



TANDUS 2010: RACE TO SUSTAINABILITY

In January 2002, Mac Bridger, CEO of Tandus Group, was preparing for his meeting with his top lieutenant – VP of Sales & Marketing Lee Schilling – to begin and map out their company’s future for the next decade. Mac and Lee were very proud of the path the firm had taken. Although they did not feel that the company always got the public recognition it deserved, they believed their firm led the industry in social and environmental as well as financial performance.

For the better part of the past two years, Bridger and Schilling had overseen a long and sometimes difficult process as their firm – Collins & Aikman Floorcoverings, Inc. (C&A) – first expanded with major acquisitions and then underwent a change in name and ownership. Now, the company was on as solid a financial footing as it had ever known. It had achieved eight consecutive years of record sales and earnings through FY 2000, enjoying an overall ten-year growth rate of roughly 14% annually in an industry that was growing less than 5% per year.

Both men felt that the company’s new initiative – “Tandus 2010” – had to ensure that its triple bottom line performance continued to set the standard for the rest of the industry. Mac wondered what goals they should set, and how they should continue to measure their performance. What would be the best path for the Tandus Group to march down in the coming decade?

Company History

Collins & Aikman Floorcoverings (C&A) was originally part of Collins & Aikman Corporation, a global leader in automotive floor and acoustic systems and a leading supplier of automotive fabric, interior trim and convertible top systems. In February 1997, the Floorcoverings division bought all of its outstanding capital stock from the parent company in a leveraged buyout for \$197 million. This move was in response to the parent company’s desire to focus its operations exclusively on serving the automotive industry. As Schilling explained later, the Floorcoverings division wanted to protect the culture and success it had created over time through acquisitions. C&A had become a leading manufacturer of vinyl-backed commercial floorcoverings in the United States.

C&A markets products to five specific segments of the commercial market—government, retail, corporate offices, education and health care. C&A has structured its business around the ability to know and cater directly to these specific segments, an approach that is quickly becoming the norm in the commercial industry. For each of its five purchaser categories, C&A has a specific branch of sales. Aside from focusing on these specific categories, the company also attempts to build strong relationships with architects and designers, who often make carpet selection decisions for the facilities at which they have been hired. In 2000, about 60% of C&A sales were direct to end users, while the remaining 40% occurred through designers.

C&A underwent a series of key acquisitions in their bid to increase their competitiveness and economic well-being. In separate deals, the company acquired both Monterey Carpet of Santa Ana, California and Crossley Carpet Mills in Nova Scotia, Canada. Until its acquisitions, the company offered only two primary types of carpet products – six-foot roll carpet and modular carpet tiles. The acquisitions of Monterey and Crossley enabled the firm to offer its customers broadloom carpet.

In early 2001, C&A’s original investors sought to cash out of what had become a very lucrative return on their investment. During the sales process, some of C&A’s larger competitors expressed interest in the company, which would have meant public ownership. However, a deal was eventually struck whereby the majority of C&A stock was purchased by Oaktree Capital and Bank of America, maintaining the firm as a private entity. Oaktree Capital Management LLC, seeks to provide “highly professional, risk-averse management in a small number of sophisticated investment specialties.” Bank of America, a leading US bank engaged in all aspects of commercial and retail financial services, had fluctuated over the years in its focus on socially- and environmentally-related loans and investments. Overall, the new owners provided the company considerable financial support for strategic growth. Recent capital expenditures could allow the company to expand its carpet manufacturing capacity by 50%.

Also in 2001, a new corporate entity known as Tandus Group was created to house C&A, Monterey Carpet, and Crossley Carpet Mills. Based in C&A’s headquarters in Dalton, Georgia, Tandus Group was intended to link the various mills without destroying existing brand identities.

The Commercial Carpet Industry

The carpet industry is divided into two primary markets: commercial and residential. The commercial carpet market is further divided between the “specified” and “non-specified” markets. In the non-specified segment, commonly referred to as the “mainstreet” segment, sales occur off the shelf at distribution centers and depend predominantly on product pricing. In the specified market, where sales are made directly through the manufacturer or their contractors, product selection is more likely to be based not only on price, but also on a customer’s specific interest in durability, appearance retention, design and service. Both specified and mainstreet carpets are sold to each of the five primary commercial categories – corporate office space, health care, education, government, and retail.

The specified market is dominated by 12-foot broadloom products, which continue to capture a majority of market share (See Exhibit 1 for an explanation of commercial market carpets). In

recent years, broadloom has lost market share to the more versatile carpet tiles and six-foot roll carpets. In comparison to these products, broadloom is typically more difficult to install, maintain, repair and replace. Both six-foot roll goods but particularly carpet tiles have proven particularly attractive to the corporate office segment of the market who seek flexible floorcovering solutions due to frequent rounds of redecoration and regular servicing for installation and maintenance of electronics and telecommunications equipment. Hospitals and schools typically purchase six-foot roll goods. Large contracts may see a combination of both tile and roll goods. For example, an office building may have roll product in its hallways and entrances, while the individual offices have tile. The U.S. market for carpet tile has grown significantly and was estimated to be at \$600 million by the end of 2001.

The structure of the commercial carpet market has seen significant transformation over the past decade. Consolidation has been particularly widespread, fueled by the desire of manufacturers to offer their clients multiple product types in a variety of geographic areas. This objective is part of a larger focus on provision of integrated, convenient service, where the carpet manufacturer bundles together design, sales, distribution and installation. Recently, this emphasis has led some companies to partner with or acquire non-carpet flooring companies. Recent growth for non-carpet products such as hardwood, laminates, and other synthetic surfaces has outpaced growth for carpet products. This growth has been attributed to recent advances in design of hard floorcoverings, which traditionally had been considered substandard and unsophisticated by the design community. By 2000, hard surface floors had accounted for 36% of all commercial floorcovering sales.

Competition in the specified segment of the commercial carpet industry was dominated by large players, with the top 15% of companies accounting for more than 95% of total sales. Aside from Tandus Group, the biggest competitors in the US domestic specified market included Shaw Carpets (\$690 million), Interface (\$399 million), Mohawk (\$395 million), Lees (\$296 million) and Milliken (\$175 million). Of that group, Shaw, Mohawk, and Milliken also served both the residential carpet market and the mainstreet portion of the commercial market. Consistent with the industry trend of offering wide product variety, nearly all of these competitors sold broadloom, six foot roll and tile products.

