

# CRESTABOND®

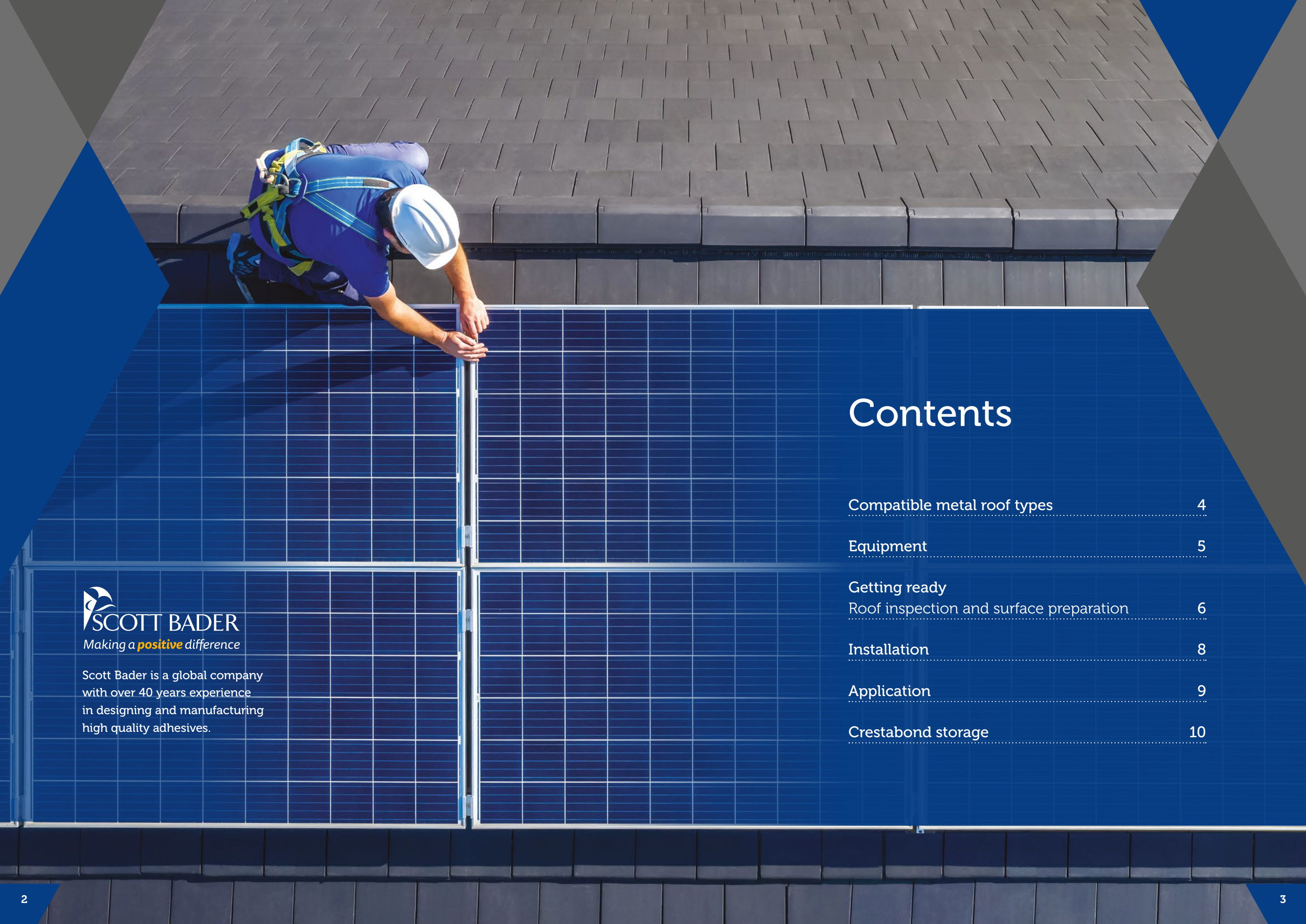
Primerless MMA Structural Adhesives



## Solar PV installation guide

Bonding aluminium rails and brackets bonding using Crestabond adhesive.





Scott Bader is a global company with over 40 years experience in designing and manufacturing high quality adhesives.

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# Compatible metal roof types

Crestabond is an impressive structural adhesive, specifically designed for demanding applications on commercial and residential metal roofs - trapezoidal or standing seam. It is the perfect solution for bonding aluminium rails and brackets when installing traditional glass faced solar PV panels.

Crestabond is compatible with the following metal roof types:

Roof coating	Compatible
Steel	✓
Aluminium	✓
Galvanised steel	✓
Copper	✓
Zinc	✓
Stainless steel	✓
Lead	✓
PVC Plastisol coated	✓
Polyester powder or spray coated	✓

## Advice:

All information is given in good faith but without warranty and is intended for guidance only. It is recommended that tests are conducted by the customer to validate the suitability and performance of Crestabond adhesive for the intended application. We cannot accept responsibility or liability for any damage, loss or patent infringements resulting from the use of this information.

# Equipment



Achieving the best results and working safely relies on using the right equipment. Here's what you'll need:

## Adhesive dispense guns

### Manual dispense gun



### Pneumatic dispense gun



### Battery powered dispense gun



## Mix heads

### Screw on mixer



### Lock ring mixer



## Elcometer 106 (Scale 3) coating tester



## Infrared thermometer



## Battery powered screwdriver







## Getting ready

### Roof inspection and surface preparation

#### Step 1

Clean the roof using warm soapy water. For areas with a lot of dirt contamination use a jet washer.

