Commercial Hot Water:
Installing Flat Plate Collector Arrays (on Flat Roof Stands)

Chromagen™
Solar & Energy Solutions

Standard kits included with the solar thermal collector systems:

Single collector system
1 x Stand kit for single flat plate collector (K2006)

Two collector system
1 x Stand kit for two flat plate collector (K2007)

Labels: Z-FRAME SUPPORT RAIL (UPPER); STAND SIDE SECTION (LEFT); CROSS BRACE; ROOF SUPPORT RAIL - REAR (COLORBOND ROOF ONLY); Z-FRAME SUPPORT RAIL (LOWER); ROOF SUPPORT RAIL - FRONT (COLORBOND ROOF ONLY); STAND SIDE SECTION (RIGHT); CENTRE SPACING (REFER TO TABLE)
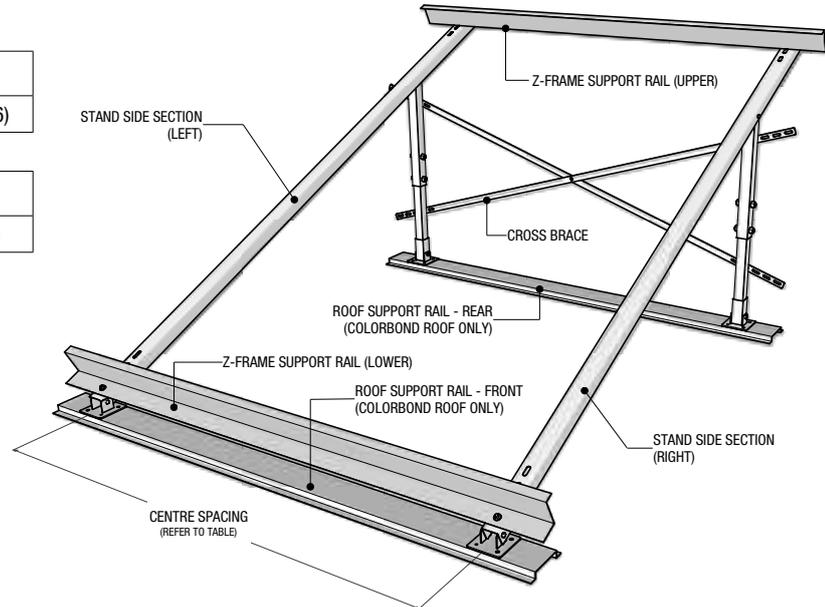
Initial stand assembly & installation

1. Connect adjustable leg to stand side section for all frames

2. Attach the foot of the back leg securely to the flat roof area by one of the following methods:

   o Concrete: Fix directly into concrete using dynabolts

   o Colorbond roof (or similar): Firstly attach the foot of the back leg to the roof support rail using the supplied tek screws. Then attach the roof support rail through the roofing material and into the purlin / frame below

   Ensure all possible water entry points are appropriately sealed. Ensure suitable protection is used to prevent electrolysis

   (Repeat this process for the other back leg, using the centre spacing dimensions as detailed below)

Centre Spacing Dimensions	
1 x Flat Plate Collector	920mm
2 x Flat Plate Collector	1500mm

3. Adjust the stand side section until the front foot sits over suitable fixing substrate (i.e. purlin) and repeat process outlined in step 1. (Ensure that back leg section maintains a structural angle as shown in fig 1)

4. Adjust stand angle to desired position by lifting the back of the side section causing the back leg section to telescope. Once at the desired angle, tighten the sliding back legs with the black grub screws (4 per leg) as shown in Fig 2

