

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Historical Materials from University of
Nebraska-Lincoln Extension

Extension

1997

G97-1316 Carpet Selection: Construction and Texture

Shirley Niemeyer

University of Nebraska--Lincoln, sniemeyer2@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/extensionhist>



Part of the [Agriculture Commons](#), and the [Curriculum and Instruction Commons](#)

Niemeyer, Shirley, "G97-1316 Carpet Selection: Construction and Texture" (1997). *Historical Materials from University of Nebraska-Lincoln Extension*. 938.

<https://digitalcommons.unl.edu/extensionhist/938>

This Article is brought to you for free and open access by the Extension at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Historical Materials from University of Nebraska-Lincoln Extension by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.



Carpet Selection: Construction and Texture

Carpet construction methods of weaving, tufting, needlepunching, flocking and knitting are covered, as are options on carpet texture.

Adapted by Shirley M. Niemeyer, Extension Specialist, Interior Design/Home Furnishings

Construction methods and texture vary the appearance of any carpet. Both should be carefully considered when selecting carpeting.

Construction

Carpet construction methods include weaving, tufting, needlepunching, flocking and knitting. About ninety-five percent of the carpet made in the United States today is tufted.

- During **tufting**, face pile yarns rapidly are sewn (or punched) into a primary backing by a wide multineedled machine. Tufts are inserted lengthwise in tufted carpeting, rather than widthwise, as woven carpet is constructed. Tufts may be close together or far apart. Measuring across the carpet provides the gauge, and measuring lengthwise provides the stitch. Multiplying stitch-per-inch times gauge-per-inch will provide the number of tufts in a square inch of tufted carpet. Tufts are anchored in place with a layer of latex compound, which also attaches the secondary backing. The backing layers give the carpet added dimensional stability and strength.

More than 95 percent of the primary backings for tufted carpet are made of polypropylene/olefin* (woven and non-woven); occasionally jute and spunbonded polyester primary backing are used. Polyester is intended primarily for use on fine-gauge carpets and do-it-yourself carpet tiles.

Secondary backings for tufted carpets usually are jute (nearly 20 percent) polypropylene/olefin (about 75 percent) or foam (about 5 percent). Urethane foam, a newer entry into the backings market, is growing in popularity while latex foam has been losing its share of the market over the past 10 years. Urethane foam backings have been difficult to produce uniformly because they tend to swell during manufacturing. New technology now permits a uniform foam coating.

If a carpet is to be used in a kitchen, bathroom, basement, atop a concrete slab, or other area where

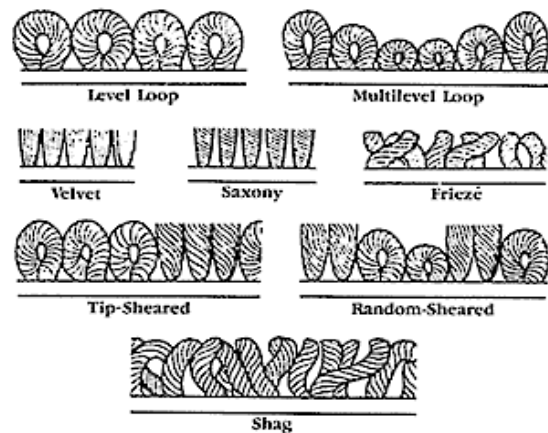
dampness might occur, select one with a synthetic backing. The synthetic, e.g. polypropylene/olefin, will resist moisture, making it rot and mildew-proof. Researchers have attempted, for some time, to find a means of making jute moisture-resistant, but it remains susceptible to moisture, rot and mildew.

Less commonly seen backings include cotton, linen and rayon all of which are strong and durable, and Kraftcord™, a specially processed wood pulp that is sturdy, but not as durable. All of these materials are susceptible to moisture, rot and mildew.

