

CARPET CUSHION for the WORKPLACE

PUBLISHED BY THE ALLIANCE FOR FLEXIBLE POLYURETHANE FOAM

High-Performance Polyurethane Cushion Improves Carpet Lifespan, Appearance Retention and Sound Insulation

Introducing Life-Extending Carpet Cushion Designed Specifically for the Workplace.

Carpet cushion made from polyurethane foam is specifically designed to enhance the quality and performance of carpeting. And if you thought carpet cushion was only for residential use or executive offices, you'll be interested to learn about the improvements the industry has made in our commercial products. Carpet cushion offers benefits you simply can't get from direct glue-down installation, and lets you avoid the hidden, back-end costs of replacing worn-out

carpets that are permanently bonded to your floors. Less frequent replacement translates into real savings of time and money when you use cushion. That's why commercial polyurethane carpet cushion can be an important part of proactive facility planning.

Throughout this issue, "polyurethane" cushion may refer to prime, bonded, rebond, or frothed flexible polyurethane foam.

Facility Managers Want to Know More About Carpet Cushion.

In a national survey conducted for us in 1999 by the International Facility Management Association, 50% of the facility managers said they were not knowledgeable about carpet cushion.¹ That's why we're now providing this information. We understand that facility managers wear many hats and need to be knowledgeable about a wide spectrum of information. In the pages that follow we'll help you understand the difference carpet cushion can make in the office environment – and how important *what's underneath* your carpet is to the performance of that carpet.



The Benefits of Carpet Cushion.

A few facility managers told us that carpet cushion wasn't absolutely necessary. And it's true. You *can* put down carpet without it. But, it's also true that carpet without cushion is likely to wear more quickly, often "uglying" out and showing traffic patterns, revealing more defects in the floor, and providing less comfort than cushioned carpet. What are the most important benefits that carpet cushion can offer facility managers? Carpet cushion helps extend carpet life, improve appearance retention and increase savings due to less frequent replacement.

Commercial Polyurethane Cushion is Designed With the Office in Mind.

Commercial polyurethane cushion is a high-performance material. Designed to provide the classic benefits of plushness and appearance retention, it is a thin, high density, flat and resilient cushion that won't impede wheeled traffic, or make office reconfigurations difficult. Its construction provides comfort without excessive thickness, and its "memory" promotes rapid recovery from depressions caused by heavy furnishings, making furniture arrangement simpler.

Plus, the new polyurethane cushioning is priced for installation throughout the office. In fact, since polyurethane cushion is designed to increase the wear-resistance and longevity of your new carpet, it's needed most in high-traffic, general workspaces. And now occupants can enjoy the cushioned comfort and that new carpet look in places they've never expected, and for a lot less than you think.

Carpet Cushion Reduces Noise and Energy Use in Your Office Space.

Polyurethane under workplace carpet does much more than provide cushioning. It's also among the best (and least intrusive) ways to reduce ambient noise in the office and is particularly appropriate in office environments where computer cubicles and modular workstations are used. Carpet alone provides only a fraction of the noise reduction that carpet padded with polyurethane carpet cushion does. Laboratory tests show cushioned carpet may offer more than twice the noise reduction coefficient of carpet alone.³ And, polyurethane carpet cushion enhances carpet's thermal insulation ability. Polyurethane carpet cushion has a high R-value, generally 1.0 or higher, higher than many other cushion options.⁴ Together with your carpeting, polyurethane cushion can significantly improve thermal insulation in your office, and reduce energy consumption.

"Putting a moderate cost carpet over a good cushion can have a dramatic impact on acoustics and appearance retention."

- Case Runolfson, CFM, Facilities Program Manager, Carter & Burgess

Carpet Can Actually Cost Less When You Use Cushion.

The benefits of commercial polyurethane cushion are best illustrated by taking the long view, a perspective familiar to most facility managers. The cost of installing polyurethane cushion is paid up front, when your new carpet goes down. But in life costing, money is saved by extending the life of your carpet and the length of time it looks new.

Polyurethane cushion is also “installer friendly.” It’s clean, allergen-free, lightweight, and easy to cut-to-size. The installation and adhesive guidelines are available from the cushion manufacturer based on the product and application specifics.

In a nationwide study of 57 carpeted workrooms, the median cost of direct glue-down installation was found to be higher than installation over separate carpet cushion when the expenses of floor preparation, carpet removal and floor repair were considered.² With carpet cushion, installation and replacement are quick, simple and straightforward, saving time and money that make using polyurethane carpet cushion smart planning and a wise investment. This is illustrated by a simple cost analysis. (See chart above.)

