Matter No. 046456001

PRENDOS.
Intelligent Property Solutions

INITIAL WEATHERTIGHTNESS ASSESSMENT REPORT.

24 Birkdale Road, Birkdale, Auckland



Prendos NZ Limited p. 0800 PRENDOS e. prendos@prendos.co.nz w. www.prendos.co.nz
Auckland (Head Office). 34 Barrys Point Road, Takapuna | 09 970 7070
Rotorua. Unit 1B/1188 Whakaue Street | Tauranga. 96 Cameron Road | 07 929 9540
Wellington. Ground Floor, Rawlinsons House, 5-7 Willeston Street | 04 931 7070
Christchurch. Airport Business Park, Level 1, Unit B/92 Russley Road, Russley | 03 341 7570
Queenstown. Level 2, 36 Shotover Street | 03 940 2763
PO Box 33700, Takapuna, Auckland | PO Box 8049, Riccarton, Christchurch

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Revision History

No.	Prepared by	Description	Date
1	Joshua Rawlinson	Initial Weathertightness Assessment Report	6 September 2024

Distribution

Dougie Aldred dougaldred@hotmail.com

Authorisation

Prepared by

Joshua Rawlinson
BDes (Industrial) (Hons) Dip (Surveying)
ASSOCIATE, SENIOR BUILDING SURVEYOR

Reviewed by

Ivan McLellan
NZCB MNZIBS
ASSOCIATE AND REGISTERED BUILDING SURVEYOR

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The author(s) of this report where they use the singular phrase "I" or the plural "we", or similar phraseology, are referring to their role acting on behalf of Prendos New Zealand Limited ("Prendos"), not as individuals.

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1.0 Introduction

1.1. Site

24 Birkdale Road, Birkdale, Auckland

1.2. Party Requesting Visit

Eco-Lightech Solution Ltd (Dr Yum Keung IP and Jackie Hui), Property Owner

C/- Dougie Aldred, Citywide Property Maintenance (Owners Agent)

1.3. Date of Visit

21 August 2024

1.4. Weather Conditions

Fine

1.5. Building Surveyor Present

Joshua Rawlinson, Prendos New Zealand Limited

Nick Thomas, Prendos New Zealand Limited

1.6. Other Persons Present

Dougie Aldred, Citywide Property Maintenance

2.0 Brief

- Obtain a copy of the Auckland Council (Council) Property File and undertake a desktop review of the cladding system(s) specified, detailed and approved in the historical "New dwelling" consent issued in the year of 1997.
- Allow to undertake a review of Council building inspection records relating to the construction of the dwellings cladding system(s).
- Prendos building surveyor to attend site and undertake an initial visual only weathertightness inspection of the readily accessible areas of the existing dwelling at 24 Birkdale Road, Birkdale.
- Allow to compare the existing cladding system(s) as-built construction in relation the historical "New dwelling" consent issued in the year of 1997.
- Prepare a photographic report on our findings with recommendations for next steps.

3.0 Documents Reviewed

In preparation of this report, a property file has been obtained from Council, and we have undertaken a high-level desktop review of the Council building inspection records relating to the construction of the dwellings cladding system(s).

4.0 Building History

4.1. Council Property File

4.1.1. The building was constructed between October 1997 and May 1998 under building consent No. B11515, which was issued by the former North Shore City under the Building Act 1991.

4.1.2. A final building inspection was not undertaken, and a code compliance certificate (CCC) was not applied for/obtained on completion of the building.

4.1.3. The Auckland Council took over the functions of the former North Shore City Council in November 2010. The original building consent No. B11515 has subsequently been changed to building consent No. BCO10019881.

4.1.4. In January 2020, an application for modification relating to New Zealand Building Code clause B2 Durability was submitted to Council by Barfoot & Thompson which was subsequently declined by Council.

4.1.5. We were advised during our inspection that a section of water and mould damaged plasterboard ceiling lining had been removed and replaced as a result of water overflow from the concealed internal guttering.

5.0 Property Details

5.1. Site

5.1.1. The site comprises of an existing two-storey residential dwelling. The site is situated on the western side of Birkdale Road and slopes from east to west.

5.1.2. The dwelling consists of a double car garage, laundry, WC, kitchen, dining room, living room, bedroom and master bedroom with ensuite and two decks at ground floor level. The first floor level comprises two bedrooms, bathroom, living room and an enclosed balcony. The entry foyer void extends up through to the first floor level and features a large window with an arched head.

5.2. Site Exposure

5.2.1. Wind Zone – Medium.

5.2.2. Exposure Zone C – Inland coastal areas with medium risk from wind-blown sea-spray salt deposits. This zone covers mainly coastal areas with relatively low salinity. The extent of the affected area varies significantly with factors such as winds, topography and vegetation.

5.3. Construction

5.3.1. The building is founded upon a combination of steel reinforced concrete floor slab and foundations, and a timber framed sub-floor (joists, bearers and piles). Exterior and interior walls are of light timber framed construction.

5.3.2. The exterior wall claddings comprise brick veneer and direct fixed horizontal rusticated cedar weatherboards to the ground and first floor level.

5.3.3. Window and door joinery is single-glazed powder coated aluminium framed.

5.3.4. The roof comprises timber trusses, clad with concrete tiles, which discharge rainwater to the stormwater drainage system via concealed metal eave gutters and uPVC downpipes.

5.3.5. Open timber framed decks have been constructed to the northern elevation of the dwelling at ground floor level. The decks feature slatted timber decking, on treated timber floor joists, bearers and piles. Aluminium balustrades have been installed to the perimeter of the decks.

5.3.6. A balcony has been constructed to the northern elevation of the dwelling at first-floor level. The balcony features direct fixed tiles, onto a butyl rubber waterproof membrane, -plywood substrate- on timber floor joists. Enclosed balustrades have been constructed to the balcony sides, clad with direct fixed horizontal rusticated cedar weatherboards with timber capping. An aluminium balustrade has been installed to the front perimeter of the deck. The balcony is accessed via the living room.

5.3.7. Refer to Photo Section 1 for photographs showing general elevation overviews of the building.

6.0 Inspection

6.1. Extent of Inspection

6.1.1. We undertook an initial visual only weathertightness inspection of the readily accessible areas.

6.1.2. The building's roof was inspected using a drone.

6.1.3. Internal access was gained to view the interior face of the external walls and access the first-floor balcony.

6.1.4. No steps were taken to expose elements of the structure otherwise concealed or to remove surface finishes for examination of the underlying elements and therefore, we are unable to report that such parts remain free from defects.

6.1.5. During the inspection, various weathertightness defects and risk items to the external walls and roof were observed.

6.1.6. A section of plasterboard wall lining had been previously cut-out exposing timber framing to the garage west elevation external wall.

6.1.7. Fixtures, fittings, wall linings and flooring had been removed from the ground floor bathroom, exposing timber wall and floor framing. The ceiling lining had not been removed.

7.0 Key Points from Investigation

Below is a list summarising the key points identified during our visual inspection:

7.1. Roof

7.1.1. The roof is clad with concrete tiles and discharges surface water to concealed internal fixed guttering, which is guttering that is concealed and fixed behind the fascia and within the soffit lining.

7.1.2. We were advised during our inspection that a section of water and mould damaged plasterboard ceiling lining in the garage had been removed and replaced as a result of water overflow from the concealed internal guttering. Mould was visible on the painted face of the adjacent original ceiling lining.

7.1.3. Water damage was observed on the garage southern external wall lining, adjacent to where the water and mould damaged plasterboard ceiling lining had been removed.

7.1.4. Damage to the southern elevation soffit was observed and black mould growth was visible on the soffit. Water was observed dripping from the soffit at the time of inspection. Internally, within the ground floor bathroom, staining was observed to exposed wall underlay and water damage to exposed timber framing.

7.1.5. Substantial debris build-up was observed within the concealed internal guttering in places, which impedes drainage, making downpipes subject to blocking and gutters vulnerable to flooding and overflow.

7.1.6. Water was observed ponding within the concealed internal guttering in places.

7.1.7. Complex high-risk roof-to-wall-junctions lack adequate flashing. There are gaps which are vulnerable to water ingress and timber framing is visible.

7.1.8. Apron flashing lower ends lack adequate stopend kick-outs.

7.1.9. Weatherboard cladding lacks adequate bottom edge clearance from hidden internal gutters and apron flashings.

7.1.10. Gutter foam has been installed into the hidden gutters, which impedes drainage and restricts drainage capacity.

7.1.11. Moss growth observed within the gutter foam.

7.1.12. Cracking to plaster bedding and pointing of concrete roof tiles.

7.1.13. The concrete roof tiles have been painted recently.

7.1.14. Refer to Photo Section 2 for photos relating to the above.

7.2. Internal Damage

7.2.1. Garage: A section of wall lining had been cut-out to the back of the garage (southwest wall corner) exposing water damaged timber wall framing and water-stained wall underlay. Within the wall cavity black mould was visible in the garage southwest external corner. To the exterior side of the wall, the weatherboard cladding box corner boards lack adequate coverage where the weatherboards junction with the end of the masonry block wall. A gap is visible which is vulnerable to external water ingress.