Overall, the commercial carpet industry had enjoyed significant growth during much of the 1990s. That growth was especially driven by the boom market of the late 1990s characterized by increases in commercial real estate construction and renovation. However, in 2000 commercial carpet sales became more volatile. Sales grew by 4 to 5% but were marked by two quarters of stagnation. By June 2001, the industry's trade publication Floor Focus was anticipating slight to no growth for the rest of the year. Slowed sales were blamed predominantly on the downturn in investment in corporate office space and, more recently, consumer retail space. Nevertheless, sales to health care, education and government remained steady due to their relative immunity to economic fluctuations. In 2000, total specified sales totaled roughly \$3 billion of the just over \$4 billion of the US commercial carpet industry.

*Environmental Issues*¹

The carpet industry has long been associated with significant environmental impacts. The most visible of these impacts is the enormous volume of post-consumer carpet waste. Each year, over 5 billion pounds of carpet are sent to US landfills and incinerators.² This rate of disposal is enough to fill 500 tractor-trailers with carpet every day. Designers and architects had been pushing the industry to address the waste issue for several years. Several industry players, including C&A within the Tandus Group, were seeking new models of product delivery, such as carpet leasing, and the creation of new flooring products that could eliminate toxics and be recycled entirely back into the original product without the need for any virgin raw materials.

In the commercial market, carpet is typically produced from synthetic fibers, predominantly nylon and vinyl, derived from petrochemicals. These fibers are later affixed to a vinyl, or PVC (polyvinyl chloride), backing. (See Exhibit 2 for an explanation of carpet “backing” and other carpet features.) Backing is the portion of the carpet that adheres to the floor and into which face fibers (or intermediate layers) are stitched. The production of virgin vinyl has long been associated with the release of a suspected carcinogen dioxin. Fibers are dyed and then stitched into various layers. These layers are then combined and treated to form the final carpet product. While most companies buy their fibers from a supplier, some competitors produce fibers and are able to dye them in-house. Stitching and product completion occur at the carpet company factory. Fiber production, dyeing, stitching and treatment all contribute to the release of environmental contaminants and/or waste. Volatile organic compounds (VOCs) – highly toxic, carcinogenic chemicals – are common features of fixants (used to combine individual fibers), adhesives (used to combine layers of fibers) and protectant (used to prevent the growth of mildew and stains). Carpet dyeing often results in the creation of toxic wastewater. Furthermore, after initial formation carpet is cut to specific product size and shape, resulting in the creation of useless scraps.

Beyond production, there are a number of environmental concerns associated with downstream operations. The wet adhesives used during the installation process are another significant source of VOCs that can dissipate slowly over time. Although research on the subject remains inconclusive, gases released during carpet installation have been blamed for a variety of respiratory illnesses and the poorly understood disease multiple chemical sensitivity, a hyper-allergenic response to chemical pollutants. Since the late 1980s, customers had been indicating serious concern about the off-gassing associated with the carpet installation process.

The issues of waste, air and water emissions continued to attract public attention for the industry. A nascent campaign by environmental group Greenpeace to eliminate the production and use of vinyl had begun to target individual producers and users of vinyl and included a letter writing campaign aimed at legislators.

¹ The environmental impacts discussed in this section are not exhaustive, and do not cover the full range of emissions in the complete life cycle of carpet.

² Incineration is frequently used to generate electricity from waste. Although it allows for constructive use of waste, the process typically involves release of hazardous air pollutants.

Over the last decade, indoor air quality (IAQ) concerns had received a great deal of attention. Outcry over IAQ increased in response to news reports of “sick-building syndrome,” a supposed chronic state of poor indoor environmental quality. Many believed that sick-building syndrome was responsible for increased incidents of cancer, multiple chemical sensitivity and other debilitating conditions. The most notable case of alleged sick building syndrome occurred at the Environmental Protection Agency’s headquarters in Washington, DC. In this case, new carpet was targeted as the primary culprit. While the science remained inconclusive, concerns over IAQ were affecting customer selection.

In 1992, the industry’s primary trade organization the Carpet and Rug Institute (CRI) developed a program to recognize those carpets that show “very low” emissions of VOCs during installation. This voluntary program, known as “Green Label”, was launched in the midst of consumer outcry. Green Label uses an independent laboratory to test samples of member company carpet. Those that do not exceed the standard receive a label that accompanies the carpet’s packaging and sales literature. CRI claims that this program has helped to lower total VOC exposure.

In the late 1980s and early 1990s, a few companies, including C&A, had begun to pursue environmental performance that exceeded existing environmental standards. These companies hoped to capture the loyalty of consumer groups that valued environmental protection, including federal and local government agencies, which frequently require consideration of the environment in their purchasing process. These environmental efforts received little widespread attention until the mid-1990s, when Ray Anderson, CEO and founder of Interface, pushed his company into the public spotlight. Anderson claimed to having had experienced an epiphany while reading Paul Hawken’s book *The Ecology of Commerce*, which calls for a reinvention of the relationship between industry and environmental preservation. Anderson made a very public pledge that Interface would become the first truly sustainable manufacturing operation, eliminating all long-term environmental impacts. This public stance has contributed to an increase of the collective perceptions related to the environmental proactiveness of the carpet industry in general.

The Triple Bottom Line at C&A

Economic Performance

Over the previous decade, C&A’s growth rate greatly exceeded the average growth rate in the commercial carpet industry. While the industry experienced significant periods of stagnation, C&A managed double-digit growth each year except for 2001. The year 2000 was the eighth consecutive year of record sales and earnings for the company. In the early 1990s, C&A was not a top 10 firm in the commercial carpet industry, as measured by total sales. By the beginning of 2001, however, the company had become the fourth largest player in the specified sales category and had the greatest total sales of the rapidly expanding six-foot roll product category. Total sales for 2000, made exclusively to the specified market segment and more than 90% of which were in the US, were \$308 million. These sales made C&A the fourth largest company for specified sales and fifth largest for the commercial carpet market as a whole. C&A currently holds the number-one position in the domestic market for six-foot roll carpet and a leading

position in the modular tile segment, which the company had pioneered in North America. The company's two most recent acquisitions, Monterey and Crossley, contributed sales of \$76 million and \$40 million, respectively. Tandus generated EBITDA of \$49.4 million – the highest in the commercial carpet industry and twice its nearest competitor. (See Exhibit 3 for firm financials.)

