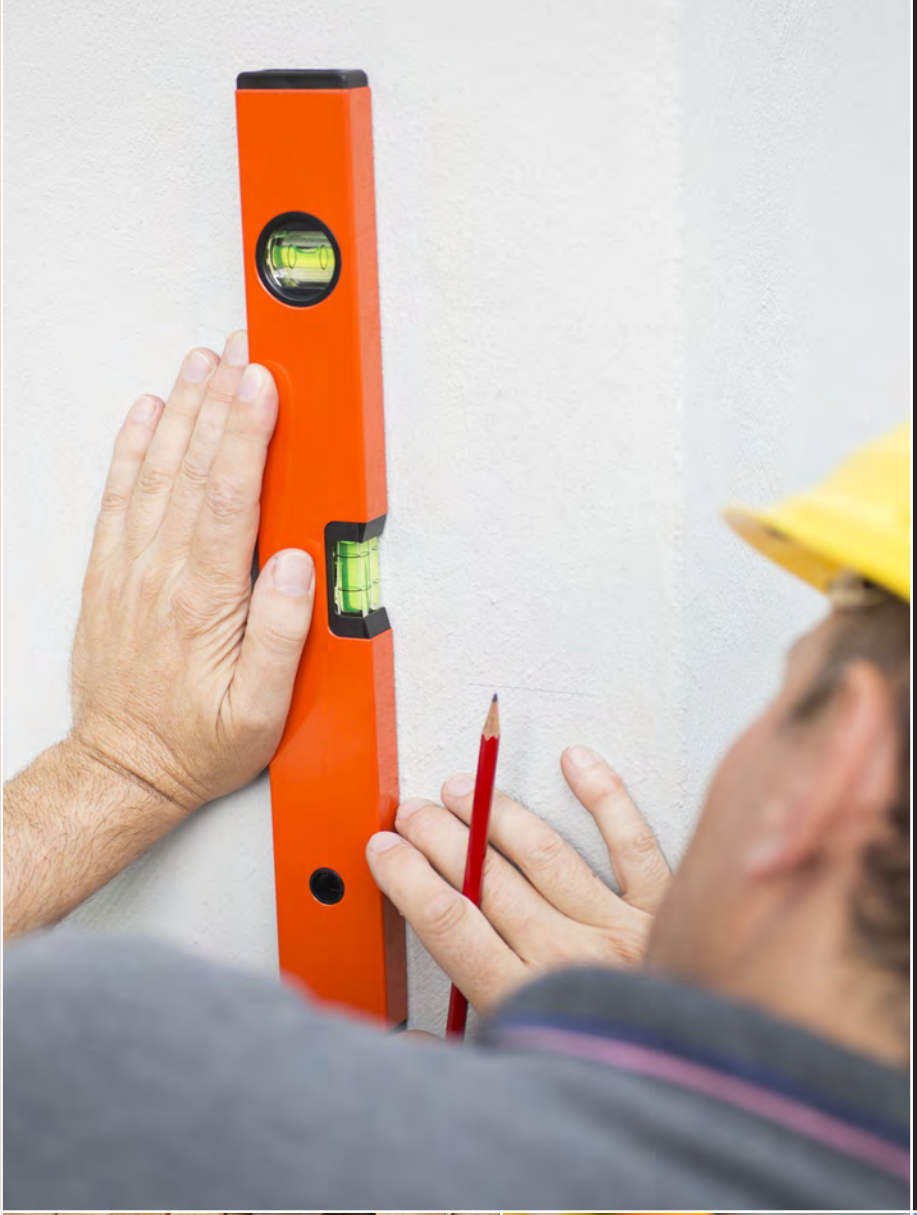


guide to

materials & workmanship for residential building work

edition 2

Contents

Part A Role of industry acceptable standards and tolerances in the residential building industry

1 Introduction

The *Housing Industry Association Guide to Materials and Workmanship for Residential Building Work* is intended to be used by HIA members and their clients as a means of clarifying acceptable industry practices, standards of workmanship and finishes for residential building work.

When a builder and a home owner enter into a building contract, they generally agree to apply the standards of workmanship and finishes considered appropriate to their building project. This applies particularly when a builder displays their homes with the standard of finishes and level of specification clearly set out by virtue of the displayed product.

Sometimes, those agreed particulars of materials performance, workmanship and finishes are sufficiently detailed in the contract or are required by law. However, in many instances they are not.

This document is intended to provide guidance to assist the parties on what is acceptable Australian housing industry practice in these grey areas and what is not acceptable. Parties may reference this Guide in the contract to assist that process.

Irrespective of this Guide, by law, parties may not specify standards of performance that are inferior to those prescribed by the relevant legislation and/or called up in the Building Code of Australia (BCA) or where appropriate, Australian Standards referenced by the BCA and other legislation.

1.1 Acknowledgements

This document was compiled by industry members and staff of the HIA.

Special acknowledgement is given to those who contributed to the development of this Guide, namely:

- HIA National Technical Services Committee members
- HIA Regional Technical Services Committee members
- HIA Building Services staff

1.2 Purpose of the document

The purpose of this document is to provide a guide for the housing industry and its clients as to what are reasonable and acceptable industry standards for the performance of building materials and acceptable workmanship standards and finishes.

This document addresses the most common causes of concern with respect to building materials performance, workmanship and finishes in the home building process.

In the absence of a contract specific or particular building specification, the material performance and workmanship standards described herein are considered acceptable for a builder to properly execute a building contract between themselves and their client without compromising either party to the contract (or subsequent owners).

Building disputes often occur on the basis of unreasonable expectations or false assumptions by one or more parties to a building contract. In instances where the relevant regulations are not clear or are silent on a particular aspect of the construction process, disputes can arise. HIA encourages transparent communication between builders and their clients at all times during the building process to help eliminate such disputes.

1.3 Basis of acceptable standards and tolerances

The standards of workmanship, tolerances and other information contained within this document have been determined on the basis of what HIA considers to be well-recognised housing industry good practice and on the advice of a wide range of contributors who have extensive practical housing industry experience.

In doing so, HIA has also drawn on the following external sources:

- the BCA and its referenced standards;
- publicly available recognised publications produced by specialist building product and material industry associations operating in particular industry sectors; and
- building product manufacturers' and services suppliers' instructions and guides specific to housing.

The chosen standards of workmanship, tolerances and other information reflect traditionally accepted standards recognised generally within the broader housing industry; and are considered by HIA to be fair and reasonable to both client and builder.

1.4 Application and status of this document

The provisions contained within this document are applicable only to the contractual agreements for the works undertaken by:

- the principal contractor; and
- sub-contractors under the control of the principal contractor.

This document does not have the status of regulation, nor should it be read to override any Act or Regulation, the BCA, manufacturer's installation instructions or contractual requirements – all of which take precedence.

This document may not be applicable to some building projects (regardless of their class) where the specific circumstances of the project, or the contract conditions of that project, require, or imply, other or alternate particulars of performance and finish. This would normally be expected to be one-off work (i.e. architectural work where the specification has been written by other persons).

1.5 Extent of application to residential building classes

This document is intended to apply to BCA Classes 1 and 10 buildings. The document may be applicable to other classes of buildings particularly to Class 2 and 4 buildings where agreed to between the parties. Building classifications are described in Appendix C.

1.6 Limitations of application

The provisions of this document do not apply to any aspects that fall outside the scope of works as specified in the contract documents (which include the specifications and other documents referenced by the contract).

1.7 Definitions

Acceptable Industry Standards

- refers to what are acceptable practices within the residential building industry. Examples include:
  - tolerances around door openings should be even, rather than specifying an exact dimension;
  - the effects of glancing light on painted plasterboard surfaces and external plaster corner build-up in setting the corner as described in industry publications such as manufacturers' handbooks;
  - shrinkage cracking in concrete slabs and driveways as described in industry association publications; and
  - performance of footing systems contained in material from scientific research organisations, such as the CSIRO publication "*Building Technology File `18 – 2003 Foundation Maintenance and Footing Performance: A homeowner's guide*" (October 2003)

Builder

- means the licensed builder, tradesperson or the like with whom the client directly contracts to carry out the work.

Note: The term builder is defined in different ways in a variety of legislation.

Contract

- means the contractual relationship between the parties constituted by:
  - the **general conditions of contract** (this is usually a standard form document such as the HIA *New Homes* or *Alterations and Additions* contracts);
  - **warranties** (these are found in both the general conditions of contract and the specification, as well as being implied by law);
  - **contract particulars** (these are usually completed in the annexures and schedules to the HIA *New Homes* or *Alterations and Additions* contract form and will include the parties details, price and payments, and construction program);
  - the **Works description** usually completed in the annexures and schedules to the HIA *New Homes* or *Alterations and Additions* contract form (but may be a separate document);
  - the **Works details** (usually found in a specification document but in some States may be included in a box on the drawings) and will include calculations, software, operation manuals, samples and models;
  - the **Design Documents,** if any (usually used where an architect/designer is involved or the client has provided a preliminary design);
  - the **Construction Documents** including plans and specifications;
  - **Schedules and Annexure** usually found in the HIA *New Homes* or *Alterations and Additions* contract form (but may be in a separate document) and will include where applicable to a project provisional sums, prime cost items, schedule of rates and prices; and
  - other documents referred to in the contract particulars (usually development and building approvals but also may include engineering reports, soil tests, environmental reports and the like).

Contract documents

- means the documents constituting the contract and those *created pursuant to the* contract.

Critical and Non-critical lighting

- critical lighting occurs when the projected light is nearly parallel to the wall or ceiling surface being inspected;
- non-critical lighting occurs when the light that strikes the inspected surface is diffused and not projected parallel to that surface.

Finished Floor Level (FFL)

- means the level of the upper surface of the structural floor.

Floor finishes

- means the material or covering, which provides a decorative finish to any structural flooring surface. Floor finishes include, but are not limited to carpet, ceramic tiles, floating timber floors, linoleum, parquetry, slate, terrazzo and vinyl.

Materials and workmanship performance

- means the performance of materials used in the construction of the home and includes that the material:
  - must be suitable for the intended application; and
  - must comply with any relevant regulatory requirement such as for durability, fire rating, energy efficiency rating, water efficiency etc.
- means the workmanship performance used in the construction the home achieves an accepted level, such as gap sizes, quality of finishes for paintwork, acceptable movement and the like. For example doors (including access doors, cupboard doors, garage doors etc) must be able to be opened and closed without interference.

Normal weather conditions

- refers to the weather conditions usually occurring at the relevant site, but not extreme weather conditions for which the product is not designed and could not reasonably be expected to perform satisfactorily, having regard to what design criteria and performance could reasonably be expected in a product of this nature installed at this location; and
- where a product claims to be designed to meet an Australian Standard, normal weather conditions in relation to that product are those which do not exceed the maximum weather design criteria set out in the Standard for the location at which the product is installed.

Reduced level (RL)

- means the elevation of a point or surface relative to a nominated datum.

Structural Floor

- means a horizontal component generally of timber or concrete providing a loadbearing structural surface for a buildings occupants and fittings. It provides a substrate for the floor finishes or a secondary floor finish.

1.8 Time frames for identification

The date of commencement for any time frame specified in this document is to be taken from the date of practical completion or the issue of a required statutory certificate, which ever occurs first. This is referred to in this document as 'handover'. Examples of statutory certificates include 'Certificate of Occupancy', 'Certificate of Final Inspection', 'Compliance Certificate' and 'Occupation Certificate'.

1.9 Relationship of this document and statutory warranties

The scope of any statutory warranty will determine whether, if a defect exists, it is a matter covered by the warranty.

