



COMMERCIAL CARPET GUIDE

Benefits of Carpet & Rugs

Offers Design Flexibility

Whether you're choosing broadloom or carpet tile, carpet is easy to customize. You can choose from many thousands of carpet styles and colors to create a work environment that reflects your company's corporate culture. In an educational or health-related setting, you can use calming colors to provide a good environment for healing or learning.

Reduces Noise

Many offices today have open area systems where phone conversations and frequent employee interactions can be distracting. Carpet helps increase employee productivity by absorbing sounds. Adding cushion beneath a carpet reduces noise even further. Carpet also works as a sound barrier between floors by blocking sound transmission to spaces below. Plus, carpet on stairs helps mask the sound of constant foot traffic.

Cushions Slips and Falls

Carpet is ideal for cushioning our footsteps, reducing slips and falls and minimizing injuries when falls do occur. While it provides safety protection for everyone, it's particularly helpful for youngsters at schools or the elderly at facilities like hospitals or nursing homes.

Provides Warmth and Comfort

Carpet provides thermal resistance, or R-value. In colder climates or seasons, it retains warm air longer, providing an energy conservation benefit. Carpet creates a comfortable environment in which to work and gives a space a warmer overall feeling.

Meets Green Building Standards



Carpet systems that meet or exceed CRI's Green Label Plus indoor air quality standard can contribute one full Indoor Environmental Quality Credit to the Leadership in Energy and Environmental Design (LEED) ratings of the U.S. Green Building Council. Similarly, the Green Guide for Health Care awards one point to healthcare facilities that install Green Label Plus carpet. Furthermore, Green Label Plus carpet is used as a specification standard for the American Lung Association's Healthy Home program, the Collaborative for High Performance Schools (CHPS) and the state of California.

Certified to Have Low VOCs

Carpet is the lowest VOC emitter of common floor choices, and requires fewer cleaning chemicals than other floor coverings. CRI's Green Label Plus standard has brought those VOCs down even more. In addition, carpet improves indoor air quality by trapping allergens and other particles so they can be vacuumed away.

Saves Money Over Time

Carpet will maintain its life and beauty for many years when properly cleaned and maintained. In terms of both labor and cleaning supplies, carpet saves you money over the long run.

Carpet and Health

Carpet Keeps Allergens Out of the Air

There is a misconception that asthma and allergy sufferers should avoid carpet. In fact, the opposite is true. Studies have shown that carpet actually improves indoor air quality. It acts like a trap, keeping dust and allergens out of the air we breathe. Simply put, what falls to the carpet (dust, pet dander and many other particles) tends to stay trapped until it is removed through vacuuming or extraction cleaning. Smooth floor surfaces allow dust and other allergens to re-circulate into the breathing zone.

The Lowest Emitter of VOCs

Carpet has the lowest volatile organic compound (VOC) emissions of common flooring choices. In fact, it's one of the lowest emitting products used in new construction and renovation. What VOCs new carpet emits are short-lived and largely dissipate within 24 to 48 hours – even faster with fresh air ventilation. CRI's Green Label Plus standards, which have been adopted across the industry, serve as the benchmark for low VOC emissions. The Green Label Plus symbol indicates:

- The manufacturer voluntarily participates in the program.
- The manufacturer is committed to developing ways to minimize any adverse effects on indoor air quality.
- A representative sample of the product type is tested by an independent laboratory and meets the established emissions requirements.

Carpet Puts You On Safer Ground

Carpets and rugs provide better traction than other flooring options, preventing falls. This is true everywhere, but even more important in areas where there is a lot of rain

and snow. And when falls do happen, the softer surface reduces their impact. Whether you are in a business, school or hospital, fewer falls and less severe injuries are one more reason carpet is a choice you can feel good about.

Less Noise, More Productivity

Carpet is significantly more efficient at reducing noise, compared with other flooring. So everyone from employees to students gets a quieter, less distracting environment where they hear more, concentrate better and perform their best

Green Building and The Environment

Carpet: A Sustainability Success Story

The carpet industry has succeeded in making carpet more sustainable and environmentally responsible than ever before. As almost all commercial carpet is certified as Green Label Plus, you can be sure that the carpet you select emits the very lowest VOCs possible. The GLP testing program meets or exceeds all regulatory requirements for emissions, including CA 01350, and is accredited by the American National Standards Institute (ANSI) to ISO Guide 65 specifications.

Meeting the Environmental Standard

Architects, designers and end users seeking environmentally preferred building materials can now identify carpet that has a reduced environmental impact through the ANSI/NSF 140 Sustainability Assessment for Carpet. NSF International has been developing public health standards and certification programs since 1944. ANSI/NSF 140 was the first multi-attribute ANSI-approved standard for environmentally preferred building materials. ANSI accreditation is a further assurance that the products tested and certified by CRI are green building products that meet high standards for indoor air quality.

LEEDing Into the Future

GLP-certified products, including carpet, are recognized by the U.S. Green Building Council's LEED version 4 standard as a Low-Emitting Materials Third Party Certification and can contribute one point to a building's LEED score.