7.2.2. Ground floor bathroom: Fixtures, fittings, wall linings and flooring have been removed, exposing timber wall and floor framing. Water damage to timber wall and floor framing and staining to wall underlay was observed. Elevated moisture readings of 24% were recorded to the bottom plates. A new section of timber bottom plate and nogs have been installed.

7.2.3. Laundry: Fixtures, fittings and wall linings have been removed, exposing timber wall framing. Water staining was observed to the timber wall framing.

7.2.4. Refer to Photo Section 3 for photos relating to the above.

7.3. First Floor Balcony

7.3.1. A metal handrail/barrier has been removed from the front edge of the balcony. There are redundant fixing holes that are vulnerable to water ingress.

7.3.2. Direct fixed tiles have been removed from the entire surface of the butyl rubber balcony membrane.

7.3.3. The internal gutter rainwater outlet is formed in a manner causing ponding of water and build-up of debris in the gutter.

7.3.4. The internal gutter rainwater outlet is poorly formed and vulnerable to leakage.

7.3.5. Below the balcony gutter outlet, a section of soffit lining has been cut-out and replaced in order to alter the downpipe connection to balcony drainage outlet. Water observed dripping through the soffit as a result of water leakage from the balcony gutter and/or outlet above.

7.3.6. Debonding of the butyl membrane lap joints was observed, where tiles had been removed.

7.3.7. The tops of the enclosed side balustrades and front perimeter wall do not have cap flashings and feature flat timber cappings.

7.3.8. Front edge timber capping junctions with the enclosed side balustrades, have no cap or saddle flashings, lack fall, and are reliant on sealant for weathertightness. These junctions are high risk and vulnerable to water ingress.

7.3.9. Enclosed timber clad balustrade junctions to wall have no cap or saddle flashings, lack fall and are reliant on sealant for weathertightness. The junctions are high risk and vulnerable to water ingress.

7.3.10. Inadequate cladding clearance between the base of the weatherboard wall cladding and balcony membrane.

7.3.11. Refer to Photo Section 4 for photos relating to the above.

7.4. North Elevation Timber Deck

7.4.1. Inadequate clearance between timber decking and the base of the weatherboard wall cladding. Decayed weatherboard observed.

7.4.2. Deck structure has been fixed to the perimeter/boundary floor joists of the dwelling with no drainage gap.

7.4.3. Perimeter/boundary floor joists lack adequate cladding coverage, are exposed to the weather and subject to moisture absorption.

7.4.4. Lower weatherboards have been removed and/or cut back to accommodate a new section of timber deck. Timber floor framing is exposed and subject to moisture absorption.

7.4.5. Water staining observed to the dwelling's sub-floor timber framing (joists and bearer). A 40%+ moisture content reading was recorded to a floor joist in one location.

7.4.6. Refer to Photo Section 5 for photos relating to the above.

7.5. West Elevation Timber Deck

7.5.1. There is no drainage gap provided between the decking/stringer and the cladding and the wall cladding.

7.5.2. Flashing tape has been applied over a weatherboard cut-out just above the deck.

7.5.3. Water damage was observed to the dwellings' boundary/perimeter joist.

7.5.4. Refer to Photo Section 6 for photos relating to the above.

7.6. Wall Cladding General

7.6.1. Weatherboard stain finish is degraded to all elevations.

7.6.2. Sub-floor framing (joists and/or bearers) lack adequate cladding coverage in places and is subject to moisture absorption.

7.6.3. Water staining to timber floor framing was observed in places.

7.6.4. No wall underlay visible between the wall cladding and timber wall/floor framing in places.

7.6.5. North elevation - lower weatherboards have been removed and/or cut back to accommodate a new section of timber deck. The dwelling timber floor framing is exposed and subject to moisture absorption.

7.6.6. Garage masonry block wall extends from below ground and acts as a retaining wall. No obvious waterproof tanking system is visible on the exposed external face.

7.6.7. Garage south elevation external wall, the wall underlay extends down past the bottom edge of the weatherboard wall cladding in places and is vulnerable to moisture absorption.

7.6.8. Meterbox wall cladding penetration lacks adequate flashings to direct water to the outside and prevent water ingress behind the wall cladding.

7.6.9. The rusticated weatherboard external box corner boards are missing plugs in the scalloped section of each board, and the gaps are vulnerable to water ingress.

7.6.10. Conduit wall cladding penetration is vulnerable to water ingress.

7.6.11. Gaps visible at brick to weatherboard external corner junctions which are vulnerable to water ingress.

7.6.12. Garage door – no head flashing. Head reveal board joint and jamb-to-brick junctions are vulnerable to moisture ingress. Jamb-to-brick junctions are vulnerable to moisture ingress.

7.6.13. Brick to paved ground lacks adequate clearance in places.

7.6.14. HWC seismic restraint strap and bracket fixings – no visible EPDM or neoprene washers to provide weathertightness between the wall cladding and the straps and brackets.

7.6.15. Pipe wall cladding penetrations are reliant on poorly applied sealant for weathertightness.

7.6.16. Refer to Photo Section 7 for photos relating to the above.

7.7. Joinery

7.7.1. No sealant between the top of the aluminium window frame head and underside of brick steel lintel.

7.7.2. Bay window aluminium frame mitre joints and glass butt joints are high risk and vulnerable to water ingress.

7.7.3. Bay window head flashing formations are high risk and vulnerable to water ingress.

7.7.4. Internally, water staining to bay window timber liners was evident.

7.7.5. No flashing is visible between bay window jamb and brick wall cladding. Expanding foam is visible through the gap between the window jamb and brick.

7.7.6. Internally, water staining was observed to several window sill/jambs timber liners.

7.7.7. Cracking observed to wall linings below several window sill/jambs. Cracking may indicate damp and swollen timber wall framing.

7.7.8. The front elevation features an arched window head above the entry. Arched windows are high risk design. Internally, water damage to window sill/jamb timber liners was visible.

7.7.9. Window heads to rusticated weatherboard cladding - Lack of clearance between weatherboard bottom edges and window head flashings. Head flashings lack stop-ends to direct water to the outside at flashing ends and prevent water entry behind the wall cladding.

7.7.10. Window sills to rusticated weatherboard cladding - Windows lack sill flashings to direct water to the outside and prevent water entry behind the wall cladding.

7.7.11. Window jamb to rusticated weatherboard cladding - The jamb/cladding junctions are missing plugs and scribers, and the gaps are vulnerable to water ingress.

7.7.12. Refer to Photo Section 8 for photos relating to the above.

8.0 Analysis

8.1. New Zealand Building Code

8.1.1. New Zealand Building Code (NZBC) Clause B2 Durability must always be considered when demonstrating compliance with each of the clauses of the NZBC e.g., E2 External Moisture. In other words, B2 ensures that a building will continue to satisfy the performance requirements of the NZBC throughout its specified intended life. Clause B2 requires building materials, components and construction methods to be sufficiently durable. They must ensure that the building, without reconstruction or major renovation, continues to satisfy the other functional requirements of the NZBC throughout its life. NZBC clause B2 specifies minimum durability periods building elements must meet with only normal maintenance, being not less than 50, 15 or 5 years.

8.1.2. The NZBC B2 Durability clause that applied at the time building consent was originally granted stated:

Objective

B2.1 *The objective of this provision is to ensure that a building will throughout its life continue to satisfy the other objectives of this code.*

Functional Requirement

B2.2 *Building materials, components and construction methods shall be sufficiently durable to ensure that the building, without reconstruction or major renovation, satisfies the other functional requirements of this code throughout the life of the building.*

B2.3 *From the time a code compliance certificate is issued, building elements shall with only normal maintenance continue to satisfy the performances of this code for the lesser of; the specified intended life of the building, if any or:*

(a) *For the structure, including building elements such as floors and walls which provide structural stability: the life of the building being not less than 50 years.*

(b) *For services to which access is difficult, and for hidden fixings of the external envelope and attached structures of a building: the life of the building being not less than 50 years.*

(c) *For other fixings of the building envelope and attached structures, the building envelope, lining supports and other building elements having moderate ease of access, but which are difficult to replace: 15 years.*

(d) *For linings, renewable protective coatings, fittings, and other building elements to which there is ready access: 5 years.*

8.1.3. The NZBC E2 External Moisture clause that applied at the time building consent was originally granted stated:

Objective

E2.1 *The objective of this provision is to safeguard people from illness or injury that could result from external moisture entering the building.*

***Functional* requirement**

E2.2 *Buildings shall be constructed to provide adequate resistance to penetration by, and the accumulation of, moisture from the outside.*

Performance

E2.3.1 *Roofs shall shed precipitated moisture. In locations subject to snowfalls, roofs shall also shed melted snow.*

E2.3.2 *Roofs and exterior walls shall prevent the penetration of water that could cause undue dampness, or damage to building elements.*

E2.3.3 *Walls, floors, and structural elements in contact with the ground shall not absorb or transmit moisture in quantities that could cause undue dampness, or damage to building elements.*

E2.3.4 *Building elements susceptible to damage shall be protected from the adverse effects of moisture entering the space below suspended floors.*

E2.3.5 *Concealed spaces and cavities in buildings shall be constructed in a way which prevents external moisture being transferred and causing condensation and the degradation of building elements.*

E2.3.6 *Excess moisture present at the completion of construction, shall be capable of being dissipated without permanent damage to building elements.*

8.2. Building Consent Architectural Design Drawings

8.2.1. The building consent drawings from 1997 contain only two weathertightness construction details.

8.2.2. Drawing 11 – Details 2 and 3 indicate the brick veneer and cedar weatherboard wall claddings in relation to the building's perimeter concrete slab footings. The details however to not provide minimum cladding clearance dimensions from finished ground.