- **Woven** carpets and rugs have been available for centuries. Before machines, woven carpets were made by hand. Some of these processes are discussed in *G97-1317 Rug Selection and Use*. To make a woven carpet, face yarns (pile) and backing yarns are intertwined, making a single fabric rather than a laminated structure. The three most common woven carpet types include velvet, Wilton and Axminster. A less common woven carpet style is chenille. All still are made and, if made using good quality materials, are extremely durable.
- **Needlepunched** construction (several processes, each with different names) is an assembly of fiber webs compacted and interlocked, using barbed felting needles. Technology enables needlepunched carpet to be printed, flocked and embossed. Different textural effects, such as corduroy, can be attained by mixing fiber deniers and angling the needle in various ways. A coating of weather-resistant latex or similar material is applied to the back. This process, relatively low-cost, is used mainly for indoor- outdoor carpet, artificial grass surfaces and some carpet tiles. Originally this process was used to construct hair carpet pads which, although still made, are seldom found in stores.
- **Knit and flocked** carpets represent a very small percentage of the total carpet production in the United States.

Knit carpet is made by a process similar to hand knitting. A coat of latex and secondary backing material is applied to the fabric back to provide dimensional stability and strength. Some variation in color, pattern and texture is possible in knit carpet.

Flocked carpet resembles velvet. Flocked carpets are resilient and crush-resistant. A secondary backing material usually is applied to this structure, adding body and dimensional stability. A few flocked carpets are made for bedrooms and bathrooms, but the majority are used in vehicles: cars, planes, buses.



Texture

Texture selection is determined by personal taste, furnishing and lifestyle. Options range from smooth velvet plush to rough, bulky Berbers. *

Texture is created by the size of the yarns, the twist of the yarns and the surface structure of the finished carpet. Most carpet originally is constructed in a loop pile surface.

- The loops in **level loop pile** texture all are the same height, producing a pebbly appearance. The

closer together the loops, the more durable and easy to clean the carpet. Berber- textured carpets usually are level loop pile, constructed of thick- bulked yarns. Some are tipsheared.

- A **multi-level loop pile** texture has loops of different heights, creating a sculptural surface. Carpet with this texture hides soiling better than level loop pile but, all other factors being equal, may not be as durable.
- In **cut pile** carpeting, the tops of the loops have been cut away. **Velvet** or **plush** and **Saxony** textures all have a level surface but differ in yarn twist. Velvet or plush carpets are made of yarns with very little twist. The yarn ends blend together, producing a smooth surface. Velvet has a shorter pile height than plush. Saxony textures are made of twisted, heat-set yarns. The tips of the yarns remain distinct rather than blending together.

Velvet/plush carpet tends to "shade," especially with heavy use. Footprints show easily and the carpet color looks different in one place than it does in another. This is the result of fibers lying in different directions, reflecting light differently. Vacuuming can move the pile so it lies the same way, but this is only temporary. Permanent removal of shading is impossible. It is characteristic of velvet/plush carpeting and is a factor to be carefully weighed before investing in velvet/plush carpet.

- **Friezé** (free-zay) carpets are constructed of tightly twisted, heat-set cut pile yarns. The tight twist of the yarn creates a coarse, pebbly texture good for hiding tracks and soil, and gives good wear-resistance.
- A combination of cut and uncut loops is used to construct **tip-sheared**, **random-sheared** and **shag** textures. A **tip-sheared** texture has a level surface with cut and uncut loops. It does not shade as much as velvet/plush textures, nor does it hide footprints as well as level-loop pile texture.
- Multi-level loop pile carpet with the tops of the highest loops shorn away produces **random sheared** texture. **Shag** textures are produced with long pile yarns of cut and uncut loops. Both of these textures hide soiling but are less durable than the multi-level loop pile carpet texture.
- **Carved** and **sculptured** designs in woven carpets are achieved through cutting away part of the face yarns, creating very definite, distinctive textured patterns. Similar effects are achieved in non-woven structures by means of multi-level constructions.

*Olefin fibers may be polyethylene/olefin or polypropylene/olefin. Labels often carry both terms for accuracy in fiber identification.

*The Berber texture is named for a handmade, bulky wool carpet made by the Berber tribes of North Africa.

This publication originally was written by Carol Jo Thompson for the Montana State University Cooperative Extension Service. It is adapted here by permission of MSU.

File G1316 under: HOME FURNISHINGS

B-7, Floor Coverings

Issued February 1989; 7,500 printed.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Elbert C. Dickey, Director of Cooperative Extension, University of Nebraska, Institute of Agriculture and Natural Resources.

University of Nebraska Cooperative Extension educational programs abide with the non-discrimination policies of the University of Nebraska-Lincoln and the United States Department of Agriculture.