

ADVANCED MATERIALS IN UTAH



From Aerospace to Outdoor Products, Utah Knows Composites

Industry

- Utah is proud to be home to companies like **Boeing, Northrop Grumman, Hexcel, Black Diamond, Kihomac**, and many others. Beginning with the strategic missile programs of the 1950's, Utah has grown to one of the highest concentrations of advanced materials companies in the nation and is home to more than 16,000 workers employed by advanced materials-related firms.
- The Utah Aerospace Composites Industry Working Group (ACWG)** meets quarterly to advocate for aerospace composites industry issues in Utah. The **Utah Advanced Materials and Manufacturing Initiative (UAMMI)** supports the advanced materials industry by bringing together public, private, community, industry, and education partners to assure growth in the sector.
- Utah has a thriving Advanced Materials industry that serves the **Aerospace, Outdoor Products, and Renewable Energy industries**. These three complementary industries, with their strong ties to the advanced materials market, allow for a strong local customer base for relocating and expanding companies.



Business Climate

- Forbes Magazine has recognized Utah as **“The Best State for Business”** six of the past eight years, ranking 3rd in 2019.

ON THE COVER

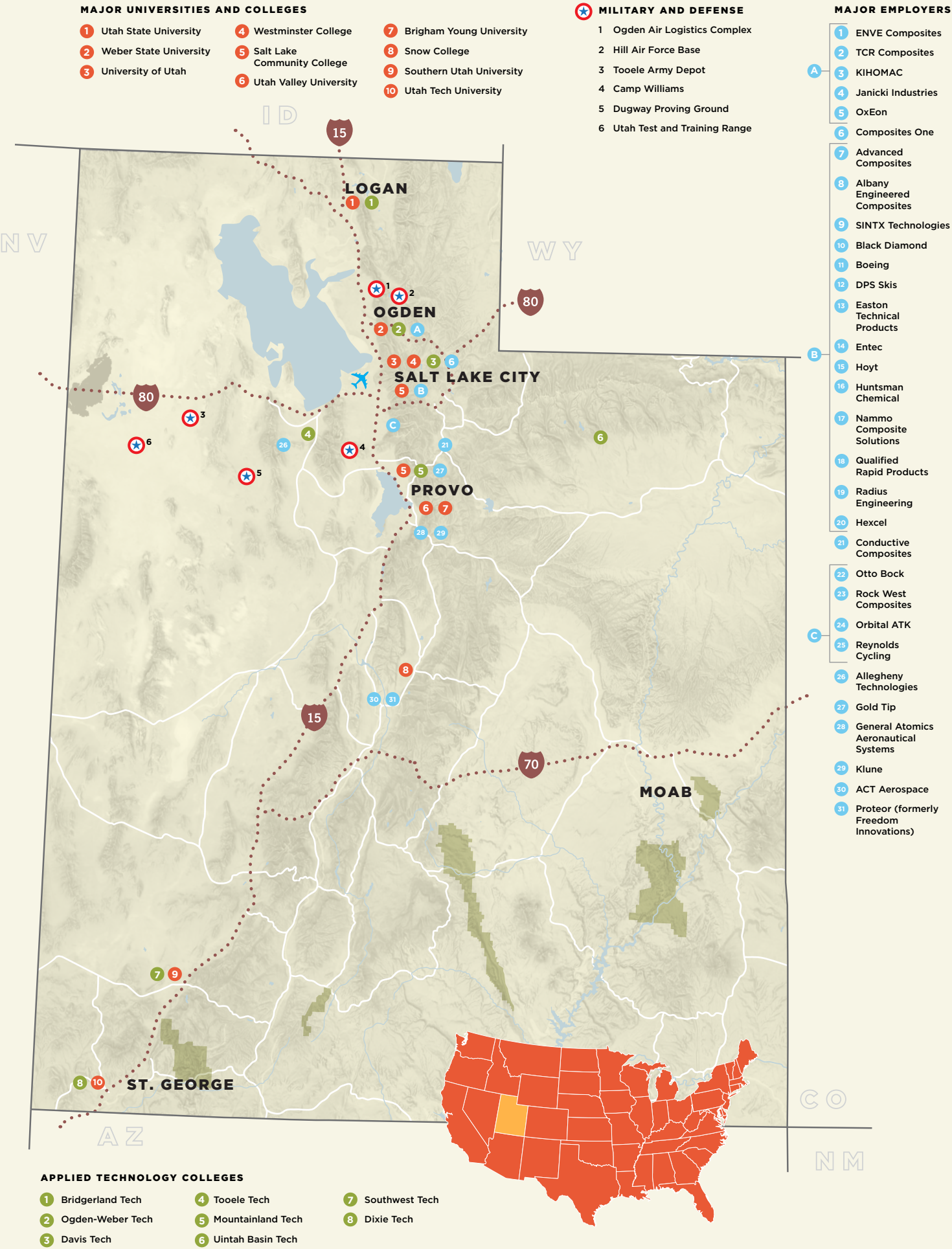
Nammo Composites Drive Shaft

Carbon composite attached to bright orange aluminum alloy. Made to handle the extreme movement and temperature found within the transmission of a high-end sportscar.

- In 2021, Utah's post-performance tax incentives program facilitated over **19,800 new jobs and more than \$740M in new state revenues**.
- In 2022, the Tax Foundation ranked Utah's "Total Tax Climate" as the **10th best in the nation**. Since 2011, Utah has eliminated or modified over 400 business regulations to ease the burdens placed on businesses.

Workforce

- Utah has high employee concentrations of materials engineers, materials scientists, engineering technicians, and many other advanced materials related occupations. **Utah also has the 3rd lowest union membership rate in the nation at 3.5% (2021).**
- Six colleges and universities** from around the state offer training and specialized programs in the composites field and annually graduate hundreds of qualified workers at all levels of education and experience.
- Utah has an abundance of advanced materials companies working in the aerospace and outdoor products industries that have **industry recognized expertise** in advanced materials applications.



Major Advanced Materials Employers

COMPANY	EMPLOYEES*	DESCRIPTION
ACT Aerospace	100-249 map #30	ACT Aerospace fabricates advanced composite structures including hand layed-up laminate construction, filament winding, composite compression molding and large oven curing.