1.10 Subsequent owners

This document may be used to assist both clients and subsequent owners in deciding whether or not a defect has become apparent during the statutory warranty period. However, subsequent owners cannot require higher standards of materials or workmanship performance than those applicable under the original construction contract.

2 Regulation of building work

2.1 General

Building a home is subject to many forms of regulatory control such as planning, building, plumbing, electrical and environmental regulations. These are administered through a combination of Federal, State and Local governments.

2.2 Building legislation

Building legislation affecting building work is in most circumstances be dictated by the relevant State building legislation. The jurisdictional building and development legislation relevant in each State and Territory are set out in Appendix A.

Building legislation in all jurisdictions requires building work to be carried out in accordance with the BCA in force at the time of building approval, prior to commencement of construction. Some states have transitional provisions (e.g. Victoria and Western Australia) which can extend the operation of a previous regulation for up to 12 months.

The BCA references other documents for particular aspects of construction which provide additional detail and information. The majority of BCA referenced documents are Australian Standards.

Some of the standards and tolerances contained within this document are based on requirements of the BCA or BCA referenced documents.

2.3 Overriding the BCA

The BCA sets minimum acceptable standards for the design and construction of all buildings and compliance with these minimum standards is normally all that is required under building legislation.

However, State and local government authorities can add additional requirements not directly under building law through separate legislation, such as town planning, plumbing and electrical regulations. Therefore, although a lower standard than that set by the BCA can not be part of the contract, in some cases a higher standard can be required by other legislation.

Separately, the builder and the client may form an agreement through the building contract itself, to specify a higher standard. In such instances the tolerances contained in this document may not be applicable.

2.4 BCA referenced standards

This Guide refers to Australian Standards which are referenced by the BCA.

The BCA recognises selected Australian Standards and other documents that provide acceptable information on specific topics, such as:

- the manufacture of materials that will give an acceptable performance;
- test methods that will confirm an acceptable performance of a material or form of construction; and
- building solutions that are deemed-to-satisfy the performance requirements.

In some cases, the BCA describes a building solution which is different to that in a referenced standard. Where this occurs, the BCA is quite clear that both building solutions are taken to comply with the performance requirements even though each may contain different construction methods. Compliance with either solution is deemed to be compliance with the BCA.

2.5 Legal status of Australian Standards

Australian Standards are developed by a company known as Standards Australia. This company is a non-government body with no regulatory powers.

Unless a Standard is referenced in the BCA, called up by legislation or specified in the contract, the Standard will have no application to the work and does not constitute a benchmark against which the quality of work should be measured. Consequently, failure to comply with such a standard will not be considered a defect.

Similarly such non-referenced standards should not be used to judge the quality of work in a dispute. In many instances, manufacturer's installation instructions will provide the appropriate guide to quality.

2.6 References relied upon in this Guide

- Building Code of Australia, Australian Building Codes Board;
- AS 2870 - Residential Slabs & Footings;
- AS 3700 - Masonry Tolerances;
- CSR Gyprock® Residential Installation Guide;
- Boral Plasterboard Installation Manual, February 2005;
- Guide to Concrete Flatwork Finishes, Cement Concrete & Aggregates Australia, March 2008; and
- CSIRO Report No. TR90/1, 1992 Illumination and Decoration of Flat Surfaces.

Part B Identification and measurement

3 General

A building is a complex structure with many components. The components used to build a home are very often made from naturally occurring products, along with a broad range of materials (prefabricated and manufactured) which incorporate natural materials as a base. These include timber, glass, steel, concrete, clay and concrete masonry as well as fibre cement to name but a few.

The building industry has, over time, come to understand the actions of these natural adjustments and has devised means of minimising the effects they may have on a building (such as expansion/control joints in masonry brickwork and steel reinforcement in concrete). However, if left unattended, potentially small problems may develop into larger issues requiring expensive rectification.

For this reason these products' performance can sometimes raise concerns during the construction and post-construction period. Most new products will move as they adjust to the thermal and moisture conditions of their new environment. Timber can shrink causing other materials to also move, such as plaster cornices in internal corners. Similarly, concrete is made using a large volume of water which will cause the concrete to shrink as it dries and cures. Although these natural variations may cause concern to the home owner because of the visual effect, they usually do not affect the structural integrity of the house.

3.1 Defects liability period

Building contracts include a 'defects liability' clause. This clause specifies a nominated timeframe immediately following practical completion of the project for the client to monitor defects. At the conclusion of the specified defects liability period, the home owner should notify the builder of any defects and the builder will then complete those items that are agreed to be defective, to meet either the legislative requirements, for the relevant state, or the standards and tolerances within this Guide. Where defective items are evident at practical completion these should be rectified prior to handover, or in a nominated time agreed by both parties.

The client will generally be in breach of the contract if, in the first instance, they fail to give the builder a reasonable opportunity to rectify defects.

The term of the defects liability period does not restart after a defect is rectified, unless otherwise stipulated in state legislation.

3.2 Statutory warranties

Statutory warranties are implied by law in all residential building work contracts. Building laws in each State and Territory require the builder to achieve minimum levels of performance and finish that relate to both the contractual obligations and statutory warranties.

Building laws in most States also require a builder to take out, in the name of the client, a policy of warranty insurance to ensure that, where a builder for some reason (e.g. bankruptcy or death) is unable to complete building work or to rectify defects, that they are completed or rectified (as the case may be) by the insurer. Details of builder's warranty insurance differ from State to State and clients should consult their own State agencies for more information.

A specific warranty period under warranty insurance applies from the date specified in the relevant legislation and different time limits apply in relation to particular types of defects. (see Appendix B)

3.3 Manufacturer's warranties

Where a builder supplies materials, fittings, systems and equipment as part of a home building contract, these will normally be covered by the statutory warranty on the home. However, such materials, fittings, systems and equipment (such as hot water services, ovens, etc) are often also supported by the manufacturer's express and implied warranties. Manufacturer's warranty documents are usually given by the builder at the time the client takes possession of the building.

Where a defect occurs which is covered by the warranty provided by the manufacturer, it is usually more effective for the client to take the matter up directly with the manufacturer rather than the builder.

A manufacturer's warranty and installation instructions take preference over the Guide.

3.4 Timing

Construction that may be considered poor workmanship when observed soon after practical completion may be considered fair wear and tear sometime later. The builder will not generally be liable for defects that first become apparent after the expiry of the defect liability period unless a statutory warranty applies.

Because statutory warranty continues to apply after the defect liability period, this document includes specified time frames for some items.

3.5 Selection of materials and material samples

Where the selection of materials and finishes are made from display samples, colour charts, display homes and the like, the actual colour, texture and finish of the end product may be of the same quality but vary slightly from the display and sample. For example, decorative concrete finishes or bricks from different batches may exhibit some variations due to weather and variables in the manufacturing process.

Natural products such as timber and stone will contain natural variations. Products manufactured from natural materials such as bricks, tiles, glass and the like will almost always vary from batch to batch and pallet to pallet. Such natural variations are not considered a defect.

3.6 Second hand and pre-used materials

Where second hand materials or products are used in new building work, the particulars of performance and finish specified in this document are not applicable, e.g. weatherproofing of second hand windows may not meet the current requirements and cannot be considered a defect.

3.7 Materials and services supplied by client

Unless the contract expressly provides to the contrary,

- the builder will not be responsible for rectifying defects caused by the performance of any materials, or the levels of workmanship of any labour, directly supplied or provided to the builder by the client; and
- if consequential damage is caused to contracted works as a result of materials or labour supplied by the client, it is not considered a defect for which the builder is responsible.

This would not apply where the client merely request their own nominated trades should carry out any part of the work for, or supply any materials to, the builder and the trades enter into their own subcontract arrangement with the builder, or where the client themselves enters into a subcontract with the builder to do part of the work or supply materials, as in such cases (unless the contract provides differently) the builder remains responsible as head contractor for the completed work, and the builder has their own remedies against the subcontractors if the subcontractors' work is defective.

3.8 Appliances and fixtures

Defects occurring in appliances and/or fixtures are covered by the manufacturer's warranty and will not be considered the builder's responsibility to remedy unless the builder's workmanship has contributed to the defect.

3.9 Alterations, additions and remedial work

In the case of alterations, additions and remedial work, attempts to match existing units may cause disputes. Where the matching of units cannot be guaranteed or is no longer practicable, a rational approach should be adopted before work commences to determine options and adopt an agreed solution. This solution should form part of the contract.

When new work is connected to an existing structure, unless the contract allows for any works to the existing structure, the builder will only be liable for any defects that arise for works carried out under the contract including any junctions or connections

3.10 Heritage and older building work

For heritage buildings, and other older buildings constructed using different materials and construction techniques, the standards and tolerances set out in this Guide may not be applicable.

3.11 Material variation

3.11.1 New work

The following list of materials will vary naturally and these variations need to be considered prior to final selection.

- Concrete will vary in colour as a result of:
  - multiple batches
  - the cement used
  - temperature at the time of placement
  - curing methods employed
- Masonry – brick types and colour
- Mortar mix and colour
- Timber flooring
- Timber colours
- Weatherboards

3.11.2 Alterations, Additions and Remedial work

In addition to those materials and products listed above, the following materials, products or finishes within an existing dwelling will generally be difficult to match. Therefore, alternative materials or practices may need to be investigated.

- Cement render and applied finishes in both colour and texture
- Ceramic tiles
- Cornice profiles
- Door and window types and their hardware
- Glazing colour and patterns
- Paint – colours and texture
- Roof tiles
- Wall paper

4 Measurement of tolerances

The tolerances nominated in this guide apply to all lengths up to and including the nominated dimension contained herein.

No interpolation or proportioning of lengths or tolerance is intended. For example a tolerance of 6mm over 3 metres applies equally to a dimension of 500mm; 1 metre or 2 metre lengths. It is not intended to be broken down to a smaller tolerance of lesser lengths such as 2mm per metre or 1mm per 500mm lengths.

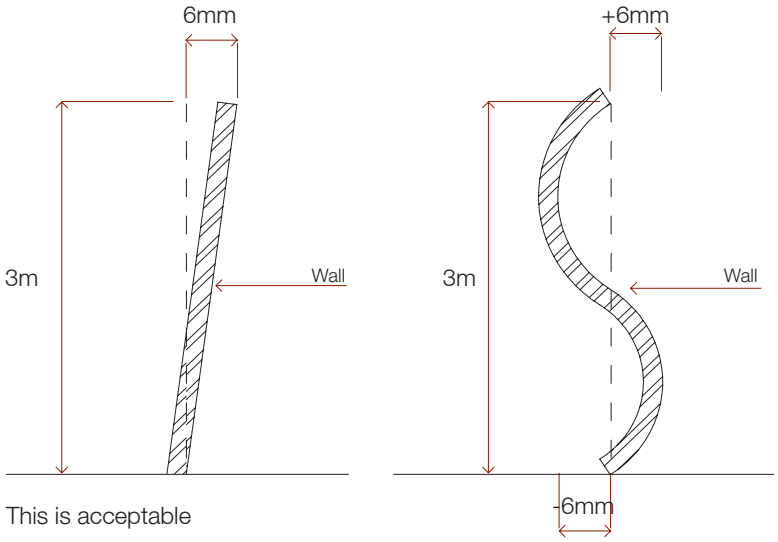
Equally, for dimensions longer than those stated, variations or deviations would be considered defects where they exceed those stated per the nominated length. For example 6mm in any 3 metre length does not equate to 12mm over 6 metres.

4.1 Interpretation of ± tolerances

Some tolerances that occur in this Guide are expressed in terms of ± measurements.

Figure 1 below (exaggerated for the purposes of illustration and not to scale) gives guidance on the interpretation of a ± measurement.