Projects can also earn LEED credits by incorporating salvaged materials—such as refurbished, reused or recycled carpet—into plans for new construction or renovation. Recycled content carpet meets the same industry performance standards and carries the same manufacturer warranties as carpet without recycled content.

Taking CARE to Recycle

In addition, carpet manufacturers are voluntarily reducing the amount of old carpet that ends up in landfills. Through the Carpet America Recovery Effort (CARE), carpet companies, government entities and product suppliers are working to develop market-based solutions for the recycling and re-use of post-consumer carpet. Carpet materials are put back into carpet production or turned into things such as building materials and auto parts.

Identifying Sustainable Carpet

Architects, designers and end users seeking environmentally preferred building materials can now identify carpet that has a reduced environmental impact through the American National Standards Institute (ANSI), NSF/ANSI 140 Sustainability Assessment for Carpet.

The carpet industry has made significant progress in reducing the environmental footprint of carpet, including landfill diversion, carbon dioxide emissions, energy consumption, waste generation, water usage and hazardous air pollutants per square yard of carpet. The standard is a means by which these achievements can be quantifiably measured. Further, the standard establishes a pathway towards sustainable carpet by identifying economic, environmental and social benchmarks throughout the supply chain.

NSF/ANSI 140 recognizes sustainable carpet on three performance levels — silver, gold and platinum — using a rating system for performance and quantifiable metrics in the following areas:

- Public Health and Environment
- Energy and Energy Efficiency
- Biobased or Recycled Materials
- Manufacturing and Reclamation and End of Life Management

Specifying the Right Carpet

Matching The Carpet To Your Needs

To choose the best carpet for your needs, first arm yourself with the right information.

Facility profile: The first step is to clearly define the specific requirements of the facility. Some things to consider include:

- Type of facility and specific area receiving new carpet
- How long the carpet will be used (life cycle)
- Types of dirt that may be tracked into the facility
- Whether the area is a remodeled or a new installation
- Whether access to subfloor is required
- Whether there is modular furniture in the space

Location profile: To maximize performance, you first must also determine where the carpet is going to go.

Below are some location-specific questions to ask:

- On a typical day, will there be spills and stains or dirt tracked into the building? If so, what type of spills? Food stains? Coffee or chemical spills?

- What will the frequency of spills be? Excessive? Occasional?
- What about moisture? Do you need a moisture permeable or impermeable backing?
- Is there exposure to harsh chemicals, intense sunlight or atmospheric contaminants (such as nitrous oxides or ozone)?
- Will there be lots of foot traffic? Wheelchairs? Supply carts?

The Right Carpet for Any Environment

Today's carpet offers you a wide variety of choices in style, fiber composition and color, whether you are specifying broadloom or tile for a corporate office, school and public space or purchasing an area rug for a boutique hotel. New technology can produce multilevel loop and cut-loop patterns, allowing diamond, bow, pin dot, fleur-de-lis or other designs.

Carpet can give personality to a workplace, ranging from formal to bold. In hospitality settings, it can provide directional clues to move people to the registration areas or elevators. In healthcare settings, carpet can be soothing and emotionally healing. It can quiet a computer lab in schools. In retail, carpet can compliment merchandise displays.

To match the best carpet to the proper end-use, you should consider:

- Carpet Construction
- Dyeing and Color Selection
- Size Options
- Quality and Performance Requirements
- Insulation
- Sound Absorption
- Cushion

Understanding Carpet Construction

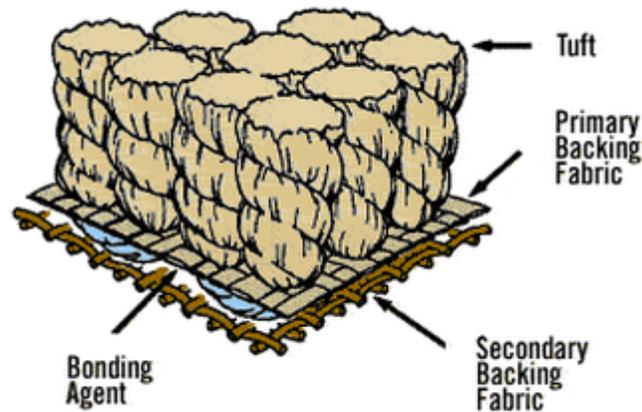
The look and performance of a particular carpet are determined by its construction, which may be loop, cut or combinations of the two. In corridors, lobbies, offices, classrooms, hotel rooms, patient care facilities and other public areas, loop styles with low dense construction tend to retain their appearance and resiliency and generally provide a better surface for the rolling traffic of wheel chairs or food carts. Cut pile or cut and loop pile carpets are very good choices for administration areas, libraries, individual offices and boardrooms.

Various types of high performance backing systems have additional advantages, including higher tuft binds, added stability, imperviousness to moisture and resistance to edge raveling. Consideration should be given to the functional needs of a particular area.