Advanced Composites	50-99 map #7	Advanced Composites is a filament winding company that specializes in aerospace, defense, and commercial applications.
Albany Aerostructures Composites	250-499 map #8	Albany Aerostructures Composites designs, develops, and manufactures advanced composite components for commercial and military structures for Boeing, Lockheed, Sikorsky, USAF, Airbus, and others.
Allegheny Technologies	100-249 map #26	Allegheny Technologies is a specialty materials and component supplier, specializing in titanium and titanium alloys.
SINTX Technologies	20-49 map #9	SINTX Technologies is a manufacturer of silicon nitride based medical implants that are fully FDA approved for spinal surgery with a wide variety of devices and systems.
Black Diamond	100-249 map #10	Black Diamond designs and manufactures outdoor gear including carbon composite skis and climbing equipment.
Boeing	1000-1999 map #11	Boeing's Utah composites manufacturing site focuses on fabrication of composite vertical fin and horizontal stabilizer components for the 787-9 Dreamliner.
Composites One	20-49 map #6	Composites One is a distributor of composite materials of all types. They have strong technical product support and local services including: product data, process audits, compliance, and regulatory consulting.
Conductive Composites	20-49 map #21	Conductive Composites is a manufacturer of conductivity-based polymer and composites used in aerospace, defense, and specialty construction.
DPS Skis	50-99 map #12	DPS Skis designs and manufactures snow skis for ultra high performance skiing using a fusion of space-age carbon fiber technology and groundbreaking shaping strategies.
Easton Technical Products	100-249 map #13	Easton Technical Products manufactures arrow shafts and archery accessories, as well as backpacking tents, snowshoes, trekking poles, and precision OEM tubing.
Entec / Toray	20-49 map #14	Entec is a filament winding machine manufacturer that has developed and supported machinery for pultrusion, fiber placement, spool winding, towpreg and prepreg production, fiberglass pipe, and tank production.
ENVE Composites	100-249 map #1	ENVE Composites manufactures carbon fiber bicycle products including frames, wheels, components, and accessories.
Proteor (formerly Freedom Innovations)	50-99 map #31	Proteor, formerly Freedom Innovations, develops lower limb prosthetic solutions in close collaboration with prosthetists and amputees.
General Atomics Aeronautical Systems	100-249 map #28	General Atomics Aeronautical Systems manufactures Remotely Piloted Aircraft (RPA) systems, radars, and electro-optic and related mission systems solutions.
Gold Tip	5-9 map #27	Gold Tip manufactures carbon graphite equipment for archers and bow hunters, specializing in high quality carbon arrows.
Hexcel	500-999 map #20	Hexcel manufactures lightweight, high performance composites including carbon fibers, reinforcements, prepregs, honeycomb, matrix systems and adhesives.

