

Roofing Inspection Report

Property: Bundalaguah Primary School, [REDACTED] Bundalaguah, VIC 3851

Date of Inspection: April 16, 2025

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Prepared for: Bundalaguah Primary School Administration

Introduction

As a licensed roof plumber registered with the Victorian Building Authority (VBA), I conducted a thorough inspection of the roofing systems at Bundalaguah Primary School's toilet blocks and walkway roof. This report provides an unbiased analysis of the roofing conditions, compliance with Victorian regulations, and actionable recommendations. Our goal is to equip you with comprehensive information to make informed decisions based on your priorities, budget, and long-term goals for the property. We have no bias toward any specific course of action; our role is to present expert findings and options, leaving the final decision to you.

The inspection adheres to the standards outlined in the **National Construction Code (NCC) 2022, Volume Three (Plumbing Code of Australia)** and the **Plumbing Regulations 2018**, which govern roofing (stormwater) work in Victoria. These regulations, enforced by the VBA, ensure that roof drainage systems are designed and maintained to protect people, property, and the environment from the adverse effects of stormwater (NCC Part E3, AS/NZS 3500.3).

Below, I detail the findings for each section of the roofing system, explain why action is necessary, and provide multiple options with their pros, cons, and risks. Each recommendation considers compliance, durability, and budget constraints to help you weigh your choices.

Findings and Analysis

1. Newer Toilet Block

Description: This is the most modern toilet block with a metal roof, polycarbonate sheets, and a small gutter system draining to a walkway roof.

Observations:

- **Polycarbonate Sheets:** The sheets are in good condition, but one sheet is cracked, and the rubber seals are perishing. A large hole is missing a rubber seal, and the sealant around a vent pipe is deteriorating.
- **Screws:** Screws securing the polycarbonate sheets are aging and should be replaced to prevent leaks.
- **Gutter and Downpipe:** The gutter lacks overflow provisions, which is non-compliant with NCC Part E3. A single 90mm downpipe is sufficient but could benefit from an inspection opening.
- **Apron Flashing:** The apron flashing extends less than the recommended 150mm, though no leaks were observed.
- **General Condition:** The roof requires a high-pressure clean (soft pressure for polycarbonate) to remove dirt and debris.

Compliance Notes: The lack of gutter overflows violates NCC Part E3P1, which requires roof drainage systems to manage extreme rainfall events. The apron flashing does not meet the recommended 150mm extension per AS/NZS 3500.3, though it is functional.

Video:



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2. Older Toilet Block

Description: A portable-style building with a trim deck (five-rib) metal roof, likely 0.42mm base metal thickness (BMT).

Observations:

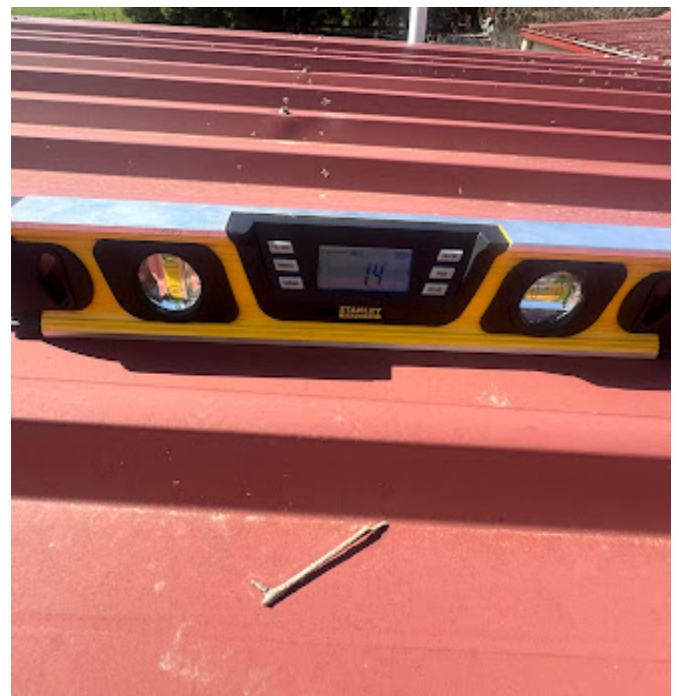
- **Roof Pitch:** The roof pitch is approximately 1.4–1.5 degrees, below the minimum 3 degrees required for a 0.42mm BMT trim deck profile (SA HB 39). This poses a risk of water pooling and leaks.
- **Flashings:** Some flashings cover only one rib, whereas best practice (SA HB 39) recommends covering at least two ribs for stability and to prevent twisting.
- **General Condition:** The roof is structurally sound but non-compliant due to the pitch issue.