FIGURE 1 - EXAMPLE FOR A TOLERANCE OF ± 6MM OVER 3 METRES



This is acceptable

This is acceptable

This wall is plumb when measured from top to bottom but has a tolerance of ± 6mm for straightness

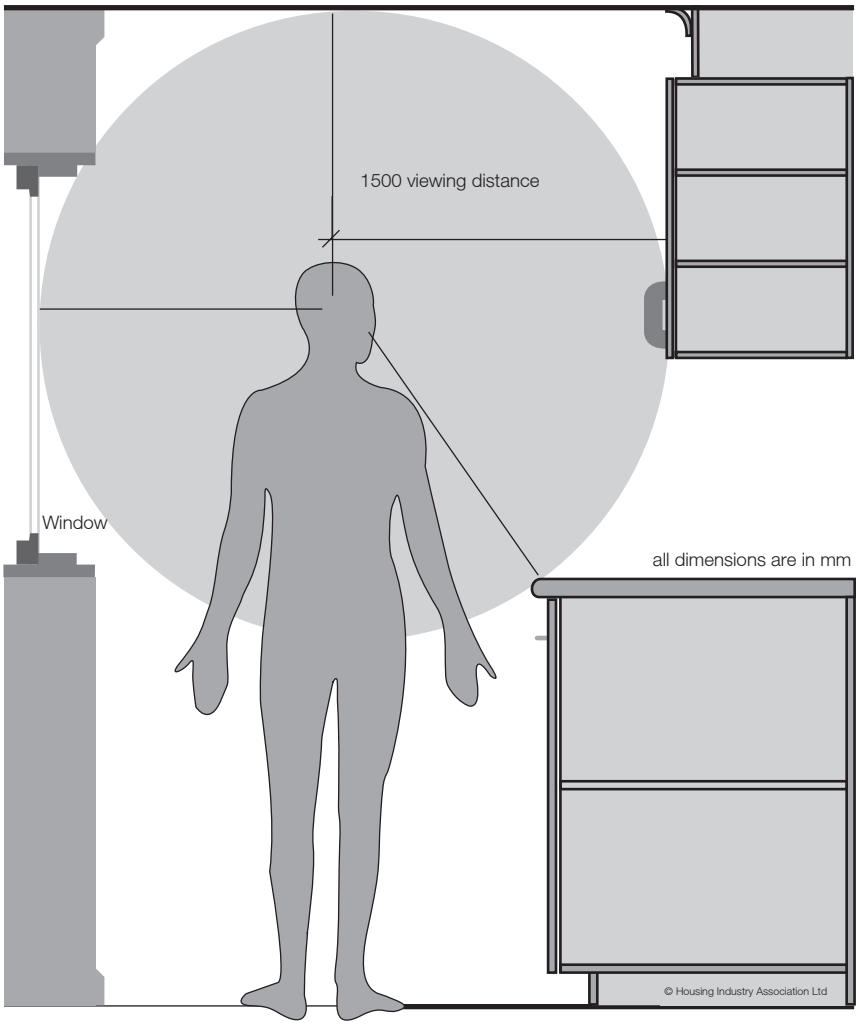
5 Inspection of defects

Including for fixtures and appliances, the inspection of a surface, material or item is to be viewed or observed from a normal viewing position: being defined as a distance of 1500mm or greater from the observed surface, material or item.

Such normal viewing position is to be subject to illumination from a non critical light source.

For glazing assessment, this should be done in normal daylight conditions and viewed from the interior of the building.

FIGURE 2 – NORMAL VIEWING POSITIONS



Minimum viewing distance of 1500mm to determine whether component is defective

Part C HIA Standards and Tolerances

This section sets out the relevant standards and/or tolerances for residential building work.

6 Trees and landscaping

Where the siting of a building results in the tree being within the protected tree's zone of influence and the building's siting has taken into account the potential tree root damage: then any resulting damage from these trees will not be a builder's defect.

7 Site drainage systems

Site drainage systems installed by the builder are a defect if they do not function as intended.

7.1 Site drainage and maintenance

Where localised drying or excessive wetting occurs, causing damage to the building fabric that can be attributed to unsatisfactory workmanship or a lack of site drainage which was part of the building contract, it is a defect.

Where maintenance and/or drainage are not the responsibility of the builder, damage caused by the lack of proper maintenance of the foundation and/or site drainage are not to be attributed to the builder.

As a guide, AS 2870 provides additional commentary on the manner in which a homeowner can prevent damage to footings and slabs (and concrete paving) over the life of the building.

8 Set out dimensioning

8.1 Site set out

Where regulated site set out tolerances exist, the site set out is considered a defect if it does not comply with those tolerances.

Where regulated site set out tolerances do not exist, the site set should be within ± 50mm of the specified dimensions.

8.2 External wall lengths

External wall lengths should not exceed or be less than the overall documented wall length by more than:

- 5mm for walls less than 1,000mm in length; or
- L/200 for walls in excess of 1,000mm in length (where L is the wall length).

8.3 Internal dimensions

8.3.1 Plan dimensions

Unless otherwise specified, the plan dimensions shown on drawings for room sizes and the like, refer to the dimensions between structural components of timber, masonry or metal walling. Any wall finishes such as render, wall sheeting, skirting and cornices are normally not considered in such dimensioning.

Room sizes should not deviate from the documented dimensions by more than:

- 5mm for specified dimensions less than 1,000mm; or
- L/200 for dimensions in excess of 1,000mm (where L is the documented dimension).

8.3.2 Heights

Room heights should not be less than the minimum requirements set out in the BCA.

Room heights should not exceed the documented frame dimension by more than H/200, where H is the documented height.

8.3.3 Finished floor levels & reduced levels

Where regulated, finished floor levels and reduced levels should be within the required tolerances. Where not regulated, finished floor levels and reduced levels should be in accordance with any documented tolerances on the *contract documents*.

9 Termites

Damage from termite attack, where suitable termite management systems have been installed in accordance with the BCA, and where the home owner has not carried out regular inspections as required, will not be considered the builder's responsibility.

10 Foundations, footings & slabs

10.1 General

The builder will not be responsible for foundation movement that is the result of:

- incorrect information provided by the client at the commencement of the contract or,
- work undertaken by the home owner including things such as landscaping, paving, drainage works and the planting of trees; or
- the home owner's failure to maintain drainage systems after the site hand over
- natural occurrences such as flooding or drought.

10.2 Foundation classification

Changes to the site foundation classification attributed to things such as flooding, drought, a lack of necessary maintenance or the like, are factors that must be considered when investigating the effects of footing or slab movement.

The BCA sets out the normal criteria for site foundation classifications. However, where required, a site classification may also be determined from the information obtained from any site investigation data.

10.3 Footings

Footings should be designed and constructed in accordance with the BCA to suit the applicable site conditions and site classification.

The BCA references *AS 2870 – Residential Slabs and Footings* which states that the performance of footing systems (including slab on ground construction) is dependant on normal site conditions being maintained. Normal site conditions are those achieved by following the recommendations contained in the CSIRO publication "*Foundation Maintenance and Footing Performance: A Homeowner's Guide Building Technology File 18 (Formerly known as Information Sheet 10-91) 2003*"

10.4 Concrete slabs on ground

Cracking in concrete slabs is common and may not be a workmanship problem.

AS 2870 states: "Shrinkage cracking can be expected in concrete floors. Concrete floors can also be damaged by swelling of reactive clays or settlement of fill." Categories of damage due to foundation movements are outlined in Table C1 and C2 of AS 2870.

Category 1 and 2 cracking, as set out in Table C1 and C2 should be monitored for a period of twelve months. If at the end of the monitoring period, the rating is assessed as greater than category 2 damage, this will be considered a defect.

Category 3 and 4 cracking in residential slabs are considered defects.

Where a residential slab is designed in accordance with the BCA and is to act as a termite system, shrinkage cracks through the slab are not to exceed Category 1or 1mm crack width as set out in Table C2.

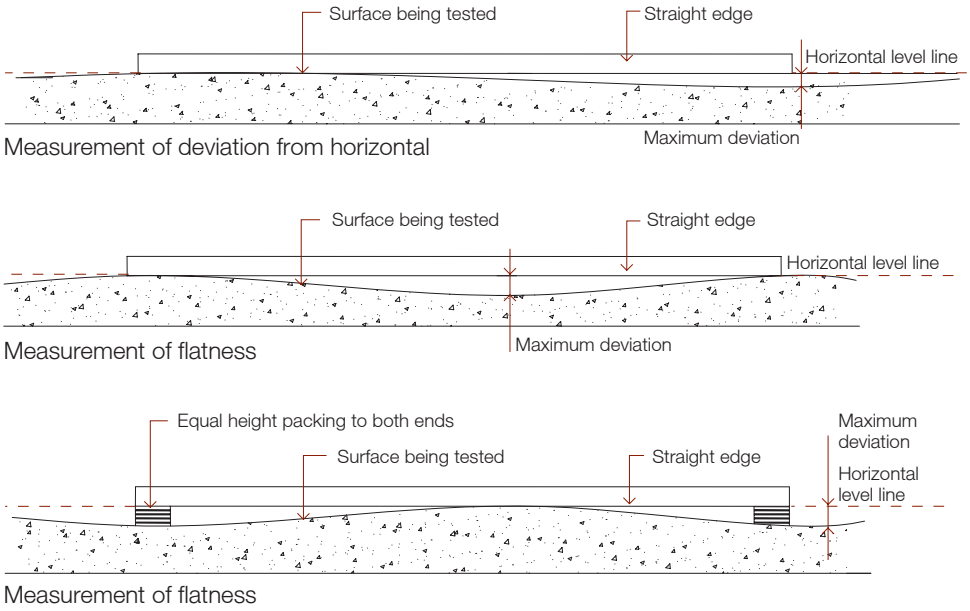
10.5 Floor levels and flatness – Concrete as built

Unless otherwise specified, within the first 6 months a newly constructed concrete floor should be:

- for level, within ± 10mm of the specified level;
- for flatness, within ± 6mm over any 3 metres straight-edge length.

Where a floor is required to fall to a waste it is acceptable to exceed this tolerance. See Figure 3.

FIGURE 3 – CONCRETE SLAB LEVEL AND FLATNESS



10.6 Levels of adjacent floor finishes

Unless otherwise specified in the contract documents, it is considered normal building practice to have different finished levels at the junction between different floor types and different floor finishes.

It is therefore not normal practice to step down concrete slabs to accommodate the anticipated differences in floor coverings, for example, the level between a carpet and tiled floor surface may vary due to the different thicknesses of those floor coverings and their substrates.

Such difference in finished floor levels does not constitute a defect.

10.7 Slab edge dampness

Slab edge dampness is where moisture is absorbed from the soil into slab and persistent dampness and efflorescence (similar to salt damp) occurs at the exposed faces of the concrete slab.

It can occur in floors adjacent the perimeter of the building and in the exposed sides of the raft slab. The edge of exposed concrete floor in front of the garage doors is particularly susceptible because it is subjected to high evaporation and more extreme wetting and drying cycles. This area is also highly visible.

If following handover, the damp-proofing protection of a slab edge is compromised by the installation of paving, soil or the like, the provisions of the BCA are breached. If such work was not undertaken by the builder, it is not a defect.

11 Concrete paving

11.1 Cracking

Cracking in concrete paving is common and may not be the result of unsatisfactory workmanship. The most common causes are generally attributable to:

- concrete shrinkage;
- foundation movement due to variations in moisture content because of:
  - seasonal changes
  - drought
  - garden watering
  - drainage problems;
- the action of trees;
- commercial or heavy traffic.

Cracking resulting from causes attributable to site conditions or external influences, e.g. new or existing trees, commercial/heavy vehicle traffic, use of sprinkler systems or sprinkler systems installed by others after construction, and not part of the builder's contract will not be attributable to the builder.

