Writing Good Box Specifications (Part 1)

Each month during our Packaging Workshop, users of corrugated packaging will invariably raise issues of boxes collapsing in the warehouse, jamming up in automated case erectors, or exhibiting visible defects such as warp and skew. Sometimes a box from one supplier works well, while another supplier's box with the same certification stamp might perform marginally or fail miserably. More often than not, the discussion migrates its way into a complaint session about corrugated industry quality in general.

While corrugated quality is an issue that can demand considerable time at these seminars, attempts are made to steer the conversation toward more productive avenues ... in particular, packaging specifications. Well-crafted specifications are, in fact, a user's front line of defense against corrugated packaging that doesn't perform, and against recurring quality problems that elevate the cost of using corrugated boxes. Proper use of good specifications can also improve the purchasing process by eliminating me-too salesmanship and focusing the process on actual performance needs. The worst mistake many purchasing agents make when entertaining new suppliers is giving the corrugated salesperson a box sample from which to quote. A single box sample given to five different corrugated sales people will likely yield five different box quotes, most of which will fall short of actual performance needs in one respect or another.

Having bantered about quality issues and box specifications with several hundred users over the last few years has provided a pretty good starting point, a sort of template for corrugated specifications. This template is built on a few rules, enumerated below, which should not be ignored.

1. **Specifications must be based on actual performance needs**, not artificial indicators of some desired performance. Basis weight (fiber content), for example, would not be a good specification to ensure predictable stacking performance. Contrary to general hype within the industry, ECT (edge crush test) would also not be an appropriate specification to ensure consistent and predictable compression performance. Only a box compression specification would ensure consistent performance.
2. **Specified characteristics should be measurable** at the place of manufacture, or at least be certifiable by component material suppliers. Box dimensions would certainly be verifiable in a box plant, but not all box manufacturers are equipped to measure box compression. This does not mean that box compression cannot be specified, but it does mean that users may need to select suppliers based on their ability to measure such characteristics or require their suppliers to properly equip their plants.

3. **Do not specify multiple characteristics that conflict with one another**. Specifying mullen (burst) and box compression together would likely result in increased costs or non-complying product. Requiring application of anti-skid treatment, which is normally water-based, may prevent a supplier from providing flat board. Another approach to improving slide resistance is to reverse the outside liner, which may result in poor quality printing.
4. **Specified limits should be achievable** by a majority of the corrugated industry with existing equipment. Special requirements such as 5-color graphics, jumbo-flutes and mini-flutes, or special services such as co-packing of displays will invariably limit your selection of suppliers and increase your cost per unit. For all other packaging, you will be well served to understand the capabilities of the corrugated industry and develop packaging specifications accordingly.
5. **Specifications should recognize the existence of process variability.** Slot width at the manufacturer's glue joint will vary, no matter who you purchase corrugated boxes from … so the role of your packaging specifications will be to limit allowable variation such that boxes will perform in your case erectors without having to eliminate most of the corrugated industry as potential suppliers.
6. **Specifications should not be based on transportation rules** unless 1) there are no specific identifiable performance needs, or 2) those rules do, in fact, encapsulate the appropriate performance requirements without conflicting with other specifications.

Each of the items above will be discussed with more detail in future articles. The next article, Part 2, will expand on components of the specification template.