*SOURCE: Utah Department of Workforce Services



ENVE Composites, located in Ogden, UT designs and hand builds carbon wheels and component systems for mountain and road bikes.

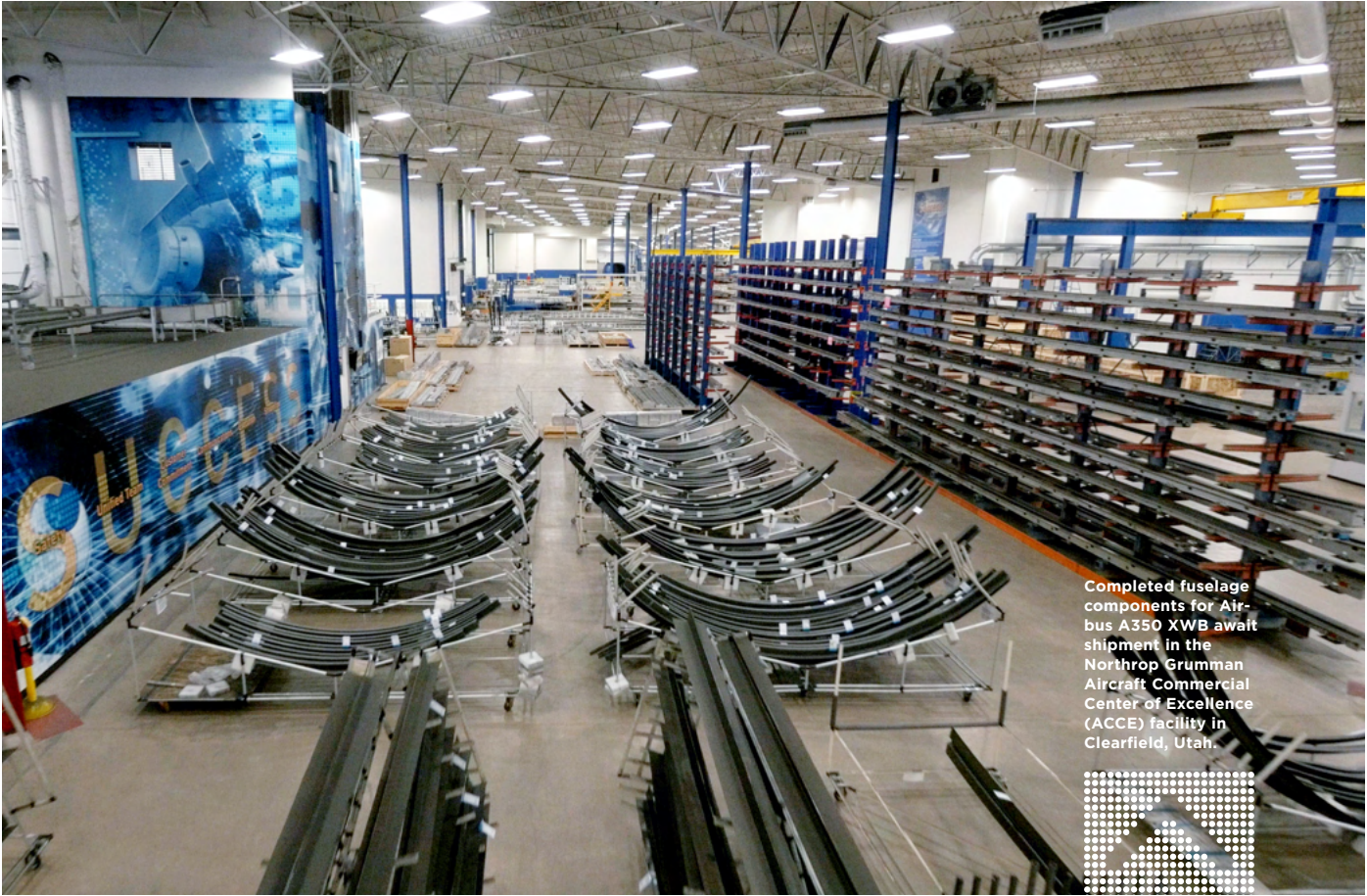


COMPANY	EMPLOYEES*	DESCRIPTION
Hoyt USA	100-249 map #15	Hoyt USA is a sporting goods manufacturer that utilizes composite technology to manufacture archery equipment.
Huntsman Chemical	20-49 map #16	Huntsman Chemical is a global chemical company with a broad range of resins and other products for the advanced materials industry. Their corporate headquarters is in Salt Lake City.
Janicki Industries	100-249 map #4	Janicki Industries is an Engineering and Manufacturing company, specializing in advanced composite materials and exotic metals.
KIHOMAC	250-499 map #3	KIHOMAC specializes in prototype development and manufacturing for US government customers requiring high engineering content and specialty machining.
Klune	100-249 map #29	Klune manufactures metal and composite machine parts and assemblies for the aerospace and defense industries.
Nammo Composite Solutions	100-249 map #17	Nammo Composite Solutions designs and builds advanced integrated composite structures using the processes of filament winding, resin transfer molding (RTM), autoclave cure, and bladder molding for a broad range of products.
Northrop Grumman Innovation Systems	5000-5999 map #24	Northrop Grumman designs, manufactures, and tests commercial, military, and launch vehicle composite aerospace structures for Boeing, Lockheed, Airbus, and Rolls-Royce.
Otto Bock	100-249 map #22	Otto Bock uses composite materials to manufacture prosthetics such as a modular lower limb prosthesis, myoelectric arm prosthesis, C-Leg, Genium leg prosthesis system, Michelangelo Hand, and the mechatronic C-Brace orthotronic mobility system.
OxEon	20-49 map #5	OxEon is an advanced materials company that develops solid oxide ceramics for fuel cell and hydrogen / syngas generation applications.
Qualified Rapid Products	10-19 map #18	Qualified Rapid Products is a turn-key 3D metal printed parts supplier for performance critical parts.
Radius Engineering	20-49 map #19	Radius Engineering provides mold tooling and injection systems for automobile seat frames, sailboat masts, prosthetic hands, ski poles and grips, archery bows, tennis racquets, bicycle frames, fishing poles, violin bows, airplane wings, and many more.
Reynolds Cycling	50-99 map #25	Reynolds Cycling uses composites to produce bicycle wheels and accessories, including the use of unidirectional carbon fiber technology in bicycle rims.