Any uncontrolled cracking of concrete located in trafficable or exposed areas within 6 months of handover, due to allowance not being made for shrinkage or general movement of the concrete (i.e. slip joints around verandahs posts, control joins, isolation joints, etc.) or as a result of unsatisfactory workmanship, will be the builder's responsibility.

11.2 Stepping at joints

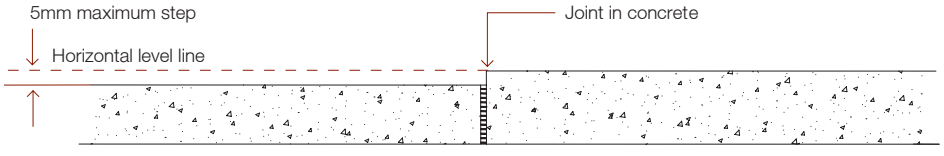
Stepping at joints in concrete paving should not exceed 5 mm, unless otherwise specified.

This tolerance applies only to the surfaces between slabs within a primary or main paved area.

It is not applicable to:

- junctions between the main paving and minor paving or other components such as pathways, edging, kerbing, stormwater pits, manholes and the like; or
- stepping that occurs at joints between paving constructed of different materials or where new concrete is placed adjacent to existing structure or slabs.

FIGURE 4

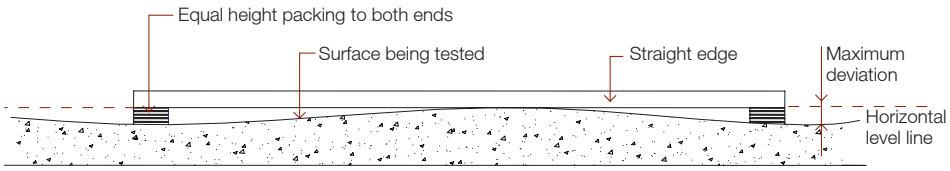


Measurement of step

11.3 Flatness

Unless otherwise specified, or required for drainage, the heave or slump of paving slabs should not exceed 15mm, when measured by centring a 3m straight edge over the surface.

FIGURE 5 – MEASUREMENT OF HEAVE OR SLUMP IN CONCRETE PAVING



Measurement of heave

11.4 Colour & Texture

Variations to colour and texture of concrete paving finishes will occur and are therefore not a defect.

12 Borer attack

12.1 Lyctus borer

Lyctus borer attacks the sapwood of most hardwoods. The supply of Lyctus susceptible sapwood is regulated in some states by legislation such as the NSW Timber Marketing Act and the Queensland Timber Users Protection Act.

Where state legislation does not exist, it is acceptable to use:

- timbers which contains evidence of previous minor attack by Lyctus borer and is still structurally sound; or
- timber which undergoes minor damage from Lyctus borer attack after installation.

12.2 Pin hole borer

Pin hole borer naturally occurs in timber and is controlled by timber grading rules. The use of timber which shows evidence of pin hole bore attack is acceptable where it meets those grading rules.

13 Shrinkage allowance for timber framing

Unless otherwise specified, the following tolerance for shrinkage will be deemed acceptable:

- unseasoned timber: a maximum of 10% shrinkage;
- seasoned timber: a maximum of 3% shrinkage.

13.1 Shrinkage allowance at openings

In masonry veneer walls, the required sill brick clearance beneath the window's sill or bottom rail to allow for initial settlement of the timber framing should be provided in accordance with the BCA.

13.2 Wall framing

In masonry veneer construction, a shrinkage gap should be left between any timber frame, including at eaves and the top of the masonry wall, to allow for initial settlement of the timber framing caused by timber shrinkage should be provided in accordance with the BCA.

14 Floor framing

14.1 Packing materials

Packing material used in structural situations such as under floor bearers, is to be a non-compressible material suitable for the application in which it is used. For the purpose of this requirement, tempered hardboard or fibre cement is deemed to be a non compressible material.

14.2 Stumps and piers

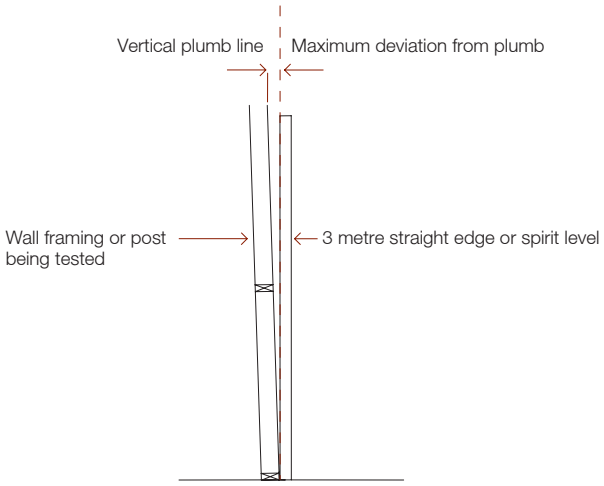
Stumps and piers should not exceed a deviation from plumb of ± 10 mm per 3 metre of height.

15 Wall framing (timber and steel)

15.1 Plumb

Wall framing, including posts, should not exceed a deviation of ± 6mm from the vertical in any 3 metre height. See Figure 6.

FIGURE 6 – WALL FRAMING PLUMB

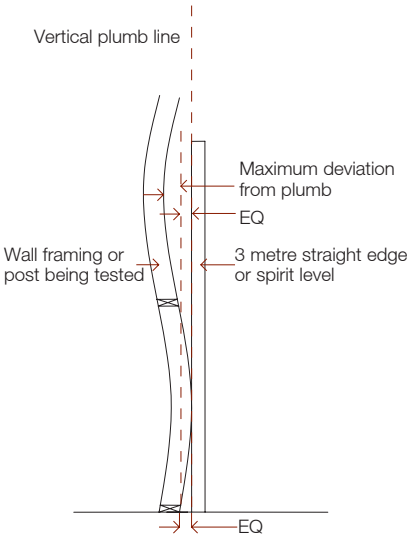


Measurement of deviation from plumb/vertical

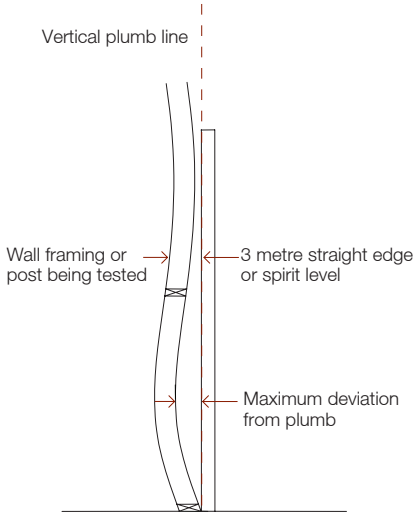
15.2 Flatness

The face of wall framing to be sheeted should not bow or deviate from a flat plane by more than 6mm over 3 metres. See Figure 7.

FIGURE 7 – STRAIGHTNESS OR WIND IN WALL FRAMING



Method to measure bow



Method to measure bow

15.3 Fixing of wall plates to concrete slabs

The use of fasteners to fix wall plates to concrete slabs should be in accordance with the manufacturer's instructions.

15.4 Bottom plates overhangs

The overhang of bottom plates is considered excessive if the:

- location of fasteners from the edge of the slab and the distance between fasteners does not comply with the manufacturer's instructions for that fastener; and
- minimum bearing area is not capable of being verified by engineering calculation.

16 Windows & external glazed doors

Doors and windows should operate in accordance with the manufacturer's specifications.

16.1 Weatherproofing

Door and window installations should not leak under normal weather conditions and when in the closed position, except for:

- fixed louvre windows; or
- access doors for pets.

The home owner is responsible for maintaining the protective coating system, such as painting, to timber window or doors in accordance with the manufacturer's requirements.

16.2 Flashings

Except where otherwise specified in the BCA, flashings to window and door units should be installed in accordance with the manufacturer's specification.

16.3 Appearance

The installation of windows and doors should avoid causing scratches, fractures, chips or blemishes on glazing and/or frames.

At handover, the appearance of minor scratches, fractures, chips or blemishes within 5mm of the glass edge in windows and doors, are acceptable if they are less than 10mm long and there are less than 4 per panel, when viewed from the normal viewing position.

17 Timber flooring

17.1 Shrinkage and expansion

Gaps between timber strip flooring are an inherent part of using a natural material. Therefore allowances for natural shrinkage of the boards due to dry atmospheric conditions are necessary.

Other than allowable gaps for expansion joints, shrinkage gaps greater than 2mm between adjacent boards, or 5mm over 4 consecutive boards, that are identified within 12 months of handover should be monitored for a further 12 months. If the gaps continuously exceed these tolerances, remedial action should be taken.

Fitted flooring should be kept 10mm clear of walls or wall plates both parallel to and at 90° to the length of the boards to accommodate shrinkage and expansion.

Flooring with gaps that exceed the allowance above is not a defect where the builder, in writing, has advised the owner that the flooring system chosen to be installed may for a number of reasons suffer significant shrinkage and the owner has acknowledged this advice in writing.

17.2 Edge bonding

Edge bonding occurs when polyurethane floor finishes flow into the tongue and groove joint between the boards and glue them together. When natural shrinkage of the boards occurs, boards will group and separate at either a single board joint or potentially cause splitting of some boards.

The client should be advised of this possibility when selecting polyurethane finishes for timber flooring surfaces.

17.3 Sheet flooring joints

Swelling at the joints of sheet flooring should not be apparent to such an extent that it can be detected through normal floor coverings.

17.4 Nail popping

In any timber floor, nail heads should not be detected through floor coverings within 12 months after handover. Nail popping should not be visible through exposed flooring.

17.5 Squeaking floors

Timber flooring in a trafficable area should not squeak within 12 months of handover. Squeaking will not be considered a defect where the floor squeaking is due to shrinkage or expansion of the floorboards from sunlight, natural climatic conditions and/or artificial heating or cooling appliances.

17.6 Springing floors

Springing floors will not be considered a defect where the floor framing has been constructed in accordance with the BCA.

17.7 Cupping

Cupping of timber flooring is generally caused by higher moisture content in the sub floor area than the exposed surface above. This could be a result of inadequate sub floor ventilation, poor drainage or high natural humidity.

Cupping, when viewed from the normal viewing position, which occurs within the 12 months from handover should be monitored for a further 12 months to establish if it is a seasonal occurrence or not. Where cupping remains at the end of the monitoring period, remedial action should be taken.

Cupped timber flooring should not be sanded within the monitoring period as this will result in doming.

17.8 Timber decking

Splits in timber decking boards which extend to the side edge of the board as a consequence of the fixing within 12 months of handover will require remedial action.

