



Testimony of Elliot Ginsberg

Connecticut Center for Advanced Technology, Inc.

Before

Commerce Committee

March 6, 2014

Regarding

**Raised Bill No. 5271 - An Act Concerning Funding for the Advanced Manufacturing of
Composite Materials in Connecticut**

And

**Raised Bill No. 305 – An Act Concerning funding for the “Dream It. Do It.”
Manufacturing Pipeline Program**

My name is Elliot Ginsberg, and I am the President and Chief Executive Officer of the Connecticut Center for Advanced Technology, Inc. (CCAT), which houses the Advanced Manufacturing Center (AMC) in East Hartford and administers Connecticut. Dream It. Do It. Today I am appearing in support of two Raised Bills. Raised Bill No. 5271 extends assistance to Connecticut’s aerospace, defense, and general manufacturing sector through the development of an advanced self-diagnostic machining cell for highly integrated major composite assemblies at CCAT’s AMC. Raised Bill No. 305 provides a grant-in-aid to fund operations of the Connecticut. Dream It. Do It. program to enhance Connecticut’s next generation manufacturing pipeline. Both bills focus on bolstering the manufacturing sector, a key driver of Connecticut’s long term economic growth.

Composite Material Manufacturing – Wave of the Future

I’ll speak first in reference to Raised Bill No. 5271. The goal of this legislation is to demonstrate a new approach to dynamic, adaptive, and mistake-proof machining of



advanced, high value structural composites and technologies that are applicable to current and future platforms and components. Current manufacturing methods and newly developed technologies will be melded to break machining paradigms, reduce the cost of machining and post-process finishing, and open up opportunities to make composite material manufacturing more affordable.

For Connecticut manufacturers to be competitive in a global marketplace and retain technology-related jobs in the state, they must focus on the wave of the future – composite material manufacturing.

The need for advances in composite manufacturing is growing rapidly. The fact is that more and more aviation components are being made out of materials such as polymer matrix (PMC) and ceramic matrix (CMC) composites. Besides being lighter weight than their metallic counterparts, they are more durable and corrosion-resistant, therefore reducing maintenance costs. The lighter weight improves performance and lowers fuel cost. A prime example of this trend towards new materials is Boeing's revolutionary 787 Dreamliner jet, of which 50 percent is made of composite materials. Over time, most of the aircraft and engine components manufactured from metal will become composite structures because of these benefits.

The development and manufacture of these complex, advanced materials is being addressed by companies such as GKN in Cromwell. For example, the inlet case produced by GKN for the Pratt & Whitney F-135 Joint Strike Fighter engine, has contoured annular surfaces and interconnecting vanes, and is valued at approximately \$100K prior to post process machining.

The challenge for smaller manufacturers with a legacy of traditional metal manufacturing experience is how to effectively conduct post processing of complex composite structures



and high value components. This bill provides for funding to develop and implement critical technology advances for composite post processing that will help manufacturers speed production, reduce costs and increase competitiveness.

Post processing, or the machining of specific surfaces that require specific dimensional accuracy and finishing, is done at the end of the composite fabrication process when the value of the part is highest. All of the material, energy, and labor costs consumed to produce the composite part can be lost if the post processing is done incorrectly. Unlike some metal parts, most composite parts cannot be repaired or reworked. The part and expensive composite material must be scrapped.

Under this project, CCAT will address:

- Tool design, materials and coatings for composite machining
- Simultaneous machining for efficiency
- Mistake-proofing integration of all advanced technologies
- Adaptive CNC programming and controls
- On-machine inspection of the in-process and final part
- Advanced material dust management that will improve environment, health and safety, increase machine up-time and decrease accelerated wear of machine dynamic components.

The time is now to enhance and secure Connecticut's leadership position in composite manufacturing. Underscoring the importance of composite materials and manufacturing is President Obama's February 25th announcement of a new competition for an Advanced Composites Manufacturing Innovation Institute to improve the nation's ability to manufacture materials that increase energy efficiency of planes, cars and other products.



The reality is that if we don't develop this expertise, if we don't invest in advancing composite manufacturing post-processing, original equipment manufacturers (OEMs) like Pratt & Whitney, Sikorsky, GE and many other global OEMs that do business with Connecticut manufacturers will find suppliers in other states, or countries that do. This would result in a negative economic impact and significant job loss in Connecticut that will worsen as composites become more pervasive.

CCAT applauds the intent of this legislation to further strengthen Connecticut's manufacturers. This legislation, through support by this committee, will enable Connecticut manufacturers to continue to compete for global business and ensure that Connecticut is recognized as a leader in multiple aspects of composite manufacturing – from material development to composite structure manufacturing to the final post-processing operations.

CCAT is well-positioned to execute this new undertaking. CCAT's AMC, a national resource for manufacturers, continually acquires cutting-edge equipment and advanced manufacturing software, and develops people who know how to use both. Our track record with technology optimization is exceptionally strong, helping manufacturers solve difficult production problems and improve efficiencies, demonstrating increased material removal rates between 25 and 70 percent and tool life extension by 300 to 1200 percent while reducing power consumption.