Rock West Composites	50-99 map #23	Rock West Composites designs, engineers, and manufactures composite products for nearly any application, specializing in rods, tubes, and plates.
TCR Composites	50-99 map #2	TCR Composites develops prepregs with long out-life to solve the challenges with building large rocket motor cases, as well as new resin systems that are being used in a wide variety of applications across the commercial and aerospace industries.

*SOURCE: Utah Department of Workforce Services



Two of Nammo's many products:
Left: The PA179-IM munitions canister for 70mm aerial rockets. Right: Carbon fiber control arm for a custom, high-end automobile restoration.



Completed fuselage components for Airbus A350 XWB await shipment in the Northrop Grumman Aircraft Commercial Center of Excellence (ACCE) facility in Clearfield, Utah.



Proteor DynaAdapt and Kinterra Foot/Ankle System combining hydraulics and carbon fiber technologies to create exceptionally normal walking gaits on a variety of surfaces.



Hexcel's G-Vent technology targets OOA processing of highly loaded, thick section marine structures such as masts, foils, and wind-assisted ship propulsion components.

Recent Announcements



Hexcel To Build New Center of Excellence for Advanced Composites Innovation in Utah (2021)

Hexcel Corporation will build a flagship Center of Excellence for Research & Technology (R&T) to support next-generation developments in advanced composites technologies in Utah, adding up to 150 new high-paying jobs and \$25 million in capital investment over the next 12 years. This new R&T center will be the company's largest center for innovation and product development in North America and a showcase for the company's advanced composites technology, providing space for future growth and expansion in the years ahead.

Snow College to Offer New Composites Program (2021)

Snow College, located in rural Ephraim City, is designing a program to prepare students to work in composites. The new initiative's curriculum will include lectures, labs, and apprentice-style collaboration with local companies. The new program aims to meet the demands for the growing composites industry in the area. Local companies, like ACT Composites, are looking to partner with higher education to fill their demands for hiring.

CSS Composites Moving to Richfield, UT (2021)

CSS Composites, a composites manufacturing company, announced plans to build a 50,000 square feet facility in Richfield, UT, creating 50 jobs and producing \$15 million in capital investment. CSS Composites manufactures high-performance bicycle wheels and rims for brands that use the Fusion Fiber technology that CSS developed.

