
Page Name: Planning

URL or WF ref: www.appliedcomposites.com/advanced-manufacturing/planning/

Browser title: Planning/Advanced Manufacturing

Keyword(s): (none indicated)

H1:

Planning

H2:

Where Rigorous Assurance Begins

(More information from the client needs to be supplied to discuss the details of the planning process, and the philosophies that drive it.)

Page Name: Tooling

URL or WF ref: www.appliedcomposites.com/advanced-manufacturing/tooling/

Browser title: Tooling/Advanced Manufacturing

Keyword(s): Composite tooling, aircraft tooling, CNC machining services

H1:

Tooling

H2:

Dedication to your project's foundations

Good tooling is the foundation for a quality part. That's why, for the last 30 years, we have dedicated ourselves to providing the best tooling and processes, that can support the advanced composites developing in the aircraft industry. When others were focusing just on the standard repair jobs, we were investing in our people; so we could offer a nimble, smaller shop with the rare ability to do state-of-the-art aircraft tooling and CNC machining services. It's an investment we believe is paying off for our customers.

With our in-house five-axis CNC machines, we can offer replacement parts tooled with custom precision. But it doesn't stop there. We have also supplied many customers with masters, jigs, fixtures, autoclave bond tools and more. We pride ourselves in taking on the tough jobs, offering our customers some of the most complex molding configurations, and producing dimensionally accurate, high-quality laminates. We continue to invest, so we can create improvements in tooling that can improve quality, lower costs, and reduce time from purchase order to delivery. Whether you need a prototype/proof of concept, or a custom repair, our highly skilled staff can fill your order with precision, to your exacting quality standards.

Our equipment includes:

- 27.5' x 13.5' x 6.5' Cronus moving bridge 5-axis CNC machining center with +/- .005" accuracy
- 5 axis high speed CNC 14'x6'x40" +/- .008" accuracy
- 5 axis CNC High speed router 8'x 5'x 39" +/- .020" accuracy
- Delcam CAD/CAM
- General Pattern/Model Shop Equipment
- Disc Sanders
- Band Saws
- Planers
- Jointers

For more information about our tooling capabilities, contact our customer service department.

Page Name: Laminating

URL or WF ref: www.appliedcomposites.com/advanced-manufacturing/laminating/

Browser title: Laminating/Advanced Manufacturing

Keyword(s): Laminating, laminating services

H1:

Laminating

H2:

Superior systems for superior performance and TATs

Part of being a nimble manufacturing facility is being able to generate precision laminations quickly. At ACE, we've committed to this by investing in augmented reality lamination systems that allow us to produce a perfect lamination placement, every time, while eliminating expensive templates. The system radically decreases time-to-first-article delivery.

It works by combining input from laser projectors, a smart digital camera taking live video of the tool, and guidance from the coordinate measuring machine. It creates an image of the fabric ply to be stacked next in sequence. When the operators use the machine, they see a computer-generated meshed image, including seed point and origination, played as an augmented reality video.

Our laminating facility consists of a wide array of equipment, including:

- Gerber Composites Cutter 20'
- Traveling Head steel rule cutting press 60"x 25"
- 5000 square foot Clean Room
- Anaglyph augmented reality laminate assist equipment (Plymatch)
- Laser Projectors (Assembly Guidance)
- Over 1000 square feet of 0°F freezer storage
- Three Anaglyph augmented laminate assist (PlyMatch) systems, with assembly guidance laser projectors, located in our CCA clean room

Page Name: Cure

URL or WF ref: www.appliedcomposites.com/advanced-manufacturing/cure/

Browser title: Cure/Advanced Manufacturing

Keyword(s): (none indicated)

H1:

Cure

H2:

Molding a more precise product

With our Nadcap accreditation, ACE is providing its clients with the most comprehensive composite manufacturing quality control accreditation for special processes. It's a designation that's especially apparent in our curing department.

