

## **Pre-Inspection Agreement** **&** **Responsibility of a Buyer / Vendor & Inspector**

*It is the buyer's & vendors responsibility to have all openings to the roof void and subfloor areas made available and open for our inspector to safely enter these areas. This responsibility is between the commissioning party and the listing agent/vendor, regardless of if the appointment date and time is made between The Property Inspectors Pty Ltd and the listing agent/vendor or buyer.*

*Due to COVID 19 restrictions our inspectors will not touch any part of the building or internal or external fit out or furnishings of the property and/or the owner's or tenants' personal belongings.*

*Our inspectors will not open nor close doors or windows, they will not move any objects light or heavy, they will not open nor close cupboard doors or robe doors, roof void hatches nor subfloor access panels to keep themselves and the occupants of the property safe during this COVID 19 Period.*

*Should our inspector find access limited or obstructed in any way those aspects of the property will not be accessed nor reported on.*

In assessing building defects, all inspections are carried out to meet

Australian Standard AS 4349.1-2007 PART 1 : Pre Purchase Inspections  
Australian Standards AS 4349.0-2007 PART 0: General Requirements / Inspections of Buildings  
Australian Standard AS 4349.3-2010 PART 3: Timber Pest Inspections / Inspection of buildings  
New South Wales Guide to Standards and Tolerances 2017  
AUSTRALIAN Standards AS/NZS 1892.5.2000 Portable ladder  
Code Of Practice – Managing The Risk Of Falls - At Workplaces August 2019  
Code Of Practice – Managing The Risk Of Falls - In Housing Construction August 2019

Our inspector will use the following equipment:

1. 1 x 3.6 metre foldable ladder to access the external roof top elevation, with a maximum disembarkment of the ladder 2.6 metre / 2.7 metre off the natural ground.
2. 1 x 3.6 metre ladder folded in half (1.8 metre top ledge height) to access the roof voids, any manhole located above 2.4 metre in height will not be accessed nor assessed and the roof void will not be entered into nor reported on.
3. A torch for the inspection of the subfloor area and roof void area only, all other areas are to be inspected by using natural daylight with no mechanical / artificial lighting (torches) being used to inspect and find defects.
4. 1 x Phone or iPad to photograph the defect while on site, in order to produce the written report.

Our Inspectors are available to take a phone call from the buyer once the report is released to the commissioning party. Should a buyer call the inspector prior to their report being completed and released and reviewed / read by the buyer, the advice supplied by the inspector over the phone to the buyer cannot be legally relied upon, as the inspector cannot recall all aspects of the property condition while out in the field nor prior to reviewing all data collected while on site or when they are driving or when they are doing another inspection for another client.

This is a pre-inspection agreement between you (**the commissioning party – buyer or vendor**) and The Property Inspectors Pty Ltd for an inspection and report (**Services**) at the property.

This agreement is designed to ensure you understand the scope, extent of reporting and limitations of the Services.

Please be aware that by its nature this service has limitations and exclusions you should be aware of.

Please review this agreement and contact our office should you have any queries or objections, as objections received post inspection will be difficult for our office to mitigate.

**You need to respond to the email that contains this agreement, stating the following:**

**I have read, understood, and accept the Terms & Conditions contained within this pre-inspection agreement and within the Terms & Conditions within the TPI invoice/work order and within the TPI website.**

Should you have commissioned a report over the phone and paid for the report prior to receiving this document / agreement, you have until we arrive on site and prior to our commencement on site to dispute the conditions outlined within this agreement. You can cancel the order and a full refund will be issued for the service commissioned. Should you not respond or agree with this agreement it is deemed that you have read, understood and agreed with this agreement even though you have not formally replied and approved the agreement conditions prior to our commencement on site.

Should you have commissioned a report by making payment for the service, and you have been issued this agreement prior to making the payment, and you have not formally replied with the approval to proceed with the order and associated conditions, you have until we arrive on site and prior to our commencement on site to dispute the conditions outlined within this agreement. You can cancel the order and a full refund will be issued for the service commissioned. Should you not respond to this agreement it is deemed that you have read, understood and agreed with this agreement even though you have not formally replied and approved the terms within this agreement prior to our commencement on site.

## **YOU HAVE COMMISSIONED A PRE-PURCHASE BUILDING & PEST INSPECTION:**

**Vendor Reports:** Are not able to be legally relied upon by any purchaser, until such time as the potential purchaser purchases their own copy of this report prior to exchange of the property.

**Buyers Reports:** A purchaser commissioning a report or purchasing a copy of an existing report will be entitled to engage with our inspectors with any questions that they may have in regard to the contents of the report or property in general.

No third-party reliance on our reports is available unless that party has purchased their own copy or has commissioned the initial report and payment has been made in full to our office THE PROPERTY INSPECTORS PTY LTD prior to exchange of contracts.

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### **PURPOSE OF THE REPORT:**

The objective of the service rendered is to provide advice about the condition of the property at the time of the inspection.

We solely report on significant items as listed below:

1. Safety hazards.
2. Urgent matters.
3. Elements of the property which have a current or immediate threat of injury or disease to a person or animal.
4. Any major defects, which are defects of significant magnitude where rectification works are required in order to avoid unsafe conditions, loss of utility or further deterioration of the property.
5. We provide general commentary regarding the extent of minor defects and general wear & tear, and / or routine property maintenance required within the subject property.
6. We comment on any live or past termite and timber pest activity that was sighted on the day of the inspection.

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### **SCOPE:**

1. A Pre-Purchase Inspection is a visual inspection.  
We do not use any equipment other than a camera and 1.8 metre A-Frame stepladder and a 3.6 metre extension ladder.
2. Our report is produced on the basis of reporting on significant items as noted above.  
We will generally report by exception and not report on deterioration caused by fair wear and tear.  
Our Reports only talk about issues current or present within the building, we do not talk about future / possible issues occurring within the property because of a finding while doing our report / inspection.

3. We will compare this property to other similar properties of the same age, construction type and method, that have had an acceptable level of basic maintenance completed.
4. In many circumstances, properties do not comply with current Australian Standards / Building Regulations. We do not comment on those Standards should the property be old or more than 1 year old from new construction.
5. We do not provide costs to rectify defects, unless specifically quoted for and included within your work order.
6. We do not advise you on legal matters, council matters, title, ownership, easements, restrictions, planning laws or caveats, design by the architects, hydraulic engineers, electrical engineers, structural issues, private certifiers and any design or approval consultants works or built forms.
7. Our inspection and report do not constitute an approval by a building surveyor nor a certificate of occupancy or compliance with any laws, regulations, or standards.
8. We will recommend further inspection by other specialists such as engineers, plumbers or electricians, or other specific trades, if we find specific problems that are not included within this Service.
9. We may also recommend specific rectifications or maintenance works be performed and we recommend that you act on this advice immediately.
10. We recommend that all buyers commission a specialised pest contractor to inspect the property, regardless of our findings.

We recommend that you engaged a specialist PEST CONTRACTOR to carry out a full and comprehensive inspection to inspect all internal and external elevations together with roof and subfloor areas with a thermal camera, as our pest inspection and report is a brief and a preliminary report, and our inspection and report was carried out by a non-licenced pest inspector and any missed findings will not be supported by The Property Inspectors nor our insurance company against any claims for losses by the existing or new owners of the property.

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#### **INVASIVE INSPECTION:**

This is not an invasive inspection. We do not remove panels, unscrew fixtures and fittings nor carry any building tools or equipment, nor do we move any objects, furniture, building materials or personal belongings within the property that may be obstructing our access or vision at the time of our inspection.

Note, if our inspector cannot access an area, it will be noted within the report, and that area is excluded from our assessment report and liability.

Please have all access points opened, unscrewed, unlocked and unobstructed for our inspector to access the roof top, roof void and subfloor areas without the need for our inspector to request items to be moved at the time of our inspection.

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**BELOW IS A LIMIT OF LIMITATIONS:**

We only inspect and report on accessible areas, the commissioning party needs to ensure that we have access to all areas of the property being inspected. If you are not the owner, you must discuss this with the Real Estate Agent and/or owner, and access must be provided by the owner or agent or buyer that is providing us access to the property.

**Roof Void:**

1. The inspector will use a 1.8 metre step ladder for a 2.4 metre ceiling access panel.  
Ceiling voids above 2.4 metres in height will not be entered into with a single inspector.
2. The inspector will use a 3.6 metre extension ladder with a dismount height of 2.7 metres to access the roof top elevations.
3. Manholes need clear access directly below for the safe installation of a ladder.  
The floor area below the ceiling manhole needs to be no less than 1 metre x 1 metre to safely install a step ladder.
4. Manholes must be unlocked or unscrewed from the substrate by the vendor.
5. Manholes locked or screwed shut or painted in place will not be accessed by the inspector.
6. Roof manholes located over / within cupboards or joinery or with obstructions directly below the manholes will not be accessed by the inspector.  
Our inspector will only access the roof void if his torso and belt buckle is solely within the ladder rails of the step ladder, and that the step ladder is able to be installed directly below the manhole so there is straight access into the roof void.
7. Furniture below or up against any manholes will not be moved or touched by the inspector.
8. The inspector will not move or touch any of the vendor / tenant's belongings during the inspection.
9. Manhole sizes must be no less than 400 mm x 500 mm openings, and with 600 mm x 600 mm crawlspace within the roof void is available.
10. Manhole locations are to be supplied by the vendor or agent to the inspector upon their arrival.

**Subfloor:**

1. Subfloor access doors must be unlocked at the time of inspection, with no obstructions in front of the access doors or within the sub floor area itself.
2. If the sub floor is to be inspected, subfloor access doors must be no less than 400 mm x 500 mm, and access within the sub floor itself must be no less than 600 mm x 600 mm crawlspace with no obstructions within the access zone.
3. Manhole locations are to be supplied by the vendor or agent to the inspector upon their arrival.
4. Power to the entire house must be turned off by the agent / vendor / buyer for safe passage into and within the subfloor by our inspectors.
5. Our inspectors will cease inspecting the subfloor should asbestos base materials be seen to be stored / placed / found within the subfloor finished floors.

**External Roof Elevations:**

1. Roof elevations with a gutter line above 2.7 metres will not be accessed by a single inspector. If a roof is to be inspected above 2.7 metres off the finished ground floor level, a second inspector and / or harness is required.  
This will come with an additional fee of \$600.00 + GST over and above the already commissioned cost option selected.  
(Unless your agent belongs to an agency with a bespoke fee agreement in place with our office).
2. Should it have rained on the day of the inspection or if the roof or floor is wet and damp or unstable, the inspector will not access the roof from the ladder.  
The roof assessment will be done from the ground floor if possible.
3. A Ladder will not be installed within 1.5 metres of a ledge or potential fall.
4. The ladder must be able to be installed safely on stable and level ground and on a wall or gutter that will enable the inspector to safely use the ladder. The inspector has the sole obligation to assess that safe access is available while on site and if any inspector chooses not to access the roof or an elevated areas it is up to the inspector to conclude that opinion.

**General:**

1. Any restricted areas within the external elevations with less than 600 mm cavity, will not be inspected nor reported on.
2. Any second dwelling or granny flat will not be inspected nor reported on unless a second inspection fee is quoted, approved, and paid by the commissioning party.  
The second dwelling / granny flat inspection will be integrated within the one report with the main house.

A second dwelling is defined as having the following:

- Bathroom
  - Kitchen
  - Laundry/shared laundry
  - Front door
  - Letterbox
3. Any sub floor areas, roof void areas, garage floors, walls or roof voids, or any other areas within the property that is being used to store the vendor/tenant's belonging's during the sales campaign (to de-clutter the home) will not be inspected nor reported on.
  4. In assessing building defects, all inspections are carried out to meet Australian Standards AS 4349.1-2007 plus the New South Wales Guide to Standards and Tolerances 2017 issued by New South Wales Department of Fair Trading.
  5. A standard Building and Pest Inspection includes the adjoining structures and all other buildings, garages, sheds, retaining walls and fences within 30 metres of the main building, this includes the site fence.
  6. We will need to turn off the main power for a short time to safely inspect the roof space. We will require you to obtain consent for this, and where permission is not granted, we will be unable to access the roof void and subfloor areas, and this will form a limitation for us.
  7. We will be unable to inspect the doors and windows, should they be locked, or inaccessible rooms due to doors being locked or furniture or personal belongings placed hard up against.
  8. Should there be security systems active or pets guarding a property, that will limit our inspector from carrying out a full and comprehensive assessment.
  9. Should we be asked to carry out an inspection and it is raining at the time of inspection or prior to our arrival, our inspector will not use their stepladder for any internal or external areas requiring a stepladder to access the location.  
Should it be raining at the time of our inspection, we will inspect the roof from a distance, not off a ladder or any elevated platforms, deeming a part inspection of the roof elevation and roof plumbing.
  10. Should we be engaged to inspect the property early in the morning and the floor area or roof elevation be damp or moist from the morning dew or from a prior raining period, our inspector will not use a stepladder externally nor will they walk over any raked roof elevations or areas that are not barricaded by a balustrading and handrail.
  11. If it has rained prior to our arrival and the ground is moist, damp or wet our inspector will not crawl on the floor to access any subfloor areas or areas that require them to lie on the floor or place their knees, hands, or clothes on a damp area.
  12. Should a property be recently renovated or beautified for the purpose of selling the property, we may not be able to detect **moisture, dampness, mould or leaks** within the walls, ceiling, floors, and bathrooms.

Special Note: Bathrooms that have not been used for some time will not show signs of waterproofing failures nor leaks within the plumbing within the roof void, walls, and subfloor areas. We advise further testing of a property covering the waterproofing, water entry points, pipes, and water susceptible areas such as the bathrooms, kitchen, and laundry, after more frequent use has occurred.

13. Should there be a person sleeping in a room we will not enter the room and that room will not be inspected nor included in our report
14. The above list of limitation is not a comprehensive nor exhaustive list of limitations. We will try to advise you of any limitations and restrictions that have occurred within our report. We strongly recommend that you have further invasive inspection services undertaken in consultation with the property owners and / or our office.
15. All reports ordered by a vendor or buyer will be released or uploaded to our website, or any other third party provider, within 21 business days from the date of the site inspection.
16. When buying an existing report, in some cases, reports are not complete or are being updated at the time when you are placing your order. Should your order be received, and the report is not complete, the report will be fast-tracked through our system and released to any purchaser who has chosen to download a copy of the report that is now on backorder, and your order is noted as a priority within our system, and we endeavour to have the report released within 24 hours or up to 2 business days from the date and time of the order being received by our office.
17. Should you choose to order a report, and the report is not available at the time of you placing your order, the report will be released to you the moment it is complete. Should you lose interest in the property or should the delay in obtaining the report alter your want or need for this report, our company will NOT offer a refund or discount against the original order as long our office releases the report within 4 business days from your online order being confirmed. No refunds are applicable for a report being released within 4 business days from your online order. Should our office not supply you a report within 4 business days of placing your order of an existing Pre-Purchase Building & Pest, a 50% refund of the initial order will be refunded if requested.
18. The Report and its appendices and attachments, as issued by TPI's, takes precedence over any oral advice or draft reports, to the extent of any inconsistencies, and only the Report and its appendices and attachments, which form a vital part of the inspector's recommendations, shall be relied upon by you
19. The Property Inspectors do not offer the service of any verbal advice. Should the client or commissioning party request any verbal advice from our consultant whilst out in the field, face to face, on site or via a phone call or phone conference or text messages, this advice cannot be relied upon, and it does not form part of any of the services rendered within the contract.



20. Should you choose to have communication with our consultant prior to their report being released and received by the commissioning party, any advice received cannot be relied upon and we recommend that you do not proceed to purchase the property until you have read the report and understood the content within the written report, as we are only responsible for the written advice within our report.
21. Should you not receive the report within the timeline outlined within this agreement, you are to check your spam / clutter / junk box, as reports often end up there due to anti-virus software's that you may have installed on your computer system.
22. All reports will be produced within 28 business days from the day our consultant is on site or from the date documents have been received via email or registered post.

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**ADDITIONAL INSPECTIONS:**

***(The below fees may not apply if you are an agent that has a bespoke fee structure in place)***

1. Any updates made to a report that require a second inspection of the property will be billed out at \$300.00 + GST, unless the second site inspection is due to height restrictions.  
(Up to 5 items to be amended within the initial report)
2. A second site inspection due to height restrictions will require our inspector to return to site with a harness or a second inspector, this will be billed out at \$680.00 + GST.  
A second site inspection is required for an update to any defects that are rated as a "major defect", "further investigation", or "safety/compliance issues". If addressed, these defects must be re-inspected by our office if you want the report updated.
3. Any updates made to a report that do not require a second inspection will be billed out at \$199.00 + GST.  
Amending a report that has "Minor Defects" will require supporting evidence by the vendor that the works have been rectified by a licensed contractor. We will require two photographs of each defect to be considered, together with a video and a tax invoice of the defect being rectified. This may assist in limiting a second inspection, but this is solely up to the discretion of the inspector who carried out the initial inspection.

**Exclusions:**

Unless explicitly selected as an option with your Service, the inspection and report exclude assessment or reporting of the following:

1. Deterioration caused by fair wear and tear.
2. Footings below ground.
3. Concealed damp proof course.
4. Electrical installations.

5. Concealed plumbing.
6. Adequacy of roof drainage.
7. Gas fittings and fixtures.
8. Air-conditioning.
9. Automatic garage doors.
10. Pools and related equipment.
11. Alarm systems.
12. Operation of fireplaces and chimneys, flues, and solid fuel heaters.
13. Alarm and intercom systems.
14. Soft floor coverings.
15. Appliances.
16. Paint coatings.
17. Health hazards.
18. Timber and metal framing size and adequacy.
19. Concealed tie downs and bracing.
20. Other mechanical or electrical equipment such as gates or inclinators.
21. Soil conditions.
22. Control joints.
23. Sustainable development provisions.
24. Concealed timber frames.
25. Landscaping.
26. Rubbish.
27. Floor coverings.
28. Furniture and accessories.
29. Stored items.
30. Insulation.
31. Environmental matters (water tanks, etc).
32. Lighting and energy efficiency.
33. Damp assessment using a Moisture Meter.

We will not inspect common property unless specifically requested. If this request is made, our inspection does NOT conform to AS4349.2 Group Titled Properties. If this reporting is required, the client must seek a separate inspection for Group Titled Properties.

We are unable to advise about combustible cladding.

We are unable to advise on Magnesite, cracks, or evidence of crack repairs to masonry construction, concrete slabs, or load bearing walls. We are unable to advise on structural stability of any external timber structures. On these issues we will recommend a structural engineer.

Our reporting is not suitable for Tribunal or Court Proceedings. An Expert Witness Testimony is required for this purpose.

## **LIABILITY AND ACKNOWLEDGEMENT**

The client acknowledges the following:

1. Removal of access, vents, or other covers during the Services will be done in a tradesman like manner. We do not accept liability for damage, or reinstatement, or replacement, or repair which may arise during this process.

Special Note: We do not carry any tools to remove fixed panels or wedged floorboards or doors to gain access to a concealed area.

2. The report does not constitute a warranty or an insurance policy against problems developing with the building in the future. Accordingly, a preventative maintenance program should be implemented for the property which includes systematic inspections, detection, and prevention of incipient failure.
3. We accept liability for any implied contractual terms that cannot be excluded or limited under applicable law, including the Australian Consumer Law and any loss that is reasonably foreseeable from our material breach of these Terms. However, provided you obtain the benefit of any warranty or other obligation conferred upon you pursuant to the Australian Consumer Law, we limit our liability to the replacement of the Services the provision of equivalent Services or the cost of providing those Services.
4. Other than as specifically accepted by us above, we are not liable for any other losses or damages you may suffer, including any loss caused by you or to the extent it results from your failure to take reasonable steps to avoid or minimise that loss, loss caused by an event falling outside our reasonable control and any indirect or consequential losses.
5. You indemnify, and keep indemnified, us and our franchisors, employees, and agents from and against any loss (including reasonable legal costs and expenses) or liability incurred or suffered by us arising from any claim arising out of your failure to advise on safety issues at the property, your negligence or breach of these terms and conditions.

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## **CANCELLATION POLICY**

Should you choose to cancel an order, it must be received between normal business hours Monday to Friday between 9:00am and 4:00pm giving our office a minimum of three business days' notice to obtain a 100% refund of the services that you have engaged.

For all cancellations within three business days and not within the final twenty four hours before the inspection, an 80% refund will be applicable.

All cancellations received after 5:00pm the day prior to the inspection, Monday to Friday, will have no refund applicable, as we have assigned the inspection to our inspector, and we will be unable to re-assign the inspector to another project.

Any cancellations received after 5:00pm and during the weekend will be recorded as received on the following business day at 9:00am, that being the time our office opens.

**TABLE 3.2**  
**DIMENSIONS FOR REASONABLE ACCESS**

Area	Access hole mm	Crawl space mm	Height
Roof interior	400 × 500	600 × 600	Accessible from a 3.6 m ladder
Roof exterior	—	—	Accessible from a 3.6 m ladder placed on the ground

**NOTES:**

- 1 Reasonable access does not include the cutting of access holes or the removal of screws and bolts or any other fastenings or sealants to access covers.
- 2 Subfloor areas sprayed with chemicals should not be inspected unless it is safe to do so.

**TABLE C3.2** *A 3.6 m ladder is considered generally reasonable for safe use by one operator during an inspection. Regardless of the ladder length, weight and size, safe use of ladder or safe access may mean that inspection of a roof, elevated platform or roof space is not possible in part, or at all, during an inspection and, in such circumstances, an inspector may recommend the use of special access equipment and that a further inspection be undertaken when a safe method of access is present.*

See attached below the **Australian Standards AS 4349.1-2007** plus the **New South Wales Guide to Standards and Tolerances 2017** issued by the New South Wales Department of Fair Trading.

Australian Standard<sup>®</sup>

**Inspection of buildings**

**Part 1: Pre-purchase inspections—  
Residential buildings**



This Australian Standard® was prepared by Committee BD-085, Inspection of Buildings. It was approved on behalf of the Council of Standards Australia on 4 December 2007. This Standard was published on 20 December 2007.

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The following are represented on Committee BD-085:

- Association of Consulting Engineers Australia
  - Australian Consumers' Association
  - Australian Environmental Pest Managers Association
  - Australian Institute of Building
  - Australian Institute of Building Surveyors
  - Building Services Authority of Queensland
  - Concrete Masonry Association of Australia
  - Engineers Australia
  - Forest and Wood Products Research and Development Corporation
  - Housing Industry Association
  - Institute of Building Inspectors
  - Insurance Council of Australia
  - Master Builders Australia
  - Royal Australian Institute of Architects
- 

This Standard was issued in draft form for comment as DR 06729.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Australian Standard<sup>®</sup>

## Inspection of buildings

### Part 1: Pre-purchase inspections— Residential buildings

Originated as AS 4349.1—1995.  
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## PREFACE

This Standard was prepared by the Standards Australia Committee BD-085, Inspection of Buildings, to supersede AS 4349.1—1995.

The objective of this Standard is to provide persons and organizations concerned with pre-purchase inspections of residential dwellings with the basic criteria necessary in order to facilitate inspections and reports that satisfy the requirements of both the client and inspector.

This Standard may be applicable for inspections of residential buildings carried out for purposes other than pre-purchase inspection. This Standard does not include compliance with building regulations or assessment of a building under construction.

This Standard is part of the AS 4349 series of Standards, which covers minimum requirements for the visual inspection of buildings, as follows:

AS

4349	Inspection of buildings
4349.0	Part 0: General requirements
4349.1	Part 1: Pre-purchase inspections—Residential buildings (this Standard)
4349.3	Part 3: Timber pest inspections

The changes to previous edition of this Standard comprise the following:

- (a) Modification of scope and general section:
  - (i) Clarifying scope, application, limitations.
  - (ii) New definitions.
- (b) New section for inspection agreement.
- (c) Modification of inspection process—Clarifying areas to be inspected, defects, inspection records.
- (d) Modification of inspection report section—Clarifying report content.
- (e) New normative appendices:
  - (i) Pre-purchase structural inspection.
  - (ii) Building elements and services to be inspected.
- (f) New informative appendices:
  - (i) Strata and company title property inspection.
  - (ii) Exclusion of items from inspection.
  - (iii) Cracking of building elements.
  - (iv) Types and examples of defects.
- (g) Inclusion of commentary to some clauses.