5. Attach double back brace to rear legs using the tek screws provided. See Fig 3
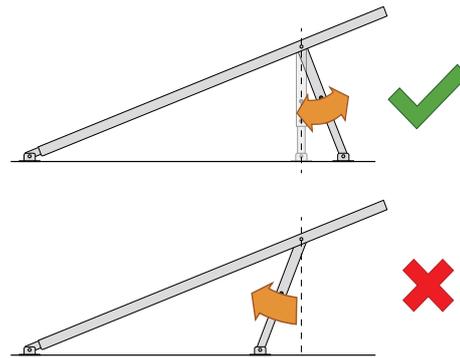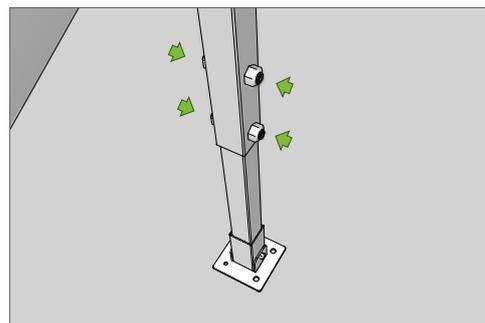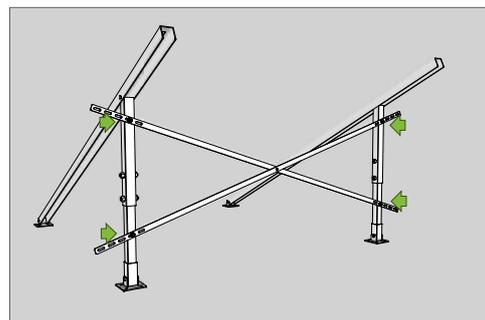
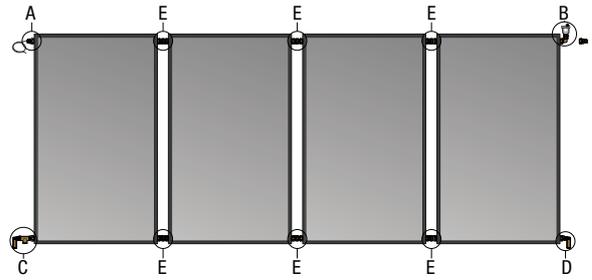See the the full range of mounting angles for this frame at
www.chromagen.com.au/frame-mounting-angles

Fig 1

Fig 2

Fig 3

Collector preparations & connections

NOTE: C1 & D1 = With frost valve
C2 & D2 = Without frost valve
B1 = With Auto Air Vent
B2 = Without Auto Air Vent

Typical 4 Panel array with frost valves & auto air vent
(NOTE: MAX 5 PANELS IN ANY ONE ARRAY)

The table below indicates all brass fittings & connections required for collectors
Please Note: The connection of the solar flow and return lines must be diagonal to each other with the flow in the bottom and the return from the top on the opposite side.

Connection Location	Fit	Image
A	20mm - 15mm reducing bush	
	15mm MI brass collector sensor (Hot)	
B[1] With Auto Air Vent (Where specified)	20mm MI - 20mm FI elbow	
	20mm MI - 15mm reducing union	
	Auto air vent	
B[2] Without Auto Air Vent	20mm MI - 15mm conetite reducing union	
C[1] With frost valve (Where specified)	20mm MI - 20mm MI brass hex nipple	
	20mm FI - FI brass tee	
	20mm MI - 15mm MI brass hex nipple	
	15mm brass frost (antifreeze) valve	
	20mm MI - 15mm conetite reducing union	
C[2] Without frost valve	20mm MI - 15mm conetite reducing union	
D[1] With frost valve (Where specified)	20mm MI - 15mm MI brass hex nipple	
	15mm brass frost (antifreeze) valve	
D[2] Without frost valve	20mm brass plug	
E	20mm MI – 20mm MI barrel union	

IMPORTANT! Ensure all connections are tight and leak-free
IMPORTANT! Frost valves must always be installed at an angle equal to the panel surface or facing down to allow water to drain freely. Installing the valve incorrectly may result in water freezing inside the valve and valve failure. Frost valve should be inspected annually and replaced as required.

Flat plate panel attachment

6. Using the supplied M8 bolts, washers & nuts, securely fasten the Z-frame rail to the side section through the lowest slotted hole as shown in fig 4.

7. Place the bottom L-support rail flush within Z-frame support ensuring tight fit (Fig 5).

8. Mount flat plate panel/s on frame (Fig 6) ensuring 2nd L-support is placed underneath top of panel/s for support as shown in fig 7.

9. If multiple panel installation connect panels using barrel unions provided.

10. Place 2nd Z-frame support rail over the top of the panel/s & securely fasten to the side section through the upper hole using the supplied M8 bolts, washers & nuts (Fig 8).

11. For multiple panel installation, to ensure tight fit at centre position, tek screw through middle of Z-frame rail/s (at the gap position between panels due to barrel unions) lifting L-support rails so that panel is tight up against Z-frame as shown in fig 9.