8.2.3. Except for Drawing 11 – Details 2 and 3, there are no weathertightness details for construction, or to show compliance with NZBC clauses B2 Durability and E2 External Moisture.

8.3. Concealed Internal Guttering

8.3.1. Concealed internal fixed guttering is guttering fixed behind the fascia, which is hidden and not visible, as opposed to a fascia board with the guttering fixed onto the outside surface which is visible and exposed. Concealed guttering systems are vulnerable to flooding, overflowing and consequently leaking into the soffit, eaves, roof space and/or back behind the exterior wall cladding. This can result in decay to exterior framing.

8.3.2. Debris build-up within the concealed internal gutters which impedes drainage, making downpipes subject to blocking and gutters vulnerable to flooding and overflow.

8.3.3. Gutter foam has been installed into the high level hidden internal gutters which impedes drainage and restricts drainage capacity.

8.4. Concealed Water Damaged Timber Wall Framing

8.4.1. The full extent of timber damage is only known after cladding has been removed, exposing the underlying framing, during recladding.

8.4.2. The former Department of Building and Housing (DBH) guidance document 'Dealing with timber in leaky buildings' states further problems with decay are often found once the building is opened up to allow repair work to begin, and this can frequently be the main 'unknown' in relation to the cost and extent of the repairs needed.

8.4.3. The DBH guidance document recommendation is to cut out any timber **at least one metre beyond the last visual signs of fungal decay** on the timber.

8.4.4. Water damaged wall studs require full replacement, as NZS 3604 does not allow the jointing of studs.

8.4.5. Replacement of water damaged decayed external wall framing requires a building consent, as it is not exempted building work under Schedule 1 of the New Zealand Building Act 2004 (the Act).

8.4.6. In accordance with section 17 of the Act, all new building work must comply with the requirements of the NZBC.

8.4.7. Given the age of the existing building, the changes to timber grades/strength and changes to NZS3602 and NZS 3604, design drawings and specifications will be needed for any remediation design/work to achieve/demonstrate compliance with the NZBC.

9.0 Conclusions

9.1.1. External moisture ingress has caused damage to buildings timber wall/floor framing and internal plasterboard linings.

9.1.2. Replacement of water damaged external wall framing requires building consent, as it is not exempted building work under Schedule 1 of the New Zealand Building Act 2004.

9.1.3. Any new building work must comply with the New Zealand Building Code, as required by section 17 of the New Zealand Building Act.

10.0 Recommendations

10.1.1. Assuming that the property is to continue with its current use, remediation repairs are necessary.

10.1.2. Prior to commencement of remedial design works, we recommend further investigation is undertaken including further invasive inspection, particularly where existing cladding remains in situ adjacent to and/or within 1 metre of water damaged timber framing.

10.1.3. To ensure that a compliant remedial solution and associated works are correctly undertaken, detailed design drawings and specifications by others (e.g., architect and structural engineer) should be created and agreed upon prior to obtaining a building consent and then commencing remedial works.

10.1.4. During remediation works, a timber consultant (for example, a member of the NZ Institute of Building Surveyors) should be engaged to identify timber that should be removed or that is safe to be left in place.

10.1.5. On balance, a repair solution that addresses all issues is prudent and should be undertaken.

If you require clarification of any points raised in this report or discuss the options for remediation repairs etc in more detail, please feel free to contact us.

PLEASE NOTE

This report is not sufficient to instruct a contractor in the process of repair works. Specific detailing and direction are required to be provided before and during the repair process.

11.0 Limitations

The limitations which apply to our inspection and this report are as advised to you within our letter dated 7 August 2024 and as set out below.

This report is based on a visual inspection of the readily accessible areas to the property only. No steps were taken to expose elements of the structure otherwise concealed or to remove surface finishes for examination of the underlying elements and therefore are unable to report that such parts remain free from defects. This report:

- Does not include structural engineering services or weathertightness reporting for Auckland Council Compliance.
- Is limited to a visual only weathertightness inspection of the readily accessible areas of the existing dwelling, in order to produce a report on our findings with recommendations for next steps.
- This Scope of Services does not include Structural Engineering Services and would be under a separate scope once the initial inspection has been completed.

We have not carried out or commissioned any specialist investigation or tests to ascertain whether or not any deleterious or hazardous materials have been used in the construction of or existed in any base building and/or any subsequent refurbishment.

We are unable to advise on asbestos beyond considering and noting any evident risk that may indicate need for specialist investigation. This is identified where such risks were noted on site. However, the absence of comment cannot be taken as assurance that the property or area under consideration is free from asbestos. This would require a specialist survey and materials testing, which we can arrange under separate appointment.

While statutory matters may be noted in our report, this should not be taken as a full audit or risk assessment of the property. For the avoidance of doubt this includes building code compliance, fire safety and disabled access. Should you require a complete risk assessment of statutory compliance then this can be arranged under separate appointment.

We have not carried out or commissioned any formal enquiries or investigations into the potential contamination of the site or neighbouring land. In this respect you are advised to make your own arrangements, however, should you require any guidance we would be pleased to help. We were not instructed to appoint a Mechanical and Electrical Consultant to undertake a survey of the site installations. As such, we have made commentary from a Building Surveyor's perspective only.

PHOTO SECTION 1
ELEVATION OVERVIEWS



Photo 1.1: East elevation (front of dwelling).



Photo 1.2: South and west elevations.

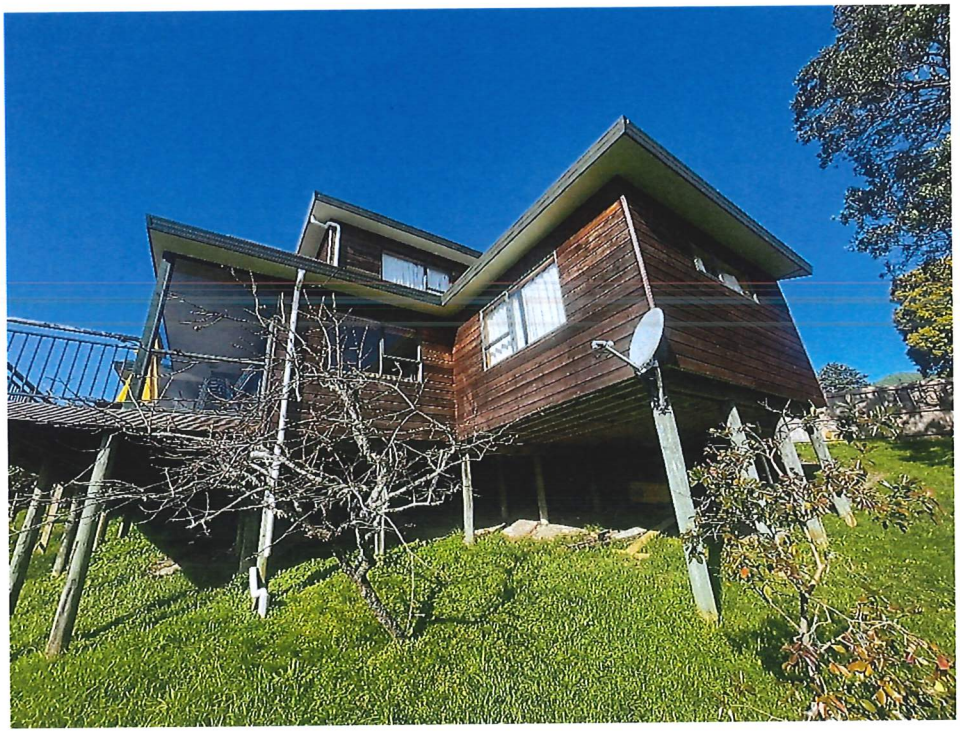


Photo 1.3: West elevation.