Notes to the text contain information and guidance. They are not an integral part of the Standard.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which it applies. A ‘normative’ appendix is an integral part of a Standard. An ‘informative’ appendix is only for information and guidance.



*This Standard incorporates commentary on some of the clauses. The commentary directly follows the relevant clause is designated by 'C' preceding the clause number and is printed in italics in a panel. The commentary is for information only and does not need to be followed for compliance with this Standard.*

## CONTENTS

	<i>Page</i>
FOREWORD.....	5
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE .....	6
1.2 LIMITATIONS OF STANDARD .....	7
1.3 REFERENCED DOCUMENTS .....	7
1.4 DEFINITIONS .....	7
SECTION 2 INSPECTION AGREEMENT	
2.1 GENERAL .....	9
2.2 PURPOSE OF INSPECTION .....	9
2.3 SCOPE OF INSPECTION .....	9
SECTION 3 INSPECTION	
3.1 GENERAL .....	12
3.2 AREAS TO BE INSPECTED .....	12
3.3 DEFECTS .....	13
3.4 INSPECTION RECORDS .....	14
SECTION 4 THE REPORT	
4.1 GENERAL .....	15
4.2 REPORT CONTENT .....	15
APPENDICES	
A PRE-PURCHASE STRUCTURAL INSPECTION .....	18
B STRATA AND COMPANY TITLE PROPERTY INSPECTION .....	19
C BUILDING ELEMENTS AND SERVICES TO BE INSPECTED .....	20
D EXCLUSION OF ITEMS FROM INSPECTION .....	25
E CRACKING OF BUILDING ELEMENTS .....	27
F TYPES AND EXAMPLES OF DEFECTS .....	29

## FOREWORD

The purchase of residential property is an important decision and should be supported by knowledge of the physical state of the property. Independent and objective advice is often required to enable informed decisions.

It is implicit in this Standard that the inspection includes subjective appraisal by an inspector competent to assess the condition of residential buildings. It is not expected that this Standard will be relevant where an inspection involves wholly objective application of a prescribed technique of appraisal. In any subjective application it is inevitable that different inspectors or even the same inspector, on a different occasion, may reach different conclusions. The Standard seeks to provide an appropriate balance between reliability of outcomes, economic constraints and the flexibility required to address numerous different types of residential building.

The inspection is not intended to include rigorous assessment of all building elements in a property.

**STANDARDS AUSTRALIA****Australian Standard  
Inspection of buildings****Part 1: Pre-purchase inspections—Residential buildings****SECTION 1 SCOPE AND GENERAL****1.1 SCOPE**

This Standard sets out minimum requirements for the inspection of and preparation of an associated report on a residential property carried out by a suitably qualified inspector in order to provide advice to a prospective purchaser or similar interested party. The inspections specified herein may be useful in circumstances other than where a property is subject to purchase.

NOTE: For example an owner or similar interested party may seek an assessment of the condition of the property valuation purposes.

The respective State or Territory legislation may include requirements beyond this Standard.

This Standard covers to residential buildings including, but not limited to the following:

- (a) Freestanding houses.
- (b) Semi-detached houses.
- (c) Terrace-style houses.
- (d) Villas.
- (e) Town-houses and row housing.
- (f) Multi-unit residential buildings.

**C1.1** *If an inspection generally in accordance with this Standard is to be combined with an inspection of elements or requirements for reporting that are not within the scope of this Standard, the variations to this Standard have to comply with the requirements of AS 4349.0 and be recorded in a separate report, or be clearly described and differentiated in the inspection agreement.*

*AS 4349.0 sets out the requirements for building inspections other than those detailed in other parts of AS 4349.*

*Types of non-standard inspections may include, but are not limited to, the following:*

- (g) *Pest inspection—In areas where termites are a problem all prospective purchasers should have a pest inspection carried out.*
- (h) *Electrical installation—In the interests of safety, all new owners should have a report on the electrical installation carried out by a suitably qualified person.*
- (i) *Other specialist inspections—These include plumbing, hydraulics, mechanical services or geotechnical where appropriate.*

*The property inspection should be undertaken as early in the buying process as practicable. This way, the purchaser will know about the condition of the property and will be able to make a better informed decision as to whether to proceed with the purchase.*

*This Standard may be suitable also for a vendor to include with the papers for the sale of a property.*

## 1.2 LIMITATIONS OF STANDARD

A report prepared in accordance with this Standard is not a certificate of compliance of the property within the requirements of any Act, regulation, ordinance, local law or by-law, and is not a warranty against problems developing with the building in the future.

This Standard does not include the identification of unauthorized building work or of work not compliant with building regulations.

This Standard assumes that the existing use of the building will continue.

## 1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
4349	Inspection of buildings
4349.0	Part 0: General requirements
4349.3	Part 3: Timber pest inspections

ABCB

BCA Building Code of Australia

## 1.4 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

### 1.4.1 Access hole (cover)

An opening in flooring or ceiling or other part of a structure (such as service hatch, removable panel) to allow for entry to carry out an inspection, maintenance or repair.

#### **1.4.2 Accessible area**

An area of the site where sufficient, safe and reasonable access is available to allow inspection within the scope of the inspection.

#### **1.4.3 Appearance defect**

Fault or deviation from the intended appearance of a building element.

#### **1.4.4 Building element**

Portion of a building that, by itself or in combination with other such parts, fulfils a characteristic function.

NOTE: For example supporting, enclosing, furnishing or servicing building space.

#### **1.4.5 Client**

The person or other entity for whom the inspection is being carried out.

#### **1.4.6 Defect**

Fault or deviation from the intended condition of a material, assembly, or component.

#### **1.4.7 Inspection**

Close and careful scrutiny of a building carried out without dismantling, in order to arrive at a reliable conclusion as to the condition of the building.

#### **1.4.8 Inspector**

Person or organization responsible for carrying out the inspection.

#### **1.4.9 Limitation**

Any factor that prevents full or proper inspection of the building.

#### **1.4.10 Major defect**

A defect of sufficient magnitude where rectification has to be carried out in order to avoid unsafe conditions, loss of utility or further deterioration of the property.

#### **1.4.11 Minor defect**

A defect other than a major defect.

#### **1.4.12 Serviceability defect**

Fault or deviation from the intended serviceability performance of a building element.

#### **1.4.13 Significant item**

An item that is to be reported in accordance with the scope of the inspection.

#### **1.4.14 Structural defect**

Fault or deviation from the intended structural performance of a building element.

#### **1.4.15 Structural element**

Physically distinguishable part of a structure.

NOTE: For example wall, columns, beam, connection.

#### **1.4.16 Subfloor space**

Space between the underside of a suspended floor and the ground.

#### **1.4.17 Roof space**

Space between the roof covering and the ceiling immediately below the roof covering.

#### **1.4.18 Site**

Allotment of land on which a building stands or is to be erected.

## SECTION 2 INSPECTION AGREEMENT

### 2.1 GENERAL

An inspection agreement between the client and inspector shall be entered into prior to the inspection taking place. The inspection agreement shall include the defined purpose, scope and acceptance criteria in accordance with this Section. Where necessary for clarification, details from Sections 3 and 4 shall be included in the agreement.

Any changes to the purpose, scope or acceptance criteria shall be agreed by all parties at the appropriate time.

Where the client or other interested party requires assessment of the structure of the property only, the inspection shall be in accordance with Appendix A. Such inspection shall be agreed prior to the inspection and clearly specified in the inspection report.

The inspector shall be licensed or registered in accordance with any applicable statutory requirements. If required by the client, the inspector shall provide details of qualification and experience before beginning the inspection.

NOTE: The inspection agreement should be in writing and signed by all parties to the agreement.

**C2.1** *The person carrying out a property inspection should be suitably qualified and experienced.*

*The inspector may recommend that other specialists be engaged to report, in detail, on particular problems that are encountered in the course of a building inspection.*

*It is not the role of the inspector to explain title and ownership matters and to deal with matters concerning easements, covenants, restrictions, zoning certificates and all other law-related matters.*

### 2.2 PURPOSE OF INSPECTION

The purpose of the inspection is to provide advice to a prospective purchaser or other interested party regarding the condition of the property at the time of inspection.

Where the client or other interested party requires only assessment of the structure of the property, the purpose of the inspection shall be limited to that described in Appendix A.

### 2.3 SCOPE OF INSPECTION

#### 2.3.1 General

The inspection shall comprise visual assessment of the property to identify major defects and to form an opinion regarding the general condition of the property at the time of inspection.

Where the client or other interested party requires only assessment of the structure of the property, the scope of the inspection shall be limited to that described in Appendix A.

An estimate of the cost of rectification of defects is not required in an inspection report in accordance with this Standard.

**C2.3.1** *The cost of rectification of building defects is notoriously difficult to estimate reliably. This is primarily because the actual extent of work cannot be known before commencement of the work. There is also reduced competition as many contractors are unwilling to undertake rectification work.*

*Where it is agreed that an estimate will be provided, the preparation of the estimate is outside the scope of this Standard. The preparation of rectification estimates is commonly based on standard industry cost guides or the inspector's own experience. In either case, the reliability of the resulting estimate should be used as a guide only.*

*A more reliable estimate of rectification cost can sometimes be obtained by documenting the expected rectification work and obtaining quotations for the specified extent of work. Alternatively, a quantity surveyor or similar construction cost estimator may be commissioned to estimate the cost of a specified extent of work.*

### **2.3.2 Areas for inspection**

The inspection shall cover all accessible areas.

The client shall arrange right of entry, facilitate physical entry to the property and supply necessary information to enable the inspector to undertake the inspection and prepare a report. The inspector is not responsible for arranging entry to property or parts of property.

Areas where reasonable entry is denied to the inspector, or where reasonable access is not available, are excluded from, and do not form part of, the inspection.

NOTE: Those areas may be the subject of an additional inspection following the provision of reasonable entry and access (also see Clause 3.2).

### **2.3.3 Inspection process**

The inspection shall comprise visual appraisal and limited assessment of serviceability.

### **2.3.4 Limitations**

Limitations that are reasonably expected to be present or that reasonably may occur shall be identified.

NOTES:

- 1 The inspector may be able to anticipate many limitations of an inspection.
- 2 Known limitations relating to access should be included.



**C2.3.4** *Many disputes between the client and inspector occur because the client did not expect the inspection to be subject to some form of limitation. In order to avoid such disputes it is necessary that the inspector, who is normally the more knowledgeable party, inform the client during the agreement phase of limitations that may restrict the full achievement of the client's purpose of inspection. The opportunity to inform the client prior to the inspector's visit to the property is limited and there will always remain the possibility of unexpected limitations that will be apparent only when the inspector visits the property; however, it is important that the client have a realistic understanding of the inspection limitations prior to the inspection.*

*Examples of expected limitations include legal right of entry, locked doors, security system, pets, furniture and similar obstructions. While these are common and expected limitations, the inspector should not assume that the client is aware of the significance of the various factors, but rather should inform the client.*

*Examples of limitations that may not be expected at any particular inspection, but which are common, include access restrictions due to height or narrow boundary clearance, thick vegetation, small roof or crawl space and adverse weather conditions. It is not practicable for the inspector to anticipate and inform the client of all possible limitations that may be present when the inspector visits the property; however, the client should have an appreciation, during the agreement period, of the types of limitation that may occur.*

### 2.3.5 Extent of reporting

Significant items to be reported are as follows:

- (a) Major defects.
- (b) A general impression regarding the extent of minor defects.  
NOTE: For example, significantly deteriorating exterior paint.
- (c) Any major defect that is an urgent and serious safety hazard.  
NOTE: For example, unsafe balustrades or imminent collapse of a structural member.

**C2.3.5** *The definition of 'major defect' includes defects that have to be rectified to avoid the development of unsafe conditions, and thus any defect that is a safety hazard has to be reported as a major defect; however, if in the opinion of the inspector, a defect is a serious hazard to occupants or is about to become a serious hazard to occupants it is considered that the inspector has a professional duty to ensure that the report clearly identifies the hazard in such a manner that it is not easily overlooked by a reader of the report.*

### 2.3.6 Acceptance criteria

The building shall be compared with a building that was constructed in accordance with the generally accepted practice at the time of construction and which has been maintained such that there has been no significant loss of strength and serviceability.

**C2.3.6** *It is necessary that the inspector agree with the client the criteria against which the subject building will be assessed. In this Standard, the basis for comparison is a building of similar age and similar type to the subject building and which is in reasonable condition, having been adequately maintained over the life of the building. It follows that the subject building may not comply with Australian Standards, building regulations and the like that are applicable at the time of inspection.*

## SECTION 3 INSPECTION

### 3.1 GENERAL

Accessible areas shall be inspected in accordance with this Section.

### 3.2 AREAS TO BE INSPECTED

#### 3.2.1 General

The inspector shall inspect accessible parts of the building and appurtenances, together with relevant feature of the property within 30 m of the building and within the boundaries of the site, or as otherwise agreed in the inspection agreement. In this context, relevant features include car accommodation, detached laundry, ablution facilities and garden sheds, retaining walls more than 700 mm high, paths and driveways, steps, fencing, earth embankments, surface water drainage and stormwater run-off.

Inspection of Strata and Company Title residential property shall be limited to the nominated residence and does not include common property.

NOTE: Further information regarding inspection of Strata and Company Title residential property is given in Appendix B.

The following areas shall be inspected where applicable:

- (a) The interior of the building.
- (b) The roof space.
- (c) The exterior of the building.
- (d) The sub-floor space.
- (e) The roof exterior.
- (f) The property within 30 m of the building subject to inspection.

Building elements to be inspected in the nominated areas shall be in accordance with Appendix C.

NOTE: The inspection does not include all building services, furnishings, and the like, that may be present in the building. A representative list of exclusions to the inspection is provided in Appendix D.

#### 3.2.2 Safe and reasonable access

The extent of accessible areas shall be determined by the inspector at the time of inspection, based on the conditions encountered at the time of inspection. The inspector shall also determine whether sufficient space is available to allow safe access.

The inspection shall include only accessible areas and areas that are within the inspector's line of sight and close enough to enable reasonable appraisal. Reasonable access shall be determined in accordance with the provisions of Table 3.2.

The inspector shall inspect an elevated area only where—

- (a) it is at a height at which safe reasonable access is available, or where safe and reasonable access is otherwise available; or
- (b) an unobstructed line of sight is present from safe use of a 3.6 m ladder and the building elements present are close enough to allow appraisal.

NOTE: 'Elevated area' includes the roof, roof space, crawl space, landing feature, and the like, generally elevated above the ground and not intended for normal use by occupants.

**TABLE 3.2**  
**DIMENSIONS FOR REASONABLE ACCESS**

Area	Access hole mm	Crawl space mm	Height
Roof interior	400 × 500	600 × 600	Accessible from a 3.6 m ladder
Roof exterior	—	—	Accessible from a 3.6 m ladder placed on the ground

NOTES:

- 1 Reasonable access does not include the cutting of access holes or the removal of screws and bolts or any other fastenings or sealants to access covers.
- 2 Subfloor areas sprayed with chemicals should not be inspected unless it is safe to do so.

**TABLE C3.2** *A 3.6 m ladder is considered generally reasonable for safe use by one operator during an inspection. Regardless of the ladder length, weight and size, safe use of ladder or safe access may mean that inspection of a roof, elevated platform or roof space is not possible in part, or at all, during an inspection and, in such circumstances, an inspector may recommend the use of special access equipment and that a further inspection be undertaken when a safe method of access is present.*

### 3.3 DEFECTS

The inspector shall appraise building elements, including structural elements, for the presence of defects, as specified in Table 3.3.

**C3.3** *During an inspection the inspector should be alert to the possibility that a building element is defective but that the defect does not fall neatly into one of the categories of defect described in Table 3.3. In such a case the inspector should use a combination of defect properties or otherwise assess and describe the defect in his/her own words, based on his/her own experience.*

*In many cases, the actual structural elements of a building will be obscured by finishes and other non-structural building elements, and the inspector may be unable to assess directly the state of the structural member. In such cases, the inspector has to infer the performance of the structure by observing the effect of the structure on the non-structural building elements. For example, the inspector normally will be unable to inspect the footings of a house as they are buried beneath the ground; however, cracking in non-structural masonry walls above the ground may indicate that a defect exists within the footing system.*

**TABLE 3.3**  
**TYPES OF DEFECTS**

Type	Defect	Identifier
A	Damage	The fabric of the element has ruptured or is otherwise broken
B	Distortion Warping Twisting	An element or elements has been distorted or moved from the intended location
C	Water penetration Damp related	Moisture is present in unintended or unexpected locations
D	Material deterioration (rusting, rotting, corrosion, decay)	An element or component is subject to deterioration of material or materials
E	Operational	An element or component does not operate as intended.
F	Installations (including omissions)	The element or component is subject to improper or ineffective installation, inappropriate use, or missing components

NOTE: Guidance on inspection and reporting of cracking of building elements is given in Appendix E, which also provides information on types of defects and inspection considerations.

### 3.4 INSPECTION RECORDS

The inspector shall record the following information prior to, or during the course of, the inspection:

- (a) Identity of the inspector undertaking the inspection.
- (b) Identity of the client
- (c) The address of the property inspected.
- (d) Date of inspection.
- (e) Weather conditions at the time of the inspection.
- (f) Limitations of inspection with respect to accessible area.
- (g) Observation of defects

NOTE: The inspection records should be retained for a period of at least three years.

**C3.4** *It is considered necessary that the inspector record various data on site at the time of inspection, and that this record be retained by the inspector. This site record may or may not become part of the formal report provided to the client.*

*The purpose of this site record is to allow checking of the formal report in the event of discrepancies or other problems. The inspector is considered to be an expert practitioner within that field of practice and it is expected that such a practitioner will be able to demonstrate the basis for his/her conclusions in the event of problems. An appropriate site record made at the time of inspection is a suitable method of demonstrating such basis.*

## SECTION 4 THE REPORT

### 4.1 GENERAL

An inspection report shall be provided in writing or otherwise in a form that will enable the client to retain a permanent written record of the report.

NOTE: It is necessary to inspect each of the areas and items set out in Section 3; however, it is not necessary to report on each one. An inspector may choose to report only on an 'exceptions basis', i.e., listing only defects, rather than also reporting items that are in acceptable condition.

**C4.1** *The facts obtained from the inspection have to be clearly and comprehensively presented in the report. An evidence-based and objective approach should then be used to develop interpretations and conclusions given in the report.*

*The interpretations, conclusions and the inspector's opinion as to the overall condition of the property should be reasonably able to be checked by a suitably competent and experienced person who is external to the client-inspector relationship. Thus, the report should include sufficient data from the inspection and the conclusions should be derived by logical and rational examination of those data.*

*Due to the litigious nature of this industry, it is desirable for the benefit of both the client and the inspector that the report be clearly written.*

*Where reports involving standard clauses are used, for example 'check box format', care should be taken to ensure that sufficient and unambiguous detail, relevant to the particular inspection, is included.*

### 4.2 REPORT CONTENT

#### 4.2.1 General

The report shall include, but not be limited to, the elements listed in Clauses 4.2.2 to 4.2.8.

**C4.2** *The report should not contain any assessment or an opinion in relation to the following:*

- (a) *A matter that is not within the inspector's expertise.*
- (b) *A matter the inspection or assessment of which is solely regulated by statute.*
- (c) *Cost of rectification.*
- (d) *The assessment of any apparent defect including rising damp and leaks, the detection of which may be subject to prevailing weather conditions or recent occupancy/use of services.*

*In cases where services have not been used for some time prior to the inspection being carried out, such conditions may inhibit the detection of defects such as dampness caused by water leaks. For example, in the case of a shower enclosure, the absence of any dampness at the time of inspection does not necessarily mean that the enclosure will not leak.*

### 4.2.2 Administrative

The following shall be included:

- (a) The name, address and licence number or registration under State and Territory legislation, where applicable, of the inspector responsible for the inspection.
- (b) The name of the person who undertook the inspection.
- (c) Identity of the client.
- (d) The address of the property inspected.
- (e) Date of inspection.
- (f) Details of inspection agreement.

### 4.2.3 Inspection details

The following shall be included:

- (a) Prevailing conditions at the time of the inspection.
- (b) Description and identification of the property inspected.

### 4.2.4 Significant items

#### 4.2.4.1 Major defects

Any major defect observed shall be identified in the report. The location and description of each major defect, as specified in Table 3.3, shall be recorded in the report.

**C4.2.1** *Where a major defect is mentioned in the report, it should be clearly described, including a general statement as to any observed minor defects arising from that major defect, and an explanation given as to why it is a major defect, along with its specific location. This will allow the client and others, as necessary, to locate the major defect and its consequent minor defect, to be aware of the justification for it being reported as a major defect and to be able to estimate the extent of the repairs likely to be required.*

#### 4.2.4.2 Minor defects

The report shall describe the overall extent of minor defects. The inspector is not required to comment on individual minor defects and imperfections.

**C4.2.4.2** *Minor defects are common to most properties and may include minor blemishes, corrosion, cracking, weathering, general deterioration, unevenness, and physical damage to materials and finishes, such as de-silvering of mirrors. It is expected that defects of this type would be rectified as part of normal ongoing property maintenance.*

#### 4.2.4.3 Safety hazard

The report shall identify any observed item that may constitute a present or imminent serious safety hazard.

### 4.2.5 Limitations

The report shall identify any area or item within the scope of an inspection that was not inspected and the factor that prevented inspection.

NOTE: Areas where inspection was restricted (such as by insulation, airconditioning ducts or pipework) with recommendations to gain access where practicable and considered necessary, should be included in the report.

Identification of inaccessible areas (such as enclosed patios, concrete slab-on-ground floors, fireplace hearths, double brick cavity, roof space in low pitch or flat roofs), with recommendations to gain access where practicable and considered necessary, shall be included in the report.

#### 4.2.6 Recommendations for further inspection

Where applicable, the inspector shall include a recommendation for further inspection by a specialist inspector.

NOTE: In the inspection report, the inspector may recommend that a specialist inspector (for example, a pest consultant, an electrician, a plumber, a structural engineer, a geotechnical engineer, a fire-safety consultant, a surveyor) undertake further inspection of some specific aspect of the building.

#### 4.2.7 Conditions

A report may be conditional on the following:

- (a) Information provided by the person, the employees or agents of the person requesting the report.
- (b) Apparent concealment of possible defects.
- (c) Any other factor limiting the preparation of the report.

#### 4.2.8 Conclusion

The report shall give conclusions regarding the incidence of major defects and an opinion regarding the incidence of minor defects, relative to the average condition of similar buildings of approximately the same age that have been reasonably well maintained. The conclusion shall give comment on the overall condition of the property.

**C4.2.8** *Minor defects are common to most properties and may include minor blemishes, corrosion, cracking, weathering, general deterioration, unevenness, and physical damage to materials and finishes, such as de-silvering of mirrors. It is expected that defects of this type would be rectified as part of normal ongoing property maintenance.*

*It is neither intended nor expected that the report will include details of specific minor defects; however, a poorly maintained residence may have more numerous and extensive minor defects than a reasonably maintained property that is otherwise similar. It follows that it may be necessary for a purchaser to allocate substantial resources to return a poorly maintained property to a reasonable standard for occupancy. For this reason the Standard requires that the report include a general assessment of the general incidence of minor defects in the subject residence compared with otherwise similar properties.*

#### 4.2.9 Summary

A summary shall be included to provide an overview of the report, including the purpose of the inspection, the scope and the conclusion.



**APPENDIX A**  
**PRE-PURCHASE STRUCTURAL INSPECTION**  
(Normative)

**A1 GENERAL**

Where a pre-purchase inspection is limited to assessment of the structure of the property, the requirements of this Appendix shall apply in preference to the relevant requirements of Sections 2, 3 and 4. Where no requirements are stated in this Appendix, the relevant requirements of Sections 2, 3 and 4 shall apply.

**A2 PURPOSE OF INSPECTION**

The purpose of the inspection is to provide advice to a prospective purchaser or other interested party regarding the condition of the structure of the property.

**A3 SCOPE OF INSPECTION**

The inspection shall comprise visual assessment of accessible areas of the property to identify major defects to the building structure and to form an opinion regarding the general condition of the structure of the property.

