

A close-up photograph showing several different carpet textures and colors, including a light beige shag carpet, a dark brown plush carpet, and a light brown textured carpet, arranged in a circular pattern.

UNDERSTANDING CARPET PERFORMANCE

In the Mult-Family Environment

ALL CARPET FIBERS ARE NOT CREATED EQUAL

NYLON

Nylon has been the most commonly used carpet fiber since the early 1960's. In overall performance characteristics, nylon is the most versatile of all fibers, providing excellent flexibility in creating a variety of carpet styles. Nylon is durable, resilient, and receptive to dyeing for color versatility and uniformity; many new nylon yarn systems are also exceptionally soft. Though not inherently stain resistant, most nylon carpets are treated with stain-resist carpet treatment for protection against household spills and stains. Shaw nylon styles are treated with R2X[®], the leading and most effective stain and soil resistance treatment in the industry.

PTT

Shaw introduced the first BCF PTT (Corterra) residential carpet in the United States in 2001.

PTT features good resiliency and inherent stain resistance. However, due to flammability issues, Shaw recognized that the yarn could not be treated with a stain and soil resistance system, resulting in a significant product weakness for our customers and end users. While many stains can be removed from carpets of PTT, the yarn's lack of repellency can make cleanup of spills difficult. Many oil-based stains are also extremely difficult to remove. The lack of repellency causes liquids to wick through the fiber, to the backing, padding and sub-floor causing stains to re-appear over time.

POLYESTER (PET)

Polyester offers exceptional softness and color clarity, and is also naturally stain and fade resistant. While polyester is not as inherently resilient as nylon, carpets made of polyester fiber will perform well if appropriately constructed. Polyester carpet styles in commodity price ranges typically represent good value but don't perform to the level of nylon in comparable constructions.

SOLUTION-DYED POLYESTER

A solution-dyed fiber, as opposed to a piece-dyed fiber, is one in which the color is actually built into the fiber during manufacture.

Solution-dyed polyester fibers are coated with a lubricant used to reduce friction during extrusion and twisting and usually are not washed (scoured) to remove the lubricant prior to tufting. This makes solution-dyed polyester products prone to soiling, as their oily finishes readily attract dirt. It also reduces the ability for easy cleaning of attracted soil and stains.

Some manufacturers claim that a lubricant is not used, or lightly used in extrusion. However, extrusion and yarn processing are not possible without this element. Unless this lubricant finish is later removed, the yarn will have a greater propensity for soiling.

FIBER CHARACTERISTICS

FIBER	NYLON with R2X®	POLYESTER	SD POLYESTER	PTT
STYLE OPTIONS	EXCELLENT	GOOD	POOR	FAIR
COLOR OPTIONS	EXCELLENT	GOOD	POOR	GOOD
SOIL RESISTANCE	EXCELLENT	FAIR	POOR	FAIR
STAIN RESISTANCE	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT
TEXTURE RETENTION	EXCELLENT	FAIR	FAIR	GOOD



NYLON: THE CARPET FIBER OF CHOICE

Nylon has been the most frequently used carpet fiber since it was first used almost 50 years ago. Today nylon is used in the majority of all carpet. It is highly desirable due to its exceptional durability, versatility, availability, and affordable pricing.

Because of its many benefits, nylon is the best solution for property management investors.

- Stronger and more resilient than any other carpet fiber
- Exceptional life-cycle investment advantage
- Outstanding affordable value
- The only carpet fiber that can be repeatedly recycled back into carpet
- Consistent availability and service
- Most commonly used fiber since introduction in the 1950s



R2X[®] KEEPS SPILLS ON THE SURFACE LONGER
SO YOU HAVE TIME TO CLEAN IT BEFORE IT
ABORBS INTO THE FIBER, BACKING AND PAD.



R2X[®] STAIN AND SOIL RESISTANCE SYSTEM

NOT ONLY IS THE PATENTED* R2X PROCESS THE PREMIER STAIN AND SOIL RESISTANCE TREATMENT IN THE INDUSTRY, BUT IT NOW OFFERS THE MOST EFFECTIVE ODOR-REDUCING BENEFIT AVAILABLE.

