Balanced Construction

The following is a definition of the term “Balanced Construction” and the materials that should be used to create a balanced construction assembly for the Chemetal product lines.

Warpage and delamination are typically caused by different expansion ratios of the substrate and the decorative surfacing materials. There are other causes of these problems that include significant changes in temperature, humidity, improper acclimation, expired adhesives, improper or the lack of expansion or contraction joints, etc.

Balanced construction is recommended as a viable means to either prevent or decrease warpage and delamination in a laminated panel. Balanced construction is defined as adhering the same surfacing material to the face and backside of the laminated material. This process is important in applications requiring large panels such as entry way doors, wall panels, etc. For smaller applications such as drawer fronts, a phenolic backer or cabinet liner may be sufficient products to use to balance the construction. Please note that Chemetal does not offer cabinet liners but they are readily available from any building materials distributor.

It is unusual that a balanced construction is required if the substrate is mechanically secured. In general, thicker substrates decrease the need to balance the construction. These substrates are more rigid and less likely to warp. The definition of thicker substrates is greater than 1”.

Some tips for creating a successful balanced construction include:

- It is recommended that the grain direction of the laminate, substrate and balancing sheet run in the same direction.
- Use the same adhesive, lamination and drying systems for the laminate face and back.
- Use products of the same material and thickness to create a true balanced construction.
- Use expansion/contraction joints.
- The use of dissimilar materials as a balancing sheet will not prevent warpage or delamination. For example, the use of a metal laminate on the face and a HPL surfacing material on the back will likely result in warpage and delamination.
- Moisture barriers (paint, lacquer etc) do not balance the construction.

We consider the following as proper materials needed to balance the construction of projects that require our materials:

200 & 700 Series: All materials from the 200 and 700 series can be used to balance the construction of items in these series. Any 48” wide (~1220mm) wide, HPL products from the 300 series will be sufficient as balancing sheets for 200 and 700 series products.

300 Series: 310, 325, 337, 338 can be used to balance the construction of each other. Product 423 and items in the 800 series can also be used to balance the construction of these four items. Metal with a backer should be balanced with backed metal and metal only installations should be backed with metal only products. Products 314, 315, 317, 318 and 340 can be backed with each other or with items from the 200 or 700 series.

600 & 900 Series: The items contained in these series can be backed with any item from these metal only categories. The four aluminium items from the 300 series can also be used as balancing sheets for these series. Our suggestion is to avoid using any embossed metal only products as a balancing sheet.

800 Series: Items in this series should be used as balancing sheets on installations that required an 800 series product. Items 310, 325, 337, 338 and 423 can also be used to back items in the 800 series. Metal with a backer should be balanced with backed metal and metal only

Installations should be backed with metal only products. Economic alternatives are available but they do not create a true balanced construction. aWe will do our best to supply balancing sheets by utilising products in or second’s and discontinued inventories. There will be times when we will be unable to supply the size, finish or the number of sheets from our second’s or discontinued inventories that are required to balance the construction of an order. In these situations, first quality products should be used to balance the construction.