

CFR THE COMMERCIAL FLOORING REPORT

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OPTIMIZING FLOORING PERFORMANCE

This issue is dedicated to my dear friend Dan Blake who passed away suddenly on February 13, 2016.

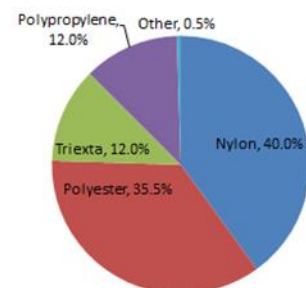
In commercial flooring applications it's important to make sure the flooring being selected and specified is appropriate for the application. We've talked about making sure the right product gets into the right place but we'll look at what makes the product the right one to use so it delivers the performance, life expectancy and appearance retention expected and then some.

The most complex of flooring products for commercial use is carpet. The components and engineering that go into making a carpet a high or low performing textile floor covering material are more involved than for hard surface flooring – with all due respect. Vinyl flooring for example may have a thicker wear layer, be thicker overall or have layered in it components that categorize it for a particular application and a particular kind of backing but the list is short compared to carpet as you'll see.

Carpet Fiber:

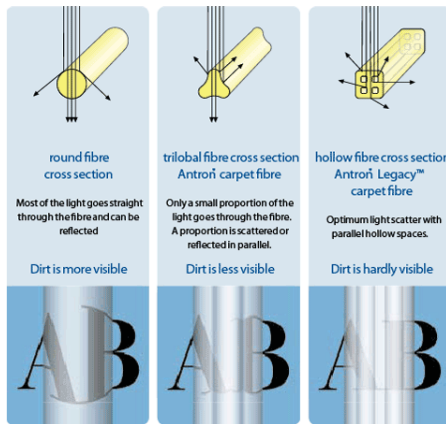
Commercial carpet fibers for high performance carpet vary. When we use the term high performance we're talking about Class A office space, schools, transportation, hospitality, airports, public spaces and the like. Not small offices in a strip mall or small businesses which are often price sensitive and use products that fall into the Main Street category. Certainly these spaces could employ high performance products but they are most often more sensitive to costs and would typically use a product with a yarn system such as polypropylene that would do a good job but at an economical price. Manufacturers of targeted commercial carpet would not offer this type of product in a mix of flooring materials being sold into a specified project.

2014 Overall Carpet/Rug Fiber Market Share



The fiber most used in commercial carpet is nylon; either type 6 or type 6,6 branded or not. Commercial carpet manufacturers will most often extrude their own fibers and most of those are type 6 nylon. Branded fibers will normally be a premium priced component but the differences between the two fibers are not as

great as one might think. This is especially true if the carpet construction is exactly the same and the fiber is solution dyed. We have over decades had opportunities to test this. Depending on whose branded fiber is used the big difference is in soil hiding and especially with lighter colors. For our purposes here and for your information, we would not discourage a client or you from specifying or buying a carpet with either type of fiber – 6 or 6,6 – as they will both perform extremely well when built correctly which we'll explain. The other fiber used in commercial application is wool. Though it occupies a small sliver of the commercial market it is widely used in the hospitality market and most often blended with nylon – typically an 80% wool / 20% nylon. The use of polyester or derivatives of it have been tried in the commercial market but it does not deliver the performance necessary particularly in concentrated, unalterable and pivotal locations such as under chairs or funneled traffic lanes.



With carpet the key to performance is density and that means density as it relates to construction not density as it relates to pile density as measured in ounces per cubic yard. We'll show you what construction density means and why it's the density that matters.

Fiber makes up 70% of the cost of the carpet. The backing in commercial carpet, if it's a cushion back or specialty backing which contributes highly to performance, will also add cost. So between these two components you can optimize the performance of a carpet to the point you could, figuratively speaking, drive trucks on it without too many problems and the options to do this are many and varied.

So let's optimize the product by engineering it for the application and we do this by taking the pieces and fitting them to the expectation. We're going to use a solution dyed nylon fiber so we have a fiber that inherently possess color fastness and stain resistance. Understand however that nothing is completely colorfast or stain resistant because very caustic chemicals and extraordinary situations or events can cause destructive results. Following this would be the style of the carpet – level loop, textured loop, cut and loop, cut or tip shear and loop. My opinion is not to use tip shear in any commercial carpet but if you must it should not exceed 20% of the face pile. Why?

