
OLD DOMINION'S ENTERPRISE CENTERS
Technology Applications Center




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A Bayshore Concrete employee guides several tons of concrete noise barriers as a crane prepares to lift them into place.

Applications Center A Key Player In The "Technology Dominion"

BY JAMES SCHULTZ

 Vincent Campbell wasn't worried about his company's manufacturing prowess. Bayshore Concrete Products Corporation routinely handles specialized concrete orders. But this contract was special and potentially difficult: sound-abating barricades for a light rail system from New York City to John F. Kennedy International Airport. Limited in height to four and a half feet and in thickness to eight inches – to act as safety railings for construction and maintenance crews, as well as to provide exiting passengers a reasonable means of escape in case of emergency – the relatively small barriers would nevertheless have to absorb and diffuse the noise generated by the trains' wheels. Campbell, Bayshore's president, turned to Old Dominion University for help.

At the suggestion of Robert Harrell, an official with Virginia's Center for Innovative Technology, Campbell contacted the Technology Applications Center (TAC), one of eight Enterprise Centers based at the university. It wasn't long before computer modeling of Bayshore's original barricade design was underway, with subsequent, detailed vibrational and acoustic analyses conducted on a full-scale barrier mockup at the company's manufacturing plant in Cape Charles, on Virginia's Eastern Shore. Less than six months after Campbell contacted TAC, the studies were complete. The Bayshore barrier would perform as advertised.

The company is now at work casting individual sections, each of which weighs 5,100 pounds. The project, and Bayshore's involvement in it, is scheduled to conclude by the end of calendar year 2001.

"I was amazed with the efficiency of the whole process," Campbell says. "Everybody met the project specifications and did it within the time frame we set up. I give the people at TAC high marks. They do a heck of a good job."

It was just another day at the office for TAC, which since 1986 has participated in more than 250 technology projects with Virginia companies. Center director Helen Madden estimates that TAC has generated \$261 million in new industry revenues and has been responsible for the creation or preservation of at least 1,535 jobs.

"We're applications-oriented," she says. "Our job is to help companies get over some the bumps of the road in terms of technology development."



Smoothing the Bumps

The Applications Center's creation – the brainchild of Ernest J. Cross, former dean of the Old Dominion's College of Engineering and Technology – was intended to marry the expertise and research capabilities of Old Dominion faculty to the needs and resources of industry. As envisioned, the relationship would be that of equals: specialists in the private and public sectors collaborating to solve commonly identified problems.

Director Madden points out that one of the center's primary goals is to boost the prospects of idea-rich but expertise-poor small firms. Unable to afford a large research staff, and without a deep bench of technical talent, these businesses are at risk in a hypercompetitive world, one in which market penetration has become more important than product invention.

Madden is keenly aware of the pitfalls awaiting small businesses. After leaving IBM, where she worked for 13 years, first as an advisory engineer on materials related to microcircuitry and later as an internal consultant, she spent 10 years as owner of a management-training firm. For 15 years Madden was also the proprietor of a commercial printing company and, for

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seven years, owner of another enterprise that manufactured specialty binders and screen prints.

“What really excites me is our ability to help smaller companies. There's someplace they can go,” she says. “Basically, we try to help companies upgrade their technology, to make them more competitive. In the past, they haven't typically gone to universities like the larger ones. It's really gratifying for us to see these smaller firms grow and really have an impact on the community.”

In 1997, the center reached an agreement with the Virginia Philpott Manufacturing Extension Partnership, located in Martinsville, to support the activities of two manufacturing specialists at TAC. The pair assist manufacturers on issues ranging from improving production technologies to creating industrial marketing campaigns in order to increase the competitiveness of Virginia's small to medium-size manufacturers. VPMEP is part of a network of manufacturing extension centers supported by the Manufacturing Extension Partnership of the National

Institute of Standards and Technology.

Included among the Applications Center's advertised services are assistance with manufacturing process improvements, materials testing, proof of concept, prototyping,

quality improvement, strategic planning, management information systems and performance benchmarking. Contracts are generally negotiated on a fixed-price basis, with services delivered according to the client's schedule. The center guarantees confidentiality of all information provided by the client from beginning to end of any collaboration.

Expertise Far And Wide

Within the last year, the center has been called on to help with the development of sophisticated sensor arrays, computer-based modeling of complex chemical interactions and design and installation of production lines. While the center's involvement with companies is intense, it is not necessarily long; most projects are concluded in a year or less. An essential element is faculty involvement and student participation.

"Using students on these projects is a very important part of our program," Madden explains. "We offer our stu-

dents the opportunity to apply concepts and theories to real problems. The faculty add to their depth of practical experience by working on current engineering problems and translating this experience to the classroom."

In the long run, Madden hopes TAC's reach will lengthen to include even the most remote region of the state, filling any expertise or equipment gaps by collaborating with other Virginia universities. Such partnerships should accelerate the state's maturation into what some have called the "Technology Dominion," improving the quality of life and job opportunities, reducing "brain drain" by encouraging graduates to remain in Virginia and enabling technology-based businesses to flourish.

Bayshore Concrete's Vincent Campbell agrees. He says that TAC-like ventures enrich existing enterprise, a sure formula for long-lasting prosperity: "A program like [TAC's] says to me the state of Virginia is interested in the businesses that are already here. When you do something for existing business, you've done a lot."

Left: Vince Campbell, president of Bayshore Concrete, and his foreman, Billy Harris, inspect the structural integrity of the sound barriers.

Right: Helen Madden (center), director of the Technology Applications Center, credits much of TAC's success to its collaboration with such people as Vincent Campbell (left), president of Bayshore Concrete, and its highly trained staff, such as Tim Early (right), who worked on the Bayshore project before becoming regional manager for Virginia's Center for Innovative Technology.