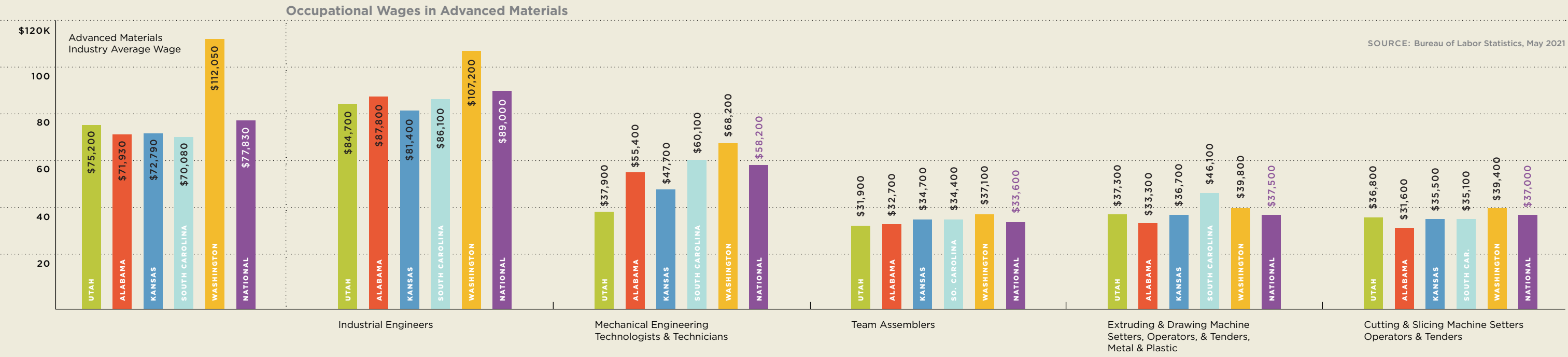
Utah Advanced Materials Companies Manufacture PPE Equipment (2020)

In response to the demand for Personal Protective Equipment (PPE) to help fight the COVID-19 pandemic, manufacturers in Utah have pivoted their production lines to make this equipment. For example, DPS Skis, Goal Zero, Petzl, and Eastman Machine Company all joined forces to produce medical-grade reusable polycarbonate face shields for the Utah Department of Health. Additionally, Kihomac produced 3-D printed nasal swabs and MIT respirators.

UAMMI Awarded \$1M Grant to Produce Legacy Airplane Parts using 3D Carbon Fiber Printing (2018)

The Utah Advanced Materials & Manufacturing Initiative (UAMMI) will use a state-of-the-art 3D carbon fiber based printing process to produce parts for out-of-production military aircraft. The grant comes from the National Center for Defense Manufacturing & Machining and the system will be located in the USTAR Innovation Center adjacent to Hill Air Force Base.

