

## METAL CLADDING DESIGN AND INSTALLATION TECHNICAL GUIDES

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### GUIDE 013: SPACER SYSTEMS

Spacer systems are incorporated into built up cladding systems in order to create a cavity between the liner and weather sheet. This allows placement of the insulation and prevents the low-density quilt from being over compressed. Spacer systems can be produced in a multitude of different depths and this flexibility allows the designer many more options when considering potential building heating costs by enabling constructions to be built that are capable of accommodating almost any insulation depth.

By creating a cavity, the spacers become structural items as they are now also required to support the external weather sheet and withstand any imposed loadings this sheet may experience, such as wind and snow etc. Therefore, the components of any spacer system must be designed to possess sufficient strength to safely transmit any loadings back through to the primary support structure. In order to provide a safe load path directly into the structural frame, the spacers must always be positioned directly over secondary steelwork, e.g. purlins and cladding rails.

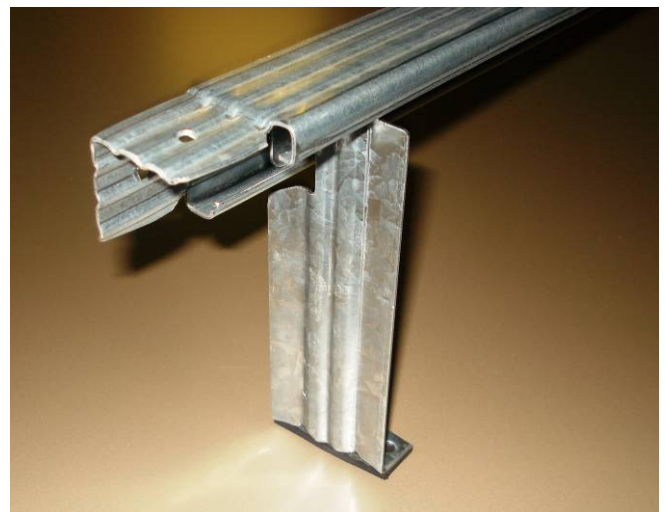
Consideration should also be given to the loading of the spacer system during the construction phase. If the cladding contractor intends to load bundles of weather sheets onto the spacer system these concentrated loads need to be checked, as overloading can cause significant damage.

Alpha Clad can supply an array of spacer systems, designed to offer optimum performance for a multitude of cladding specifications. From traditional bar and bracket for standard 'U' value built up roof and vertical wall cladding applications to specialist deep roof construction and horizontal cladding systems, Alpha Clad can specify the product most suitable for your application.

A selection of options is listed below:

#### ALPHA-GRID 'ST' - BAR & BRACKET SPACER SYSTEM

A spacer system developed to replace the 'zed & ferrule' systems used within early built up insulated roof and vertical wall cladding constructions. As regulations called for more onerous 'U' value compliance, deeper constructions became necessary and the zed & ferrule approach became structurally unstable. The bar and bracket system was the industry's solution. This system comprises an 'L' shaped bracket of chosen depth, complete with thermal break pad on the base, which twists into a profiled spacer bar. Typically the brackets are set at 1m modular centres along the spacer bar suiting the cover width of the lining panel. However, bracket centres can be reduced where extreme wind loadings dictate. Scaling in 5mm increments this spacer system is generally used to create cavities between 60-220mm deep.



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### ALPHA-GRID 'SU' DEEP BAR & BRACKET SPACER SYSTEM

We are seeing ever increasing demands for systems that exceed current thermal transmission requirements with design 'U' values as low as 0.16W/m<sup>2</sup>K. To cater for these design stipulations, Alpha-Grid 'SU' has been developed to allow systems as deep as 280mm. The system is installed in a similar way to Alpha-Grid 'ST' but comprises a bracket that is structurally superior. Due to the amount of insulation necessary to comply with these designs, the internal lining is supplied in 0.70mm steel using a profile at least 32mm deep. This allows roof constructions to be fully 'lined out' prior to placement of spacer system and insulation quilt, thus creating a working platform.

### ALPHA-GRID 'HC' HORIZONTAL CLADDING SPACER SYSTEM

Bar and bracket systems are exceptionally strong when subjected to compression and tension forces. However, whilst they can be installed in a

vertical plane to accept horizontal wall cladding they are relatively weak in 'shear' and require full support at the base. Alpha-Grid 'HC' consists of a vertical zed spacer secured to strong 'L' shaped shear brackets, which in turn secure through the lining into the cladding rail. Easy to install these systems can be easily designed to ensure the load of the wall is adequately distributed and withstood at all connections.

### ALPHA-GRID 'HF' HORIZONTAL FIRE WALL SPACER SYSTEM

Alpha Clad can offer numerous fire wall solutions. The choice of spacer system within these systems is of paramount importance, with particular reference to maintaining structural integrity when subjected to fire and the prevention of excessive 'hot spots'. Alpha Clad 'HF' has been produced for use within horizontal wall cladding applications. However, it is one of our many spacer systems that are fastrack to install and have been independently certified by an approved testing body to meet the stringent requirements of BS476 Part 22: 1987 as stipulated by the Building Regulations.