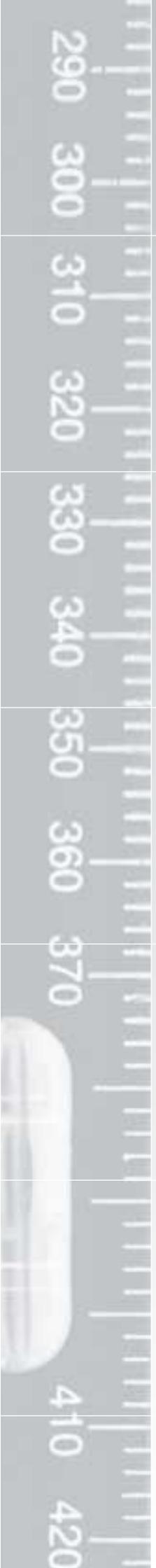


Guide to Standards & Tolerances



Published by the
Building Control Commission
1 April 1999



Introduction

It is the purpose of this Guide to indicate the Building Control Commission's view of acceptable standards and tolerances for domestic building work, where such standards and tolerances are not prescribed by the Building Act 1993, Building Regulations 1994 or Australian Standards. However, in some instances, tables incorporated in Australian Standards referenced by the Building Code of Australia have been included, to assist industry and home owners.

Where there is any contradiction between a relevant and current Code or Australian Standard and this Guide, the Code or Standard will take precedence.

Acknowledgements

This Guide was prepared in consultation with individuals representing various industry and consumer groups. The Building Control Commission gratefully acknowledges the contribution of the following:-

Australian Institute of Building Surveyors (Building Inspect Subcommittee)
Housing Industry Association
The Institution of Engineers
Insurance Council of Australia
Master Builders Association
Office of Fair Trading & Business Affairs

1	Application	4
2	Appliances	4
3	Brickwork	4
	3.1 Brickwork Distress	4
	3.2 Bed Joints and Perpend	5
	3.3 Brickwork Facing	5
	3.3.1 Mortar	5
	3.3.2 Brickwork Voids	5
	3.3.3 Damp proof courses	6
	3.3.4 Raking of Joints	6
	3.4 Brick Sills - Shrinkage allowance for timber framing	6
	3.5 Flashings	6
	3.5.1 General	6
	3.5.2 Timber Frames	6
	3.5.3 Aluminium Frames	6
	3.6 Render for brickwork	6
	3.6.1 Cracking	6
	3.6.2 Matching render colour and texture	6
	3.6.3 Cracking at Articulation Joints	6
4	Concrete Slab Distress	7
5	Condensation	7
6	Doors	8
	6.1 Door handles and latches	8
	6.2 Doors and door frames	8
7	External Wall Claddings	8
8	Fixing	8
9	Floor and Wall Tiling	8
	9.1 General	8
	9.2 Tile matching	9
10	Floors	9
	10.1 Gaps in exposed timber flooring	9
	10.2 Particle Board flooring	9
	10.3 Nail popping	10
	10.4 Squeaking floors	10
	10.5 Floor levels - concrete and timber - as built	10
11	Footings and foundations	10
	11.1 General	10
	11.2 Distress	10
	11.3 Designed footing systems	10
	11.4 Foundation and site drainage - maintenance	10

12	Glazing	11
13	Lyctus Borer	11
14	Painting	11
15	Paving & Driveways	11
16	Plaster	12
	16.1 General	12
	16.2 Peaking or jointing	12
	16.3 Plaster cracking	12
	16.4 Nail popping	12
17	Restumping Works	12
	17.1 Consequential damage	12
	17.2 Floor levels	12
18	Roofing systems	12
	18.1 Metal roofing/components	12
	18.2 Pointing	13
	18.3 Batten alignment	13
	18.4 Batten spacing	13
	18.5 Dry Valley construction	13
	18.6 Undulating roof lines	13
19	Shower enclosures	13
	19.1 Shower screens	13
	19.2 Shower bases	13
20	Spouting	13
21	Steel Framing	13
22	Stormwater systems	14
23	Straightness/Plumbness of walls	14
24	Termites (White Ants)	14
25	Timber shrinkage and splitting	14
26	Water Hammer	14
27	Water Leaks	14
	Appendix A: Interpretation of ± tolerances given in Australian Standards Codes	15

Guide to Standards and Tolerances for Domestic Building Contracts Signed on or after 1st April 1999

1 Application

This Guide is issued by the Building Control Commission ('the Commission').