Photo 1.4: North elevation.

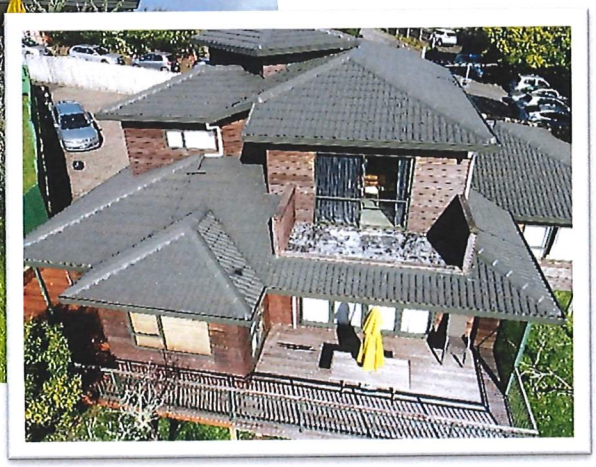


PHOTO SECTION 2
ROOF

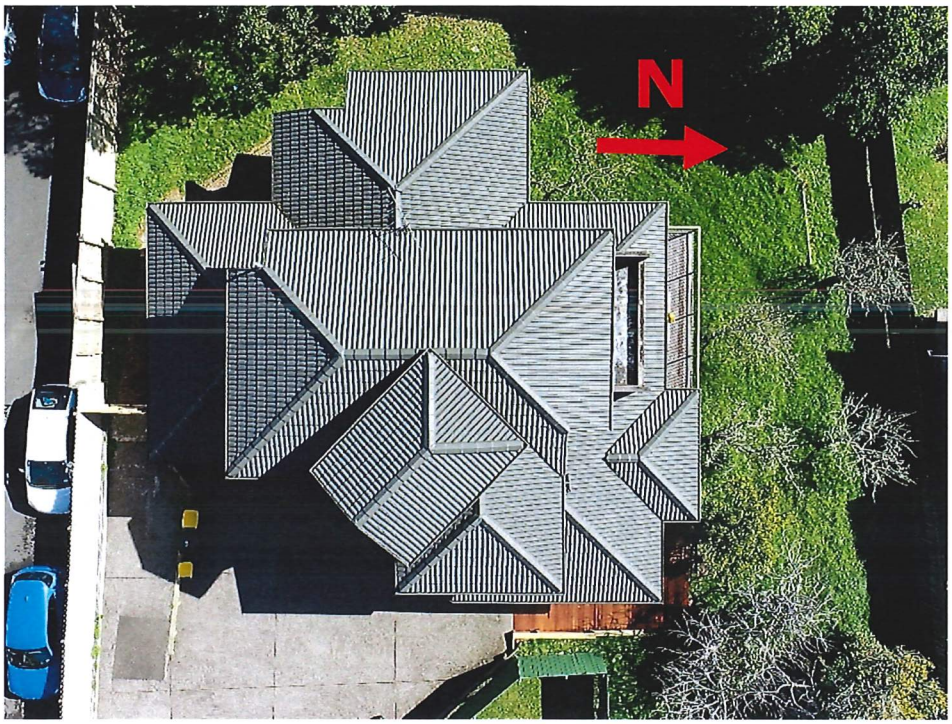


Photo 2.1: Overview of roof. The roof is clad with concrete tiles and discharges surface water to concealed internal fixed guttering, which is guttering that is concealed and fixed behind the fascia. The concrete roof tiles have been painted recently.



Photo 2.2: Typical example of concealed internal guttering which is fixed behind the metal fascia.



Photo 2.3: General view of garage. We were advised during our inspection that a section of water and mould damaged plasterboard ceiling lining had been removed and replaced as a result of water overflow from the concealed internal guttering.



Photo 2.4: Garage. We were advised during our inspection that a section of water and mould damaged plasterboard ceiling lining had been removed and replaced as a result of water overflow from the concealed internal guttering.



Photo 2.5: Garage – close view of ceiling and replace section of ceiling lining. Mould visible on the adjacent original ceiling lining.

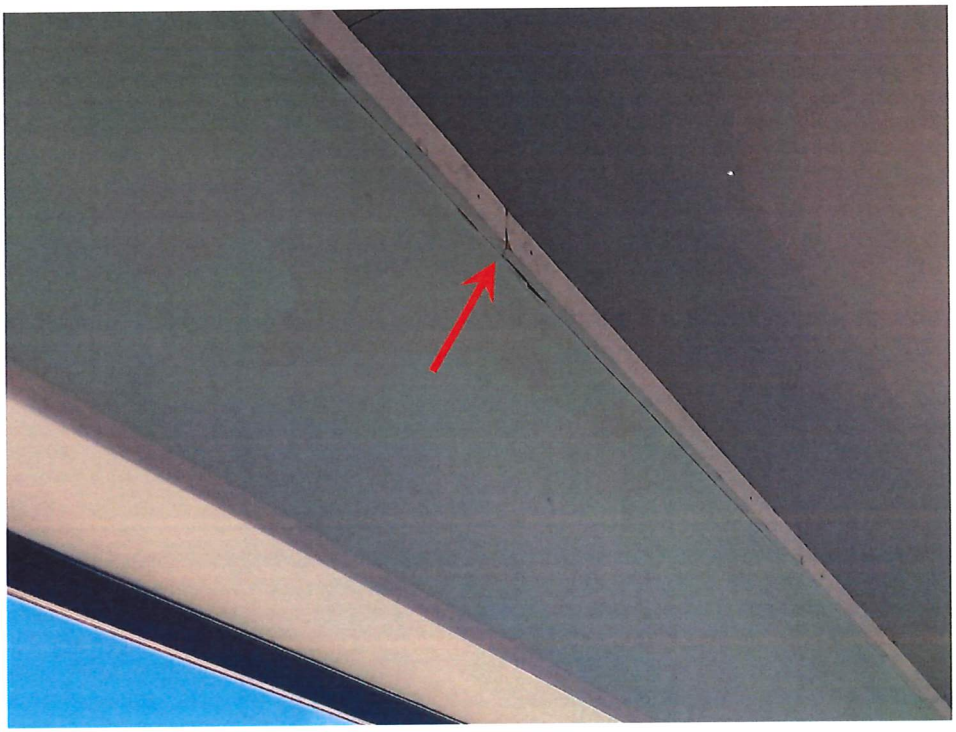


Photo 2.6: Garage – close view of ceiling junction with southern external wall. Water damage to wall lining noted.



Photo 2.7: Southern elevation. Damage to soffit and black mould growth visible. Water was dripping from the soffit at the time of inspection.



Photo 2.8: Internal view of photo 2.7 above. Staining to wall underlay and water damage to timber framing. Refer photo section 3 for further photos.



Photo 2.9: Example of substantial debris build-up within the concealed internal guttering, which impedes drainage, making downpipes subject to blocking and gutters vulnerable to flooding and overflow.

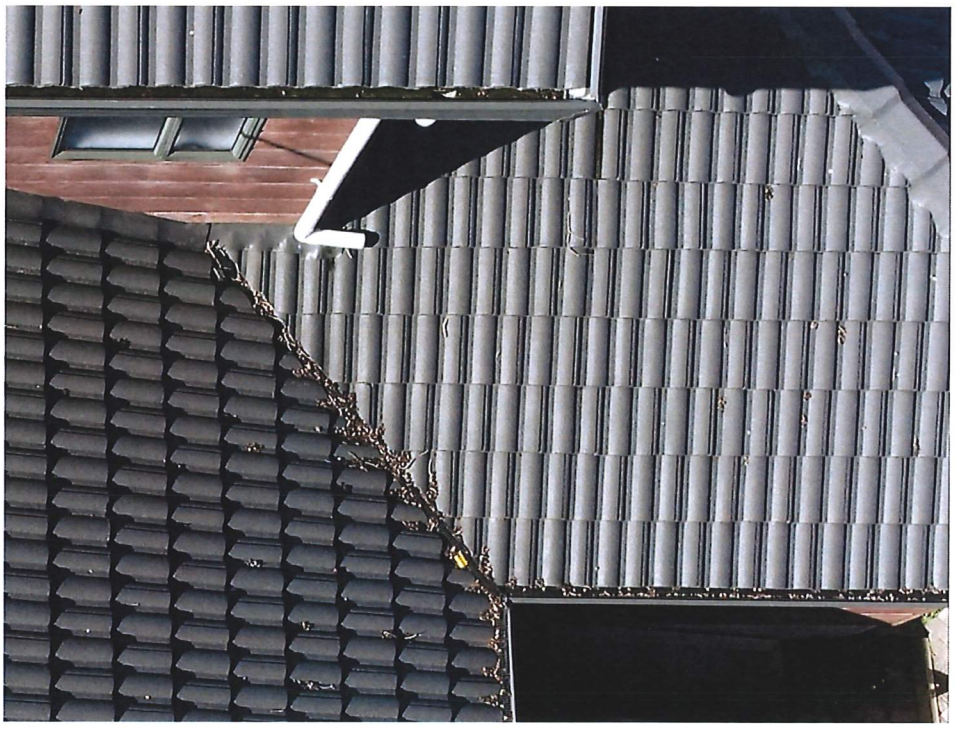


Photo 2.10: Example of substantial debris build-up within the concealed internal guttering, which impedes drainage, making downpipes subject to blocking and gutters vulnerable to flooding and overflow.



