

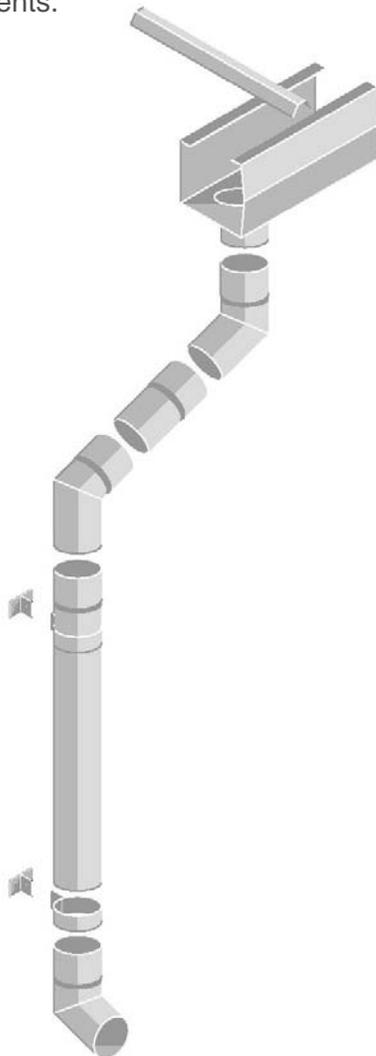
METAL CLADDING DESIGN AND INSTALLATION TECHNICAL GUIDES

**GUIDE 024: RAINWATER DRAINAGE SYSTEMS**

**Eaves Gutter**

The roof drainage system is an important aspect of the overall roof design. Each rainwater system is unique and therefore must be designed as a bespoke element. Capacity and flow rates are affected by gutter section size, system length, angles, outlet size and downpipe frequency etc.

Alpha Clad hold specialist in-house software to assist designers in the effective calculation of these elements.



The Alpha Clad Eaves Line gutter range offers performance with aesthetics. Available in double sided plastisol coated steel, this gutter system compliments the cladding envelope, offering clean lines and neat integration with the verge detailing. The gutter is supported from the roof cladding using support arms which are sealed and fixed to the rib sections of the roof profile.

The gutter section, support arms and pre-formed corner/verge units (if required) are all manufactured specific to the chosen roof system and pitch.

**Gutter Joints**

This system can be effectively jointed using one of four options – internal joggle, external joggle, flexible expansion joint or the more typical butt strapped.

**Downpipes**

Alpha Clad offer an extensive range of polyester powder coated, square and round downpipes available in 100mm and 150mm standard diameters. A double sided plastisol coated steel square 'lock-formed' option is also available to complement or feature the external cladding elevation.

