

August 2011

## Cardinal Insulating Glass – Packaging Reclamation

The Cardinal Insulating Glass facility in Spring Green produces highly efficient insulating glass used in windows and doors. The 430,000-square-foot facility can produce 28,000 insulating glass units per day and employs 500 people. Cardinal IG is a subsidiary of Cardinal Glass Industries, a vertically integrated company whose vision is to design and fabricate the most advanced residential glass products in the industry.

### Challenge

Cardinal IG ships over 10,000 insulating glass units a day. To get these units safely to their destination, the glass is placed on large wheeled racks, stabilized with fill material called dunnage, and wrapped with plastic strapping and film. Historically these racks were made of wood, and Cardinal IG would reuse them as glass was shipped from one Cardinal facility to another. The racks were also sometimes reclaimed after they had been used to deliver product to a customer. However, many racks were not returned to Cardinal IG, and some that were returned were broken and unusable.

When Cardinal IG implemented their environmental management system in 2008, they identified reclaiming packaging as an easy way to save money and decrease their environmental impact.

### Strategy

#### *Racks*

To avoid losing racks to rough handling, Cardinal IG phased out its wood racks and instead switched to more durable metal racks and plastic A-frames. These racks are collapsible or stackable and are designed for reuse and return. The new plastic racks have an adjustable and interchangeable pad system that eliminated much of the single-use packaging used with the metal racks.

Cardinal IG leveraged its ongoing relationships with individuals in its customers' shipping departments to facilitate the return of the racks. Cardinal employees visited the customers and explained how to collapse and stack the racks, showing pictures and leaving documentation that described the process. Shipping providers then collect the racks at the customer site and backhaul them to Cardinal. Cardinal noted that customer education was key to getting the racks back in a usable form, and ongoing communication helps keep the system functioning.

#### *Packaging*

In addition to the returnable racks, Cardinal IG also collects other packaging material from its customers for reuse.

Cardinal IG distributes empty barrels that its customers can fill with plastic strips, pressboard, and other



*Returnable racks stacked at Cardinal IG*

material that Cardinal can reuse as dunnage. When the barrels are full, they are returned on the same trucks as the empty racks. The barrels are themselves reused; Cardinal receives them filled with raw materials like silicone.

## Results

All components of the insulating glass packaging are now returned and reused except for the plastic wrap around the racks. Each week, approximately one pallet of reusable packaging and 100% of racks are returned to Cardinal for reuse. This results in an approximate annual savings of \$9,000 and 20 tons diverted from the landfill.

Cardinal customers were eager to participate in this program. Often it only took a conversation to gain cooperation, as most organizations were eager to increase their “green” initiatives. In almost all cases, the customers did have to allocate floor space for the returnable packaging.

The success of returnable racking has spurred Cardinal IG to examine other waste-saving returnable packaging. Cardinal IG uses spacers between the multiple glass panes in insulating glass units; these spacers come to Cardinal IG banded together in groups. The bands were customarily different sizes based on the spacer sizes, and thrown away after they were removed. Cardinal IG is now working with its spacer supplier to develop a universal spacer band that could be cut in a designated spot for removal, returned to the spacer supplier, and reused. Since each band costs between fifty cents and a dollar, this will represent a significant savings for the spacer supplier.

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