



Ergonomic Choice in Carpet Backing: Dow Delivers

Dow Polyurethane Technology: Carpet Backing

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Ergonomics and Value from Dow

Ergonomics in interior spaces is a vital business issue in today's competitive marketplace, creating an avenue for the designer or specifier to contribute to the client's bottom line. What's the payback for ergonomic investment? Increased productivity. In the case of floor covering, the up-front investment for improved ergonomics holds the potential for a productivity payback that accrues over time. Simply put, invest once, but collect over the life of the installation.

Productivity

In an extensive study on workplace productivity titled *Productive Solutions*,¹ the American Society of Interior Designers (ASID) surveyed 200 decision makers representing a broad cross-section of American businesses. Improved employee comfort was identified as one determinant in the quest for increased productivity. The study reported that 42% of the respondents had improved productivity by successfully implementing changes designed to increase employee comfort. Among the interior design changes were attention to ergonomic needs and creating a more aesthetically pleasing, comfortable work area.

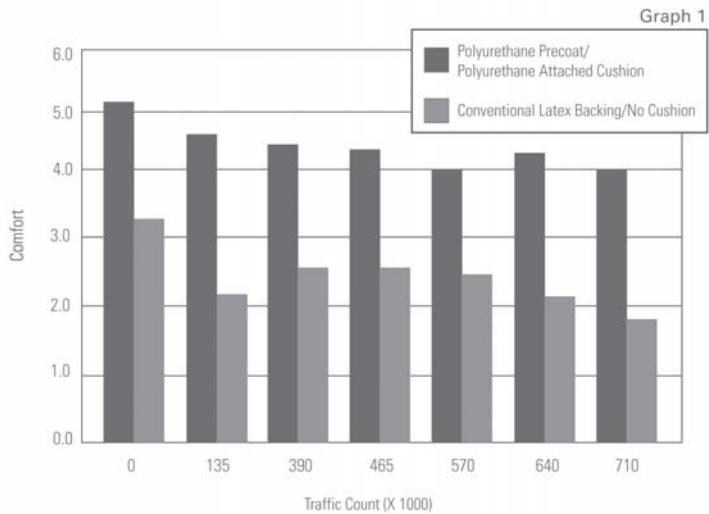
The role of carpet in meeting these needs was highlighted in this study and further emphasized in a second ASID study, *Sound Solutions*.² The latter report acknowledges the contribution of attached cushion carpet, stating, "New technology for manufacturing commercial carpet with integrated (attached) cushion allows for the greater use of cushion in the office environment, providing both superior acoustical and ergonomic properties." As the premier attached cushion for commercial applications, ENHANCER™ Technology* from The Dow Chemical Company is worthy of such recognition not by chance, but by design.

Research

A multi-year evaluation of comfort retention was conducted to establish the ergonomic contribution of ENHANCER Technology in a contract installation.³ A single style of commercial carpet – a widely used nylon multi-level loop construction (27 oz/yd²) – was used to create production samples with four different backings. The samples were installed in high-traffic lanes – up to 5,000 traffics per day – at the entrance and exit of an educational facility, providing both "clean" and "dirty" traffic.

Through surveys and measurements, the perceived comfort underfoot of the various carpet and backing combinations was established at defined increments of traffic counts. As can be seen in Graph 1, surveys were used to rank comfort from 1 to 6, with 1 indicating very uncomfortable and 6 indicating very comfortable. The carpet with ENHANCER Technology (polyurethane precoat and polyurethane integral cushion) provided greater comfort at the end of the high-traffic test than the non-cushioned carpet did when new. This finding parallels the results of studies conducted by Dr. Mark Redfern at the University of Pittsburgh, in which the Dow polyurethane cushion with a low-pile-height commercial carpet was found to be the best combination for minimizing leg fatigue.⁴

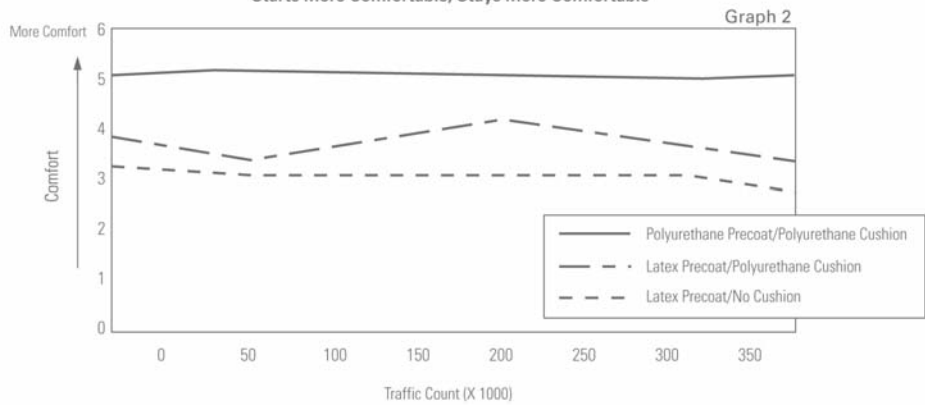
Carpet with ENHANCER Technology
 Greater comfort after 700,000 traffics than uncushioned new carpet



The attached polyurethane cushion produced from Dow technology is designed for long-term underfoot comfort. Combining the durability and aesthetics of a properly specified nylon commercial carpet with ENHANCER Technology is an obvious advantage for the specifier seeking style, performance, and comfort.

The polyurethane precoat also brings value in terms of performance over time, working synergistically with the integral cushion. As is shown in Graph 2, the combination of polyurethane precoat with a polyurethane integral cushion provided the best result, starting more comfortable and staying more comfortable compared to the other products. The graph also demonstrates that the decline in comfort is lessened considerably with the polyurethane precoat, especially at high traffic levels. The sample with latex precoat and an attached cushion was intermediate in response, offering a significant improvement over the direct glue, non-cushioned sample.

Polyurethane Integral Cushion
 Starts More Comfortable, Stays More Comfortable



Results

In each case, the carpet with polyurethane precoat and a polyurethane cushion provided the best performance in the overall comfort rating and retention of comfort. As the marketplace continues to value the ergonomic impact on productivity and employee satisfaction, a decision to specify ENHANCER Technology can be made with confidence.

If you would like more information or need assistance with specification of ENHANCER Technology, visit our web site at www.dowcarpetbackings.com or call us toll-free at 1-800-847-4212.

¹ American Society of Interior Designers (1997). Productive solutions: The impact of interior design on the bottom line [online]. Available: <http://www.asid.org>.

² American Society of Interior Designers (1999). Sound solutions: Increasing office productivity through integrated acoustic planning and noise reduction strategies [online]. Available: <http://www.asid.org>.

³ Fiest, J.R., Norton, M.A. & Orofino, T.A. (1995). A technical approach to characterizing perceived walking comfort of carpet. *Textile Research Journal*, 65(9).

⁴ Redfern, M. & Holbein, M.A. (1994). The effect of flooring on muscle response during locomotion. Research report, Human Movement Analysis Laboratory. Pittsburgh, PA: University of Pittsburgh.

* To offer these benefits, ENHANCER™ Technology must be used together with a polyurethane pre-coat.

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