Understanding carpet construction assists in specifying elements that will provide the best performance in a particular location. Commercial carpet is primarily manufactured by tufting or weaving. Each process will produce quality floor coverings, but tufted carpet accounts for 95 percent of all carpet construction. Both tufting and woven

manufacturing are efficient and employ advanced technology to provide capability for a myriad of patterns and floor covering.

Tufted

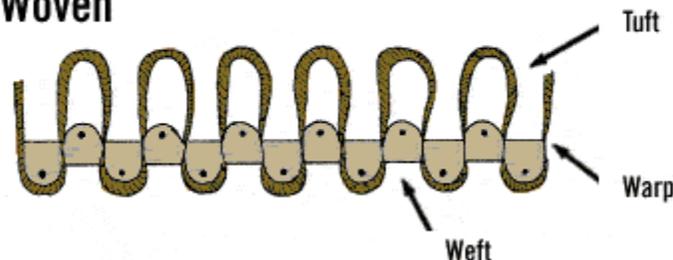


Tufted: Tufting is the process of creating textiles, especially carpet, on specialized multi-needle sewing machines. Several hundred needles stitch hundreds of rows of pile yarn tufts through a backing fabric called the primary backing. The needles push yarn through a primary backing fabric, where a loop holds the yarn in place to form a tuft as the needle is removed. The yarn is caught by loopers and held in place for loop-pile carpet or cut by blades for cut-pile carpet. Next, secondary backings of various types are applied to render a variety of performance properties.

Here are some key steps in the tufting process:

- Yarn comes from cones on creel racks (or from big spools called beams) into the machine.
- The primary backing feeds into the machine.
- Yarn and primary backing come together in the machine.
- Yarn is fed through needles on a needlebar of a tufting machine. Needles repeatedly penetrate or tuft into the primary backing.
- The tufted carpet is mended and inspected.
- Carpet is rolled onto large rolls for the next step (dyeing or backing).

Woven



Woven: Woven carpet is created on looms by simultaneously interlacing face yarns and backing yarns into a complete product, thereby eliminating the need for a secondary

backing. A small amount of latex-back coating is usually applied for bulk. Principal variations of woven carpet include velvet, Wilton and Axminster.

Understanding Carpet Fibers

To get the best performance and most enjoyment out of your carpet it's essential to select a carpet fiber that fits your needs. The majority of the carpet produced in the United States contains one of five primary pile fibers: nylon, polyester, polypropylene (olefin), triexta and wool. Synthetic fibers represent the vast majority of the fiber used to manufacture carpet in the U.S. Each fiber type offers somewhat different attributes of durability, abrasion resistance, texture retention, stain and soil resistance, colorfastness, ease of cleaning and color clarity. Manufacturers, retailers, specifiers, and designers are valuable resources in helping you determine the most appropriate fiber and carpet construction for your needs.

Facts on Backings

All carpet has some type of backing system or chemistry that helps keep the tufts in place. Backing systems are made from a variety of materials and may also come with various kinds of protective treatments (such as anti-microbial or anti-stain) or beneficial properties (such as anti-static).

The methods and chemicals used depend upon the performance requirements of the backing and the carpet. These decisions will be based upon the specifier's performance considerations and the manufacturer's recommendations. Performance considerations are especially important for demanding environments. It's important that the specifier identify the highest priority needs for how the carpet will perform, whether that is wear and tear, moisture-resistance, or heavy foot traffic. The manufacturers' end use recommendations help determine which product will meet the established performance expectations.

Carpet backing systems generally comprise a primary backing and a chemical adhesive. Frequently, a secondary backing is included. In the most common system, the yarn is secured into the primary backing by synthetic latex, and a secondary backing (or cushion) is attached with a bonding agent or adhesive to provide further pile-yarn stability and to add dimensional stability to the carpet structure.

Understanding Dyeing

Dyeing is the process of coloring fiber, yarn or carpet with dyestuff. Coloration in carpet can be achieved at three possible times in the manufacturing process: during fiber development, before the carpet is tufted or before the secondary backing is applied.

The end use of the product will determine the type of dye method. Manufacturers can determine the most appropriate construction, dye method and backing to meet the performance requirements. For example, a specifier may be concerned about fading in a setting with large windows, so the manufacturer would recommend a solution-dyed product with superior colorfastness. If the specifier wants a wide variety of bright colors, the manufacturer might recommend yarn dyeing or space dyeing.

Different Dyeing Methods

Pre-dyeing of yarn includes both solution dyeing and yarn dyeing.

- **Solution dyed:** Synthetic yarn that is extruded and the filaments are impregnated with pigment. Known for outstanding colorfastness.
- **Yarn dyed:** Yarn is dyed before carpet is manufactured. Yarn dyeing includes multicolor space dyeing and solid color yarn or skein dyeing.

Post-dyeing of carpet methods include: beck dyeing, printing and continuous dyeing.