NOTE: The structural report should not contain any assessment or an opinion regarding the following:

- (a) Any non-structural element, e.g., roof plumbing and roof covering, general gas, water and sanitary plumbing, electrical wiring, partition walls, cabinetry, windows, doors, trims, fencing, minor structures, non-structural damp issues, ceiling linings, floor coverings, decorative finishes such as plastering, painting, tiling, etc.
- (b) An assessment of any aspect or component of the property that cannot be seen or that requires testing and/or measurement to determine soundness.
- (c) Any area or item that was not, or could not be, observed by the inspector.
- (d) General maintenance other than that which is deemed to be directly related to the ongoing structural performance of the property.
- (e) Serviceability damp defects such as condensation, rising damp, lateral damp, falling damp should only be assessed and reported on where structural damage has occurred, is occurring, or may occur (e.g., fungal rot) significant spalling of masonry or concrete structural elements, significant fretting or mortar, rusting of primary structural elements. Stormwater drainage and surface water defects commonly cause or exacerbate foundation instability and these issues should be assessed and reported on where relevant.

**A4 DEFECTS**

The types of defect to be considered are as described in Section 3. The presence or otherwise of defects shall only be relevant when such defects relate to the structural condition of the building.



## APPENDIX B

### STRATA AND COMPANY TITLE PROPERTY INSPECTION

(Informative)

#### **B1 GENERAL**

Pre-purchase inspections on strata and company title buildings and similar forms of community title are subject to particular issues that can result in problems between the client and inspector.

Probably the most common problem is the failure of the client to appreciate the significance of the difference between individual and common property.

Sometimes, pre-purchase inspections are not requested because of an assumption that an examination of the strata records alone will adequately inform the purchaser of potential defects. Body corporate records will only disclose those defects that have been brought formally to the attention of the body corporate. The records will not necessarily reveal all the defects.

#### **B2 SCOPE OF INSPECTION**

With strata and company title properties, the inspection is limited to the interior and the immediate exterior of the particular residence to be inspected, as that is the extent of the individual property, and does not include review of body corporate or similar records.

An inspection of all strata and company title common property, including the interior of every unit, would need to be carried out to determine the extent of any defects in the whole of the common property. Where clear evidence of major defect is apparent during the inspection in accordance of this Standard, the inspector should advise the client to obtain an inspection of common areas.

#### **B3 LIABILITY FOR MAINTENANCE COST**

A prospective purchaser should be aware that their liability for the cost of repairing building defects is not restricted to the particular unit which they are proposing to purchase, but may include contribution to the whole of the common property. Thus, an inspection of the particular unit and its immediate surrounds may be of limited assistance to the prospective purchaser as an indicator of the total extent of their overall liability to contribute to the cost of repairs.

## APPENDIX C

## BUILDING ELEMENTS AND SERVICES TO BE INSPECTED

(Normative)

The inspector shall inspect all building elements. The building elements typically present in residential buildings are listed in Tables C1 to C6. Each item shall be visually inspected and limited testing of operation shall be undertaken as indicated.

NOTE: The list of items in Tables C1 to C6 is not exhaustive.

**TABLE C1**  
**INTERIOR OF THE BUILDING**

Inspection items/parts	Inspection areas (fields) of an item	Example and/or inspection consideration
Ceilings	Sagging Nails popping Defective lining Lath and plaster key damage Fibrous plaster scrimming/grouting/strapping Cracking Dampness and damp damage	
Walls	Bulging Nails popping Defective lining Cracking Dampness and damp damage Distortion, verticality Drummy plaster and render	
Timber floors	Damage Decay Out of level Dampness and damp damage Floor movement such as spring and bounce	
Concrete floors	Cracking Surface damage Out of level Dampness and damp damage	
Timber windows	Putty Broken or cracked glass Sash operation Sash fittings and hardware Water staining Decaying frames and sashes	
Metal-framed windows	Glazing seals Broken or cracked glass Sash operation Sash fittings and hardware Water staining and corrosion	

(continued)

**TABLE C1** *(continued)*

<b>Inspection items/parts</b>	<b>Inspection areas (fields) of an item</b>	<b>Example and/or inspection consideration</b>
Doors and frames	Binding doors Defective door hardware Corroded or decaying frames Damaged doors Loose or badly fitting doors	
Kitchen	Bench top	Lifting or delamination Damage Water damage
	Cupboards	Water damage Operation of doors and drawers
	Sink/taps	Chips, cracks, leaking, etc. Water supply to be turned on, and taps operated
	Tiles	Drummy Cracked Loose, missing Grouting and sealant
Bathroom, WC, ensuite	Cistern and pan	Cracking Leaking Installation and stability Water supply to be turned on and the cistern flushed
	Bidet	Cracking Leaking Installation and stability Water supply to be turned on, and the bidet flushed
	Taps	Leaking Water supply to be turned on and taps operated
	Tiles	Drummy Cracked Loose Grouting and sealant
	Bath	Damage Adequately sealed and properly recessed at the junction with wall
	Shower	Visual signs of leakage Screen Broken glass Water supply to be turned on and the shower operated
	Vanity	Damage Doors and drawers
	Washbasin	Damage Loose Waste/trap Water supply to be turned on and taps operated

*(continued)*

**TABLE C1** (*continued*)

Inspection items/parts	Inspection areas (fields) of an item	Example and/or inspection consideration
Laundry	Ventilation	
	Mirrors	Cracking Edging
	Taps	Operation Leaking Water hammer (water supply to be turned on and taps operated)
	Tubs/cabinet	Condition
	Tiles	Drummy Cracked Loose Grouting and sealant
Stairs	Ventilation	
	Stringer Handrails/balusters Newel posts Treads and risers	
All	Damp problems	Rising Falling Condensation Horizontally or laterally penetrating damp

**TABLE C2**  
**EXTERIOR OF THE BUILDING**

Inspection items/parts	Inspection areas (fields) of an item	Example and/or inspection consideration
Walls	Lintels	
	External cladding	Integrity Paint, protective coating Evidence of missing damp-proof course or flashing
	Doors and windows	Flashing Moulding Sills
Timber or steel frames and structures		
Chimneys		Verticality Flashing Brickwork deterioration
Stairs		Structure integrity, looseness Safety issues
Balconies, verandas, patios, decks, suspended concrete floors, balustrades		Structure integrity, looseness Safety issues

**TABLE C3**  
**ROOF EXTERIOR**

Inspection items/parts	Inspection areas (fields) of an item	Example and/or inspection consideration
Roof	Tiles Shingles and slates Sheet roofing Gables Roof flashing	Cracked and broken Loose, decay Rusting, nails popping
Skylights, vents and flues		Flashing
Valleys		Rust
Guttering		Rust
Downpipes		Rust
Eaves, fascias and barge		

**TABLE C4**  
**ROOF SPACE**

Inspection items/parts	Inspection areas (fields) of an item	Example and/or inspection consideration
Roof covering		
Roof framing		Physical damage, deterioration Inappropriate modification
Sarking		Integrity
Party walls		Integrity
Insulation		

**TABLE C5**  
**SUBFLOOR SPACE**

Inspection items/parts	Inspection areas (fields) of an item	Example and/or inspection consideration
Timber floor	Supports	Deflection of bearers or joists Cracking, spalling, rusting Termite caps
	Floor Ventilation, drainage, damp	Deterioration
Suspended concrete floors		Deterioration

**TABLE C6**  
**THE SITE**

Inspection items/parts	Inspection areas (fields) of an item	Example and/or inspection consideration
Car accommodation, detached laundry, ablution facilities and garden sheds	Appropriate areas as described above for primary residence	
Retaining walls	Retaining walls supporting other structures. Landscaping retaining walls more than 700 mm high	
Paths and driveways	Subsidence Integrity Trip hazard	
Steps	Subsidence Integrity Trip hazard	
Fencing	General fencing	Inappropriate loading
	Swimming pool fencing	Presence and integrity Self-closing and self-latching gate
Surface water	Drainage effectiveness	Ponding of water against structures

## APPENDIX D

### EXCLUSION OF ITEMS FROM INSPECTION

(Informative)

The inspector need not inspect or report on the following:

- (a) Footings below ground.
- (b) Concealed damp-proof course.
- (c) Electrical installations, operation of smoke detectors, light switches and fittings, TV, sound and communications and security systems.
- (d) Concealed plumbing.
- (e) Adequacy of roof drainage as installed.
- (f) Gas fittings and fixtures.
- (g) Airconditioning.
- (h) Automatic garage door mechanisms.
- (i) Swimming pools and associated filtration and similar equipment.
- (j) The operation of fireplaces and solid fuel heaters, including chimneys and flues.
- (k) Alarm systems.
- (l) Intercom systems.
- (m) Soft floor coverings.
- (n) Electrical appliances including dishwashers, incinerators, ovens, ducted vacuum systems.
- (o) Paint coatings, except external protective coatings.
- (p) Health hazards (e.g., allergies, soil toxicity, lead content, radon, presence of asbestos or urea formaldehyde).
- (q) Timber and metal framing sizes and adequacy.
- (r) Concealed tie-downs and bracing.
- (s) Timber pest activity.
- (t) Other mechanical or electrical equipment (such as gates, inclinators).
- (u) Soil conditions.
- (v) Control joints.
- (w) Sustainable development provisions.
- (x) Concealed framing-timbers or any areas concealed by wall linings/sidings.
- (y) Landscaping.
- (z) Rubbish.
- (aa) Floor cover.
- (bb) Furniture and accessories.
- (cc) Stored items.
- (dd) Insulation.

- (ee) Environmental matters (e.g., BASIX, water tanks, BCA Environmental Provisions).
- (ff) Energy efficiency.
- (gg) Lighting efficiency.



## APPENDIX E

### CRACKING OF BUILDING ELEMENTS

(Informative)

#### E1 GENERAL

Use of cracking of building elements as an indicator of structural performance can be problematic. Where cracking is present in a building element the inspector has to be alert to the possibility that the cracking may be the result of one or more of a range of factors and that the significance of the cracking may vary (see Paragraph E2).

#### E2 TYPES OF CRACKING DEFECT

##### E2.1 Determining defect

Cracking in a building element may constitute a defect in a variety of ways. In many cases a particular cracking occurrence may result in more than one type of defect. For example, a particular crack might at the same time be a structural defect, a serviceability defect and an appearance defect.

The inspector should determine whether the cracking constitutes a major or minor defect, based on the expected impact of the cracking.

##### E2.2 Appearance defect

Cracking of a building element is an appearance defect where in the opinion of the inspector the only present or expected consequence of the cracking is that the appearance of the element is blemished.

##### E2.3 Serviceability defect

Cracking of a building element is a serviceability defect where in the opinion of the inspector the present or expected consequence of the cracking is that the function of the building element is impaired.

Examples of serviceability defects resulting from cracking are as follows:

- (a) Windows or doors not opening and closing properly.
- (b) Water leakage occurring through a building element, which otherwise should not allow water entry.

##### E2.4 Structural defect

Cracking of a building element is a structural defect where in the opinion of the inspector the present or expected consequence of the cracking is that the structural performance of the building element is impaired, or where the cracking is the result of the structural behaviour of the building.

The criteria for determining whether cracking is a structural defect are not solely related to crack width. Cracks 0.1 mm wide may be a structural defect while cracks 5.0 mm wide may not be structural defects. Cracking in a structural element does not necessarily indicate a structural defect.

#### E3 CATEGORIZATION OF CRACKS IN MASONRY WALLS

Reporting of cracking in masonry walls should be in accordance with Table E1.

**TABLE E1**  
**CATEGORISATION OF CRACKING IN MASONRY**

Description of typical damage and required repair	Width limit	Damage category
Hairline cracks	$\leq 0.1$ mm	0
Fine cracks that do not need repair	$\leq 1.0$ mm	1
Cracks noticeable but easily filled Doors and windows stick slightly	$\leq 5.0$ mm	2
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Door and windows stick service pipes can fracture. Weather-tightness often impaired.	$> 5.0$ mm, $\leq 15.0$ mm (or a number of cracks 3.0 mm or more in one group)	3
Extensive repair work involving breaking out and replacing sections of walls, especially over doors and windows. Doorframes distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted.	$> 15.0$ mm, $\leq 25$ mm but also depends on number of cracks	4

APPENDIX F  
TYPES AND EXAMPLES OF DEFECTS  
(Informative)

Table F1 provides information on defects subsets and some examples of each type of defect.

TABLE F1

Type	Defect	Example of subsets	Example of defects
A	Damage	Integrity of the element compromised to the extent that collapse has occurred or is imminent. Damage to the extent that the element is unserviceable or may become so soon. Circumstances where the consequential damage is out of proportion to the initial factor.	Cracked power point in a wet area. Brick wall damaged to the extent that stability is impeded. Damaged support to a ceiling such that collapse is possible.
B	Distortion, warping, twisting	Distortion to the extent that the element is unserviceable or may become so soon. The ability of the property to resist weather has been compromised (e.g., wind). Integrity of the element compromised to the extent that collapse has occurred or is imminent.	Sagging roof to the extent that allows ingress of vermin or rain. Distortion reduces support for structural members. Cavity wall has distorted due to the failure of ties; retaining wall rotated. Deflection of a lintel to such an extent that joinery is jammed; footings sunk. Deflection of elements consistent with significant settlement of footings.
C	Water penetration— Damp related	Water penetration to the extent that the element is unserviceable or may become so soon. Moisture present to the extent that conditions are conducive to structural deterioration or unhealthy environment.	Leaking shower recess. Leaking roof flashings and joinery flashings causing water penetration into the building. Slab edge dampness; rising damp causing salt attack.
D	Material deterioration (rusting, rotting, corrosion, decay)	Material deterioration to the extent that the element is unserviceable or may become so soon. Integrity of the element compromised to the extent that collapse has occurred or is imminent. Material deterioration to the extent that conditions are conducive to structural deterioration or unhealthy environment.	Concrete cancer. Rusting of structural connections and members such that the strength of the member has been reduced. Severe delignification such that the strength of the member has been reduced. Decay in timber members. Generalized spalling of brickwork indicating poor material.
E	Operational	Operational deterioration to the extent that the element is unserviceable or may soon become so. Operational deterioration to the extent that conditions are conducive to structural deterioration or unhealthy or unsafe environment.	Water hammer. Water supply inadequate.
F	Installation (including omissions)	Installation deficiencies to the extent that the element is unserviceable or may soon become so. Installation deficiencies to the extent that conditions are conducive to structural deterioration or unhealthy or unsafe environment.	Absence of bracing in houses supported by poles. Meter boxes missing; handrails not properly connected on a balustrade. Tie-downs and structural connections missing. Fire-rated party walls missing where required. Missing ant caps.

## NOTES

## NOTES

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# New South Wales GUIDE TO STANDARDS AND TOLERANCES 2017

## **Disclaimer**

The content in this Guide is based on technical standards and industry tolerances that describe (or refer to) what is considered an acceptable standard of finished workmanship in home building construction.

Please note that this is a guide only and that all other documents prescribing statutory and contractual requirements, relevant to the state or territory legislation in which the work has been undertaken and the contract for the work, take precedence over this Guide.

Parties to a building project should agree on the standards they consider appropriate, and include comprehensive detail in the contract documents. The standards and tolerances in this Guide only apply to the work (and agreed variations) covered in the relevant home building contract. It should be noted that they may not apply to construction with second-hand or recycled materials and products. The use of these materials must be stated in the contract, and must be fit for purpose and suitable for the proposed use.

## **Acknowledgement**

The *New South Wales Guide to Standards and Tolerances 2017* was produced by New South Wales Fair Trading.

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# CONTENTS

A	Introduction	8
B	Authority of the Guide	9
C	The measurement of time	10
D	The measurement of tolerances	11
E	Inspecting surfaces from a normal viewing position	13
F	Remedial work	14
G	Responsibility to rectify	14
H	Renovations, alterations and extensions	15
I	Building maintenance – care of the building and site after completion	16
J	Australian Standards and other referenced material	16
K	Schedule of References used in this Guide	17
<b>1</b>	<b>SITEWORKS (PAVING AND LANDSCAPING)</b>	<b>18</b>
1.1	Cracking in concrete paving	18
1.2	Finish to external concrete paving	19
1.3	Surface drainage	19
<b>2</b>	<b>FOOTINGS, SLABS AND SETTING OUT</b>	<b>20</b>
2.1	Foundation and site drainage – maintenance after occupation	20
2.2	Footings and slabs	21
2.3	Setting out the site	21
2.4	External building dimensions	21
2.5	Measuring internal building dimensions	21
2.6	Building dimensions	22
2.7	Finished floor levels	22
2.8	Levelness of concrete floors	22
2.9	Dimensions of building elements	22
2.10	Cracks in concrete slabs	23
2.11	Finish to concrete slabs	23
2.12	Repairs to exposed concrete slabs	23
<b>3</b>	<b>MASONRY</b>	<b>24</b>
3.1	Masonry types	24
3.2	Damage to masonry walls	24
3.3	Movement; control joints in masonry walls	25
3.4	Masonry construction	25
3.5	Blending and matching of masonry – repair work	29
3.6	Blending and matching of masonry – new work	29

3.7	Masonry facing	30
3.8	Mortar for masonry	30
3.9	Voids and holes in mortar	30
3.10	Cracked masonry unit	30
3.11	Cleaning, mortar smears and stains	30
3.12	Masonry inside garages and similar spaces and under applied finishes	30
3.13	Vertical alignment of perpend joints	30
3.14	Horizontal alignment of bed joints	31
3.15	Base bed joint and base row of masonry	31
3.16	Masonry that overhangs concrete slabs	31
3.17	Damp proof courses	31
3.18	Raking of joints	31
3.19	Brick sills, sill tiles and shrinkage allowance for timber framing	31
3.20	Efflorescence	31
<b>4</b>	<b>FRAMING</b>	<b>33</b>
4.1	Verticality or plumbness of stumps or piles	33
4.2	Verticality or plumbness of steel and timber frames and exposed posts	33
4.3	Straightness of steel and timber frame surfaces	33
4.4	Packing under bearers	34
4.5	Timber shrinkage	34
4.6	Treads and risers in timber stairs	34
4.7	Fixing stud walls to concrete slabs	34
4.8	Bottom plates that overhang concrete slabs	35
<b>5</b>	<b>WALL CLADDING</b>	<b>36</b>
5.1	Leaks in wall cladding	36
5.2	Wall cladding	36
<b>6</b>	<b>ROOFING</b>	<b>37</b>
6.1	Leaks in roofing, flashings and accessories	37
6.2	Roof cladding	37
6.3	Roof tiles	37
6.4	Roof tile pointing	37
6.5	Overhang of roofing (tiles and sheet roofing)	38
6.6	Cutting of roof tiles	38
6.7	Valley gutter construction	38
6.8	Undulating tiled roof lines	38
6.9	Alignment of trusses	39
6.10	Verticality or plumbness of trusses	39

<b>7</b>	<b>PLUMBING</b>	<b>40</b>
7.1	Plumbing	40
7.2	Water hammer	40
7.3	Pipe penetrations through external walls and inside cupboards	40
7.4	Water supply fixtures	40
7.5	Water drainage from baths, basins, sinks, troughs or the like	40
<b>8</b>	<b>ROOF PLUMBING &amp; GUTTER SYSTEMS</b>	<b>41</b>
8.1	Positioning of gutters	41
8.2	Water retention in gutters	41
8.3	Joints in gutters	41
8.4	Fixing of gutters and downpipes	41
8.5	Flashings	41
8.6	Parapet flashings/cappings	41
<b>9</b>	<b>WINDOWS AND DOORS</b>	<b>45</b>
9.1	Installation of external windows and doors	45
9.2	Weather-tightness of windows, doors, and window and door frames	45
9.3	Door furniture	45
9.4	Internal door clearances	45
9.5	Distortion of doors	46
9.6	Sealing of door edges	46
9.7	Operation of windows and doors	46
9.8	Bowed window heads, sills and jambs	46
<b>10</b>	<b>PLASTERING AND RENDERING</b>	<b>47</b>
10.1	Verticality or plumbness of internal and external wall surfaces	47
10.2	Straightness of internal and external wall surfaces	47
10.3	Matching and repairing existing rendered surfaces	47
10.4	Cracking and other blemishes in rendered or hard plastered surfaces on a masonry substrate	48
10.5	Repairs to applied finishes	48
10.6	Movement; control joints – provision and cracking	48
10.7	Covering movement control joints and damp-proof courses	48
10.8	Cracking in applied finishes used over lightweight substrate	48
10.9	Rendered surfaces	48
10.10	Cracking in external mouldings	49
10.11	Plasterboard sheeting	49
10.12	Other sheeting systems	49
10.13	Level of finish for plasterboard	49
10.14	Cracking in plasterboard, hard plaster and other plaster elements	49
10.15	Cracking in cornices	50
10.16	Cracking at junctions of dissimilar materials	50

10.17	Straightness and alignment of plaster cornices	50
10.18	Peaking or jointing in plasterboard	50
10.19	Nail popping in surfaces	50
<b>11</b>	<b>INTERNAL FIXING</b>	<b>51</b>
11.1	Gaps associated with internal fixing	51
11.2	Joints in fixing of internal mouldings	51
11.3	Architrave quirks	51
11.4	Bench tops, cabinet doors and drawer fronts	51
11.5	Natural materials	51
11.6	Manufactured material	52
11.7	Rectification of defective natural materials and manufactured materials	52
11.8	Joints in timber, stone and laminated bench tops	52
11.9	Sealing around benches and items installed in benches	52
<b>12</b>	<b>FLOOR AND WALL TILING</b>	<b>53</b>
12.1	Floor and wall tiling	53
12.2	Floor and wall tiling where the builder supplies the tiles	53
12.3	Floor and wall tiling where the owner supplies the tiles for laying by the builder	53
12.4	Floor and wall tiles where the owner supplies and lays the tiles	53
12.5	Cracked, pitted, chipped, scratched or loose tiles	53
12.6	Grouting and joints	54
12.7	Flexible sealants to junctions	54
12.8	Uneven tiling	54
12.9	Lippage (stepping) between tiles	55
12.10	Movement joints	55
<b>13</b>	<b>PAINTING</b>	<b>56</b>
13.1	Standard of painting	56
13.2	Surface finish of paintwork	56
13.3	Nail and screw fixings	56
13.4	Natural characteristics and mechanical imperfections/damage	56
13.5	Paint durability	56
<b>14</b>	<b>WET AREAS, DECKS AND BALCONIES</b>	<b>57</b>
14.1	General	57
14.2	Wet areas	57
14.3	Shower recess and components	57
14.4	Leaks in waterproof decks and balconies	57
14.5	Waterproof decks and balconies substrate	58
14.6	Decks and balcony freeboard outside windows and doors	58

14.7	Ponding on waterproof decks and balconies	59
14.8	Calcification and efflorescence associated with decks and balconies	59
<b>15</b>	<b>FLOORS</b>	<b>60</b>
15.1	Timber flooring – shrinkage and swelling	60
15.2	Timber flooring generally	60
15.3	Gaps in exposed timber flooring	60
15.4	Joint swelling in timber, plywood and particleboard flooring	60
15.5	Nail popping in timber, plywood and particleboard floors	61
15.6	Squeaking floors	61
15.7	Springy floors	61
15.8	Levelness of timber floor	61
15.9	Splitting of timber decking	61
<b>16</b>	<b>ELECTRICAL</b>	<b>62</b>
16.1	Electrical	62
<b>17</b>	<b>POOLS AND SPAS</b>	<b>63</b>
17.1	Concrete pools and spas	63
17.2	Premoulded fibre-reinforced plastic pools and spas	63
17.3	Variations from documented dimensions in concrete pools and spas	63
17.4	Variations from documented datum in concrete pools and spas	63
<b>18</b>	<b>RESTUMPING</b>	<b>64</b>
18.1	Restumping	64
18.2	Consequential damage due to restumping	64
18.3	Floor levels after restumping	64
<b>19</b>	<b>GENERAL</b>	<b>65</b>
19.1	Appliances and fittings	65
19.2	Faults and damage to appliances and fittings	65
19.3	Condensation	65
19.4	Glazing	65
19.5	Lyctus borer	65
19.6	Termites	66
19.7	Termite damage	66
19.8	Cleaning	66
19.9	Maintenance in relation to the performance of building foundations/footings	66
19.10	Floor coverings	68
<b>APPENDIX A</b>		<b>69</b>
	Relevant legislation	69
	History of editions	69

Every year, thousands of homes are constructed or renovated in New South Wales. While most building projects are completed successfully, occasionally there may be concerns or unmet expectations that result in a dispute.

Most home building disputes arise because of disagreements between building owners and builders about the appropriate standards and quality of work. Although the minimum standards for some aspects of construction are regulated, many aspects are not.

