# DUALROOF PRODUCT TECHNICAL STATEMENT

## PRODUCT DESCRIPTION

The formation of condensation on the underside of a single skinned skylight sheet is due to internal warm moist air meeting with a cold skylight surface can diminish the benefits derived from natural daylight.
Ampelite's Dualroof system provides a second translucent sheet which acts as a barrier to catch the drips of water from the underside of the top sheet, which then flows away down to the buildings gutter. Condensation is then fully eliminated. Schools, Sports stadiums and multi purpose buildings have all used the Ampelite Dual Roof System in order to solve the problem of condensation. Condensation is fully controlled and eliminated.
Ampleite's Dualroof system has been specifically designed for the New Zealand climate providing natural daylight, simplicity and ease of installation and long-term condensation control.

## FEATURES

Offering flexibility to meet a range of applications, Ampelite Dualroof is available using either Wonderglas S-996, Coolite IR or Webglas GC. The Wonderglas S-996 top sheet can be supplied in either clear or opal colour. For improved visible light transmission and lower heat transmission, we recommend using our Coolite IR Solar control sheeting. Wonderglas S-996, Webglas GC and Coolite IR are protected by the highly UV resistant Silmar 996 gel coat developed in the United States through BP Chemicals, and used widely throughout New Zealand and Australia since 1995.
For applications where the skylights need to be able to withstand foot traffic, we recommend using our Webglas GC – Trafficable fibreglass sheeting.

- Ampelite Dualroof Systems provide superior long-term condensation control and do not break down over the life of the skylights unlike low cost inferior systems such as condensation films.
- Manufactured to suit most New Zealand long run high rib commercial metal roofing profiles.
- The top sheet (weather side) is gel coated with S-996 highly UV resistant resin. This part of the process is identical with all of Ampelites GC grade sheeting and provides virtually undiminished performance for 25 years.
- Loss of light transmission after 25 years is just 30% compared to a loss of 30% after 10 years for standard fibreglass. Very high resistance to yellowing and discolouration. Over 10 years the change is negligible and covered by Warranty, only minor changes occur in later years. In addition, inbuilt UV protection eliminates 99% of harmful rays.
- Surface erosion is eliminated and covered by Warranty for 25 years. Low surface erosion also improves weathering properties. The gel coated surface provides an almost impenetrable barrier and is warranted against water penetration for 25 years.
- The Dualroof system uses Ampelite's Proprietary SL Group 3 "Bromine Free" Fire Retardant Resin System as standard. Wonderglas S-996 manufactured in New Zealand after the 15 October 2020 will now use Ampelite's proprietary Group 3 Bromine Free' fire retardant resin system that is currently used to manufacture our SL sheeting products.
- If an Internal Surface group number of 1-S Performance to meet the requirements of the New Zealand Building Code is required then, subject to fire engineer review and approval, in a limited number of profiles the bottom sheet can be supplied in polycarbonate to achieve this.

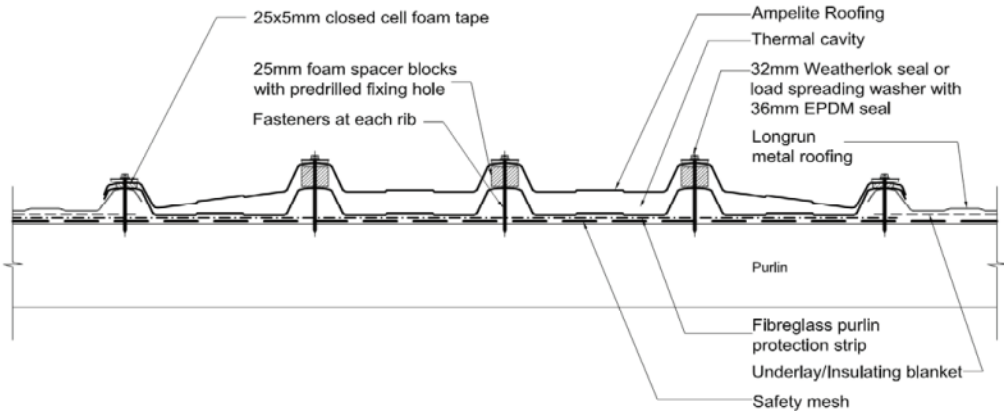
# DUALROOF PRODUCT TECHNICAL STATEMENT (Cont'd)