**Swan-necks, Elbows and Shoes**

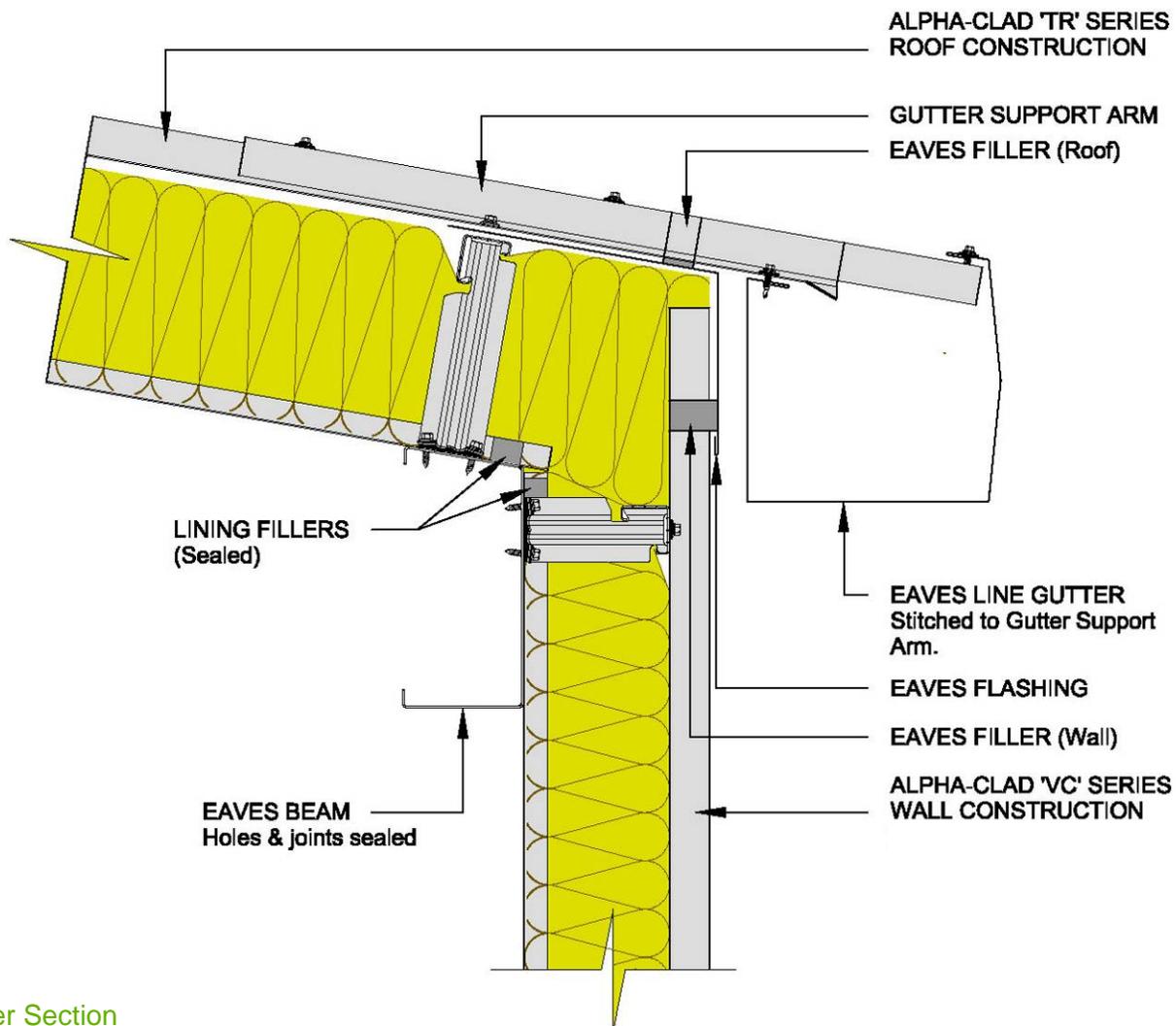
Alpha Clad can supply a variety of swan-necks, elbows and shoes to meet bespoke size, angle and length requirements.

**Brackets**

One and two piece designs are available to cater for site installation requirements.