Environmental Performance

Bridger generally felt that C&A received much less public attention for its initial environmental efforts, particularly as compared to the attention being afforded Interface. In this regard, he and others in the company preferred to note that their firm was “walking the walk” instead of talking the talk. The company's Year 2000 Report, challenged readers to evaluate C&A “by our accomplishments rather than by our goals.”

Innovation. In the 1980s, C&A noted a significant problem with its roll carpets – they proved extremely difficult to remove after use, resulting in frequent customer complaints. Eager to respond to those customers' concerns, the company began to explore new methods of installation involving less adhesive glue and double-stick tape. The CEO at the time, Bill Wiegand, envisioned a peel and stick capability for carpets modeled after the one used in bumper stickers. The company labored for several years to realize Wiegand's vision. In 1989, the peel and stick concept became a reality and was introduced into all the company's roll products. Branded as the Revolutionary System (RS), this new product feature exceeded the company's wildest expectations. It not only allowed for easy carpet removal, but also precluded the need for any wet adhesives during the installation process.

RS had become standard for all of the company's roll and tile goods, providing an attractive alternative to traditional installation. This performance aspect of their products was particularly important to the health and education sectors, which tend to show special concern for IAQ issues. C&A was not a member of CRI, yet RS products released VOCs at an amount at least 20 times lower than that allowed by the voluntary CRI standard. This reduction in emissions was due both to the removal of wet glue from the site of installation as well as the difference in chemistry from traditional glue products. The increased performance allowed the firm to claim it met the aggressive VOC limits set by the State of Washington Protocol.

In addition to its environmental attributes, RS delivered real benefits to customers in terms of simplifying installation, requiring much less time and effort than the traditional wet glue method. This benefits the customer in two ways. First, because labor is reduced, installation costs less. Second, the amount of worker downtime at the site of installation is greatly reduced or eliminated, cutting as much as 50% off the costs of installation. C&A encouraged customers to factor lost worker productivity into the analysis of carpet cost, something that resonated particularly strongly with customers in certain markets such as hospitals and other facilities that work long hours and operate around the clock.

Over a seven-year period starting in 1993, further initiatives primarily in process improvements and pollution prevention had allowed C&A to improve environmental performance dramatically. Exhibit 4 illustrates their significant reductions in virtually all of the pollutants created by the

company. At the same time, C&A also stood out for its improvements in product design and delivery.

Durability. Within the high-end commercial carpet market, C&A established a reputation for long-lasting carpet products. C&A had always viewed extended performance life as a customer value issue, and remained the only commercial carpet manufacturer to offer first 15- and later 20-year non-prorated standard warranties against wear. Many of the company's carpets were still in use 30 years after installation, up to four times longer than the lifetime of many competing carpet products. The extended product life was accomplished through state of the art-technique, stringent quality control, and superior design. The company also noted that increases in the environmental performance of their carpet manufacturing did not affect this durability.

Recycling. Having realized the value of environmentally-based initiatives through their experience with RS, C&A turned their attention to the issue of carpet waste. Like others in the industry, C&A had a desire to recycle old and worn carpet into more useful products. In early experiments with carpet recycling, the company used post-consumer carpet to produce picnic tables and birdhouses, neither of which garnered more than novel attention. These items were primarily promotional and offered to C&A customers with carpet purchases. Aside from having limited marketability to C&A's customers, these products were also sensitive to heat and sun – a considerable problem for products intended for outdoor use. Additionally, a third party, creating additional transportation and manufacturing costs, produced these recycled goods off-site.

C&A began to play with the idea of using its existing equipment to process old carpet into new carpet. After some experimentation and analysis, the company concluded that the most likely opportunity for recycling lay in turning post-consumer carpet into the backing for new carpet. The company faced considerable skepticism over their goal. Industry peers, engineers the firm hired to explore the challenge, and even the manufacturers of the firm's extrusion equipment indicated that existing equipment could not be used for recycling. Despite these widespread beliefs, Bridger noted that his team built a common vision and appealed directly to their employees for action:

When we set out to create the world's first sustainable carpet – making carpet out of old carpet – without compromising aesthetics, performance and at no additional cost, we had no road maps. So we asked our work force to become partners, sharing their practical knowledge and creative ideas to build a new kind of flooring and do it in an environmentally responsible way.

C&A took seven years to go from drawing board to shop floor. The company succeeded in taking post-consumer carpet, grinding it into small pellets and then rerunning the pellets through their existing equipment that creates the carpet backing as if it were virgin vinyl. Known as ER3 for environmentally redesigned, restructured, and reused, C&A carpet containing recycled content backing was introduced to the market in 1995. The product, which is protected by three patents and has won numerous awards (See Exhibit 5), became the centerpiece of C&A's environmental accomplishments. The manufacturing process for ER3 even allowed the company to reclaim competitor carpet (as long as it contained the same type of nylon 6,6 face fibers with a vinyl backing) and convert it into new backing. This provided the company with a significant opportunity to win market share by offering to remove a competitor's product free of charge. ER3 provided additional unanticipated benefits. Because ER3 recycling uses the entire carpet, the new backing contains nylon from the previous generation's face fibers. In this mixture,

which is primarily vinyl, it turns out that the nylon behaves the same as rebar in concrete, strengthening the product and increasing flexibility.

For an environmentally modified product to become standard at C&A, the company requires that it be offered at an equal or lower price and meet or exceed the performance of previous generation products. Despite this strict internal standard ER3 had become the standard backing for C&A's entire modular tile product line, which now contained a minimum of 31% recycled content. ER3 tile goods sold for roughly \$18 to \$19 per sq. yard in January 2002. For its first few years of production, ER3 tile goods were produced at roughly a 25% production cost increase. Over time, this cost fell to below the original cost of production using virgin raw materials. Currently, on a per square yard basis, creation of the pellets used to produce ER3 carpets costs 35 cents less than virgin vinyl. Total tile production costs have fallen slightly more than the materials cost difference. Additional cost improvements resulted largely from suggestions offered by manufacturing employees. The insistence on competitive-costing and equal performance prevented ER3 from becoming standard for six-foot roll carpets where production costs remained high, although it was available upon request. As of January 2002, basic six-foot roll goods sold for roughly \$16 to \$16.50 per sq. yard. C&A expected to overcome remaining cost barriers to standardization by the end of 2002. Nevertheless, over time many customers choose to pay the higher price for ER3 roll goods simply because of their environmental attributes.