Photo 2.11: Example of water ponding within the concealed internal guttering.



Photo 2.12: Example of water ponding within the concealed internal guttering.

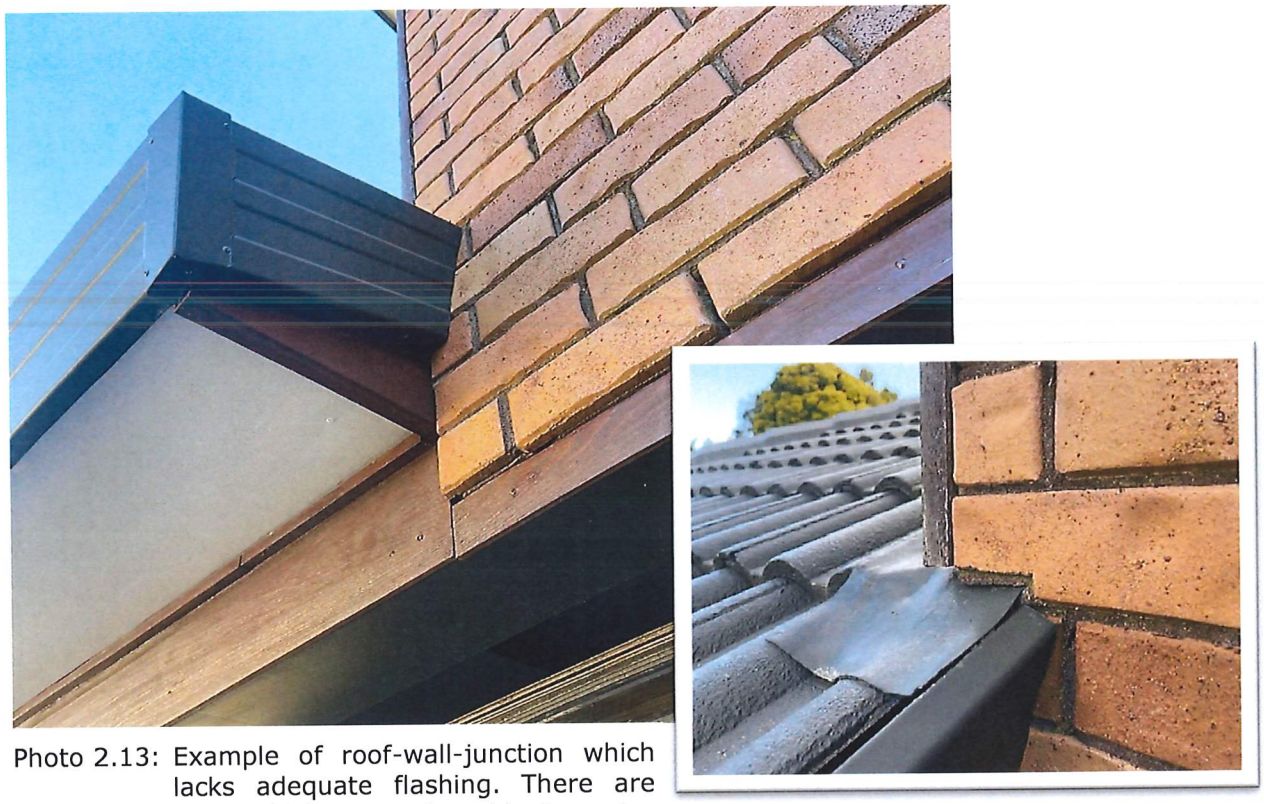


Photo 2.13: Example of roof-wall-junction which lacks adequate flashing. There are gaps which are vulnerable to water ingress.

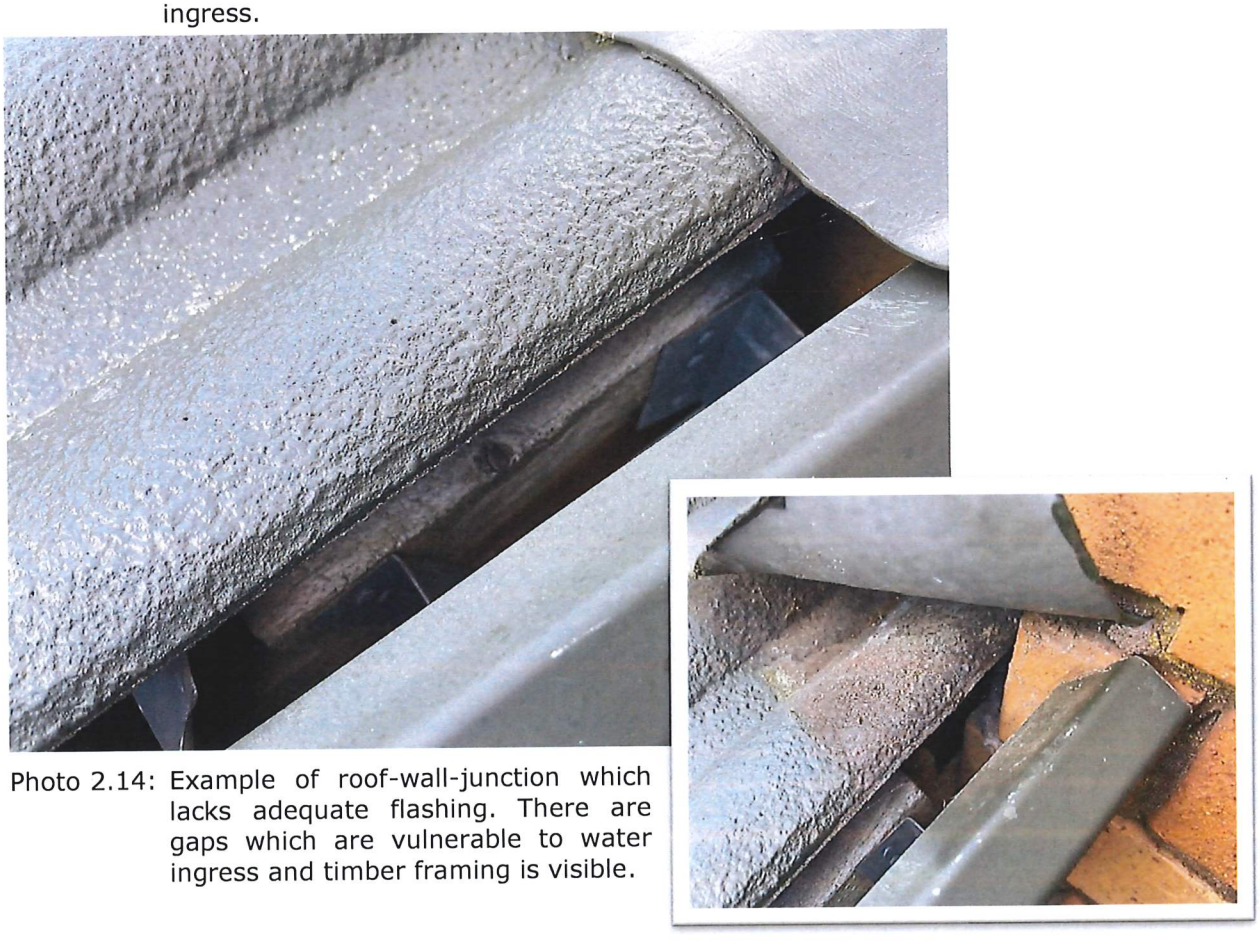


Photo 2.14: Example of roof-wall-junction which lacks adequate flashing. There are gaps which are vulnerable to water ingress and timber framing is visible.



Photo 2.15: Example of roof-wall-junction which lacks adequate flashing. There are gaps which are vulnerable to water ingress and timber framing is visible.



Photo 2.16: Example of roof-wall-junction which lacks adequate flashing. There are gaps which are vulnerable to water ingress.



Photo 2.17: Example of apron flashing lower ends lacking of stopend kick-outs.



Photo 2.18: Example of apron flashing lower ends lacking of stopend kick-outs.