## INSTALLATION

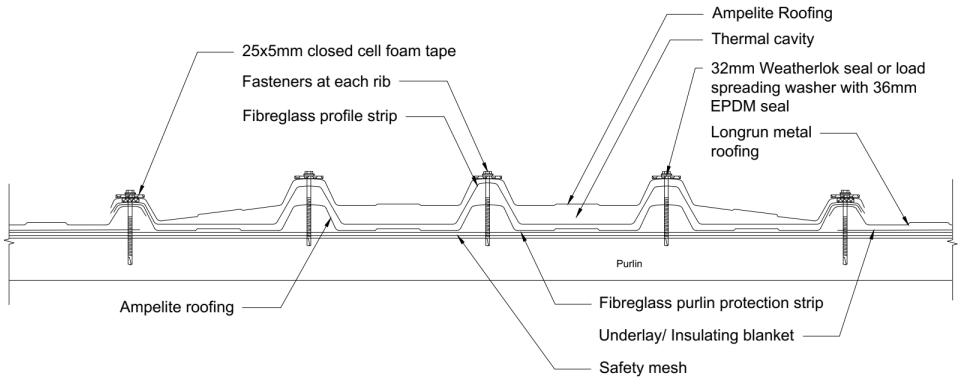
Ampelite Dualroof systems shall be installed in accordance with Ampelite fixing instructions and with AS/NZS 1562.3:1996, Design and installation of sheet roof and wall cladding, Part 3: Plastic, the requirements of the NZ building code and the NZ Metal Roofing Manufacturers Association Code of Practice.

To meet the full terms of warranty, Ampelite Dualroof systems must only be installed using the components and accessories (including fixings) as detailed and supplied by Ampelite.

**Dualroof LR (low rib) with spacer blocks -** uses 2 sheets of the same profile with a spacer between the sheets to create an airgap. No spacers are installed at the side laps and ends of the sheets, which allows the top sheet to sit back down on the bottom sheet at the sides and ends of the sheet. Dualroof LR (low rib) is installed on roofing profiles with a rib height of 40mm and under - Corrugated, LT7, 6 Rib, Trimline, ST7, Ribline, RT7, TRS5 and Silbury 7, etc. If a trafficable solution is required then both sheets need to be Webglas GC.



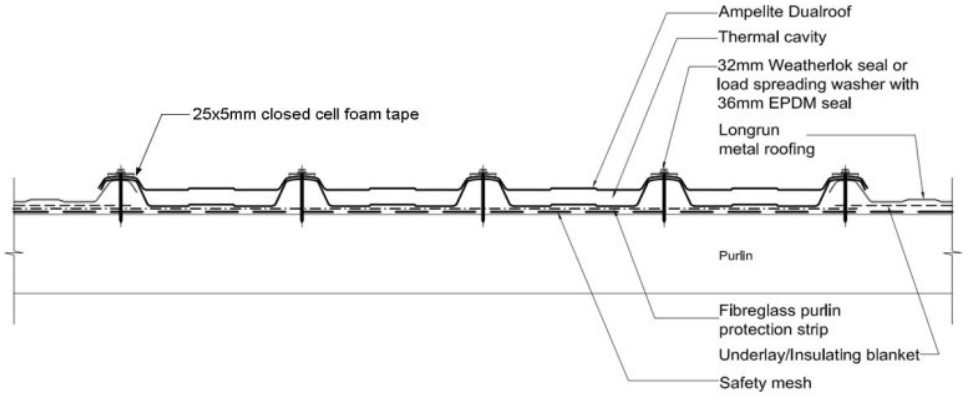

**Dualroof LR (low rib) with profiled spacer strip -** uses 2 sheets of the same profile with a spacer strip between the sheets to create an airgap. The profile spacer strip starts at the same height as the rib at the side laps and rises to the centre rib to create the air gap. This allows the top sheet to sit back down on the bottom sheet at the side laps. At both ends of the sheet the profile strip is left out at the last purlin to allow the top sheet to sit back down on the bottom sheet. This option of Dualroof LR (low rib) can only be installed on 5 Rib roofing profiles such as Trimdek, Styleline, Veedek, Plumbdek, TrimRib, MC760, TRS5, etc. If a trafficable solution is required then both sheets need to be Webglas GC.