If that’s not enough, remember that carpet cushion enhances plushness and makes any carpet more comfortable. Even a lower grade, lower priced carpet feels better underfoot when cushioned with polyurethane cushion, which means you may realize extra savings in carpet choices.

LIFE CYCLE COSTING

The Carpet Cushion Advantage

Costs*	Direct Glue Down	With Carpet Cushion
Carpet	\$15.00/sq.yd.	\$15.00/sq.yd.*
Labor	\$4.75	\$5.00
Raw Materials	\$0.54	\$0.36
Cushion	\$ - - -	\$4.00
Total Cost per sq.yd.	\$20.29	\$24.36

Direct Glue Down

Example: Useful life of 3 years = \$6.76/yr actual cost

Up to 50% longer life with Carpet Cushion**

Extends useful life to 4.5 years = \$5.41/yr actual cost

Savings: \$1.35 per square yard.

*For comparison purposes only, costs vary widely from region to region.

**Tests on a contract grade, 36 ounce cut pile nylon carpet in accordance with CRI 100 and ASTM D 5252 Hexapod Tumbler Test, showed that appropriate cushion enabled the carpet to maintain satisfactory appearance retention 50% longer than for the carpet installed without cushion.

Cushion Makes Carpet Easier to Clean and Maintain.

And try this one on for size: separate carpet cushion actually makes carpet easier to maintain. We told a group of facility managers that, and they laughed. Until we explained: separate cushioning enables a vacuum to clean more efficiently because it provides air space between the floor, cushion and carpet. That means air circulates through the carpet backing, lifting more dirt with it. From 16% to 58% more dirt, in fact, according to lab results.⁶ Plus, because polyurethane cushion improves carpet’s durability, it resists premature delamination, which helps your new carpet maintain its appearance longer.

Polyurethane Carpet Cushion is Environmentally Sound.

Recycling-conscious facility managers will be pleased to know that polyurethane carpet cushion is fully recyclable. The polyurethane carpet cushion installed today is actually made from polyurethane cushioning that has been shredded and compressed into “bonded” polyurethane foam. And, of course, newly manufactured polyurethane carpet cushion, known as prime, is itself recyclable into bonded cushion. Most bonded and prime polyurethane cushion satisfies the Carpet and Rug Institute (CRI) Indoor Air Quality Testing Program. More information about this voluntary program designed to protect indoor air quality is available at www.carpet-rug.org.

DEFINITIONS

Virgin or Prime polyurethane is produced by slicing layers from a block of polyurethane foam.

Bonded (“Rebond”) polyurethane is cut from a fused log or block of chopped pieces of recycled and/or manufactured polyurethane foam.

Frothed polyurethane involves a process where polyurethane is mechanically whipped or chemically blown and applied directly to either the carpet backing as attached cushion, or to a woven or non-woven mesh and supplied as a separate carpet cushion.

The Ergonomic Benefits are Clear.

You can’t really measure “comfort.” It’s subjective. But it’s also pretty clearly intuitive: cushioned carpet feels better. While “comfort” is a nebulous term, “ergonomics” isn’t. Today’s facility managers are much more in tune with ergonomic concepts than in the past, and chances are you’ll be comfortable dealing with quantitative data supporting the use of carpet cushion. So what are the forces at work, and why should a facility manager care? Studies conducted at the University of Pittsburgh measured the “impact absorption value” of humans walking over cushioned and uncushioned carpet. Not surprisingly, cushioned carpet increased impact absorption dramatically, resulting in less stress on the lower legs and feet of occupants.⁵

“The use of a quality underlay can prolong the life of a carpet up to 50 percent. A moderately priced carpet laid over a good pad will absorb noise while giving a more comfortable feeling beneath the feet.”