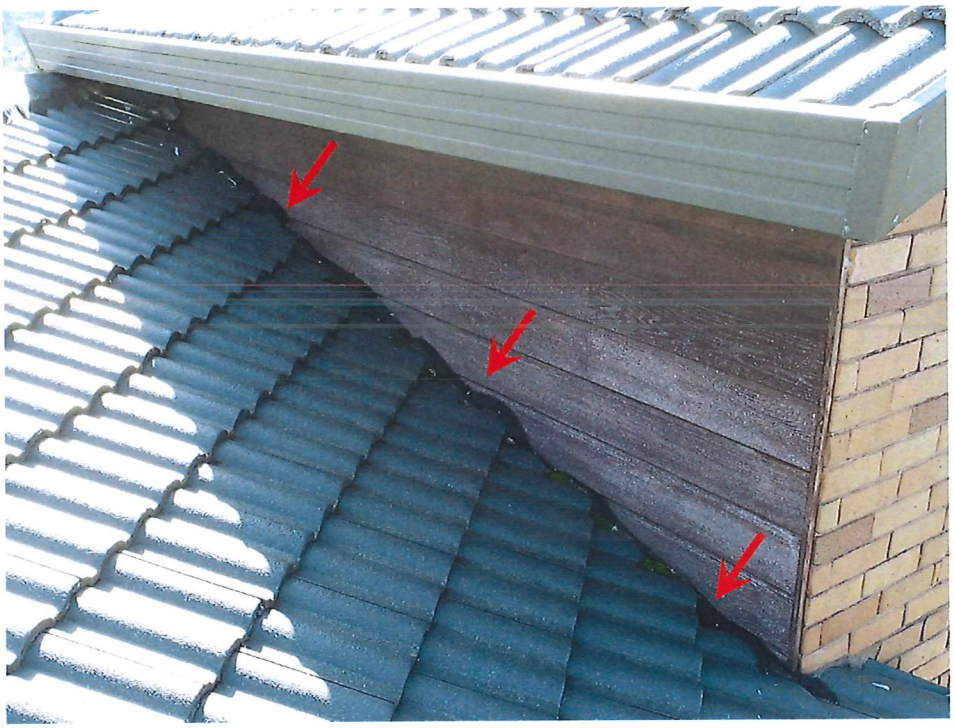


Photo 2.19: The weatherboard cladding lacks adequate bottom edge clearance from the hidden internal gutter. Gutter foam has been installed into the internal gutter which impedes drainage and restricts drainage capacity.

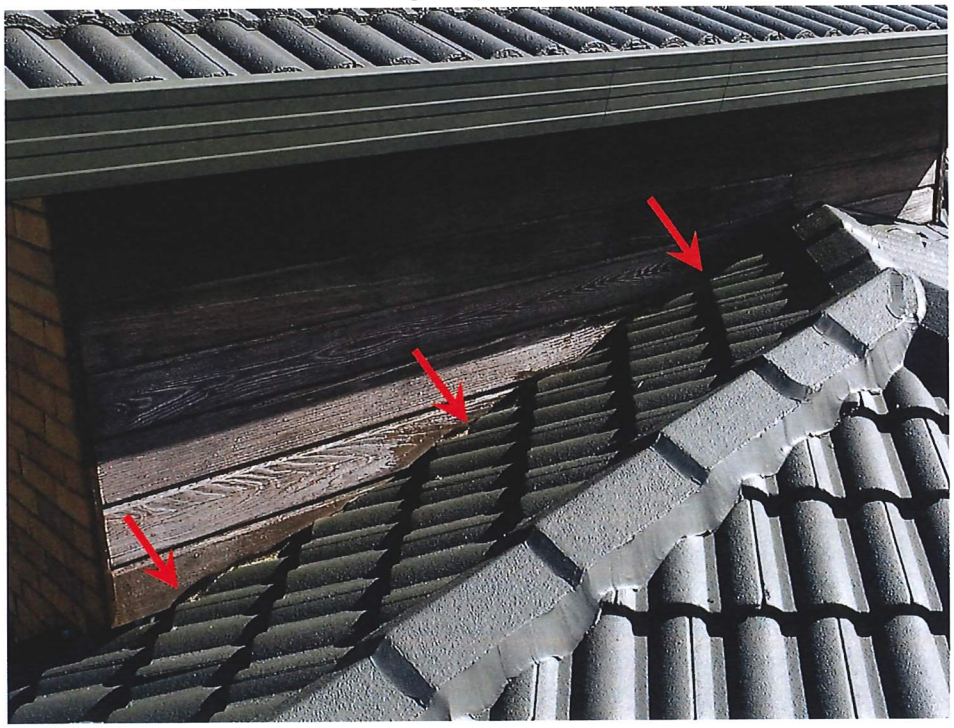


Photo 2.20: The weatherboard cladding lacks adequate bottom edge clearance from the hidden internal gutter. Gutter foam has been installed into the internal gutter which impedes drainage and restricts drainage capacity.

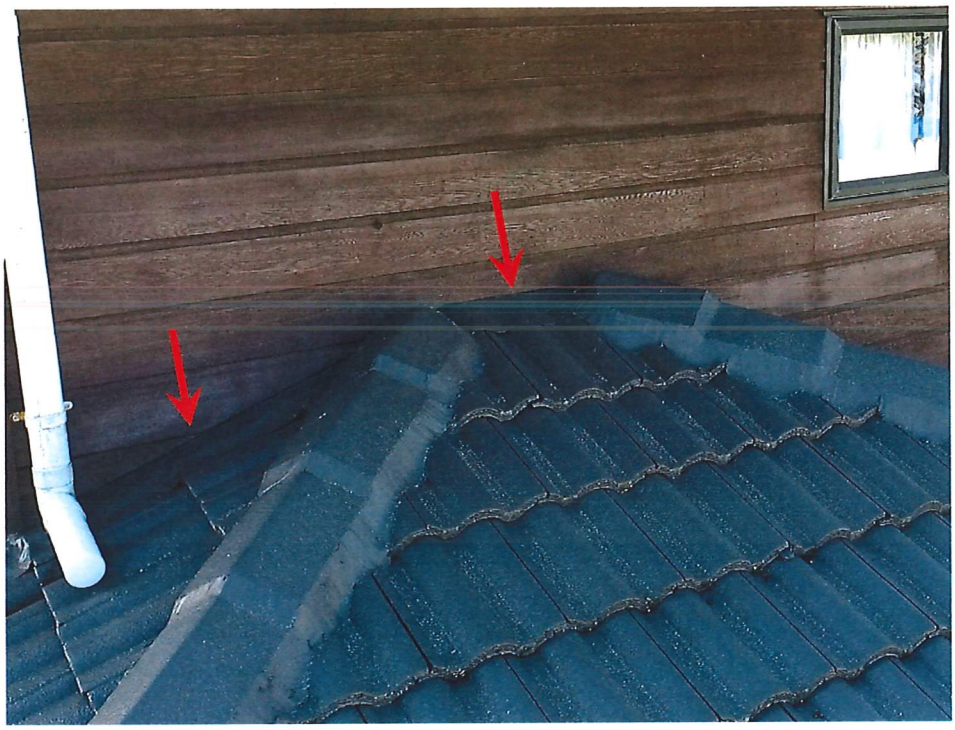


Photo 2.21: Example of inadequate weatherboard cladding bottom edge clearance.



Photo 2.22: Example of inadequate weatherboard cladding bottom edge clearance.

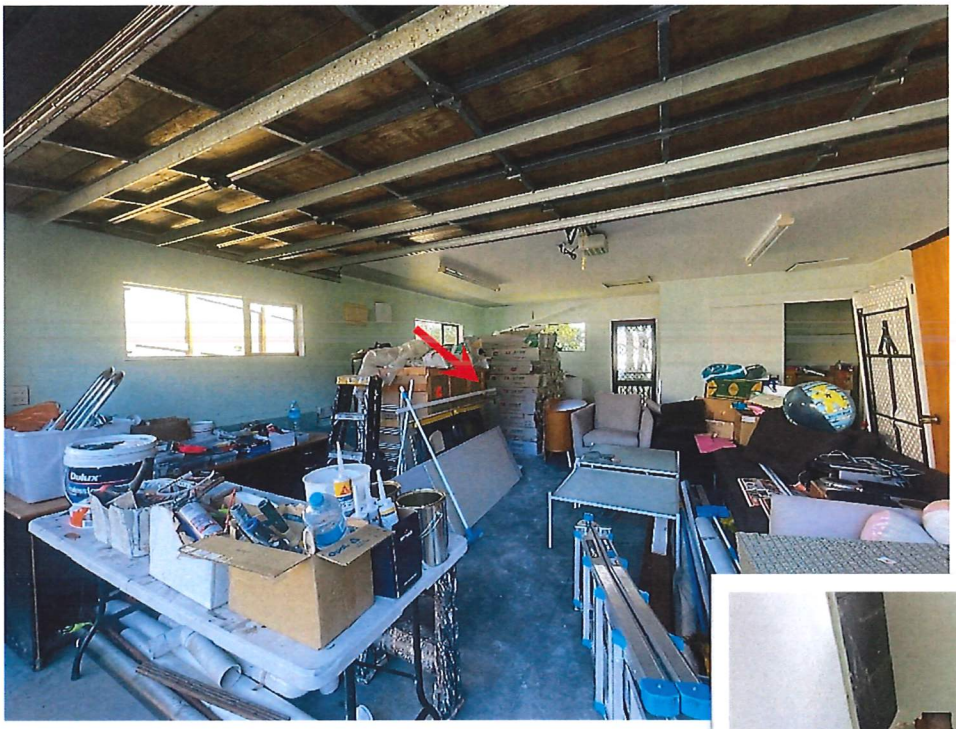


Photo 2.23: Example of moss growth within the gutter foam over internal gutter.



