



Environment

Dell and the Environment

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Packaging Design

The Worldwide Packaging Engineering team is responsible for optimizing packaging materials throughout Dell's supply chain and for finished product packaging. Packaging is necessary for product protection during shipping and handling. Worldwide Packaging Engineering conducts extensive tests and packaging development to optimize product protection and minimize the use of packaging material.

Packaging Optimization

Packaging optimization starts with a product. Dell's Shock and Vibration Engineers perform extensive tests on the product, simulating worst-case shipping and handling environments. By working closely with the product design engineers, enhancements are made to a product and then tested until the robustness of the product is improved. This increased product robustness results in less packaging material required to protect the product, which results in the reduction of packaging material manufactured and disposed of into the waste stream.

After the robustness of a product has been established, the packaging engineers develop packaging. Using electronically monitored models and products, engineers measure the shock and vibration inputs that the packaging produces during testing. If levels to the product do not meet the specification, packaging is improved until requirements are met. However, if shock inputs are well below product fragility levels, packaging materials can be reduced. The goal for Dell is to use the right amount of protective packaging to deliver a quality product to the customer.

In 2005, Dell worked at reducing packaging and increasing the density of components in shipping containers throughout our supply chain. Our Worldwide Packaging Engineers worked with the supply chain to identify which component packaging could be minimized. Inbound packaging was redesigned to reduce packaging and increase product density, which leads to fewer truck shipments, less gasoline consumption and reduced emissions. Lastly, all packaging material coming into Dell's manufacturing sites is sent to a recycler to be sorted and recycled.

Packaging Project: Slip Sheets

During fiscal year 2005, Dell implemented slip sheets (a three-pound, .03-inch thick plastic sheet) instead of wood pallets (which weighed 40 pounds and were 5 inches tall) for inbound chassis products, which resulted in more than 8,000 tons of wood reduction for inbound shipments. In fiscal year 2006, the program was expanded to include monitors and flat panels, which resulted in over 17,000 tons of wood saved annually, a greater than 50 percent increase in savings from the previous year. The freight density is also increased, which results in less truck shipments, less fuel used, and therefore, less emissions to the environment.

Fiscal Year 2006 Packaging Results and Fiscal Year 2007 Goals

In fiscal year 2006, Dell saved over 24,000 tons of packaging material by annual reduction and elimination of corrugated, plastic foam, and wood materials. The slip sheet project accounted for over 17,000 tons of the total tonnage reduction.

For all other packaging materials used for inbound and outbound shipments, the fiscal year 2006 goal of reducing packaging used by 5,000 tons was exceeded by more than 2,000 tons, for a total of more than 7,000 tons of packaging material

avoided. The Worldwide Packaging Engineering team has set a dematerialization goal of 5,000 tons annually for fiscal year 2007. The team will no longer track slip-sheet wood reduction because the project is fully implemented and is standard procedure at Dell. Our efforts will continue to save at least 17,000 tons of wood annually.

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