Although it had already proven attractive to all market segments, ER3 sales were expected to grow in the government market segment where tile sales represented approximately 30% (\$57 million) of government carpet purchases. Under the US Federal government's Preferred Purchasing Program, which began in the mid 1990s, public entities are required to purchase "products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose." For a product to be eligible, however, the particular product category must be officially designated by the Environmental Protection Agency (EPA). In August 2001, EPA proposed the addition of "nylon carpet and nylon carpet backing made with recovered materials" to the list of designated products. This designation would be finalized in 2002. In addition, the Federal government provides Comprehensive Purchasing Guidelines that indicate where purchasers (not only government purchasers) could go to find products that exhibit industry leading environmental performance. Several state governments implemented their own procurement programs that included specific language about carpet containing recovered material.

Service. Leveraging their products' durability, C&A began to issue what it called a "Sustainability Warranty" to its customers which "guarantees that no part of any carpet reclaimed for recycling will ever be sent to a landfill or incinerated." The warranty became the cornerstone of the company's "Infinity Initiative," a pledge to continually advance the cause of closed-loop recycling through technical advancement and creation of a carpet collection infrastructure.

The Infinity Initiative and the Sustainability Warranty presented the company with some significant challenges. First, the policies meant the firm had to be capable of reclaiming and, if necessary, storing the carpet of all its customers who held Sustainability Warranties, potentially requiring considerable costs and logistical complexity. Second, the company had to be able to

collect enough carpet to meet all new sales of ER3, a task that would become even more demanding once ER3 becomes standard for six-foot roll products. The company noted that current suppliers of post-consumer carpet would not provide enough material to cover both tile and roll production. To complicate matters, suppliers had become aware of the increasing value of post-consumer carpet and were looking to sell the carpet they collected. C&A was paying 1-2¢ per pound for post-consumer carpet. New potential suppliers had begun asking for more expensive pricing arrangements.

Sourcing. C&A was also under pressure to find additional sources of recovered vinyl. In order to maintain the right combination of vinyl and nylon in the recycled content backing, the company adds vinyl. Currently, this vinyl comes from post-consumer automotive interiors. Their current supplier, however, has hinted that it has plans to use the vinyl for its own recycling efforts. As a result, C&A has begun to shop for new sources. One interesting lead was with medical supply company Baxter International that manufactured intravenous bags made of vinyl for hospitals. It might be possible for these bags to be collected for use in ER3 production.

Adding to the environmental performance of its products, C&A had both reduced the total amount of face fiber and increased use of recovered material in the face fiber since the mid-1990s. The reduction of total face fiber was an unforeseen consequence of trying to improve carpet quality rather than environmental performance. C&A realized that dense carpet construction improved carpet appearance and feel, while expanding style options. Carpet density in this instance refers to the distance between threads as they are sewn in to the carpet. Thus, although it seems counterintuitive, densely woven carpets require less total yarn. In order to cover the area between stitches, less-densely constructed face requires thicker and longer carpet loops for each stitch, yet also allows the total carpet surface to be covered with thinner, shorter loops.

Material Reduction. To produce high quality, dense carpet products, the company needed fine denier nylon yarns, requiring participation from its primary nylon supplier, DuPont.³ At first, DuPont, who provides C&A with roughly 80% of its nylon, appeared resistant to the idea of altering its yarn production process. C&A approached other suppliers about production of fine denier yarns, but later reached an agreement on a new yarn standard with DuPont, but only after C&A committed to paying a premium for the yarn. C&A's ability to produce densely constructed carpet products also required investments in new carpet production machinery. These technological advances helped make the company's products' density far above the industry average, resulting in 20% less fiber usage than industry peers. The decrease in total yarn used also allowed the company to reduce its use of yarn dyes, resulting in reduction of total water usage.

Because they are required to make more total stitches, C&A's machines for fine denier operate more slowly than traditional machines, slightly slowing total production time. However, total reduction in yarn expenses and increased sales attributed to performance improvements more than offset the money lost to increased production times.

³ Denier is a measure used to define carpet density. A carpet's denier is its weight in grams per 9,000 meters of yarn. The lower the weight, the finer the yarn.

In 1999, C&A launched its Habitat line of carpet tiles, which has the greatest proportion of recycled content of any carpet product in the industry. Habitat utilizes ER3 backing and a minimum of 82% recycled nylon face fiber, for a total recycled content of up to 97%. Like the company's other products, Habitat comes in a variety of color combinations and designs.

Social Performance

The majority of C&A's previous efforts involving social improvement focused on employee empowerment. The company believed these actions created a strong and unique culture, one that has given C&A numerous advantages. For example, while the average turnover rate for laborers in the carpet manufacturing sector is roughly 6 months, C&A enjoyed a turnover rate close to ten years. Managers believed that employee loyalty stemmed from a deep commitment to employee well-being. The cornerstone of this commitment was the Working Minds program established in 1992 to promote employee empowerment. In the program, workers are paid to study on company time towards their high school General Equivalency Diploma (GED). Since the program began, 122 C&A workers have participated. Class sessions are held on-site at C&A, making attendance convenient.

In the mid-1990s, C&A also launched the PACE-setters program, designed to equip company employees with problem solving skills and a sense of team unity. This program culminates in a two-day event that combines physical challenges with experiential learning. Employees work together in diverse teams, whose members range from upper-management to plant personnel. PACE-setters also allows participation by customers and people from local communities.

The Competition

By 2002, noted Gary Kenworthy of the CRI, "virtually every carpet company is doing something with recycling or the environment." Several factors appear to have contributed to this growing interest in environmental performance. Aside from the desire to be a good corporate citizen, many companies now agree that the environment offers significant opportunities for competitive advantage. The pioneers had proved that environmental performance was an opportunity to increase quality, build market share and reduce costs.

Specifically, manufacturers seemed hopeful that use of recovered materials could help reduce dependence on highly unstable input markets. Volatility was endemic for petroleum, affecting fiber procurement costs. As noted above, carpet companies either produced fiber in-house or bought from major fiber manufacturers such as DuPont, BASF, Honeywell and Solutia. Fiber producers typically attempt to pass on the increase in fiber production costs to their customers. In the previous year, however, even when fiber costs as much as doubled producers were unable to transfer all cost increases. So, while commercial fiber sales increased 2-4% in 2000, higher fiber prices largely eroded any profit gains. Firms were looking for technologies to help break out of that trap.