Photo 2.24: Example of cracking to plaster bedding and pointing.

PHOTO SECTION 3
INTERNAL DAMAGE



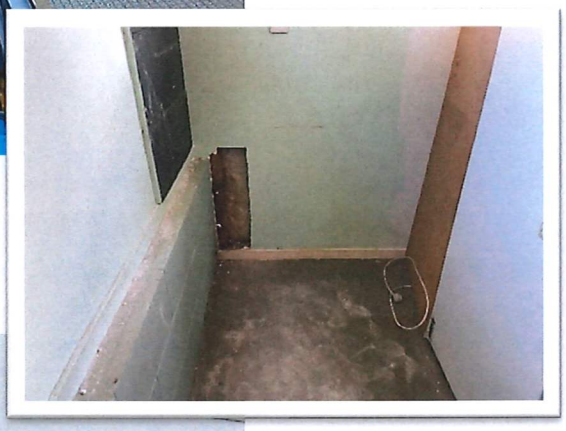


Photo 3.1: Overview of garage. Wall lining had been cut-out to the back of the garage (southwest wall corner) exposing water damaged timber wall framing. Refer photos 3.6 and 3.7 for external view.



Photo 3.2: Close view of photo 3.1 showing cut-out to garage wall lining exposing water damaged timber wall framing and water staining to wall underlay.



Photo 3.3: Close view showing cut-out to garage wall lining exposing water damaged timber framing and water staining to wall underlay.



Photo 3.4: Close view showing cut-out to garage wall lining exposing water damaged timber framing and water staining to wall underlay.

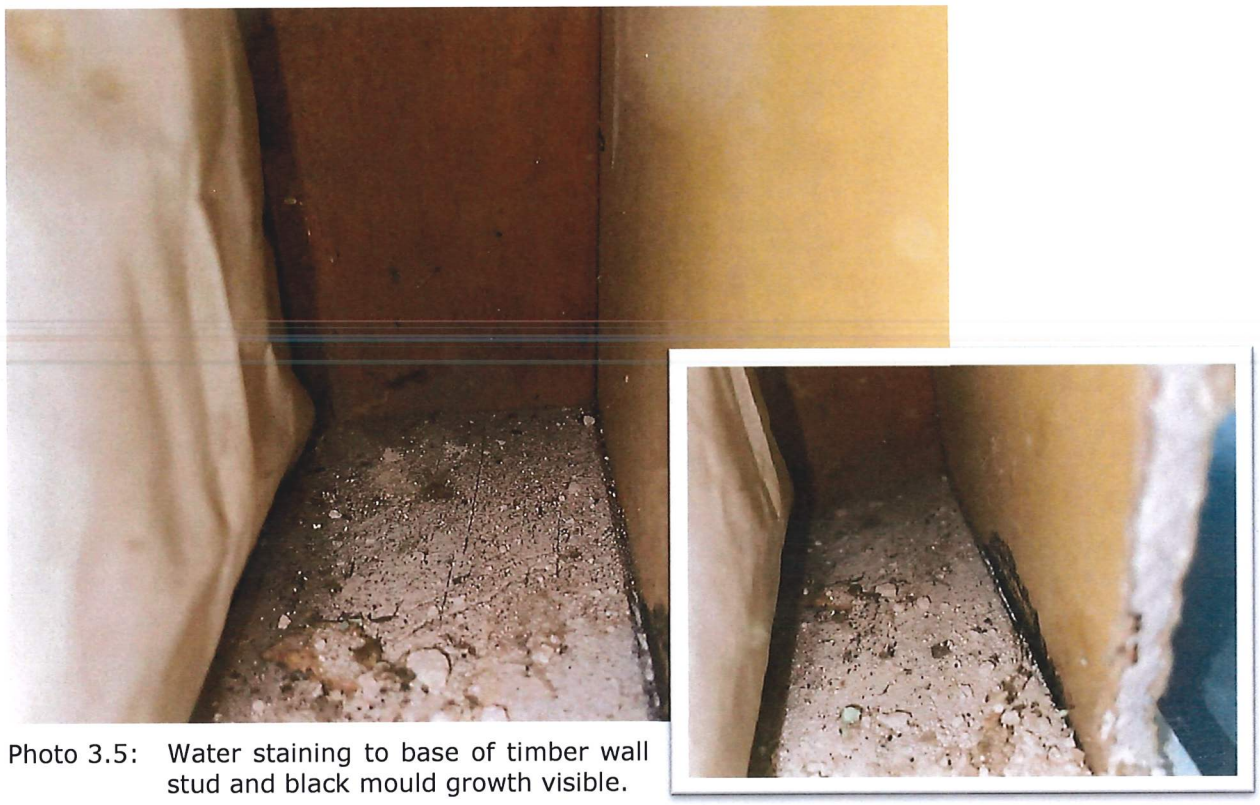


Photo 3.5: Water staining to base of timber wall stud and black mould growth visible.

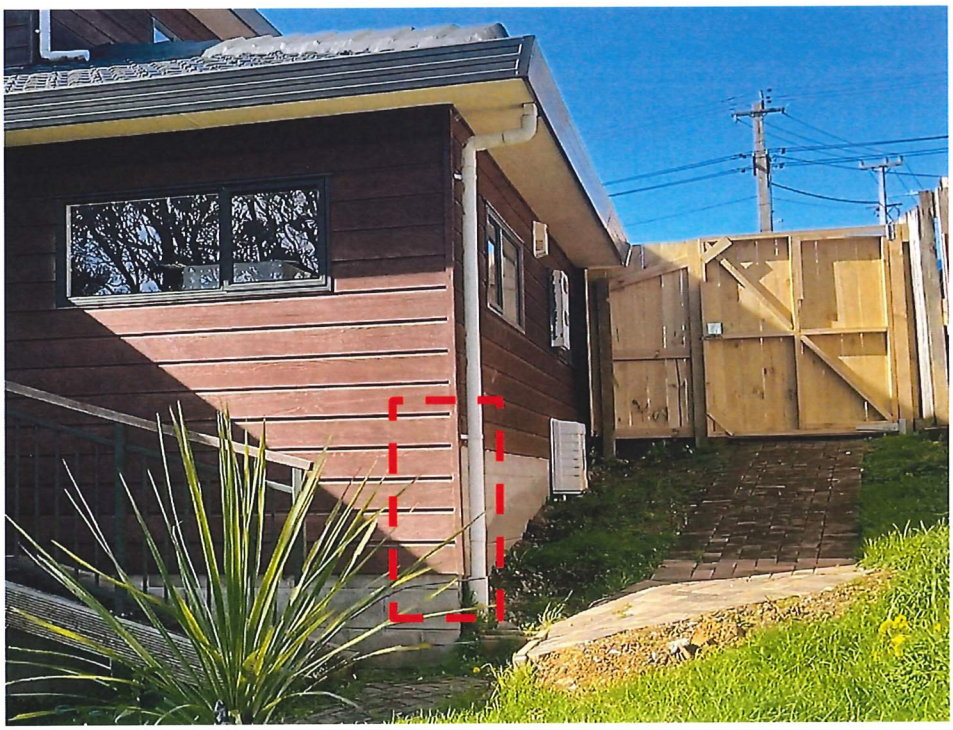


Photo 3.6: Overview of garage southwest external corner, refer photo 3.7 and 3.8.



Photo 3.7: Close view of garage southwest external corner. The weatherboard cladding box corner coverboard lacks adequate coverage where it junctions with the end of the masonry block wall. A gap is visible which is vulnerable to water ingress.

