

Notes to Accompany Consent Documents with particular emphasis on

## G12/AS2 for Sunshine Solar Products and Installation.

### 1.1 Structural support:

- ☒ a. The weight is no more than 22kg/m<sup>2</sup>. (18.8kg/m<sup>2</sup> for sunshine solar panels)
  - ☒ b. There is no hot water tank on the roof
  - ☒ c. The storage cylinder is below 450L
  - ☒ d. The roof pitch is below 45°
  - ☒ e. The building is out of the wind zone where wind exceeds 50m/s as defined in NZS3604
  - ☒ f. The solar collector has an area no greater than 4m<sup>2</sup>
  - ☒ g. This area is out of the NZS3604 snow loading zone.
  - ☒ h. (i) The solar collectors are installed parallel to the roof cladding unless otherwise specified in the consent
- OR
- ☒ h. (ii) Where the solar collectors are installed to a different pitch to the roof the solar collector is:
    - ☒ Not greater than 45°
    - ☒ Is in a wind zone where the wind does not exceed 44m/s 3604
    - ☒ The solar collector faces the same compass direction as the roof

### 2.1 Materials

- ☒ Product  
Sunshine Solar products use a powder coated Aluminum frame, borosilicate glass, copper pipe, and EDPM and Butyl flashings - all with a 50 year durability under NZS3604.
- ☒ Compatibility  
Between the roof and the Solar Water heater there is always either an EDPM boot (dektite type) or Butyl rubber under the feet. – Both these products are compatible with any roof type according to G12/AS2 table 2.
- ☒ Compatibility subject to run off  
As per compatibility table both the flashings (EDPM boots) and the Butyl rubber spacing's under the feet are compatible with all roof types as listed in Table 3 of G12/AS2. The frame is Powdercoated Aluminium and Glass complies to all roof types except raw steel, unpainted galvanised or raw zinc roofs.

### 3.0 Solar Water Heater Requirements

- ☒ The product has been certified to AS/NZS2712:2007 (certifications attached).
- ☒ 3.2.1&2 Controller certified to AS/NZS2712:2007 as part of whole system and minimizes the use of auxiliary heating by it design (data available on request re AS/NZS4234 certification measuring system performance).
- ☒ 3.3.1 Solar Water Heaters must have a minimum of 50L per m2 of collector area.

System Size	Small ET20	Medium ET30	Large ET40
Select one	1-2 people	3-4 people	4-6 people
Collector Area (m <sup>2</sup> )	2.0	3.0	3.9
Minimum Cylinder size (L)	100	150	195
Actual cylinder size (L)	180L		

**3.4. Storage Tanks** are covered under the AS/NZS4692 which we attach to. Please refer to the System description (page 4) for a diagram of venting of over pressure and temperature.

### 3.5.1 Protection from Legionella Bacteria,

To prevent the growth from Legionella bacteria the following controls are in place.

Choose one of the following:

- ☐ a) Continuously energized element 55% off the bottom of the water tank and a thermostat set to 60°C or higher. This is done through the third tank element.
- ☒ b) Be controlled so that the water above the element is heated to 60°C once per day and the element is 150mm from the bottom of the tank.
- ☐ c) Be controlled so that the water above the element is heated to 60°C once per week including the water in the collector.

### 3.5.2 For Instantaneous or pre-heater systems NB skip this section if not

- ☐ a) The storage water passes through a cylinder as per 3.5.1, OR,
- ☐ b) The instantaneous heater passes the water through not less than 70°C.

### 3.6 Protection from frosts

- ☒ Sunshine Solar collectors have passed AS/NZS2712:2007 for both level 1 and 2 tests therefore are applicable anywhere in New Zealand.

### 4.0 Location of Solar Water Heaters

- 4.1 The solar water collector is located outside the high pressure wind zone as shown in Figure 2. This is shown in roof map attached.
- 4.2.1 Solar Collectors are facing within 90° of geographic north as also shown in attached roof map.
- 4.2.2 Solar collectors must be inclined at an angle within 20° of latitude. In New Zealand that is Kaitiaia is at 35° (15° – 55°) and Invercargill is at 46°. (i.e. 26° -66°), Christchurch is 43° (23° -63°).

This properties solar pitch is 45° therefore within that range.