Honeywell/DSM

An \$80 million joint venture between Honeywell and DSM Chemicals North America, Inc, named Evergreen Nylon Recycling (ENR or Evergreen) allows for closed loop recycling of nylon-based carpet.⁴ Opened in 1999, ENR converts nylon 6 carpet into virgin-quality caprolactam, the starting material of nylon 6 fibers. While it will be predominantly used for new carpet production, caprolactam produced by this venture will also be used to create a range of other nylon products. Depending upon the post-consumer carpet collected, vinyl or other non-nylon components of carpet are produced as a byproduct in this process.

Carpet associated with this venture is marketed under the ANSO[®] label and sold to both the residential and commercial carpet segments. Although nylon 6 carpet does not typically compete in the high-end, specified commercial market where C&A sells its nylon 6,6 carpet, for most customers, the distance between these niches is not far enough to prevent crossover.

Currently, ENR has the capacity to recycle 200 million pounds of post-consumer carpet a year. To feed this capacity, Evergreen has established the country's largest carpet collection infrastructure. Evergreen paid its suppliers 6¢ a pound for bound nylon 6. By the end of 2002, this network was expected to include 150 suppliers in 120 metropolitan areas. However, ENR had to suspend its operations due to an inability to source an adequate amount of post-consumer carpet. The enterprise was hoping to return to operation by early 2003, but had also begun negotiations for acquisition by Shaw, the industry's largest carpet company.

Interface Floorcoverings

Interface is a multinational producer of carpet, other decorative fabrics and specialty chemicals. Interface sells its carpet exclusively to the commercial market and is currently the world's leading producer of carpet tile. The company also produces broadloom and other flooring products. In 2000, the company had total carpet sales of \$400 million, \$225 million of which were for tile, which had increased 19% over 1999 sales. In the high-end commercial carpet segment, Interface is considered an industry style leader, tying for first in the category of design at the 2000 Design Survey. The company also won first outright in the categories of quality, value and performance.

Interface was also regarded as an industry leader for environmental and sustainable initiatives. Since the early 1990s, the company significantly reduced the amount of waste and pollution per unit of production. In addition to these operational improvements, Interface launched a number of initiatives to pursue sustainability through redesign of products and services. As part of its public commitment to sustainability, the company pledged to pursue closed-loop recycling technologies, eliminate the use of petrochemical feedstocks, and restore all harm created by its operations. This commitment even extended to planting trees (which soak up CO₂ from the atmosphere) to offset the emission of carbon-based pollutants caused by employee plane travel.

⁴ At the time this venture began, it was operated as a joint venture between Allied Signal Inc. and DSM. Honeywell and Allied Signal merged in 2000.

To support these efforts, Interface assembled a panel of consultants, which Anderson referred to as his “environmental dream team.” These consultants focused primarily on development of the company’s strategic architecture and new product design. The panel included some of the most well known voices on the subject of business and the environment, and generated a great deal of media attention and publicity for the company’s commitment to sustainability. The interest generated by Interface’s activities, however, was not limited to the company itself but helped shine positive light on the industry as a whole. Due to the actions of Interface, several other companies, including C&A, found a wider audience for their environmental accomplishments, some of which predate Interface’s initiatives.

The company’s most ambitious product has been Solenium, which Interface describes as neither carpet nor industrial flooring, but something in between. It is softer than industrial flooring but, according to the company, easier to clean and more resilient than carpet. Although it is produced from virgin product, this polyurethane backed floorcovering was supposed to be completely recyclable into new carpet as soon as such recycling technology was developed. 2000 sales of Solenium topped \$10 million, primarily to the health and education sectors. Sales were suspended in 2001 after quality concerns prompted the company to remove some of its installed product. The company hoped to re-launch Solenium later in 2002 with enhanced performance and a greater variety of style options.

Interface was also exploring the concept of carpet leasing. Leasing places responsibility for carpet maintenance and recovery in the hands of the provider. Interface maintains that this could offer considerable customer value while greatly improving the company’s ability to address environmental concerns. Leasing carpet tiles, for instance, allows Interface to replace only those customer tiles that receive the greatest amount of wear. This can reduce customer costs, allow for the establishment of more long-term and interactive relationships with the customer and drastically reduce the need for material. Interface estimates that only 10-20% of the carpet area receives roughly 80-90% of wear. There has been some concern, however, that the leasing concept harms carpet aesthetics. Specifically, new carpet tiles stand out when laid along side older tiles. By 2002, Interface had lined up three customers in its leasing program.

At the end of 2001, Interface also began to experiment with carpet made from PLA (poly lactic acid). PLA is a biodegradable plastic made from the starch in corn. The substance, which can be fashioned into carpet fiber, has been developed through a joint venture with the Dow Chemical Company and Cargill, an agricultural products company.

Despite its leadership in both environmental performance and product offerings, the company has faced significant financial turmoil over the last few years. Since the first quarter of 1998, when Interface stock reached an all time high of just over \$20/share, the company’s stock price had fallen steadily, sometimes selling below book value and fluctuating around \$5/share by January 2002. Anderson was replaced as CEO, but stayed on as the company’s chairman.

Milliken Carpets

Milliken & Company, a leading textiles and chemicals firm, is one of the world’s largest privately held companies. Milliken Carpets sells to both the retail and commercial segments of the market. Its commercial offerings include both broadloom and modular carpet tiles. The

company's sales to the commercial carpet industry were estimated at roughly \$200 million for 2000. Milliken's produced an environmental product from a process they called Earth Square. Instead of recycling old carpet, Earth Square employs what Milliken calls "pre-cycling." In this process, old carpet is returned to the factory where it undergoes cleaning, retexturing, and restyling. In comparison to other examples of recycling in the carpet industry, Milliken claims that its Earth Square rejuvenation process requires far less energy and new raw materials. Milliken states that its fibers and structure are specifically chosen to stand up to this process, which is available to all customers who purchase modular carpet tile. The appeal of Earth Square relies on the fact that ugly, soiled carpets that have not reached the end of the useful life are entirely restyled in the rejuvenation process and yield the company's most sophisticated carpet patterns. According to the company, the Earth Square process costs roughly 50% of what it costs for new carpet. Each rejuvenated carpet comes with a new warranty and new service life.