Compliance Notes: The roof pitch does not meet SA HB 39 requirements for the profile, risking non-compliance with NCC Part E3P2, which mandates adequate drainage.

Video:



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3. Walkway Roof

Description: A metal roof connecting the toilet blocks, with a box gutter and rainhead.

Observations:

- **Pitch:** The roof pitch is 4 degrees, which is compliant and sufficient for water runoff.
- **Box Gutter:** The box gutter is level, causing water to pool, and lacks overflow provisions, which is non-compliant. It does not meet the minimum dimensions (200mm bottom, 100mm top) per AS/NZS 3500.3.
- **Rainhead:** The rainhead is blocked and lacks an overflow, violating NCC Part E3P1.
- **Roof Sheets:** The ends of the sheets are not turned down, increasing the risk of water ingress via capillary action.
- **General Condition:** The roof is dirty, with debris in trays, and requires a high-pressure clean.

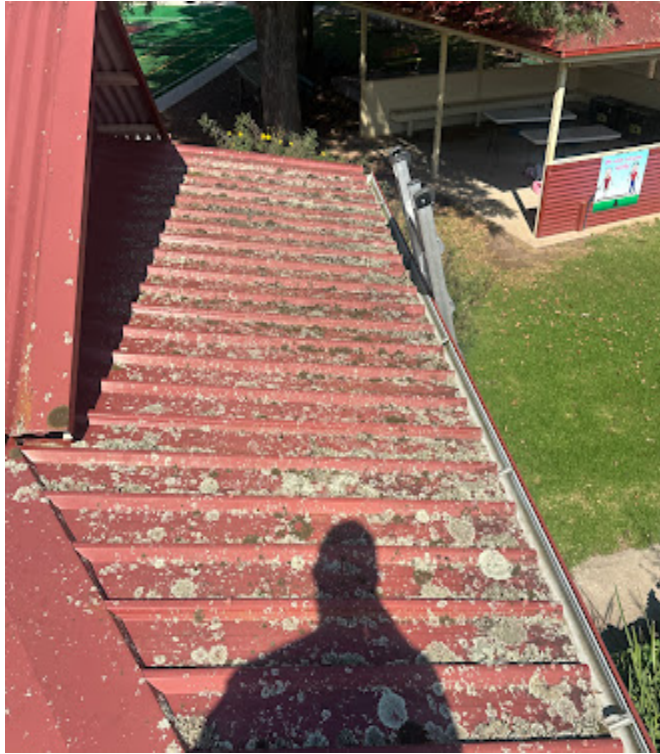
Compliance Notes: The box gutter and rainhead issues contravene NCC Part E3P1–E3P4, which require adequate stormwater disposal and overflow provisions.

Video:



[sharing](#)





4. Downpipes (Across All Sections)

Observations:

- **Quantity and Size:** Six 90mm downpipes are sufficient for the roof area, meeting AS/NZS 3500.3 sizing requirements.
- **Condition:** Two downpipes are damaged (likely from whipper snippers) and require repair. None have inspection openings, which are recommended for maintenance.
- **Compliance Notes:** While functional, the lack of inspection openings and overflow provisions (e.g., via rainheads) does not fully align with best practices under AS/NZS 3500.3 for maintenance access.