Builders and building owners can help prevent disputes by agreeing on the standards and quality of workmanship appropriate for the project when they enter into the building contract, although they cannot apply standards lower than those regulated by the NSW Government. However, many home building contracts don't include an agreed scope of work and standards.

The *NSW Guide to Standards and Tolerances 2017* (the Guide) has been developed for builders and building owners to use as a convenient reference to the minimum technical standards and quality of work. The Guide provides references to relevant areas of legislation and provides guidance on areas of building standards that are not covered by legislation. Building work that does not meet the standards outlined in the Guide could be considered defective.

The Guide can be used to help resolve disputes about the quality and standards of work. However, it should be understood that this document is intended as a guide only, all other documents stating statutory and contractual requirements take precedence over this Guide.



Each Australian state and territory has legislated to empower the making of building standards and to control the key elements of a home building contract.

Regulated building standards are predominantly contained within the National Construction Code Series, Volumes 1 and 2, of the Building Code of Australia (BCA) which is adopted into law by regulation. In a hierarchy, the regulatory framework for building standards starts with the relevant Act of Parliament or Legislative Assembly, passes to regulations made under that Act, then to the BCA, to Australian Standards and other documents adopted by reference in the BCA.

**The *NSW Guide to Standards and Tolerances 2017* is only a guide and an advisory document. It is not a regulated standard and is not part of this hierarchy.**

Each state and territory has an Act to regulate the contents of a home building contract and the responsibilities of parties. These Acts also require compliance with regulated building standards and require buildings and their materials to be fit for their intended purposes.

This Guide can be used to determine whether or not an item is defective only where this cannot be done by reference to the contract documents, the relevant Australian Standards, the BCA or the relevant regulations. Where there is any contradiction or difference between the Guide and an Act, a regulation, the BCA or a building contract, all of these take precedence over the Guide. The Guide does not replace the requirements of these other documents.

Any reference throughout this document to the Building Code of Australia or BCA refers to the National Construction Code Series, Volumes 1 and 2, Building Code of Australia.

Some Australian Standards are referred to (whole or in part) in the BCA. The referenced parts of these Australian Standards take precedence over this Guide.

Fittings, equipment and some materials used in buildings are often supported by manufacturer's installation instructions. The manufacturer's installation instructions take precedence over this Guide.

## Application of the Guide

The Guide is intended to inform parties as to what is an acceptable standard of workmanship in home building work. It should be noted that builders, subsequent owners and those purchasing from owner-builders or developers can also use this Guide to resolve possible disputes, irrespective of whether or not they were a party to the original building contract.

This edition of the Guide is valid from 2017 and is applicable to home building contracts entered into from that date, or home building work that commences from that date (where there is no home building contract).

Any time period mentioned in the Guide is to be taken to start at the date of completion of the building work as it is legislated in NSW.

Generally, the date of completion is the day when the work carried out under the contract is completed in accordance with the terms of that contract, or the day the building owner is given the statutory certificate (ie. Interim Occupation Certificate, Occupation Certificate) that authorises the occupation or use of the building. A more precise definition of the date of completion should be given in the contract associated with the building work, ie. at completion of all contracted works the builder should issue the consumer (client) with a final invoice and a Practical Completion Certificate, which can also indicate the commencement of the 90 day maintenance period and the commencement of the statutory warranty period for the project.

The tolerances in this Guide apply up to and including the length over which each tolerance is stated to apply. It is not intended that tolerances will be interpolated or proportioned to the actual length of building element measured. For example, where the Guide specifies a 4 mm maximum deviation measured over a 2 m length of wall surface, the Guide means that the same 4 mm deviation is to be applied over a 1 m wall surface or a 500 mm wall surface.

The tolerance cannot be interpolated to mean a 2 mm deviation over a 1 m wall surface or 1 mm deviation over a 500 mm wall surface. Similarly, deviations over longer wall surfaces would be defects if the deviation exceeded 4 mm within any 2 m length of that surface.

Horizontal, vertical and diagonal surface tolerances are to be interpreted in the same way.

## Horizontal surfaces

- Deviations of a horizontal surface are to be measured from a datum nominated in the contract documents or inferred, if none is nominated.
- Where there is a nominated or inferred datum, the maximum deviation from that datum will not exceed the deviation stated in the Guide.
- Where no datum is nominated and a datum cannot be inferred, a datum level will be taken to be at the highest or lowest points in the building element, room or area being measured. Refer to diagram D(i). Horizontal flatness to be measured as shown in Diagrams D(ii) and (iii).

## Vertical surfaces

Deviations of a vertical surface from a true vertical plane are to be measured from a plumb line through a plan position or reference point nominated in the contract documents (or inferred, if none is nominated). The maximum deviation of a vertical surface from that plumb line will not exceed the deviation stated in the Guide. Refer to diagram D(iv).

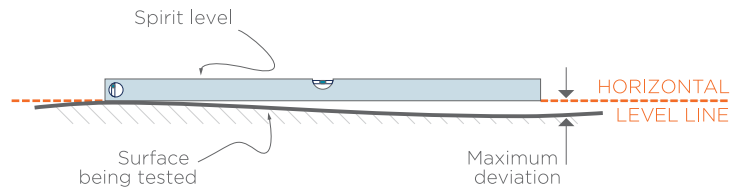
Vertical flatness to be measured as shown in Diagrams D(v) and (vi).

Where diagrams are provided for the clarification of details, the diagram shows only detail relevant to the issue and is not intended to be used as a general detail for construction.

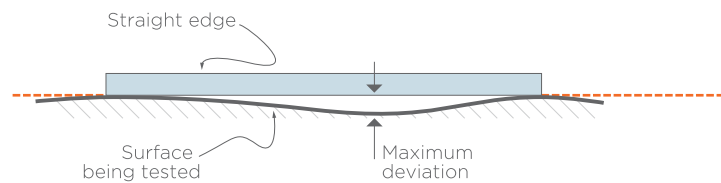
# THE MEASUREMENT OF TOLERANCES

## DIAGRAM D MEASUREMENT OF HORIZONTAL TOLERANCES

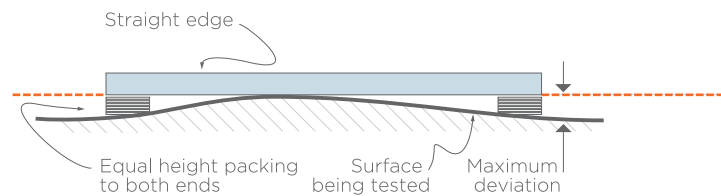
i) Measurement of deviation from horizontal/level



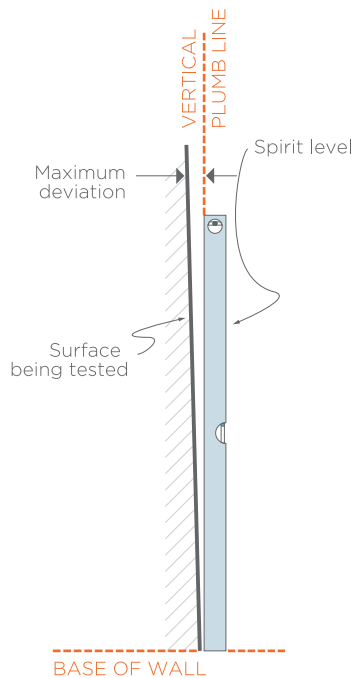
ii) Measurement of bow



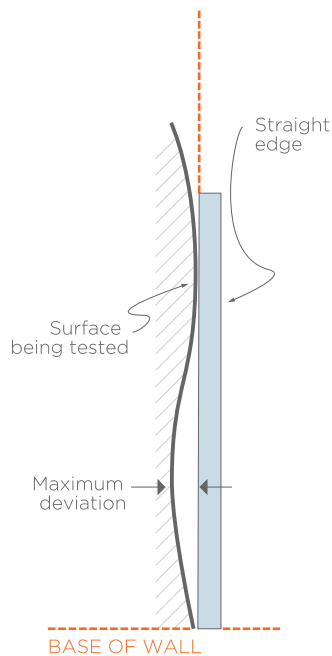
iii) Measurement of bow (horizontal flatness)



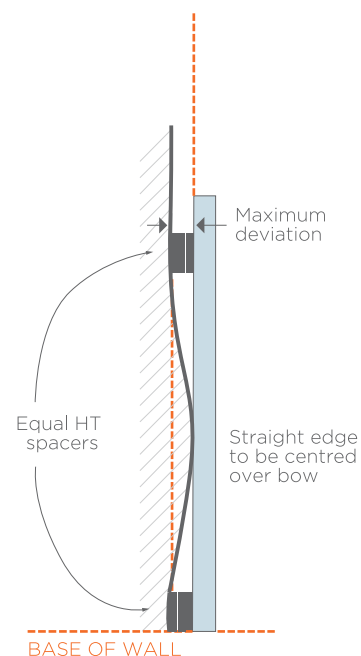
## DIAGRAM D MEASUREMENT OF VERTICAL AND INCLINED SURFACES



iv) Measurement of deviation from vertical/plumb



v) Measurement of bow (surface flatness)



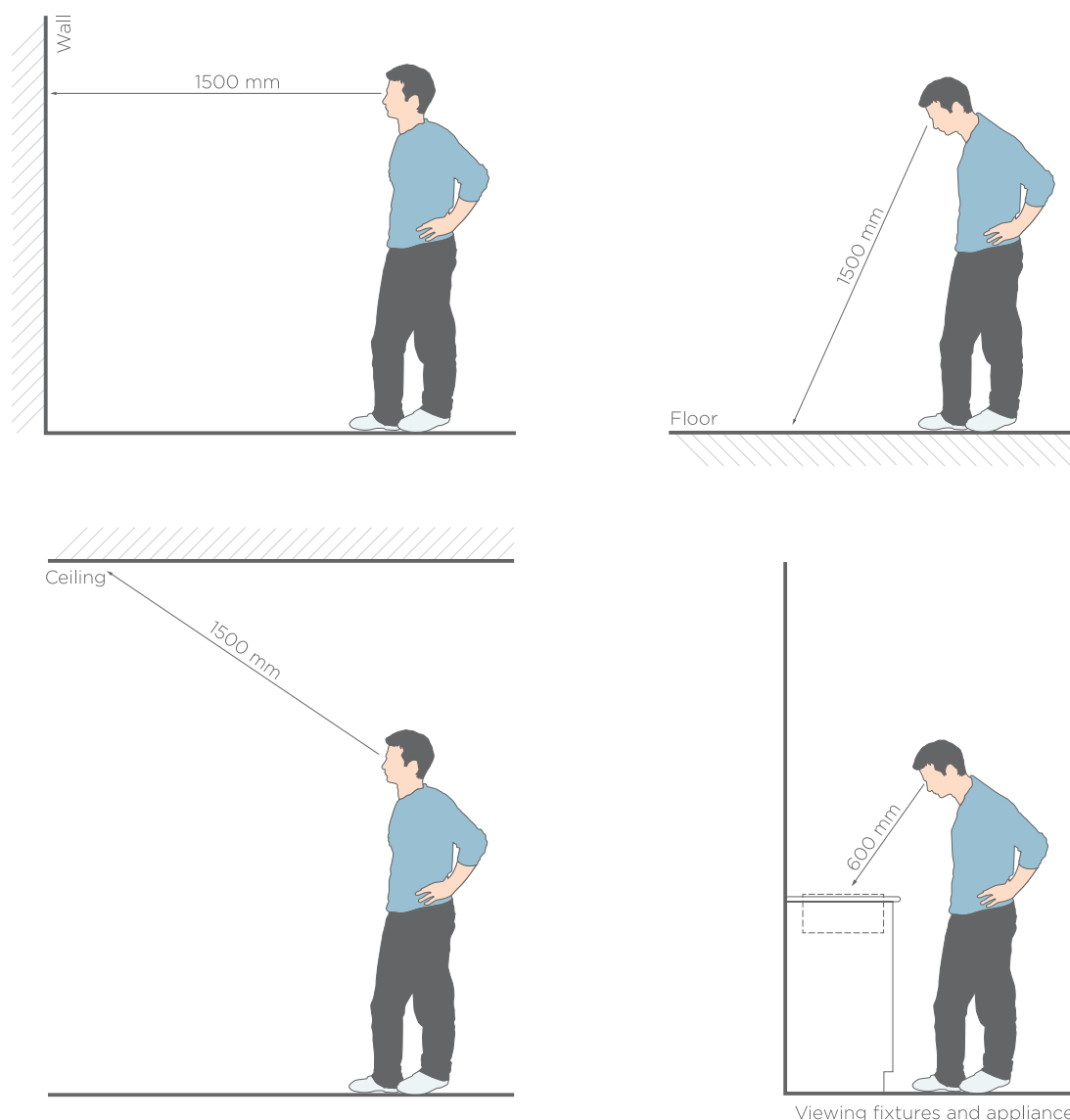
vi) Measurement of bow (surface flatness)

[BACK TO CONTENTS](#)

# INSPECTING SURFACES FROM A NORMAL VIEWING POSITION

Generally, variations in the surface colour, texture and finish of walls, ceilings, floors and roofs, and variations in glass and similar transparent materials are to be viewed where possible from a normal viewing position, defined as looking at a distance of 1.5 m or greater (600 mm for appliances and fixtures) with the surface or material being illuminated by 'non-critical light'<sup>1</sup>, which is the light that strikes the surface, is diffused and is not glancing or parallel to that surface.

**DIAGRAM E** NORMAL VIEWING POSITIONS



Slight variations in the colour and finish of materials do not always constitute a defect.

1 Non-critical light is defined in appendix B3 and D7 Australian Standard AS/NZS 2589. Refer also to CSIRO TR 90/1, Report No. L8 - 1992.

It is envisaged that work to rectify defects will be carried out to match as closely as practical the surrounding materials, finishes, levels and other characteristics of the existing area. Sometimes, exact matching may not be possible.

Structural rectification work may need to be designed by a structural engineer and inspected or certified by a building surveyor or certifier.

Some rectification work may need to be agreed by way of a contract variation and variation to a building permit or construction certificate before it is carried out.

A builder may not be liable to rectify building design and defects that do not arise from the builder's or the builder's sub-contractor's work and design. Builders do not have to rectify damage caused by the owner's actions or those of other people engaged by the owner. Builders may be liable to repair damage caused to property in the course of completing their building work.

Here are some examples:

- A builder is unlikely to have to repaint a poorly painted wall that was painted by the building owner.
- A builder is unlikely to have to repair a distorted gutter when the damage was caused by an owner placing a ladder against the gutter.
- A builder is unlikely to have to repair a stormwater drain that was properly constructed and later blocked by tree roots.
- A builder is likely to have to replace untreated pine in an external deck that was installed by the builder, instead of the durable timber required for this structure.
- A builder is likely to have to repair an existing window in a house that the builder accidentally damaged when constructing another part of the house.

Where there is subsequent damage to the building due to defective building work as a result of the:

- owner failing to keep the completed work reasonably maintained; or
  - unreasonable delay by the owner in notifying the builder of the defect,
- the builder may not be liable to rectify or compensate the owner.

Where reference is made in the Guide to the 'builder's workmanship', 'work of the builder' or the like, this includes work by contractors or sub-contractors engaged by the builder.

# RENOVATIONS, ALTERATIONS AND EXTENSIONS

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The standards and tolerances in this Guide only apply to the work covered in the relevant residential building contract that were current at the time of approval.

It is recommended that before starting new work, the builder informs the owner of any potential circumstances and conditions of the existing building that may have a detrimental effect on the standard of the new building work.

The builder and owner should agree as part of their residential building contract, or as a written variation to that contract, on the extent of any necessary rectification works that may be required to be carried out to the existing building before commencing that work.

# BUILDING MAINTENANCE – CARE OF THE BUILDING AND SITE AFTER COMPLETION

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Building maintenance is an ongoing responsibility for all building owners to ensure their building continues to perform as intended.

Owners should refer to the following within this Guide:

- Explanatory Note 2 at the start of Section 2 on page 20
- Clause 2.1 – Foundation and site drainage – maintenance after occupation
- Clause 19.9 – Maintenance in relation to the performance of building foundations / footings on page 68. Refer to diagram 19.09 on page 67.

# AUSTRALIAN STANDARDS AND OTHER REFERENCED MATERIAL

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Where this Guide refers to Australian Standards or other reference material, the edition referred to is the one that was current at the time the contract was signed. In many cases this will be a document referred to in the Building Code of Australia that was current at the time the application ‘for development consent’ was submitted.

Where a contract specifies an alternative reference to the ones listed over the page, that reference may be applicable to the work. However, this does not override any statutory obligations to comply with the building legislation.



# SCHEDULE OF REFERENCES USED IN THIS GUIDE

BCA <b>2016</b>	National Construction Code Series, Volumes 1, 2 & 3 Building Code of Australia (BCA)
AS 1684	Residential timber-framed construction
AS 1860.2	Particleboard flooring – Installation
AS 2047	Windows in buildings – Selection and installation
AS 2783	Use of reinforced concrete for small swimming pools
AS 2796.1	Timber – Hardwood – Sawn and milled products
AS 2870	Residential slabs and footings
AS 3958.1	Ceramic tiles – Part 1: Guide to the installation of ceramic tiles
AS 3958.2	Ceramic tiles – Part 2: Guide to the selection of a ceramic tiling system
AS 3660.2	Termite management – Part 2: In and around existing buildings and structures – Guidelines
AS 3700	Masonry structures
AS 3727	Guide to residential paving
AS 3740	Waterproofing of domestic wet areas
AS 4440	Installation of Nail-plated Timber Roof Trusses
AS 4654	Waterproofing membranes for external above-ground use
AS 4773.2	Masonry in small buildings – Construction
AS/NZS 1839	Swimming pools – Premoulded fibre-reinforced plastics – Installation
AS/NZS 2311	Guide to the painting of buildings
AS/NZS 2589	Gypsum linings – Application and finishing
AS/NZS 3500.3	Plumbing and drainage – Part 3: Stormwater drainage
AS/NZS 4386.1	Domestic kitchen assemblies – Kitchen units
CSIRO document BTF17-2011	Building Technology File 17 – Plant roots in drains – Prevention and cure
CSIRO document BTF18-2011	Building Technology File 18-2011 – Foundation maintenance and footing performance: A homeowner's guide
CSIRO document BTF19-2011	Building Technology File 19 – A builder's guide to preventing damage to dwellings: Part 1 – Site investigation and preparation
CSIRO document BTF22-2008	Building Technology File 22 – A builder's guide to preventing damage to dwellings: Part 2 – Sound construction method
CSIRO TR 90/1, Report No. L8-1992	CSIRO Division of Building Research Report No TR 90/1 : Illumination and decoration of flat surfaces – 5th Edition (Revised)
ABCB Handbook	Condensation in Buildings (2014) <a href="http://www.abcb.gov.au/en/education-events-resources/publications/abcb-handbooks.aspx">www.abcb.gov.au/en/education-events-resources/publications/abcb-handbooks.aspx</a>

## Note

1. All referenced Australian Standards and guides need to be the version that was applicable at the time of building approvals. The change in offset is then measured relative to this straight edge, which is not necessarily horizontal.

## 1 Siteworks (paving and landscaping)

### 1.1 Cracking in concrete paving

Cracking in concrete is common and is not always attributable to unsatisfactory workmanship. Common causes of cracking include shrinkage stress, stress due to trees, commercial or heavy vehicle traffic, soil movement due to changes in the moisture content as a result of garden watering or drainage problems.

Cracking not attributable to the workmanship of the builder (e.g. trees planted too close to paving, commercial or heavy duty vehicle traffic use of sprinkler system, etc.) is not a defect.

Cracking in concrete verandahs, garages, carports, paving, patios, driveways, etc. where the builder did not make appropriate allowances for shrinkage or general movement of the concrete (e.g. slip joints where required around penetrations such as verandah posts, pipes etc.) is defective where the limits in the table below are exceeded.

**TABLE 1.01** CRACKS IN CONCRETE PAVING

Condition	Measure	Limit
Cracking	Crack width	≤ 1.5mm
Subsidence	Heave or slump under 3 m long straight edge (See Note 1 below)	≤ 15mm
Stepping	Relative surface level of adjacent paving elements within the expanse of the main pavement	≤ 5mm

*Taken from: AS 3727 - Guide to residential pavements, Table: 1 Performance criteria. Reproduced with permission from SAI Global Ltd under Licence 1407-c122.*

#### Notes to Table 1.01

1. The straight edge is centred over the defect and supported at its ends by equal height spacers. The heave or slump is then measured relative to this straight edge.
2. The stepping criteria apply only to steps within the surface of the main pavement, not where the main pavement abuts other structures such as edging, drainage pits, service pits, minor pavements (such as a pathway adjacent to a driveway) and pavements constructed with materials of a different type.
3. The performance criteria in Table 1.01 apply within the first 12 months after construction of the pavement.
4. The builder may be responsible for works after 12 months if not constructed in accordance with the standard (AS3727).
5. The 12 month period has been adopted as being long enough for a pavement to be subjected to in-service conditions and prior to undue influence of changing environmental conditions, such as the effect of tree roots.

## 1.2 **Finish to external concrete paving**

Concrete paving is defective if it is not consistent in colour, texture and general appearance. Minor variations in finish may occur and may not be considered to be defective.

## 1.3 **Surface drainage**

The paving/landscaping should direct surface water away from the building.

Surface water drainage is defective if it is not in accordance with the requirements of the Building Code of Australia.

## 2 Footings, slabs and setting out

### EXPLANATORY NOTE 2:

#### Footing systems and movement

Footing systems for residential buildings (new buildings or extensions) are designed and constructed according to the building legislation, site-specific soil classification, site conditions and requirements of the development; and can be adversely affected by many factors.

A footing system designed within these parameters is expected to move within acceptable limits to cope with the site-specific conditions, which may result in minor distress to the building, including cracking and gaps to the floors, walls and ceiling.

Therefore, distress can only be apportioned to the builder when it exceeds the tolerances specified in this Guide as a result of the builder's workmanship.

Abnormal moisture conditions causing building distress may be the result of many contributing factors, including:

- landscaping and tree types and proximity
- excessive and localised watering of gardens
- poor building/site maintenance
- water leaks (gutters, pipes and appliances)
- adverse effects from adjoining properties.

Causes of building distress are often difficult to identify and explain, and sometimes it is difficult to identify the responsible party or parties.

Further information on foundation systems and movement can be found in the following reference material:

- CSIRO Document – Building Technology File 17 – Plant roots in drains – Prevention and cure
- CSIRO Document – Building Technology File 18-2011 – Foundation maintenance and footing performance: A homeowner's guide
- CSIRO Document – Building Technology File 19 – A builder's guide to preventing damage to dwellings: Part 1 – Site investigation and preparation
- CSIRO Document – Building Technology File 22 – A builder's guide to preventing damage to dwellings – Part 2 – Sound construction method
- Australian Standard 2870-2011: Residential slabs and footings.

## 2.1 Foundation and site drainage – maintenance after occupation

The builder is not responsible for foundation movement caused by activities that were not documented at the time of entering into the contract or as variation to that contract, or that are undertaken by the owner. These include paving, landscaping, planting trees and drainage works after the site is handed over to the owner.

The builder is not responsible for foundation movement caused by the owner's failure to maintain drainage systems after the site is handed over to the owner.

Refer also to Item K of this Guide.

## 2.2 Footings and slabs

Slabs and footings are defective if they fail because they are not designed and constructed in accordance with the Building Code of Australia or AS 2870.

Slabs and footings are defective where foundation movement is caused by factors that were present during construction (e.g. poor founding material, excessive wetting and drying of site, number, type proximity and maturity of trees/shrubs or lack of site drainage). Slab and footing movement should be assessed in accordance with Table 2.10 and Table 3.02 of this Guide.

## 2.3 Setting out the site

A building set out is defective where it fails to comply with the requirements of the approved drawings, the allotment Certificate of Title, planning or development approval, relevant planning overlays and schemes and building regulations.

A builder must ensure that footings, gutters and any other part of the building work does not encroach an allotment boundary unless authorised or approved to do so.

## 2.4 External building dimensions

Departures from documented external dimensions of buildings are defects if they exceed  $L/200$  where  $L$  is the documented overall length of wall, or 5 mm, whichever is the greater.

## 2.5 Measuring internal building dimensions

Unless shown otherwise, dimensions shown on drawings for internal walls always refer to the structure's dimensions. Structure means masonry and timber framing, not including finishes such as plasterboard, render and skirting. Internal room sizes will be different when thicknesses of internal finish materials are taken into account.

