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A PROPOSAL FOR

Heavy Equipment Operations



LAKE AREA
TECHNICAL INSTITUTE

www.lakeareatech.edu

HEAVY EQUIPMENT OPERATIONS

Executive Summary

Lake Area Technical Institute requests approval to start a Heavy Equipment Operator Program. The program will be eighteen months in length, award an Associate of Applied Science degree, and include an eleven month exit point with a diploma in Excavation Operations. Graduates would be employed to operate power construction equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement. Graduates may repair and maintain equipment in addition to other duties.

LATI is an excellent fit for this new program as we already have a very strong Diesel Technology program, which could share some of their equipment. In addition, LATI has Welding and Machining programs, along with Electronics. Our Aviation program already teaches hydraulics technology. All of these programs have resources which could be utilized by Heavy Equipment, thus lowering program expenses.

IDENTIFICATION AND DESCRIPTION OF THE PROGRAM

The Heavy Equipment Operations Program is designed for students interested in a career in Construction, Heavy Equipment, and Earthmoving Equipment Operations, with opportunities also in the Agricultural Power Machinery Operation. Students will study all aspects of Heavy Equipment operation and maintenance techniques. The first year is a program that prepares individuals to apply technical knowledge and skills to operate excavation equipment and general skills in the field maintenance and repair of heavy equipment. First year instruction includes instruction in inspection, maintenance, and repair of tracks, wheels, brakes, operating controls, pneumatic and hydraulic systems, electrical circuitry, and engines. First year instruction also includes foundational instruction in excavating, digging, ditching, grading, and backfilling. The second year is a program that prepares individuals to apply technical knowledge and skills to operate and maintain a variety of heavy equipment, such as a crawler tractors, motor graders and scrapers, shovels, rigging devices, hoists, and jacks. All students receive mine safety certification, which is required for quarry operations in general. Second year instruction also includes detailed instruction in digging, ditching, sloping, stripping, grading, and backfilling, clearing and excavating. Additionally, students may pursue crane operations.

OBJECTIVES AND PURPOSE OF THE PROGRAM

The primary objective of the Heavy Equipment Operator program would be to graduate students with the necessary skills to be employed in Construction, Heavy Equipment, and Earthmoving Equipment Operation facets of the commercial and industrial construction industries.

The program will articulate appropriate high school credits, whenever possible, however high school articulation will be limited due to the specialized nature and detail of the Heavy Equipment curriculum. LATI will explore possible articulation agreements with the Board of Regents once the program is started.

General program objectives will include the following. A graduate of this major should be able to:

- use approved safety procedures in various work situations.

- correctly and safely use hand tools, specialty tools and test equipment.
- identify and explain the operation of various engine, power train, electrical and hydraulic components.
- properly use transit, hand level, laser and global positioning equipment as they relate to construction site preparation.
- safely operate selected machines representing the heavy construction equipment industry.
- correctly use blueprints to layout a construction site and/or project.
- explain the procedures for testing compaction of soil and asphalt.
- develop a soil erosion control plan for a construction site.
- perform routine preventative maintenance on heavy construction equipment.
- Provide an understanding of how to inspect records and log book entries, and communicate with other personnel, in order to assess equipment operating status.
- Train how and when to clean, lubricate, and maintain equipment in order to prevent equipment failure or deterioration.
- Give technicians the ability to communicate with peers, supervisors, and customers.
- Provide students with the knowledge, skills, and attitude to advance in the career paths.
- Instill safe, ethical, and legal industry practice techniques.
- Associates of Applied Science degree recipients through general education will:
 1. Demonstrate critical thinking
 2. Develop professional competencies
 3. Demonstrate effective oral and written communication
 4. Apply mathematical concepts to solve quantitative problems
 5. Locate and effectively use information from various sources
 6. Demonstrate technological literacy
 7. Demonstrate an awareness of the organization and diversity of the human community
 8. Use theories and concepts to understand human behavior

METHODS OF OBTAINING THE OBJECTIVES OF THE PROGRAM

The program will include classroom instruction and lab experiences, along with industry field trips, guest speakers, and capstone projects. The curriculum will incorporate a variety of instructional methods including use of LATI's Innovation Center to enhance instructional materials with virtual instruction, streaming video, etc.

The Heavy Equipment program will work closely with an industry advisory board composed of representatives from potential employers. The Advisory Board will approve the curriculum, discuss and recommend equipment purchases and assist in forming partnerships to assist LATI with innovative curriculum and cost-sharing.