- Teri Ianni Driscoll, ASID, IIDA, KA Inc. Architecture

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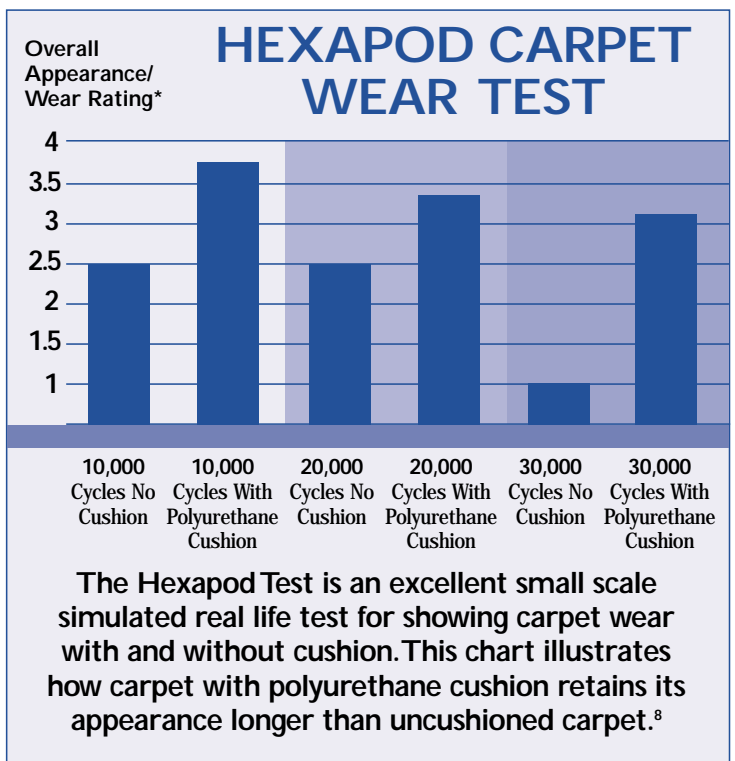
Science Proves the Value of Polyurethane Performance Again and Again.

Carpet cushion under office carpet can increase the life expectancy of your carpet by up to 50 percent.⁷ In extensive wear testing, the fibers in polyurethane cushioned carpet uniformly withstood impact better and retained more resiliency than uncushioned carpet.⁸ It's a very straightforward principle that has been proven in extensive specialized trials: the padding absorbs the shock of foot traffic, both to the carpet, and to your occupants' bodies.

Properly cushioned carpet subjected to walk tests, the "Hexapod Drum" test, and Phillips Roller Chair test, showed outstanding bottom line results: tuft bind retention, less delamination, less restretch, and markedly better appearance retention, not to mention greater comfort.⁹ In addition, surface defects in the floor below are only accentuated by direct glue-down, as cracks, gaps, joints and other defects have their impressions worn visibly into the carpet's surface by passing traffic.

"I would rather see more money put in the cushion and a little less in the carpet."

— Jim Lee, President,
Floor Installation Association of North America



*Key to Overall Appearance/Wear Rating
5 - Negligible/no change 4 - Slight change 3 - Moderate change
2 - Considerable change 1 - Severe change

Proper Installation is the Key.

Improper installation or mismatching the grade of cushion with the application can lead to a number of problems, all of which are easily avoided. To obtain the best possible performance from your cushion as well as your carpet, it's essential that you choose cushion of the correct thickness and density. Most residential grade carpet cushion is too thick for an office setting. Commercial grade polyurethane cushion typically must stand up to greater traffic, requiring a more durable product than its residential counterpart.

Cushion Installation Options

Each of the following methods is a proven route to a cushioned commercial carpet installation. Choosing the best installation approach for your facility should be an informed decision taking into account layout, usage, and the type and amount of traffic. Additionally, working with a qualified, well-trained installer experienced at installing carpet cushion for commercial applications is critical to achieving the best results.

Stretch-In: Carpet over separate polyurethane cushion stretched to tackless perimeter strips as is commonly seen in residential installations. Cushion installed under stretch-in broadloom carpet should, in most cases, not exceed 3/8" in thickness. The cushion should have a minimum 3.2-pound density when using prime - or 6.5-pound density when using bonded/rebond polyurethane. Most commonly found in executive office, boardrooms, and other well-defined, smaller areas. Stretch-in is also a common installation method in the hospitality market segment, including hotel rooms. Often used where a luxurious feel is desired. Generally, stretch-in application is not appropriate for large areas.

Double-Glue: Double-glue installations have become a standard approach to cushioned carpet in the commercial setting. The cushion is adhered to the floor and to the back of the carpet using special adhesives. It allows for a choice of cushion and the ability to accommodate most flooring configurations, while providing the ergonomic and carpet life-extending benefits for which it is designed. Most cushion manufacturers offer several proven products specifically designed for double-glue installation. Each has developed precise application instructions that are both practical and cost effective. Close adherence to their recommendations is vital to success. The double-glue method of installation is appropriate in virtually any commercial setting, small or large. For specific products and installation guidelines, you may wish to consult one or more of the resources provided on the back cover of the newsletter.

Attached Cushion: High-density polyurethane cushion is manufactured as an integral component of a carpet-cushion composite, often sold as a backing option on commercial carpet. The performance proven products have demonstrated ergonomic and appearance retention benefits and are available from many major carpet mills. Attached cushion commercial carpet has broad usage across market segments, typically specified in applications of moderate to extra-heavy traffic.