- Superior repellency keeps spills on the surface, preventing moisture from soaking into the carpet backing and padding. Moisture trapped in the backing and pad is a primary cause of odor and mildew.
- Resists soiling and stains significantly better than other treatments.
- Total fiber coverage protects from the top to the bottom of the yarn.
- A patented co-application of a stain and soil resistance system.
- Unlike topical treatments, R2X has been proven to protect after repeated cleanings.
- When used with nylon, R2X has excellent odor-reducing capability.

WHICH SPILL WOULD YOU RATHER CLEAN-UP?

- This patented, proprietary system provides superior resistance to stains and soiling through total fiber coverage, and unlike other treatments, protects longer after repeated cleanings.
- While some other carpet fibers, such as PTT, have inherent stain resistance, they cannot be treated for repellency and quickly absorb liquid spills.



Shaw's Nylon treated with R2X



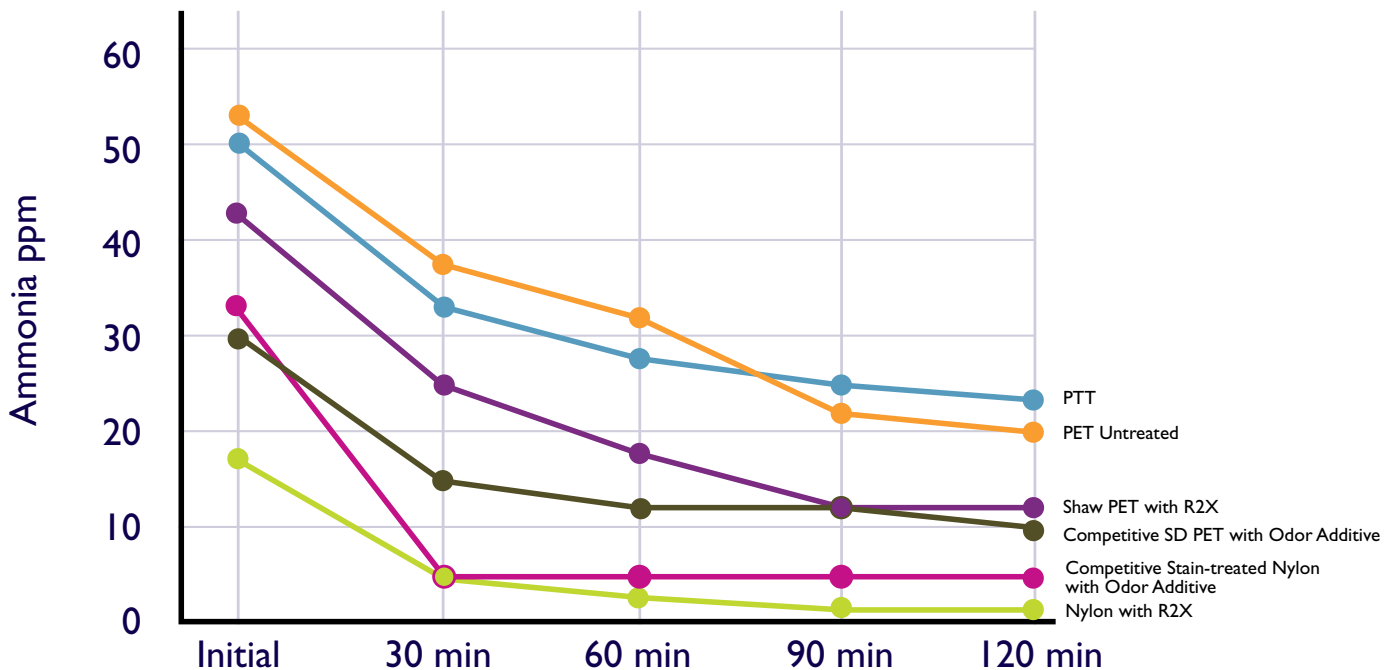
Triexta PTT Polyester



ODOR REDUCTION BENEFITS FROM R2X[®]

NYLON + R2X =

An added advantage of R2X was recently found during testing of odor-control treatments. Carpet samples treated with R2X and other competitive samples, including those with an odor-control treatment, were tested for odor reducing potential. The samples were exposed to odor-causing elements and measured at different intervals for odor levels. The R2X samples performed consistently better in reducing odors than every other carpet sample tested, including samples treated with an odor-reducing chemical additive. PTT, in particular, performed extremely poorly.