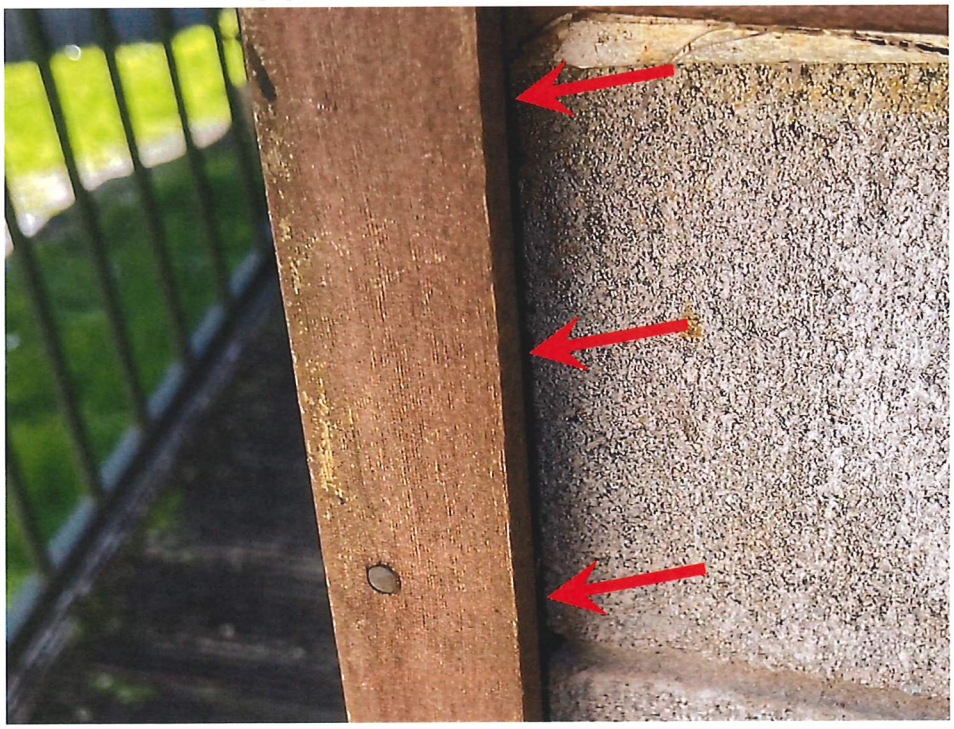


Photo 3.8: Close view of gap between the corner coverboard and end of the masonry block wall.



Photo 3.9: General view of ground floor bathroom. Fixtures, fittings, wall linings and flooring have been removed, exposing timber wall and floor framing. Staining to wall underlay evident.



Photo 3.10: Water damage to external timber wall and floor framing and staining to wall underlay.



Photo 3.11: Close up of water damaged external wall and floor framing and staining to wall underlay.



Photo 3.12: Elevated moisture reading of 24%.



Photo 3.13: Close up of water damage external wall and staining to wall underlay.

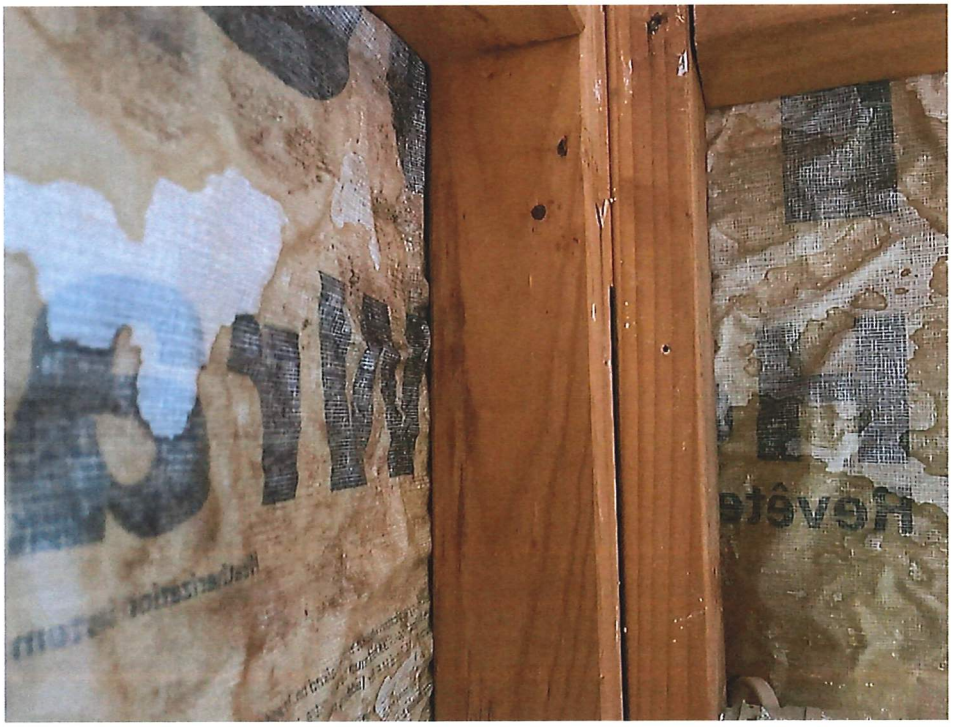


Photo 3.14: Close up of example of staining to wall underlay and discolouration to the external side of the wall stud.



Photo 3.15: Internal view of weatherboard wall cladding pipe penetration shown in above photo 3.17. Water damage to timber wall framing. Water staining to wall underlay.



Photo 3.16: Externally, the weatherboard wall cladding pipe penetration is reliant on poorly applied sealant for weathertightness.



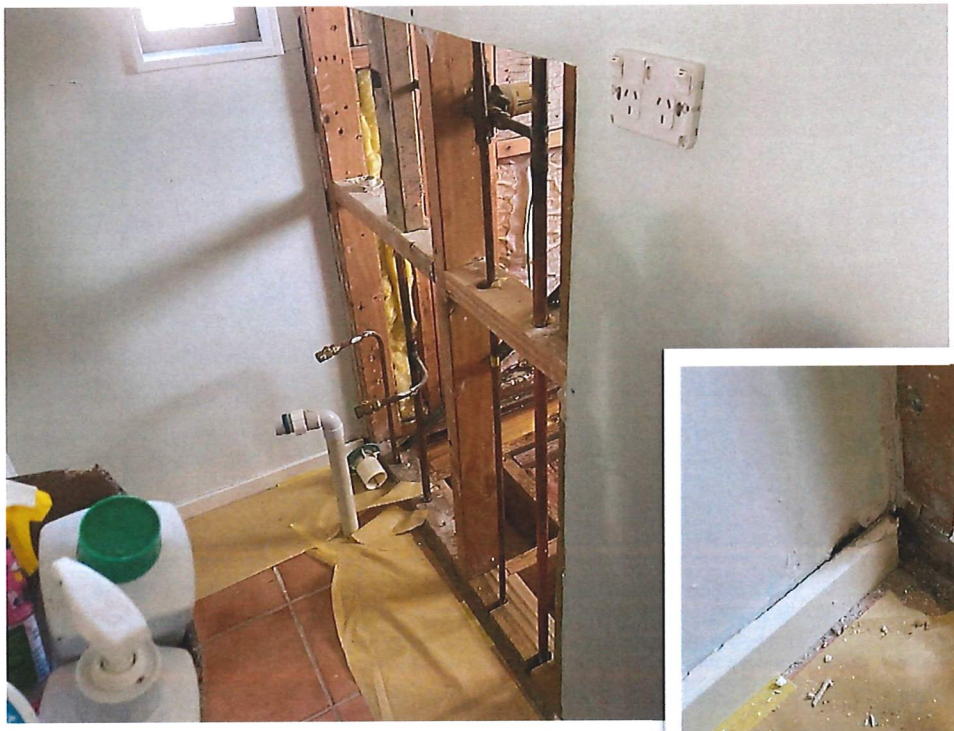
Photo 3.17: Elevated moisture reading of 24%.



Photo 3.18: Water damage to timber floor joists. A new section of bottom plate and nogs have been installed.



Photo 3.19: Overview of laundry, and internal wall between the laundry and bathroom.



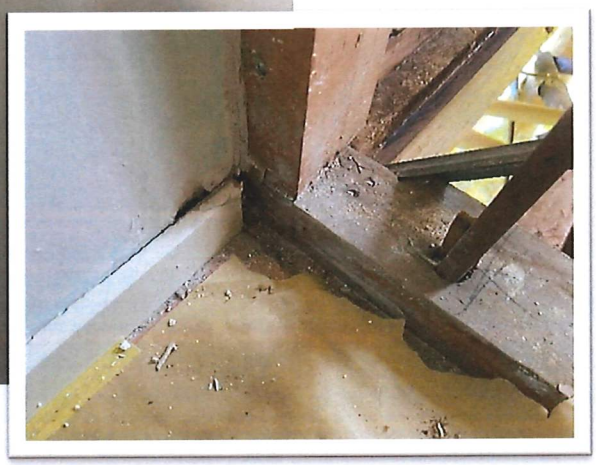


Photo 3.20: Fixtures, fittings and wall lining have been removed, exposing timber wall framing. Water staining to timber framing visible.