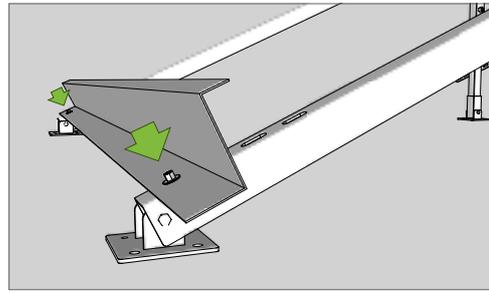12. Repeat point 1-6 for each row of panels (maximum 4 panels/array)
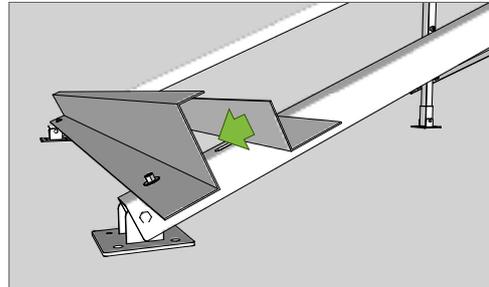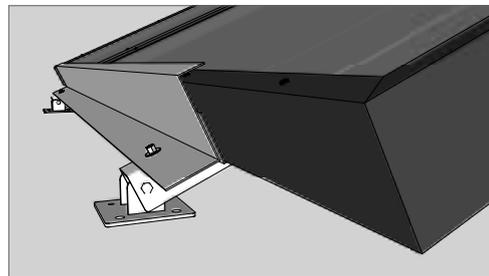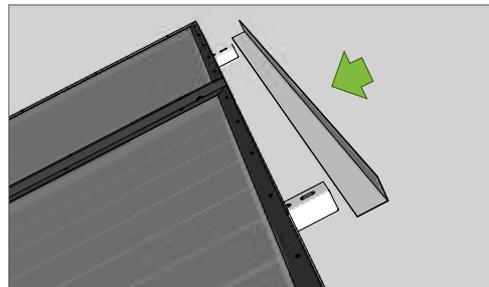

Fig 4

Fig 5

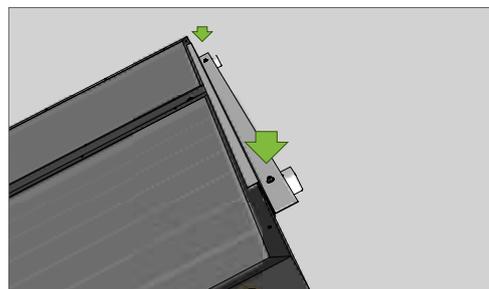Fig 6

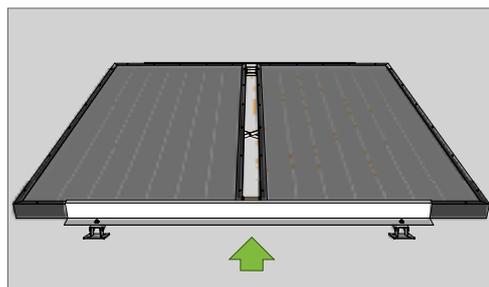Fig 7

Fig 8

Fig 9

Commercial
Installation
Flat Plate

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Solar flow and return lines

Run the solar flow and return lines from collector/s to tank using insulated copper (or suitable high temp material) with a gradual fall to the storage tank.

Approved flashings must be used when penetrating the roof, following the flashing manufacturer's recommendations

Sensor wire

The solar sensor wire will need to be run with the flow and return lines from collectors to tank. Make sure the sensor wire is inserted into the sensor fitting on the collector (Fig 10) with the other end sercurely fitted and sealed to the sensor point on the primary tank. Make sure the sensor wire is protected from damage. If this wire is cut or broken it will need to be replaced.

Ensure the sensor wire does not come into contact with the collector or tank flow and return line, as very high temperatures can interfere with the sensor wire and cause the solar controller to malfunction.

Care should be taken to ensure that the sensor wire is protected from damage. The use of protective conduit is advised in high traffic areas and to protect against damage by wildlife / rodents.
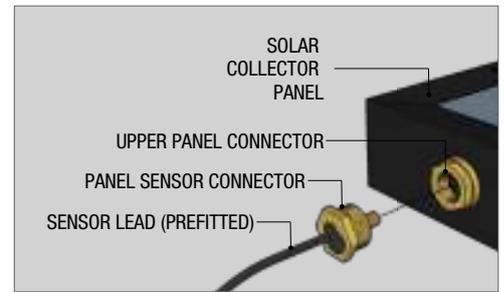

SOLAR COLLECTOR PANEL
UPPER PANEL CONNECTOR
PANEL SENSOR CONNECTOR
SENSOR LEAD (PREFITTED)

Fig 10

NOTE: Illustrations within this document are indicative only.

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Need the Information on Servicing your System?

Visit www.chromagen.com.au/com-service-manual

Please ensure standard plumbing practice is exercised in the installation of any hot water system.
Local regulations override the information contained in this document. Refer to specific project specifications for any additional requirements