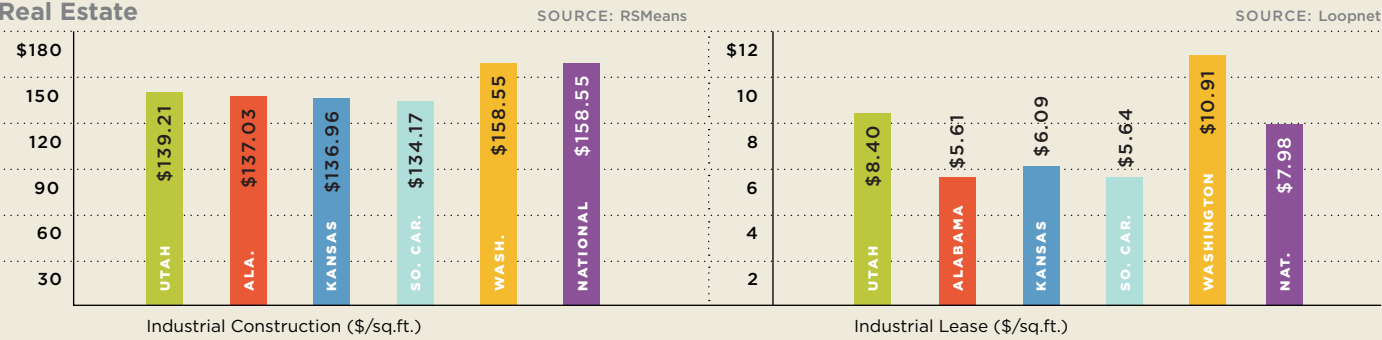
Cost Profile



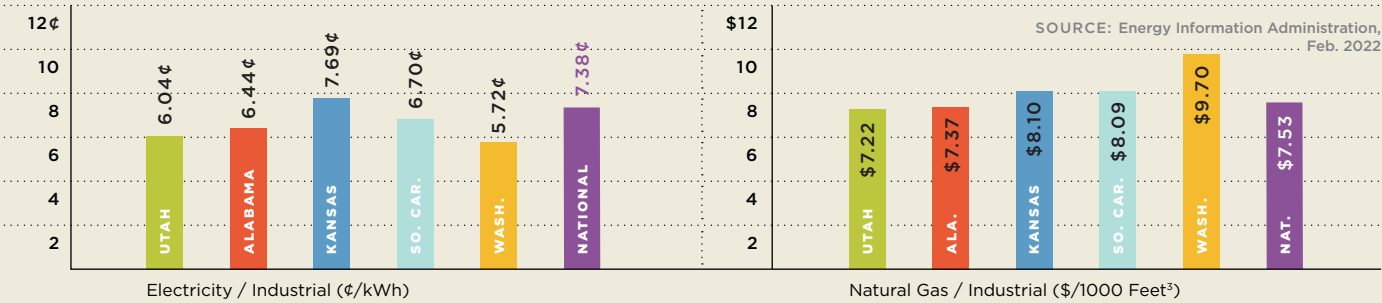
Other Comparative Wages in Advanced Materials

OCCUPATION	UTAH	ALABAMA	KANSAS	SOUTH CAROLINA	WASHINGTON	NATIONAL
Industrial Production Managers	\$96,000	\$105,800	\$101,700	\$108,300	\$121,900	\$108,800
Mechanical Engineers	\$86,100	\$89,100	\$77,300	\$83,800	\$97,400	\$90,200
Industrial Engineering Technicians	\$58,900	\$55,500	\$55,700	\$56,600	\$66,300	\$57,300
First-Line Supervisors of Production and Operating Workers	\$56,100	\$62,100	\$61,900	\$65,400	\$67,700	\$62,900
Cutting Punching and Press Machine Setters Operators and Tenders Metal and Plastic	\$36,800	\$35,800	\$34,500	\$41,100	\$41,300	\$37,000
Machinists	\$53,000	\$46,100	\$43,700	\$36,600	\$52,900	\$45,800
Molding Coremaking and Casting Machine Setters Operators and Tenders Metal and Plastic	\$36,800	\$31,300	\$30,600	\$32,500	\$39,100	\$33,100
Inspectors, Testers, Sorters, Samplers, & Weighers	\$40,800	\$34,200	\$45,100	\$36,800	\$57,300	\$40,500

