ColorCote®

Technical Bulletin.

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Solar & Photovoltaic Panel installation guidance with ColorCote® Painted Steel Roofing

Considerations before progressing with installing Solar & Photovoltaic Panel installation

Generally, most councils in New Zealand do not require consent applications for solar panel installations as they are considered energy work. However, there are exceptions.

- For instance, installations on heritage-listed buildings may require resource consent, and special interest zones may also have specific requirements.
- It is important to check with the local council to ensure compliance with local requirements or regulations, as adding solar panels may affect height-to-boundary restrictions or be subject to specific planning regulations.
- A professional inspection is recommended to review your roof's current condition. A professional will assess whether your roof can support the additional weight of solar panels, ensuring the safety and longevity of both the roof and the solar panel system. It will reveal if any repairs or maintenance are needed on your roof before installation. It will also ensure that the installation will meet local building codes and safety standards, which is critical for both the functions & performance of the solar panel system.

Installation Guidelines

- Ensure there is a sufficient practical clearance of 150 mm. A greater clearance may be required for larger installations or where greater debris deposits are expected to allow for the movement of a telescoping brush.

- Ensure that a sensible array layout is adopted to allow for breaks between the panels (across the width and down the length)

Following the abovementioned guidelines will improve the below:

Improved self-cleaning action - The process of where rainwater would flow through & naturally remove the build-up of accumulated leaves & other debris.

Easier maintenance access – Allows for convenient cleaning, inspection, and upkeep of both the roofing material and fasteners beneath the panels.

Enhanced airflow – Promotes quicker drying of areas beneath the PV panels, which may also support optimal electrical performance, as output typically depends on temperature.

Product Compatibility Guidelines

Ensure every component used with your ColorCote® painted steel sheets are fully compatible to maintain performance and longevity:

- Avoid Dissimilar Metals, contact or discharges of water from brass or copper pipes on to ColorCote® painted steel roofing. Do not use non-galvanised steel, copper, brass, lead, stainless steel or monel metal in direct contact with ColorCote® painted steel roofing. Use of lead flashings is to be avoided; soft edge aluminium or notched flashings are recommended.

- Prevent Direct Timber Contact: Timber should not be placed in direct contact with ColorCote® painted steel roofing. When timber becomes damp, whether from rainfall, cleaning, or high humidity — it may subject the painted steel to prolonged moisture exposure, potentially compromising the roof's integrity. Also, tanalised timber contains copper, so must not be used in direct contact with ColorCote® painted steel roofing. Use PVC tape or similar barrier to isolate potential problem points of contact between materials.

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Watertightness Guidelines

Maintain the integrity of your ColorCote® painted steel roof with the following practices:

- Ensure Proper Drainage: Install PV panels with sufficient spacing to allow moisture to drain freely from all surfaces, preventing water ponding.
- Seal Roof Penetrations: Any roof penetrations should be strategically placed to minimize water ingress. When a penetration is necessary, it must be sealed correctly using flashings and sleeves specifically designed for steel roofing.
- Avoid Valley Fixing for Cables: Refrain from using valley fixing or creating valley holes for electrical cables.
- Correct Fastener and Bracket Placement: Mountings are to be fastened through the roofing profile ribs, fixed into the structure (purlins and/or rafters) & sealed affectively: avoid Pan Fixing. Install PV fasteners and brackets away from sheet side laps. Incorrect placement may distort the profile and interfere with the engineered anti-capillary laps, potentially leading to water ingress.

Installation Considerations for PV Panels on ColorCote® Painted Steel Roofing

- Brackets & Fasteners: Ensure that these components are fully compatible to be used with ColorCote® painted steel roof sheets during the installation of the PV panels. The durability should match the expected performance of the ColorCote® roofing system.
- Location & Orientation of PV Panels: When planning the location and orientation of PV panels, factor in easy access for maintenance. This consideration will help streamline routine upkeep and inspections.
- Cable Management: Avoid laying electrical cables directly on the roof surface, as they can accumulate dirt, salt, and airborne contaminants. Instead, secure cables to the PV panel support structure for better performance and longevity.
- Electrical Earthing: Properly earth the PV system to prevent stray currents from reaching the ColorCote® painted steel sheets. Such currents can accelerate corrosion due to electrolysis. Refer to AS/NZS 5033 – Installation of photovoltaic (PV) arrays for detailed guidance.
- Safe Work Practices: during the installation & continuous maintenance of PV panels, ColorCote® recommends following the relevant safety legislation standards in line with Worksafe New Zealand. Safe practices are essential to protect both installers and the integrity of the system.

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Maximising Roof Performance

PV panels can inadvertently shield ColorCote® painted steel sheets from both the drying effects of sunlight and the beneficial cleansing provided by rainfall. As a result, the area beneath the PV panels becomes an “unwashed zone,” which may experience accelerated corrosion due to:

- Contaminant Build-up: Accumulations of dirt, salt, and other airborne particles can settle on the roof.
- Moisture Retention: Contaminants may remain damp for extended periods from condensation or high humidity, increasing the risk of corrosion.

To safeguard your roof’s performance, ensure an adequate air gap between the PV panels and the ColorCote® painted steel. This gap aids in drying any accumulated contaminants and helps maintain the integrity of your roofing system.

Roof Care and Maintenance

Unwashed areas are more prone to corrosion than areas regularly cleansed by rainfall. To maintain your roof's durability, follow these regular cleaning guidelines:

- Coastal Areas: Clean unwashed regions with fresh water every 3 months.
- Non-Coastal Areas: Clean unwashed regions every 6 months. These cleaning cycles can be coordinated with scheduled PV panel cleaning. For more detailed instructions, refer to the wash down scheduled under the “Warranty Enquiries” tab on our website.

Routine Inspections

During maintenance, inspect both the roofing fasteners and the surface of the ColorCote® painted steel roof. This inspection will help determine:

- The appropriate cleaning frequency.
- Whether any fasteners need replacement.
- If remedial work is required on the roof sheeting.
- By adhering to these maintenance practices, you ensure the continued performance and longevity of your roofing system.

For further guidance, refer to the New Zealand Metal Rollformers Manufacturers Code of Practice, in particular sections 4.9.4 Compatibility Table & 4.10.3 Reference can also be made to NZBC G12/AS2 as appropriate.