Are you Interested? The New LGM Carpet Seminar For Groups or Individuals – See Page 6



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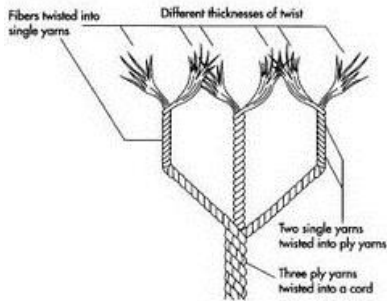
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Page Layout By:
 Anita S. Drennon

Because tip shearing is achieved by shearing the tips off of loop pile carpet which blossoms or opens up the yarn and leaves you with “singles” – individual fibers facing upright until you walk on them and they flatten out like pancakes because they possess no resiliency. They make the carpet ugly out faster than a speeding bullet in traffic lanes. If you want cut pile yarn in a carpet then specify it be made using loop and cut pile and with plenty of twist in the cut pile; you won’t have to worry about it flattening out. It works and, again, we’ve proven it. Next we take the fiber and add twist; the tighter the twist the higher the performance of the carpet. In cut pile, as just mentioned, the more twist the more performance and resiliency you build into the carpet.

Following twist comes pile height, the lower the pile, the more twist or loop, the greater the performance.

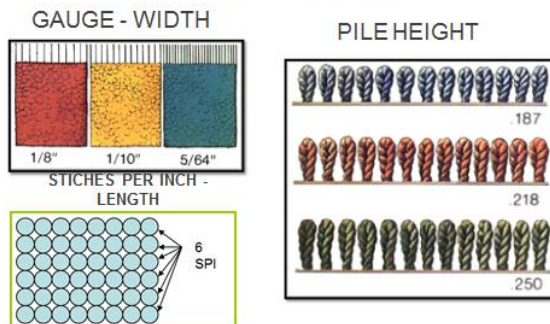
This results in a “dense” yarn.



Placement of the Yarn:

Placement of the yarn means how much yarn you stuff into a square inch. This is the function of gauge and stitch rate when tufting. We’ll show you an example of this as well. So, if you have a 1/10th gauge tufting machine it places 10 tufts per inch across the width of the carpet. If there are 10 stitches per inch in the length you have a carpet with 100 (10 x 10) stitches per square inch. In a 5/64th gauge machine there are 12.8 tufts per inch in the width. So, if you have 12.8 tufts per inch across the width and 10 stitches per lineal inch there would be 128 stitches per inch.

GAUGE, STICHES PER INCH, AND PILE HEIGHT



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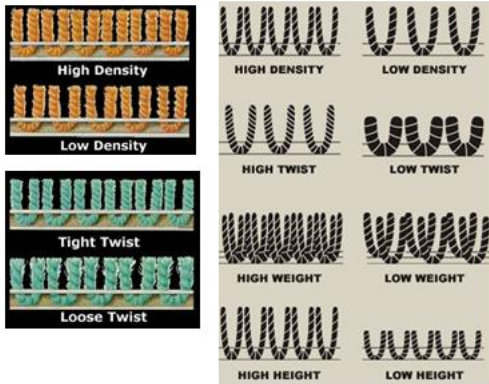
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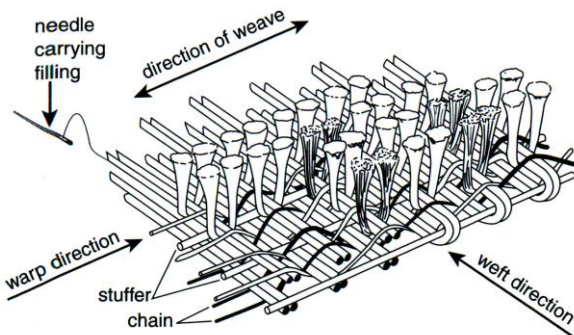
Now, lower the pile height, twist the yarn and put a cushion backing on the carpet, put in soil hiding colors, increase the physical properties of tuft bind and laminate strength and you have a carpet product that is nearly bullet proof – all characteristics that result in density.

