



# UNIVERSAL

## TEXTILE TECHNOLOGIES

### **Ergonomic Choice in Carpet Backing: Universal Textile Technologies Delivers**

#### **Ergonomics and Value from UTT**

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 upfront investment for improved ergonomics holds the potential for a productivity payback that accrues overtime. Simply put, invest once, but collect over the life of the installation.

#### **Productivity**

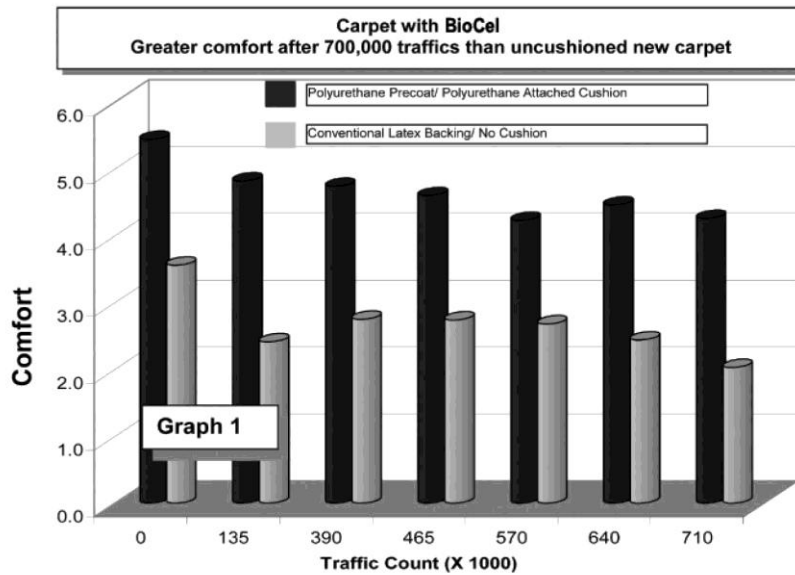
In an extensive study on workplace productivity titled Productive Solutions<sup>1</sup>, the American Society of Interior Designers (ASID) surveyed 200 decision makers representing a broad cross-section of American businesses. Improved employee comfort was identified as one determinant in the quest for increased productivity. The study reported that 42 percent 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.<sup>2</sup> 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 premiere attached cushion for commercial applications, BioCel™ polyurethane carpet backing from UTT is worthy of such recognition not by chance, but by design.

#### **Research**

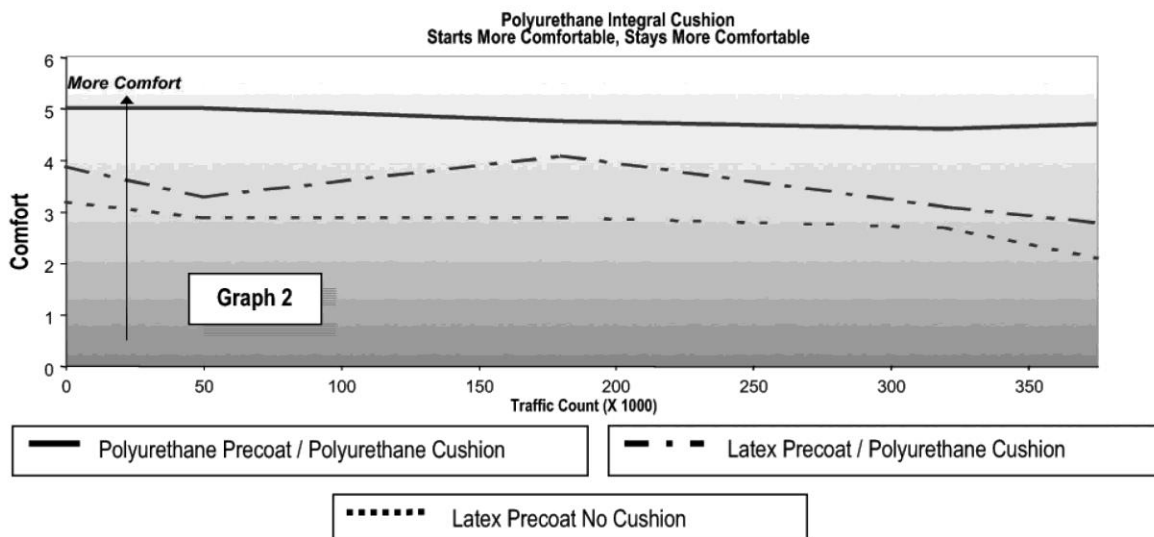
A multi-year evaluation of comfort retention was conducted to establish the ergonomic contribution of BioCel attached polyurethane cushion in a contract installation.<sup>3</sup> A single style of commercial carpet - a widely used nylon multi-level loop construction (27 ounces per square yard) - was used to create production samples with four different backings. The samples were installed in high traffic lanes - up to 5000 traffics per day - each 3 feet wide, 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 through 6, indicating very comfortable. The carpet with BioCel (polyurethane pre-coat 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 polyurethane cushion with a low pile height commercial carpet was found to be the best combination for minimizing leg fatigue.<sup>4</sup>



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

The polyurethane pre-coat 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 pre-coat 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 of comfort is lessened considerably with the polyurethane pre-coat, especially at high traffic levels. The sample with latex pre-coat and an attached cushion was intermediate in response, offering a significant improvement over the direct glue, non-cushioned sample.



## Results

In each case, the carpet with polyurethane pre-coat 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 UTT polyurethane can be made with the confidence of a proven technology.

If you would like more information or need assistance with specification of BioCel polyurethane carpet backing, visit our web site at [www.universal-textile.net](http://www.universal-textile.net).

## References

1. Productive Solutions: "The Impact of Interior Design on the Bottom Line," A professional paper published online at [www.asid.org](http://www.asid.org) by American Society of Interior Designers, 1997.
2. "Sound Solutions: Increasing Office Productivity through Integrated Acoustic Planning and Noise Reduction Strategies," A professional paper published online at [www.asid.org](http://www.asid.org) by American Society of Interior Designers, 1999.
3. Fiest, J. R., Norton, M. A., and Orofino, T. A. "A Technical Approach to Characterizing Perceived Walking Comfort of Carpet." Textile Research Journal. (1995): 65(9).
4. Redfern, M., and Holbein, M. A. "The Effect of Flooring on Muscle Response During Locomotion." Research report, Human Movement Analysis Laboratory, University of Pittsburgh, Pittsburgh, PA, 4/3/1994.

For additional information:

In the U.S. and Canada  
Contact Universal Textile Technologies (UTT)  
204 W. Industrial Blvd, Dalton, GA 30720  
706.277.3778 Fax: 706.277.1837

[www.universal-textile.net](http://www.universal-textile.net)  
[info@universal-textile.net](mailto:info@universal-textile.net)

NOTICE: No freedom from any patent owned by UTT or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. UTT assumes no obligation or liability for the information in this document. NO WARRANTIES ARE GIVEN: ALL IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE ARE EXPRESSLY EXCLUDED.

Published 987505.04082