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Quality Parameters of Carpet Products

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Abstract

The number of carpet choices available can easily overwhelm buyers. Taking a second to break down and learn about the styles and types available will make them purchase decision easier There are a variety of different carpet styles, patterns and colours to choose from to satisfy any personal style while matching any possible decor. There are many hidden properties that contribute to the overall quality of the carpet. Durability depends on finding the right balance of three important factors. Wool and nylon fibers are the most durable of the five basic carpet categories. The most commonly used fibre in commercial carpets. All carpets look and feel good when new. The Performance Standards and specifications Committee of the Carpet and Rug Institute (CRI) has developed a convenient new tool for the measurers. Heat setting of a carpet yarns is a necessary operation to get a high quality woven or tufted carpet. Today's carpets are environmentally friendly to resist staining and fading and withstand even heavy foot traffic along with providing numerous other benefits.

Keywords: *Design flexibility, Loop pile, Wear ability, Colour blends, and Mildew resistant, Static charges.*

INTRODUCTION

There are four popular styles to choose from Textured plus, Saxony, Frieze and Cable. The cut pile carpet gets its durability through the fiber used the density of the tufts and the twists of the yarn. In addition, pile has a smooth and even finish providing a more formal look.

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The textured style uses low density fibres of uneven heights. The resulting look hides dirt with an informal look, but is not suited for high traffic areas. Saxony has a smooth and even finish, but the fibres are longer than a textured plush and the fibres have twist. Through it is the most popular style of carpets in the market, it has a tendency to show footprints and other marks more than other carpets. Frieze carpet styles features longer fibres with more twists so that the resulting texture is informal. It hides the footprints and other marks easier than other carpets, but is generally not suited for traffic areas. If the piles are longer, they are called shag. Cable is the style of the carpet, which is made with thicker and longer fibres to provide a cozier feel to the carpet when walked on [1].

Carpet's cushioned surface absorbs sound and is less noisy to walk on the hard surface flooring. Consider ability and affordability carpet is one of the most economical flooring products to have installed. The installed properties of a carpet provide additional warmth under foot during cold seasons. Carpet is a non-slip surface that is safe under foot and provides a cushion to prevent breakage when delicate items are accidentally draped. Most synthetic carpets are treated like an over sized with static, stain and soil resistant treatments, making them easy to clean and maintain90% of the residential carpets are manufactured as tufted carpet. A tufting machine works like an over sized sewing machine with hundreds of needles that insert loops of fibres into the carpets backing to form the face piles of the carpet. How long a carpet will last depends on how well it is made. Quality consideration will affect the durability, appearance and price of the carpet and is most influenced by the twists of the fibres and the density of the tufts [2]

Carpet can be tricky to shop for the cause that it is very difficult for the average shopper to tell the quality just by looking at it. There are many hidden properties that contribute to the overall quality of the carpets. All of the characteristics of the carpet must be understood and taken into consideration to truly determine the quality. There are lot of factors to take into consideration when carpet shopping for carpets. It is of no wonder that many shoppers find the process confusing and overwhelming. But breaking down the process into specific points to consider will help us to have a better understanding of what to look for in our carpets. As always it is recommended talking with the carpet sales professionals about the needs

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and household conditions and listening to their suggestions. Most will know which carpets perform well, and which one is budget friendly. If we are informed customer, we will be able to recognize the truth in what the sales person says will not be led astray [3].

Durability of a carpet measures how long the carpet will look and feel good. Ideally, carpet will remain its original texture and appearance for years to come. Durability depends on the right balance of three important factors. The factors are fibre, twist and density. Density describes the amount of pile in the carpet and how close the tufts are to one another. The twist of the fibre is the way the fibre filaments are spun into yarn, and how the yarn is turn twist upon itself. During carpet manufacturing natural or synthetic fibre is converted into yarn and tufted or locked into a backing to form the pile or surface that we walk on [4].