## 2.6 Building dimensions

Departures from the documented set out for service rooms such as bathrooms, toilets, laundries, kitchens etc. are defects if they exceed  $L/200$  or 5 mm, whichever is the greater, where L is the documented dimension.

Departures from the documented set out for habitable rooms and areas, such as bedrooms, dining rooms, lounge and living rooms, family rooms, studies, halls, entries and stairways are defects if they exceed  $L/100$  or 5 mm, whichever is the greater, where L is the documented dimension.

Departures from documented set out for external elements such as garages, carports, verandahs, decks, patios, etc. are defects if they exceed  $L/100$  or 5 mm, whichever is the greater, where L is the documented dimension. Masonry work shall comply with Table 3.04.

The set out is defective where a specific fixture or feature is required to be accommodated, and such documented dimensions to accommodate that fixture or feature are not provided.

Ceiling heights shall be in accordance with the requirements of the Building Code of Australia, unless a greater height is specified in the contract.

## 2.7 Finished floor levels

Finished floor levels (FFL) or reduced levels (RL) are defective where they do not comply with specified planning and/or building permit requirements. In other cases, FFL or RL are defective where:

- they depart from the documented FFL or RL by more than 40 mm; or
  - floors are documented to be on the same plane but are constructed on different planes;
- or
- the building work is an extension or addition and new floor levels do not match the existing building floor levels.

## 2.8 Levelness of concrete floors

Except where documented otherwise, new floors are defective if, within the first 24 months of handover they differ in level by more than 10 mm in any room or area, or more than 4 mm in any 2 m length. The overall deviation of floor level to the entire building footprint shall not exceed 20 mm. Refer to Item I of this Guide where the new floor is to abut an existing floor.

## 2.9 Dimensions of building elements

Deviations from the documented height or cross-sectional dimension of building elements such as beams and posts are defective if they exceed  $L/200$  where L is the documented dimension or 5 mm, whichever is the greater.

## 2.10 Cracks in concrete slabs

Refer to Table 2.10 for descriptions of categories of cracks.

Cracks to slabs are defective where they are Category 3 and 4 in Table 2.10 below:

Category 1 and 2 cracks to slabs are to be monitored for a period of 12 months.

At the end of the monitoring period, cracks are defective if they are Category 3 or 4 and attributed to the actions of the builder.

**TABLE 2.10** CLASSIFICATION OF DAMAGE TO CONCRETE FLOORS

Description of typical damage	Approximate crack width limit in floor	Change in offset from 3 m straight edge placed over defect	Damage category
Hairline cracks, insignificant movement of slab from level.	< 0.3 mm	< 8 mm	0 Negligible
Fine but noticeable cracks, slab reasonably level.	< 1.0 mm	< 10 mm	1 Very slight
Distinct cracks. Slab noticeably curved or changed in level.	< 2.0 mm	< 15 mm	2 Slight
Wide cracks. Obvious curvature or change in level.	2 mm to 4 mm	15 mm to 25 mm	3 Moderate
Gaps in slab. Disturbing curvature or change in level.	4 mm to 10 mm	> 25 mm	4 Severe

*Taken from AS 2870: Residential slabs and footings – Construction, Table C2: Classification of damage*

### Notes to Table 2.10

1. The straight edge is centred where possible over the defect, and supported at its ends by equal height spacers. The change in offset is then measured relative to this straight edge, which is not necessarily horizontal.
2. Local deviation of slope, from the horizontal or vertical, of more than 1:100 will normally be clearly visible. Overall deviations in excess of 1:150 are undesirable.
3. Account should be taken of the past history of damage in order to assess whether it is stable or likely to increase.

## 2.11 Finish to concrete slabs

The finish to a concrete slab is defective if it is not suitable for the documented applied finishes such as tiles, polished concrete, carpet or sheet flooring, including set downs where required.

## 2.12 Repairs to exposed concrete slabs

Repairs, where failure has been due to cracking and/or movement, may involve the removal of the affected area. The repair is defective if it does not, as closely as practicable, match the existing work in appearance, colour and texture. Minor variations in finish may not be considered to be defective.

## 3 Masonry

### 3.1 Masonry types

This section includes tolerances for generally-used types of masonry, including:

- a. clay and concrete brick construction
- b. clay and concrete brick veneer construction
- c. concrete block construction.

The tolerances for the above may not always be appropriate for some types of masonry construction, such as pre-fabricated masonry panels, aerated concrete blocks, irregular cut stone, rustic finish masonry with irregular edges and appearance, etc. In these cases the manufacturer's advice must be obtained.

### 3.2 Damage to masonry walls

Refer to Table 3.02 for descriptions of categories of damage.

Category 3 or greater damage to walls is defective and requires investigation, stabilisation, monitoring and rectification work, which may include breaking out and replacing sections of the wall.

Category 2 cracks to walls are to be monitored for a period of 12 months. At the end of the monitoring period, a crack rated at Category 2 or above is defective and requires rectification. Category 2 damage may be defective and requires minor repair work such as repointing.

**TABLE 3.02** DAMAGE TO WALLS CAUSED BY MOVEMENT OF SLABS AND FOOTINGS AND OTHER CAUSES

Description of typical damage and required repair	Crack width limit	Damage Category
Hairline cracks	< 0.1 mm	0 Negligible
Fine cracks that do not need repair	< 1 mm	1 Very slight
Cracks noticeable but easily filled. Doors and windows stick slightly	< 5 mm	2 Slight
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weather tightness often impaired	5 mm to 15 mm (or a number of cracks 3 mm or more in one group)	3 Moderate
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and doorframes distort. Walls lean or bulge noticeably. Some loss of bearing in beams. Service pipes disrupted	15 mm to 25 mm but also depends on number of cracks	4 Severe

*Taken from AS 2870: Residential slabs and footings – Construction, Table C1: Classification of damage with reference to walls. Reproduced with permission from SAI Global Ltd under Licence 1407-c122.*



#### Notes to Table 3.02

1. Where the cracking occurs in easily repaired plasterboard or similar clad-framed partitions, the crack width limits may be increased by 50 per cent for each damage category.
2. Crack width is the main factor by which damage to walls is categorised. The width may be supplemented by other factors, including serviceability, in assessing category of damage.
3. In assessing the degree of damage, account shall be taken of the location in the building or structure where it occurs, and also of the function of the building or structure.

### 3.3 Movement; control joints in masonry walls

Where required, control joints are defective if not installed as required by the Building Code of Australia or in accordance with the contract documents.

Control joints are defective if they do not extend through the full thickness of masonry skin. Where required, control joints are defective if they are not sealed in accordance with AS 3700.

Unless documented otherwise, flexible mastic or sealant is defective if it does not match as close as practicable the colour of the adjacent surface, and has not been applied in accordance with the manufacturer's installation instructions.

### 3.4 Masonry construction

Masonry is defective if it exceeds the tolerances set out in Table 3.04.

**TABLE 3.04** TOLERANCES IN MASONRY CONSTRUCTION

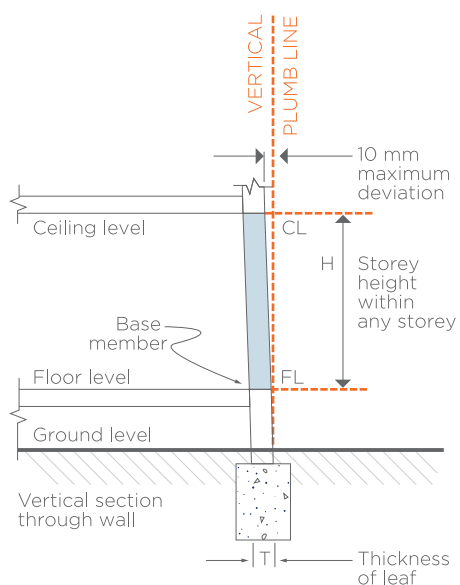
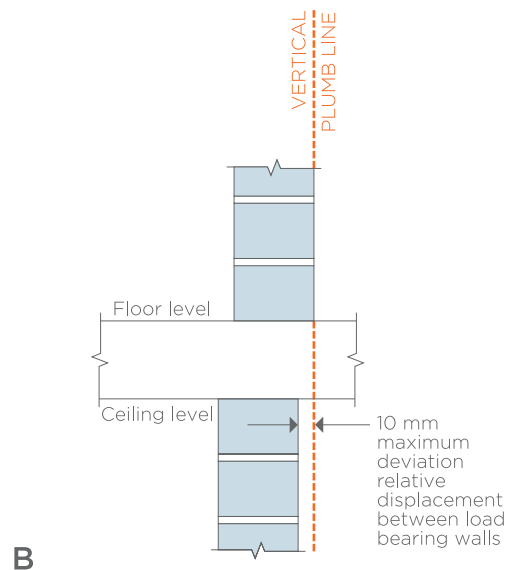
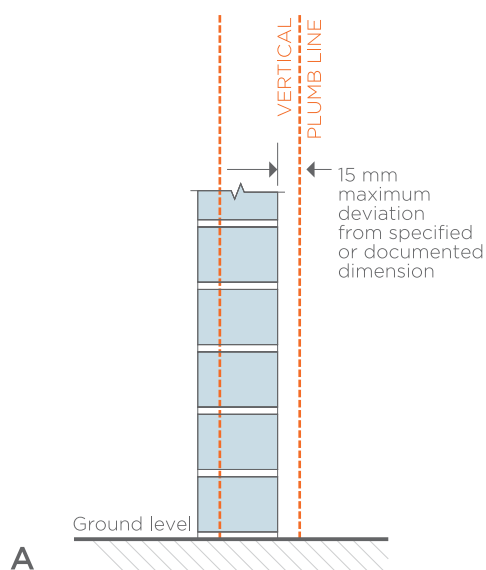
Item	Column 1 (Structural tolerance)	Column 2 (Non-structural tolerance)	Reference
<b>A</b> Horizontal position of any masonry element documented or shown in plan at its base or at each storey level	15 mm	15 mm	Diagram 3.04(A) Do not exceed set out tolerances in clause 2.03
<b>B</b> Relative displacement between loadbearing walls in adjacent stories intended to be in vertical alignment	10 mm	10 mm	Diagram 3.04(B)
<b>C</b> Maximum deviation from plumb within a storey from a vertical line through the base of the member	The lesser of 10 mm per 3 m of height or 0.05 times the thickness of the leaf	10 mm	Diagram 3.04(C)
<b>D</b> Maximum deviation from plumb in total height of the building (from the base)	25 mm	25 mm	Diagram 3.04(D)
<b>E</b> Maximum horizontal or vertical deviation of a surface from a plane surface (bow) in any 2 m length	5 mm	3 mm	Diagram E(ii) and E(v) From page 13
<b>F</b> Deviation (step) of any exposed masonry surface from any adjacent exposed masonry surface. The bow provision of Item E above also applies	Not applicable	2 mm	Diagram 3.04(D)
<b>G</b> Deviation of bed joint from horizontal, or from the level documented or shown in elevation	10 mm in any 10 m length, 15 mm in total	10 mm in any 10 m length, 15 mm in total	Diagram 3.04(G)
<b>H</b> Deviation from documented thickness of bed joint	3 mm	3 mm	Diagram 3.04(H)
<b>I</b> Minimum perpend thickness	5 mm	5 mm	Diagram 3.04(I,J)
<b>J</b> Deviation from documented thickness of perpend	10 mm maximum	5 mm	Diagram 3.04(I,J)
<b>K</b> Maximum difference in perpend thickness in any wall	No limit	8 mm	Diagram 3.04(I,J)
<b>L</b> Deviation from documented width of cavity minimum width as required by the Building Code of Australia	15 mm	15 mm	Diagram 3.04(L)

*Taken from AS 3700 – Masonry structures, Table 12.1: Tolerances in masonry construction. Reproduced with permission from SAI Global Ltd under Licence 1407-c122.*

#### Notes to Table 3.04

1. Items H, I, J and K are not applicable to thin-bed mortar joints.
2. Items I and J tolerances are not applicable when perpend joints are not filled with mortar as is the case with some horizontally cored masonry that is not required to resist horizontal bending.
3. Items E, F and I only apply to the true, fair or finish face of single skin masonry.
4. For structural tolerances in masonry refer to the Building Code of Australia.
5. The tolerances within the table apply to each separate masonry panel face.
6. The nominal size of mortar joints is to be 10 mm unless specified otherwise.

## DIAGRAMS FOR TABLE 3.04 TOLERANCES IN MASONRY CONSTRUCTION



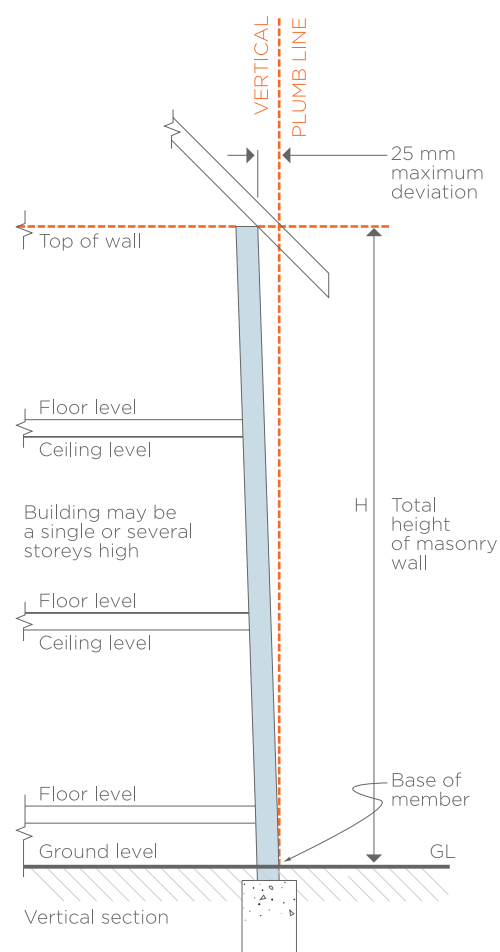
Formula:  
Maximum deviation from plumb within any storey

Structural lesser of  $\pm \left( \frac{10H}{3} \right)$  or  $30.05T$

H measured in m  
T measured in mm

For example if a storey height,  
H= 4000 mm and leaf thickness,  
T= 190 mm. Tolerance is the lesser of  
 $10 \times 4.0 \div 3 = 13.3$  mm or  $0.05 \times 190 = 9.5$  mm  
ie, 9.5 mm

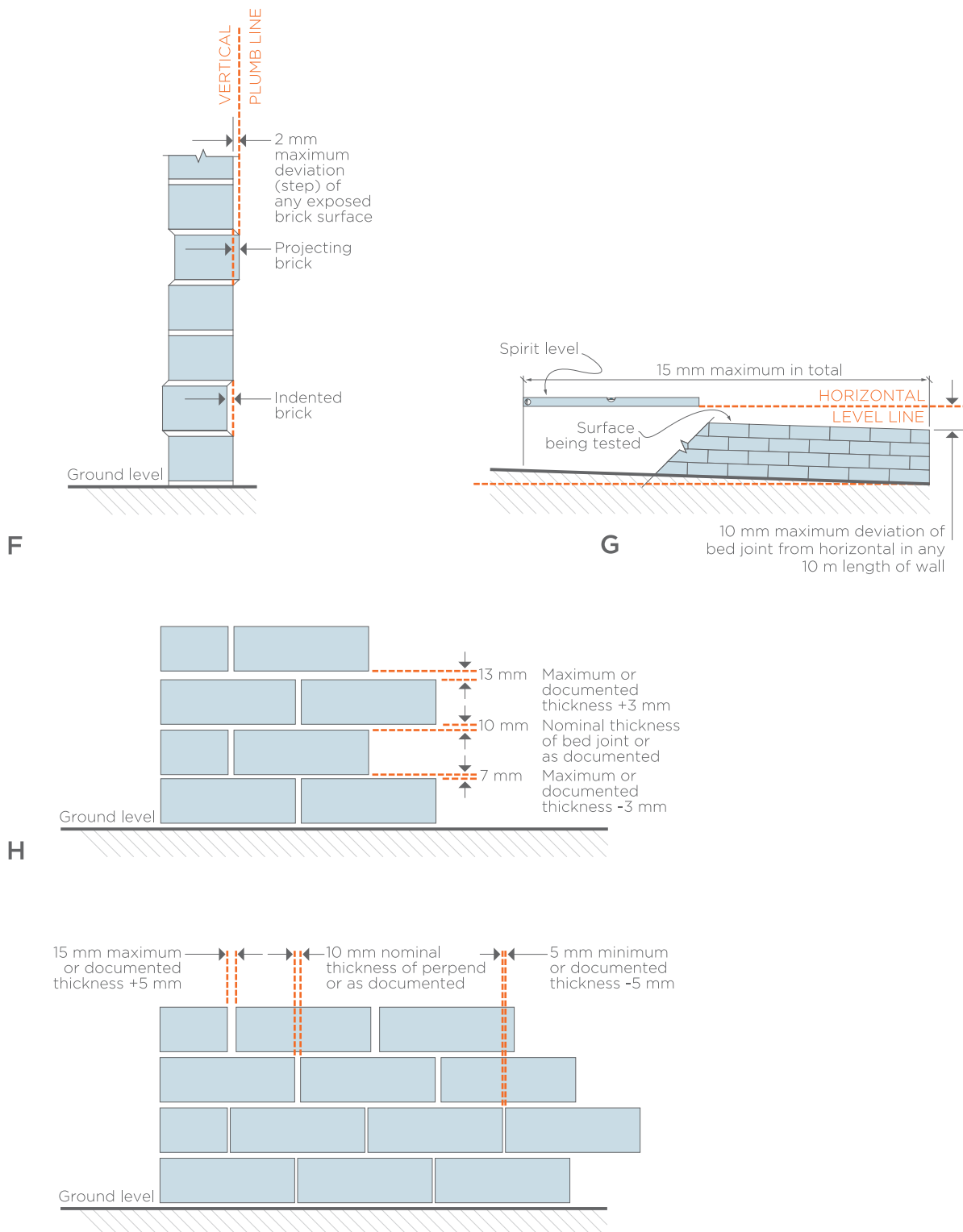
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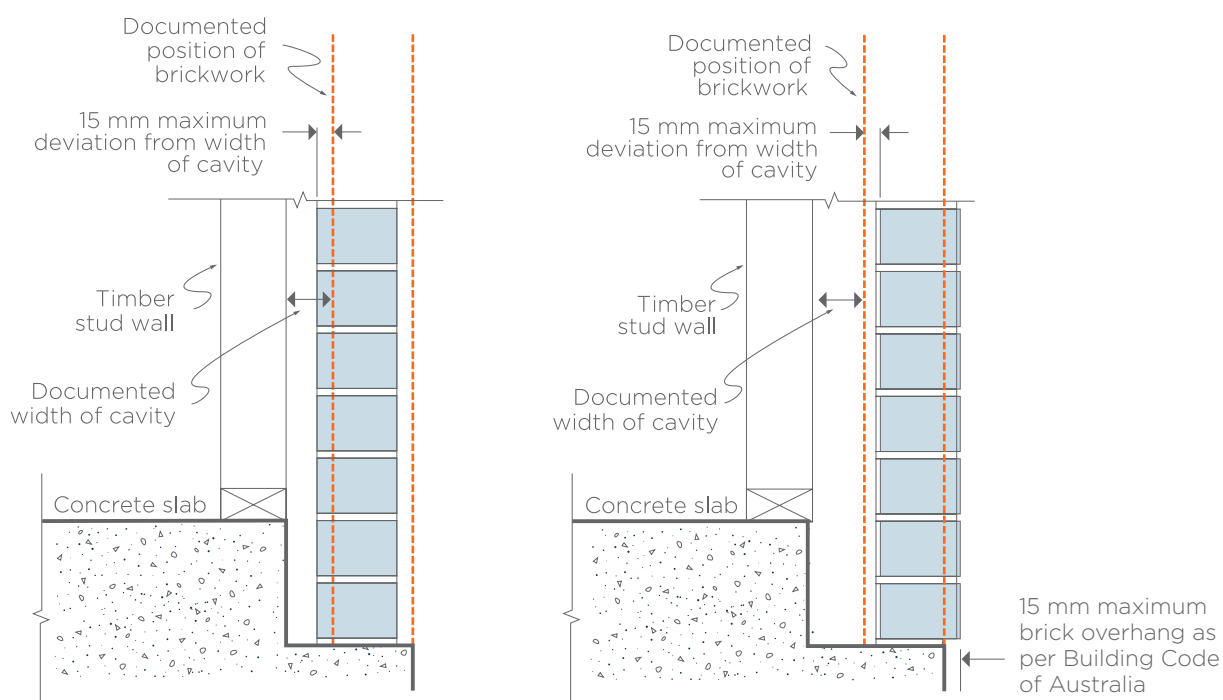
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[BACK TO CONTENTS](#)

## DIAGRAMS FOR TABLE 3.04 TOLERANCES IN MASONRY CONSTRUCTION



**I, J** Note: Table 3.04 (K) provides that maximum difference in width of perpend in any wall must not exceed 8 mm.

**DIAGRAMS FOR TABLE 3.04 TOLERANCES IN MASONRY CONSTRUCTION**

**L** Note: Refer to the Building Code of Australia for minimum cavity width.

### 3.5 Blending and matching of masonry – repair work

If matching masonry in alteration and repair work is not reasonably possible, builders should use a practical approach and where possible a physical joint, door, window, downpipes or other similar separating materials should be incorporated to 'break' the visual impact.

Mortar repairs are defective if they do not match the existing mortar as closely as practicable. A perfect colour match may not be possible and differences may diminish over time.

Some variation of masonry features such as colour, texture and pattern are to be expected between batches.

### 3.6 Blending and matching of masonry – new work

To avoid inconsistency in appearance, where practicable, masonry units for the building should be obtained from the same batch.

Masonry areas that vary in colour are defective if the units are not mixed and/or distributed in accordance with the manufacturer's installation instructions.

Display panels and display homes may be taken as representative of the range of variations to be expected.

### 3.7 Masonry facing

Unless documented otherwise, masonry is defective if it is not laid true or with finish face outwards.

Unless documented otherwise, masonry faces are defective if they are not cleaned and free of excess mortar.

### 3.8 Mortar for masonry

Mortar is defective if it is not in accordance with the requirements of the Building Code of Australia or the contract specifications.

### 3.9 Voids and holes in mortar

Voids and holes in mortar in masonry walls, with the exception of weepholes and vents, are defective if they are visible from normal viewing position, which is 1.5 metres.

### 3.10 Cracked masonry unit

It is characteristic of some masonry units to have surface cracks or crazing as part of the manufacturing process. These are not defective unless they result in the complete fracture of the unit.

Masonry units that are damaged, cracked or otherwise visually inconsistent with the overall characteristics of the masonry units are defective.

### 3.11 Cleaning, mortar smears and stains

Stains, mortar smears and damage caused by cleaning are defective if they are visible from a normal viewing position.

### 3.12 Masonry inside garages and similar spaces and under applied finishes

Structural masonry that is visible inside a garage or similar space or through an applied finish is defective if it does not comply with the tolerances in column 1 of Table 3.04. However, these tolerances do not apply to the non-face side of single skin masonry.

Non-structural masonry that is visible inside a garage or similar space or through an applied finish is defective if it does not comply with the tolerances in column 2 of Table 3.04. However, these tolerances do not apply to the non-face side of single skin masonry.

When there is an applied finish such as render, where the joints are not intended to be visible, masonry need not be saw cut and  $\frac{1}{4}$  or  $\frac{3}{4}$  units may be used in lieu of full masonry units.

### 3.13 Vertical alignment of perpendicular joints

A line of masonry perpend is defective if it exceeds a maximum deviation from vertical alignment of 20 mm per 2 m height of wall, measured from centre to centre of perpendicular joints.

### **3.14 Horizontal alignment of bed joints**

Bed joints in walls, including adjacent isolated piers and either side of openings and control joints are defective if they are not on the same horizontal plane, or do not comply with Item G of Table 3.04 of this Guide.

### **3.15 Base bed joint and base row of masonry**

Exposed base bed joints above the finished ground level are defective if they exceed 20 mm in thickness.

Base bed joints that are not exposed above the finished ground level are defective if they are greater than 40 mm.

Split masonry units and units on edge used in the base course of masonry walls are defective if they are exposed.

### **3.16 Masonry that overhangs concrete slabs**

A masonry course is defective if it is laid on a concrete slab or strip footing so as to project over the edge of the slab or footing by more than 15 mm.

