

Performance Track Leading Practices

InterfaceFLOR Closes the Loop by Recycling Old Carpet into Raw Material Feedstock

Costs and Benefits of Closed Loop Procurement*

Costs	Savings and Other Benefits
Licensing recycling technology from outside specialist.	Reduces procurement costs.
Customize equipment to separate useable material from reclaimed product.	Uses a cheaply available material that would otherwise be viewed as waste.
Manage the sourcing, transport, and storage of reclaimed materials.	Reduces the carbon footprint of Interface products.
R&D to engineer quality products with recycled content.	Creates new capabilities in recycling and product innovation.
	Provides marketable improvements in corporate environmental performance.

*as of Jan. 2009

PERFORMANCE TRACK FACILITY

InterfaceFLOR, LLC,
Lagrange, Georgia

GOAL CATEGORY

Material Procurement

RELATED INDICATORS

Upstream: Recycled content (pounds)
Downstream: Expected lifetime waste (to air, water, land)
from product use

OVERVIEW OF INTERFACEFLOR'S POST-CONSUMER MATERIAL PROCUREMENT

The InterfaceFLOR facility works with parent company Interface, Inc. to manufacture modular carpet tiles for the residential and commercial building markets. As part of its membership in the National Environmental Performance Track program, InterfaceFLOR has developed a closed-loop supply chain program that reuses post-consumer material sourced from old carpet yarn and tile backing. Advanced material engineering and recycling technology have enabled InterfaceFLOR to substitute virgin, petrochemically derived materials with post-consumer raw material feedstock reclaimed from used carpet.

InterfaceFLOR's material procurement improvements under Performance Track have increased the percentage of recycled content in the primary components of Interface carpet tiles—nylon fiber and vinyl backing. In 1996, the percentage of recycled or bio-based content in InterfaceFLOR products was 0.1 percent. By 2004 it had risen to 16 percent, and reached 44 percent total recycled material in 2008. Some products have higher recycled content, but the 44 percent figure represents all raw materials used at InterfaceFLOR.

The business case driving this practice is twofold: 1) to save on procurement costs by using less virgin oil-based material and 2) to divert as much waste as possible away from landfills. These environmental improvements have dramatically reduced energy and waste-disposal costs for InterfaceFLOR, while giving it a strong position in the marketplace as a leading green building products company.

HOW INTERFACEFLOR PROCURES AND INTEGRATES POST-CONSUMER MATERIALS

Interface carpet tiles depend on two raw material feed streams: 1) the nylon used in the carpet fiber, and 2) the thermoplastic vinyl material that goes into the tile backing. To improve the environmental footprint of its raw material sourcing, Interface introduced two corporate-wide initiatives: ReEntry® 2.0 and Cool Blue™.¹ ReEntry 2.0 is a strategic product design/supply chain program that manages the reclamation of nylon yarn, the most carbon-intensive component of InterfaceFLOR tiles. Cool Blue addresses the

¹ Improvement initiatives at InterfaceFLOR have been commercialized as proprietary innovations



tile backing material through advanced thermoplastic recycling processes that increase the percentage of recycled content. Improvements are recorded by measuring the weight (pounds) of recycled material in all the raw materials used to produce and package carpet at the InterfaceFLOR facility.

Interface partnered with an outside firm to license a technology that will separate carpet fiber from backing, allowing for a maximum amount of post-consumer material to be recycled into new products. The recycling process converts clean post-consumer nylon fiber, vinyl backing, and some virgin materials into new feedstock material for InterfaceFLOR brand carpet tiles. Before the nylon recycling technology was implemented, post-consumer nylon 6 and nylon 6,6 were either downcycled (making less-valuable products from waste) or used for waste-to-energy processes.