DESCRIPTION OF THE NEED BASED UPON LABOR MARKET DEMANDS IN SOUTH DAKOTA

South Dakota Employment Projections 2008 - 2018 and Wage Data for Select Construction Occupations

SOC* Code	Occupational Title	2008 Base Number of Jobs	2018 Projected Number of Jobs	Percent Change	Average Annual Demand for Workers	Average Wage	Percentile Wages				
							10th	25th	50th	75th	90th
47-2071	Paving, Surfacing and Tamping Equipment Operators	230	250	8.7%	6	\$15.83	\$11.80	\$13.44	\$15.60	\$18.02	\$20.55
47-2073	Operating Engineers & Other Construction Equipment Operators	2,040	2,215	8.6%	53	\$17.80	\$13.34	\$15.06	\$17.52	\$20.16	\$23.34
49-3042	Mobile Heavy Equipment Mechanics, except Engines	580	635	9.5%	17	\$20.21	\$14.57	\$16.83	\$20.36	\$23.54	\$25.87
53-7021	Crane and Tower Operators	75	75	0.0%	2	\$19.68	\$16.41	\$17.42	\$19.06	\$21.55	\$24.58
53-7032	Excavating and Loading Machine and Dragline Operators	385	365	-5.2%	11	\$15.66	\$11.10	\$12.49	\$15.28	\$18.38	\$21.39

*SOC - Standard Occupational Classification, 2000
[Click here for descriptions of SOC occupations by code \(2000 version\).](#)

Projected Employment Notes:

Data is preliminary and subject to revision. Data for occupations with less than 20 jobs in 2008 not included. Number of jobs data for 2008 and 2018 rounded to nearest five. Demand data is the summation of job openings: estimated due to projected employment growth and job openings projected to be created due to replacement need of current workers. Replacement need is estimated by multiplying occupational employment estimates by national replacement rates supplied by the U.S. Bureau of Labor Statistics (BLS). These rates estimate the number of job openings, by occupation, which will be attributed to a worker permanently leaving an occupation (e.g. retirement, death, exits the workforce, etc.). Average annual demand data are calculated by dividing by ten, the number of years in the projection period. For more information, see http://dol.sd.gov/lmic/projections_methodology.aspx.

Wages Notes:

Wages do not include the value of benefits paid to workers.
 Number of Workers: represents an estimate of the total wage and salary workers in an occupation across all industries. For certain occupations, the number of workers statistic may not be available because of disclosure concerns or reliability issues.
 Average Wage: represents the arithmetic mean of the wage data collected, calculated by dividing the estimated total wages for an occupation by the number of workers in that occupation. Also referred to as the mean wage.
 Median Wage: represents the positional central tendency of a dataset where 50 percent of the wages fall below this wage and 50 percent of the wages fall above this wage. This is also commonly referred to as the 50th percentile wage.
 Percentile Wage: represents the percentage of an occupation's workers that earn less than or equal to that wage:
 10th Percentile: 10% earn less than or equal to this amount; 90% earn more
 25th Percentile: 25% earn less than or equal to this amount; 75% earn more
 50th Percentile: 50% earn less than or equal to this amount; 50% earn more (median wage)
 75th Percentile: 75% earn less than or equal to this amount; 25% earn more
 90th Percentile: 90% earn less than or equal to this amount; 10% earn more
 For more technical notes on wage data, please visit http://dol.sd.gov/lmic/technicalnotes_wages.aspx.
 Wages based on May 2009 South Dakota occupational worker and wage estimates updated to quarter ending September 2010, Labor Market Information Center, South Dakota Department of Labor and Regulation.

Source: Labor Market Information Center, South Dakota Department of Labor and Regulation, July 2011.

POPULATION SERVED BY THE PROGRAM

The program will be available to all interested individuals who successfully meet the LATI admission criteria established for the program. The program will be full-time initially. All applicants must be high school graduates and take an admission test to establish reading and math abilities. No restriction will be made regarding race, creed, gender or age. The program will draw students from South Dakota primarily. The opportunities for employment will be primarily in northeastern South Dakota.

PROJECTED THREE YEAR BUDGET

The program will be located on the campus of LATI and begin the fall of 2013. Extensive cooperation and synergism is anticipated between the Diesel Technology and Caterpillar programs and this program. Although LATI has some of the heavy equipment needed, procurement of additional equipment will be a significant cost factor for this program. The program will start 18 – 20 students in the first year.

	FY 14	FY 15	FY 16
Instructor Salary/benefits	\$52,500	\$105,000	\$109,200
Related Adjuncts and Instructor overload costs	\$12,000	\$12,000	\$20,000
Equipment	\$250,000	\$100,000	\$100,000

47-2073	Operating Engineers and Other Construction Equipment Operators	334,730	\$19.42	\$21.55	\$44,830	0.4 %
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SD

47-2073	Operating Engineers and Other Construction Equipment Operators	1,590	7.8 %	4.095	1.555	\$17.45	\$17.87	\$37,170	1.1 %
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Source: Labor Market Information Center, U.S. Bureau of Labor Statistics, July 2011.