We've recently made some capital improvements to expand our curing capabilities, including a new 10' x 24' autoclave allowing us to cure larger pieces at high temperatures and pressures. And, with our 80- ton platen press, we can form parts large and small with precision.

At ACE, we are committed to being nimble enough to work on a cutting-edge variety of composites, metals and woods. Our curing operation is a key part of this strategy.

We offer the following capabilities and equipment:

- 4 Autoclaves to 6.5 Ø x 20' 400°F, 100PSI
- 10' Ø x 24' autoclave
- 3 Ovens to 16' X 8' X 6' @ 400°F
- Platen Press 80 ton 38"x 30"x 21" daylight

Page Name: CNC Trim

URL or WF ref: www.appliedcomposites.com/advanced-manufacturing/cnc-trim/

Browser title: CNC Trim/Advanced Manufacturing

Keyword(s): CNC aircraft, CNC machining

H1:

CNC Trim

H2:

Never cutting corners

In the aircraft industry, the demand for high-tech materials and precision designs never ends. That's why ACE puts an emphasis on having a full selection of CDC machining centers and lathes which can master everything from titanium to stainless, exotic alloys and high-temperature plastics. We pride ourselves on being able to offer some of the most advanced laminates and alloys available for aircraft production. And our CDC trim operation is up to the task of keeping them all machined and milled, with precision.

We offer the following machining capabilities:

- Five-axis CNC cutting of honeycomb
- 27.5' x 13.5' x 6.5' Cronus moving bridge 5-axis CNC machining center with +/- .005" accuracy

Page Name: Assembly

URL or WF ref: www.appliedcomposites.com/advanced-manufacturing/assembly/

Browser title: Assembly/Advanced Manufacturing

Keyword(s): Aircraft assembly, aerospace assembly

H1:

Assembly

H2:

The right job, with the right people

Any company can open up an aircraft assembly shop with the right equipment and investment. But who is running those machines?

When you bring your projects to ACE, you can be assured that only the most experienced mechanics and technicians are putting together your aircraft. In fact, our assembly staff boasts _____ years of combined experience. We require our facility and staff to be up to date on certifications for our clients and regulatory agencies, and invest heavily in training. When we use “rigorous assurance” to describe our company, nowhere is this more apparent than in our assembly division.

Working at our 50,000 square foot manufacturing facility in Indianapolis, our staff utilizes the latest technology to provide our customers with quality machining services, in short and long production runs. ACE has 30 years of industry-leading expertise in working with all metals, plastics, exotic materials, castings and composites.

Our facility holds a wide range of horizontal and vertical machining centers with 3, 4 and 5 axis capabilities. Our equipment also includes CNC lathes (up to 5 axis) with milling and drilling capabilities, as well as various machines for grinding, turning, milling, drilling, cutoff and honing. When you bring your job to ACE, you can be certain your project will be assembled to spec, with precision, and fully vetted and tested. And with the nimble set up of our relatively small operation, we can get your job done with faster TATs than you might expect.

Page Name: Paint

URL or WF ref: www.appliedcomposites.com/advanced-manufacturing/paint/

Browser title: Paint/Advanced Manufacturing

Keyword(s): Aircraft painting, airplane painting

H1:

Aircraft paint department

H2:

The finishing touch that is meant to last

When your aircraft is finally ready for its paint, we take great pride in creating a finish that's not just up to specification, but ready to face the elements for the long haul.

Our paint department has plenty of space and expert staff to make sure your aircraft painting job gets done right the first time.

Our paint facility includes:

- Environmentally controlled Spray Booth 24' x 24' x 15'
- 2000 square foot Prep room
- 800 square foot cure and dry room

Provide us with your logo artwork and specifications for your aircraft's markings, and we can reproduce your design with precision. Don't have something in mind? Not to worry. We can work with that too, offering you a paint design that meets your aesthetic, while meeting FAA standards.

Page Name: Prototype

URL or WF ref: www.appliedcomposites.com/advanced-manufacturing/prototypes/

Browser title: Prototype/Advanced Manufacturing

Keyword(s): Prototype machining

H1:

Prototypes

H2:

Your ideas, realized.