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Installation Guidance



Gutter Section

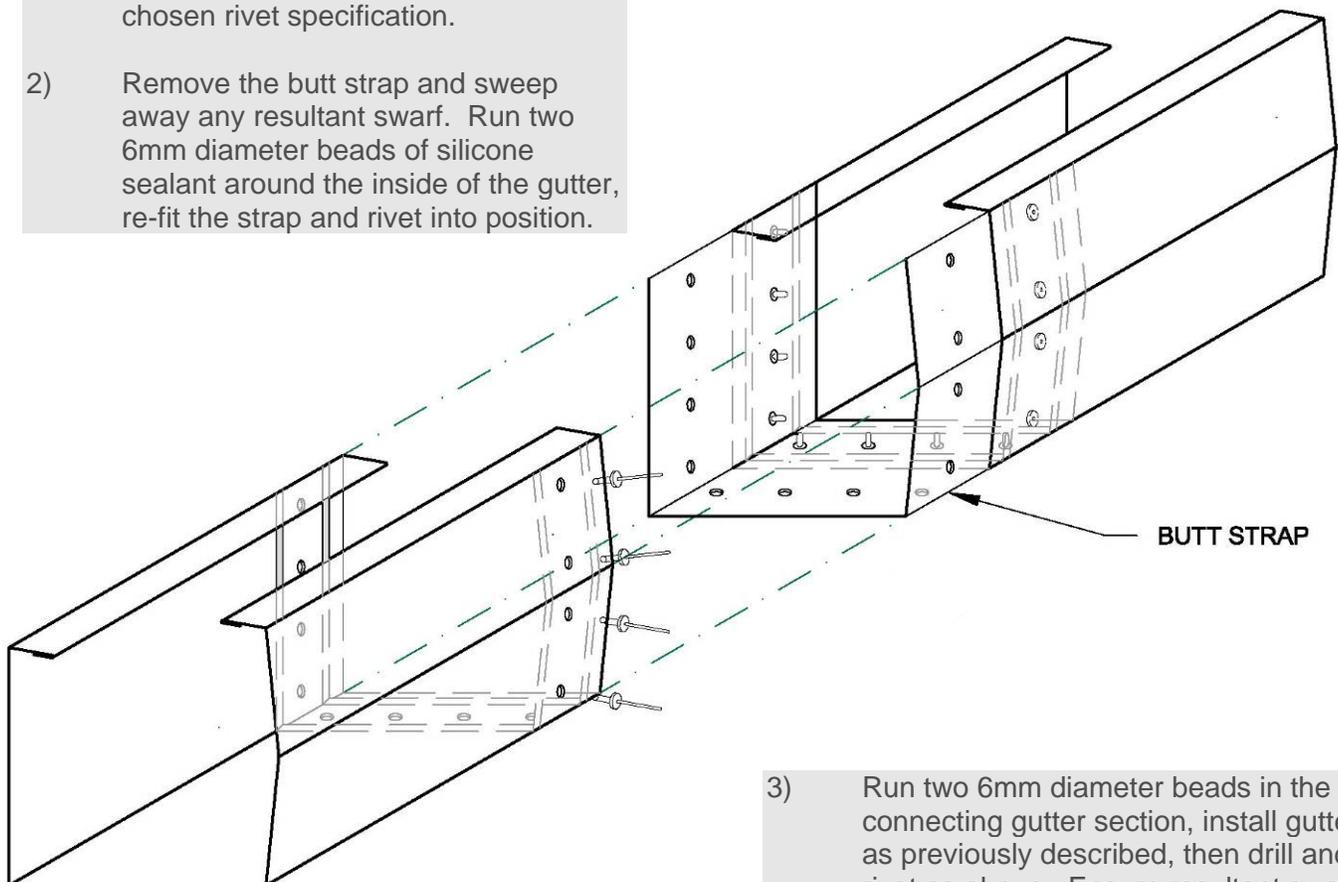
- 1) Position the gutter under the roof section over-hang, allowing sufficient clearance from the vertical wall face. Allowance should be made for the offset of the downpipe brackets, but a minimum of 20mm should be allowed.
- 2) Temporarily clamp the gutter and then from above, fix the rear flange to the underside of the roof cladding section. Subject to profile section, a minimum of 5 stitching fasteners should be used per profile section width (typically one per profile trough).
- 3) Place the first gutter support arm under the front flange of the gutter and rest it over the roof profile corrugation. Level the gutter (front to back) and mark the roof corrugation at the point where the gutter support arm finishes upslope.
- 4) Remove the support arm and fit a strip of 6 x 5mm butyl sealant, placed across the rib approximately 10-15mm down from the mark made on the profile.

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- 5) Replace the support arm back into its original position and fix to the profile corrugation using stitching screws at maximum 200mm centres. Secure the front flange of the gutter to the top of the gutter support arm using one stitching screw.
- 6) Fix the remaining gutter support arms as instructed above. Space the support arms at 1m maximum centres, ensuring joint positions are adequately supported but do not coincide.

**Butt Strap Joint**

- 1) Fit the butt strap into the next section of gutter to be installed. Ensure half of the strap is projecting beyond the end of the gutter. Drill holes through the gutter/strap connection to suit the chosen rivet specification.
- 2) Remove the butt strap and sweep away any resultant swarf. Run two 6mm diameter beads of silicone sealant around the inside of the gutter, re-fit the strap and rivet into position.



