

# Make Radically Better Wheelchair Cushions

Powered by **Carbon**



# Why Carbon for Wheelchair Cushions?



Blend comfort cushioning with stable support for functional performance



Increase airflow to dissipate heat and reduce humidity with lattice design



Use pressure mapping or shape capture to offer customization



Enable improved cleanability with Carbon's durable elastomer resins and open cell lattices



Resist compression and deformation with Carbon elastomers



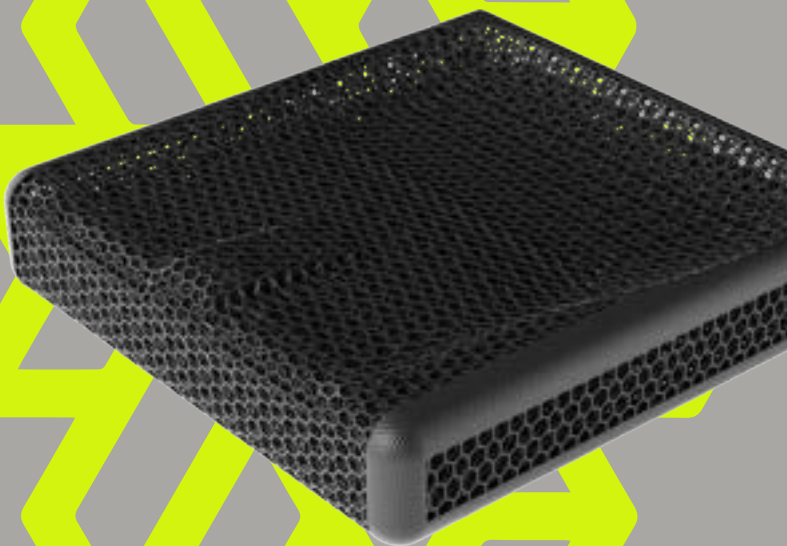
Consolidate support and comfort layers with multizonal lattices to ease assembly and simplify manufacturing process



Get to market quickly by reducing product development cycles with the Carbon platform



Manufacture with the proven Carbon Production Network



## Design Insights:

- Develop multizonal latticed designs that can be tuned for both comfort and functional performance, or even customized to specific users, providing stability while distributing pressure, resisting compression, and increasing airflow.
- Compared to traditional foam, air, or gel cushions, designs made with the Carbon platform can help dissipate heat, reduce moisture, and distribute pressure more evenly to manage microclimates around the skin, due to the open cell structure of the lattice design.
- Cushions made with Carbon's lattice technology offer wheelchair users a new option providing reliable, adaptive support with improved durability and cleanability.

### USE CASE:

## Tarkka Reimagines Wheelchair Comfort

The standard foam used in traditional wheelchair seats traps heat and moisture, which can lead to skin breakdown, wound development, and infection. To address these issues, Tarkka worked with Carbon to design and produce its Tetrax™ custom wheelchair seating solution. Tarkka's latticed seats are designed to integrate with existing wheelchairs while supporting optimal resting seating posture and relieving pressure where needed.



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## MATERIALS

- **EPU Pro:** High-performance elastomer with expanded range of durometers and novel haptics
- **EPU 46:** Tunable softness, faster print time, stiffer build, 40% bio-based, and can be printed in a variety of colors
- **EPU 45:** Energy damping and strain-rate-sensitive for peak impact zones

## CARBON DESIGN ENGINE™

Carbon Design Engine™ online software empowers designers to make precisely tuned, high-performance latticed padding and other components for products like saddles, helmets, and insoles. It reduces and usually eliminates the need for the tedious, manual editing of struts or structures post-generate and automatically resolves lattice features, both large and small, while robustly transitioning between different zones inside the same part for tunable performance.

## SUPER STATS:

- **6 of the top 10** finishers in the Tour de France '25 rode saddles produced on the Carbon platform.
- **6 of the top 8** helmets rated safest by the NFL in '25 feature Carbon technology in their latticed helmet.
- **Over 20% of helmets in the NHL** utilize Carbon technology.
- **Millions of midsoles** printed for adidas shoes.

## CUSTOMIZATION

Carbon's methodology enables rapid and efficient production of customized parts tailored to each user. With Carbon's workflow-driven approach, customization can be automated doesn't have to be expensive, making it accessible and feasible.

## DIFFERENTIATION

The Carbon platform can produce a wide range of designs, which enables you to make your product stand out, whether it's a distinct performance result or a unique aesthetic using textures or lattices.

## APPLICATIONS MADE WITH THE CARBON PLATFORM:

- Saddles
- Helmets
- Footwear
- Backpacks
- Gloves
- Grips
- Bra Cups & Apparel
- Workwear
- Protective Padding
- Performance Seating
- Wheelchair Cushions

## GET FROM IDEA TO PRODUCTION-FAST

With the Carbon platform, you can iterate rapidly and print a new version without having to change tooling. Because you can prototype with the same materials used in the final product, you can start printing production parts as soon as your design is ready.

## CPN

The Carbon Production Network (CPN) is a global ecosystem of leading industry design firms and contract manufacturers who are experts in the Carbon idea-to-production platform. Find a CPN partner based on your needs and leverage the power of the Carbon platform to design, develop, and produce radically better products.

[FIND A CPN PARTNER](#)

## WANT TO GET STARTED?

Reach out to:

[seating@carbon3d.com](mailto:seating@carbon3d.com)

to learn more.



# PERFORMANCE ENHANCING TECHNOLOGY

Powered by **Carbon**

**Carbon**<sup>®</sup>

Carbon, Inc.  
1272 Borregas Ave,  
Sunnyvale, CA 94089  
+1 650.285.6307

[www.carbon3d.com](http://www.carbon3d.com)