Earth Square represented the only carpet renewal program on the market. It won the award for Most Outstanding New Product of 1999 presented by the National Recycling Coalition and the Buy Recycled Business Alliance for its "focus on reuse, the fact that it reduces landfill tonnage, and because it provides a renewed product to customers at a favorable price." In addition to Earth Square, Milliken achieved numerous improvements in environmental management at its site of operation, including significant reductions in emissions, reuse of packaging material, and replacement of some fuel with biosolids (a byproduct of the production process that can be burned like regular fuel).

Lees Carpet

Lees Carpet emerged as a rising star in the design of high-end floorcovering products. Traditionally, the company was a leader in high-performance, high-value carpets for national accounts for which it enjoyed an industry-leading reputation. In the past five years, however, the company had focused increasing attention on the higher end of this market, typically served by the architecture and design community. With total growth up 9 % for fiscal year 2000, the company had estimated specified sales of just under \$300 million.

Regarded as an innovator, Lees' latest novel offering was a hybrid of soft and hard surface floors. Released in 2001 under the brand Metafloor, Lee claimed the product offered both performance and environmental advantages:

Metafloor uses 50% less nylon, yet has better performance features than typical carpet. This dramatic reduction in nylon translates into a 50% reduction in oil consumption. This product incorporates a backing consisting of 50% recycled content. By utilizing Duracolor® , Lees' patented stain-resistant dye technology integrated into the fiber, harsh chemicals do not need to be introduced into indoor air environments. Duracolor technology provides permanent stain, soil and fade resistance with total color and style flexibility. With Duracolor, 96% of common stains can be cleaned with just water and a mild detergent. Utilizing less yarn in the overall construction of Metafloor and less energy resources translates to less waste created and released during the manufacturing process.

Dupont

Interested in escaping the price cycling of raw materials, DuPont is exploring the possibility of a line of nylon fibers that could be used for both backing and face fibers (i.e. the “all nylon” carpet), enabling the closed-loop recycling of 100% of the material. If successful, DuPont would market the new product throughout the carpet industry.

The Road Ahead

Originally begun as an effort to transmit C&A’s commitment to sustainability to the newly-acquired companies and address concerns of corporate culture, Tandus 2010 was evolving into a comprehensive plan for corporate strategy. Key elements included future technological advances and proposals for international expansion.

One challenge facing the company in its desire to remain an environmental and social leader was how it would handle its new acquisitions. Both Monterrey and Crossley operations were leaders in their markets, but neither appeared to have commitment to or interest in sustainability. Bridger wondered to what extent they needed to think about transmit C&A’s sustainable vision to these companies and how it might affect their performance. In the next few years, each company was expected to retain unique brand identities, perhaps reducing the need for rapid transmission of company culture. However, there appeared to be some opportunity to influence the acquisitions through crossover sales – Monterrey had recently began selling C&A’s ER3 tiles. Bridger hoped this would increase interest in the environmental performance Monterrey’s products by its customers, leading to change.

Under mounting pressure to move away from vinyl as the primary ingredient in its backing, C&A had begun talking to suppliers about the use of new potential polymers. Yet, standing by its standards, Schilling noted that “In order for it to be an acceptable alternative, any new substance must meet criterion for performance and work with our ER3 system.”

Tandus was also exploring opportunities from new product development. While developing ER3, the company had developed an industrial block flooring product it referred to as Powerbloc[®]. Made entirely from post-consumer carpet, the blocks (about the length and width of a brick) were seen as an ideal surface for floors that receive heavy wear and tear, such as in a factory or gymnasium. With a consistency similar to concrete, the blocks are expected to withstand heavy pounding for a period of 50 years or more. However, the product’s dull gray appearance seemed to hold appeal primarily in markets where aesthetics did not factor in product selection. There had been some interest in the product in the marketplace, but management had not given it much attention or resources. While 2000 sales of Powerbloc[®] were \$1 million, by 2001 sales had slipped to \$600,000.

The company has also begun to consider opportunities in “second-hand” carpet markets. Due to concerns of style or color fading, carpet is typically replaced before the end of its useful life. Tandus has begun to brainstorm about the user groups who might value these used carpets. As Milliken does with its refurbished carpet squares, Tandus expects it would perform some advanced cleaning process before reinstalling the carpet. The company, however, does not

expect to put forward the same amount of investment in refurbishing as Milliken, who looks to serve quality conscious customers with its product. Tandus' market would most likely consist of customers with a lesser ability to pay.

Tandus has also given considerable thought to international expansion. Sales to China, where the company currently has no manufacturing, represent a significant portion of C&A's international business. Several of C&A's domestic customers expanded to China, a trend that Bridger believes is likely to continue. Europe, where consumers show strong support for environmental and social responsibility, also appears to be a logical site for expansion. This European situation is complicated, however, by strong opposition to vinyl, which is banned entirely from carpet production in Germany. Interestingly, the backing of choice for Europe is bitumen, a material that also poses significant environmental concerns.

To help boost sales motivated by environmental sensitivity, C&A launched a new educational program intended for designers and other carpet purchasers. This effort corresponds with the U.S. Green Building Council's LEED (Leadership and Energy in Environmental Design) program. LEED provides a framework and guidelines for design teams to construct more environmentally sensitive buildings. One section is devoted to materials and resources, which encompasses carpet. Another section involves IAQ, and encourages use of floorcoverings or installation processes that provide a more benign alternative to traditional products and methods. C&A promotes LEED through an approved Continuing Education Unit where participants can receive course credit. C&A sees its classes on LEED as an opportunity to foster greater customer demand for products that exhibit leading-edge environmental performance and dispel misconceptions that may have been fueled by the environmental claims of Tandus competitors.

The company also convened what they called their "Sustainability Laboratory" as part of a framework for generating new strategies. The Laboratory – composed of academics, scientists, architects, designers, NGO representatives and business leaders – was seen as a think tank that could further the company's progress in meeting sustainable development concerns. The pursuit of second-hand carpet markets had come out of the Laboratory that typically meets every year or two and maintains informal contact throughout the year.