SUGGESTED CIP CODE

CIP Code 49.0202

Title: Construction/Heavy Equipment/Earthmoving Equipment Operation.

Definition: A program that prepares individuals to apply technical knowledge and skills to operate and maintain a variety of heavy equipment, such as a crawler tractors, motor graders and scrapers, shovels, rigging devices, hoists, and jacks. Includes instruction in digging, ditching, sloping, stripping, grading, and backfilling, clearing and excavating.

APPENDIX

A. Curriculum

B. Letters of Support

Heavy Equipment Operator

Semester Outline
 2013 – 2014 Revised: 9/11

11 Months Credits Required for Graduation: 44

Excavation Operations Diploma

18 Months Credits Required for A.A.S. Degree: 79

Excavation Operations

Fall Semester

Course Number	Course Title	Clock Hours	Credits
HEO100	Introduction to Heavy Equipment Operations	83	3
HEO101	Haul Truck Operations Lab I	150	5
HEO113	Site Engineering and Layout	84	3
HEO114	Safety	28	1
HEO115	Site Modification	83	3
MATH100	Applied General Mathematics	48	3
Total		468	18

Spring Semester

Course Number	Course Title	Clock Hours	Credits
DT140	Machine Electronics	100	3.5
DT199	Undercarriage and Final Drives	84	3
HEO160	GPS for Field Machines	56	2
DCAT112	Fundamentals of Hydraulics	84	3
HEO102	Backhoe and Front End-loader Lab II	112	4
HEO110	Earthmoving Blueprints and Grade Stakes	26	1
HEO121	Equipment Maintenance Management	84	3
AED 100	Automated External Defibrillator	14	.5
HAZ 100	Hazardous Materials	14	.5
CSS100	Career Search Strategies	14	.5
Total		505	20

Summer Semester

Course Number	Course Title	Clock Hours	Credits
HEO103	Excavators and Final Grading Operations	112	4
HEO110	Excavator Capstone project	56	2
Total		178	6

Note: Students may be enrolled in HEO 102 or HEO 103 in either Fall (if they already have a Class A CDL), spring or summer depending on equipment availability and weather conditions.

Heavy Equipment Operator Associate of Applied Science (A.A.S.) Degree

First Year – Fall Semester

Course Number	Course Title	Clock Hours	Credits
HEO100	Introduction to Heavy Equipment Operations	83	3
HEO101	Haul Truck Operations Lab I	150	5
HEO113	Site Engineering and Layout	84	3
HEO114	Safety	28	1
HEO115	Site Modification	83	3
MATH100	Applied General Mathematics	48	3

Total 468 18

First Year – Spring Semester

Course Number	Course Title	Clock Hours	Credits
DT140	Machine Electronics	100	3.5
DT199	Undercarriage and Final Drives	84	3
HEO160	GPS for Field Machines	56	2
DCAT112	Fundamentals of Hydraulics	84	3
HEO102	Backhoe and Front End-loader Lab II	112	4
HEO110	Earthmoving Blueprints and Grade Stakes	26	1
HEO121	Equipment Maintenance Management	84	3
AED 100	Automated External Defibrillator	14	.5
CSS100	Career Search Strategies	14	.5
HAZ 100	Hazardous Materials	14	.5

Total 505 20

First Year -- Summer Semester

Course Number	Course Title	Clock Hours	Credits
HEO103	Excavators Operations and Final Grading Lab III	112	4
HEO110	Excavator Capstone project	56	2

Total 178 6

Note: Students may be enrolled in HEO 102 or HEO 103 in either Fall (if they already have a Class A CDL), spring or summer depending on equipment availability and weather conditions.

Second Year

Course Number	Course Title	Clock Hours	Credits
	Heavy Equipment Lab Elective	84	4
	Heavy Equipment Lab Elective	84	4
HEO 207	Heavy Equipment Capstone	84	4
HEO 208	First Aid, Responding to Emergencies	56	2
HEO 210	Quarry Operation and Mine Safety	84	3
HEO 235	Operations Maintenance on Heavy Equipment	84	3
HEO 236	Preventive Maintenance on Heavy Equipment	84	3
PSYC 100	Psychology of Human Relations	84	3
CIS102	Windows Applications for Technicians	48	3
	• Selected Communications Course	48	3
	• Selected Social Science Course	48	3
Total		984	35

• Students will select a course in each of the areas listed to meet general education requirements. Courses marked with an asterisk can be transferred directly to the university system under the terms of articulation agreements and may be substituted for recommended courses on the outline. Students should speak with an advisor before doing so.