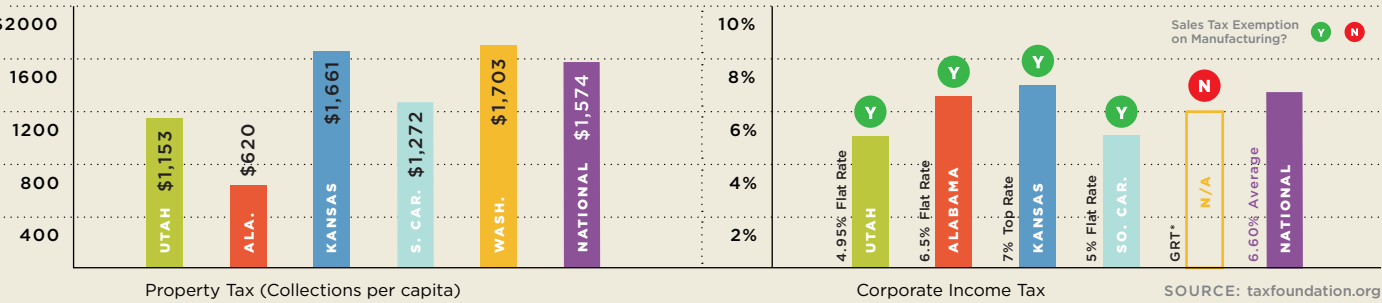
Real Estate



Utilities



Taxes

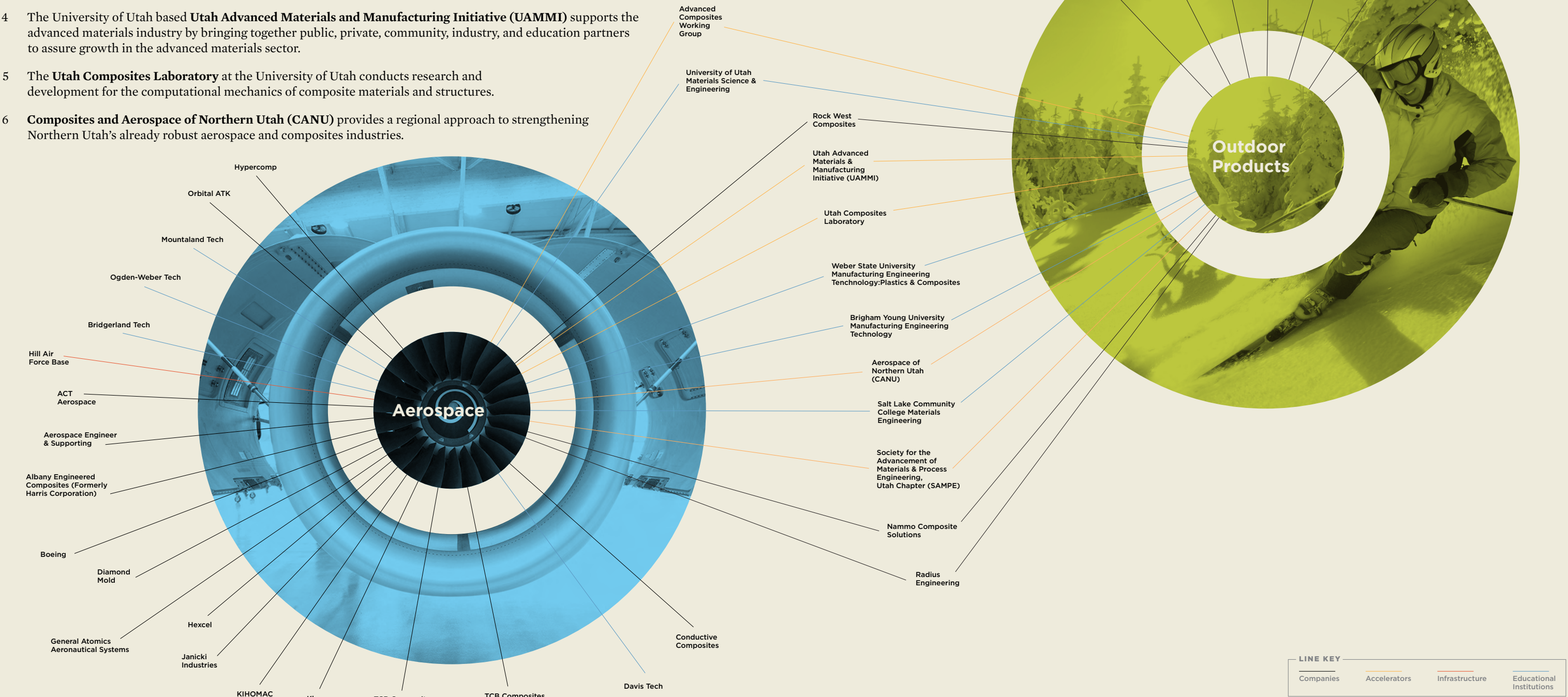


* GRT = Gross Receipts Tax. Businesses are taxed on ALL business sales transactions instead of corporate income.

Areas of Excellence

“Areas of Excellence” are industry sub-sectors in which Utah has a competitive advantage due to our infrastructure, trained workforce, historical expertise, and community support. The diagram below shows the collaboration and interrelationship of Utah’s business accelerators, educational institutions, government initiatives, and companies within the advanced materials industry.

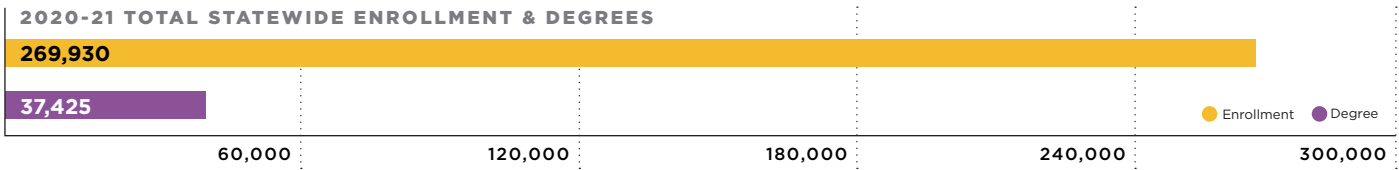
- 1 The HAFB **Composites Engineering and Repair Facility** has system-wide responsibility for major airframe programs and upgrades.
- 2 The **Advanced Composites Working Group** meets often to address industry concerns and determine initiatives that keep the industry thriving.
- 3 **The Society for the Advancement of Material and Process Engineering (SAMPE)** is a professional member society that provides a unique and valuable forum for scientists, engineers, and academic leaders.
- 4 The University of Utah based **Utah Advanced Materials and Manufacturing Initiative (UAMMI)** supports the advanced materials industry by bringing together public, private, community, industry, and education partners to assure growth in the advanced materials sector.
- 5 The **Utah Composites Laboratory** at the University of Utah conducts research and development for the computational mechanics of composite materials and structures.
- 6 **Composites and Aerospace of Northern Utah (CANU)** provides a regional approach to strengthening Northern Utah’s already robust aerospace and composites industries.