### 5.0 Installation of Solar Water Heaters

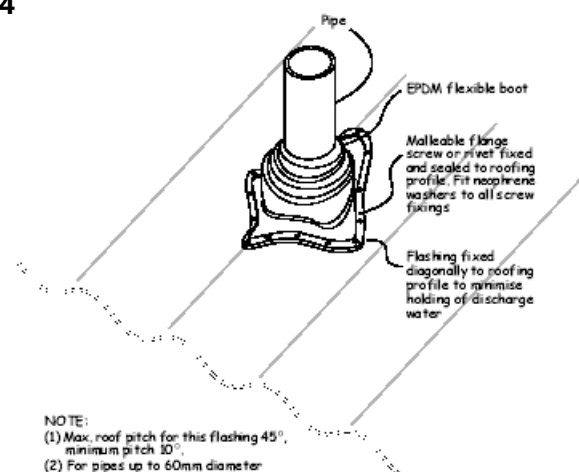
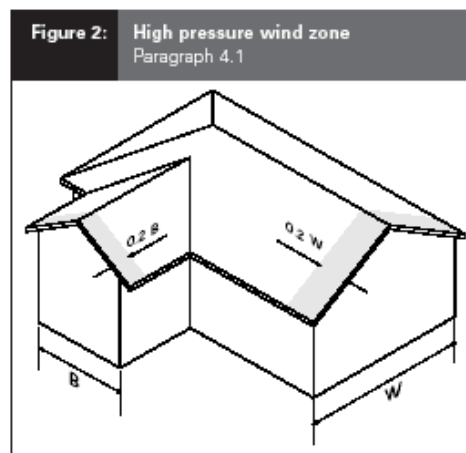
#### 5.0.1 Solar water heaters to be installed to ASNZS3500 part 4

### 5.2 Weather tightness

- ☒ Penetrations are all less than 60mm (pipe sizes are 9.7 – 12.5mm), they will be flashed using EDPM boots as shown.
- ☒ Sealants used are in conjunction with mechanical fasteners.

### 5.4 Pipe insulation

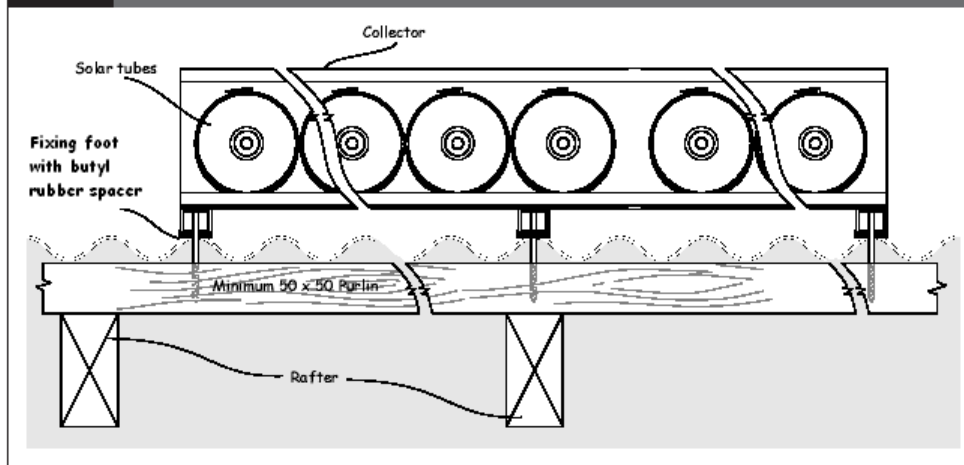
- ☒ All pipes are insulated at all times.
- ☒ Exterior pipe work is UV protected with UV stable tape.