Buying new carpet successfully, involves much more than running our hand across some samples. The basics we need to learn what makes quality carpets, which padding is best for us and what goes into proper installation. When it comes to buy wall-to-wall carpeting, what we o not know can be definitely hurt us. Consider that covering a 300 sq ft room will cost 650$ to 3400$, just a carpet we need. When shopping let us think function before form. Many people look at the fibre as a measure of a carpet's durability. But it is one part of the story. It is important that we take all of the other factors into account. Other elements to consider include style and weight. The trick is to find a sample that meets our needs and style while still working within our budget {5]

How well a carpet performs over its life depends on a variety of factors. But ultimately the carpet quality is a function of carpet construction. When evaluating carpet quality the major factors to consider are carpet fibre, carpet pile and colour, Carpet backing and carpet density. Nylon and Olefin are the two fibres used in the commercial applications while wool is the least used. Synthetic fibres in general offer greater fibre strength but wool is used where warmth is required. The most commonly used fibre is nylon in commercial carpet. Nylon fibres are extremely strong and flexible. Nylon fibres offer excellent wear ability, resilience, absorbance, resistance to oil and chemicals. One of the most significance drawbacks of nylon fibres is their inability to dissipate static electricity. In normal use particularly under low humidity,

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conditions static charges can easily be generated in excess of 12,000 volts. Static charges of this level are well above the recommended maximum value for sensitive electronic equipment. To reduce the impact of the static charges, manufacturers add carbonize fibres to the nylon yarns or put a conductive coating on the surface of the nylon fibres that helps dissipate static charges before they reach a level where they can damage electronic equipment [6].

Sometimes locating all the carpet specifications we need to help people make wise and informed carpet choices can be difficult, if not nearly impossible, depending on where we shop for carpet. Some carpet manufacturers are reluctant to freely provide carpet specifications to their dealers and the customers. Some carpet retailers are also reluctant to provide the carpet specifications to their customers. On the back of all most every retail carpets there should be manufacturer's label that shows the fibre type, pile density, face weight, pile height and tuft twist. This must to have information that every home owner to help determine how durable the carpet determine its values, and determine whether or not it would be a suitable choice to meet our needs with life style. They should also be information on the warranty label; anti stain treatments that many have been applied, manufacturer's brand name, carpet style name, colour name and colour number [7].

Once the physical performance requirements for the carpet have been determined the specification will include the physical construction characteristics such as the type, texture, fibre weight, colour and backing system. Guide lines of each type of construction with recommended physical requirements, are included in the new document. Construction specifications should tell the manufacturer in precise terms how the carpet is to be made including the look, size, weight and manufacturing of raw materials, and processes without directly stipulating performance needs or end uses requirements. Any construction specification would include the following: construction type(tufted, woven, knitted, needle punched),construction materials, including (fibre backing and adhesive, construction method used for yarn manufacturing, fabric information, coloration techniques, finishing and treatments, products characteristics, including texture, colour/design, size/type, and functional enhancement [8].

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Heat setting of carpet yarns is a necessary operation to get a high quality woven or tufted carpet. SUPERBA's heat-treatment process is currently the best in the market as a treatment using saturated steam under pressure. The process gives the carpet a high quality and definition due to the pin-point-effect. The flooring industry is always looking for information, alternatives and differentiating development areas. This is the reason why SUPERBA is also now proposing GREEN TEX an innovative texturing machine for the artificial turf. This newline allows to be realized the well known knit-e-knit (KDK) technology. It is a continuous process and all kinds of PE, PP or PA yarns can be textured to use on different types of artificial turf like hockey, football field, tennis court, land scalping, etc. The artificial turf market is steadily gaining ground worldwide with about 15% growth per annum [9].

The beauty, performance and sustainability of carpet make is the right choice for schools, health care facilities, and shopping spaces. Carpeted floors cushion the impact of slips and falls, dampen unwanted noise and make it easier to learn and concentrate. Today's carpets are environmentally friendly engineered to resist staining and fading and withstand even heavy foot traffic along with providing numerous other benefits. Many believe that carpet to be negative for asthma and allergens. However, the opposite is true. Research was consistently shown that carpet actually improves indoor air quality in a number of ways. It acts like a trap, keeping dust and allergens out of air we breathe. Simply put what falls to the carpet tends to stay trapped until it is remove through vacuuming or extraction cleaning. Smooth floor surfaces allow dust and other allergens to collect and re-circulate into the breathing zone. Carpets and rugs provide better traction than other options, which prevent falls. This is true everywhere but even more important in areas where there is a lot of rain and snow. Even it falls the softer surface reduces their impact. Whether we are in a business, school, hospital or other facility, fewer falls and less severe injuries are one reason carpet is a choice one can feel good about [1].