- **Beck dyeing or piece dyeing:** With these methods, carpet is dyed “in a piece” using a large beck, or vat, of dyestuffs and water. This takes place after tufting but before other finishing processes.
- **Printing:** Printing involves the application of colored dyestuffs using screens, rollers or inkjets onto the face of the carpet.
- **Continuous dyeing:** Continuous dyeing involves the application of dyestuffs as the carpet moves in open width under the dye applicator. The process is called “continuous” because it can be used to dye an unlimited quantity of 12-foot wide carpets, sewn end to end. (This is most often used in residential carpet.)

Using Color and Pattern

Floor coverings are one of the dominant fashion statements for an indoor setting. Colors and patterns in a carpet can create a distinctive atmosphere, serve a practical purpose, or send a message.

Within a facility, bright colors with contrasting highlights can differentiate department or team areas. An accent color on the floor can establish a break between the floor and the wall or stairway, and a printed or tufted pattern carpet can reinforce a corporate identity.

Color selection of carpet is as diverse as the imagination can provide. Quiet colors such as neutral earth colors or the blues of sky and water are chosen for a soothing effect or a corporate look. Warmer colors, reds, maize, and shades of orange are used for creating a mood of energy and vitality. Mid-range colors and multicolor blends are best for hiding soil near entrances. Many carpet manufacturers will also produce custom colors and constructions to meet individual specifications for design coordination.

So you decide what you want your carpet to do and how you want it to fit in with the overall look and feel of your environment. There will surely be many good options from which to choose.

A Size To Suit Every Purpose

Building owners and facility managers can select between tufted or woven products in various widths and sizes based on styling preference, budget considerations, backing performance needs (moisture impermeability) and facility requirements (installation, floor access). In the commercial market, the size options include broadloom, modular carpet tile and 6-foot carpet.

Broadloom Carpet

For the majority of commercial installations, broadloom carpet is specified to produce fewer seams, ease installation and obtain certain moisture benefits. Broadloom carpet can be 12 foot, 13'6 feet or 15 feet in width. Broadloom carpet can offer large pattern repeats and the ability to pattern match. For many years, commercial installations used broadloom carpet almost exclusively.

Carpet Tile Construction and Installation

The frequently changing configurations of open plan systems in offices and institutional settings have spurred advanced technologies in carpet tile. When a facility demands the accommodation of flat electronic wiring, ease of removal and installation and/or flexibility in design, modular tile may be the best choice. Where traffic paths or soiling occur, rotating tiles is sometimes a better alternative than a complete replacement.

There are also advances in installation techniques. Modular tiles are being installed with standard adhesives, releasable adhesives, mill-applied peel-and-stick adhesives and innovative after-market adhesive strips. In many facilities, modular tile installation is easier and faster than traditional carpet installation. A facility's divider panels and office furniture do not have to be removed from the area, but simply lifted with a "jack" system and the tiles are installed underneath. An entire office area can often be re-carpeted in one overnight shift, rather than disrupting an office for days. The reduced disruption of business may make up the difference in the extra cost of the product and installation.

Modular tile backings include those made with polyvinyl chloride (PVC), polyethylene, polyester, non-wovens and polyurethane cushion. The "hard backs" (PVC, polyester and polyethylene) offer dimensional stability, seam and edge integrity for easy pattern matching.

Tile backing systems can also offer moisture barriers from the base of the pile yarn to the floor, preventing spills from penetrating and seeping down to the subfloor. In modular tiles, as well as with broadloom, a moisture barrier may be valuable in humid areas or healthcare environments where spills are inevitable and cleaning is frequent. The moisture barrier of the carpet itself and of the sealing technique for the seams may lessen the potential for bacterial growth and provide lower long-term maintenance costs.

Accommodating Electronic Cables

Manufacturers offer low-profile systems which use as little as 2 ½ inches of the vertical space - a value when the ceiling height is only eight feet. Modular carpet with a cushion backing is often chosen for noise reduction and increased underfoot comfort. Companies offer differing size configurations of raised flooring and depths to accommodate extensive wiring, and even duct work for heat and air systems.

Determining Durability

Carpet performance is associated with many things, and it's important for a specifier to understand how all the individual elements work. For example, the construction method should be appropriate for the end use and the traffic requirements; the yarn size needs to correlate with the gauge; the backing systems should be appropriate with the desired

performance; and the dye technique has to be consistent with the end use.

The most common trap is relying on only one single construction factor to determine if a product will meet specifications. Therefore, while pile yarn density is important, so is the gauge, the yarn size and many other construction parameters that can be determined by individual manufacturers. That's why it's so important for specifiers and end users to explain how they want the product to perform and allow the manufacturers to make the construction decisions to meet the identified needs.

Carpet performance is associated, in part, with pile yarn density – the amount of pile yarn in a given volume of carpet face. For a given carpet weight, lower pile height and higher pile yarn density will yield the most performance for the money.

Density is also influenced by the number of tufts per inch when counting across a width of carpet. For example, a 1/8 gauge carpet has eight tuft rows per inch of width and a 1/10 gauge carpet has 10 rows per inch of width. Extra heavy traffic conditions require a density of 5,000 or more.