FACTORS THAT AFFECT CARPET DURABILITY



Woven Carpet:

Woven carpet is different than tufted carpet in that it has none of the physical properties of tufted carpet and virtually no twist to the yarn yet it is one of the best performing carpets there is. Woven carpet, especially Axminster and Wilton, have a long history in the commercial market. These products occupy the highest category of textile floor covering materials. Their density is measured differently in that the products can range from 7 row to as much 12 row and the quality of the wool can make a difference; they are also made with 100% nylon as well. Cushion backings can also be added to improve performance.



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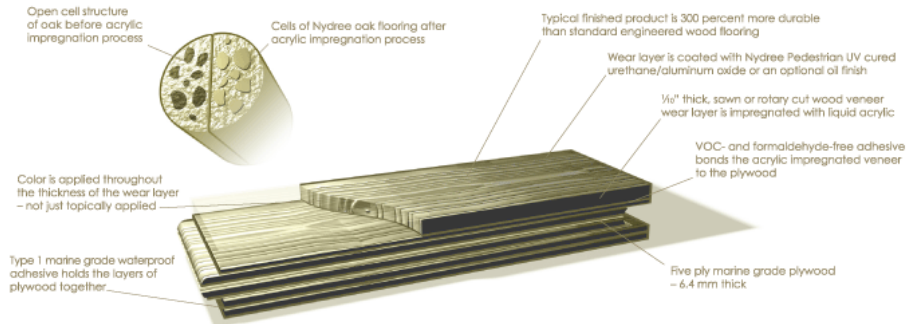
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Hard Surface Flooring:

Hard surface flooring, especially sheet vinyl, luxury vinyl tile and wood – both hard and engineered - are making and have made tremendous inroads in the industry. However, the products have to qualify for true commercial use and you have to be cautious where you source them. From Acrylic impregnated wood, invented by Nydree, who makes some of the highest performing wood flooring, to vinyl flooring with extraordinary durability, wear surfaces and LVT/LVP when properly annealed, will deliver extraordinary performance. In this category of flooring it is important to know your source and the manufacturer as the market is so hot for this product that it is flooded with materials that can ruin your day if you don't select the right one. Note too, that experience in this market by a known source is the best way to go and you have to know the limitations of the products and where they can and cannot be used. We're seeing the most product problems right now with Luxury Vinyl Plank flooring for instability issues so be wary of the product you use and where you're using it.



Acrylic Impregnated Wood Flooring - Courtesy of Nydree Flooring

Remember, the biggest problem in the industry is the wrong product in the wrong place or not understanding the product and its characteristics. Almost every flooring problem we see, from substrate to surface, could have been prevented. All you have to do is ask for help and you'll avoid a lot of pain, suffering and financial hemorrhaging.

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TOPICS

Carpet Construction
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Carpet Yarn Manufacturing
Dyeing Processes
Tufting Processes
Carpet Finishing/Backing Systems
Lab and Mill Tours
Installation
Adhesives
Maintenance
Testing Methods
Chemicals and Machines
Industry Overview

AGENDA

Day One
8:00 AM to 5:00 PM
Introduction and Opening Remarks
Carpet Construction & Industry Statistics
Carpet Fibers & Their Characteristics
Carpet Yarn Manufacturing
Pre-Dyeing
Post-Dyeing
Tufting

Day Two
8:15 AM to 5:00 PM
Finishing/Installation Prep
Moisture and pH
Lab and Mill Tours

Day Three
8:15 AM to 1:00 PM
Modular Carpet Installation
Adhesives
Maintenance
Discussions

PRACTICAL / IMPARTIAL / OBJECTIVE

The New LGM Carpet Seminar is a one of a kind educational experience. The seminar places emphasis on explaining the more technical aspects of fiber, yarn, dyeing, backing systems and carpet manufacturing in an easy to understand format. We'll address new state of the art technical developments and their effects on carpet as well as information on installation, maintenance and testing. The mill tours will bring to life the information learned in the classroom. The curriculum is up to the minute, impartial, objective, and unbiased, giving participants the necessary facts to more fully understand the product and make better and more profitable business decisions.