

Carpet and Cushion Selection - Part 2

Carol Lamkins, CID, CMKBD

There are many choices of carpet pad or cushion. The pad should be suitable for the area in which it will be used. The carpet pad determines the comfort of the carpet. It also adds to the life of the carpet by minimizing the friction factor between the underneath side of the carpet and the subfloor as well as protecting the carpet from rough edges, nails, screws and other projections on the subfloor.

The carpet pad sample should list the name of the manufacturer, the pad name and the generic name for the fiber used to make the pad. Knowing the generic fiber name helps determine if the pad is appropriate for the specific floor.

The carpet pad thickness is important. If the pad is too thin, the carpet may look old faster. If the pad is too thick, the carpet is more difficult to stretch when it is being laid and ripples occur over time. The way to select a pad is put a sample under the carpet sample and walk on the two layers to check if it is too thin or too thick for comfort. Another point to consider is to select the pad thickness that fits into the type of room where it will be used. The thickest carpet pads are used in formal rooms with less traffic. Rooms with the thinner carpet pads are informal rooms with high traffic.

The pad or cushion should be replaced each time new carpeting is installed. Never lay new cushion over existing cushion. This makes the layers too thick, which causes ripples. Be aware that the manufacture may recommend a specific type of pad as a condition for the warranty. The better warranties are that the pad will last the life of the carpet placed over it. The carpet pad has to be properly installed for the warranty to be effective. Most warranties are limited, which means that the warranty coverage is reduced according to the number of years since purchase. It is important to obtain a written copy of the warranty at the time of purchase.

The following is a summary of the types of carpet pads or cushions most commonly available.

Rebond Carpet Pad

The major use of recycled foam is in the bonded carpet underlay, which is considered among the highest quality carpet cushion product.

Approximately 85% to 89% of all domestically produced carpet cushion is bonded foam. This cushion is made from pieces of shredded, flexible foam held together with a polyurethane binder. Several other types of cushion materials include fiber, polyurethane foam and rubber.

The foam scrap used in new bonded cushion is thought to range from between 60% to 70% post-industrial scrap and 30% to 40% post-consumer



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scrap. The latter includes annually an estimated 300 million to 400 million pounds of take-up foam cushion collected primarily from carpet installers by carpet recycling specialists, thus diverting it from landfills.

Scrap foam, consisting of skins, side and the bottom trip, is generated in the manufacture of flexible polyurethane foam that is used for bedding, upholstered furniture or in the automotive industries. The processing of bonded cushion also consumes a growing amount of consumer take-up foam scrap that is generated as old carpets and carpet cushion are replaced.

To summarize, rebond cushion is:

- The most commonly used carpet pad used in the floor covering industry
- Recycled from the high density foams often used in making furniture
- Could be less expensive than other pad options
- Available in several thicknesses and densities from 5 pounds to 8 pounds
 - 5 pounds and 3/8" thick in low-traffic areas
 - 6.5 pounds and 3/8" in high-traffic residential areas
 - 8 pounds not recommended for residential due to warping and wrinkling of the carpet but is successful in commercial areas
- Can be used with virtually any type of carpeting in almost any situation
- Avoid pads that have an addition of a chemical compound butylated hydroxy toluene (Bht), a common additive in foods, breads and cereals. It is an antioxidant and has no known health effects and reduces the risk of fire during manufacturing. It may produce yellowing in many carpet constructions. If yellowing occurs rinse with white vinegar or other mild acid before applying a detergent solution.

Other cushion choices include:

Urethane foam

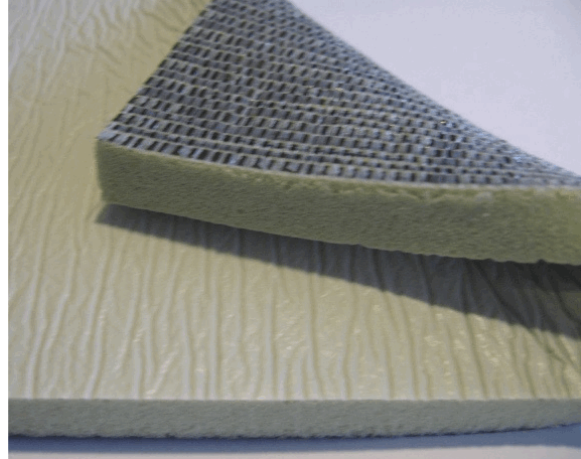
- Densified prime urethane is manufactured by changing the cell structure of the prime urethane with a material applied to one or both sides for easy installation
- Less expensive
- Fairly durable
- Includes memory foams
- Available in lots of different thicknesses and densities from 1/2 pound per square inch
- Generally does not hold up well in high traffic areas as it traps air allowing the carpet to move and abrade on the subfloor
- Non-flammable
- Not as resilient as rubber
- Not affected by heat
- Not affected by dampness or insects
- Used on concrete slabs and in basements
- Non-allergenic