Appearance is an aesthetic choice, while texture retention is a performance issue. However, the two areas are closely related. Heavy foot traffic and soil can discolor carpet and should influence design decisions. Mid-tone colors and colors that blend with the general shade of local soil are the best to use in high traffic areas, especially near entrances. Manufacturers often recommend "walk-off" carpet systems for entryways. Walk-off carpet is designed to clean shoes of dirt and moisture and protect entrances from excess soiling. In addition, walk-off carpet systems increase foot safety and reduce slip and fall accidents. Eight feet of walk-off carpet is frequently considered to be optimal to protect interior carpet installations as well as enhance user safety and comfort.

Understanding Thermal Values (R-Values) of Carpet and Cushion

An industry-sponsored study of the thermal characteristics of carpet – with and without cushion – conducted by the Georgia Institute of Technology School of Textile Engineering, concluded that the total R-value is more dependent on the total thickness of the carpet than on the type fiber content.

When the carpet R-value is not available, the study suggested multiplying the total carpet thickness measured in inches by a factor of 2.6 to approximate the carpet's R-value. The study also found that R-values are additive for any combination of materials. For example, a combination of carpet with an R-value of 1.3 and a prime polyurethane cushion with an R-value of 1.6 will yield an overall R-value of 2.9.

Specifying For Acoustics

Carpet is an outstanding sound absorptive material. No other acoustical material performs the dual role of a floor covering and a versatile acoustical aid. When properly selected, carpet absorbs airborne noise as efficiently as many specialized acoustical materials. However, it is important to understand the acoustical values of particular

carpet constructions and the combinations of specific carpet cushions. This information will assist you in selecting the appropriate combination for a specific purpose.

Sound Absorption

Sound absorption coefficients, the fraction of incident sound energy that is absorbed by a material, usually vary strongly with frequency. A noise reduction coefficient (NRC) is used to grade the effectiveness of a material employed for sound control.

Small samples can be measured by the impedance tube method, while larger specimens can be measured by the reverberation room method. Reverberation room coefficients are usually provided as a single number, NRC. This number is the average of the coefficients at 250, 500, 1000, and 2000 Hz (from low- to high-pitched sounds).

Sound Transmission

Transmission through walls, floors and other barriers is much greater for low-frequency sounds than for high-frequency sounds. Sound transmission is measured between two reverberation rooms for at least 16 standard frequency bands.

For convenience in comparison of different constructions, the sound transmission class (STC) rating condenses sound transmission information into a single number according to ASTM E-413. STC is fairly accurate for human speech; however, for low-frequency sound, such as a motor, fan or even music with strong bass, the perceived sound may be greater than that indicated by STC.

Match Cushion To Carpet For Best Results

Selecting the right backing system – including whether some type of cushion is attached – is critical. While cushion can provide resilience, acoustical/thermal insulation properties, and comfort underfoot, the majority of commercial broadloom carpet today is direct-glued to the floor without a cushion. The carpet product and backing should be selected according to the traffic patterns of the area and the manufacturer's requirements for thickness and density. Carpet tile is generally designed to function without the need of additional cushion.

There are three main types of carpet cushion in commercial broadloom applications: Fiber, Rubber and Polyurethane foam.

- **Fiber cushion** is made of rubberized hair, rubberized jute, synthetic fibers or recycled textile fiber.
- **Rubber cushion** consists of flat rubber, textured flat rubber, rippled waffle or reinforced rubber.
- **Polyurethane foam cushion** is made of grafted prime polyurethane, densified polyurethane, bonded polyurethane or mechanically frothed polyurethane.

Faculty-Specific Considerations

Carpet in Schools

School design is widely recognized as positively affecting student learning and teacher satisfaction. Carpet contributes to good design by creating a welcoming, friendly and less institutional space for students, teachers and all school personnel. Carpet's other benefits include:

- **Improved Safety** - With added traction, carpet helps prevent slips and falls. When falls do happen, chances of injury are greatly reduced on soft flooring.
- **Increased Comfort** - For teachers and other staff, a cushioned walking and standing surface reduces leg fatigue. Plus, carpet provides a non-glare surface that reduces reflection and eyestrain.
- **Better insulation** - Carpet is warmer to sit on or work on, extending the learning area to space on the floor, especially with younger children. Thermal comfort exists because carpet retains inside ambient temperatures longer.
- **Costs less over time** - Carpet that is properly selected, installed and maintained lasts up to 10 years or longer. When product, installation and maintenance supplies and labor costs are considered over a 15-to 20-year period, carpet delivers lower life cycle costs than other floor coverings.
- **Reduced noise** - Based on a study by the American Society of Interior Designers, carpet is deemed to be 10 times more efficient in reducing noise compared with other flooring options. Also with carpet, less acoustic protection is needed on the ceiling and elsewhere. This quieter environment provides a better learning atmosphere with fewer distractions.
- **Improved IAQ** - Carpet can improve the indoor air quality (IAQ) by capturing allergens in its fibers, thus preventing them from circulating back into the air. The allergens can then be removed through proper vacuuming. Additionally, carpet has lower chemical emissions than most indoor furnishings.