Education & Labor

A State of Education

Utah is home to **12 major colleges and universities** and has an excellent talent pipeline of over **269,000** students. Bachelor's and graduate awards grew by **16.9% over the last five years**. Utah has an educated workforce, with over 93% of the population 25 or over with a high school diploma and over 34.7% with a bachelor's degree.



TOP THREE INSTITUTIONS WITH ADVANCED MATERIALS-RELATED DEGREES

University of Utah

DEGREE: Materials Science & Engineering

The Materials Science and Engineering degree prepares students with the ability to use the techniques, skills, and modern engineering tools necessary in materials engineering practices.

Weber State University

DEGREE: Manufacturing Engineering Technology: Plastics & Composites

The Manufacturing Engineering Technology: Plastics and Composites degree teaches students firsthand about the complex interdependence between the plastic/composite process, materials, tooling and part design.

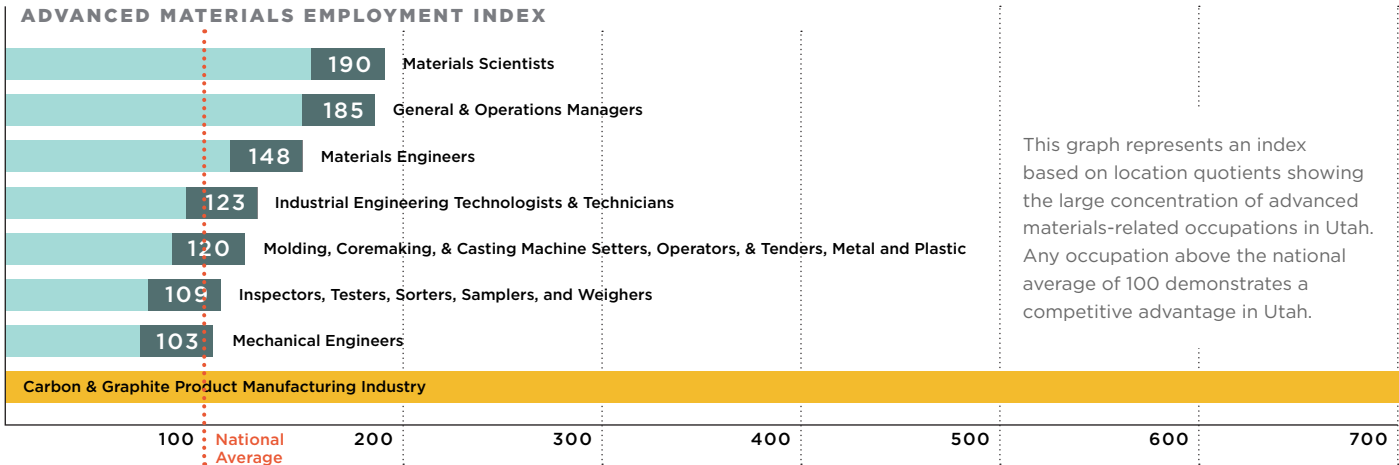
Brigham Young University

DEGREE: Mechanical Engineering

Brigham Young University is deeply involved in research in the composites industry. The engineering materials group develops novel processing techniques to prepare advanced materials using cutting edge microscopy to determine material structure at the nano-scale.

The Labor Picture

Utah's labor force is well educated, growing, and affordable. Utah **created over 80,000 jobs in 2021** and maintained one of the highest job growth rates in the nation throughout the year. Utah is the youngest state in the nation with a median age of 31.1 and has an average wage of \$56,300, which is **14% lower than the national average**.



SOURCE: Bureau of Labor Statistics

Easton Technical Products brings its burgeoning knowledge of advanced materials to the worlds of archery, backpacking, and snowshoeing.





EDCUtah questions?
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Project questions?
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801-323-4250



Research questions?
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Manager:
801-323-4253

Have questions about the Advanced Materials industry
in Utah? Call us at 1-800-574-8824