## 6.0 Structural Support for Solar Water Heaters

### 6.2 General requirements - Collectors will be fixed as per fig12 and fig 13.

**Figure 12:** Direct fixed channel – section  
Paragraph 6.3.1

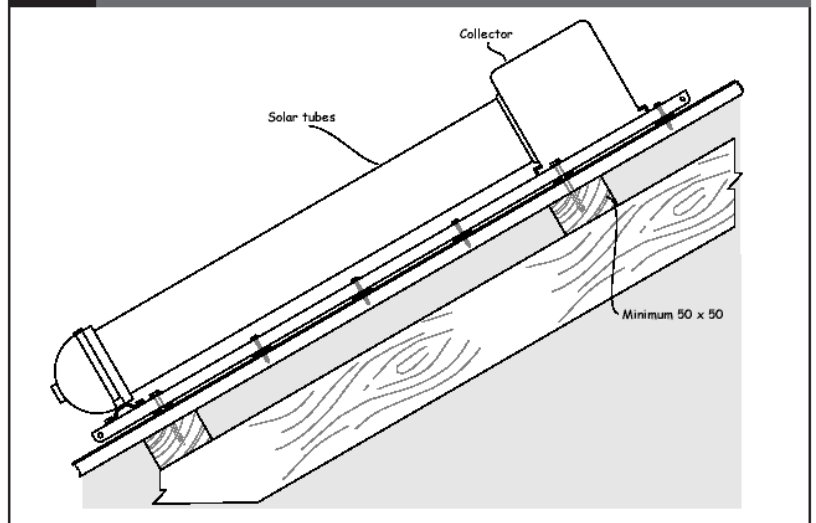


### 7.1 Maintenance and Durability

Solar Water heaters will be marked "Sunshine Solar (model number) installed (Install date)". As the HP system has passed the AS/NZS2712 hail test it does not require the "This system has not passed the AS/NZS2712 hail test" markings.

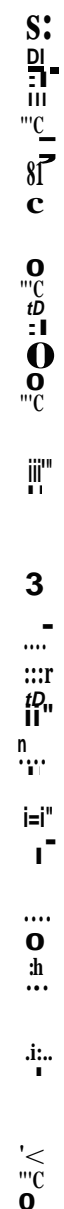
The durability requirements are 15yrs, from the materials as listed in section 2 of AS2 the components have a life of beyond 50 years.

**Figure 13:** Direct fixed channel – elevation  
Paragraph 6.3.1



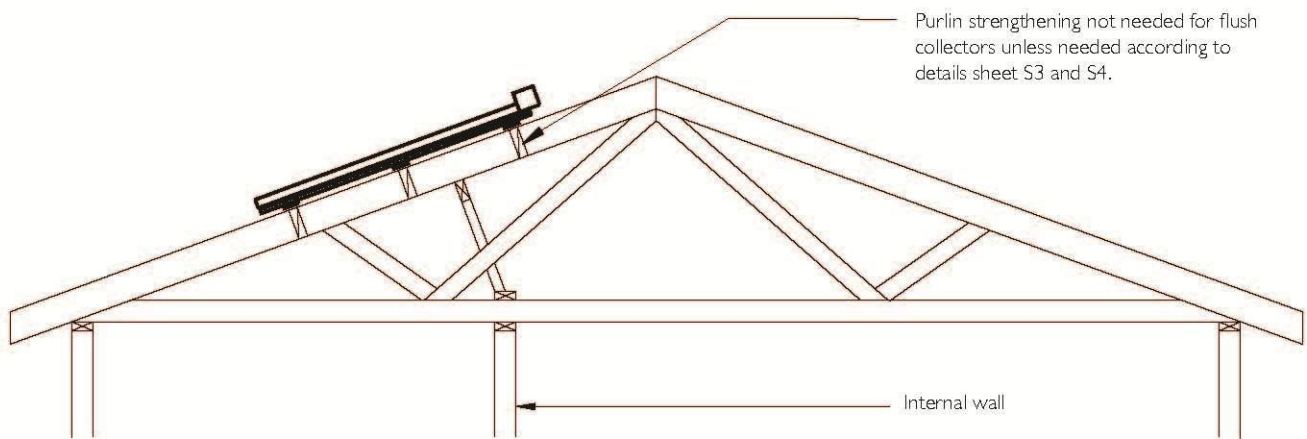
### Other detail...

- ☒ All pipe work to and from the solar panel is copper only.
- ☒ We use Selleys Roof and Gutter Silicone which has a guarantee of 25 years.
- ☒ Outside the building thermal envelope the pipe is wrapped firstly in Double layered cross linked, foamed, closed cell polyethylene (white insulation used on heat pump piping) and then that is covered with 25mm ID, 45mm OD Armaflex. This is then wrapped in UV stable insulation tape.



