

Theater Engineering Conference

Floor Coverings

Buying Carpet by the Pound*

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Summary—Carpeting is a major cost in the theater furnishing budget and is still greater in the maintenance and replacement program. An approach to a better understanding of this problem is a study from the angle of "Buying Carpet by the Pound."

FACED WITH a dozen or more vital points in specifications governing the quality of carpet-fabric construction, a purchaser must have a rather simple but final rule to govern his selection not only between offers made by different supply factors but also between the several types of weave constructions. Each type of weave requires a proper balance of pitch in the weft, rows, or wires per inch in the warp, pile height, yarn type, and size as well as the quality of the materials used.

Realizing that as much as five sixths of the enormous tonnage of raw materials consumed in carpet production in the United States is imported, one can quickly appreciate that the major cost of the finished fabric is in the material with a relatively small percentage required for the fabrication in labor costs and sundries.

"Buying Carpet by the Pound" might, therefore, be suggested as a slogan to guide one in the decisions that will follow the use of more detailed formulas.

No one element of construction makes a carpet but rather the proper co-ordination and balancing of all elements are necessary in order to produce a fabric of maximum value. First it is conceded that only virgin-wool stable of the accepted Class Three dutyfree government specifications type will be used for the surface yarns. Years of laboratory testing, long spinning experience, and fabric-wear tests both on machines and in traffic use will determine the proper blending of many types of stable in varying percentages to obtain the ultimate

* Presented October 21, 1947, at the SMPE Convention in New York.

perfection from the 200 or more kinds grown and imported from all the world continents.

The first point to be determined might well be the advisability of selecting woolen or worsted yarn for the desired installation. While sheep wool will be used in both instances, the fibers will be selected, scoured, blended, and spun into the two forms of yarn to be woven into different types of fabric, to be installed to serve different purposes, and to be maintained in different methods of procedure.

Woolen yarn, forming the greater yardage in common use, is spun from fibers measuring from the shortest up to about nine inches in length. These are interlocked as much as possible in fifty-four motions on the carding machines and then rather tightly twisted in the single yarn. When piled up and used in a cut-pile weave, woolen yarn will resist the penetration of dirt particles. It can be distinguished easily by a tendency to shed the very shortest fibers upon close examination and use.

Worsted yarn, in contrast, is spun from fibers between three quarters of an inch in length up to twenty inches or more after the shortest fibers have been combed out as noil and disposed of by the spinner as a by-product. Worsted yarn will be much smaller in diameter in the single strand than woolen and will have comparatively little twist. Worsted yarn will serve as the best form of yarn for most of the round wire or uncut looped pile constructions and the fibers will stand erect and parallel in the cut-pile constructions. Dirt particles will work down in the worsted-pile surface demanding more harsh and more frequent cleaning than woolen.

The many weaves and myriad qualities in woolen will serve best in all general installations where traffic wear is expected. Worsted construction will serve best where traffic is excessive, where cleanliness is demanded, and where frequent cleaning is possible. As the spinning of worsted yarn might cost approximately one third per pound more than woolen to manufacture there must be a very definite reason for its selection.

Long considered ideal for use in dining areas, Pullman cars, hospital installations, and the like, where woolen lint would be found objectionable, worsted is likewise of value in powder rooms, smoking lounges, and the like in theaters.

Carpet quality may vary in a dozen specifications but at least five seem to be the most important.

First, the pitch or the number of pile ends of surface yarn per inch

of weft width of the fabric, which is usually noted as 189 pitch or seven tufts to the inch in the 27-inch basic width, as in the standard Axminster construction and many woolen qualities. In the finer worsted yarn the pitch would be greater, as found in a good quality of the Wilton weave with nine and a half tufts to the inch and known as 256 pitch.

Second, the number of rows of tufts to the inch in the warp direction of the fabric in the Axminster and Chenille weaves and known as wires in the Tapestry, Velvet, Brussels, and Wilton weaves.

Third, pile height, which is the actual height of the tufts of surface yarn from the top of the fabric to the backing material.

Fourth, the pile yarn itself, whether woolen or worsted, and the size numbered according to a standard table. The question of the number of plies in the yarn used develops the thought that it is the density of the actual fibers that determines the wear of the finished fabric.

The United States Bureau of Standards formula, that is accepted by the carpet trade, declares that the wear index varies as the square of the density times the height of pile, or the formula D^2h indicating true value, with the height of pile covering only the luxury factor.

