

Installation Expertise with Tim McAdoo

Selecting The Right Cushion

A firm and resilient carpet cushion is necessary to form a good foundation for your carpet, increasing its comfort and extending its life by acting as a shock absorber when someone walks on the carpet. The cushion, or pad, helps buffer sound and provides increased insulation, making a room quieter and warmer.

Padding with a 6-pound density provides softer cushioning than padding with an 8-pound density. Opt for an 8-pound density rating if you want the firmest, sturdiest and longest-lasting option, which is especially useful in high-traffic areas. High-density padding reduces the likelihood of wrinkling in your carpet and is generally the most expensive.

When selecting cushion, check the carpet manufacturer's requirements for thickness and density. Improper selection of carpet cushion can negatively affect carpet appearance, cause wrinkling and buckling, separation of the carpet seams and can cause a breakdown of the carpet structure itself. Improper cushion selection also may void any applicable carpet manufacturer's warranties. A general rule of thumb for most residential carpet applications is to choose cushion no more than 7/16 inch thick and no less than 1/4 inch with 6 pounds per cubic feet density. If the carpet is a Berber or a low profile carpet, choose a cushion no more than 3/8 inch thick with 8 pounds density. Carpet cushion is made primarily from polyurethane foam, fiber or rubber and is available in a variety of styles and constructions to fit your needs. The type and thickness of cushion you need varies according to traffic levels and patterns. For example, bedrooms, dens, lounge areas and other rooms with light or moderate traffic can use thicker and softer cushion, while living rooms, family rooms, hallways, stairs and other heavy traffic areas require thinner, firmer cushion.

Match the cushion to the carpet

Residential cut pile, cut-loop, or high-level loop carpet requires a resilient, firm cushion with a thickness of 7/16 inch and no less than 1/4 inch with 6 pounds per cubic feet density. Types of cushion may be various polyurethane foams, including the very common bonded foam product often referred to as "rebond," fiber, or rubber.

Berber carpet or thinner loop or cut pile carpet is made with large, wide loops, and it has been found that a stable, low-flexing, cushion foundation is necessary. A thicker, softer cushion is not acceptable. Cushion thickness should not exceed 3/8 inch for these type products. Again, check with the carpet manufacturer to see if a specific cushion is required. NOTES: For berber pad, the general rule is the bigger the loop in the berber, the firmer the padding should be. If radiant heat is used, the cushion used must be a low insulating type, such as a relatively thin, flat cellular sponge rubber or synthetic fiber cushion.

Absorbing the Abuse

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Many consumers believe carpet cushion is used for the purpose of comfort under foot. While this is a result of the use of carpet padding, the primary reason for carpet cushion is to absorb impact that the carpet would otherwise be subjected. This impact can cause synthetic latex to break down, backings to stretch, and separation of the primary backing from the secondary backing (delamination) and unnecessary stress on the face fiber. The best performing carpet cushion actually provides less comfort under foot, but extends the life of the carpet installation by absorbing the abuse.

Two of the most common mistakes by consumers is to purchase a carpet padding that is too soft or too thick. Carpet cushion that is too soft, bottoms out when exposed to foot traffic. This allows the carpet to assume the rest of the impact burden; thus shortening carpet performance life. What can get confusing is the various methods of rating carpet cushion performance. Some carpet padding is rated in density, but there are various methods for determining density. Terms like indentation load deflection (ILD), indentation force deflection (IFD), compression load deflection (CLD), compression force deflection (CFD) all may be used to describe the test method for evaluating carpet cushion density. Essentially these terms are a method of evaluating how much weight is required to bottom the carpet cushion out. Some of these methods use a square inch as the area for evaluation, while others use a broader area such as 6 or 8 square inches. It is important to note which method is used when comparing carpet padding, because an 8 lb. carpet padding using the broader area of evaluation may equate to a ½ pound rating for a square inch measure.

Also, carpet cushion may be rated in weight per cubic yard. An 8-pound carpet cushion may weigh 8 pounds in a standard 3 ft by 3 ft by 3-ft cube. A flat rubber carpet padding may weigh 22 pounds per cubic foot and a prime urethane carpet cushion may weigh only 4 pounds, but the ultimate performance factor is how many pounds per footfall area will it take for the carpet cushion to bottom out.

The second most common mistake is to purchase carpet padding that is too thick. You may be told that a thicker carpet cushion will cause performance problems, but the primary reason for selecting thinner carpet padding is so the carpet is not so high from the floor that it will not hold on to the tack strip. The carpet industry has established a maximum recommended thickness of 7/16 inch, but you should never exceed ½ inch. The thought process here is if ½ inch is recommended, retailers will go to 5/8 inch. A ½ carpet cushion provides adequate cushion and still allows the carpet to hold on to the tack strip along the walls.

Types of Carpet Padding

There are three basic types of cushion, which are **foam**, **rubber**, and **fiber**. Each type is further

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subdivided into two or three varieties.

Foam comes in three varieties:



the material per cubic foot.