Have a preliminary design for a new aircraft part or structure? Do you need a new part designed for a damaged aircraft? Let ACE help. We can work hand in hand with your designers to create a product prototype that can take you from testing, through approvals. And, as a smaller, more nimble operation, we can work your project smoothly into our schedule, and provide timesaving, TAT-slashing production shortcuts, to boot.

With 30 years of experience in composites, tooling and aircraft testing and design, ACE can help you take your designs from the drawing board to reality with rigorous assurance. We have some of the most advanced equipment in the industry for designing, laminating, tooling and curing composites made with everything from plywood, to foam, fiberglass and wood. Our manufacturing shop can fabricate and tool with metal – whatever your specifications demand.

When you submit your design to us, our designers can work with you to modify your OML to match your specifications for aerodynamics, weight, strength and flexibility. We can help you optimize your layup with the right composites and laminate materials, moving your project through our structural design, tooling and manufacturing departments.

When we're done, you'll have a composite part that's ready for testing. And that's where ACE can truly excel. Our testing facilities are cutting edge, with equipment that can help you gather the results you need to submit your design for licensing and regulatory review.

No matter what your need, we're here to help you create the custom solutions for your aircraft design. For more information, contact our customer service department today.

OSD

ACE-Advanced Manufacturing
Website

Page Name: Inspection QC/Applied Composites Engineering
URL or WF ref: www.appliedcomposites.com/advanced-manufacturing/quality/
Browser title: Inspection QC
Keyword(s): (none indicated)

H1:
Quality Control

H2:
Your specifications, with precision

At ACE, quality control isn't something we do at the end of our manufacturing process. It is our process. From your RFQ to the finished product, our end-to-end ERP system drives all our processes.

We start with your RFQ. Our engineers and manufacturing teams ensure all the parts you specify – including those for the aeronautical industry – meet your specifications, and can be manufactured within our quality tracking system.

Our ERP system is integrally tied with AS100C standards, which are programmed into our on-floor, computer-controlled manufacturing equipment. As your part is produced, we are continuously tracking data in our system, comparing the quality specifications you have set against the item being produced. All production data is electronically collected from the floor in real time – including labor hours, materials used and process parameters.

This kind of tracking produces not just precise products, but precise reporting, too. The reports we generate ensure we meet our certifications from AS9100C and Nadcap.

When it is time to test your product, we have just the capabilities you need, both in house, and through partners. ACE can conduct dozens of destructive tests, completely in house. Located only a mile away from our facility, our partner Talon Labs handles all our non-destructive testing such as A and C scans.

[Click here](#) for a full listing of all our available tests.



H3:

Our equipment

- CMM, DEA Ghibli, 0.0007" volumetric accuracy. 9'x5'x4' envelope
- Romer Arm, 12' Diam capacity 0.0017" accuracy. (Reverse Engineering capability)
- BEMCO Environment Chamber (humidity 5-95% and temperature to 350°F)
- TG by Thermal Mechanical Analyzer (TMA) – Seiko/Perkin Elmer
- TG by Differential Scanning Calorimetry (DSC) – TA Instruments
- Shimadzu Universal Test Machine up to 550°F testing
- ½ Ton, 600°F Lab Press
- Precision Balance .00001 g
- Muffle Furnace to 2,300°F
- Lab Oven to 600°F
- Specimen preparation equipment
- RTCA Compliant /FAA Approved Anechoic Chamber
- CMM 9'x4'x5' 0.0007" volumetric accuracy
- Portable CMM 11.5' envelope, +/- 0.0017" accuracy – Romer 7 axis
- Tg by TMA
- Tg by DSC
- Sub micron lab scales
- Shimadzu Universal Test Machine – 50 kN
- Lab Furnace to 3000°F
- Fume booth for acid method of resin content
- PC DMIS Dimension Analysis software

OSD

ACE-Advanced Manufacturing
Website