Styles of Carpet and Types

In cut piles there are four styles to choose from Textured plus, Saxony, Frieze and Cable. Plus has a smooth and even finish providing more formal look. Textured style uses low density fibres of uneven heights. Saxony has a smooth and even finish but fibres are longer than textured

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plus and fibres have twist. Frieze carpet style features long fibres with more twists and the resulting texture is formal. Cable type carpet is made with thicker and longer fibres to provide a more cozy feel to the carpet when walk on. Pile carpets do not cut the yarn tips making loops visible. Level loop or Berber carpet style features packed short loop fibres. Level loop carpet features loops of varying heights to create a texture and or pattern [1].

Carpet texture means how the fibres of the carpets are attaché to the backing of the carpet. Primarily there are three types of carpet textures. Cut piles carpet consists of yarns that are cut at the ends. There are five basic styles of carpets of the cut pile types and the names are Velvet, Saxony, Frieze, Shag and Cable, provide a different look and texture. Loop carpet has yarns that are looped and uncut on the carpet surface. The pile height can vary from low, tightly construction to a more luxurious high level pile. Loop carpet has strength and soil hiding capability. Cut loop carpet has a combination of high cut tufts and lower loops in a variety of sculptured patterns. Cut loop carpet offers good performance but is slightly less durable than loop carpet [2].

The style of the carpet can influence its performance. The most common residential carpet can influence its performance. The most common residential carpet styles include Saxony, Berber, Frieze and cut-and-loop. Of course, each style of carpet is available in a variety of qualities but some styles are better suited for high traffic areas than others. There are lots of factors to take into consideration when shopping for carpets. It is no wonder that many shoppers fin the process of confusing and overwhelming. But breaking down the process into specific points to consider will help us to have a better understanding of what to look for in our carpet. As always it is recommended to talk about carpet sales professional about their needs and household conditions and listening to their suggestions. Most will know which carpet performs well, and which ones are budget-friendly. But if we an informed shopper we will be able to recognize the truth in what the sales person says and will not be le to astray [3].

Although there are several different sub-categories of carpets' styles all fall within one of these three groups. Loop-pile carpets are level these carpets ten to wear better looped and multi-level loops. Because of the yarns tips aren't exposed

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and work well in high-traffic areas such as hallways and family rooms. Thick Berber rugs are fine for high traffic areas but the tightly space loops of thick yarns tend to trap dirt and can be difficult to keep clean. Cut pile carpets include styles known as Velvets, Saxony's and Friezes. They have a nicer-look and richer feel but are not as durable as loop piles. Adding twist to the fibre however does Velvet is fine for low-traffic areas but tends to show dirt and foot prints. Saxony's are twisted and then heat set giving them more resilience for use on stairs on hallways. Friezes have the most curl and greatest resilience. Cut-loop pile is a continuation of loop pile and cut-pile carpets. The combination of large islands of cut tufts and lower loop tufts hides well. It is recommended for stairways, family rooms an, less formal dining area [5].

Evaluation of Carpet Quality

How well a carpet performs over its life can depend on a variety of factors. However, unfortunately the quality is a function of carpet construction. When evaluating carpet quality the major factors to consider are carpet fibres, carpet piles and colour, carpet backing and density. Facility executive managers have the option of installing natural or synthetic fibres. Nylon and Olefin are the mostly used fibres in commercial applications, while wool is least used. Synthetic fibres in general offer greater fibre strength and resistance to soiling, but there are applications where wool is the filling fibres to feel warmth. The most commonly use fibre in commercial carpets is nylon. Nylon fibres are extremely strong and flexible. The name nylon fibre offers excellent durability, absorbance, resistance to oils and chemicals. In the dyeing process, the colour is added to the nylon crystals and processed into individual fibres. As a result, the fibre stability and resistance to fading is low. One of the most significant drawbacks of nylon fibres is their inability to inability to dissipate static electricity. Olefin fibres offer excellent resistance to moisture making them suitable for indoors and outdoors. They resist from sunlight and are chemical and stain resistance. One of the biggest drawbacks of olefin fibres is their low melting point. The heat generate by friction when objects are dragged across the carpet can be sufficient to damage to the fibres, creating permanent burn marks [6].