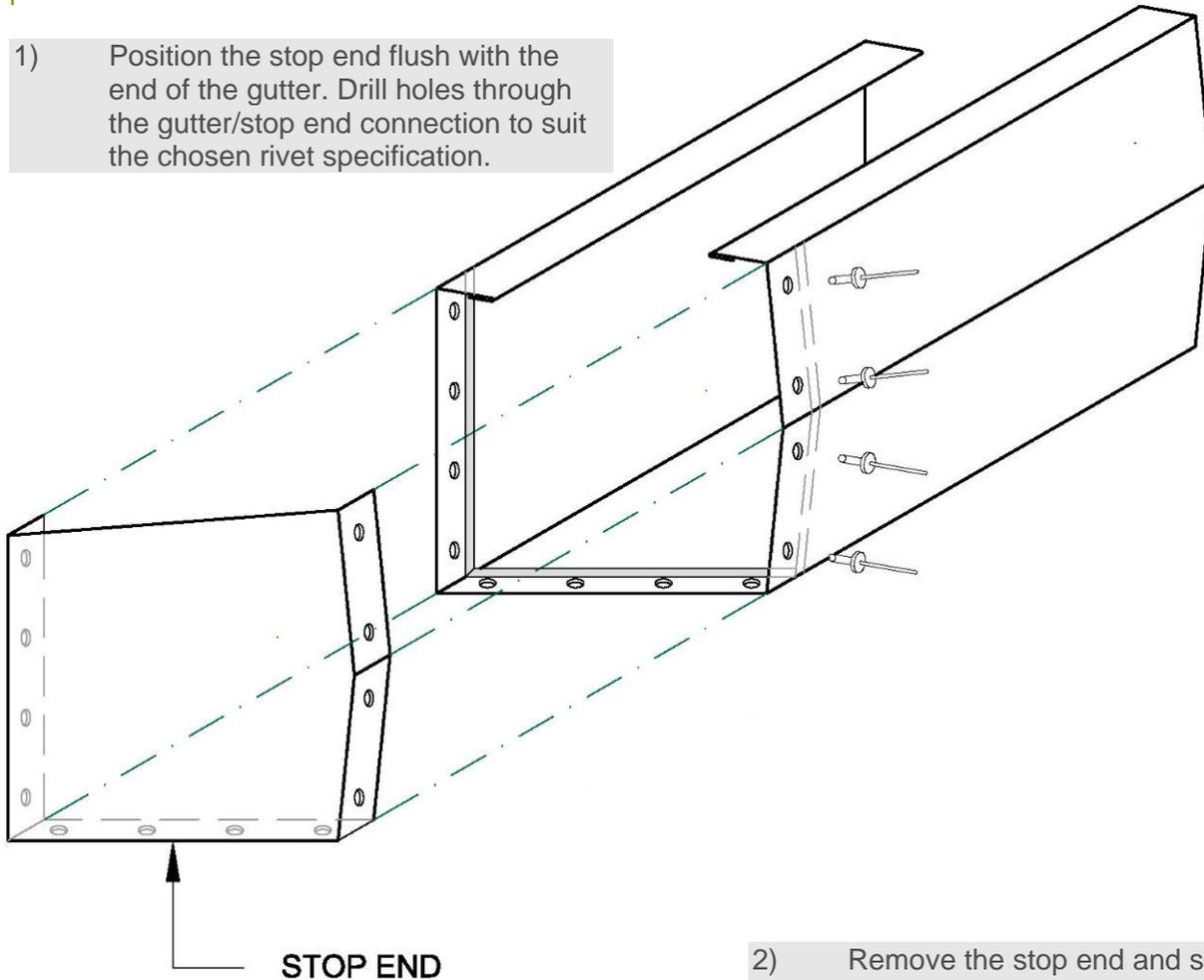
- 3) Run two 6mm diameter beads in the connecting gutter section, install gutter as previously described, then drill and rivet as above. Ensure resultant swarf is cleared.

Note: The rear face will need to be drilled and riveted from the inside of the gutter.

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Stop End

- 1) Position the stop end flush with the end of the gutter. Drill holes through the gutter/stop end connection to suit the chosen rivet specification.



- 2) Remove the stop end and sweep away any resultant swarf. Run a 6mm diameter bead of silicone sealant around the inside of the gutter, refit the stop end and rivet into position.

Gutter Outlet

- 1) Calculate position where outlet hole requires cutting in sole of gutter section.
- 2) Cut hole to required diameter and temporarily place outlet spigot in position.

- 3) Drill a minimum of six holes, at equidistant centres, through the spigot flange and gutter to suit the chosen rivet specification.
- 4) Remove spigot outlet and run a 6mm bead of silicone sealant around the underside of the flange. Reposition and rivet into place.

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### Downpipes and Brackets

- 1) Assemble sections by positioning female joggled/swaged ends into the male socket end. Check directional flow through joint is correct and slide on bracket.
- 2) Ensure assembly is vertical and secure back to wall elevation. Brackets can be fixed to cladding sections using rivets but are typically installed using stitching screws (2No. per bracket).
- 3) Bracket centres should not exceed 3m generally, with the top bracket no further than 200mm away from the gutter section and the bottom bracket no further than 1m from the base.
- 4) Once in place, rivet bracket to downpipe section to prevent from dropping.

### Maintenance

Maintenance is vitally important to the ongoing performance and life expectancy of rainwater systems. In typical environments, gutters, rainwater pipes and outlets should be thoroughly cleaned at least once a year with a full inspection by a professional consultant every three to five years, checking for decay, damage, leakage or incorrect alteration.

If the rainwater system is in an environment where it may be subject to significant airborne debris such as leaves or paper and packing etc these periods will need to be reduced.