### **3.17 Damp proof courses**

Damp proof courses are defective if they are not installed in accordance with the Building Code of Australia.

### **3.18 Raking of joints**

Unless documented otherwise, mortar joints in masonry units are defective if they are raked out to a depth of more than 10 mm or are not consistent in depth throughout.

### **3.19 Brick sills, sill tiles and shrinkage allowance for timber framing**

Window frames, sill tiles and sill bricks are defective if they are distorted or dislodged.

Eaves where the soffit and the masonry meet are defective if they are not installed with the minimum clearances set out in Table 3.19.

Brick sills are defective if they are not laid with a consistent slope to each elevation and adequate slope to provide drainage away from the opening.

Refer also to Diagram 3.19.

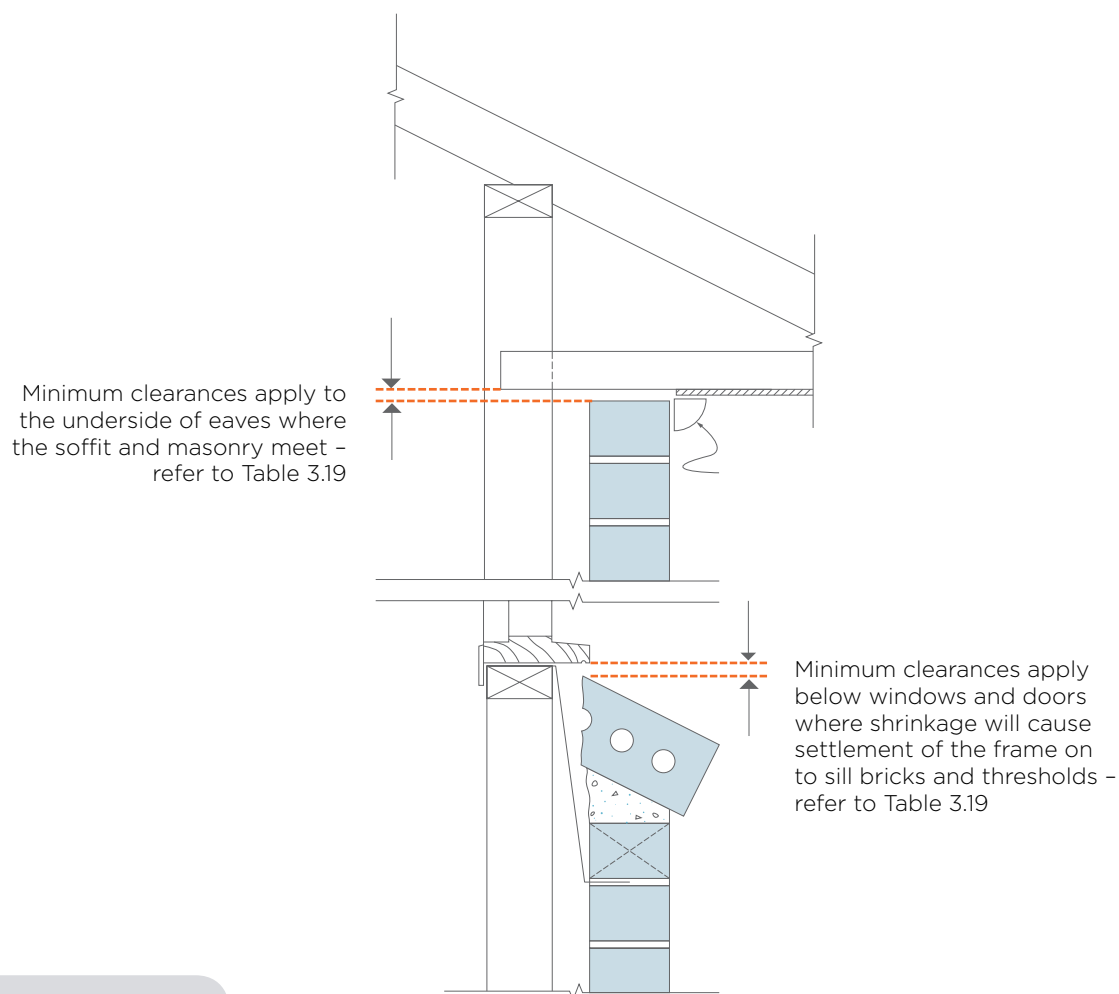
### **3.20 Efflorescence**

Efflorescence is typically non-structural (apart from the discolouration) and may be removed by stiff-bristled brush and washing with water. Although efflorescence may not be considered defective, the cause must be investigated so as to rule out any failed or missing flashings, damp proof courses or design issues that may be the cause, in which case it would be a defect. Activities of others, such as owners watering plants, may also contribute to the efflorescence which may not be attributed to the work of the builder.

**TABLE 3.19** SHRINKAGE ALLOWANCE FOR TIMBER FRAMING

Type of frame/construction	Approximate total shrinkage (mm)			
	Single storey		Two storey	
	Slab to lower fl	Timber to lower fl	Slab to lower fl	Timber to lower fl
Fully seasoned timber frame (bearers, joists and wall frame)	0	0	0	0
Seasoned softwood wall frame, unseasoned softwood joists, bearers in-line	0	10	10	20
Unseasoned softwood wall frame, seasoned joists and bearers	5	5	11	11
Unseasoned hardwood wall frame, seasoned joists and bearers	9	9	22	22
Unseasoned hardwood wall frame, unseasoned softwood joists, bearers in-line	9	19	32	42
Seasoned softwood frame, unseasoned hardwood bearers and joists	0	22	20	42

*Taken from AS 4773.2-2010 – Masonry in small buildings – Construction, Table 9.1: Minimum clearance for timber framing shrinkage. Reproduced with permission from SAI Global Ltd under Licence 1407-c122.*

**DIAGRAM 3.19** SHRINKAGE ALLOWANCE FOR TIMBER FRAMING
[BACK TO CONTENTS](#)



## 4 FRAMING

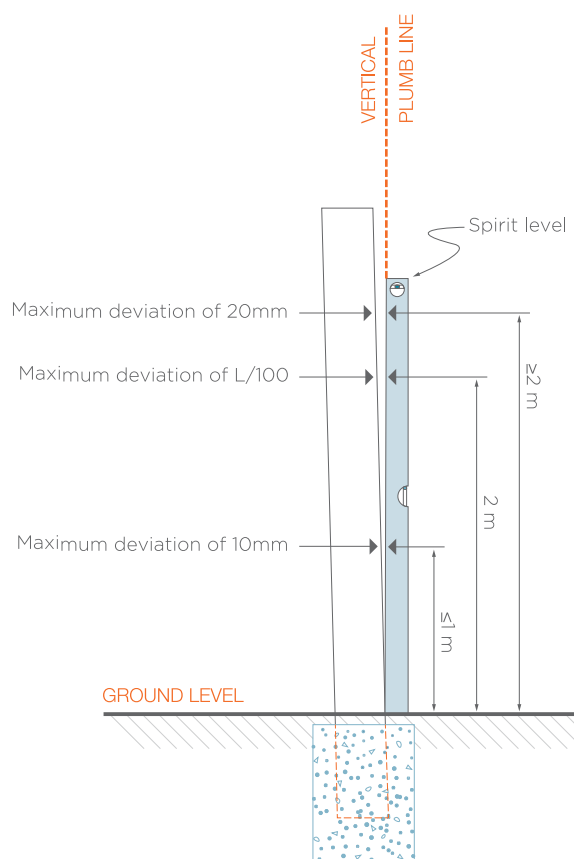
### 4.1 Verticality or plumbness of stumps or piles

Stumps or piles are defective if they deviate from vertical by more than:

- a. 10 mm for stumps or piles up to 1 m in height
- b.  $L/100$  for stumps or piles up to 2 m in height
- c. 20 mm for stumps or piles greater than 2 m in height.

Refer to Diagram 4.01.

**DIAGRAM 4.01** VERTICALITY OR PLUMBNESS OF STUMPS OR PILES



### 4.2 Verticality or plumbness of steel and timber frames and exposed posts

Posts and wall frames are defective if they deviate from vertical by more than 5 mm over a 1.8 m height. Refer to Diagram D on page 12 of this Guide..

### 4.3 Straightness of steel and timber frame surfaces

Frames are defective if they deviate from plane (horizontal or vertical bow) by more than 4 mm in any 2 m length of wall. Refer to Diagram E on page 13 of this Guide.

#### 4.4 Packing under bearers

Packing to stumps or piers under bearers is defective if it is not made of durable, non-compressible materials, such as engineered plastic packers, or does not provide the minimum bearing area required by AS 1684, is more than a total thickness of 20 mm, or is not fixed in a proper and workmanlike manner.

#### 4.5 Timber shrinkage

Timber is defective if it has shrunk more than 10 per cent for unseasoned timber, or three per cent for seasoned timber.

#### 4.6 Treads and risers in timber stairs

Timber stairs are defective if they do not comply with the requirements of the Building Code of Australia.

The finished riser and going dimensions after installation of floor finishes nominated in the contract are defective if they do not result in consistent riser and going dimensions as required by the BCA.

A tolerance of up to 5 mm consistent throughout the flight of the stairs from the nominated dimensions in the approved documents is considered acceptable.

This tolerance shall not be applied to allow for poor construction practice.

#### 4.7 Fixing stud walls to concrete slabs

Bottom plates are defective if they are not fixed to concrete slabs in accordance with AS 1684.

Depending on the manufacturer's requirements for the concrete nail/masonry anchor used and the required uplift pull-out force and wind category, the distance of the fixing from the edge of the slab is required to be between 50 mm and 70 mm for standard 20 MPa concrete.

The fixing point cannot be less than five times the diameter of the fastener from the edge of the timber plate, which equates to 25 mm for a 5 mm diameter nail and 50 mm for a 10 mm diameter masonry anchor.

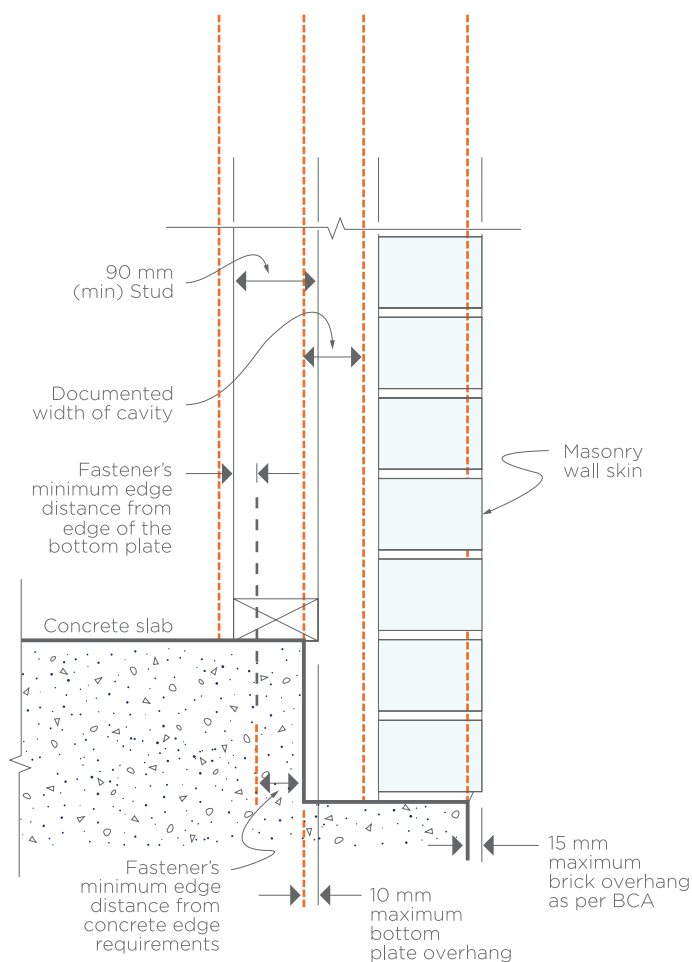
#### 4.8 Bottom plates that overhang concrete slabs

Bottom plates that are less than 90 mm wide and overhang concrete slabs are defective.

Bottom plates that are 90 mm wide or greater and overhang concrete slabs by more than 10 mm are defective.

Minimum cavity widths as required by the Building Code of Australia shall be maintained.

**DIAGRAM 4.08** BOTTOM PLATES THAT OVERHANG CONCRETE SLABS



## **5 Wall cladding**

### **5.1 Leaks in wall cladding**

Completed wall cladding and accessories are defective if they leak under normal weather conditions and are due to the builder's workmanship, cause unhealthy or dangerous conditions, loss of amenity for occupants, undue dampness or deterioration of building elements.

### **5.2 Wall cladding**

Staining, folds, splits, dents, open joints between panels, cracking and other distortions in wall cladding are defective if they are visible from a normal viewing position at ground level or an upper floor level.

Any unintended corrosion of metal wall cladding is defective unless it is due to lack of maintenance by the owner.

## 6 Roofing

### 6.1 Leaks in roofing, flashings and accessories

Roofing, including flashings and accessories, is defective if it leaks under normal weather conditions and is due to the builder's workmanship, causes unhealthy or dangerous conditions, loss of amenity for occupants, undue dampness or deterioration of building elements.

### 6.2 Roof cladding

Staining, folds, splits, dents, open joints between panels, cracking and other distortions in roof cladding is defective if it is visible from a normal viewing position at ground level or an upper floor level.

Any corrosion of roof cladding is defective unless it is caused by a lack of maintenance or damaged by the owner.

### 6.3 Roof tiles

Roof tiles are defective if they do not conform to the manufacturer's sample. Irregularities in tiles are defects if they are visible from a normal viewing position at ground or upper floor levels.

Minor surface marks or blemishes arising from the tile manufacturing process are not defective.

Cracked or broken roof tiles are defective if caused by the builder's workmanship.

### 6.4 Roof tile pointing

Unless documented otherwise, the absence of pointing where required is defective.

Pointing is defective if it becomes dislodged or washed out.

The pointing is defective if it is not uniform in colour, texture and trowelled off to provide a neat appearance. The rectification of pointing shall match the existing colour and texture as close as practicable.

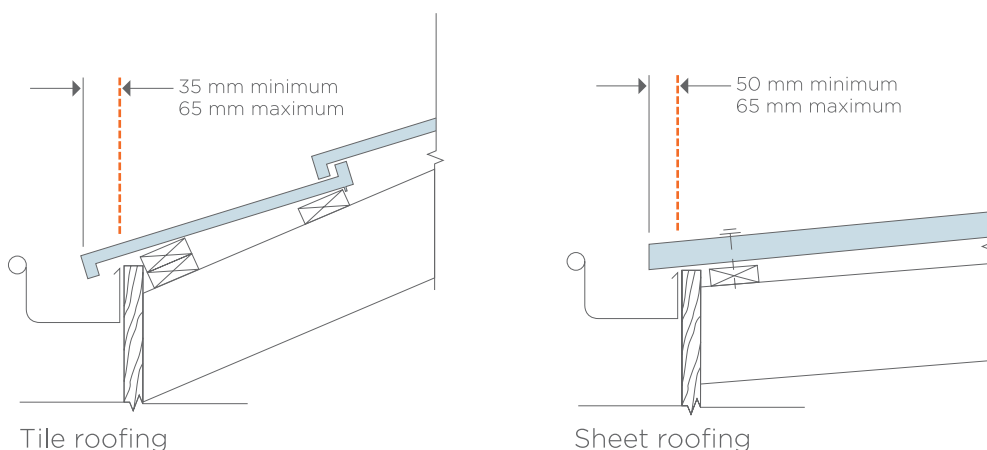
Minor cracking of pointing is not defective.

### 6.5 Overhang of roofing (tiles and sheet roofing)

Tiled roofing is defective if tiles overhang the inside face of a gutter by less than 35 mm or by more than 65 mm.

Sheet roofing is defective if it overhangs the inside face of a gutter by less than 50 mm or by more than 65 mm.

**DIAGRAM 6.05** OVERHANG FOR ROOFING



### 6.6 Cutting of roof tiles

Tiles are defective if they are not cut neatly to present a straight line at ridges, hips, verges and valley gutters.

### 6.7 Valley Gutter construction

Dry valleys, where they are documented, are defective if they are not constructed in accordance with the Building Code of Australia or any relevant instructions from roofing tile associations or the manufacturer's installation instructions.

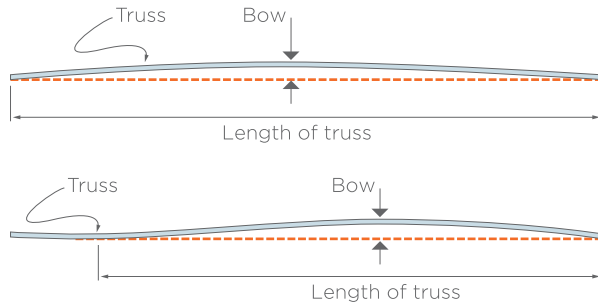
### 6.8 Undulating tiled roof lines

Undulations in the line of roof tiles are defective if the variation exceeds 20 mm in any 4 m length measured in the roof plane.

### 6.9 Alignment of trusses

Trusses or chords of trusses that bow more than the lesser of  $L/200$  or 50 mm are defective; where  $L$  is the length of the truss or chord.

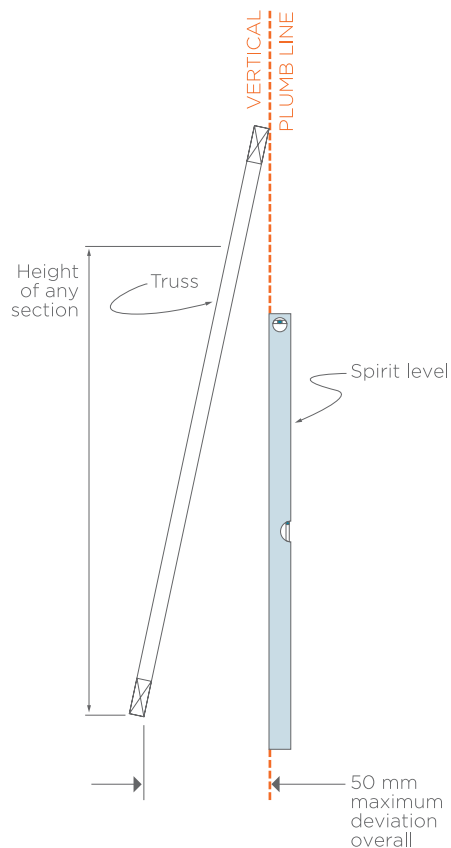
**DIAGRAM 6.09** OVERHANG FOR ROOFING



### 6.10 Verticality or plumbness of trusses

Trusses or parts of trusses that are erected with a vertical deviation more than the lesser of  $H/50$  or 50 mm are defective, where  $H$  is the height of the truss.

**DIAGRAM 6.10** VERTICALITY OR PLUMBNESS OF TRUSSES



## 7 Plumbing

### 7.1 Plumbing

Plumbing work is defective if it does not comply with the relevant plumbing regulations and the contract documents.

Refer to the National Construction Code 2016 Volume 3 Plumbing Code of Australia, and the *Plumbing and Drainage Act 2011*.

**Any plumbing and drainage work must be approved by NSW Fair Trading Plumbing Inspection Assurance Service (PIAS) before proceeding, unless urgent work is required. Stage inspections and a final inspection request must be submitted to PIAS for all plumbing and drainage works.**

Refer to the **MyInspections** page on the NSW Fair Trading website for more information on fees, applications and submitting paperwork

[www.fairtrading.nsw.gov.au/ftw/About\\_us/Online\\_services/MyInspections.page](http://www.fairtrading.nsw.gov.au/ftw/About_us/Online_services/MyInspections.page)

**A Certificate of Compliance for all plumbing and drainage is to be supplied by the licensed plumber or the builder to the homeowner at the completion of all works.**

### 7.2 Water hammer

Water hammer is defective if it is caused by the builder's workmanship.

### 7.3 Pipe penetrations through external walls and inside cupboards

Plumbing holes are defective if they are not:

- a. properly grouted as appropriate
- b. fitted through neat minimal size penetrations (in the case of cabinetwork)
- c. fitted with tight fitting cover plates or collars with penetrations kept to the smallest size practicable.

### 7.4 Water supply fixtures

Water supply fixtures are defective if they are not located to discharge clearly into the vessels such as baths, basins, sinks, troughs or the like.

### 7.5 Water drainage from baths, basins, sinks, troughs or the like

Baths, basins, sinks, troughs or the like are defective if they retain a pool of water after they have drained, with the exception of water retention due to surface tension.



## 8 Roof Plumbing & Gutter Systems

### 8.1 Positioning of gutters

Unless documented otherwise, installation of gutters is defective if the fascia, when viewed from a normal viewing position, is:

- visible above a gutter
- not concealed by a flashing finished to match the gutter.

### 8.2 Water retention in gutters

Gutters are defective if they retain a depth of more than 10 mm of water.

### 8.3 Joints in gutters

Unless documented otherwise, gutters are defective if they have joints lapped less than 25 mm. Laps that are not in the direction of flow to the outlet are defective.

Joints that leak are defective.

### 8.4 Fixing of gutters and downpipes

Gutters and downpipes are defective if they are not securely fixed.

### 8.5 Flashings

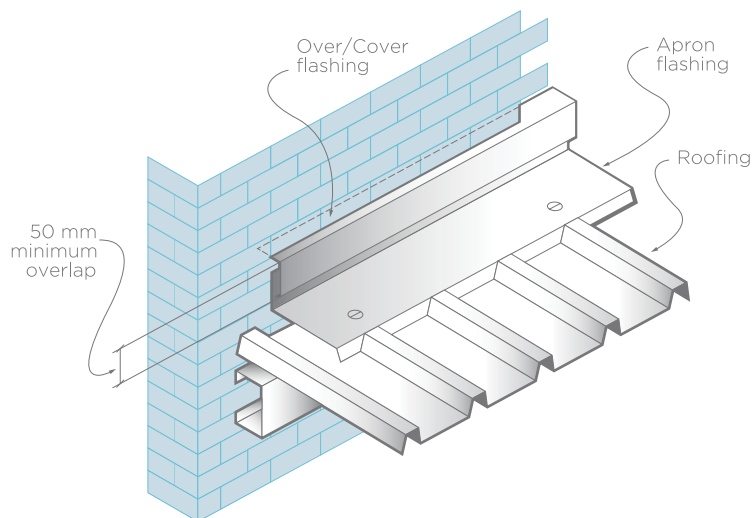
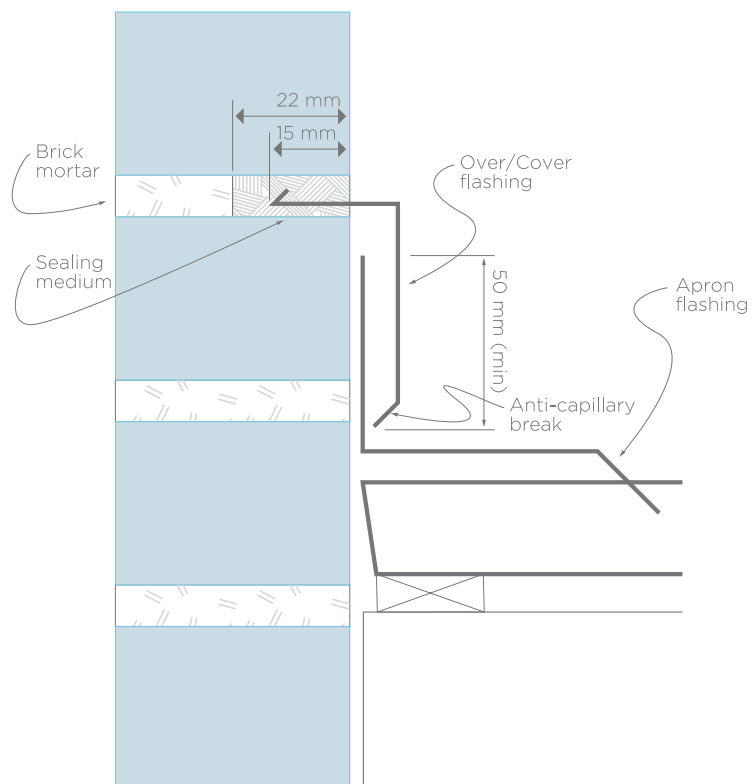
Flashings are defective if they are not provided in accordance with the requirements of the Building Code of Australia.