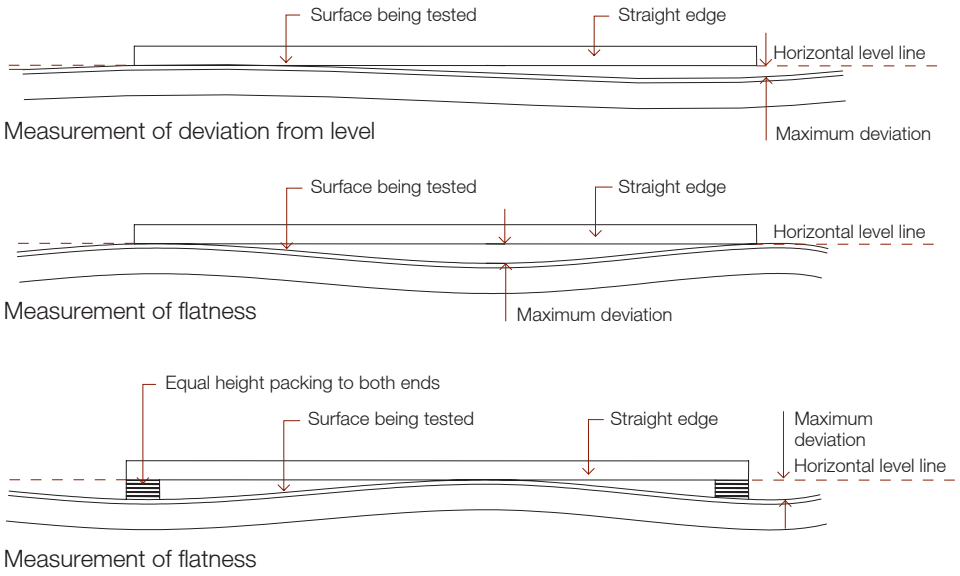
17.9 Floor levels and flatness –Timber as built

Within 12 months of handover a newly constructed timber floor should be within the following tolerances:

- for level, within ±10mm of level over the entire room or area;
- for flatness, within 6mm over any 3 metres length.

Figure 8 provides examples of methods of measurement.

FIGURE 8 – TIMBER FLOOR LEVEL AND FLATNESS



17.10 Levels of adjacent floor finishes

Unless otherwise specified in the contract documents, it is considered normal building practice to have different finished levels at the junction between different floor types of finishes.

It is therefore not normal practice to step down concrete slabs to accommodate the anticipated differences in floor coverings. For example, the level between a carpet or timber and tiled floor surface may vary due to the different thicknesses of those floor coverings and their substrates.

Such difference in finished floor levels does not constitute a defect.

18 Stairs

Stairs should be constructed in accordance with the BCA.

Irrespective of the material used to construct stairs and without exceeding the minimum and maximum dimensions set out in the BCA:

- variation to the tread and going dimensions, a maximum of 5mm;
- variation to riser height dimensions, a maximum of 5mm;
- variation to the top and bottom risers to allow for a constant riser height after the installation of the nominated floor finishes.

19 Wall claddings

Completed wall claddings, including flashings and accessories, should not leak under normal weather conditions.

20 Masonry

AS 2870 states: "*It is acknowledged that minor foundation movements occur on nearly all sites and that it is impossible to design a footing system that will protect the house from movement under all circumstances.*"

The tolerances in this part are applicable to built in-situ, solid, cavity or masonry veneer walling using the following:

- concrete masonry products such as:
  - concrete blockwork; or
  - concrete brickwork; or
- clay masonry products such as:
  - clay brickwork

The tolerances of this part are not applicable to aerated autoclave concrete (AAC) masonry and for other forms of masonry construction for such work the masonry manufacturer's recommendations should be followed.

20.1 Masonry damage

AS 2870 Table C1 should be used as a guide to classifying cracks widths with respect to masonry walls. The table uses crack width as the major criterion for damage assessment.

Category 0, 1, and 2 cracking as defined in AS 2870 are not defects.

Category 2 cracks should be monitored for a period of 12 months after appearing. If, after the monitoring period, such cracking is rated at category 3, it will be considered a defect and will require rectification.

Category 3 or higer cracks are considered defects.

20.2 Masonry facing

Bricks are generally to be laid with true brick face outwards. Unless otherwise specified, where single skin masonry is used in class 10 walls such as in garages, masonry is to be laid with the true brick face outwards.

Unevenness on the obverse side of the faced brick wall where it is exposed is not a defect.

20.2.1 Bed joint alignment

Bed joints in engaged piers and control joints in exposed areas of garages, carports and the like should align with the adjacent masonry bed joints.

Bed joints in engaged piers in sub floor areas that do not align with the adjacent masonry are not a defect.

20.2.2 Perpend joint alignment

The nominal alignment of perpend joints is 15mm in any 2m length of wall. Where windows are not full height and do not match brick sizes between windows, the brick courses between the windows may not have an alignment of the perpend joints with those brick courses laid below the window. Such non alignment is not a defect.

20.2.3 Raking of joints

The nominal depth of mortar joint finishes (such as raking) should be no greater than 10mm. This depth may vary across a wall and may not be consistent depending on the type of masonry used.

20.3 Masonry tolerances

AS 3700 – Masonry structures Table 11.1 should be used as a guide in determining acceptable tolerances for masonry construction.

These tolerances do not apply to the non face finish of walls such as in a class 10 garage.

20.4 Mortar joints

20.4.1 Colour

Variations in colour of masonry mortar is almost impossible to avoid and will generally disappear once the mortar has cured. Minor variations to mortar colour are acceptable.

20.4.2 Base masonry

Base bed joints should not exceed 20mm in thickness when not in a concealed location.

Unconcealed base courses of masonry should not have visible split or on edge units.

20.5 Control joints

Provision for the control of cracking in masonry walling by the use of articulation joints should be in accordance with the BCA. Cracking in masonry walling because of the inaccurate use of, or lack of, control joints will be a defect.

Articulation joints in single skin masonry should be sealed in accordance of the BCA.

20.6 Sealants and mastics

Flexible sealants and mastics do not always come in colours that match masonry. Colour matching should be as close as practicable from available materials and colours. A defect will only exist where the end finish deviates from any specified finish.

Cracking of sealants in control joints is not a defect.

20.7 Matching of masonry units

Variations of colour, pattern, texture are normal and should be expected between batches and pallets.

Unless otherwise specified, where the masonry units supplied by manufacturer vary in colour, they are to be mixed/distributed in accordance with manufacturer's recommendations.

20.8 Matching of masonry units in extensions and renovations

In the case of renovations and/or additions, not being able to match the original masonry units in extensions and renovations will not be considered a defect.

A rational approach should be adopted in determining the available options and the preferred solution. This may include the use of downpipes, large doors, windows or joining units at a corner as a means of concealing the junction between old and new work.

20.9 Masonry cleaning

Unless otherwise specified, masonry walling faces are to be clean and free of excess mortar. After cleaning, mortar and other similar stains should not be visible from the normal viewing position.

20.10 Masonry voids

Small voids, holes and erosion, in some mortar applications are unavoidable due to the nature of the materials and processes used (e.g. – flush jointed brickwork pressure cleaned). Excessive voids and holes resulting from construction or cleaning that detract from the overall appearance of the brickwork when viewed from the normal viewing position will be a defect. Weepholes are not a defect.

20.11 Cracking in masonry units

Surface cracks and crazing in masonry units is a normal consequence of the manufacturing process and are not a defect. However, masonry units that are completely fractured are a defect.

Unless otherwise specified, or where clinker, callow, tumbled or handmade bricks are used, visible surface cracks within masonry units should be no greater than 2mm in width.

21 Efflorescence in building materials

Efflorescence is a powdery deposit of salts that forms on the surfaces of porous building materials such as bricks, mortar, concrete and render. It is usually white in colour, however it may be yellow, green or brown.

Efflorescence is typically a non-structural issue and in most instances can be removed by washing down the masonry with fresh water. The salts that cause efflorescence are soluble in water and will generally be washed from external walls by rain.

Occurrences of efflorescence are not a defect. However any long term efflorescence, especially below DPC levels, should be monitored.

22 External cement render/solid plaster finishes to masonry

This section does not:

- apply to the application of acrylic or similar coatings to either masonry or lightweight substrates nor to painting of external surfaces.
- cover renders and solid plasters applied to masonry walls where the foundation conditions are other than an A, S or M classification.

22.1 Articulation joints, controls joints and DPCs

Cement render and solid plaster finishes should not be applied over articulation joints, control joints or damp proof courses.

Where the client specifies an external finish that requires solid plaster, render or applied finishes to be installed over articulation joints, control joints or damp proof courses without crack control any resultant cracking is not to be considered a defect attributable to the builder.

Cracking of exposed sealants in control joints is not a defect.

22.2 Limits for cracking within structural movement

Cracking of cement render finishes should be monitored for a 12 month period before deciding on any remedial action.

Cracking that occurs in cement render or plastered surfaces as a consequence of structural movement or material shrinkage is considered to be unacceptable if the severity of the cracking exceeds that outlined in the table below.

TABLE 1
RECOMMENDED CRACK LIMITS FOR RENDER ON SITES WITH SOILS CLASSIFIED AS A, S OR M TYPE

Cracking and distortion with reference to rendered walls on type A, S, M sites			
Description of typical cracking	**Approximate maximum. crack width (mm)**		
	A	S	M
1. Vertical cracks above window openings spaced no closer than 600 mm average over span.	>0.2	<0.4	<0.6
2. Stepped cracks above and below windows and above doors in the cavity wall.	>1.0	<1.5	<3.0
3. Stepped cracking above interior door openings.	>0.2	<0.5	<2.5
4. Vertical cracks at locations of electrical or gas chasings.	>0.3	<1.5	<3.0
5. Stepped cracks in internal and external walls.	>0	<1.5	<3.0
6. Vertical cracks at corners of intersecting walls.	>0.3	—	—
7. Vertical cracks not at locations of chasing.	>0.15	—	—
8. Cracking around individual blocks or bricks	>0.05 mm but must not be casually observed from the normal viewing position and under normal light and moisture conditions		
9. Cracks not covered by above.	>0.05 mm but must not be casually observed from the normal viewing position and under normal light and moisture conditions		

Notes:

1 The soil classifications A, S and M used in the table are those foundation classes as defined in AS 2870.

2 The degree of movement of the footings over time is related to the foundation class of the site.

22.3 Description of bond failure

Bond failure between the background and a render or plastering system, should be considered to have occurred where drummy characteristics are identified in excess of:

1. A single area 200mm x 200mm or equivalent area in any 4m^2 area of plasterwork.
2. For narrow surfaces (less than 1 m in width) and open edges-limits for drummy characteristics should be considered on an individual basis as there is increased risk of complete failure of the plastering system in these areas.

22.4 Blemishes

Rust marks, water stains, surface undulation or deviation, blistering and the like through render, solid plaster and applied finishes should not be visible from the normal viewing position.

It is recommended that CSIRO Report No. TR90/1, 1992 *Illumination and decoration of flat surfaces* be used as a guide.

22.5 Matching existing finishes

When matching existing external finishes, the new work should be as close as practicable to the existing finish in terms of colour and finish.

In most instances, because of its age, the effects of weathering or the composition of the original work, matching the original may not be practical or cost effective and other construction options need to be considered.

Where practicable a physical joint such as a door, window, downpipe or other similar separating component can be utilised to break the visual impact of any difference between the adjacent surfaces of the old and new work.

23 Applied finishes to lightweight substrate

Excluding painting, applied finishes to lightweight sheet substrates that have cracking or open joints should be no greater than 1mm when viewed from the normal viewing position, within 12 months of handover.

Any substrate joint or cracking, regardless of width, should not allow water ingress.

24 Sheet and board claddings

Regardless of their material makeup, finished sheet claddings and weatherboards should not have open joints, cracks dents, splits stains or the like, when viewed from the normal viewing position within 12 months of handover.

24.1 External mouldings

Cracking at joints in external mouldings and architectural features should not be greater than 2mm when viewed from the normal viewing position within 12 months of handover.

25 Roof coverings and accessories

25.1 Leaking and corrosion of components

Any roof component, including cladding, gutters, flashings and accessories, should not leak under normal weather conditions. There should be no corrosion of roof components at the time of handover.

A defect will not exist where

- the roofing system has not been regularly maintained by the home owner; or
- work not under the control of the builder has led to damage of the roof or roof components (such as the installation of sails, satellite dishes, air conditioning and/or cooling units or antennas on the roof).

25.2 Undulating roof lines

The deflection of any undulations in the roofline should be in accordance with the BCA.