Prime urethane foam is a firmer version of the same cushioning used in upholstered furniture, mattresses, and automobile seats. Two liquid ingredients are combined to form a large mass of foam, which is then sliced into sheets for use as carpet cushion. There are three types of prime urethane carpet cushion: conventional prime, grafted prime, and densified prime cushion. Prime urethane foam grades are measured by density, or weight of



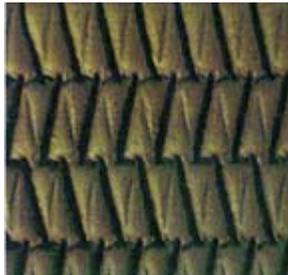
Rebond pad usually contains BHT (Butylated Hydroxytoluene). BHT is a common preservative used in many plastics and even in bread. BHT was removed from most olefin backings in 1985 because of yellowing of carpet fibers. Many cushion manufacturers have now also removed BHT from their products.

Bonded urethane foam (sometimes called **rebond**) is formed by combining chopped and shredded pieces of foam into one solid piece. It frequently has a surface net for ease of installation and improved performance. Bonded foam grades are also measured by density. Rebond pad can cause yellowing of olefin carpet and stain-resist nylon carpet.



Mechanically frothed urethane foam is made with carpet backing machinery. Frothed urethane cushions are made from a process originally developed to apply cushioned backings to carpet. The urethane foam cushioning is applied to a sheet of nonwoven material, forming a carpet cushion product with a typically higher density and firmer feel.

1. **Sponge Rubber:** There are two specific types of sponge rubber carpet cushion. Grades for both are measured by weight in ounces per square yard.



Waffled sponge rubber is made by molding natural or synthetic rubber to a rippled or waffled surface. This variety produces a soft, resilient cushion whose luxurious feel is particularly useful for residences. Waffle rubber pad is often used improperly. The waffle part of the padding gives it a thickness that is mostly air, and as a result, any of this type of padding rated less than 90 ounces is still too soft for today's carpets. Frequently, the rubber used to make this type of pad is held together with clay binders that break down with use.

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Flat sponge rubber is a firm, dense cushion, which has a flat surface and is normally used in large-scale commercial applications and with loop type (or berber) carpet.

Fiber: There are two basic types of fiber carpet cushion: natural fiber and synthetic carpet fiber or felt. A third type, recycled textile fiber, is occasionally seen. The grade of fiber cushion is determined by its weight in ounces per square yard. Fiber cushions tend to have a firm "walk" or "feel."



Natural fibers include **felt**, **horsehair**, and **jute**. These are, of course, highly susceptible to rotting if over-wetted, odor development, and natural degradation. Some natural fiber cushions have been treated with a water-soluble dye that can stain a wet carpet. Fiber pads are used sometimes to limit the movement in an area rug. The key is density. Felt cushion density is by weight of ounces per square yard.



Synthetic fibers / synthetic felt include nylon, polyester, polypropylene, and acrylics, which are needle-punched into relatively dense cushions which have a firm feel and, as with other types of cushion, can be made in virtually any weight, to stand up under light, medium, or heavy traffic, which is how they are usually classified.

The quality of a carpet cushion is determined by density (the weight of one cubic foot of the cushion), not thickness and softness. If the cushion is too soft and thick, the carpet excessively flexes with traffic, the backing is put under enormous strain, and the carpet will delaminate. Foam pads should not lose more than half their height when you pinch them. Cushion under most residential carpet should be a thickness no greater than 7/16".

With urethane foam cushion, density is rated at pounds per cubic foot. For example, a 5-pound rebond pad would weigh 5 pounds per cubic foot. The Carpet and Rug Institute recommends a residential pad of at least 5 pounds and 3/8 inch thickness for light traffic (a living room), and a pad of 6.5 pounds and 3/8 inch for heavy traffic (hallways). These are minimum guidelines. Residential cushion should not be any thicker than 7/16 inch. Berber carpet requires a firm cushion and is usually sold as "berber cushion".

For commercial installations, the minimum should be 12-14 pounds with a thickness of 1/4 - 3/8

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inch.

Attached cushion is cushion material permanently bonded to the back of carpet and rugs by the manufacturer to provide additional dimensional stability, thickness and padding. Materials used include polyurethane, sponge rubber, PVC, high-density foam and latex.

Woven carpet must be installed over an extra heavy super dense fiber pad or, in some cases, a heavy flat frothed foam.

Radiant heating is becoming more widely used in certain sections of the country. In the case of radiant heating, you do not want a carpet cushion which is an exceptionally effective insulator, but one which allows the heat from the subflooring to penetrate the carpet system and heat the room. A relatively thin, flat cellular sponge rubber or synthetic fiber carpet cushion works well under these circumstances.

About Tim McAdoo:

Tim is a certified instructor for Armstrong, Avaire, Konecto and Starloc products and has been a member of the Armstrong Installation Training Team since 1984. Tim has highly developed installation skills and qualifications that have been combined over his 32 years in the floor covering industry. Tim is privy to all the latest innovations and techniques used in the installation of their products.

We are sure you will find your skills improved after attending one of his installation courses.



To view a complete list and register for one of Tim's installation trainings, click here on the QR or visit: <http://www.jjhaines.com/customers/installation-training/>

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