagonal cracking, except for hairline cracking, will be considered a defect and the cause will be investigated.

Nail Popping

Nail popping will only be covered by the insurance warranty after the first 12 months if evidence exists that such is caused by bad workmanship. Normal timber shrinkage is not considered to be bad workmanship of the builder.

ROOFING SYSTEMS

Metal Roofing/Components

Installation will be in accordance with the manufacturer's recommendations and data sheets.

Touching up of colourbond components shall be carried out in accordance with the manufacturers recommendations.

Tiling

The fixing of roof tiles shall be in accordance with AS.2050 -1995 "Fixing of Roofing Tiles". Roof tiles shall not permit the entry of water and shall be of the quality specified.

Pointing

If pointing becomes dislodged or washed out, it will be a defect. Minor cracking of pointing is not a defect.

Batten Alignment

Battens shall be aligned to within a tolerance of $\pm 20\text{mm}$ in 4m. REF AS.2050 -1995

Batten Spacing

Fixing of tiling battens shall be in accordance with manufacturers requirements however a tolerance of $\pm 5\text{mm}$ is allowed for fixing of tiling battens.

Battens over 75mm in thickness shall be blocked or otherwise restrained from over turning.

Dry Valley Construction

Dry Valley construction must be carried out in strict accordance with the publication "Dry Valleys to Tiled Roofs" published March 1995 by the Victorian Roofing Tile Association.

Undulating Roof Lines

Undulations caused by sagging roofs due to inappropriate methods of construction or loose truss chords will be considered a defect when the deflection exceeds 20mm in any 4m length.

Notwithstanding, consideration shall be given to the effects of long term deflection of roof frame members where such inappropriate methods of construction exist.

RESTUMPING WORKS

Consequential Damage

Consequential damage caused by restumping activities to the fabric of the dwelling shall be rectified but only where the contract allows for such rectification works. Notwithstanding, consequential damage caused by inappropriate work practices may be considered poor workmanship on behalf of the builder.

Floor Levels

Where the contract allows for releveling of the existing dwelling floor levels shall be within $\pm 15\text{mm}$ over the entire dwelling unless physical or statutory restrictions exist.

Releveling of existing structures shall be carried out having regard to limitations imposed by,

- Existing structural conditions
- Fixed points
- Attached buildings
- Extensions to the dwelling
- Plumbing installations
- Or any other factor which may restrict the releveling process.

SOLAR WATER HEATERS

Shall be installed in accordance with the manufacturer's recommendations and data sheets.

SPOUTING

Spouting shall be sized and graded in accordance with Standards Australia's 'Design and Selection of Metal Rainwater Goods' and shall not retain more than 10mm of water. Leaking of spouting joints may be considered a defect where such defect has been caused by inappropriate methods of construction.

STRAIGHTNESS/PLUMBNESS OF WALLS

Generally walls are to be within $\pm 5\text{mm}$ from the vertical over any 3 metre height.

STORMWATER SYSTEMS

Stormwater drainage systems shall function as intended. Where stormwater drainage systems fail to perform as intended and the failure is attributable to the Builders workmanship, then a defect exists.

Defects caused by factors beyond the builders control such as intrusion of tree roots etc will not be attributed to the Builders workmanship.

Where new stormwater systems are connected to existing stormwater drainage systems in the case of renovations or additions, then unless the contract allows for any works to the existing system the Builder shall only be liable for any defects that arise for works carried out under the contract.

TERMITES (WHITE ANTS)

Evidence of termites will not be considered a defect in areas not designated by local councils as termite prone areas.

In termite-designated areas, evidence of termites will be considered a defect if the builder did not spray or treat the ground and obtain a relevant certificate or provide physical barriers as required by AS.3660-Part 1 1995, unless the relevant Building Surveyor approved otherwise.

TIMBER

Timber sizes, spacings and stress gradings must comply with AS.1684- 1992 National Timber Framing Code or Timber Framing Manual (edition current at time of construction). or version as specified in contract.

Timber shrinkage and splitting

Up to 8% cross-sectional shrinkage will be accepted for unseasoned timber. For seasoned timbers, a maximum of 3% cross sectional shrinkage will be accepted.

External Exposed Timbers

Timber that is exposed to the elements or in contact with the ground shall have a suitable durability rating as required

WATER HAMMER

Water hammer will be considered a defect where caused by incorrectly attached water pipes. If the noise is discernible only through use of electric solenoid taps (washing machine and dishwasher taps), the complaint will not be considered a defect. Water hammer caused by excessive mains pressure will not be considered a defect.

WATER LEAKS

Roofs, gutters, flashings, skylights, window frame joints or window seals which leak under normal weather conditions for the particular terrain, will be considered a defect but only where such defect is attributable to the Builders workmanship.

GENERAL NOTES

ADOPTION OF STANDARDS AND TOLERANCES

The introduction of the Domestic Building Contracts and Tribunal Act 1995 has placed a greater onus on parties to a domestic building contract to ensure that the plans and specifications forming part of that contract reflect the required standards and details of the end product.

The Act provides general warranties concerning domestic building work and, in addition, many standards and tolerances are prescribed in relevant Australian Standards adopted by the Building Code of Australia, which is used as a technical basis for the issue of a building permit.

There are, however, other items, eg gaps in exposed flooring, for which no formal standards and tolerances exists.

Following the introduction of the Domestic Building Contracts and Tribunal Act 1995, the Building Control Commission has prepared a guide to Standards and Tolerances for domestic building contracts signed on or after 1 May 1996.

This guide was prepared in consultation with the Domestic Building Tribunal, the Housing Industry Association and the Master Builders Association of Victoria.

The resulting document is considered by the Building Control Commission to be of a temporary nature, and a working party containing representatives from industry will be established by the Commission to review the document on an annual basis to ensure it reflects the goal of best practice and competency throughout the domestic building industry.