Fifth, the general quality standards of all the materials used including the backing yarns which are a proper combination of vegetable fibers such as cotton, jute, and kraftcord.

Carpet wool is a very rough, absorbent type of fiber which has a tremendous affinity for color matter allowing the use of twenty thousand shades of color or a many times greater number than any other fiber or forms of color use. Every crystal of dye used to obtain a desired color will be absorbed by the fiber adding bulk, weight, and wear. Again, wool is the highest in hygroscopic or moisture weight and will vary constantly with the changes in the surrounding atmosphere.

There are five general types of weaving methods in common use today. All will furnish suitable fabric constructions, color, and design accomplishments as well as meet different budget figures in theater furnishings. These weaves are not competitive but they will overlap in the price brackets. They can be woven and sold from approximately 50 cents per carpet yard to \$94.50 per square yard which was recently quoted for a theater-lobby rug in custom-order Chenille hand-carved to outline angelic figures in intaglio.

The weave names can be associated with the fingers on one's hand in order to place them in their relative price brackets. On the little

finger we can place the Tapestry round-wire weave as the lowest in the price scale and woven to meet the humblest budget. Worsted yarn and a chrome-set dye are commonly used when pattern is desired. This weave will give remarkable service with the traffic wear falling on the side of the yarn loops.

The second or ring finger will indicate the cut-pile Velvet weave where we find the volume yardage of plain or solid-color production from beams of yarn supplied as warp. Here again, the woolen or worsted yarns that are used must be chrome-dyed to withstand the scouring out of the flour used in applying the dye in patterned goods. Steam-set twisted yarns give splendid service in this weave.

The middle finger will indicate our only American invention in carpet-loom production, Axminster. Woolen yarns are used in unlimited color range to furnish almost one half of the total yardage in this middle price bracket.

The index finger will indicate the Jacquard Wilton weave where delicacy of design and a sense of luxury can be accomplished with the use of the Jacquard pattern control. The pile yarns that are not needed to form the pattern will be bound in the body and back of the construction giving this weave the concealed quality or cushion back that assures softness underfoot and a long-wear life. These four constructions furnish the popular demand and are woven on semiautomatic looms usually operated by small individual electric motors.

The thumb, in turn, will indicate custom-order Chenille, which is a twofold weave requiring a hand-tufting operation in the second weaving process. This type is known as "the weave of unlimited possibilities." It is woven up to thirty feet in width, seamless, any length, any shape, any coloring, and any design in woolen or worsted yarns or combination thereof. Popular in rug form or complete carpet coverage in theater lobbies, foyers, lounges, and other public spaces, this weave is finding new uses constantly through its versatility.

The modern texture trend allows for carved, embossed, etched, sculptured, or intaglio effects in cut-pile constructions. Irregularity of pile in both looped and cut-pile surfaces often gives added third-dimensional decorative effects. Many of these up-to-the-minute creations as well as special designing and coloring to suit architectural decorative desires can be obtained at no added per-pound cost.

With all these facts in mind a purchaser of carpet can appreciate that actually he is buying carpet by the pound. Also believing that no carpet is any better than the ultimate service that it renders, he

will be concerned further in the proper installation and maintenance. Absolutely smooth floor surfaces must be assured, for the slightest irregularities show up immediately in the fabric surface. The proper underlay should be chosen on the basis of budget cost which might be twenty per cent, rather than the mistaken idea that a thick or particularly resilient cushion will redeem an inexpensive carpet.

The use of modern tacking strips, such as Roberts Smoothedge, for example, will cost less than drilling and doweling holes in concrete floors. The use of these patented strips will allow for refitting or removal for cleaning more readily than former tacking and fastener methods used.

It has been proved that clean carpet will outwear dirty fabric. It is well to set up very definite rules for maintenance. Worsted cut-pile weaves should be cleaned harshly and often in order to extract the dirt crystals that have seven to seventeen cutting edges which will cut the wool fibers in traffic wear. Woolen cut-pile weaves should be vacuumed regularly as deemed necessary. As wool fibers have such a high moisture weight it must be assured that the needed water vapor will be carried in the surrounding atmosphere to guarantee a satisfactory wear life. Where air conditioning or control systems are functioning properly the carpet will render remarkable service.