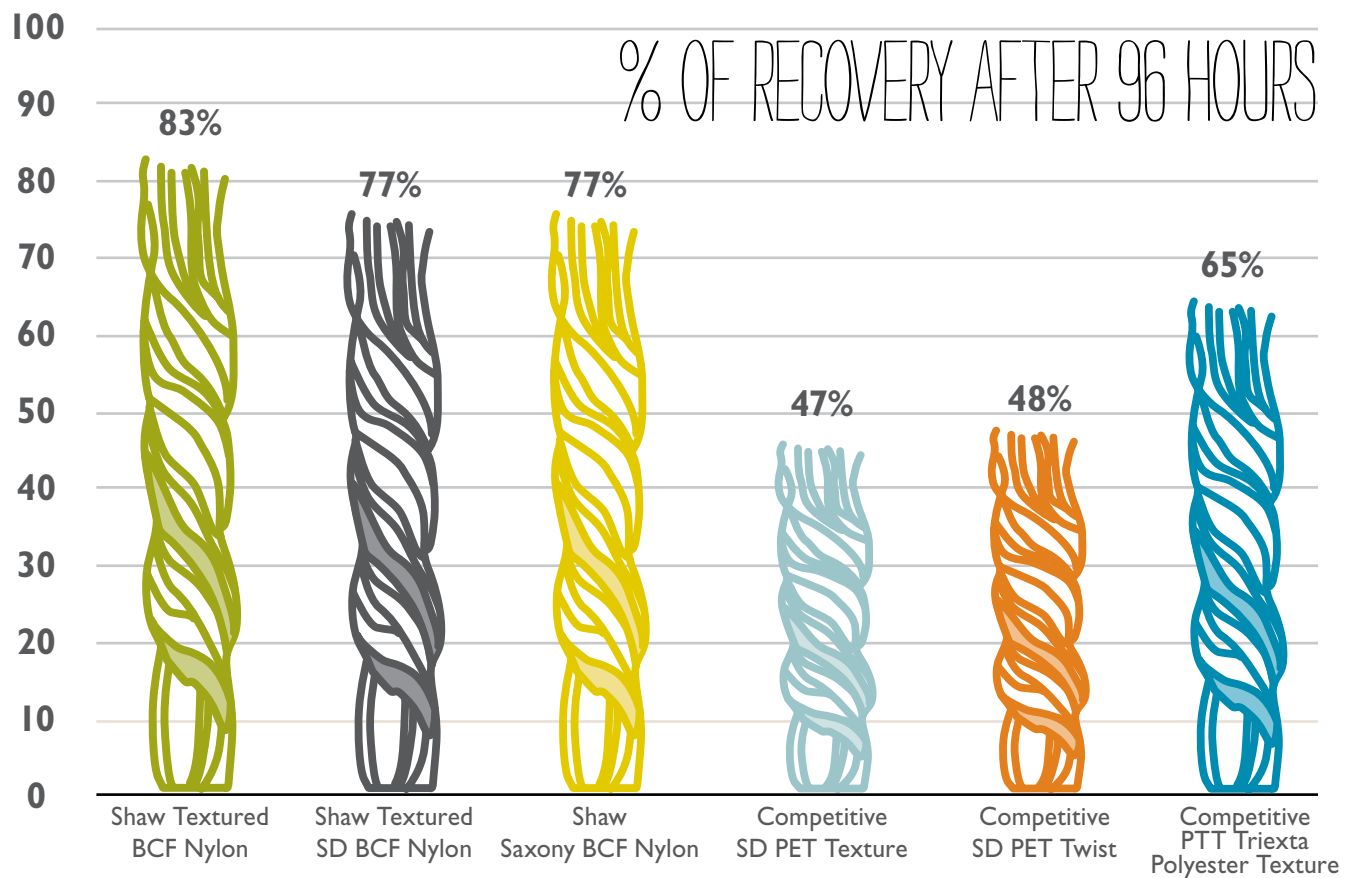
● Shaw Nylon with R2X
 ● PTT
 ● PET Untreated
 ● Shaw PET with R2X
● Competitive Stain-treated Nylon with Odor Control
 ● Competitive SD PET with Odor Additive