Wall and step flashings, and sloping flashings cut into walls are defective if they do not incorporate weathering folds, anti-capillary breaks and sealing, or do not enter the masonry walls by at least 15 mm as shown in Diagram 8.06 and Diagram 8.09.

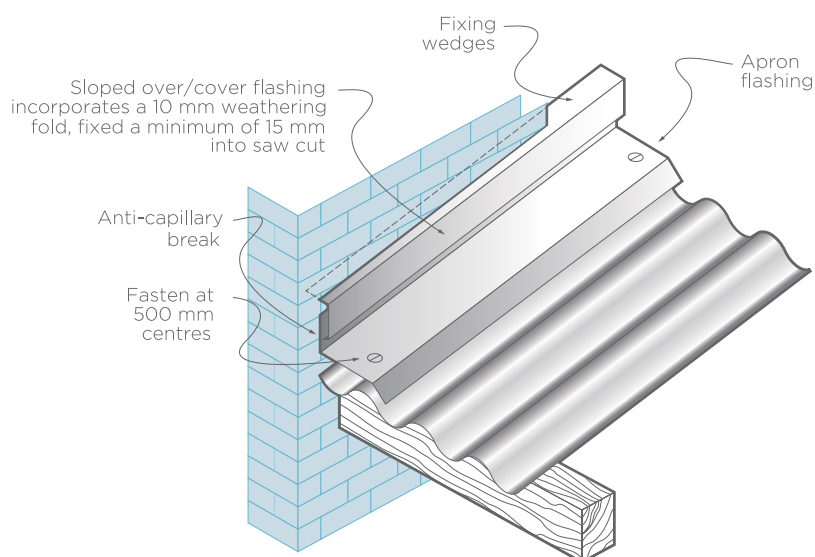
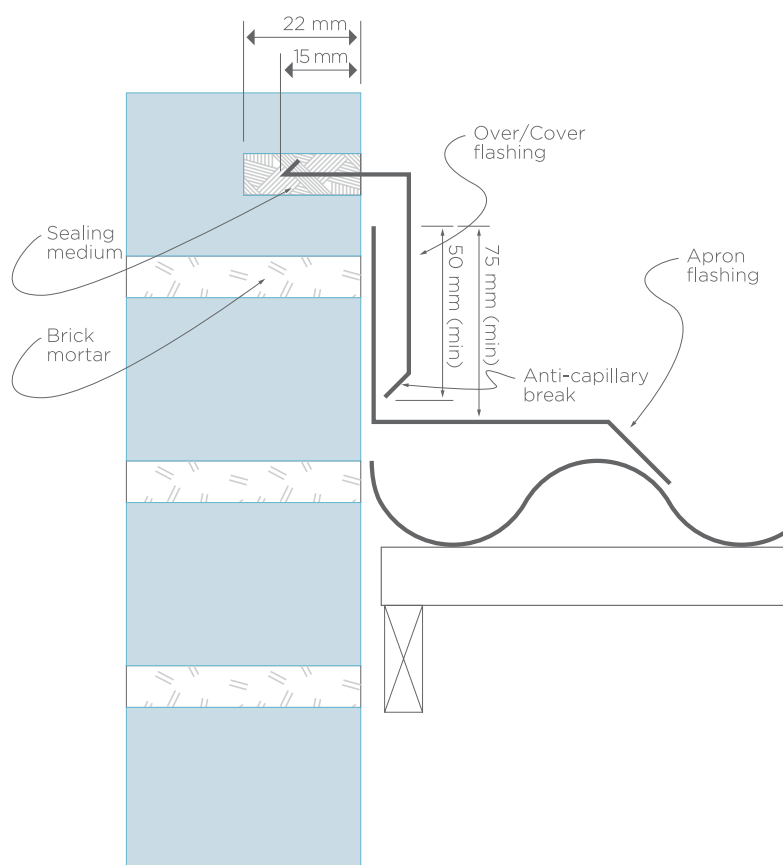
Pressure flashings are defective if they are not fixed on appropriate surfaces, or are not fixed in accordance with Diagram 8.11.

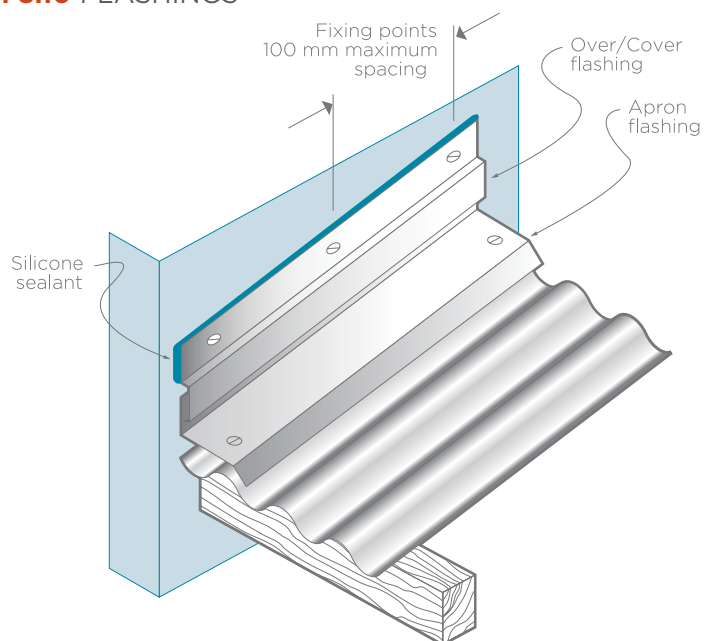
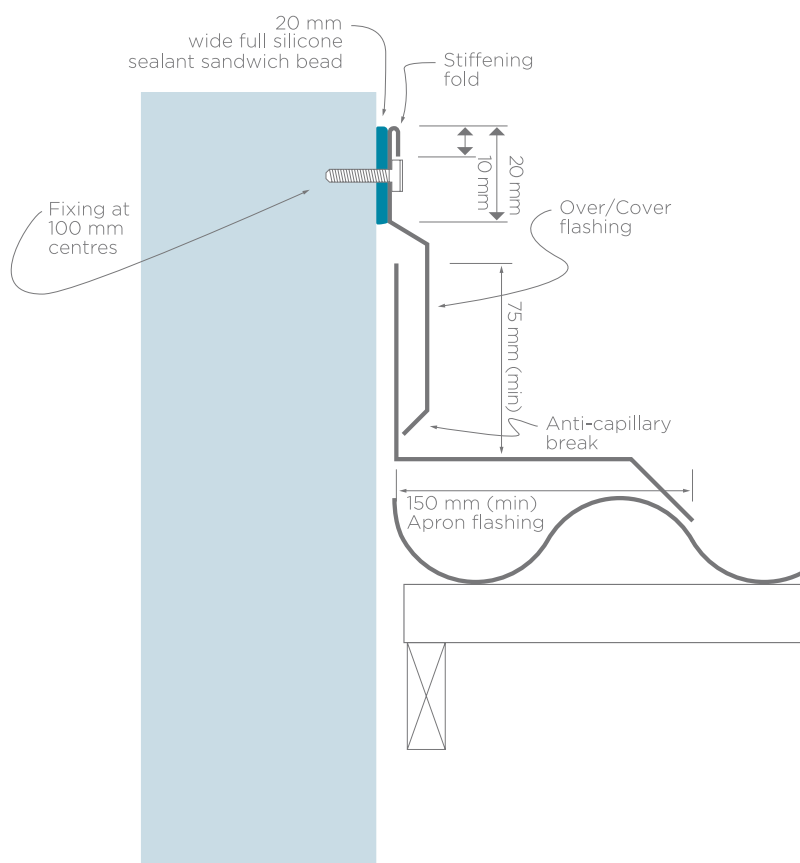
### 8.6 Parapet flashings/cappings

Parapet flashings/cappings are defective if a minimum fall of three degrees is not provided across the width of the flashing to divert water runoff from dripping down the fascia and causing unsightly staining.

**DIAGRAM 8.06** FLASHINGS**DIAGRAM 8.07** FLASHINGS

**A** Traditional raked joint and step method

**DIAGRAM 8.08** FLASHINGS**DIAGRAM 8.09** FLASHINGS**B** Sloping wall cut method

**DIAGRAM 8.10** FLASHINGS**DIAGRAM 8.11** FLASHINGS

C Pressure flashing

[BACK TO CONTENTS](#)

## 9 Windows and doors

### 9.1 Installation of external windows and doors

Unless documented otherwise, external windows and doors are defective if they are not installed and flashed in accordance with the manufacturer's installation instructions.

### 9.2 Weather-tightness of windows, doors, and window and door frames

Window frame and door frame installations are defective if, due to the builder's workmanship, they leak or cause unhealthy or dangerous conditions, loss of amenity for occupants, undue dampness or deterioration of building elements.

Windows and doors are defective if, when closed, they allow the entry of water.

Water entry through doors is not defective if they are not intended to prevent water entry. For example, vehicle access doors.

Windows and doors are defective if they are not sealed in accordance with the requirements of the Building Code of Australia, where required.

### 9.3 Door furniture

During the documented maintenance period after completion, handles, locks and latches are defective if they do not operate as intended by the manufacturer. If the maintenance period is not documented, three months is the assumed time period after completion.

After the end of the maintenance period, failure is not a defect unless it is caused by the builder's workmanship or a faulty product supplied by the builder.

### 9.4 Internal door clearances

Unless documented otherwise, the installation of doors is defective if, within three months of completion:

- a. clearances between door leaves and frames, and between adjacent door leaves are not uniform
- b. clearances between door leaves, or between a door leaf and the frame, is less than 2 mm or greater than 5 mm in width.

Unless additional clearance is required for removable toilet doors or air ventilation, a clearance between the door and the floor finish is defective if it is greater than 20 mm after installation of the floor covering.

**Note:** Clearances under doors will generally be determined by the nominated floor coverings.

### 9.5 Distortion of doors

Door leaves are defective if, within three months of completion, they twist or bend greater than the limits listed in Table 9.05 below.

**TABLE 9.05** DISTORTION OF DOORS

Item	Limit
Twisting measured diagonally across door	5 mm
Bending in door heights up to 2150 mm high	4 mm
Bending in door heights between 2150 and 2400 mm high	6 mm
Bending in door heights over 2400 mm high	7 mm
Bending in door widths up to 1020 mm wide	2 mm
Surface (face) misalignment, at the meeting edges of double swing or French doors, when the doors are fully closed	5 mm

### 9.6 Sealing of door edges

Door leaves are defective if they do not have all sides, top and bottom edges sealed/painted in accordance with the manufacturer's specifications.

### 9.7 Operation of windows and doors

The installation of doors and windows is defective if, within three months of completion, they:

- a. bind or jam as a result of the builder's workmanship
- b. do not operate as intended by the manufacturer.

### 9.8 Bowed window heads, sills and jambs

Windows frames are defective if they are distorted to the extent that the function of the window is adversely affected.

Refer also to Item 3.19 – Brick sills, sill tiles and shrinkage allowance for timber framing.

## 10 Plastering and rendering

### EXPLANATORY NOTE 10:

When assessing cracks in Item 10 of this Guide, Explanatory Note 2 at the start of Item 2 should be taken into consideration.

### Vertical, plumbness and straightness of internal and external wall surfaces

#### 10.1 Verticality or plumbness of internal and external wall surfaces

Wall surfaces are defective if they deviate from vertical by more than 5 mm over a 1.8 m straight edge. Refer to Diagram D on page 12 of this Guide.

#### 10.2 Straightness of internal and external wall surfaces

Walls are defective if they deviate from plane (bow) by more than 5 mm over a 1.8 m straight edge. This tolerance includes internal walls with a build-up of plaster at internal and external corners of the plasterwork. Refer to Diagram D on page 12 of this Guide.

### Rendered surfaces

### EXPLANATORY NOTE 10A:

Where an alternative wall cladding to Part 3.5.3 of the Building Code of Australia (BCA) is used, it must be an approved performance-based alternative solution or be a tested and accredited system in accordance with the requirements of the BCA and/or the Regulations.

The installation of the alternative wall cladding must be installed in accordance with the approved and tested system, including the specific proprietary products and accessories, components and installation methods specified in the approved system.

#### 10.3 Matching and repairing existing rendered surfaces

The builder must try to match existing work.

In some instances, this may not be possible as the original finish may have significantly aged or the material composition may be impossible to determine without expensive research.

When matching an existing finish, a practical approach must be adopted. Where possible, a physical joint, door, window, downpipe or other similar separator should be incorporated to lessen the visual impact of the new work. Where this is not possible, the whole of that wall from corner to corner should be re-finished.

Where appropriate, defective work such as cracking should be monitored for 12 months or any other agreed period before determining what, if any, remedial work is required.

#### 10.4 Cracking and other blemishes in rendered or hard plastered surfaces on a masonry substrate

Assess damage categories and defects in rendered or hard plastered surfaces on a masonry substrate, in accordance with Item 3.02.

Obvious spot rust marks, due to the composition of the material and other blemishes are defective if they are visible from a [normal viewing position](#).

#### 10.5 Repairs to applied finishes

Repairs to surfaces that have been rendered are defective if they do not match the colour and texture of the remaining wall or adjacent area as close as practicable.

#### 10.6 Movement; control joints – provision and cracking

Unless documented otherwise, cracks in rendered surfaces as determined in accordance with Item 3.02 of this Guide are defective if recommended movement control joints have not been installed.

#### 10.7 Covering movement control joints and damp-proof courses

Mouldings and inflexible covering strips are defective if they are installed across movement control joints and are fixed or restrained on both sides.

Applied finishes are defective if they impede the performance of any damp-proof course or sub-floor ventilation required in accordance with the Building Code of Australia.

With the exception of paint and recommended mastic sealants, render or other applied finishes are defective if they cover movement control joints.

Unless documented otherwise, flexible mastic or sealant is defective if it does not match as close as practicable the colour of the adjacent surface and has not been used in accordance with the manufacturer's installation instructions.

#### 10.8 Cracking in applied finishes used over lightweight substrate

Cracks or open joints in finishes applied to lightweight substrate are defective if they exist at handover or exceed 1 mm in width within the first 24 months and can be seen from a normal viewing position<sup>2</sup>.

Cracks or open joints in finishes applied to lightweight sheet substrate are defective if they allow the ingress of water.

#### 10.9 Rendered surfaces

Rendered or hard plastered surfaces are defective if they do not conform to the documented surface, sample or description.

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<sup>2</sup> Where diagonal cracking occurs, the underlying cause should be considered.



### 10.10 Cracking in external mouldings

Cracks in mouldings and/or other architectural features, including joints between those features and adjacent surfaces, are defective if they exist at handover or exceed 2 mm in width within the first 24 months and can be seen from a normal viewing position.

#### Internal plastering

### 10.11 Plasterboard sheeting

The installation and jointing of plasterboard sheeting systems is defective if it does not conform to AS/NZS 2589 and the manufacturer's installation instructions.

### 10.12 Other sheeting systems

Defects in the installation of other sheeting systems, such as fibre cement sheeting, shall be assessed in the same manner as plasterboard sheeting.

### 10.13 Level of finish for plasterboard

Unless documented otherwise, a plasterboard finish is defective if Level 4 finish (as defined below) is not provided.

#### LEVEL 4 FINISH<sup>3</sup>

A Level 4 finish shall be the default level for gypsum lining, unless specified otherwise. Flat or low sheen paints shall be used for this Level 4.

All joints and interior angles shall have tape embedded in jointing cement/jointing compound and a minimum of two separate coats of jointing cement/jointing compound applied over all joints, angles, fastener heads and accessories.

All jointing compound shall be finished evenly and be free of tool marks and ridges in preparation for decoration.

#### NOTES:

1. In critical lighting conditions, surface imperfections may still be apparent in a Level 4 surface finish.
2. Where gloss, semi-gloss and deep tone paints are used, surface imperfections will be more evident.

### 10.14 Cracking in plasterboard, hard plaster and other plaster elements

Cracking in walls, ceilings and bulkheads is defective if it exists at handover or exceeds 1 mm in width within the first 24 months of completion and can be seen from a normal viewing position.

Cracking in recessed and butt joints is defective if it exists at handover or exceeds 1 mm in width within the first 24 months of completion and can be seen from a normal viewing position.

<sup>3</sup> [AS/NZS 2589 Gypsum linings – Application and Finishing – Clause 3.1.4 – Level 4] – Reproduced with permission from SAI Global Ltd under Licence 1407-c122

### 10.15 Cracking in cornices

Cracking of cornice joints such as butt joints and mitres, and at junctions with walls and ceilings, is defective if it exists at handover or exceeds 1 mm in width within the first 24 months of completion and can be seen from a normal viewing position.

### 10.16 Cracking at junctions of dissimilar materials

Cracking at junctions between dissimilar materials is defective if it exists at handover or exceeds 1 mm in width within the first 12 months of completion and can be seen from a normal viewing position.

After the first 12 months, cracking that exceeds 2 mm is considered defective<sup>4</sup>.

### 10.17 Straightness and alignment of plaster cornices

Plaster cornices are defective if they deviate from a straight line greater than 4 mm over a length of up to 2 m and are visible from a normal viewing position.

### 10.18 Peaking or jointing in plasterboard

Plaster peaking or jointing is defective if it is visible from a normal viewing position<sup>5</sup>.

#### Nail popping

### 10.19 Nail popping in surfaces

Nail popping in sheeting is defective if it exists at handover or occurs within the first 24 months of completion and can be seen from a normal viewing position.

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<sup>4</sup> Consider installing movement control joints or mouldings in these locations.

<sup>5</sup> CSIRO Report No L8 and TR90/1 *Illumination and decoration of flat surfaces* should also be consulted.

## 11 Internal fixing

### 11.1 Gaps associated with internal fixing

Unless documented otherwise, gaps between mouldings or between mouldings and other fixtures, at mitre or butt joints, or at junctions with a wall or other surfaces, are defective if they exist at handover, or exceed 1 mm in width within the first 12 months of completion and are visible from a normal viewing position.

After the first 12 months, gaps are defective if they exceed 2 mm in width and are visible from a normal viewing position.

Gaps between skirting and flooring are defective if they exceed 2 mm within the first 24 months after handover and are visible from a normal viewing position.

### 11.2 Joints in fixing of internal mouldings

Unless documented otherwise, the faces of architraves and skirtings are defective if they are not aligned and flush at mitres and butt joints and the misalignment can be seen from a normal viewing position.

### 11.3 Architrave quirks

The width of the quirk (setback from the edge) of each length of an architrave is defective if it is not consistent and where the irregularity can be seen from a normal viewing position.

### 11.4 Bench tops, cabinet doors and drawer fronts<sup>6</sup>

Unless otherwise specified, cabinet door and drawer fronts are defective if they are not aligned, or do not have consistent gaps between them at handover, and can be seen from a normal viewing position.

Where the time limit for defects in bench tops, cabinet doors, drawer fronts and similar joinery is not documented, it is to be taken as six months from completion.

### 11.5 Natural materials

Materials such as timber, granite and marble are natural products that may have blemishes and variations in pattern and colour that are natural characteristics of the material.

Stone materials are often brittle and may be easily cracked. Polished stone surfaces can be porous and subject to staining.

Any cracking, displacement, pitting or similar blemishes in natural stone, marble or similar materials are defective if they are caused by the builder and can be seen from a normal viewing position.

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<sup>6</sup> Refer also to AS/NZS 4386.1 Domestic kitchen assemblies – Kitchen units

### 11.6 **Manufactured material**

Any cracking, displacement, pitting or similar blemishes in surfaces of manufactured materials are defective if they are caused by the builder and can be seen from a normal viewing position.

Manufactured materials are defective if they are not installed in accordance with the manufacturer's requirements.

### 11.7 **Rectification of defective natural materials and manufactured materials**

The rectification of surfaces is defective if the rectification work does not reasonably match the adjacent areas. If reasonable matching is not possible, the entire surface shall be replaced<sup>7</sup>.

### 11.8 **Joints in timber, stone and laminated bench tops**

Bench tops of timber, laminate, natural stone or similar materials are defective if within six months of handover they have joints that are not uniform, close-fitted, aligned and in the same plane.

These requirements also apply to vertical surfaces of similar material and finish.

Joints are defective if they are not sealed or flush-filled with a suitable flexible sealant of matching colour at the time of handover.

### 11.9 **Sealing around benches and items installed in benches**

Where required, junctions between bench tops and adjoining surfaces are defective if they are not sealed with a suitable flexible sealant of matching or agreed colour.

Seals around items such as sinks, hand basins or the like are defective if the joint leaks or they are not installed in accordance with the manufacturer's installation requirements.

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<sup>7</sup> In these circumstances it is not normally necessary to replace areas of the material that are not adjacent to and contiguous with the affected area.

## 12 Floor and wall tiling

### 12.1 Floor and wall tiling

Unless documented otherwise, tiling work and materials are defective if they do not comply with AS 3958.1 and AS 3958.2 or the manufacturer's installation instructions for the materials selected.

The builder is responsible for tiling that fails because of defective building work in framing or slab construction, including tiling not laid by the builder.

Where the builder has to match tiles that are no longer available, a practical approach must be adopted. The use of a slightly different tile is not defective if it is used with the written agreement of the owner.

Where non-matching tiles have to be used, a joint location such as the aluminum channel of a shower screen, a separating doorway, an intersecting wall, a change in wall direction or similar should be selected to separate the different tiles.

### 12.2 Floor and wall tiling where the builder supplies the tiles

Where the supply and laying of tiles is by the builder, the failure of the tiles, substrate, adhesive or grout is defective.

### 12.3 Floor and wall tiling where the owner supplies the tiles for laying by the builder

Faulty installation of tiles is defective if caused by the builder's workmanship.

Any fault in the tiles is the responsibility of the owner, except where faults in the tiles should have been apparent to the builder at the time of laying, and these faults were not brought to the owner's attention.

### 12.4 Floor and wall tiles where the owner supplies and lays the tiles

The owner is responsible for checking the adequacy of the substrate before laying the tiles. Any failure of tiles, adhesive or grout, where the owner supplies and lays the tiles, is the responsibility of the owner.

### 12.5 Cracked, pitted, chipped, scratched or loose tiles

Tiles are defective if they are cracked, pitted, chipped, scratched or loose at handover.

After handover, tiles are defective where the builder's workmanship causes the tiles to become cracked, pitted, chipped or loose within 24 months.

### 12.6 Grouting and joints

Grouting is defective if it is not carried out in accordance with the requirements of Clause 5.7 of AS 3958.1.

Joints are defective if they are not, as far as is practicable, of consistent width and can be seen from a normal viewing position.

Finished grout is defective if it is not uniform in colour, smooth, without voids, pinholes or low spots.

- a. The top surface of the grout may be tooled to provide a contoured depression of no deeper than 1 mm for up to 6 mm wide joint and up to 2 mm for a 6-10 mm wide joint (clause 5.7(e) of AS 3958.1).
- b. Joint widths for floor tiles should not exceed 3 mm for pressed tiles and 6 mm for extruded tiles (clause 5.4.6 ( c ) (i) of AS 3958.1)
- c. Joint widths for wall tiles should not exceed 1.5 mm for pressed tiles and 6 mm for extruded tiles (clause 5.4.6(c)(ii) of AS 3958.1).
- d. Joint alignment should be consistent throughout the installation within a tolerance of 4 mm in 2 m<sup>8</sup> (clause 5.4.6(d) of AS 3958.1).

Grout is defective if it becomes loose within 24 months of handover.

### 12.7 Flexible sealants to junctions

Flexible or waterproof sealants to junctions are defective if they are not installed when required by the BCA and AS 3958.1, or in accordance with the manufacturer's installation requirements.

### 12.8 Uneven tiling

Except where tiles have distortions inherent in the manufacture, tiling is defective if it has joints that are not uniform, of even width, aligned or in the same plane.

Large tiles could present problems when required to fall and drain to a floor outlet.

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<sup>8</sup> This requirement does not apply to an interface between vertical and horizontal tiled surfaces.

### 12.9 Lippage (stepping) between tiles

Lippage is inherent in all installation methods and may also be unavoidable due to the tile tolerances. Lippage may also be unavoidable where tiles larger than 150 mm x 150 mm are graded to a waste outlet, unless transverse cuts are incorporated.

When measured with a straight edge, tiling is defective if the finished surface of the tiling is not flat and true to within a tolerance of  $\pm 4$  mm in 2m from the required plane.

Tiling is defective if the lippage between two adjacent tiles exceeds 2 mm. In the case of tiles where the surface has been ground flat, for example polished tiles, tiling is defective if the lippage exceeds 1.5 mm; for joint widths of 3 mm or less the lippage should not exceed 1 mm.