25.3 Roof overhangs into gutter

Under normal weather conditions, water should not be able to penetrate into the building due to the arrangement of the roof covering overhanging into the gutter.

25.4 Flashings

Flashing must be installed in accordance with the BCA.

25.5 Tiled roofing

Roof tiles which are broken or cracked through full tile thickness should not be used. Chipped or cracked tiles should not be visible from the normal viewing position.

25.5.1 Pointing

Minor cracking of pointing is acceptable. Pointing should not become dislodged or washed out within 12 months of handover. Pointing should be reasonably consistent in colour and finished neatly when viewed from the normal viewing position.

25.6 Metal roofing and accessories

In addition to the requirements of the BCA, installation is also to be in accordance with any manufacturer's recommendations / data sheets applicable specifically to the sheet profile.

Open joints and damage to roof sheets (such as colour chips, splits, dents, swarf from fixings and the like) should not be visible from the normal viewing position at ground level.

26 Dry wall and ceiling linings (plasterboard, etc.)

26.1 General

Installation and jointing of plasterboard, fibre cement sheeting and similar products should conform to the manufacturer's recommendations and data sheets.

26.2 Levels of finish

Unless otherwise specified, the minimum acceptable level of finish for plasterboard, fibre cement sheeting and other similar products used as domestic linings will be to level 4 in accordance with the table on the following page.

LEVEL FOR FINISH FOR DRY WALL AND CEILING LININGS

Information based on CSR Gyprock® Residential Installation Guide and Boral Plasterboard Installation Manual.

Level of finish	Description of finish
Level 0	This level of finish may be useful in temporary construction. No stopping, taping, finishing or accessories are required.
Level 1	For use in plenum areas above ceilings, in areas where the work would generally be concealed, or in building service corridors and other areas not normally open to public view. Tool marks and ridges are generally acceptable.
Level 2	For use in warehouse, storage or other similar areas where surface appearance is not of primary concern. Surface shall be free of excess joint compound. Some minor tool marks and visible edges are generally acceptable.
Level 3	For use in areas which are to receive heavy or medium texture (spray or hand applied) finishes or where heavy wall covering paper are to be applied as the final decoration. All joints and interior angles should have tape embedded in joint compound. Apply one separate coat of joint compound over all joints and fastener heads. The joint compound is to be left with a smooth finish by scraping off nibs and ridges with the edge of a trowel.
Level 4	This is generally the accepted level of finish for domestic construction. It is particularly useful where lighting shines on light textures, light wall coverings and smooth textured finishes. It is also used where smooth textured finishes and satin/flat/low sheen paints are illuminated by non-critical lighting. Flat paints in this situation help to conceal joints. Carefully evaluate weight, texture and sheen level of wall coverings. Conceal all joints adequately if wall covering material is lightweight, glossy or lightly patterned or any combination of these. All joints and interior angles shall be taped and finished with three coats of jointing material. Ensure the joint compound is left smooth and free of tool marks and ridges.

Level 5	This level of finish should be used wherever gloss or semi-gloss paints are to be used, and where critical lighting conditions occur with painted surfaces such as large flat wall and ceiling areas, where severe glancing light will occur from large window openings or skylights, or where artificial silhouette and spot lighting is to be used. All joint compound should be sanded to a smooth finish free of tool marks and ridges. This should be followed by the application of proprietary surface preparations such as board sealers and/or in the most critical areas, skim coating to remove differential surface textures and porosity. Note: Skim coating is a term used to describe a thin finish coat, trowelled or airless sprayed and then possibly sanded to achieve a smooth and even finish. It is normally less than 1mm in thickness and is applied over the entire surface to fill imperfections in the joint work, smooth the paper texture and provide a uniform surface for decorating.

Notes:

1 Unless otherwise specified, these levels of finish apply to all linings including to storage areas, such as built in cupboards, pantries and concealed areas beneath stairs and the like.

2 Plasterboard manufacturer's also states that residential level 4 construction with paint finish should not be subjected to critical glancing light.

26.3 Peaking or jointing

Plaster peaking or jointing should not be visible from the normal viewing position, when viewed in diffused or non-critical light.

26.4 Wall joints and corner junctions

Wall sheeting and junctions including internal and external corners are finished using a proprietary angle that requires the build up of plaster. This build up is generally in the region of 2mm to 4mm and will not allow a completely flat wall surface or give a perfectly square corner. Such build up is normal and acceptable.

26.5 Cracking of sheets

Within 12 months of handover, cracking of plasterboard wall sheets should not be visible from the normal viewing position, which is:

- diagonal cracking;
- crack widths exceeding 1mm in walls, ceilings and the like;
- in butt and recessed joints.

26.6 Nail popping

Nail popping should not occur within 12 months of handover.

26.7 Cornices

Except where there is a regulated requirement, cornices should not when viewed from the normal viewing position and within 12 months of handover should not have:

- have gaps in joins, such as mitres, butt joins and at the junctions with walls and ceilings , that exceed 1mm; or
- bow out of alignment by more than 6mm in 3 metre lengths, when checked using a straight edge.

27 Internal cement render/solid plaster finishes to masonry

27.1 Cracking

Cracking of internal cement render or solid plaster applied to masonry substrates is to be within the limits set out in Table 1 (see Part 22.3).

27.2 Blemishes

Rust marks, water stains, surface undulation or deviation, blistering and the like through internal render, solid plaster and applied finishes should not be visible from the normal viewing position.

It is recommended that CSIRO Report No. TR90/1, 1992 *Illumination and decoration of flat surfaces* is recommended to be used as a guide.

28 Internal fixings

Tolerances for the installation of kitchen and bathroom cupboards, benches and other wall fixtures are set out in HIA's Guide to Kitchen and Bathroom Construction.

28.1 Mouldings

Gaps between the joints of mouldings, and between mouldings and other fixtures, should not exceed 1mm within 12 months of handover when viewed from the normal viewing position. This tolerance does not apply to gaps between a skirting board and floor where a floor covering will conceal the gap or where tiling is used.

There should not be any misalignment of the faces of adjoining architraves when viewed from the normal viewing position.

Gaps in joints between mouldings and the misalignment of the faces of architraves that are caused by other trades (such as curtain installers) not under the builder's control will not be deemed the builder's responsibility.

29 Floor and wall tiling

29.1 General

The builder is only responsible for defective floor and wall tiling, including cracked or damaged tiles, that are a result of the builder's workmanship or management of construction on the site.

29.2 Tile defects

Where the builder has supplied and installed the tiling, when viewed from the normal viewing position, there should be:

- no loose, drummy, chipped, or cracked tiles identified at handover; and
- no cracked, loose or drummy tiles detected in more than 5% of the tiled room area within 12 months of handover, attributable to the builder's workmanship.

29.3 Construction joints

Large tiled areas are subject to movement and potential cracking. Expansion or control joints are necessary to lessen the likelihood of cracking and should be located in accordance with the manufacturer's recommendations.

Types of joints include:

- structural joints – located above movement or control joints in the substrate component such a concrete slab;
- intermediate joints – used to accommodate deflection and base movement in the floor at approx 4.5 m centres or where:
  - external floor dimensions exceed 4.5 m; or
  - internal areas exceeding 9m X 6m are subjected to sunlight;
- perimeter joints - perimeter joints are recommended in areas where conditions may generate stresses that are likely to be extreme. For example, underfloor heating and in floor approx. 10m^2 or greater.

Where larger format tiles are laid using narrower grout joints, movement joints should be placed at closer centres.

Where the client at the time of construction specifies in writing an installation that does not allow for movement in tiled areas, any resultant cracking will not be considered attributable to the builder.

29.4 Tile matching

For alterations in existing tiled rooms where tile matching is no longer possible, a practical approach for tile selection or installation should be adopted. For example, a tile separation join could be provided to diffuse the difference between the unmatched finishes such as:

- an aluminium channel for the shower screen;
- a separating doorway;
- an intersecting wall, or a change in wall direction.

29.5 Tile lipping and flatness

29.5.1 Lippage

Lippage is inherent in all tiling installation methods and may also be unavoidable due to the tiles tolerances.

Lippage may also be unavoidable where tiles larger than 150mm x 150mm are graded to a waste outlet, without incorporating transverse cuts into the work.

The lippage between two adjacent tiles should not exceed 2mm except where:

- distortion is inherent in the manufacture of the tiles,
- the tile surface has been ground flat, for example in polished tiles, the lippage should not exceed 1.5mm, or
- fall to outlets such as floor wastes is required and uncut tiles of dimensions 150mm x 150mm or greater are used.

Where joint widths of 3.0mm or less are used, lippage should not exceed 1.0m.

Any adjustment of tiles to avoid lippage should be made before the initial set of the bedding material takes place.

29.5.2 Flatness

The finished surface (flatness) of the tiling should be within a tolerance of +/- 5mm in 3m.

29.6 Tiling joints

29.6.1 Joint widths

Unless otherwise specified, joint widths should be reasonably consistent throughout the tiled areas, e.g. a floor area of a room or a wall area.

These recommendations may not apply where tiles are cut to accommodate fixtures and floor wastes.

Wider joints may be required to be accommodate larger tiles, or dimensional irregularities in the tiles, to maintain modular discipline, or to provide a decorative effect. Where larger format tiles are laid using narrower grout joints, expansion or control joints may be placed at closer centres.

Joint widths are normally measured at the tile face.

29.6.2 Joint alignment

Unless otherwise specified, joint alignment should be consistent throughout the installation. However, allowance needs to be made for variations in the type, size and quality of the tile used or where different size tiles are used on two abutting surfaces. E.g. at wall and floor junctions or wall and wall junctions.

There may also be alignment issues related to the design layout of tiles. and these are not necessarily defects.

29.7 Grouting

Grouting that becomes dislodged within 12 months of handover is a defect.

Discolouration of grout is not a defect.

30 Wet areas and waterproofing

Waterproofing in wet areas must be installed in accordance with the BCA.

30.1 Shower enclosures

Enclosed shower areas that leak are a defect. However, fair wear and tear of shower recess components, cracking of shower screens, doors and preformed shower bases caused by factors other than unsatisfactory workmanship or the manufacturing process are not the builder's responsibility.

30.2 Decks and balconies

Where required to be waterproofed, a waterproofing system should be installed in accordance with the manufacturer's installation instructions.

31 Plumbing

31.1 Gutters and downpipes

Gutters and downpipes should be securely fixed and not leak at joints and the like, under normal weather conditions.

Gutters should not retain more than 10mm of water for more than 3 days after the cessation of flow.

31.2 Water hammer

Any water hammer is a defect unless it is caused by the use of solenoid or ceramic valves in appliances such as washing machines, dishwashers or flick mixer taps.

31.3 Water leaks

Taps should not leak within the defects liability period.

Any vessels such as sinks, basins and the like should not leak during the defects liability period.

31.4 Pipe penetrations

Pipe penetrations should be neatly finished or sealed where they pass through the building fabric or fixtures.

32 Doors and door furniture

32.1 Doors and door frames

Unless otherwise specified, defects in doors, such as wind, flatness and bending, should be assessed in accordance with the manufacturer's specifications or recommendations based on the location of the door, door size and door width.

32.2 Door clearances

Where a door gap is narrow, a door will bind if there is a change in weather or humidity.

Unless otherwise specified, door clearances are considered normal where clearances are:

- between 1mm and 6mm between the jamb and the door; or
- between 1mm and 5mm between the leaves of adjoining doors; or
- up to 25mm between the bottom of the door and the floor substrate.

An increased clearance may be required for installations that require:

- heating and air movement considerations by some appliance manufacturers;
- the removal of toilet doors and;
- return air ventilation for ducted heating or air-conditioning units;
- inlet ventilation to rooms where the only ventilation is provided by ventilated skylights and/or exhaust fans; and
- between double swing doors and French doors.