The primary obligation of a domestic builder under the Domestic Building Contracts Act 1995 ('the Act') is to carry out the domestic building work in accordance with the domestic building contract, including any plans and specification which form part of the contract. Further, as set out in Section 8 of the Act, *all domestic building contracts carry implied warranties as to workmanship and materials.*

The contractual obligations and the statutory warranties require levels of performance from the domestic builder. The minimum levels of acceptable performance are normally set out in the relevant building codes and standards currently in force. Nevertheless, there are some particulars of performance that are not specified in any of these documents. It is the purpose of this Guide to indicate acceptable levels of performance to the Commission.

This Guide may not be applicable where a domestic building contract specifically requires an alternative applicable tolerance to that shown in this Guide. Neither is this Guide applicable where the domestic building contract specifies a method of work or quality of performance that is not compatible with the tolerance stated in this Guide. However, this does not relieve the domestic builder from attaining any performance level required by the applicable building codes and standards.

Where there is any contradiction between a relevant and current Code or Australian Standard and this Guide, the Code or Standard will take precedence.

The Commission recognises *the dynamic nature of the domestic building industry* and to ensure acceptable practice and competency throughout the industry, the Commission will regularly review this Guide. On present indications this would be on an annual basis. The review would be undertaken by the Commission in conjunction with interested industry and consumer groups.

Most Australian Standards that are referenced in this Guide are referenced in the Building Code of Australia. They are indicated by "AS" followed by the appropriate reference number.

The previous Guide to Standards and Tolerances dated 1 May 1996 issued by the Building Control Commission shall apply to all contracts entered into prior to 1 April 1999.

2 Appliances

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

3 Brickwork

3.1 Brickwork Distress

Where distress is rated at Category 3 or more (i.e. more than 5mm; refer AS.2870-1996 Residential Slab & Footings Construction), rectification works will be required in accordance with Appendix C - AS.2870 -1996.

If distress is Category 2 (between 1mm to less than 5mm) it is considered a defect, however, minor repairs would be acceptable.

3.2 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.

AS3700-1998

Tolerances in Masonry Construction

<i>Item</i>	<i>Structural Tolerance</i>	<i>Non-Structural facework tolerance</i>
(a) Horizontal position of any masonry element specified or shown in plan at its base or at each storey level.	±15 mm	±15 mm
(b) Relative displacement between load-bearing walls in adjacent storeys intended to be in vertical alignment.	±10 mm	±10 mm
(c) Maximum deviation from plumb within a storey from a vertical line through the base of the member.	The lesser of ±10 mm per 3 m of height or 0.05 times the thickness of the leaf.	±10 mm
(d) Maximum deviation from plumb in the total height of the building (from the base).	±25 mm	±25 mm
(e) Maximum horizontal or vertical deviation of a surface from a plane surface (bow) when measured as described in Clause 11.5.2.	±5 mm	±3 mm
(f) Deviation (step) of any exposed brick surface from any adjacent exposed brick surface. The bow provision of Item (e) above also applies.	Not applicable	2 mm
(g) Deviation of bed joint from horizontal, or from the level specified or shown in elevation.	±10 mm in any 10 m length, ±15 mm in total.	±5 mm in any 10 m length ±10 mm in total
(h) Deviation from specified thickness of bed joint.	±3 mm	±3 mm
(i) Minimum perpend thickness.	5 mm	5 mm
(j) Deviation from specified thickness of perpend.	+10 mm maximum	±5 mm average
(k) Maximum difference in perpend thickness in any wall.	No limit.	8 mm
(l) Deviation from specified width of cavity.	±15 mm	±15 mm

Notes:

1. Items (h), (i), (j) & (k) are not applicable to thin-bed mortar joints.
2. Items (i) & (j) are not applicable when perpend joints are not filled with mortar as is the case with some horizontally cored masonry that is not required to resist horizontal bending.

3.3 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.

3.3.1 Mortar

Mortar shall generally be mixed in accordance with the requirements of the Building Code of Australia, as applicable

3.3.2 Brickwork Voids

Where brickwork construction or cleaning results in obvious holes excepting weepholes, these are deemed to be a defect.