### 12.10 Movement joints

Tiled floors are defective if intermediate movement joints are not inserted at evenly spaced positions at approximately 4.5 m centres or at locations where stress might reasonably be expected in:

- a. internal floors where any dimension exceeds 9 m or 6 m if subjected to sunlight (clause 5.4.5.2(b)(i) of AS 3958.1)
- b. external floors where any dimension exceeds 4.5 m (clause 5.4.5.2(b)(ii) of AS 3958.1).

## 13 Painting

### 13.1 Standard of painting

Coatings used are to be suitable for the relevant conditions and relevant wear and tear.

Painting is defective if it does not comply with the manufacturer's installation instructions or AS/NZS 2311.

### 13.2 Surface finish of paintwork

Paintwork is defective if the application has blemishes such as paint runs, paint sags, wrinkling, dust, bare or starved painted areas, colour variations, surface cracks, irregular and coarse brush marks, sanding marks, blistering, non-uniformity of gloss level and other irregularities in the surface that are visible from a normal viewing position.

Paintwork is defective if the application results in excessive over-painting of fittings, trims, skirtings, architraves, glazing and other finished edges.

### 13.3 Nail and screw fixings

Fixings or unfilled depressions caused by fixings are defective in painted or stained surfaces if they can be seen from a normal viewing position.

### 13.4 Natural characteristics and mechanical imperfections/damage

Unless the contract specifies otherwise, natural characteristics such as gum pockets, surface splits or sap bleeding are defective if they can be seen from a normal viewing position.

Mechanical imperfections/damage, holes or any other unfilled depressions are defective if they can be seen from a normal viewing position.

### 13.5 Paint durability

Unless documented otherwise, coatings are defective if they fail by lifting, blistering, flaking, fading etc., within the minimum period shown in Table 13.05.

**TABLE 13.05** MINIMUM DURABILITY OF COATED FINISHES

Coating	Minimum durability
Exterior acrylic	36 months
Exterior enamel	24 months
Exterior semitransparent stains	12 months
Exterior clear finishes	not recommended
Interior – all finishes	36 months



## 14 Wet areas, decks and balconies

### 14.1 General

Flashings are defective if they are not installed in accordance with the requirements of the Building Code of Australia.

Shower recesses, decks and balconies mainly fail because of poorly installed waterproofing membranes and incorrect detailing. The greatest care should be taken to ensure the horizontal surface falls, flashing up-stands, vertical joints and drainage systems are installed exactly as specified for the particular system.

#### Internal wet areas

### 14.2 Wet areas

Waterproofing of wet areas is defective if not installed in accordance with the requirements of the Building Code of Australia and AS 3740.

### 14.3 Shower recess and components

Shower recess and components are defective if they crack, leak or don't perform as intended.

Scratches in shower bases, screens and glass are defective if they are due to the builder's workmanship and are visible from a normal viewing position.

All cracks in shower bases, screens and glass are defective if they exist at handover or are due to the builder's workmanship.

A shower component is defective if it allows the shower recess to leak during normal usage. Unenclosed shower screens are not intended to prevent the spread of water from the shower enclosure and are not considered defective.

Silicone sealants may require replacement after five years. This is regarded as normal house maintenance which is the owner's responsibility.

Beading of water on surfaces such as poly-marble shower bases and polished porcelain tiles is considered normal and is therefore not regarded as a defect.

#### External decks and balconies

#### EXPLANATORY NOTE 14:

Where a waterproof deck or balcony has been approved for construction before 1 May 2013 (date the Building Code of Australia adopted AS 4654.2), it should be completely installed in accordance with the approved system, including the specific proprietary products and accessories, components and installation methods specified in the approved system.

### 14.4 Leaks in waterproof decks and balconies

Waterproof decks and balconies that leak are defective.

### 14.5 Waterproof decks and balconies substrate

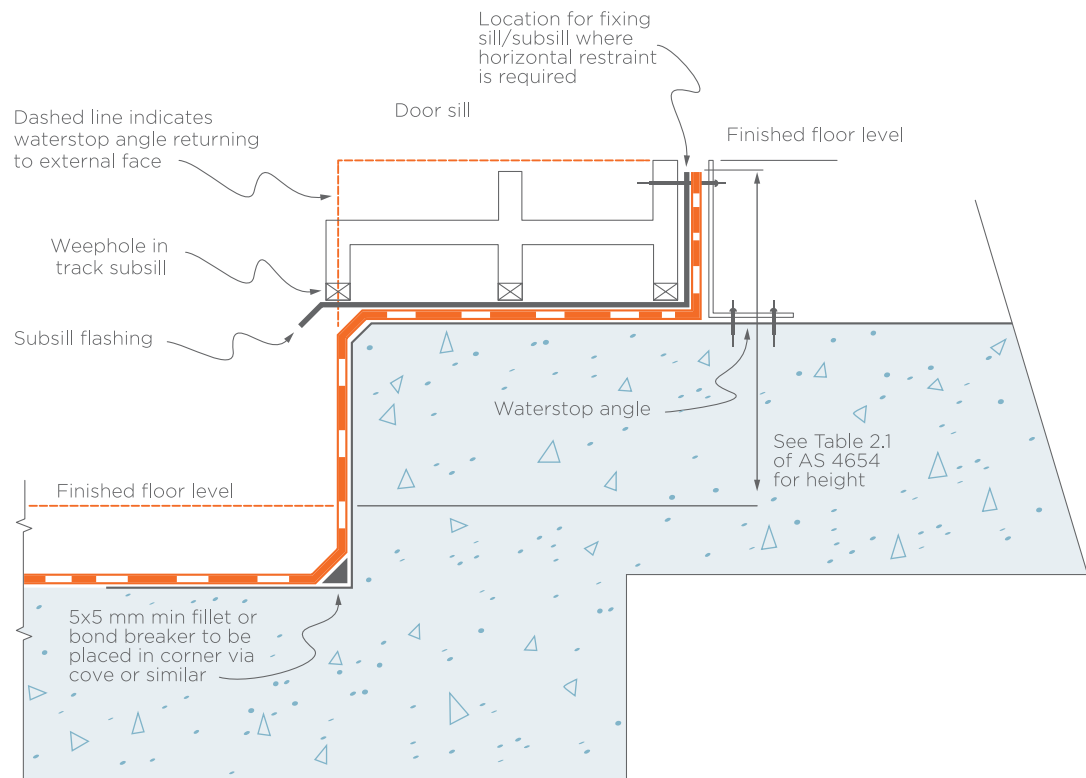
Waterproof decks and balconies are defective if they are not constructed in accordance with the BCA and AS 4654.2.

Waterproof decks and balconies are defective if the waterproofing system is not installed in accordance with the manufacturer's installation requirements.

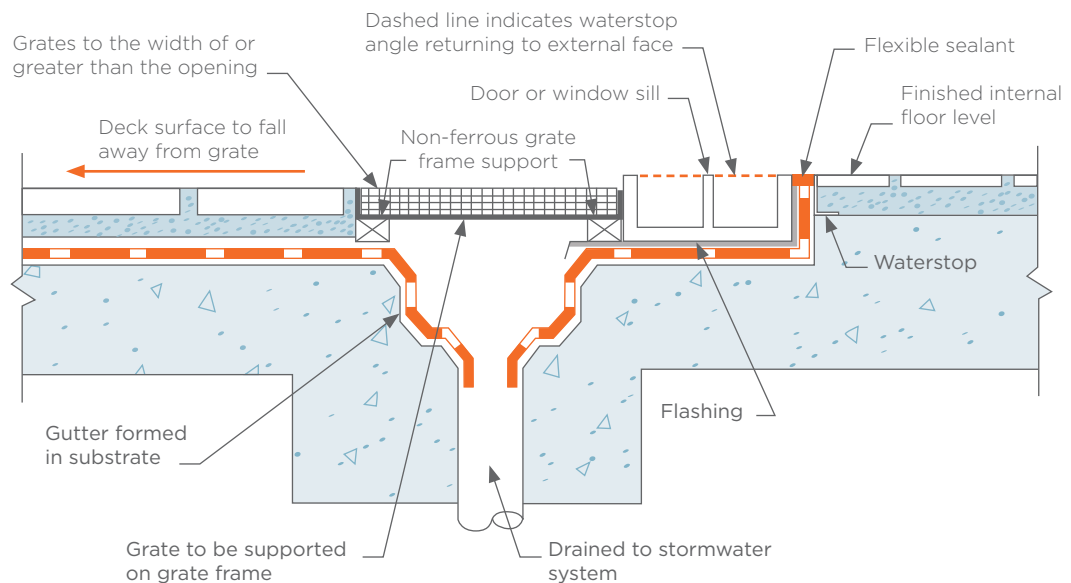
### 14.6 Decks and balcony freeboard outside windows and doors

Waterproof decks and balconies are defective if they do not have a drainage system sufficient to withstand wind-driven water surging from the deck or balcony that complies with the Building Code of Australia and AS 4654.2. See Diagrams 14.06 and 14.06B.

**DIAGRAM 14.06** UPSTAND REQUIRED TO DOORWAYS OPENING ONTO EXTERNAL DECKS



**DIAGRAM 14.06B** TYPICAL DETAIL OF A MEMBRANE AT A WALL OPENING WHERE INTERNAL AND EXTERNAL FLOOR FINISHES DO NOT ALLOW FOR AN UPTURN



#### 14.7 Ponding on waterproof decks and balconies

Waterproof decks and balconies are defective if water ponds (with the exception of residual water remaining due to surface tension) or does not drain to the outer edge<sup>9</sup> or a stormwater inlet.

Decks and balconies that are required to be waterproofed are defective if they are not provided with adequate drainage and provision for overflow.

#### 14.8 Calcification and efflorescence associated with decks and balconies

Calcification or efflorescence caused by water coming from a deck or balcony that occurs on walls below or beside the deck or balcony, or that appears in the mortar joints of the deck or balcony tiling, may be considered a defect if it is due to defective or missing flashings, membrane, a damp proof course DPC or faulty design and needs to be investigated to identify the cause. Activities of others, such as owners watering plants, may also contribute to the efflorescence, which may not be attributed to the work of the builder.

<sup>9</sup> Item 14.8 of this Guide should be considered when draining water to vertical surfaces (ie. walls).

## 15 Floors

Please note that only structural timber flooring is referred to in this guide.

### 15.1 Timber flooring – shrinkage and swelling

Timber flooring will shrink or swell according to its internal moisture content, timber species used and the installation environment. The internal moisture content will adjust to the surrounding atmosphere after the timber is installed and this may lead to permanent or seasonal swelling, splitting or shrinkage creating gaps at board edges.

Exposure to sunlight, cooling, heating or other heat generating appliances is likely to cause localised shrinkage of timber that cannot be allowed for at the time of construction. This is to be taken into consideration when determining if there is defective workmanship.

The assessment of the appearance of a floor is to be carried out from a normal viewing position.

### 15.2 Timber flooring generally

Flooring, including tongue and groove strip flooring; structural plywood and particleboard sheet flooring, is defective if it is not installed according to AS 1684 and the manufacturer's installation requirements.

Colour variations due to natural causes such as sunlight are not defective.

Ghosting, where blemishes appear beneath the finish coat, is defective when visible from a normal viewing position.

Due to necessary machining tolerances, a step (lipping) of up to 0.5 mm or slight movement may exist between adjacent floor boards. This step (lippage) should not be evident at handover if the floorboards are also sanded and polished by the builder.

### 15.3 Gaps in exposed timber flooring

Except where affected by exposure to sunlight, cooling, heating or other heat generating appliances, flooring is defective if it has gaps of more than 2 mm between adjacent boards that extend for more than 1 m, or more than 5 mm in total of three gaps between four consecutive boards<sup>10</sup>.

### 15.4 Joint swelling in timber, plywood and particleboard flooring

Joints in plywood and particleboard floors are defective if they can be detected through normal floor coverings.

Swelling in tongue and groove strip timber flooring is defective if it causes tenting, buckling or crowning of the boards and can be seen from a normal viewing position.

Cupping in boards of more than 1 mm per 100 mm is a defect (Table C3 of AS 2796.1).

<sup>10</sup> Flooring with gaps that exceed the allowances stated above is not defective when the builder has made the owners aware in writing that the flooring system installed could suffer significant shrinkage and has obtained this acknowledgement from the owner in writing.

### 15.5 Nail popping in timber, plywood and particleboard floors<sup>11</sup>

Nail heads that can be detected through floor coverings or nail popping that is clearly visible in exposed flooring are defective if they occur within 24 months from handover.

### 15.6 Squeaking floors

Floors that consistently squeak by a person walking normally in a trafficable area within the first 24 months from handover are defective.

### 15.7 Springy floors

Floors that bounce in a way that can be detected by a person walking normally in a trafficable area are defective if the substructure has not been constructed in accordance with the Building Code of Australia and AS 1684.

### 15.8 Levelness of timber flooring

New floors are defective if within the first 24 months of handover they differ in level by more than 10 mm in any room or area, or more than 4 mm in any 2 m length.

Also, the overall deviation of floor level to the entire building footprint shall not exceed 20 mm within 24 months of handover. Refer to Item I of this Guide where the new floor is to adjoin an existing floor.

### 15.9 Splitting of timber decking

Splits in timber decking that extend to the end or side edge of the timber are defective if they are due to the fixing method.

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<sup>11</sup> Owners who undertake their own floor polishing of exposed flooring or who lay floor coverings after completion of the builder's works are responsible to ensure that all nails and other fixings are properly punched or countersunk and stopped.

## 16 Electrical

### 16.1 Electrical

Any electrical work is defective if it does not comply with the relevant regulations AS/NZS 3000 Electrical Installation (known as the Australian/New Zealand wiring rules) or the contract documents.

The builder shall provide the owner with a Certificate of Compliance of Electrical Work (CCEW) from the licensed electrical contractor when a certificate is required to be issued by the licensed electrician.

## **17 Pools and spas**

### **17.1 Concrete pools and spas**

Concrete pools and spas are defective if they do not comply with AS 2783.

### **17.2 Premoulded fibre-reinforced plastic pools and spas**

Premoulded pools and spas are defective if they are not installed in accordance with AS/NZS 1839.

### **17.3 Variations from documented dimensions in concrete pools and spas**

Departures from the documented dimensions set out for concrete pools and spas are defective if they exceed  $L/100$ , where  $L$  is the documented dimension, or 5 mm, whichever is the greater.

### **17.4 Variations from documented datum in concrete pools and spas**

Set outs that depart from documented reduced levels or finished floor levels by more than 40 mm are defective.

## 18 Restumping

### 18.1 Restumping

Owners should understand the limitations imposed on re-levelling of existing structures by factors including existing structural conditions, fixed points, attached buildings, dwelling extensions, plumbing installations and the likelihood of consequential damage to wall claddings.

### 18.2 Consequential damage due to restumping

Consequential damage caused by restumping works is not defective where the builder has documented evidence that the owner has been informed of the nature and likelihood of such damage.

### 18.3 Floor levels after restumping

Except where documented otherwise, re-levelled floors are defective if within the first 24 months, they differ in level by more than 15 mm in any room or area, or more than 8 mm in any 2 m length.



## 19 General

### 19.1 Appliances and fittings

The owner is responsible for organising warranty service for faults in appliances and fittings supplied as part of the building contract where the builder has provided the warranty documents to the owner. Service outside the warranty period is the responsibility of the owner. The owner may also have statutory warranty provisions available to them under Australian Consumer Law. Refer to the Fair Trading website for further information.

### 19.2 Faults and damage to appliances and fittings

Damage to appliances and fittings supplied as part of the building contract is defective if it is due to the builder's workmanship.

During the documented maintenance period after handover, fittings are defective if they do not operate as intended by the manufacturer. If the maintenance period is not documented, it is to be taken as three months.

### 19.3 Condensation

Condensation is a common problem in buildings (particularly in bathrooms and laundries) and can occur on windows, under unlined roofs or elsewhere. Further information is available in the Australian Building Codes Board Handbook – Condensation in Buildings (2014).

Where the requirements of the Building Code of Australia (BCA) have been complied with, the responsibility for controlling condensation by maintaining adequate natural or mechanical ventilation through the use of openable windows, exhaust fans, or other means, is the responsibility of the owner.

Condensation is defective if the builder has not complied with the relevant clauses of the BCA.

### 19.4 Glazing

Scratches, fractures, chips or surface blemishes on glazing and mirrors are defective if they exist at handover and can be seen from a normal viewing position.

Minor scratches, fractures, chips or other blemishes that are not more than 10 mm long and where there are not more than three blemishes per pane, are not defects.

### 19.5 Lyctus borer

Timber is defective if it is used during construction with evidence of lyctus borer attack, unless the timber product has been approved by the manufacturer.

## 19.6 Termites

Termites are a widespread problem in all areas of Australia and it is the owner's responsibility to regularly inspect the property, including sub-floor inspections, to detect evidence of termite attack.

Termites can circumvent properly executed termite protection measures, such as building tunnels around barriers. Tunnels can be identified through regular inspections and, if found, the termite nest should be located and destroyed by a suitably qualified pest controller.

Termite management systems are intended to reduce the risk of damage to the structural members of buildings by deterring concealed entry of termites into a building. Termite management systems cannot prevent the entry of termites into the building. In NSW, a termite management system is only required to be installed where the primary building elements are susceptible to termite attack, as defined in the Building Code of Australia.

## 19.7 Termite damage

Damage caused by termites that occurs in areas not designated by the relevant council as a termite risk area is the responsibility of the owner.

Damage caused by termites in buildings within designated termite risk areas is defective if the termite management system has not been installed in accordance with the Building Code of Australia.

Damage caused by termites in buildings within designated termite risk areas is not defective if the termite management system has not been regularly maintained by the owner, made non-compliant by the owner after handover, or not maintained in accordance with the manufacturer's instructions and AS 3660.2.

## 19.8 Cleaning

Owners are entitled to expect that the building site and works are clean and tidy on completion. Where handover is delayed for any reason, the owner must expect that dust may have settled on interior exposed surfaces.

Building sites are defective if they are not clear of building debris.

Building works are defective where windows are not clean, floors are not swept, mopped or vacuumed as appropriate, tiles, sinks, basins, troughs, baths, etc. are not cleaned, and shelving, drawers and cupboards are not ready for use.

## 19.9 Maintenance in relation to the performance of building foundations/footings

Proper ongoing maintenance of the building is a normal part of home ownership and the home owner is responsible for all maintenance after handover.

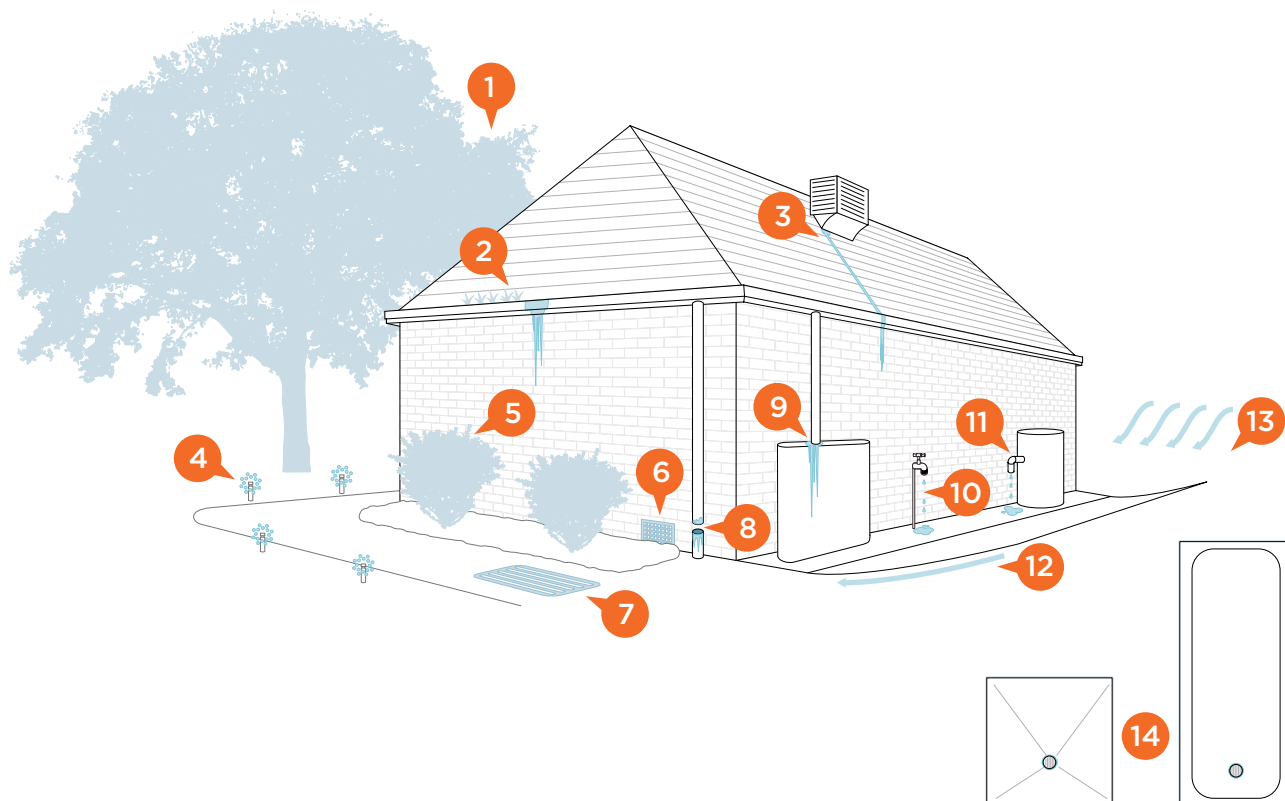
An important part of building maintenance is maintaining a consistent moisture level in the foundation soils around the building. This is important in order to prevent excessive wetting (expansion) or drying (shrinking) of the foundation soils and subsequent building movement.

Many things can adversely alter the moisture level in the foundation soils around the building, but most of them are preventable with careful ongoing maintenance. Diagram 19.09 lists common causes of excessive wetting and drying that are likely to alter moisture level in foundation soils around the building if not managed effectively.

**DIAGRAM 19.09** MAINTENANCE

Consideration of the items listed in Diagram 19.09 should all be a normal part of a homeowner's maintenance plan.

Homeowners should refer to the CSIRO publications listed in Part K and the Explanatory Note in Section 2 on page 22 of this Guide for additional information.



1. Trees planted too close to house (Refer to CSIRO document BTF18 *Foundation Maintenance and Footing Performance*).
2. Blocked gutters, eaves, valley and box gutters to house, enclosed roofs and decks.
3. Air-conditioner overflows: roof and ground.
4. Faulty, unmaintained or poorly placed sprinkler systems.
5. Garden beds and large shrubs placed too close to house.
6. Ground level above damp-proof courses, weepholes and subfloor vents.
7. Surface drainage pits, silt pits and underground stormwater drainage system not regularly cleaned out.
8. Damaged or unconnected stormwater downpipes.
9. Overflowing water tanks.
10. Dripping external taps.
11. Dripping water heater relief valves.
12. Paving, landscaping or ground surfaces slope towards building.
13. Water runoff from higher adjoining properties.
14. Resealing of wet area junctions: shower screens and bath hobs.

[BACK TO CONTENTS](#)

### 19.10 Floor Coverings

Carpets, vinyl and floating floor coverings are not prescribed under the Home Building legislation in NSW but are subject to implied ACL (Australian Consumer Law) statutory warranties provisions. However, they often form part of the residential building contract and would be considered to be defective if not installed to the manufacturer's installation instructions and a breach of implied statutory warranty provisions of ACL.

# APPENDIX A

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## Relevant legislation

These principal pieces of legislation are applicable to residential building construction in NSW:

- a. *Home Building Act 1989* No 147
- b. Home Building Regulation 2014
- c. Plumbing and Drainage Regulation 2012
- d. AS/NZS3000 -2001 Electrical Wiring Rules

*The National Construction Code Series 2016 1-3*

## History of editions

This version of the *NSW Guide to Standards and Tolerances 2017* applies to building work and/or contracts for home building work entered into after 2012.

For information and help on fair trading issues

**Nsw Fair Trading enquiries**

13 32 20

**Language assistance**

13 14 50

**TTY for hearing impaired**

1300 723 404

**Aboriginal enquiry officer**

1800 500 330

**Visit our website for details**

[fairtrading.nsw.gov.au](http://fairtrading.nsw.gov.au)



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