Excessive clearances between the bottom of any door and the finished surface of any floor/floor covering arising from the home owner supplying and installing the floor covering after installation of the door are not the builder's responsibility.

32.3 Door sealing

All edges and faces of external doors should be sealed in accordance with the manufacturer's specifications.

Where the client at the time of construction selects dark colours for external use, any bowing of the door will not be attributable to the builder.

32.4 External doors

External doors are to be appropriate for their intended purpose, such as weathering and security and are to be installed in accordance with the manufacturer's recommendations.

Leaking through doors not normally intended to be waterproof, such as vehicle entry doors, is not a defect.

32.5 Door handles and latches

Door handles and latches are to operate as intended by the manufacturer. Defects in door handles and latches that occur within the defects liability period are the builder's responsibility.

33 Painting

Coatings used are to be applied in accordance with the manufacturer's instructions.

When viewing painted surfaces, the CSIRO Report No TR90/1, 1992 *Illumination and decoration of flat surfaces* is recommended to be used as a guide.

33.1 Durability

Coatings are to be:

- compatible with the materials to which they are to be applied;
- suitable for the anticipated environment of their application; and
- relevant for anticipated wear and tear.

The minimum durability requirement against defective applications such as, lifting, blistering, flaking, etc. will be in accordance with the manufacturer's recommendations. In the absence of a manufacturer's recommendations, the following is to be used as a guide:

- Exterior finishes
  - Acrylics – 3 years
  - Enamel – 2 years
  - Semi transparent stains – 1 year
  - Clear finishes – refer to manufacturers instructions.
- Interior finishes
  - Acrylics, enamels, stains and clear finishes – 3 years.

33.2 Cosmetic defects

Many painting defects do not affect the coatings performance. More often, the defect is visual or cosmetic in nature.

Cosmetic imperfections should not be visible when viewed from the normal viewing position.

The builder will not be responsible for damage to painted surfaces that were:

- not documented at handover; or
- the result of an incorrect specification by the client or their agent.

33.3 Clear and stained timber finishes

All timbers contain natural qualities that typify its character. In some circumstances these characteristics are enhanced and highlighted using a clear or stained timber finishes. In other instances these natural qualities may be deemed a cosmetic defect or undesirable.

Unless previously specified, where timber is finished with a clear or stained finish, natural characteristics such as knots, gum veins and the like are not a defect.

34 Condensation

Condensation on walls, windows and in bathrooms can be caused by conditions beyond the builder's control.

The effects of condensation will not be considered a defect where the builder has complied with the ventilation requirements of the BCA.

Where specified, roof sarking or a vapour barrier should be correctly installed to avoid any damage by roof condensation.

35 Restumping works

35.1 Consequential damage

Where the builder can show in writing that the client has been sufficiently informed by the builder of the likelihood and nature of consequential damage arising as a result of the builder's restumping works; the builder will not be responsible for any damage caused as a consequence of the restumping work.

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

35.2 Floor level

Unless physical or statutory restrictions exist, the re-levelling of the floor levels within an existing dwelling is to be within ± 15mm over any room or area.

36 Site clean at handover

The building and the site are to be clean and tidy at the time of handover. Unless otherwise specified in writing, all builder's waste and construction material should be removed from the site.

37 Normal home maintenance

Home maintenance is the home owner's responsibility and is a normal and on going part of home ownership after handover.

Regular inspections and scheduled maintenance by the home owner are a key factor in maintaining the integrity of any building. Things such as replacement of light bulbs, tap washers and the like are regular maintenance items; they are not defects and are not the responsibility of the builder.

Damage created by others, such as carpet layers, removalists and family members, after construction of the home and by people not under the control of the builder are not defects under the defects liability period.

Regular home owner inspections should include checking items such as protective paint coatings, termite management systems and damp proof courses, steel and aluminium corrosion and masonry movement. These inspections should be done on a regular basis.

Other parts of a home require regular maintenance in order to extend the life of that building component or system. For example, gutters, downpipes, sumps etc should be cleaned out regularly; leaks from stormwater and sewer drains and taps should be repaired immediately they are detected.

A lack of proper regular maintenance by the home owner may also:

- void manufacturer's warranty;
- lead to defects that are not covered by the builder's warranty.

The planting of trees and shrubs near the footings of a dwelling should be avoided, particularly on reactive clay sites. The likelihood of damage to a building from trees is in direct proportion to the eventual height of the tree and the distance the tree is planted from the building.

In some Local Government areas there are strict rules that relate to the preservation of trees. These requirements are separate from building regulations and are enforceable. These regulations may prevent the removal of trees therefore such trees must be taken into consideration when siting the building.

Similarly, garden beds and shrubs located adjacent to the building can interfere with the drainage requirements and sub floor ventilation as well as impede termite management or damp proof course systems. Damage to walls and slabs where garden beds have being placed adjacent to the building after the handover has taken place is not a builder's defect.

Appendix A – State and Territory Planning, Building & Statutory Warranty Legislation

(Details current as at 1 July 2008)

Legislation	Regulations
Australian Capital Territory	
Land (Planning and Environment) Act 1991	Land (Planning and Environment) Regulation 1992
Building Act 2004	Building (General) Regulation 2008
New South Wales	
Environmental Planning and Assessment Act 1979	Environmental Planning and Assessment Regulation 2000
Home Building Act 1989	Home Building Regulation 2004
Northern Territory	
Planning Act	Planning Regulation
Building Act	Building Regulation
Queensland	
Sustainable Planning Act 2009	Sustainable Planning Regulation 2009
Building Act 1975	Building Regulation 2006
Domestic Building Contracts Act 2000	Domestic Building Contracts Regulation 2010
Queensland Building Services Authority Act 1991	Queensland Building Services Authority Regulation 2003
South Australia	
Development Act 1993	Development Regulations 1993
Building Work Contractors Act 1995	Building Work Contractors Regulations 1996
Tasmania	
Land Use Planning and Approvals Act 1993	Land Use Planning and Approvals Regulation 2004
Building Act 2000	Building Regulations 2004
	Plumbing Regulations 2004
Housing Indemnity Act 1992	Housing Indemnity Regulations 2004
Victoria	
Planning and Environment Act 1987	Planning and Environment Regulations 2005
Building Act 1993	Building Regulation 2006
Domestic Building Contracts Act 1995	Domestic Building Contracts Regulations 2007
Western Australia	
Planning and Development Act 2005	Planning and Development Regulations 2009
Building Act 2011 (which replaced the Local Government (Miscellaneous Provisions) Act 1960	Building Regulations 2012
Building Services (Complaint Resolution and Administration) Act 2011	Building Services (Complaint Resolution and Administration) Regulations 2011
Home Building Contracts Act 1991	Home Building Contracts Regulations 1992
Construction Contracts Act 2004	Construction Contracts Regulations 2004

Appendix B – State and Territory Statutory Warranty Provisions

Relevant Law	Duration of Warranty	What are the warranties?
Australian Capital Territory		
Building Act 2004.	Six (6) years in relation to a structural element. "Structural element", of a building, means: • an internal or external load-bearing component of the building that is essential to the stability of the building or any part of it; or • any component (including weatherproofing) forming part of the external walls or roof of the building). Two (2) years in relation to a non structural element. The warranty begins on the day the work is completed or the day the contract relating to the work ends, whichever is the later.	The builder warrants the following: • that the residential building work has been or will be **carried out in accordance with this Act;** • that the work has been or will be carried out in a **proper and skilful way** and— • **in accordance with the approved plans**; or • if the work involves or involved handling asbestos or disturbing friable asbestos—in accordance with approved plans that comply with this Act in relation to the asbestos; • that **good and proper materials** for the work have been or will be used in carrying out the work; • if the work has not been completed, and the contract does not state a date by which, or a period within which, the work is to be completed—that the work will be carried out with **reasonable promptness**; • if the owner of the land where the work is being or is to be carried out is not the builder, and the owner expressly makes known to the builder, or an employee or agent of the builder, the particular purpose for which the work is required, or the result that the owner desires to be achieved by the work, so as to show that the owner is relying on the builder's skill and judgment—**that the work and any material used in carrying out the work is or will be reasonably fit for the purpose or of such a nature and quality** that they might reasonably be expected to achieve the result.
NSW		
Home Building Act 1989	Seven (7) years after: • the date the work was -completed; or • if the work is not completed; • the date for completion of the work as stated or determined in or by the contract; or • if there is no completion date in the contract, the date of the contract itself.	• The work will be performed in a proper and workmanlike manner and in accordance with the plans and specifications set out in the contract; • All materials supplied will be good and suitable for the purpose for which they are used and that, unless otherwise stated in the contract, those materials will be new; • The work will be done in accordance with, and will comply with the law; • The work will be done with due diligence and within the time stipulated in the contract, or if no time is stipulated, within a reasonable time; • If the work consists of the construction of a dwelling, alterations or additions to a dwelling or the repairing, renovation, decoration or protective treatment of a dwelling, the work will result, to the extent of the work conducted, in a dwelling that is reasonably fit for occupation as a dwelling; • The work and materials used in doing the work will be reasonably fit for the specified purpose or result, if the owner tells the contractor why they require the work or what result they are after. This shows that the owner relied on the contractor's skill and judgement.

Northern Territory		
Building Act	The defect period starts immediately after the last day of the construction period and, continues for the following period: (a) for alleged defective work resulting in a non-structural defect – 1 year; (b) for alleged defective work resulting in a structural defect –6 years. The construction period would ordinarily be the period starting on the day the contract is entered into and ending on the day the occupancy permit is granted (slightly different rules apply if there is no contract or no occupancy permit is requirement). However If the current owner becomes aware of the alleged defective work within 30 days before the end of the defect period, the defect period is extended for 30 days after the day on which the owner became aware of the defect. A **non-structural defect** is a defect in a non-structural element of the building as a result of defective residential building work. **A non-structural element**, means a component of the building that is not a structural element. A **structural defect** is a defect in a structural element of the building or is a defect that is reasonably likely to cause a defect in a structural element of the building. **A structural element**, means: (a) a load-bearing component of the building (whether internal or external) that is essential to the stability of the building or part of the building; or (b) a component (including weatherproofing) forming part of the external walls or roof of the building. *Example: A waterproof membrane attached to a wall or floor of a bathroom.*	Statutory warranties are referred to as "consumer guarantees". They require that: • The builder will carry out the building work in a proper and workmanlike manner and in accordance with the plans and specifications specified in the building permit for the work and specified in this contract. • All materials supplied by the builder will be good and suitable for the purpose for which they are to be used. • All materials supplied by the builder will be new unless there is a special condition in this contract specifying otherwise. • The builder will carry out the building work in accordance with the Building Act, the Building Regulations, the Building Code of Australia and other laws in force in the Northern Territory. • The builder will carry out the building work with reasonable care and skill. • The builders will complete the building work by the date or within the period specified in this contract or if no date or period is specified, within a reasonable period.