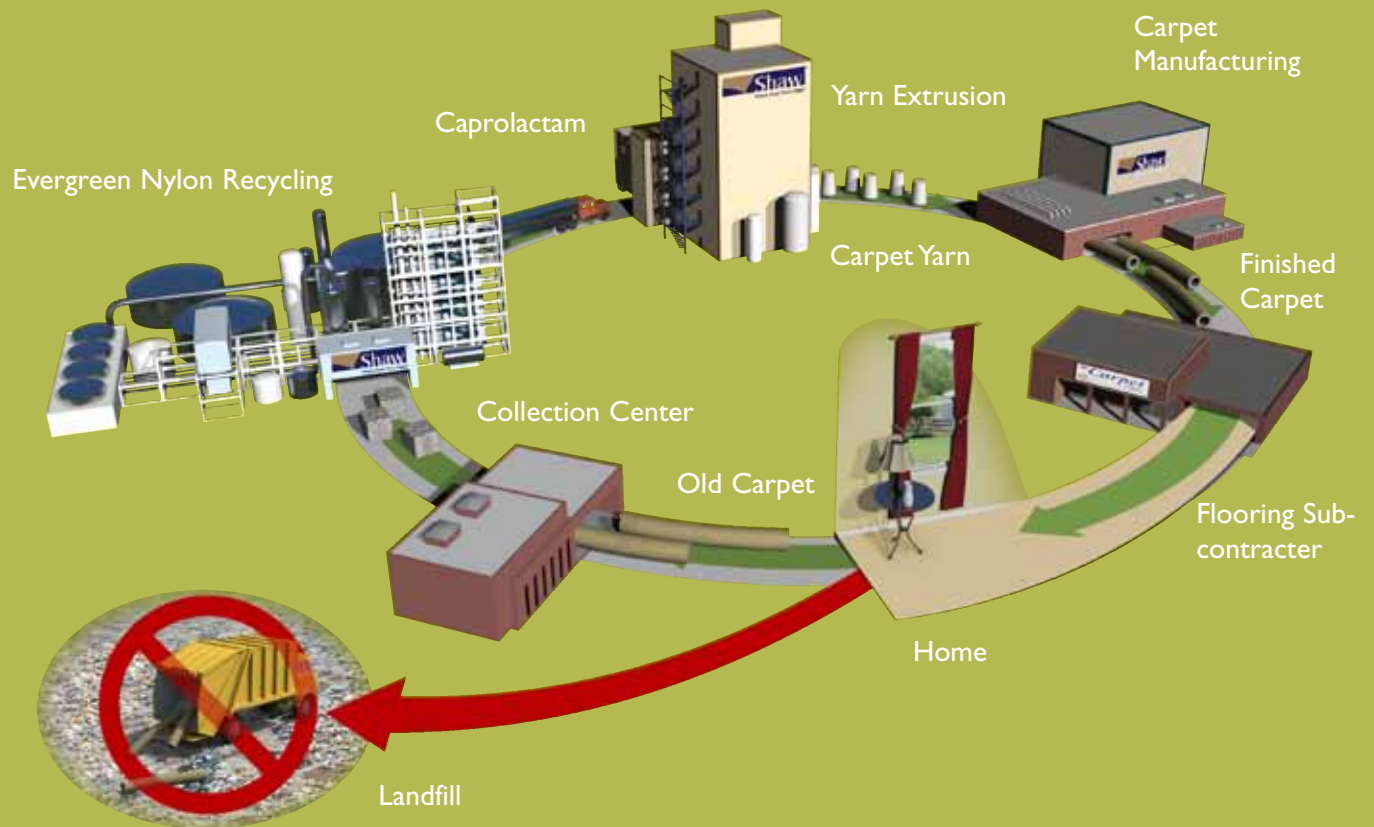
SOMETIMES IT'S
NOT GOOD TO
MAKE A STRONG
IMPRESSION

Furniture compression study results prove again, nylon most resilient.

Overall, Shaw's nylon styles performed consistently better than competitive polyester carpets. The average percentage recovery for the Shaw FHA nylon samples were 80%, while PTT polyester FHA products averaged 65% and PET products averaged 47.5%.



SHAW'S EVERGREEN RECYCLING FACILITY AUGUSTA, GA



ENVIRONMENTAL BENEFITS OF TYPE 6 NYLON

There are a number of environmental claims being made about carpet fibers, and it can be difficult to sort out the facts from much of what is incomplete or misleading information. Terms used in describing “green” initiatives, such as recycled content, recyclability, and sustainability, often don’t explain the true environmental impact involved. Currently, only one carpet fiber, Type 6 nylon, can be recycled repeatedly into dyeable carpet fiber.



CARPET TO CARPET™

Not carpet to landfill.

- THE ONLY FIBER THAT CAN BE RECYCLED REPEATEDLY INTO DYEABLE CARPET FIBER
- SHAW IS THE ONLY CARPET MANUFACTURER WITH THE COMMITMENT AND ABILITY TO DIVERT HUNDREDS OF MILLIONS OF POUNDS OF POST-CONSUMER CARPET FROM THE LANDFILL ANNUALLY.
- CARPET TO CARPET™ PROCESS VS. CARPET TO LANDFILL
- CAN BE RECYCLED AGAIN AND AGAIN WITH NO LOSS OF BEAUTY OR PERFORMANCE

WHY NYLON VS. PTT

EVOLUTION OF INDUSTRY FIBERS:

- Shaw has manufactured carpets using virtually every fiber system applicable. We've determined through millions of yards installed and extensive testing that one has demonstrated superior performance overall: **NYLON**
- We have also marketed and manufactured other fibers over the years:
