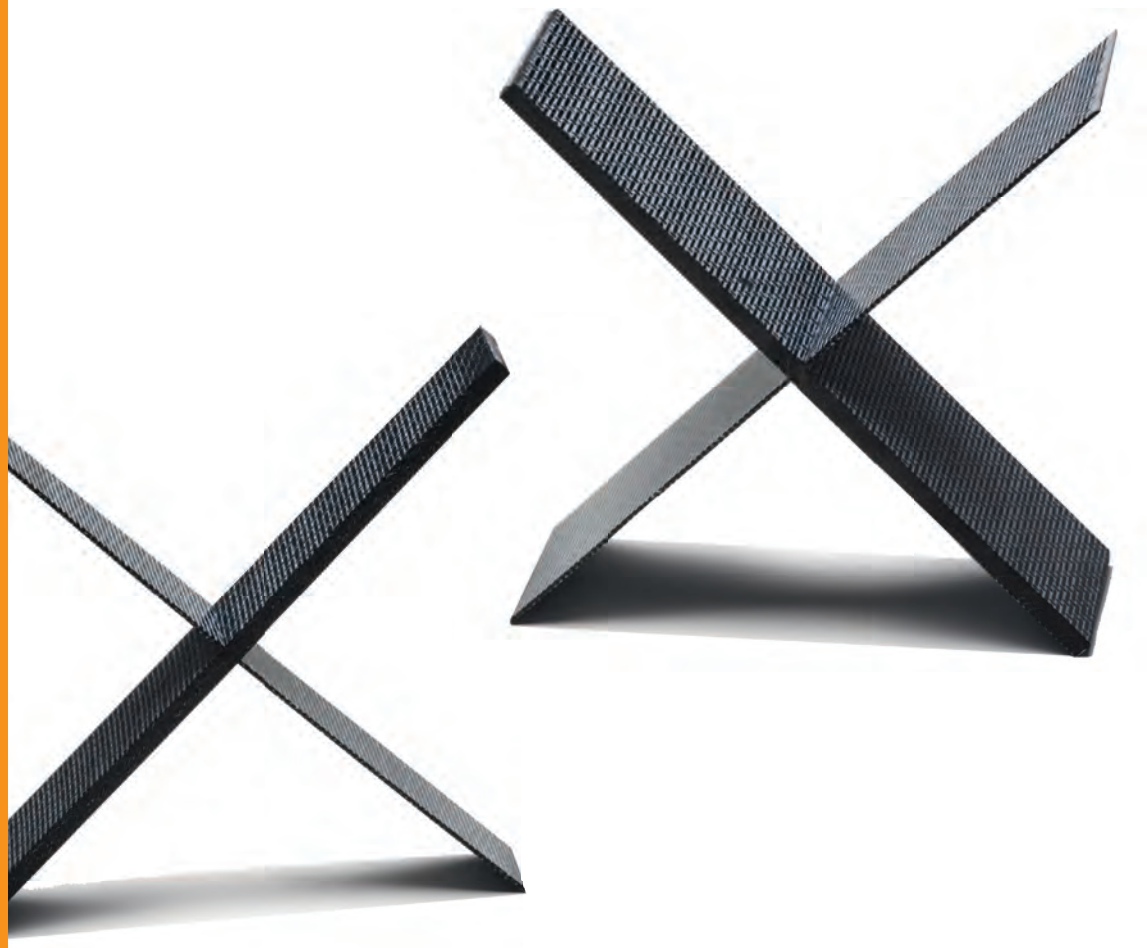
ALBANY
Engineered Composites

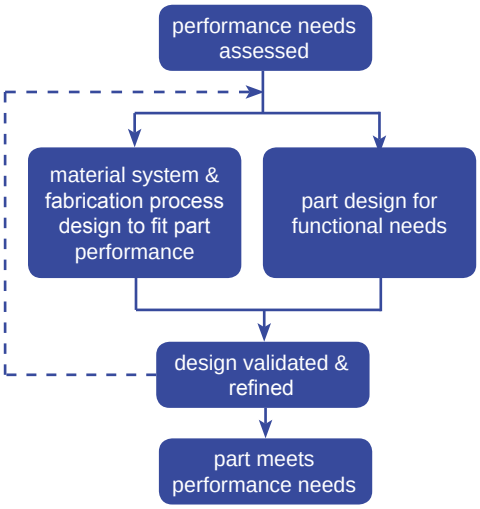
3D Composites

What does AEC do? Helps design, simulate and manufacture 3D composite parts that are lighter than metallic alternatives.



What Are 3D Composites?

3D composites are a family of composites that use an interlocking fiber reinforcement pattern in the preform to provide part strength, durability, damage tolerance, and impact resistance among other properties. These materials are most effectively designed specifically per part and application. They are often selected to replace metal when other lightweight materials, most often 2D composites, can not provide the necessary structural support. AEC's customers benefit from our 3D composite experience, simulation capabilities, and full production support to help find lightweight solutions when they otherwise can not.



3D composite part design process.

Experience with 3D Composites

AEC has supported the design and manufacture of 3D composite parts for aerospace applications, including:

- fiber architecture design, product development and manufacturing (weaving and molding) of compressor fan components for the CFM® LEAP™ aircraft engine
- production of components for the Rolls Royce Liftfan® used in the F-35B aircraft
- fiber architecture design, product development, and manufacturing (preforming) for Boeing 787 main landing gear braces

AEC has multiple simulation and analysis tools it has developed in-house to support the design and fabrication of 3D composites.

Using Simulation to Reduce Design Time

AEC's proprietary simulation software:

- supports the design and fabrication of our 3D composite products
- is used in the development of our manufacturing processes and equipment
- complements physical testing at the coupon level, detail level, subcomponent level, and assembly level - reducing the amount of physical prototyping required to develop new parts

Using these tools as a foundation, AEC can both provide FEA models for customer simulation efforts or perform part simulation work in house, as well.

Concept Development to Manufacturing

AEC's organization is designed to support products from inception through production. Our 45,000 square-foot (4200-square-meter) Research & Technology (R&T) Center supports new technology development, concept development and prototyping for early part design efforts. Our product development and manufacturing teams utilize continuous improvement and operational excellence standards to reduce part and fabrication costs while transitioning parts into production. Our operations team can additionally support the development, installation, management and oversight of partnership-driven production facilities.

AEC's product development efforts transition parts from initial design through to process capable production ready states.

About Albany Engineered Composites (AEC)

AEC designs, develops, and manufactures advanced composite components. Our core strength is the ability to produce highly tailored components – including 3D, integrated, and complex 2D composite structures. We have specialized research and technology facilities for new technology development and prototype demonstration, as well as integrated product development, continuous improvement, operational excellence, and AS9100C and ISO 9001:2008 manufacturing capabilities to support cost-effective production efforts.

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