



MISSION BLUE DESIGN

GREEN CARPET CONSIDERATIONS

Carpet dates back a few thousand years to the Orient when fine designs were woven from thousands of naturally dyed yarns. The industrial revolution introduced aniline dyes followed by developments in synthetic yarns and in manufacturing processes — for example, tufting. Tufting enabled faster production at a much lower cost than weaving. It quickly replaced traditional warp and weft weaving and now accounts for 90% of the industry.

Most carpeting is made of synthetic materials — nylon, polyester, and polypropylene (PP) face fibers. Until recently, carpets ended up as a mixture of primarily petroleum (a non-renewable and toxic resource) and about 100 chemicals — for stain resistance, wear resistance, mothproofing, fungicides, soil repellents, processing aids and adhesives required to hold the tufts together — many of which are toxic volatile organic compounds (VOCs) producing toxic emissions which can outgas for a long time. Waste has also been a major sustainability issue, with 4.7 billion pounds of carpeting sent to landfills in the United States every year.

Many leading carpet manufacturers have been aggressively addressing these sustainability issues and changing their industry. In January, 2002, many manufacturers voluntarily signed the National Carpet Recycling Agreement (NCRA) which encourages them to accept product stewardship and accountability. They are evolving technologies for use of natural materials content, for recyclable content and for reclamation of carpeting through reuse and recycling. Many offer leasing programs, thereby accepting responsibility for carpet maintenance and recycling.

By specifying sustainable alternatives we can make a difference in shifting the industry to sustainability through the choices we make with our clients. Our choices can facilitate healthier indoor environments, encourage continued changes in the industry, and result in a better global environment. Below are descriptions of sustainable alternative choices we can make. We research and make sure that the carpets we choose for you are the sustainably oriented manufacturers and then we compare and purchase according to your needs. When it comes to making your choices, these manufacturers deserve to be supported.

Nylon: Nylon was first developed in 1935 by E.I. DuPont De Nemours and Co. Nylon 6 and nylon 6,6 account for nearly two-thirds of the face fiber market. Nylon fibers are resilient and strong, suitable for the durability and longevity needed in carpeting. Nylon is usually considered a toxically-benign material which emits practically no offgassing, although clients with high petrochemical sensitivity may find nylon difficult. It is not biodegradable.

Nylon is recyclable and recycled content carpeting is readily available. Technology is rapidly improving to convert used fiber into new recycled content face fibers. New to the industry are innovations that make it possible to “repeat-cycle” nylon 6 fibers, which are used in making many carpets.

Recycled PET polyester is another type of recycled content carpeting. It is made from recycled post-consumer PET plastic soda bottles. PET fibers are naturally stain resistant, retain their color and resist fading. PET has exceptional strength and durability, properties which are retained in the recycling process.

Natural fiber carpets are generally made from wool, cotton, sisal, sea grass, jute, hemp, coir and rush. When untreated, they are toxically benign for most people. All are renewable resources. Many natural materials are innately flame resistant. Natural material carpets are available in neutral tones, richer shades and woven patterns. They are generally considered more suitable for dry areas rather than damp or humid areas.

The modular system of carpet tiles allows individual pieces to be replaced when worn or soiled. Individual carpet tiles can be easily laid, removed and replaced. The beauty of carpet tiles lies in the premise that a sizable amount of commercial carpet isn't replaced because it has worn out, but simply because the time has come for a change.

Carpet leasing programs are another smart option for commercial applications. The manufacturer bears responsibility for maintaining the carpet for its life, replacing worn sections of carpet and recycling the carpet at the end of its life. Various leasing programs are available from many manufacturers. For example, carpet can be removed, cleaned, and reused within the same building, depending on its condition. It can be recovered, cleaned, and resold or down-cycled into other products or it can be repurposed.