Bridger was aware of the challenge before Tandus:

We estimate that roughly 20 to 25% of business can be attributed to environmental performance, and that this figure is growing each year. More and more designers and customers have indicated their interest in products that meet environmental expectations. To maintain our advantage with this group, we will have to stay one-step ahead of the game. Sustainability is all about continually reinventing yourself. For this, we have relied on our technological capability more than our aspirations for some sustainable utopia. When everyone on the market has a 100% recycled product, we will need to ask fundamentally different questions about improving our value. One we keep coming back to is 'what sorts of things might carpet be able to offer that have nothing to do with the traditional role of carpet?' That is, beyond adding comfort, decoration and accident prevention, can we find some other use for something that surrounds us in so many settings? We've been speaking with someone who has wondered if carpet might not be able to serve as an air purifier – removing the indoor air pollutants that add to allergies and poor health. I don't know if that idea will work or not, but the thinking seems to be right – our only real limitation is imagination."

Exhibit 1

Carpet Types in the Commercial Market

Product Type	Description	Use
Broadloom	A large roll of carpet normally twelve feet wide. Individual rolls are typically much longer than the space being carpeted and, therefore, are cut to fit the space at the walls.	Best suited for large carpet jobs that do not require considerable versatility at the site of installation (e.g., hallways, large foyers, dining rooms, and meeting halls.) Its larger design canvas allows for the most intricate and sophisticated carpet styling.
Six Foot Roll	The same as broadloom, but half the width.	Offer greater versatility than broadloom, but less than carpet tile. Considered ideal for jobs that require long-term appearance retention and greater maintenance demands than that posed by traditional broadloom jobs.
Modular Tile	Carpet squares, typically 3' x 3', that are pushed flush during installation to hide the seams.	The most versatile of the commercial carpet types. Can be more expensive and labor intensive (during initial installation) than other types. Lends itself more readily to under-carpet wiring/rewiring and redecoration.