Healthcare and Eldercare Facilities

Carpet is extremely popular in all common public areas of healthcare facilities. It is also being used more often in patient rooms, wards and nurseries, where it lends a feeling of warmth and comfort. However, carpet is not advised for use in areas where there may be excessive or frequent spills, such as in emergency and trauma areas, operating rooms, surgical recovery rooms and labs.

Selecting the Right Carpet

Color selection: Color options are highly diverse and can be chosen to provide a variety of stimulating or soothing effects. Interestingly, color can play a significant role in facilities or units that care for patients with Alzheimer's disease. According to the Alzheimer's Association, patients seem to remember colors better than numbers; therefore, color in carpet can provide a link to a specific hall or wing. In areas with visually impaired patients, brighter colors aid in depth perception and differentiation of areas.

Americans with Disabilities Act: The Americans with Disabilities Act requires carpet to have a pile height of a half-inch or less, as measured from the bottom of the tuft.

Carpet construction: The look of a carpet is determined by its construction, which may be level loop, multilevel loop, cut pile or combinations of cut and loop pile. In corridors, lobbies and patient care areas, loop piles tend to retain their appearance and resiliency and generally provide a better surface for rolling traffic, especially when the carpet has a low, dense construction. Cut pile or cut and loop pile carpet are both good choices for administration areas.

Performance: In the healthcare market, carpet performance needs will determine what fibers, construction, backing systems and treatments are specified. Again, the specifier must be able to delineate the highest priority performance requirements, so that the manufacturer's representative can recommend products that will meet those expectations.

Fiber: Nylon, olefin (polypropylene), triexta and wool are the primary fibers used in commercial carpet for healthcare applications. Nylon accounts for approximately 80 percent of the overall commercial carpet market.

Nylon is by far the most prevalent fiber in use. It is excellent in wearability, abrasion resistance, is easily cleaned and can be stain resistant. Olefin is used where resistance to sunlight fading and chemicals is more important than durability. Triexta is a new fiber category developed by DuPont. Wool is a natural staple fiber, is durable, resilient and self-extinguishing when burned.

Yarns can be either bulk continuous filament (BCF) or staple. Staple yarns are short fibers which may fuzz or lose fiber more than BCF; therefore, BCF is chosen more often for healthcare use.

The method by which carpet is dyed is important in the patient care areas. Solution dyeing is preferred in areas subject to stains and spills because the color is achieved by the pigment within the yarn. Other areas in healthcare facilities, such as offices, lobbies and corridors may employ a variety of dye methods, such as stock dyeing, yarn dyeing, piece dyeing and printing, all of which are dependent on the amount of pattern and colors needed for the interior appearance.

Static electricity considerations: Carpet can be specified to meet criteria for the static electricity tolerances of highly sensitive electronic areas, such as computer rooms or telemetry units.

Microbiological considerations: Antimicrobial treatments considered helpful in reducing the propagation and spread of microorganisms have been used in healthcare carpet since 1980. Antimicrobial treatment benefits a healthcare facility by providing insurance for when spots and spills cannot be immediately cleaned; however, it does not eliminate the need for a regular cleaning and maintenance plan.

Indoor air quality: Even though carpet emits the fewest VOCs of any floor covering, CRI developed its Green Label Plus programs to test and certify carpet, carpet cushion

and adhesives that emit the lowest levels of VOCs. Carpet has fewer emissions than other renovation and construction products, such as paint, wallboard, wall coverings and cleaning materials. Furthermore, those low emissions clear within 48 to 72 hours, and more quickly with good ventilation. To ensure the best indoor environment in your healthcare facility, specify Green Label Plus products.

Installation: It is important to include requirements that dictate installation procedures, such as how the carpet will be installed, cushion type and weight, and delivery and installation schedules. When installing carpet, always adhere to industry standards as published in the CRI 104/105 Carpet Installation Standards. Remember, these are general standards and manufacturers will have more specific recommendations.

Maintenance: A consistent and thorough maintenance plan – plus a plan to address unusual spills – is crucial. Proper and regular maintenance of carpet will prolong its life and beauty. The carpet maintenance plan should follow the carpet manufacturer's recommendations for cleaning methods, include the use of Seal of Approval-certified products, and utilize CRI recommendations for commercial cleaning and maintenance.

Carpet Installation Information

Basic Guidelines

Carpet installation must be properly planned, estimated and coordinated. The installation plan should include accurate measurements, show seam placement and detail areas requiring special considerations, such as unusual room shapes, closets, borders, etc.

Installation specifiers

Provide drawings with the approved location of seams, edge moldings, carpet direction and accessories (adhesives, cushion, etc.).

General contractor

Provide an appropriate surface upon which to install carpet, including confirmation of concrete moisture and alkali conditions, cleanliness, surface quality and floor levelness. The contractor must also set appropriate room temperatures 48 hours prior to installation (65 to 95 degrees) and provide ventilation during and 48 to 72 hours after installation.

Installation contractor

The installation contractor must use qualified labor and specified tools and accessories; provide accuracy of measurement and coordinate with the general contractor on all applicable details, including the installation date, delivery, storage, security and insurance.