3.3.3 Dampproof courses

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

3.3.4 Raking of Joints

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

3.4 Brick Sills - Shrinkage allowance for timber framing

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 refer to Part 3.3.1 Section 3.3.1.10 BCA 96 Volume 2 as follows: The clearances described in (i)-(iv) below must be doubled if the timber framing is unseasoned hardwood.

In masonry veneer walls a gap must be left between the timber frame and the top of the masonry wall, including window sills etc, to allow for settlement of the timber framing caused by timber shrinkage. These clearances must be not less than-

- (i) 5mm at sills of lower and single storey windows; and
- (ii) 8mm at roof overhangs of single storey buildings; and
- (iii) 10mm at sills of second storey windows; and
- (iv) 12mm at roof overhangs to two storey buildings.

3.5 Flashings

3.5.1 General

Flashings shall be provided in accordance with the requirements of the Building Code of Australia.

3.5.2 Timber Frames

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 are to be adequately flashed or sealed so as to prevent the ingress of rain or moisture.

3.5.3 Aluminium Frames

Aluminum windows and doors should be installed according to manufacturer's specifications.

3.6 Render for Brickwork

3.6.1 Cracking

Cracking of 1mm or less will not be considered a defect in rendered finishes.

3.6.2 Matching Render Colour and texture

When matching render, a practical approach may be adopted, and where possible a physical joint or separating material be incorporated.

The builder should make every effort to match render so as to be as close to a match as possible, where this is practicable.

3.6.3 Cracking at Articulation Joints

Provision for the control of cracking in articulation joints should be allowed for or otherwise specified.

If the owner or agent specifies construction that does not allow for movement, cracking will not be considered a defect.

If distress is rated at less than Category 3, the defect is to be monitored for a period of twelve months. If, at the end of the monitoring period, the distress rating is assessed as greater than Category 2, this will be considered a defect.

AS2870-1996 – Residential Slabs and Footings - Construction

Table C2 – Classification of Damage with reference to Concrete Floors (Appendix C)

<i>Description of typical damage</i>	<i>Approx. crack width limit in floor</i>	<i>Change in offset from a 3m straight edge centered over defect (see Note 6)</i>	<i>Damage Category</i>
Hairline cracks, insignificant movement of slab from level	<0.3mm	<8mm	0
Fine but noticeable cracks. Slab reasonably level	<1.0mm	<10mm	1
Distinct cracks. Slab noticeably curved or changed in level	<2.0mm	<15mm	2
Wide cracks. Obvious curvature or change in level.	2mm to 4mm	15mm to 25mm	3
Gaps in slab. Disturbing curvature or change in level.	4mm to 10mm	>25mm	4

Notes

1. Crack width is the main factor by which damage to walls is categorised. The width may be supplemented by other factors, including serviceability, in assessing category of damage.
2. In assessing the degree of damage, account shall be taken of the location in the building or structure where it occurs, and also of the function of the building or structure.
3. Where the cracking occurs in easily repaired plasterboard or similar clad-framed partitions, the crack width limits may be increased by 50% for each damage category.
4. Local deviation of slope, from the horizontal or vertical, of more than 1/100 will normally be clearly visible. Overall deviations in excess of 1/150 are undesirable.
5. Account should be taken of the past history of damage in order to assess whether it is stable or likely to increase.
6. The straight edge is centered over the defect, usually, and supported at its ends by equal height spacers. The change in offset is then measured relative to this straight edge.

Condensation on walls, windows and in bathrooms can be caused by conditions beyond the builder's control and will not usually be considered a defect. Roof condensation will be considered a defect if caused by incorrect positioning of sarking, or vapour barrier where installed. The effects of condensation will be considered a defect if the builder has not allowed for moist air from service areas and wet areas.

6 Doors

6.1 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 unsatisfactory workmanship on behalf of the builder.

6.2 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.

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

Tolerances for twisting and bending are as listed below

1. **Twist**- Twist in a door shall not exceed 5 mm.
2. **Bending**- Bending in a door shall not exceed the following:
 - (a) *In the height of the door:-*
 - (i) up to and including 2150mm high-4mm, or
 - (ii) over 2150mm and up to and including 2400mm high-6mm.
 - (b) *In the width of the doors up to and including 1020mm wide – 2mm.*

7 External Wall Claddings

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

8 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.

Fixing of architraves and skirtings shall be carried out in a workmanlike manner i.e. adequate fixing to studs and plates.