Exhibit 2 C&A Carpet Components

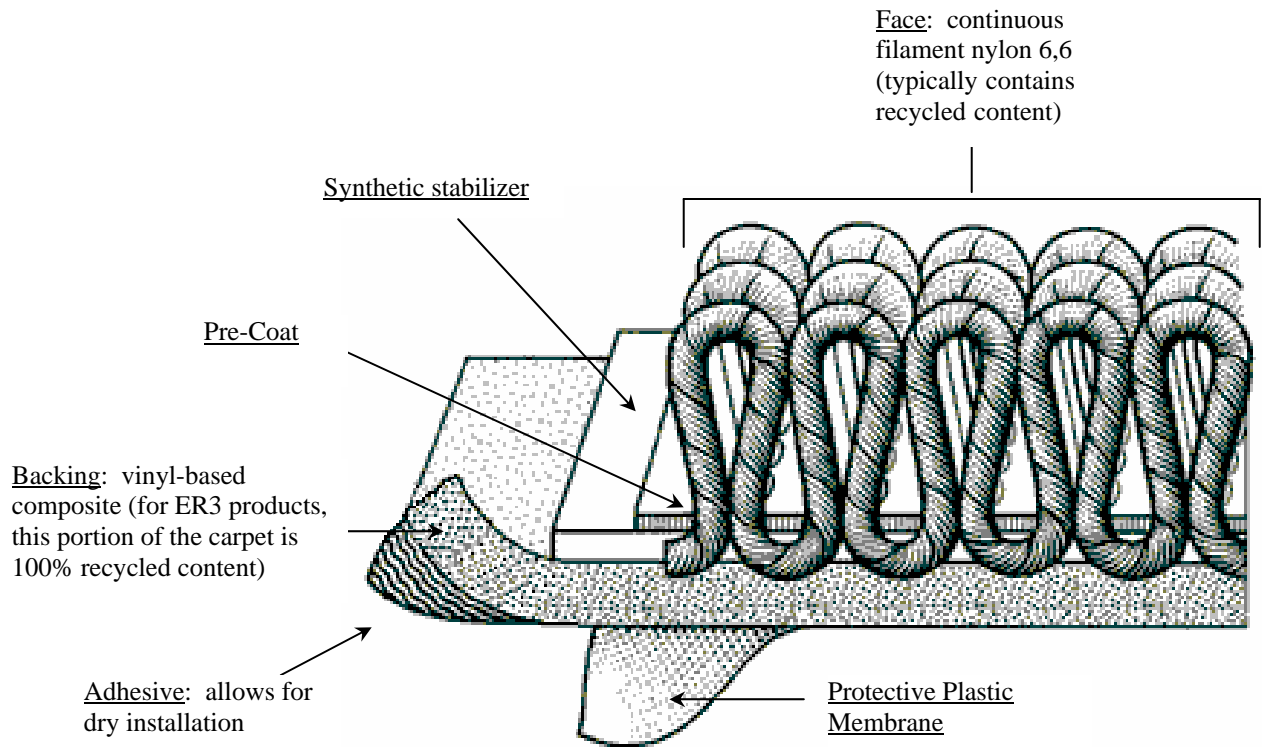


Exhibit 3

C&A Income Statements

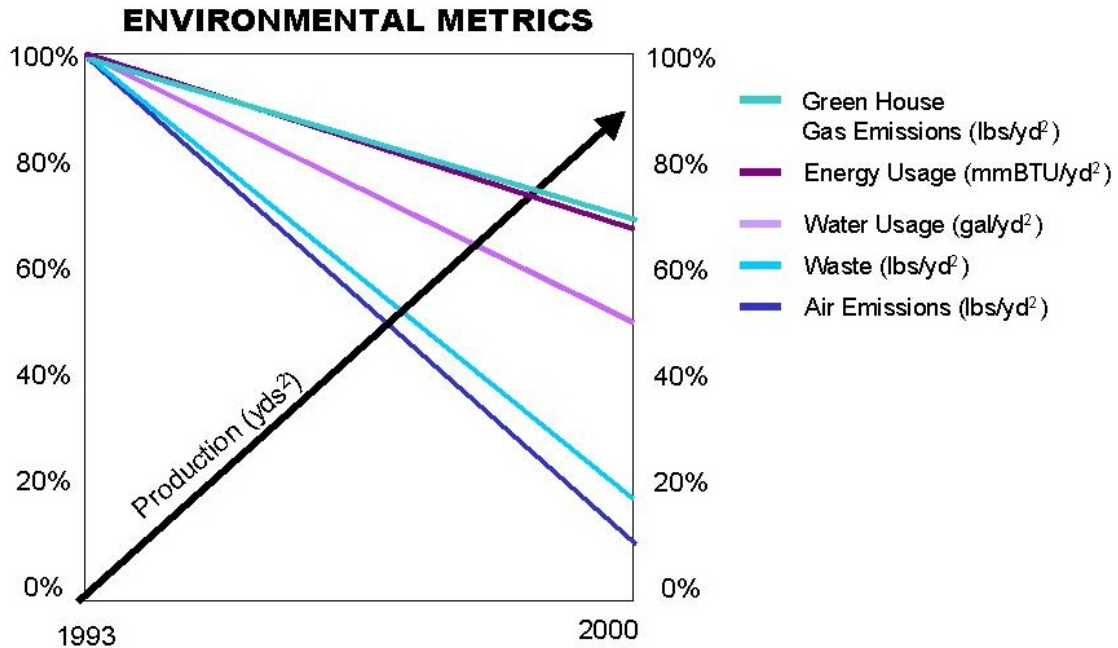
	Fiscal Year						
	1994 ^a	1995 ^a	1996 ^a	1997 ^a	1998	1999 ^b	2000
Net sales	108,039	122,169	136,124	160,383	175,662	243,364	341,223
Cost of goods sold	62,527	73,615	81,715	97,263	103,739	150,093	218,609
Gross profit	45,512	48,554	54,409	63,120	71,923	93,271	122,614
SG&A	23,733	27,364	28,971	34,769	38,514	52,846	101,596
Corporate, general and administrative allocated costs	1,069	1,591	1,531	649	0	0	0
Good will and other intangible amortization	0	0	0	8,468	7,375	7,898	8,066
Operating income	20,710	19,599	23,907	19,234	26,034	32,527	12,952
Loss on sales of accounts receivable	1,261	3,269	3,489	0	0	0	0
Minority interest in income of subsidiary	0	0	0	0	10	62	67
Equity in earnings of affiliate	0	0	0	0	0	1,215	2,293
Interest Expenses	2,454	3,098	2,854	15,122	14,715	16,338	17,151
Income before income taxes	16,995	13,232	17,564	4,112	11,319	17,342 ^c	1,973 ^c
Income tax expense	6,645	5,127	6,729	1,710	4,871	8,496	968
Gain on early extinguishment of debt, net of tax	0	0	0	0	0	1,226	(5,617)
Net Income	10,350	8,105	10,835	2,402	6,448	10,072	(8,558)

^a In the years prior to FY 1998, C&A was part of Collins and Aikman Corporation, a diversified products company. To allow for a meaningful comparison with later years, the figures for these years treat the floorcoverings division as if it had been a stand-alone company.

^b FY 1999 is the first year that recognizes the acquisition of Monterrey and Crossley.

^c Numbers do not add up because of omission of some line items.

Exhibit 4 C&A Environmental Performance Measurements



Between 1993 and 2000:

- Production increased 91% per square yard
- Energy usage fell 28% per square yard
- Greenhouse gas emissions fell 28% per square yard
- Water usage fell 50% per square yard
- Air emissions fell 89% per square yard
- Waste fell 84% per square yard
- 35 million pounds of carpet and manufacturing waste were recycled
- 12 million pounds of recycled materials were purchased
- Yarn usage fell through the use of densely constructed, low pile face weights that give the company's products a face weight 20% below the industry average

Exhibit 5

C&A Public Recognition

- 1992** ***Land Quality Environmental Citizen of the Year Award***
Georgia Chamber of Commerce & Georgia Department of Natural Resources
- 1993** ***Kansas Recycling Association Award of Excellence***
Category of Recycled Products
“Gold” Governor’s Award for Achievement in Workplace Learning
State of Georgia
- 1994** ***High Morale Work Group of the Year*** by Scarlett Associates, an independent management research firm. (Recipient chosen from over 150 different companies.)
- 1995** ***Industry Recycling Award (1st Place)***
Georgia Clean and Beautiful Business
“Platinum” Governor’s Award for Achievement in Workplace Learning
State of Georgia
- 1996** ***Award for Pollution Prevention***
The Georgia Chapter of the Air and Waste Management Association
Georgia Clean & Beautiful Business
Industry Recycling Award (3rd place)
- 1997** ***Georgia Clean and Beautiful Buy Recycled Award (first place)***
For the *Infinity Initiative* recycling system
Nominated for the *Edison Award* from the American Marketing Association for the most innovative “green” product
Green Salute Award
Dalton-Whitfield Clean & Beautiful Commission
Success Track Employer of the Year
Georgia Department of Labor
- 1998** ***NRC/BRBA Innovative New Product or Material***
National environmental award from the Buy Recycled Business Alliance and National Recycling Coalition for the patented, closed-loop recycling process and product, ER3™.
Georgia Governor’s Award for Pollution Prevention
The State of Georgia Plant Engineering Product of the Year Award
“Bronze” award received for Power Bloc product in the Construction, Buildings and Grounds category
Keep Georgia Beautiful Award
Certificate of Merit for Protecting and Preserving the Environment of Georgia
- 1999** ***Keep America Beautiful Award***
Received a ***Distinguished Service Citation*** for Business/Professional Organizations in the category of Minimization of the Impact of Waste on Communities.
Good Design Award
Design award presented by The Chicago Athenaeum: Museum of Architecture and Design. Award recognizes innovative product thinking and originality through use of design, form, material, construction, concept, function, and utility.
Recycler of the Year
Environmental award from the Plastics Recycling Division of the Society of Plastics Engineering, Inc. for outstanding environmental leadership and excellence accomplished through *Recycled-Content in Products*.
NRC/BRBA Outstanding Corporate Buy Recycled Business Program
National environmental award from the Buy Recycled Business Alliance and National Recycling Coalition for exceptional sustainable purchasing practices.
Evergreen Award
Received 1st place for GSA’s annual national environmental award
Recognized as a *Private Sector Pioneer*, Environmental Protection Agency
Keep Georgia Beautiful Award
Received 1st place in the Reduce, Reuse, Recycle category for Large Business
DuPont Antron® Product Innovation Award
Received Gold award for “Arroyo” in the modular/6’ category
DuPont Antron® Product Innovation Award
Honorable Mention received for “Tsunami” in the modular/6’ category
- 2000** ***Corporate Conscience Award for Environmental Stewardship***
Environmental award presented by the Council on Economic Priorities
Design Review Award
Awarded by *I.D. Magazine* for design distinction of Habitat product