Understanding Different Installation Methods

Stretch-in Installation: There are situations in which a specifier will wish to utilize the stretch-in method. Its selection may be for one of the following reasons:

- Provides enhanced underfoot comfort, acoustical properties (i.e., higher noise reduction coefficients and higher impact noise ratings) when installed with a separate cushion
 - Increases thermal insulation (R-value)
 - Can be used over floors that are unsuitable for glue-down
 - Corrective measures, such as seam repair, may be easier to perform
- Removal costs usually are less than the removal of an adhered installation

Stretch-in installations should be avoided in the following cases:

- On ramps and inclines
- Where office systems furniture and demountable partitions are utilized
- Where heavy rolling traffic is likely
- Where there is excessive humidity
- When carpet has a unitary backing or other backing systems designed only for glue-down installation

Direct glue-down installation:

- Suitable for rolling traffic and ramp areas
- Seams are more durable since there is no vertical flexing
- Minimized buckling in buildings that have HVAC systems turned off for extended periods of time
- No restretch situations
- Virtually eliminates incidences of seam peaking
- No restrictions to area size
- Intricate borders and inlays are possible

Double glue-down installation: This method combines the stability of direct glue-down carpet with the cushioning benefits of a separate cushion, stretch-in installation, as outlined below:

- Improves carpet appearance retention, under foot comfort and overall performance
- Simplifies carpet bordering and inlaying
- Suitable for wheeled traffic areas
- No restrictions on size of area

Cleaning and Maintenance

What You Need to Know

The beauty and life of your carpet depend on the care it receives. Proper cleaning will keep your carpet looking great for its full lifetime, help improve your indoor air quality and keep your carpet warranties intact.

Cleaning your carpet properly is easier than you think. All it takes is a little knowledge about how to select the right carpet cleaning products and most appropriate method for

cleaning your carpet. The CRI Seal of Approval programs help you identify effective carpet cleaning solutions, equipment, and service providers that clean carpet right the first time, without the fear of faster resoiling, stains reappearing or damage to your carpet or the environment.

Four Steps For Proper Carpet Care

Carpet cleaning is just like exercise! If you get into a routine and keep it up, you will see great results and feel better for it. Here are four simple steps to keep your carpet clean and looking great:

- **Vacuum** high traffic areas daily, and everywhere according to a vacuuming schedule, using an SOA/Green Label-approved vacuum.
- **Clean spots and spills** quickly with products that do not damage the carpet or cause it to resoil quicker.
- **Professionally deep clean** your carpets every 12 to 18 months to remove embedded dirt and grime.
- Stop dirt at the door by using mats outside and in, taking your shoes off when you enter the house and changing your air filters to reduce airborne dust particles.

Basic Rug Care

Rugs deserve the same care as wall-to-wall carpet and, in some cases, require special attention.

- **Washing rugs** — If your rug is small and the label says “machine washable,” shake the rug outside first and then put it in the washing machine at the recommended temperature. Use warm water (90 to 105 degrees) and a mild detergent. Tumble your rug dry at the lowest heat setting.
- **Beating larger rugs** — If your larger rug is easy to pick up, shake it outside first; then put it over a clothesline and beat it. Next, take the rug inside and vacuum it. Many carpet cleaning professionals have rug cleaning expertise as well, but, if the label says dry clean only, your best bet may be to roll it up and take it to a dry cleaner. Save time and aggravation by calling first to see if the cleaner does rug cleaning — many do not.
- **Vacuuming area rugs** — Area rugs with fringe require special technique. Use gentle suction and start from the center of the carpet, vacuuming toward the fringe and being careful not to catch the strands in the beater bar. Lift the carpet edge to vacuum beneath the fringe.
- **Caring for Oriental, Turkish or Persian rugs** — Clean imported rugs according to your carpet manufacturer’s specifications or bring in a professional cleaning service. Be gentle with fringe. For heirloom-type rugs, you need professionals.

Vacuuming 101

Proper vacuuming is the easiest and most effective way to keep your carpet clean. Regular vacuuming can also have the largest impact on the air you breathe.

To get the most out of your vacuuming regime, remember these few easy tips:

A quick once-over doesn't do much. Slow and steady does the trick. When vacuuming, don't ignore those corners and crevices where dust builds. "Top-down" cleaning saves you the step of vacuuming again after dusting. Dust blinds, windowsills, and furniture surfaces first and then vacuum away any fallen dust. Remember to replace or empty vacuum bags when they are half to two-thirds full.

How Often Should You Vacuum?

As a rule of thumb, you should vacuum at least once a week with a quality vacuum cleaner. However, the more foot traffic over your carpet, the more you need to vacuum. The general formula is:

- Vacuum daily in high-traffic or pet areas.
- Vacuum twice weekly in medium-traffic areas.
- Vacuum weekly in light-traffic areas, using attachments at carpet edges.

Cleaning Spots and Spills

With today's stain-resistant carpet, treating spots and stains has never been easier. Still, no carpet is completely stain proof. The key is to act quickly! So, to knock out spots, give them a one-two punch.