 - Duras SD - A high-performance solution-dyed PET fiber
 - Cortera PTT Polyester fiber was introduced by Shaw in 2001 and showed strength in durability and cleanability. However Shaw found PTT to have several drawbacks.

PTT WEAKNESSES:

- CANNOT BE TREATED FOR REPELLENCY OR DRY SOILING DUE TO FLAMMABILITY ISSUES
- MORE DIFFICULT TO CONSISTENTLY PROCESS IN PLANTS (YARN QUALITY ISSUES, ETC)
- PTT PRODUCTS READILY ABSORB STAINS INTO AND THROUGH THE BACK OF THE CARPET BECAUSE THEY CAN NOT BE TREATED FOR REPELLENCY. THIS CAUSES MOISTURE, WICKING, AND EVEN ODOR ISSUES IN THE CUSHION, AND SUB FLOOR
- SUPPLY CHAIN IS VERY LIMITED AND VOLATILE

- In 2000, Shaw introduced a revolutionary stain and soil resistance system called R2X®. This system provides superior resistance to stains and dry soiling through total fiber coverage and continues to protect after repeated cleanings. At that time, R2X was not available on commodity products.
- In 2005, Shaw elected to vertically integrate in nylon extrusion capacities by purchasing Honeywell Carpet Fibers. This was a clear sign of Shaw's long term strategy, based on the long-term benefits of nylon as the essential fiber of carpet.
- In 2008 Shaw began offering the R2X system with the commodity products applicable for the property management channel. By doing this, Shaw now offers the best technology available today - nylon's resiliency and performance characteristics, treated with R2X for unsurpassed resistance to liquid and dry soiling problems, ease of cleaning and long-term maintenance, and much greater potential for extended life cycle vs. other untreated carpet fibers in the market.