9 Floor and Wall Tiling

9.1 General

Tiling will be considered defective where:

- a. **the builder supplied, laid and constructed the sub-strata for 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 is unsatisfactory workmanship beneath the tiling system.

b. the owner supplied materials and the builder laid the tiles and carried out 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 is unsatisfactory workmanship beneath the tiling system.

c. the owner supplied and laid the tiles and the builder carried out preparatory works other than the tile laying, and there is unsatisfactory workmanship beneath the tiling system (e.g. 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 .

Cracked, loose or drummy tiles will be considered a defect if the cause is attributed to the builder. Subject to the above, these items will only be considered a defect if more than 10% of the tiled room or area is affected, whichever is applicable.

Where the owner lays and supplies floor tiles that are defective (i.e. cracked or loose) using a method of tiling application, adhesive and/or bedding not in conformity with the manufacturer's instructions, then the builders liability would only extend to where consequential damage had occurred due to the concrete slab distress as specified in this document. The owner has to prove the damage is attributable to the builder. The onus of proof is on the owner.

9.2 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 aluminum channel of the shower screen, separating doorway , wall or similar.

10.1 Gaps in Exposed Timber Flooring

A gap of more than 2mm between adjacent boards will be considered a defect. The effect of sunlight, heating or other heat generating appliances are to be taken into consideration.

A total measurement of gaps between four consecutive boards in timber strip flooring of more than 4mm 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.

Where the builder can establish that the flooring system was laid in accordance with the manufacturer's instructions, the builder shall not be liable for gaps considered as defects where the builder has made the owners aware, as acknowledged by them in writing, that the flooring system installed could suffer significant shrinkage leading to visually obvious movement resulting in gaps well in excess of the normally acceptable.

If only one gap exists that is defective within the meaning of this section, and it extends over 1 metre in length, it is considered a defect.

10.2 Particle board Flooring

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

10.3 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 24 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.

10.4 Squeaking Floors

If floors squeak in high pedestrian traffic areas within the first 24 months then a defect exists. After 24 months, squeaking floors will not be considered a defect unless caused by unsatisfactory workmanship of the builder. Normal timber shrinkage is not considered to unsatisfactory workmanship of the builder.

10.5 Floor levels - Concrete and Timber - As Built

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

11 Footings and Foundations

11.1 General

Natural movements of the site soils shall not exceed the parameters as outlined in AS2870.1-1996 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 unsatisfactory workmanship or lack of site drainage will be considered a defect where such factors were not considered at design stage and only if those factors could have reasonably be known at that stage.

11.2 Distress

Where natural movements of the soil do not exceed the parameters as referenced in AS2870-1996 and where such movements have caused distress to the fabric of the building, this will be considered to be a defect unless construction methods done in a workmanlike manner were adopted to accommodate those movements such as the provision of isolation or movement joints.

11.3 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 - 1996 such design shall take into account all factors that may affect the performance of the footing system, but only if such factors are foreseeable at the design stage. Appropriate foundation data is to be obtained.

11.4 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 unsatisfactory workmanship. The CSIRO publication "Guide to Home Owners on Foundation Maintenance and Footing Performance" shall be used as a guide.

12 Glazing

Scratched and broken glazing which has resulted from the builder's unsatisfactory workmanship will be considered a defect.

13 Lyctus Borer

Evidence of Lyctus borer will not be considered a defect.

14 Painting

Coatings used are to be suitable for relevant wear and tear and are to be applied in a workmanlike manner and to manufacturers' instructions.

The minimum durability required is as follows:

Exterior finishes:

Acrylics - 3 years

Enamel - 2 years

Semi transparent stains - 1 year

Clear finishes - not recommended

Interior finishes:

Acrylics, enamels, stains and clear finishes - 3 years

15 Paving and 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 (i.e. slip joints around verandah posts, control joints, isolation joints etc.) or where uncontrolled cracking is the result of unsatisfactory workmanship.

Cracking resulting from causes not attributable to unsatisfactory workmanship (e.g trees planted too close to paving) is not a defect.