Step One: Absorb the Spill

- Blot liquids with a dry, white absorbent cloth or plain white paper towels (no prints or colors). Using a printed or colored material may transfer ink or dye to your damp carpet. Continue until the area is barely damp. Semisolids, like food spills, may need to be scooped up with a spoon. Solid, dried bits can be vacuumed up.
- Warning: do not scrub or use a brush. Bristles and scrubbing can damage carpet. Fraying and texture change are the likely results.

Step Two: Treat the Spot or Stain

- Use a CRI Certified Seal of Approval carpet cleaning product. Though these have been laboratory tested, you should still pretest any cleaner on a scrap of carpet or in an out-of-the-way area of your carpet.
- Follow the product's directions carefully. More is not better. Apply a small amount of the cleaner to a white cloth and work in gently, from the edges to the center. Blot; don't scrub. You may need to do this several times to remove the spot. After the spot is gone, blot the area with clear water once or more to remove any remaining product.

Special Tips for Pet Owners

Do you have a pet? You can combat pet odors and stains in many ways:

- Vacuum carpet more frequently to capture pet hair and dander from your pet's fur.
- Use CRI Certified Seal of Approval cleaning products that are specifically designed for pet stains and odors.

- Clean up new messes promptly and then follow the steps for spot and stain removal.
- Use small hand extractors for quick cleanups of pet accidents, but remember that these quick clean ups don't take the place of periodic deep cleaning.
- Have your carpet professionally cleaned every 12 to 18 months More frequently if necessary.
- Don't use a steam cleaner when dealing with urine spots because the heat will set the stain and the smell. Extracting the spill with a wet-vacuum and rinsing with cool water will reduce the odor. If necessary, call in certified carpet cleaning firms that know how to remove pet stains and odors permanently.

Tips For Cleaning Carpet Yourself

These days, you can buy or rent a do-it-yourself extractor or "steam cleaner." While these machines are effective at cleaning spots and spills, and provide excellent interim cleaning, they do not take the place of periodic deep cleaning by a carpet cleaning professional.

Here's what you need to know about do-it-yourself extraction cleaning:

- Remove the furniture from the carpeted area. If the furniture is too heavy, place a plastic film under and around the legs of the furniture.
- Vacuum thoroughly. This can have the biggest impact on the whole process!
- Follow the instructions on the machine carefully. Do not add other chemicals or under-dilute in an attempt to make your cleaner stronger.
- Only use a Seal of Approval cleaning solution that works with your extractor.
- Begin at the farthest point from the doorway and work back toward it so you can step out when done. Do not clean yourself into a corner!
- Be patient and do not over-wet the carpet. Extract as much of the water as possible. Do not rush this step.
- Wait until the carpet dries before replacing the furniture or walking on carpet. This step can take 6-12 hours.
- Ventilate the area. Open windows if outdoor weather conditions permit, or put the air conditioning on a moderate setting (72 to 78 degrees Fahrenheit). Never close up a room with a wet carpet. You want the fastest drying-time possible, to prevent mold growth and to allow earlier use.

Keep Your Carpet Looking Beautiful

Vacuuming is great for day-to-day carpet maintenance. But to keep it at peak performance, CRI recommends professionally deep cleaning your carpet every 12 to 18 months. (Be sure to check your carpet warranty for particular requirements.)

Seal of Approval Service Providers

CRI strongly recommends getting your carpet professionally cleaned by an SOA-certified service provider. These companies use SOA-approved equipment and products in order to assure their customers their carpet is being serviced with the best products. It is also the most effective way to maintain your warranty, as many carpet

manufacturers recommend SOA products in their residential warranties.

Ask Good Questions

There are a number of questions to ask when hiring a cleaning professional:

- “How long have you been in business?” The answer can speak volumes about a company’s reputation and experience. A quick Google search for customer reviews can also tell you a lot about the company.
- “Do you vacuum before deep cleaning the carpet?” The answer should be yes. Vacuuming before deep cleaning is critical and makes a difference in the end result.
- “How is your pricing structured?” Pricing should be based on the area cleaned, not by the number of rooms. Make sure to measure your area before you get on the phone. Room sizes vary, so be careful of any company that quotes price by the room.
- “How much will it cost?” When you’re on the phone, get an estimate that you’re comfortable with – before the cleaner comes to your house.
- Are your technicians certified through the Institute of Inspection, Cleaning and Restoration (IICRC)?
- Do you move the furniture or should I have it moved before you arrive? If you move the furniture, do you charge extra?

When They Arrive

Here are a few considerations for when the cleaners arrive.

- Be sure to point out any problem areas, spots or pet stains that need special attention.
- All major U.S. carpet manufacturers highly recommend the use of SOA products in their residential warranties.
- Many warranties also require you to check with the carpet manufacturer before allowing additional treatments, such as re-applying stain treatments or anti-static treatments.
- Finally, wait for the carpet to dry completely before walking on it or moving the furniture back into the room. If you replace the furniture too quickly, rust or stains from paint or finishes could mar the carpet permanently.