Queensland		
Domestic Building Contracts Act 2000	Six (6) years 6 months from the date that: • the subject work is finished; or • if the Subject work is not completed , the stated completion date.	**SUITABILITY OF MATERIALS:** All materials to be supplied for use in the subject work will be: • Good and having regard to the relevant criteria, suitable for the purpose for which they are used; and • new, unless otherwise stated in the contract *This section only applies if the Contractor is the person responsible for supplying materials.* *The warranty therefore doesn't apply:* • *where an architect is appointed & the contractor is subject to the architects direction regarding the supply of materials;* • *the Owner is responsible for nominating the materials for the subject work & there are no reasonable grounds for not using the materials; OR* • *if reasonable grounds exist for the Contractor to refuse the materials but the owner insists on materials being used in contravention of a WRITTEN WARNING from the contractor.* *In determining the suitability of materials regard must be had to the generally accepted practices or standards applied in the building industry for the materials and the specifications, instructions or recommendations of manufacturers or suppliers of the materials.* **COMPLIANCE WITH THE LAW:** The contractor warrants that the work will be carried out in accordance with all relevant laws and legal requirements. **SKILL AND REASONABLE CARE:** The contractor warrants that work will be carried out in an appropriate and skilful way and with reasonable care and skill. **PLANS AND SPECIFICATIONS:** The contractor warrants the work will be carried out in accordance with the plans and specifications. *This warranty only applies if plans and specifications are required and form part of the contract.* **SUITABILITY FOR OCCUPATION:** The contractor warrants that the site of the work will be suitable for occupation when the work is finished. *This warranty applies to work intended to renovate, alter, extend, improve or repair a home to a state suitable for occupation.* **REASONABLE DILIGENCE:** The contractor warrants the subject work will be carried out with reasonable diligence. *This warranty only applies if the contract is a cost plus contract and does not have a stated completion date or period.* **CALCULATION OF PROVISIONAL SUMS:** The contractor warrants that the provisional sum has been calculated with reasonable care and skill, having regard to all the information reasonable available when the contract was entered into (including information about the nature and location of the building site).

South Australia		
Building Work Contractors Act 1995	Five (5) years after completion of the building work to which the proceedings relate.	The following warranties on the part of the building work contractor are implied in every domestic building work contract: • a warranty that the building work will be performed in a proper manner to accepted trade standards and in accordance with the plans and specifications agreed to by the parties; • a warranty that all materials to be supplied by the contractor for use in the building work will be good and proper; • a warranty that the building work will be performed in accordance with all statutory requirements; • if the contract does not stipulate a period within which the building work must be completed—a warranty that the building work will be performed with reasonable diligence; • if the building work consists of the construction of a house—a warranty that the house will be reasonably fit for human habitation; • if the building owner has expressly made known to the contractor, or an employee or agent of the contractor, the particular purpose for which the building work is required, or the result that the building owner desires the building work to achieve, so as to show that the building owner relies on the contractor's skill and judgment—a warranty that the building work and any materials used in performing the building work will be reasonably fit for that purpose or of such a nature and quality that they might reasonably be expected to achieve that result.
Tasmania		
Housing Indemnity Act 1992	Six (6) years from the completion of the building work to which the warranty relates (s. 9). "Completion" is not defined except in relation to owner builder work. However, the builder is required (under Reg 8) to give notice of completion within 14 days after completion to the owner, the insurer and the permit authority.	Warranties (s.7) (a) the building work will be performed in a proper and skilled manner and in accordance with the plans and specifications agreed to by the parties; (b) all materials to be supplied by the builder for use in the building work will be good and suitable for the purpose and, unless otherwise specified in the contract, those materials will be new; (c) the building work will be performed in accordance with the requirements of this or [sic] any other Act; (d) where the contract does not stipulate a period within which the building work must be completed, the building work will be performed with reasonable diligence; (e) where the owner expressly makes known to the builder, or a person with express or apparent authority to enter into or vary contractual arrangements on behalf of the builder, the particular purpose for which the building work is required, or the result that the owner desires the building work to achieve, so as to show that the owner relies on the builder's skill and judgment, a warranty that the building work and any materials used in performing the building work will be reasonably fit for that purpose or for achieving that result.
Victoria		
Domestic Building Contracts Act 1995	Ten (10) years from the issue of Certificate of Occupancy or final inspection, or if plumbing work from Certificate of Compliance limited under Section 134 of the Building Act 1993.	Warranties - Work to be carried out in a proper and workmanlike manner and in accordance with plans and specs. • All materials supplied by builder to be good and suitable for the purpose and new • Work to be carried out in accordance with and comply with laws and legal requirements. • Work to be carried out with reasonable care and skill and by the contract completion time. • Home to be suitable for occupation. • Work to be achieved for a particular purpose and the owner entitled to expect that the purpose will be achieved relying on the builders skill and judgement and the work in nature and quality will be reasonably fit for that purpose.

Western Australia		

Home Building Contracts Act 1991, Building Services (Complaint Resolution and Administration) Act 2011, Building Act 2011	There are two systems depending on the contract value:
	• contracts that fall between $7,500 - $500,000;
	• those that fall outside that threshold.
	For contracts that fall within the threshold $7,500 to $500,000 the builder is liable to make good, without additional cost, defects in the building work notified in writing within a minimum of four months from practical completion.
	There is a minimum 4 month defects period (although the parties are free under the Home Building Contracts Act to agree to a greater period to be specified in their contract) but for those contracts that fall outside the threshold the defects period is as per the contract.
	The 4 months defects liability period applies from "practical completion" which means "brought to the stage where the home building work is completed except for any omissions or defects which do not prevent the home building work from being reasonably capable of being used for its intended purpose".
	Regardless of the value of the building work the builder has legal responsibility for faulty and unsatisfactory work where any structural problems occur.
	Complaints in relation to building work must be made before the expiration of six (6) years from the time when the building work was completed.
	In the case of building work or demolition work carried out under a building permit or a demolition permit, work is taken to have been completed in the following circumstances:
	• if the builder gives a Notice of Cessation to act as the builder to the relevant permit authority; or
	• otherwise, the work is completed when a Notice of Completion of the work is given to the relevant permit authority (which would occur when the builder has finished the building work covered by the building permit).
		No implied warranties as there are in NSW however if the Disputes Tribunal is satisfied that in some respect (other than its being faulty or unsatisfactory) the building work has not been carried out in a proper and workmanlike manner the Disputes Tribunal may, having regard to the extent of the failure order that the person who carried out the building work:
		• remedy the building work that has not been carried out in a proper and workmanlike manner within such reasonable time as is specified in the order; or
		• pay to the person for whom the building work was carried out
		  • such costs of remedying the building work that has not been carried out in a proper and workmanlike manner as the Disputes Tribunal considers is reasonable; or
		  • such sum of money as the Disputes Tribunal considers reasonable to compensate him for the failure to carry out the building work in a proper and workmanlike manner, and any costs or sum of money so ordered to be paid constitutes a debt due to the person to whom it is so ordered to be paid and is recoverable by him in a court of competent jurisdiction.

Appendix C – The Building Code of Australia (BCA)

Building classifications

The BCA, (including referenced documents such as Australian Standards contained therein) is the primary document responsible for setting legal requirements for the design and construction of all buildings in Australia. Buildings are classified in the BCA according to their use.

The standards and tolerances set out in this document are intended to apply to the following classes of buildings:

Class 1a building: A detached or single house; or one of a group of two or more attached dwellings, each separated by a fire-resisting wall, including, a row house, terrace house, town house or villa unit. Each separate part can not be located above or below another dwelling or another Class of building other than a private garage.

Class 1b building: A boarding house, guest house, hostel or the like –

- with a total area of all floors not exceeding 300 m^2 measured over the enclosing walls of the Class 1b building;
- in which not more than 12 persons would normally be resident which is not located above or below another dwelling or another Class of building other than a private garage.

Class 2 building: A building containing 2 or more sole-occupancy units each being, a separate dwelling such as multi storey apartments.

Class 4 building: A dwelling in a building that is any class of building other than Class 1, 2, or 10.

Class 10 building: A non-habitable building or part of a building such as private garage, carport, shed, a fence, retaining or free-standing walls, swimming pool or rainwater tanks.

Goals of the BCA

The BCA states that:

"The goal of the BCA is to enable the achievement of nationally consistent, minimum necessary standards of relevant health, safety (including structural safety and safety from fire), amenity and sustainability objectives efficiently."

This goal is applied so that the BCA extends no further than is necessary in the public interest, is cost effective, and not needlessly onerous in its application.

BCA definitions

I. **Objective –** A statement contained within the BCA which is considered to reflect community expectations.

II. **Functional Statement –** A statement contained within the BCA that describes how buildings and building elements achieve the Objective.

III. **Performance Requirements: -** A statement contained within the BCA that states the particulars of performance that a building solution must meet.

IV. **Deemed-To-Satisfy (DTS): -** Building solutions contained within the BCA that are deemed to have met the requirements of the performance requirements.

V. **Alternative Building Solution: -** Building solutions that comply with the Performance requirements by means of other than the deemed-to-satisfy solutions contained within the BCA.

BCA structure and compliance

The BCA Volume 2 Clause 1.0.3 states:

"The structure of the BCA comprises the following as shown in Figure 1.0.3:

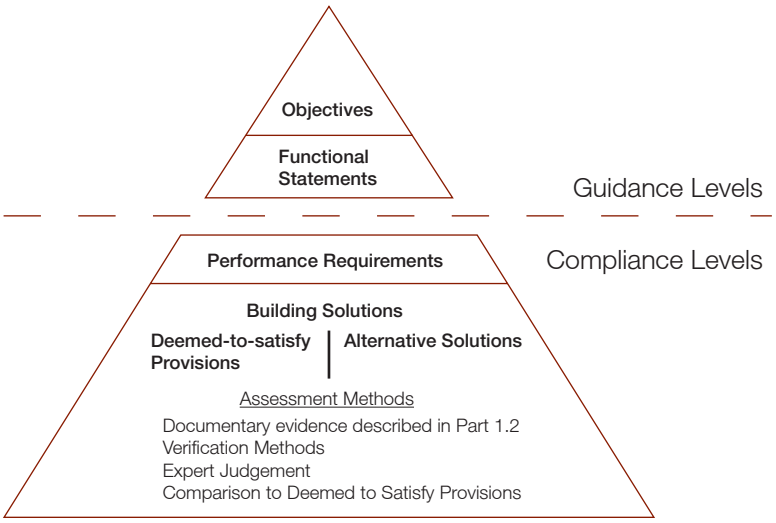
a The Objectives

b The Functional Statements

c The Performance Requirements with which all Building Solutions must comply

d The Building Solutions"

FIGURE 8 – BCA HIERARCHY OF PERFORMANCE REQUIREMENTS (FIGURE 1.0.3 OF THE BCA)



Compliance pathway

A BCA compliant building is one that can satisfy the certifying/approving authority that the proposed building complies with the performance requirements of the BCA. A designer, builder or client may choose to comply with the deemed-to-satisfy (DTS) provisions of the BCA or may develop an alternative building solution that can be demonstrated to satisfy the performance requirements.

DISCLAIMER

The information and statements contained herein, including those that relate to the passage of time, are intended as a general guide only. This publication must therefore not be relied upon as legal advice. For more information about specific matters please refer to the appropriate legislation or seek independent legal advice.

HIA INSURANCE SERVICES

Your Home for Construction Insurance

Providing specialised risk and insurance solutions to the construction industry

Home Warranty

We are a market leading provider of Home Warranty Insurance with a specialist team to support you.

Construction Works and Public & Product Liability

Is a policy which includes Material Damage for builders providing cover against accidental physical loss or damage to their building project during the construction period and Legal Liability where a builder is found liable for injury or damage to property during a construction project.

Trades Pack

Can provide cover for risks associated with being found liable for injury or damage to property during a construction project (Public Liability)*

Cyber Insurance

For the construction industry has been specifically designed to help protect businesses from a variety of risks associated with doing business online.

Construction Legal Expenses Insurance

Provides businesses with cover for legal expenses when they launch legal action against a customer or supplier, or have a legal action brought against them. Can provide cover for costs associated with obtaining legal advice and other expenses associated with resolving a contractual dispute (as defined)*.

*Subject to policy terms, conditions and exclusions, and limits applying.

For more information
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