Most commercial carpets are made by bonding a face fiber to a backing fiber, using a bonding agent. The vast amount of carpet backing is a sandwich of polypropylene fabric and latex. Backing can contribute up to 60% of the carpet material. Sustainable choices, which are readily available, include 100% recycled content backing that is recyclable and carpeting made to have no backing, which results in fewer materials used in its production.

Other sustainability factors are the carpet fiber construction (manufactured by tufting, weaving, or fusion bonding) and pile type (loop, cut, or combination) which determine appearance and performance. For example, lower pile height and higher pile yarn density is better for high traffic areas, giving better performance for the cost.

Carpet padding offers many recycled content options. Currently, carpet padding choices include nylon, wool felt available without pesticides or glues, natural jute fiber, polypropylene felt and rag pad, or recycled textile/carpet waste padding. Recycled-content carpet padding is available in several types including old padding, from reclaimed carpet fibers and from recycled tire rubber. All are priced competitively.

Specify use of a non-toxic, odor-free adhesive for installation, or mechanical adherence methods with no glues or solvents. The Carpet and Rug Institute's Green Label

Program now labels adhesives for low-VOC. Many manufacturers have reduced adhesive's solvent levels and cut VOC emissions to zero. Low-VOC products are available from all manufacturers. TacFast is a hook-and-loop method similar to Velcro, which holds carpeting in place and allows easy removal when renovating.

LEED points: possibly MR Credit 2 - Construction Waste Management, MR Credit 3 - Resource Reuse, MR Credit 4 for recycled content materials, or MR Credit 6 for rapidly renewable materials.

Carpet Ratings:

<http://www.carpet-rug.org/commercial-customers/green-building-and-the-environment/green-label-plus/carpet-and-adhesive.cfm>

Carpet has a relatively short life expectancy compared to other floor coverings (approximately 8 years). Every year in the U.S., 1.8 million tons of carpeting is sent to landfills. Many leading carpet manufacturers have been changing their industry to eliminate this kind of waste.

In January, 2002, many manufacturers voluntarily signed the National Carpet Recycling Agreement (NCRA) which encourages them to accept product stewardship and accountability. They have established a third party organization, the Carpet America Recovery Effort (CARE) to establish collection systems for used consumer carpet. They are evolving technologies for reclamation of carpeting through reuse and recycling. Innovations also include making reclaimed content backings, or no backing needed.

Most recycled carpets produced today can be "repurposed" (cleaned and refurbished for reuse) or "down-cycled" (made into products other than carpet or into carpeting of lesser quality). The higher the recycled content, the more sustainable the carpeting. Technology is rapidly improving to convert used fiber into new recycled content face fibers. As more used carpeting becomes available and manufacturing plants adapt their facilities, the percent of recycled post-consumer content should increase. Post-industrial content, however, will drop as companies become more efficient at reducing waste in the manufacturing process and have less post-industrial waste to recycle.

Recycling Nylon: Newest among the innovations is nylon 6 recovery and recycling back into equal quality nylon 6. Nylon 6,6 is made of two elements that can't be separated for reuse. Carpeting made from nylon 6,6 can only be down-cycled or repurposed. Carpeting made from nylon 6 is easily depolymerized. 99% of it can be recovered and made again into nylon 6 carpet yarn of equal quality to the original.

Recycled PET: Recycled PET polyester is made from post-consumer plastic soda bottles. Recycled PET is superior to lower grades of virgin synthetic fibers used in making other polyester carpet yarns. Shades can be richer and brighter than those found in nylon yarns. At this time, there are no programs to recycle used PET carpet back into new carpet, but fibers can be recycled for other applications (car parts, insulation, transportation devices, and stuffing for furniture). The EPA's

recommendations for recovered material content for polyester face fiber is listed as 25-100% PET resin.

To best ensure that you get the product you want, it is important to note that the recycling logo on manufacturer's specifications or other literature can mean that the carpet is only recyclable, and not necessarily that it contains recycled content.