There are five major types of carpet fibres such as nylon 6, nylon 6 6, polypropylene, polyester and wool, but the most popular is the nylon. Ideal for carpet is nylon 6 6, is a manmade fibre that is wear resistant. Its

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natural properties are allowing for a very wide range of colours and blends and the newest fibres look and feel of wool, but with much less maintenance and expense. The twist of the fibres is the way the fibre filaments are spun into yarn, and how the yarn is twisted upon itself. Twist is usually locked into carpet will resist changes in appearance and texture. Density describes the amount of pile in the carpet and how close the better the quality. Density checking is done by processing with fingers on the carpet and trying to reach the backing. It will difficult to reach the backing of a very dense carpet. With the tuft facing outward bend the carpet into a U shape to see how much of the carpet backing shows. The less the backing is the more dense the carpet [4].

The last consideration is face weight per square yard. A higher weight means more yarn and more yarns make for a longer lasting product. As an example within one product line the carpet has a face weight of 400 Oz and the best level weight is at 60 Oz. Sample may weigh more than nylon but it has entirely different performance qualities. Be wary of dealers who try to sale us on carpet density or stitches (SPI). The same sample goes for the theory that we can read a carpet's density by bending the sample backward. This is just not true says Grable. Bend back any carpet and we will see backing. Again, standards vary widely among different styles and fibres, a nylon cut-loop pile might have 10 and 12 SPI, while a thick wool Berber might only have 5 to 6 [5].

Carpet Specifications for Construction and Performance:

The Performance Standards Specification Committee of the Carpet and Rug Institute (CRI) had developed a convenient new tool for specification identifiers. Br referring appearance retention ratings the committee has established carpet selection guidelines that identify the performance requirements of carpet according to the specific areas of intended use. To achieve appearance retention rating a carpet undergoes rigorous testing to determine appearance changes produced by foot traffic over defined periods of time. Using a Hexapod or Vetter man Drum, the tested mechanically simulate various levels of foot prints of traffic over a carpet sample. After the carpet is tested appearance changes were assessed and a retention rating value is assigned. A moderate, heavy or severe use classification is established for each application based on the level of expected traffic in the specific area. For example the classification chart designates private offices or conference

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rooms as moderate while corridor or common areas are classified as heavy or severe use areas. The new use classification system indicates the minimum carpet rating that should be recommended for a particular area. The classification determines the value expressed on a scale of 1 to 5 that is needed according to CRI's appearance retention rating scale. Most carpet specified for use in severe traffic conditions should meet or exceed the appearance retention rating of over 4.5 over the short time and 3.5 for long term.

One of the most important and often misunderstand factors in a construction is density. Density is simply the index of how much yarn is packed yarn is packed in a given volume or area. The larger the density value the more compact is the pile, and the more firm the walking surface. Density can be an important determinant of carpet performance especially for high traffic environment. Density is influenced by many factor such as stitches/inch, yarn thickness, gauge and tuft height. Examiners who understand the various factors that affect density have a greater chance of specifying the best carpet performance for a given budget.

There are various methods of stating relative density specification for pile carpets. Average Pile Yarn Density (AYPD) is the most common and useful decision tool when used in conjunction with the other carpet specifications. APY is determined by pile weight, pile thickness or tuft height. Pile thickness and tuft height are laboratory means to determine what is commonly known as pile height. Pile height is sometimes measured with a small ruler or dipstick but these measurements are only rough determination and should not be considered accurate. The indication is AYPD higher value the better the expected carpet performance once other important factors are considered. Average pile yarn density for quality commercial carpets normally exceeds 4,000 while high demand use may require an AYPD greater than 6,000 [8].

CONCLUSION

Colours and patterns are available in all kinds of carpets regard to construction, fibres and type. Most of the synthetic carpets are treated with static, stain and resistance treatments making these easy to clean and maintain. Carpets can be tricky to shop for because they are very difficult for the average shopper to tell the quality just by looking at it. There are five major

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types of carpets fibres like nylon 6, nylon 6 6, olefin, polyester, and, wool and the most popular is the nylon. Pad is the carpet's support system. It makes the carpet feel richer and more comfortable to walk on and keep on and keeps the carpet from getting worn and matted. The second most common carpet's use fibre in commercial carpet is olefin (Polypropylene). Olefin fibres are excellent resistant to moisture, making them suitable for indoors an, indoors. The number of tuft twists is an important factor to making sure that a carpet retains its new appearance longer. Construction specification can be proprietary. They may identify a specific carpet by grade, name and manufacturer. In Indian market of carpets is very promising and still in the initial phase of growing. The beauty of performance, value and sustainability of a carpet makes it the choice for schools, health care facilities, offices and shopping spaces.

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