ATTRIBUTES	SHAW FUSION® PERFORMANCE NYLON	PTT-TRIEXTA
ENHANCE VALUE/HAND	EXCELLENT	FAIR
RESILIENCY/DURABILITY	EXCELLENT	GOOD
ACID RED STAIN RESISTANCE	EXCELLENT	EXCELLENT
DISPERSE STAIN RESISTANCE (MUSTARD)	GOOD	EXCELLENT
SOILING	EXCELLENT	POOR
BLEACH RESISTANCE	FAIR	GOOD
LIQUID REPELLENCY	EXCELLENT	POOR
ODOR REDUCTION	EXCELLENT	POOR
COLORFASTNESS	EXCELLENT	EXCELLENT
RECYCLABILITY	EXCELLENT	NOT POSSIBLE
CONSISTENT QUALITY	EXCELLENT	FAIR
SERVICE & DELIVERY	EXCELLENT	GOOD
UNLIMITED COLOR CHOICES	EXCELLENT	EXCELLENT

THE FACTS ABOUT BLEACH AND OTHER COMMON HOUSEHOLD STAINS.

- A competitive manufacturer has promoted its PTT carpet products as being exceptionally resistant to bleach while criticizing nylon styles as being inferior in this regard. While using bleach solutions to demonstrate how well these carpet styles perform, it's interesting to note that these bleach-resistant products expressly exclude the use of bleach in their warranties.
- This raises the question of how much of a factor bleach is in the average household. For example, the Shaw Information Center fields approximately 3100 calls per week, and only about 15 of those calls are bleach-related. Of much more pressing concern are common stains such as those from wine, food, soft drinks, coffee and typical products used in the home. Shaw nylon carpets with R2X are much more effective in addressing these types of stains, and the superior repellency of carpets treated with R2X allow much easier cleanup and maintenance.
- On the other hand, extensive testing has clearly demonstrated that these competitive PTT styles are extremely susceptible to common stains like those made by greasy food, butter and lipstick. Whether or not a carpet is resistant to bleach seems relatively unimportant if it can't handle the much more common problems associated with everyday living.

AVAILABILITY OF NYLON CARPET FROM SHAW.

Misleading competitive comments have attempted to plant a seed of doubt concerning the long-term availability of nylon and nylon raw materials. The following facts should dispel any misconceptions:

- The claims from the competition are without merit and suggest an attempt to undermine Shaw's superior service
- Shaw is extremely comfortable with the company's long-term supply agreements for nylon raw materials and anticipates no short-term or long-term issues with availability . . . and service of carpet to our customers
- Shaw's competition does not have the advantageous position we have with nylon raw material supply and are doing everything possible to push other fiber types

COST OF NYLON AND NYLON RAW MATERIALS

- The cost of nylon is as stable as any other fiber
- Escalating costs of raw materials have affected all fibers
- In Spring of 2011, costs for PET raw materials increased more than for nylon
- Ethanol subsidies and resulting high corn prices continue to affect costs of bio-based fibers





WHY NYLON HAS BEEN USED BY SHAW FOR MULTI-FAMILY FOR DECADES

- Resiliency/durability – unmatched real-life performance through the decades
- Stain & soil protection with R2X®
- Odor-reduction benefits – unmatched by all, even by products featuring marketed odor- reduction additives
- Carpet to Carpet™ recycling - sustainability
- Sustainable cost leadership
- Consistent quality
- Unmatched service and delivery by Dalton customer service and field sales teams

REVOLUTIONARY ENHANCEMENTS FOR NYLON:

In a coordinated effort of Shaw's R & D, Marketing, Innovation and Yarn Development teams, we are now delivering to our customers yet another reason to invest in nylon:

FUSION™ Performance nylon.

Fusion Performance nylon is result of proprietary processes that yield a remarkably high-value appearance and comfort level, while improving product durability.

Low cost, high durability, exceptional value ... These are the three key characteristics property managers look for in their flooring investments!