Managing the procurement of post-consumer material and cost-effectively integrating it back into the production process have been challenging for the carpet industry. In response, InterfaceFLOR has developed a customized logistics process to source used carpet and evaluate the environmental and economic costs of transporting and storing the material. Reclaimed materials can be sourced from used Interface tiles, or—in the case of old yarn—from a variety of broadloom carpets made with a range of nylon fibers. Cool Blue backing feedstock is sourced from post-consumer vinyl carpet backing (usually from old Interface tiles) and is recycled into new backing using patented thermoplastic technology.

Interface’s carpet reclamation program depends on strong partnerships with vendors, building contractors, and other groups that collect used building materials. Municipal recycling groups and organizations such as Carpet America Recovery Effort (CARE) facilitate industry-wide recycling and reuse of post-consumer carpet in an effort to reduce the amount of waste carpet going to landfills. Plastics that cannot be used for Interface processes or products are distributed to other industry suppliers for reuse in their material streams, or used for Interface’s waste-to-energy program. The goal at InterfaceFLOR is to broaden the scope of backing types and nylon that can be recycled until 100 percent of reclaimed material will be circulated back into new production.

TIPS AND GUIDELINES FOR IMPLEMENTING A POST-CONSUMER PROCUREMENT PROGRAM

Interface’s internal program, Ecometrics, measures material and energy flows through the company’s operations. This management model has been fully integrated into FLOR’s facility Environmental Management System (EMS) program, and is a useful tool for linking corporate-wide sustainability goals with facility-level progress. Through Ecometrics and programs such as Performance Track, InterfaceFLOR has created a robust system for benchmarking how innovations affect environmental management on a facility level.

Externally, Interface involved key partners in the process of launching Cool Blue and ReEntry 2.0. Beginning with Cool Blue, Interface partnered with a technology firm to co-design and license equipment that would increase the recycle content of backing material. More recently, with corporate investment



Conversion of reclaimed nylon (top left) and backing (bottom left) into new raw material feedstock (right)

focused on recycling and sustainable innovation, InterfaceFLOR integrated new capabilities in yarn recycling to further improve its “reverse supply chain” with ReEntry 2.0. This program uses the enormous stock of nylon that is already in the marketplace, leveraging relationships with organizations such as CARE and a variety of stakeholders that can supply used material. Looking forward, InterfaceFLOR will continue to engage certifiers and other third-party agencies for input and guidance on new products and processes to optimize improvements. Performance Track and regional recycling initiatives have been important partners that provide incentives and recognition to sustain momentum and continually improve the procurement process.

BENEFITS OF INTERFACEFLOR’S “REVERSE SUPPLY CHAIN”

Increasing the percentage of post-consumer materials in InterfaceFLOR products enables the facility to reduce its upstream energy footprint and significantly reduce downstream waste generation by creating value out of what was formerly viewed as a waste product. Reclaiming post-consumer materials also engages consumers by including them as active participants in Interface’s environmental efforts. This customer relationship proposes that all carpet will be sold with the expectation that it will be returned to be recycled into new carpet, an attractive agreement for environment-minded customers.

Since the start of its carpet reclamation program, Interface has diverted more than 175 million pounds of material from landfills and recycled 25 million pounds of material into new carpet. For Interface CEO Ray Anderson, sustainable design has provided an unexpected wellspring of innovation, and the business benefits keep accruing in the form of lower procurement and waste disposal costs.

RESOURCES FOR MORE INFORMATION

- ★ EPA's Comprehensive Procurement Guidelines [<http://www.epa.gov/epawaste/consERVE/tools/cpg/index.htm>] provides guidelines for recommended recycled content levels for a diverse array of products.
- ★ EPA's Materials and Waste Exchanges [<http://www.epa.gov/epawaste/consERVE/tools/exchange.htm>] provides an index of markets for buying and selling reusable and recyclable commodities.
- ★ Carpet America Recovery Effort (CARE) [<http://www.carpetrecovery.org/>] [exit disclaimer] is a joint industry-government effort to increase the amount of recycling and reuse of post-consumer carpet and reduce the amount of waste carpet going to landfills.