## Fixings and Roof Support

### Solar collector parallel to roof

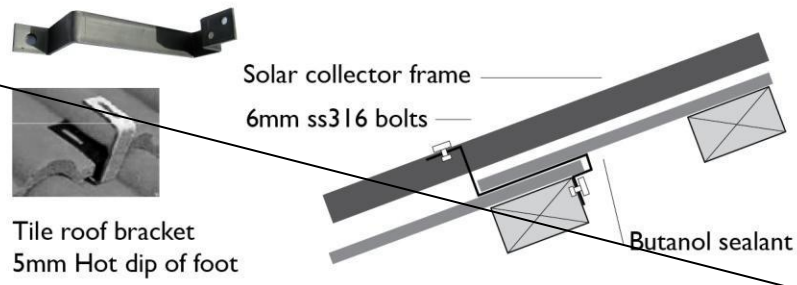


NOTE:  
Locate solar collectors away from high wind pressure areas in accordance with NZBC G12/AS2 cl.4.1 and figure 2.

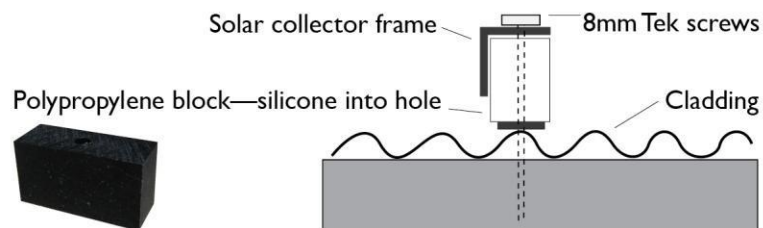
## Roof Fixings

Recommended options – select one

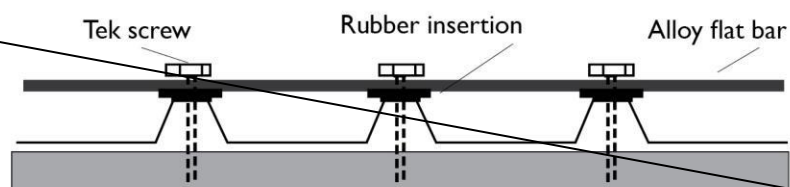
### 1. Tile roof fixing



### 2. Polypropylene block



### 3. Highhat/trapezoidal—alternate to method 2



**-APPLIED  
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Report 09/2093

October 5th, 2009

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Customer: Advanced Solar Technologies Ltd  
6 Fenhall Street  
Russley  
CHRISTCHURCH 8024

P118/12

Attention: John Wilson

Compliance of the Sunshine Solar Standard Performance Solar Hot Water Systems to the  
Requirements AS/NZS2712:2007

Appliance: Sunshine Solar Standard Performance SHW System

Alternative Names: Advanced Solar Technologies Standard Performance SHW System.  
South-Solar Standard Performance SHW System.

Standard Applied: AS/NZS2712:2007

Full Report Ref.: 09/2024

Based on the information and results obtained during testing and assessment, the Sunshine Solar Standard Performance SHW systems named below comply with the requirements of AS/NZS2712: 2007.

- Sunshine30STD/300R

This compliance certificate relates only to the product sample tested. Any modifications to the product may invalidate the compliance results.


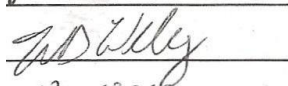
Our report 09/2024 gives details of the appliance, the assessment and the results obtained.

This report:

Prepared by: P. Wilkie

Approved by: W. S. Webley

Release Date:

  
  
12-10-09

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## PRODUCER STATEMENT – PS1 – DESIGN

**Issued By:** Davis Ogilvie & Partners Ltd  
**Design Engineer:** Dean McCabe  
**To Be Supplied To:** Various Territorial Authorities  
**In Respect Of:** Fixing of Sunshine Solar Ltd Solar Collector Frames to Existing/New House Roofs  
Various locations specified in "Sunshine Solar Ltd Solar Hot Water Collector Structural Installation Manual, Revision E, prepared by Davis Ogilvie & Partners Ltd.  
**At:**

We have been engaged by **Sunshine Solar Ltd** to provide **Structural Engineering Design** services in respect of the requirements of Clause(s) **B1** of the Building Code for  
☐ All or ☒ Part only (as specified in the attachment to this statement), of the installation of Sunshine Solar Ltd Solar Collectors.