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- Bonded version consists of than little pieces of prime urethane bonded together by pressure and a gluing agent
- **Frothed Foam Pad**
 - Considered the highest end pad avail
 - Ultra heavy, super dense and thicker than most other padding options (7/16th of an inch)
 - Each micro cell to work like a tiny shock absorber
 - Contains no off gassing making it extremely environmental friendly featuring no VOC, styrene, formaldehyde or 4-PC – rated as “Green Label Plus” from the CRI 105 indoor air quality testing program
 - Can be used underneath virtually any type, style or texture rug
 - Adds to the life of the carpet as it does not break down like other padding does and it reduces furniture indentions and basic wear and tear from foot traffic
 - Insulates the floor making it warmer with an R rating as low as 1.35 allowing warm air to pass through the fibers of the padding causing the carpet to feel warmer quicker and retain heat
 - Treated to restricts bacteria growth and provide a moisture barrier



Foam Rubber

- Made from a latex rubber base, which can be made from different combinations of natural or synthetic latex
- Generally manufactured in flat continuous sheets with a covering on one side for easy installation.
- Thinner and less dense versions are often glued to the back of kitchen carpet rather than being a separate pad
- Insect proof
- Mildew and moth proof
- Non-allergenic

Waffle Rubber

- Combination of natural and/or synthetic rubber and other chemicals
- Has a material glued to the top side for ease of installation
- ½ inch thick recommended because of its waffle texture containing air pockets



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- Filler percentage is very high and the carpet padding tends to break down over the years
- Performance has improved with the heavier versions
- Sensitive to heat
- Good resilience
- Holds moisture
- Damaged by dry cleaning solvents
- Loss of resilience with age
- Moth, beetle, mildew, and mold proof
- Non-allergenic

Flat Rubber:

- Use 19 to 22 lb density flat rubber carpet cushion for the ultimate in luxury and long wear
- Extremely pricey
- Difficult to find
- Sensitive to heat
- Good resilience
- Damaged by dry cleaning solvents
- Loss of resilience with age
- Moth, beetle, mildew, and mold proof
- Non-allergenic



Fiber (Felt) Cushion:

- Made by needle-punching various materials together
- Some are made by using 100 percent hair, 100 percent various fibers, or a combination of hair and other fibers
- When the hair is combined with jute, the pad is less resilient, absorbs more moisture and has a shorter life than the 100 percent hair
- Takes advantage of scrap fiber and promote environmental stewardships
- Wears well
- Resilient when 100 percent hair
- Sheds
- May cause problems to people with allergies
- Collects dust
- Mildews in damp areas such as on concrete
- Stretches out of shape
- May be rubberized or latexed on both sides to reduce stretching, sliding, moisture absorption or allergic reactions



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The Carpet Cushion Council is the administrator of the Carpet & Rug Institute (“CRI”) Indoor Air Quality Program pertaining to carpet cushion, i.e., the CRI Green Label Program for cushion. Firms wishing to qualify products under the Program complete and execute a CRI Green Label Participation Agreement provided by the Carpet Cushion Council and satisfy other pre-enrollment requirements.

This is the process for obtaining approvals:

1. Applicants submit product samples for testing of Total Volatile Organic Compounds (TVOCs) and of three mandatory IVOCs, i.e., Butylated Hydroxytoluene (BHT), Formaldehyde and 4-Phenylcyclohexene (4-PCH), measured against prescribed limits after 24-hours under ASTM Method D 5116. Product testing is performed by an independent testing laboratory approved under the program.
2. Upon successful initial testing, a product label ID number (assigned by CRI) is issued to the applicant. The participant is permitted to use the CRI IAQ Carpet Cushion Testing Program label on the approved product category in conformity with the CRI label format. The label can be used in product literature, on hang tags and sample backs, etc. Use of the label is not allowed until the product meets the program criterion.
3. Following acceptance in the program, participants submit quarterly samples of the approved product category for assessment of TVOC emissions and the Carpet Cushion Council annually collects a sample of the approved product category for assessment of TVOCs and for each of the mandatory IVOCs. All quarterly and annual samples are collected using the CRI sample collection protocol and are assessed by the program approved laboratory.
4. Participants in the program are informed of the results of tests by means of a written report from the Carpet Cushion Council indicating whether the tested sample meets (or exceeds) the program limits. Where indicated, the participant is expected to make process or formulation changes to bring emissions of the approved product category into conformity with program limits. Compliance is demonstrated by testing in accordance with the CRI sample collection protocol as assessed by the program-approved laboratory.

Participation in the CRI Green Label Program for cushion is open to and includes both members of the Carpet Cushion Council and non-members.

Education is the key for responsible selection of carpet and cushion that is both environmental friendly and is manufactured from recycled components. Agencies like the Carpet & Rug Institute provide guidance in meeting minimum criteria for health and wellbeing of the human population and all that lives on the earth. However, it is the responsibility of the interior designer to evaluate the appropriate cushion for the installation and use.

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Resources:

Dr. Leona Hawks, Home Furnishings & Housing Specialist

The U.S. Department of Agriculture, Robert L. Gilliland, Vice President and Director,
Cooperative Extension Service, Utah State University. (EP/05-95/DF)

http://extension.usu.edu/files/publications/factsheet/hi_05.pdf

<http://en.wikipedia.org/wiki/Carpet#Etymology>

http://books.google.com/books?id=btgLVQUVL0C&dq=lansdowne+group+axminster+carpets&source=gbs_navlinks_s.

<http://www.carpetcushion.org/>