Regardless of your choice, it is beneficial to review the Carpet and Rug Institute's CRI Bulletin 104, *Standard for Installation of Commercial Carpet*, which can be obtained by clicking "Installation" on their web site at www.carpet-rug.org and then scrolling down to the "Industry Standards for Installation" section.

Polyurethane Carpet Cushion Fits Anywhere.

Most facility managers are responsible for multiple sites, often with square footage running into the millions. Carpeting it all can be a logistical nightmare if you can't standardize to some extent. Polyurethane cushion fits everywhere, is manufactured in a variety of grades and thicknesses appropriate for any application, and can be stretched-in, double glued, or attached under both broadloom carpet and carpet tiles. The polyurethane carpet cushion industry can supply virtually any site, anywhere, with any quantity of consistent, standardized products.



Now's the Time to Give Commercial Polyurethane Cushion a Try.

The best way to learn about any product is to try it. So we invite you to give polyurethane carpet cushion a trial run in the space you manage, whether in a single office suite, a general workspace, or an entire floor. As with any product, seeing - and in this case feeling - is believing, and we're confident that when you experience the difference polyurethane carpet cushion can make, you'll be back for more.

ENDNOTES

- 1 Survey among IFMA members conducted by Market Research Bureau LLC, June, 1999.
- 2 "Selecting the Correct Contract Carpet Cushion for Every Traffic Area." Carpet Cushion Council.
- 3 "Cushion Your Investment ... For Increased Acoustical Benefits." Carpet Cushion Council.
- 4 "Carpet Cushion and Radiant Floors," Radiant Panel Report, Lawrence Drake, Sept. 1997, Pg. 2.
- 5 "Selecting Carpet Cushion for Commercial Applications," by William H. "Bill" Oler, May 1999, p. 23.
- 6 "Selecting Carpet Cushion for Commercial Applications," by William H. "Bill" Oler, May 1999, p. 23. Citing ASTM F608-79.
- 7 2x as long: Great Floorcovering Ideas (GFI) - Separate carpet cushion vs. direct glue down, citing U.S. Testing Company, Inc. Test No. 46114. See also: "Beneficial Effects of Cushion on Carpet," by William Wald. On Carpet, June 1999, p. 5.
- 8 Based on data from testing by Robert Lockwood for Huntsman Polyurethanes. For purposes of simplicity, the averages for 5 different grades of polyurethane cushion (bonded and prime) were used.
- 9 These claims are based on Carpet Cushion Council tests conducted at Independent Textile Testing, Dalton, GA.



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AFPF is a Corporate Sustaining Member of IFMA, the International Facility Management Association

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CARPET CUSHION SUPPLIERS AND RESOURCES

Dalton Foam Division of NCFI

P.O. Box 4507, Dalton, GA 30721-1507
(800) 241-8778 • Fax: (706) 277-9409
Contact: Mike Jennings

Flex Foam

2016 West Fillmore Street, Phoenix, AZ 85009
(602) 252-5819 • Fax: (602) 258-2192
Contact: Michael Cortright
www.flexfoam.net

GFI Carpet Cushion

1000 Columbia Avenue, Linwood, PA 19061
(800) 497-3626

Future Foam

2210 Parview Road, Middleton, WI 53562
(800) 733-8063 • Fax: (608) 831-0326
Contact: Jim Murray ext. 313

Hickory Springs Mfg. Co.

P.O. Box 128, Hickory, NC 28603
(828) 328-2201 • Fax: (828) 328-2103
Contact: Bobby Bush
www.carpetcushion.com

Leggett & Platt

P.O. Box 10, Mount Airy, MD 21771
(800) 866-9446 ext. 262 • Fax: (240) 332-4545
Contact: Mike Cronin
www.lpurethane.com

Woodbridge Foam Corporation

8214 Kipling Avenue North, Woodbridge, Ontario, Canada L4L 2A4
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Contact: Noel Folkard



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www.polyurethane.org

Polyurethane Foam Association

P.O. Box 52246, Knoxville, TN 37917
rluedeka@pfa.org, Contact: Bob Luedeka
www.pfa.org

Carpet Cushion Council

P.O. Box 546, Riverside, CT 06878
(203) 637-1312 • Fax: (203) 698-1022, Contact: Bill Oler
www.carpetcushion.org

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If you are specifying carpet cushion for a commercial site, technical assistance is now available from AFPF. Visit our website at www.afpf.com, click on carpet cushion applications, and then click on our technical advice section. Or you can send your questions directly to info@afpf.com or call 1-800-696-AFPF.