#### Step 2

Visually inspect the roof to assess the quality of the roof coating. If there are signs of the coating flaking, blistering, or delaminating, grind the coating off in areas where the aluminium rails or brackets will be bonded (see Figure 1).

### Testing the coating on metal roofs

If your roof is over a year old, we recommended testing the roof as detailed below, to check the adhesion of the coating to the steel roof. A quantitative measure of the quality of the roof coating can be obtained by using your Elcometer 106 Adhesion Tester, as follows:

### Test procedure

#### Step 1

Clean application area where the aluminium dolly will be bonded, with a dry rag wipe or solvent wipe (IPA).

#### Step 2

Bond the aluminium dolly to the coated steel using Crestabond adhesive. Mix and apply according to the Scott Bader 400ml cartridge user guide.

#### Step 3

Allow the Crestabond adhesive to cure as per the table:

Roof temperature °C	Cure time (hours)
5°C to 15°C	2
15°C to 25°C	1.5
>25°C	1

#### Step 4

Conduct the test according to the Elcometer user guide. Dolly pull off value should be a minimum of 5MPa.

#### Step 5

Test in random places on the coated steel roof to assess the quality of the coating prior to bonding the rails or brackets.

#### Step 6

If the pull off values are greater than 5MPa proceed to the next section called Installation procedure titled 'Bonding the flexible solar PV panels to the roof'.

#### Step 7

If the dolly pull off values are lower than 5MPa the coating should be removed back to the bare metal, using a grinder, in the areas where the flexible panels will be bonded to the roof (see Figure 1).



**We recommended you perform the tests in areas where flexible panels will be bonded to avoid the need to repair the roof after.**



**Figure 1**  
Grind/clean area for bonding.





# Installation



## Bonding the aluminium rails or brackets to the roof

### Step 1

Place the rail or bracket to be bonded on the metal roof, and mark area where it needs to be attached (see Figure 2).

### Step 2

Depending on the dolly pull off test results either clean the bond area with an IPA wipe (high pull off result) or grind the application area (low pull off result) to remove the coating and then clean with an IPA wipe. (see Figure 3).

### Step 3

Remove any caps and plugs from the adhesive cartridge and insert into the dispensing gun.

### Step 4

Dispense a small amount of material to level the plungers and remove any air from the cartridge (see Figure 4). This process of levelling plungers must be performed on each new cartridge used.

### Step 5

Attach static mix tip to cartridge (see Figure 5).

### Step 6

Dispense enough adhesive on scrap material to ensure proper mix ratio and removal of air. Consistent colour of the adhesive bead indicates correct mixing. Again, this procedure must be repeated whenever a new mix head is attached to a cartridge.



**Figure 2**  
Mark application (bond line) area on the metal roof.



**Figure 3**  
Grind/clean area for bonding.



**Figure 4**  
Dispense material to level plungers.



# Application

### Step 1

Crestabond can be applied onto a roof with a surface temperature between 5°C and 30°C. Below this temperature range it is possible that there is condensation on the roof surface which will prevent good adhesion. Above this temperature range the adhesive may cure too quickly and not allow enough time for the parts to be joined together successfully. We strongly recommend that the surface temperature is measured at several points throughout the install day, using a handheld IR thermometer, to ensure that this condition is satisfied.



It is recommended to use Crestabond M7-05 in the winter months where the ambient roof temperature is 5°C to 20°C and Crestabond M7-15 when the temperature is approaching 20°C to 30°C. During these hotter months it may be advisable to bond earlier or later in the day when it's cooler.

### Step 2

Apply Crestabond to one substrate, either the aluminium rail or bracket, or the marked bond area on the roof (see Figure 6).

### Step 3

Place bracket on application area of roof (see Figure 7).

### Step 4

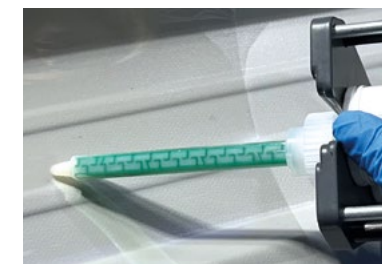
Apply pressure to squeeze out excess adhesive.

### Step 5

Handling strength of Crestabond adhesive develops within 15 to 20 minutes\* at an ambient temperature of 18°C – 25°C. Solar panels can be installed after the fixture time of 20 minutes at an ambient temperature of 18°C – 25°C. Please refer to the Crestabond technical datasheet for the relevant working times and fixture times.



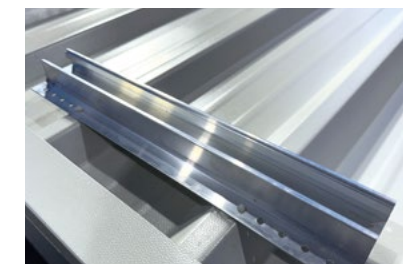
Typically, every 10°C increase in ambient roof temperature will halve the working time and fixture time based on the values stated in the relevant technical datasheet.



**Figure 5**  
Attaching the mix head.



**Figure 6**  
Apply adhesive to bond area.



**Figure 7**  
Place aluminium rail on roof.

\*Fixture time defined using an ISO 4587 lap shear sample, 0.26mm bond line thickness with 23°C (73°F) ambient temperature achieving >1.4MPa.





## Crestabond storage

Crestabond adhesives should be stored and transported below 23°C where possible, prolonged storage above these temperatures could lead to a loss of reactivity and eventual pre-gelling of the material in the cartridge. Storing short term for a few days at 30°C is acceptable, to allow material to be transported to the installation site, however, it should be avoided as much as possible.



Tip

Storing the Crestabond cartridges in a fridge at 5°C will maximise the shelf life of the adhesive.



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