Why Action Is Necessary

The roofing system at Bundalaguah Primary School is generally in good condition for its age, but several issues pose risks if left unaddressed:

- **Water Ingress:** Non-compliant gutter overflows, an under-pitched roof, and a level box gutter increase the risk of water pooling and leaking into the buildings. This can cause structural damage, mold growth, and electrical hazards, particularly in a school environment where safety is paramount.
- **Compliance:** The identified issues (e.g., lack of overflows, incorrect roof pitch) do not meet NCC 2022 and VBA standards, potentially leading to regulatory penalties or insurance claim denials.
- **Long-Term Costs:** Delaying maintenance or repairs may lead to more extensive damage, requiring costly replacements. For example, water pooling in the box gutter could corrode the metal or rot adjacent timber.
- **Safety:** Debris buildup and blocked drainage systems can create slip hazards or overflow onto walkways, endangering students and staff.

Failing to act could result in:

- **Structural Damage:** Leaks can weaken timber frames and cladding, leading to expensive repairs.
- **Health Risks:** Mold from water ingress can cause respiratory issues, particularly for children.
- **Regulatory Issues:** Non-compliance may attract VBA audits or fines under the Plumbing Regulations 2018.
- **Increased Costs:** Minor issues, if ignored, may escalate into major repairs, impacting the school's budget.

Video:



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Roof Conclusion Video:



Recommendations and Options

Below are tailored options for each roofing section, with pros, cons, risks, and budget considerations. Each option aligns with NCC 2022 and VBA standards, and I've included cost-effective solutions for a price-conscious client, while highlighting the trade-offs.

Newer Toilet Block

Option 1: Comprehensive Maintenance and Upgrades

Description: Clean the roof (soft pressure for polycarbonate), replace the cracked polycarbonate sheet, replace all rubber seals and screws, reseal the vent pipe, install rainheads with overflows at the downpipe, and repair the damaged downpipe with an inspection opening.

Compliance: Meets NCC Part E3P1 (overflow provisions) and AS/NZS 3500.3 (gutter and downpipe maintenance).

Pros:

- Ensures long-term durability by addressing all issues.
- Fully compliant with VBA and NCC standards.
- Prevents leaks and extends the roof's lifespan.

Cons:

- Higher upfront cost due to multiple repairs.
- Requires skilled labor for polycarbonate work.

Risks:

- Minimal, as this addresses all issues comprehensively.
- Potential for minor delays if materials (e.g., matching polycarbonate) are delayed.

Budget Consideration: This is the most expensive option but offers the best value for longevity. For a tight budget, you could prioritize the cracked sheet and rainheads, but this leaves other issues unresolved.

Estimated Cost: \$3,000–\$5,000 (depending on material costs and labor rates).

Option 2: Budget-Friendly Maintenance

Description: Clean the roof, replace the cracked polycarbonate sheet, and install rainheads with overflows. Defer replacing rubber seals, screws, and resealing the vent

pipe.

Compliance: Partially meets NCC Part E3P1 by adding overflows but does not address all maintenance needs.

Pros:

- Lower cost, suitable for tight budgets.
- Addresses critical compliance issue (overflows) and immediate leak risk (cracked sheet).

Cons:

- Aging rubber seals and screws may fail within 1–2 years, leading to leaks.
- Vent pipe sealant may continue to deteriorate, risking water ingress.

Risks:

- Future leaks from deferred maintenance could damage the building interior.
- Non-replaced components may require costlier repairs later.

Budget Consideration: This is a cost-effective short-term solution but sacrifices longevity. You'll likely face additional costs within a few years.

Estimated Cost: \$1,500–\$2,500.

Option 3: Minimal Action (Clean Only)

Description: Perform a high-pressure clean (soft for polycarbonate) to remove debris.

Compliance: Does not address NCC Part E3P1 (overflows) or AS/NZS 3500.3 (maintenance of components). **Pros:**

- Lowest cost option.
- Improves appearance and temporarily aids water flow.