Next Generation Manufacturing Pipeline – Raised Bill No. 305

However, technological advances alone are not enough to ensure the sustained growth of manufacturing. Companies require people with a broad range of skills – from welding to high-tech computer numeric controlled (CNC) programming to administration to engineering design to manufacturing operations – to drive innovation, produce products, and service customers. This call for talent in manufacturing is not new. Companies have



been reporting increasing difficulties finding people with the skills they need today, let alone what they know will be needed to compete and thrive in the future.

The barriers to attract young talent and develop a strong, skilled manufacturing pipeline lie with deep-rooted negative perceptions about manufacturing environments, a lack of understanding about how dynamic and financially-rewarding manufacturing can be, and what educational pathways are available to prepare young people for successful manufacturing careers. Raised Bill No. 305 will provide a grant-in-aid to CCAT to continue to support the operations of Connecticut. Dream It. Do It., which has been leading efforts to address these issues critical to expanding the manufacturing workforce pipeline and securing Connecticut's manufacturing future.

Connecticut. Dream It. Do It. is part of a nationwide network focused on creating a positive image of 21st century manufacturing and developing an awareness of manufacturing career opportunities to enhance the current and future manufacturing workforce pipeline.

Founded by The Manufacturing Institute, the Dream It. Do It. national network encompasses 27 locations around the country.

Connecticut. Dream It. Do It.'s outreach activities center on middle and high school students, parents and families, and educators—including school counselors and teachers—to replace the tarnished image of manufacturing as dirty, dark and dangerous with a positive image of today's high-tech manufacturing, and to provide information and resources about the broad spectrum of manufacturing career opportunities.

The success of Connecticut. Dream It. Do It. is grounded in collaboration with industry, education, and economic and workforce development organizations statewide, and reinforced through representation from each group on its Steering Committee. By partnering with these organizations, Connecticut. Dream It. Do It. is able to reach students,



families and educators through events and resources that showcase manufacturing careers and encourage achievement in science, technology, engineering and math (STEM).

It takes time and a concerted, continual effort to make an impact – to change perceptions and attract young people to manufacturing careers. It does not happen because of a few events or positive news stories. Connecticut. Dream It. Do It. has been at the forefront of pushing this change.

For the past two years, Governor Dannel P. Malloy has officially declared October as “Connecticut. Dream It. Do It. Manufacturing Month,” during which nearly 1,000 students from 26 middle and high schools have been involved in regional “Manufacturing Mania” events in Hartford, Wallingford and Norwich. These unique events are designed to get young people excited about manufacturing careers, by providing hands-on experience in team-based activities that replicate the manufacturing process from concept to design to fabrication to quality control. Students talk with manufacturers about what it takes to make a product and learn about the skills needed in manufacturing today. The events are promoted through public relations efforts statewide to further raise a positive image of manufacturing.

We’re continuing to build on our success with high-impact, focused activities to reach young people throughout the state. In addition to Manufacturing Month activities, our Dream It. Do It. staff has brought the manufacturing career message to more than 14,000 students, over 500 educators, 370 parents/family members and more than 350 manufacturers by participating in more than 60 events around the state. Connecticut. Dream It. Do It. is also poised to unveil a new initiative, “Making It Real: Girls and Manufacturing,” with a high-impact kickoff planned for May during SME’s Mfg4 Conference in Hartford. Three regional “Manufacturing Mania” events are being planned for next October and we are looking to add summer programming for students in multiple



communities. We are receiving requests for more local “Mini Manufacturing Mania” events that are school-based and/or coordinated with our Workforce Investment Board and Chambers of Commerce partners.

Our efforts are making an impact beyond our state borders. Connecticut. Dream It. Do It. has achieved national distinction, winning a partnership grant with The Manufacturing Institute from the Motorola Solutions Foundation and being recognized as a model of one of the top Dream It. Do It. programs in the country.

CCAT fully endorses this Raised Bill and is well-prepared to further the mission of Connecticut. Dream It. Do It – to provide the region’s manufacturers with the skilled workforce necessary to compete globally by repositioning manufacturing as a viable, cutting edge career.

Conclusion

In summary, Raised Bill No. 5271 and Raised Bill No. 305 provide the opportunity to build on the valued success of the State’s investment in and commitment to advanced manufacturing and to manufacturers’ ability to attract the skilled talent they need to meet escalating customer demands and to grow and compete in a global marketplace.

With our depth in technology leadership and synergy with our existing national and state-focused initiatives, CCAT can bring even greater value to these programs. Leveraging the expertise and cutting-edge technology at the AMC, our eight years of experience leading national and state programs for advanced additive, digital, and laser manufacturing, our collaborative education initiatives promoting science, technology, engineering, and mathematics (STEM), our workforce development programs with the US Department of Defense, and our relationships with the Connecticut Community College System and state



Workforce Investment Boards, CCAT provides resources for helping Connecticut manufacturers solve current problems and prepare for future growth.

Further, through our assistance to entrepreneurs in advancing new technologies as part of our Technology Incubator as well as our work in the diversification of manufacturing capabilities, CCAT is primed to bring new business opportunities to the state in the manufacturing sector.

CCAT believes that the funding for these bills will serve to strengthen critical elements of technology-led economic development and raise Connecticut to be among those states that clearly show a sustained commitment to manufacturing.