CARPET PERFORMANCE QUESTIONS AND ANSWERS:

Q Competitors are claiming that R2X® will wash off at a certain temperature. My understanding is that it will remain on the fiber for up to 10 professional cleanings. Can you shed some light on this issue?

A R2x will not wash off or wear off; it is not topically applied, rather it is steam-exhausted into the carpet for total penetration on the yarns. Our patented application process allows us to **bind the chemistry to the fiber** with a very strong bond for **increased durability, unmatched by any other system**. R2X has been shown to continue to repel liquids after 10 cleanings. We do not recommend applying Scotchguard™ after-treatments in the maintenance process . . . it's simply not necessary. In addition; PTT carpets cannot be stain/soil treated due to flammability issues.

Q What can you tell me about Mohawk's new fiber, SmartStrand® Tri-Star? Is this a PET/PTT blend? Do we have any test results on durability and staining?

A Mohawk Tri-Star is a PTT polymer only (no blend). It has a different fiber cross- section, still tri-lobal with more pointed lobes. These products tend to be less soft than comparable nylon styles, and many feel almost crunchy. SmartStrand Tri-Star has the same benefits and disadvantages of other PTT products.

Q Much is written about the stain resistance of PTT. What can you tell me?

A PTT is a very cleanable fiber, but it's also very absorbent. Because of flammability issues, a topical fluorochemical treatment cannot be applied, and liquid spills are readily soaked up, reaching the backing, the cushion, and even the subfloor. For this reason, liquid stains can require a lot of "elbow grease" to remove, and it has proven to be extremely difficult to remove the wicked-through staining in the cushion and sub-floor. Moreover; many oil-based stains, like butter, greasy food and lipstick, are extremely difficult to remove from the face fiber of PTT carpets.

CARPET PERFORMANCE QUESTIONS AND ANSWERS:

Q So in a head-to-head comparison of attributes of Fusion Performance Nylon vs. PTT, which is the best choice for multi-family property management applications?

A **Clearly nylon!**

1. Nylon is demonstrably more durable and resilient. It is less susceptible to matting, crushing and furniture indentations and is easier to maintain.
2. Resistance to soiling is much better with nylon with R2X®.
3. Stain resistance is similar, but the repellency of nylon with R2X is critical. PTT will readily absorb common household spills or pet urine into the backing and cushion, making them difficult or impossible to remove. Nylon with R2X repels the liquid and beads it up on the surface for quick and easy clean-up.
4. Nylon carpets with R2X are extremely effective in reducing odors, PTT products perform very poorly.
5. PTT is more resistant to bleaching, but bleach has been shown to be a non-issue in the vast majority of households. With the more common household spills – kool-aid®, cola, coffee, etc. – nylon with R2X repels and allows quick and thorough clean-up on the surface of the carpet. Certain stains, like those from greasy foods, butter and lipstick, are a significant problem for PTT carpets.
6. Shaw's strategic long-range position and ownership of nylon raw materials supply assure that the price of Shaw nylon will be as stable as any carpet fiber.
7. Shaw's service has consistently won praise in every industry survey conducted over many years. Shaw's advantageous position in nylon raw materials and conversion assets make it by far the smart choice for reliable, rapid service demanded by property managers. In terms of total carpet industry capacity, PTT's represents a fraction of that of nylon capacities.
8. In terms of environmental benefit, there is no comparison between Shaw's nylon 6 and PTT. In 2010 Shaw recycled more than 85 million pounds of post-consumer recyclable nylon carpet at their recycling facility in Augusta, GA., and the output was used to make new nylon carpet. The company also reclaimed a total of 122 million pounds of post-consumer carpet, making Shaw by far the largest recycler of post-consumer carpet in the world. Shaw will reach a milestone in 2011 when the company will have reclaimed more than a half-billion pounds of post-consumer carpet since launching its nationwide collection network in 2006.

PTT is not recyclable and contains no recycled content.



carpet | area rugs | tile & stone | hardwood | laminate | resilient