Cons:

- Does not resolve compliance issues or structural risks.
- Cracked sheet, aging seals, and lack of overflows remain unaddressed.

Risks:

- High risk of leaks, mold, and structural damage due to unresolved issues.
- Non-compliance may lead to VBA scrutiny or insurance issues.

Budget Consideration: While cheapest, this option is not recommended due to significant risks and ongoing maintenance needs.

Estimated Cost: \$500–\$1,000.

Recommendation: I recommend **Option 1** for its comprehensive approach, ensuring compliance and longevity. However, if budget constraints are significant, **Option 2** addresses critical issues at a lower cost, though you should plan for additional maintenance soon.

Older Toilet Block

Option 1: Replace Roof with Compliant Profile

Description: Replace the trim deck roof with a 0.48mm BMT clip-lock profile (suitable for 1-degree pitch), install new flashings covering two ribs, and add a rainhead with overflow to the gutter.

Compliance: Meets SA HB 39 (roof pitch) and NCC Part E3P2 (adequate drainage).

Pros:

- Fully compliant with VBA and NCC standards.
- Clip-lock profile is durable and low-maintenance.
- Eliminates risk of water pooling and leaks.

Cons:

- High upfront cost due to full roof replacement.
- Requires temporary closure of the toilet block during work.

Risks:

- Minimal, as this resolves all issues.
- Potential for minor cost overruns if underlying timber needs repair.

Budget Consideration: This is the most expensive but most reliable option. A cheaper alternative risks ongoing issues.

Estimated Cost: \$8,000–\$12,000.

Option 2: Modify Existing Roof Pitch

Description: Lift the roof, adjust the timber framework to achieve a 3-degree pitch, reinstall the existing trim deck, and replace flashings to cover two ribs. Add a rainhead with overflow.

Compliance: Meets SA HB 39 and NCC Part E3P2. **Pros:**

- Retains existing roofing material, reducing material costs.
- Achieves compliance and prevents pooling.

Cons:

- Labor-intensive, potentially offsetting material savings.
- Risk of damage to existing sheets during removal/reinstallation.

Risks:

- Potential for hidden timber damage, increasing costs.
- May not extend roof lifespan as much as a full replacement.

Budget Consideration: Slightly cheaper than Option 1 but still significant. It's a middle-ground option.

Estimated Cost: \$6,000–\$9,000.

Option 3: Minimal Action (Add Overflow Only)

Description: Install a rainhead with overflow to the gutter, leaving the roof pitch and flashings unchanged.

Compliance: Partially meets NCC Part E3P1 (overflows) but not SA HB 39 (pitch).

Pros:

- Low cost and quick to implement.
- Addresses gutter overflow compliance.

Cons:

- Does not resolve under-pitch issue, risking leaks and pooling.
- Flashings remain suboptimal, potentially twisting over time.

Risks:

- High risk of water ingress and structural damage due to non-compliant pitch.
- Non-compliance with SA HB 39 may affect insurance or VBA audits.

Budget Consideration: Cheapest but highly risky, likely leading to costlier repairs later.

Estimated Cost: \$1,000–\$2,000.

Recommendation: I strongly recommend **Option 1** for its compliance and durability. If budget is a concern, **Option 2** is viable but less future-proof. **Option 3** is not advised due to significant risks.

Walkway Roof

Option 1: Full Box Gutter Replacement

Description: Lift the roof, replace the box gutter with a compliant design (200mm bottom, 100mm top, correct fall), install a rainhead with overflow, turn down sheet ends, clean the roof, and repair damaged downpipes with inspection openings.

Compliance: Meets NCC Part E3P1–E3P4 and AS/NZS 3500.3 (box gutter dimensions and overflow). **Pros:**

- Fully compliant and durable solution.
- Prevents water pooling and overflow risks.
- Enhances maintenance access with inspection openings.

Cons:

- High cost due to extensive work.
- Requires temporary walkway closure.

Risks:

- Minimal, as all issues are addressed.
- Potential for minor cost increases if additional repairs are needed.