AS3727-1993 Table 1 - Performance Criteria

Condition	Measure	Limit
Cracking in bound pavements	Crack width	≤1.5mm
Subsidence	Offset under 1.5 m length of the design profile (See Note 2 below)	≤15mm
Stepping	Relative surface level of adjacent paving elements within the expense of the main pavement.	≤5mm

Notes:

1. The above figures are additional to the construction tolerances used at the time of construction.
2. The design profile is centered over the defect and supported at its ends by equal height spacers. The change in offset is then measured relative to this design profile.
3. Shrinkage cracking in reactive subgrades can lead to loss of bedding sand under segmental pavements. A geotextile separation layer will prevent sand from entering the shrinkage cracks.
4. Cracking in this context applies to bound pavements and not to segmental pavements.
5. The stepping criterion applies only to steps within the surface of the main pavement. It shall not be applied where the main pavement abuts other structures such as edging, drainage pits, service pits, minor pavements (such as a pathway adjacent to a driveway) and pavements constructed with materials of a different type.

16 Plaster

16.1 General

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

16.2 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.

Peaking and jointing is covered by AS 2589.1 - 1997 (Gypsum Linings in Residential and Light Commercial Construction) - Clauses 2 & 6.

16.3 Plaster Cracking

(a) Cracking less than 1mm is not a defect except where such cracking occurs in recessed and butt joints.

(b) Diagonal cracking, except for cracks less than 1mm, will be considered a defect and the cause will be investigated.

16.4 Nail Popping

Nail popping will only be covered by the insurance warranty after the first 24 months if evidence exists that such is caused by unsatisfactory workmanship. Normal timber shrinkage is not considered to be unsatisfactory workmanship of the builder.

17 Restumping Works

17.1 Consequential Damage

The builder will not be responsible for any consequential damage caused by the builder's restumping if the builder can show in writing, signed by the owner, that the owners had been sufficiently informed by the builder of the likelihood and nature of such consequential damage arising as a result of the builder's restumping works.

Notwithstanding the above, the builder will be responsible for consequential damage caused by unsatisfactory workmanship.

17.2 Floor Levels

Relevelling of the existing dwelling floor levels shall be within $\pm 15\text{mm}$ over any room unless physical or statutory restrictions exist.

Relevelling 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 relevelling process.

18 Roofing Systems

18.1 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 manufacturer's recommendations.

18.2 Pointing

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

Pointing should be considered to be defective if caused by unsatisfactory workmanship or materials.

18.3 Batten Alignment

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

Refer to Appendix A for an illustrative example of the interpretation of tolerances.

18.4 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.

18.5 Dry Valley Construction

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

18.6 Undulating Roof Lines

Undulations due to unsatisfactory workmanship or loose truss chords will be considered a defect when the deflection exceeds $\pm 20\text{mm}$ in any 4m length.

Notwithstanding, consideration shall be given to the effects of long term deflection of roof frame members where such unsatisfactory workmanship exists.

Refer to Appendix A for an illustrative example of the interpretation of tolerances.

19 Shower Enclosures

19.1 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 unsatisfactory workmanship or a manufacturing process.

19.2 Shower bases

Shower bases which crack, leak or don't perform as intended will not be considered to be a defect where such cracking has been caused by factors other than unsatisfactory workmanship or a manufacturing process.

20 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 unsatisfactory workmanship.

(AS/NZS 3500 - 1998 is to be used to check for compliance, not the "instant ponding test").

21 Steel Framing

Steel framing shall be suitable for the particular application and installed in accordance with the manufacturer's 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 builder's unsatisfactory workmanship.

22 Stormwater Systems

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

Defects caused by factors beyond the builder's control such as intrusion of tree roots etc will not be attributed to unsatisfactory 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.

23 Straightness/ Plumbness of Walls

Generally walls are to be within ± 5 mm from the vertical over any 3 metre height.

Refer to Appendix A for an illustrative example of the interpretation of tolerances.

24 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.

25 Timber Shrinkage and Splitting

Up to 10% shrinkage will be accepted for unseasoned timber. For seasoned timbers, a maximum of 3% shrinkage will be accepted.

26 Water Hammer

Any water hammer is a defect.

27 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.

Interpretation of \pm tolerances given in Australian Standards Codes.

Introduction: some tolerances that occur in the Guide to Standards & Tolerances are expressed in terms of \pm measurements. The question of the definition of this terminology has not been addressed.

This Appendix seeks to provide this definition. This advice has been prepared in consultation with Standards Australia.

Case Examples - for a tolerance of $\pm 10\text{mm}$ out of vertical over 3 metres.