LEED points: possibly MR Credit 2 - Construction Waste Management, MR Credit 3 - Resource Reuse, or MR Credit 4 for recycled content materials.

Bio-floor Chemical-free Wool Carpeting

Carpets made of 100% natural fibers are available utilizing sustainable, durable materials, no chemicals added. These are primarily made of cotton and hemp which are replenishable, waste-reducing material. Natural fiber padding also available. Carpets are naturally colored and fully compostable. LEED eligible: MR Credit 6 (Rapidly Renewable Materials) and IEQ Credit 3.

Coir/Sisal Carpeting

Carpets or area rugs made of 60% Coir and 40% Sisal face. Backing is contract latex. Comes in 4 meter wide rolls (13'2") and is used for wall to wall, or cut into made-to-order custom sized rugs with edges bound using binding tapes. Suitable for indoor use residentially or in light to moderate commercial applications. Properties include very good soil hiding and repelling features. LEED eligible: MR Credit 6 (Rapidly Renewable Materials).

Tandus

Converts old carpet into new carpet, meeting all the criteria of a true closed-loop recycling system. The only manufacturer in the industry to issue a Sustainable Warranty, a guarantee that states that 100% of reclaimed materials will never be placed in a landfill or incinerator. LEED eligible.

Carousel Carpet Mills

All natural materials including wool, cotton and linen. Small custom mill makes both woven and machine made high-end carpets. Natural latex backing is available if requested. LEED eligible.

DesignWeave Commercial

DesignWeave offers a nylon 6 filament containing reclaimed fiber from post-industrial waste, which is capable of continuous recycling back into many of their carpet face styles. Look for their EcoSolutions line. LEED eligible.

Interface Carpets

Their carpets are available in sustainable, recyclable, or leasable arrangements. Interface is one of the world's leading proponents of sustainability. LEED eligible.

J & J Commercial

Manufactures commercial carpets in a variety of price points. Encore™ SD brand contains a minimum 15% recycled nylon content. J & J Commercial is committed to reduction of energy consumption with current manufacturing processes using clean-burning fuels. Recognized by Georgia Dept. of Natural Resources for their environmental efforts. Member of USGBC. LEED eligible.

Lees Carpets

High performance carpeting products which include recovered materials. Long appearance retention and warranties for their backing. CRI (Carpet & Rug Institute) Green Label certified adhesives. Biodegradable Durasafe® line of cleaning products. Recycling plant produces alternative finished goods. USGBC member. LEED eligible.

Milliken & Company

Manufacturers of a broad line of carpets and carpet squares. Their EarthSquare flooring program is a high-quality carpet renewal program taking old carpet tiles and implementing a 3-step process to clean, re-texture and re-pattern them. LEED eligible.

Prince Street

Farm™ modular tiles from 100% Dupont Antron® Lumena Nylon suitable for health care, retail or corporate specs. Its secondary backing, NexStep™, contains polycarbonate, a by-product of asphalt redirected from landfill. Board™ modular tiles from 100% Recycled Ultron® VIP Solution Dyed Nylon 6,6 from Solutia with NexStep™ backing. LEED eligible.

Currently, sustainable carpet padding choices include nylon, natural and recycled wool felt (available without pesticides or glues), natural jute fiber, polypropylene felt and rag pad, and recycled content padding. Recycled-content carpet padding is available in several types, including old padding from reclaimed carpet fibers and many commercial and industrial flooring materials contain recycled tire rubber or tire cord. Recycled content padding is priced competitively.

Some rubber flooring materials are suitable for both exterior and interior applications. Some of the recycled-content commercial and industrial flooring products have residential applications in exercise rooms, laundry rooms, entryways or for exterior stairs and outdoor walkways.

LEED points: possibly EQ Credit 3 - Construction IAQ Management Plan and EQ Credit 4.3 - Low-emitting Materials, MR Credit 6 for rapidly renewable materials or MR Credit 4 for recycled content materials.