



## Designing a Flow for Growth

SynTec is the largest provider of school bus seats in North America, and business is booming for the High Point-based manufacturer. A year ago, in fact, Director of Operations Justin Willcox noticed that SynTec’s facility was starting to become crowded and difficult to navigate, due to the extra equipment that management had brought in to keep up with its customers’ demands.

“We did not have a road map for how we would support our continued growth,” says Willcox. “We were putting machinery in any available open spot.”

Willcox wasn’t thinking of streamlining the plant’s layout, at first; initially, he was more concerned with correcting the conditions that might pose serious safety concerns, such as operating forklifts in areas with heavy pedestrian traffic. As an NC State graduate, his first thought was to see if his alma mater had any resources that might help resolve those potential issues. Willcox ran an internet search and discovered Industry Expansion Solutions (IES), the client-focused unit of the College of Engineering.

Willcox also discovered that IES’ solutions portfolio goes much deeper than safety and health training; IES also offers professional industrial engineering services, as well as on-demand students whose project work is supervised IES Industrial Engineer. Willcox’s interest was sparked. Syntec didn’t have an industrial engineer on staff, and he saw the unique opportunity of auditioning several students for that position while completing the layout revisions that the plant needed right away. He reached out to his IES Regional Manager, who arranged for a meeting with the organization’s Lead Industrial Engineer. The engineer developed a strategy for revising the layout of the facility and brought six engineering students on board as part of the project.

### **SynTec Challenge**

At SynTec, a manufacturer of state-of-the-art school bus seats, an overcrowded manufacturing facility posed potential safety hazards for workers

### **IES Solution**

Industrial Engineering Services

### **Benefits**

Not only was congestion eliminated, but production units increased while overtime hours decreased.

The plant was sectioned and equipment and distances were measured, tallied and entered into a module document alongside photographs. Current and future state drawings were produced with AutoCad, and a simulation model was built using Simul8, which allowed several scenarios to be run on the computer which allowed current state and future state key performance indicators to be compared.

Before the revisions were even completed, efficiency took an upward tick. "We've gone from supporting 1100 seats per day to more than 1300 seats per day, and eliminated hours of overtime," says Willcox. "A lot of it had to do with solving congestion in the plant."

SynTec received recommendations for future improvements as well, including the use of height-adjustable docks for improved ergonomics, the

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organization of carts by category, and the identification and marking of 5S areas to promote consistency and avoid safety hazards.

Additionally, Willcox found the permanent employee that he had been hoping for; one of the six students, was hired full-time, and will continue to evaluate the layout of both plants to identify opportunities for further improvement.

This fiscal year, SynTec's sales rose from \$40 million to \$50 million, and with further improvements pending, it looks like a smooth ride ahead.

**NC STATE**

Industry Expansion Solutions

Industry Expansion Solutions (IES) is the engineering-based, solutions-driven, client-focused extension unit of NC State's College of Engineering. Our broad portfolio and deep industry expertise help organizations grow, innovate and prosper. Our extensive partnerships with business, industry, education and government generate a unique culture of collaboration that provides access to cutting-edge expertise, research, and technology.

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