Budget Consideration: Most expensive but offers the best long-term value.

Estimated Cost: \$5,000–\$8,000.

Option 2: Install Sump and Downpipe

Description: Install a sump and downpipe at the low end of the box gutter, add a rainhead with overflow, turn down sheet ends, clean the roof, and repair downpipes with inspection openings.

Compliance: Meets NCC Part E3P1 (overflows) but does not fully address AS/NZS 3500.3 (box gutter fall).

Pros:

- Lower cost than full replacement.
- Improves drainage and compliance with overflows.

Cons:

- Level box gutter remains, risking future pooling if the sump clogs.
- Less durable than a properly sloped gutter.

Risks:

- Sump may block, leading to overflow and water ingress.

- Partial compliance may not satisfy VBA inspections.
Budget Consideration: A cost-effective compromise but with maintenance risks.
Estimated Cost: \$2,500–\$4,000.

Option 3: Minimal Maintenance

Description: Clean the roof, clear the rainhead, and repair downpipes.

Compliance: Does not meet NCC Part E3P1–E3P4 or AS/NZS 3500.3.

Pros:

- Lowest cost and quick to implement.
- Temporarily improves water flow.

Cons:

- Does not address box gutter or overflow issues.
- Sheet ends remain unturned, risking capillary action.

Risks:

- High risk of overflow, leaks, and structural damage.
- Non-compliance may lead to regulatory or insurance issues.

Budget Consideration: Cheapest but not recommended due to significant risks.

Estimated Cost: \$1,000–\$1,500.

Recommendation: I recommend **Option 1** for its compliance and reliability. **Option 2** is a budget-friendly alternative but carries maintenance risks. **Option 3** is not advised.

Downpipe Recommendations (All Sections)

Option 1: Repair and Upgrade

Description: Repair two damaged downpipes, install 45-degree inspection openings with pop-off caps on all six downpipes, and ensure rainheads with overflows are added where needed.

Compliance: Meets AS/NZS 3500.3 (maintenance access) and NCC Part E3P1 (overflows).

Pros:

- Enhances maintenance and prevents blockages.
- Pop-off caps act as secondary overflows.

Cons:

- Moderate cost for multiple openings.

Risks:

- Minimal, as this is a standard upgrade.

Budget Consideration: Reasonable cost for significant benefits.

Estimated Cost: \$1,500–\$2,500.

Option 2: Repair Only

Description: Repair the two damaged downpipes.

Compliance: Does not meet AS/NZS 3500.3 best practices for maintenance access.

Pros:

- Low cost and quick.

Cons:

- No inspection openings, complicating future maintenance.
- No additional overflow protection.

Risks:

- Blockages may go undetected, leading to overflows.

Budget Consideration: Cheapest but limited in scope.

Estimated Cost: \$500–\$1,000.

Recommendation: **Option 1** is preferred for maintenance and compliance. **Option 2** is a minimal fix but less effective.

Conclusion

The roofing system at Bundalaguah Primary School is in good overall condition but requires targeted maintenance and upgrades to ensure compliance with NCC 2022 and VBA standards, prevent water ingress, and maintain safety. The key issues—lack of gutter overflows, an under-pitched roof, and a level box gutter—pose risks of leaks, structural damage, and regulatory non-compliance if not addressed.

We've provided multiple options for each section, ranging from comprehensive repairs to budget-friendly solutions, with clear pros, cons, and risks. For a price-conscious client, the budget options (e.g., Option 2 for each section) address critical issues at a lower cost, but they come with trade-offs, such as shorter lifespan or ongoing maintenance needs. The comprehensive options (Option 1) offer the best long-term value and compliance.

As a licensed roof plumber, my role is to provide you with expert, unbiased advice. You have the flexibility to choose the options that best align with your budget and priorities. We recommend prioritizing compliance and safety, especially given the school's responsibility to protect students and staff. Please feel free to contact me to discuss these options further or to arrange a follow-up inspection.