The design carried out by us has been prepared in accordance with:

☐ Compliance Documents issued by Department of Building and Housing **B1/VM1 (AS/NZS 1170, NZS 3603), G12/AS2 and Section 112 of the Building Act** or ☐ Alternative solution as per the attached schedule.

The proposed building work covered by the producer statement is described on **Davis Ogilvie and Partners Ltd's** prepared document titled **"Sunshine Solar Ltd Solar Hot Water Collector Structural Installation Manual" Revision E dated July 2015.**

**On behalf of the Davis Ogilvie and Partners Ltd**, and subject to:

- (i) Site verification of the following design assumptions: **Wind speed, snow load, and building requirements to meet those stated in the "Sunshine Solar Ltd Solar Hot Water Collector Structural Installation Manual, Revision E, Dated July 2015", prepared by Davis Ogilvie & Partners Ltd.**
- (ii) **Unless specifically noted, compliance of the drawings to Non Specific codes such as NZS 3604 and NZS 4229 have not been checked by this practice**
- (iii) **This certificate does not cover weather-tightness of the building nor any flashings associated with the installation of the solar collector.**
- (iv) **Inspections to be carried out by Council**
- (v) All proprietary products meeting their performance specification requirements;

**I believe on reasonable grounds** the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code.

**Davis Ogilvie and Partners Ltd** holds a current policy of Professional Indemnity Insurance no less than \$200,000\*, and is a member of ACENZ ☒ Yes ☐ No

I, **Dean McCabe** am CPEng 179084. I am a Member of IPENZ and hold the following qualifications: **BE Civil (Hons), MIPENZ(Structural), CPEng, IntPE(NZ).**



**SIGNED ON BEHALF OF DAVIS OGILVIE AND PARTNERS LTD**  
**PO BOX 589, CHRISTCHURCH 8041**

Date: **30 JULY 2015**

*Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000\*.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.



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## Technical Specifications

Sunshine Solar Evacuated tubes			
Number of tubes	20	30	40*
	Small	Medium	Large
Width (mm)	1400	2100	2794
Height (mm)	2040	2040	2040
Full stand height (mm) - if required	1675	1675	1675
Collector area (m <sup>2</sup> )	1.7	2.5	3.4
Gross area (m <sup>2</sup> )	2.8	4.3	5.7
Total weight (kg)	58.6	88	117.2
Average daily power** (kWhr)	5.3	7.9	10.6

\* two panels together

## Controller

☒ SR868C8Q Solar Electrics controller

## Producer statement checklist

- ☒ System is not located in a “very high” wind zone.
- ☒ Snow Loading is below 2.0kPa (Refer to Installation Manual Revision D).
- ☒ Silicon has at least a 15 year durability:
  - Sunshine Solar use Selleys roof and gutter silicone which has a 25 year guarantee.
- ☒ Insulation exterior of the thermal envelope is insulated:
  - Double layered, closed cell polyethylene insulation is double wrapped with armaflex and covered by UV stable tape.
- ☒ Copper pipe is used throughout solar loop.

## Links to other parts of the building code and standards other than G12/AS2

**B1** Structure

**B2** Durability – Compliance through G12/AS2 – Table 1, 2 and 3, B2/AS1.

**E2** External Moisture (Complies with E2/AS1 Table 20).

**F2** Hazardous Materials (Complies with F2/AS1) through passing AS/NZS2712:2007 glass breakage test.

**F7** Warning systems through F7/AS1 – smoke detectors fitted within 3m from all bedroom doors on way to open exit, otherwise secondary detector required. These have hush facilities.

**G12/AS1** Water supplies – particularly referencing AS1 6.5 Energy cutouts and G12AS1 6.6 relief valves.

**H1** Energy efficiency – through H1/AS1, all pipes are insulated to standard and H1.3.4a solar inclination and orientation.

## Standards followed

AS/NZS2712:2007

AS/NZS 3500:2003

NZ3604 section 4 exposure zone

AS4603 and AS/NZS3500.4 for cylinders

NZ4614:1986