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NORTH CAROLINA MANUFACTURING EXTENSION PARTNERSHIP (NORTH CAROLINA MEP) Serving firms statewide through ten outreach offices. Affiliated with North Carolina State University Industrial Extension Service. Contact: Dan Lilley, Research IV Bldg., 909 Capability Drive, Suite 1600, Raleigh, NC 27606, (919) 515-5408, Fax: (919) 515-8585, Email: dan_lilley@ncsu.edu, Website: <http://www.ies.ncsu.edu/>

**THE
 MANUFACTURING
 EXTENSION
 PARTNERSHIP
 IN NORTH CAROLINA**

Manufacturing Extension Partnership (MEP) is a nationwide system of services and support for smaller manufacturers to become more globally competitive. At the heart of the system is a network of affiliated, locally-based manufacturing extension centers. Each center, like North Carolina MEP, is a partnership, typically involving federal, state, and local governments; industry; educational institutions; and other sources of expertise, information and funding support.

COMPANY CLIPS

New Plant Layout Gives MTS Systems Corporation Room to Grow

MTS Systems Corporation (Sensors Division) is a manufacturer of linear displacement transducers and sensors for liquid tank levels. Its facility is located in Cary, North Carolina, and has approximately 180 employees. MTS's facility included a pipe-shop area with limited space, which crowded equipment and personnel. These constraints were compounded by the need to add additional equipment. The company needed space to add new equipment while ensuring rapid order response, in-sourcing additional work, and building sufficient storage space. MTS called on the experts at the Industrial Extension Service (IES) of North Carolina State University (NCSU) for help.

IES arranged for several NCSU engineering students to work under the direction and guidance of an IES specialist in industrial engineering and ergonomics to provide plant layout solutions for MTS. Under the supervision of IES, the students conducted extensive on-site engineering analysis. They began by making an AutoCAD drawing of existing equipment, input/output access, material storage, people, and workflow paths. Then they created a space utilization spreadsheet analyzing percent allocations for workstations, people, equipment, access, storage, and aisles. A material flow analysis table showing existing travel distances for major product categories and overall total complimented the spreadsheet.

IES continued its analysis by designing the new/optimized facility layout and creating an additional capacity plan. Students drew AutoCAD designs of optimal locations for equipment, input/output access, material storage, people, and workflow paths. They adjusted the existing space utilization spreadsheet to show new percent allocations for workstations, people, equipment, access, storage, and aisles, and revised their material flow analysis to optimize travel distances for major product categories and overall total. As a result, MTS gained additional percent capacity via its new/optimized layout and dramatically increased the amount of additional work that can be in-sourced. The company has also saved \$180,000 per year by improving workflow efficiency, space utilization, and output capacity.

Continued

STATE STATS

DATA* COVERS JANUARY TO DECEMBER 2001

- Number of projects completed with firms
473
- Number of firms served
658
- Number of firms served for the first time
218
- Federal cost share for current operating year
\$2,216,200
- State/other cost share for current operating year
\$4,432,400

**Data as reported from center*

DATA** COVERS JANUARY TO DECEMBER 2001

- Increased sales & retained sales
\$35,191,000
- Client capital investment
\$46,557,407
- Total cost savings
\$11,593,001
- Jobs (created & retained sales)
483

***Source: Independent client impact survey*

**For additional information,
 contact Dede McMahon 301-975-5020**



Lean Training Improves Productivity at Carolina Morning Designs

Carolina Morning Designs manufactures and markets a complete line of meditation cushions and associated products. Located in Micaville, North Carolina, the company employs seven people. Carolina Morning Designs coordinates the production of its products from numerous households. Costly and inefficient, this process kept the company from successfully bidding on more profitable wholesale business. To become more competitive, Carolina Morning Designs sought to centralize its manufacturing processes under one roof. The company first contacted Mayland Community College (MCC) for advice. MCC's Small Business Center referred the company to North Carolina State University's Industrial Extension Service (IES).

IES toured the company's headquarters in April 2000 and recommended lean training to help shift production to full-fledged manufacturing in one location. Soon afterward, the company's owners attended IES' Lean Conference, a three-day event held in Asheville, North Carolina. Following the conference, they returned to Micaville and with the help of IES, began integrating lean concepts into company operations. Lean practices implemented at Carolina Morning Designs include lean ergonomics, which helped reduce product assembly time by 40 percent; and a kanban system, which reduced delivery time by 30 percent. The company also identified and eliminated several unnecessary steps in production, improving efficiency by 30 percent. IES visits the company regularly to check progress and make suggestions for further improvements.