# DUALROOF PRODUCT TECHNICAL STATEMENT (Cont'd)

## INSTALLATION (Cont'd)

**Dualroof HR (high rib)** is designed to be easily installed with most commercial roofing profiles. Two fibreglass roofing sheets with differing profile heights are installed one on top of the other. This allows the top sheet to sit on the rib of the bottom sheet creating a 20 mm air gap between the pans of the sheets. Dualroof HR profile is compatible with most current commercial roofing profiles over 40mm such as BB900, Steelspan, Topspan, Maxispan, ST900, Multispan, etc. DP955, Multirib, and ST963 are all available in their own unique profile to match the nominal cover of these profiles. If a trafficable solution is required then both sheets need to be Webglas GC




**SPAN TABLES – 1.5Kpa Wind Load.** Concentrated loads as per AS1170.2.F

| SPANNING | 1.5KPA | | | |
|---|---|---|---|---|
| Gauge | 1.1mm/1800 | 1.4mm/2400 | 1.7mm/3050 | 2.2mm/3660 |
| Corrugated | 1000 | 1200 | 1300 | 1400 |
| SixRib | 1000 | 1200 | 1300 | 1400 |
| Low Rib Trapezoidal,5 Rib, Trimdek, etc | 1200 | 1500 | 1700 | 1900 |
| LT7,ST7,RT7, | 1200 | 1500 | 1700 | 1900 |
| DR20, Multispan,MC930, Maxispan | 1600 | 1800 | 2000 | 2300 |
| Steelspan, Topspan, BB900,ST900, Multirib ST963, etc | 1400 | 1700 | 1900 | 2200 |

# DUALROOF PRODUCT TECHNICAL STATEMENT (Cont'd)

## BUILDING CODE COMPLIANCE

The product will, if used in accordance with the Ampelite installation and maintenance requirements, assist with meeting the following provisions of the building code for a period of 20 years:

- Clause B2 Durability: Performance B2.3.1
- Clause C3 Fire affecting areas beyond the fire source: Buildings C3.3
- Clause E2 External moisture: Performance E2.3.1, E2.3.2
- Clause F2 Hazardous building materials: Performance F2.3.1
- Clause G7 Natural Light

## EVIDENCE MEETS NZBC

Test information available from Ampelite (NZ) Ltd and past history of use of Ampelite Dualroof systems in New Zealand indicate that, provided the product use and maintenance is in line with the guidelines contained in the current literature referenced, Ampelite Dualroof systems can be expected to meet the performance criteria in clause B2, C3, E2, F2 and G7 of the New Zealand Building Code, for a period of not less than 20 years.

## TESTING & SUPPORTING EVIDENCE

The product has and can make available the following additional evidence to support the above statements:

Wonderglas GC (now Wonderglas S-996) has been tested at the Allunga Exposure Laboratory in Allunga QLD, a world renowned testing facility. All methods of testing are performed to strict Standards. The Altrac system (in which the sample tracks the sun), is generally accepted to have a 5 to 1 weathering value. The Wonderglas S-996 result was a light loss of 22% over a period equivalent to 20 years exposure. The test samples still displayed a very smooth, glossy surface with no fibre show at all

**ISO5660 (2002), "Reaction to fire test".** Fire Group 3 Rating Testing conducted by Centre of Advanced Composite Metals, Engineering, University of Auckland.

## STANDARDS

Ampelite NZ Limited is an AS/NZS ISO 9001: 2002 SAI Global Certification accredited company providing Quality Assurance in Manufacturing, Supply and Servicing. License number QEC 4787 was certified and issued to the company on the 20 June 1995.

Ampelite Manufactures its products to Australian/New Zealand Standard AS4256.3: 1994, described as "Plastic roof and wall cladding materials – Part 3 – Glass fibre reinforced polyester (GRP)".

# DUALROOF PRODUCT TECHNICAL STATEMENT (Cont'd)

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**Date last updated: 5 August 2021**