Communications

COMM 101 – Contemporary Communication
 ENGL 101 – Composition *
 SPCM 101 – Fundamentals of Speech *

Mathematics

MATH 100 – Applied General Math
 MATH 101 – Intermediate Algebra
 MATH 102 – College Algebra *

Social Science

ECON 105 – Leadership in the Global Workplace
 ECON 201 – Principles of Microeconomics I *
 ECON 202 – Principles of Macroeconomics II *

* Students must select two of the three Equipment Operations Lab Elective courses from the following:

Equipment Operations Lab Electives

HEO 204	Operations of Cranes and Tower Systems	84	4
HEO 205	Operation of Trenching Equipment	84	4
HEO 206	Construction Bulldozers and Track Type Tractors	84	4

HEO120-Basic Soil Science

The objectives of this course are to provide a general understanding of soil science as related to soil composition, properties and bio-chemical reactions so that students understand the importance of soils in the environment in which we live.

Math100-Applied General Mathematics

This course provides instruction to prepare students with the needed general math knowledge and skills. Course emphasis is on the ability to understand and apply math skills to solve problems in the world of work. 3 credits

HEO101- Haul Truck Lab I

This is a hands-on course on a commercial trucking and final site prep equipment operation. Techniques learned in the course work will include Class A Commercial Driver's License (CDL) along with safe operation and field application of wheel loaders, skid steers, scrapers, graders, rollers, off-road trucks, machining trailers, and asphalt pavers. PM (Preventative Maintenance) techniques learned in previous classes are applied.

HEO102- Backhoe and Front End-loader Operation Lab II

This is a hands-on course on a full scale construction backhoe and front end loader. Techniques learned in the course work will be put to use in real-time situations commonly found on a construction jobsite with emphasis on equipment specific safety tips and techniques used for proper equipment operation.

HEO103-Excavators Operations and Final Grading Lab III

This is a hands-on course on full scale construction excavators. Techniques learned in the course work will be put to use in real-time situations commonly found on a construction jobsite with emphasis on equipment specific safety tips and techniques used for proper equipment operation. At this stage of their training, our trainees will also be allowed to practice/operate equipment they have already been trained on at our facility providing they have met the required prerequisite. [Prerequisite HEO 101/102]

HEO204-Cranes and Tower Systems Operation Lab IV

This is a hands-on course on full scale mobile cranes. Techniques learned in the course work will be put to use in real-time situations commonly found on a construction jobsite with emphasis on equipment specific safety tips and techniques used for proper equipment operation. Skills learned in this course will prepare the trainee for a certification exam endorsed by the NCCCO (National Commission for the Certification of Crane Operators) at this stage of their training; our trainees will also be allowed to practice/operate equipment they have already been trained on at our facility providing they have met the required prerequisite. [Prerequisite HEO 101/102/203]

HEO205-Trenching Equipment Operations Lab V

This is a hands-on course on full scale mobile cranes. Techniques learned in the course work will be put to use in real-time situations commonly found on a construction jobsite with emphasis on equipment specific safety tips and techniques used for proper equipment operation. Skills learned in this course will prepare the trainee for a certification exam endorsed by the NCCCO (National Commission for the Certification of Crane Operators) at this stage of their training; our trainees will also be allowed to practice/operate equipment they have already been trained on at our facility providing they have met the required prerequisite. [Prerequisite HEO 101/102/203]

HEO206-Bulldozer and Tracked Tractor Operation Lab VI

This is a hands-on course on full scale construction bulldozers and Tracker Trackers. Techniques learned in the course work will be put to use in real-time situations commonly found on a construction jobsite with emphasis on equipment specific safety tips and techniques used for proper equipment operation. At this stage of their training, our trainees will also be allowed to practice/operate equipment

they have already been trained on at our facility providing they have met the required prerequisite.
[Prerequisite HEO 101]

HEO108-Introduction to Construction

Provides an introduction to basic mathematical procedures commonly used in the heavy equipment construction trade. Information used in this section is tied to everyday activities that are likely to be encountered on the job and illustrates how and why mathematics is a valuable tool of the trade. The trainee will also be introduced to blueprints in this phase of training. They will learn how to identify and interpret common symbols used on construction blueprints. This course will also provide a comprehensive introduction to hand tools, power tools and how to properly identify and use specific items related to the trade. The final phase of this class is an introduction to basic rigging and the principals and practices associated with it. Trainees need only be aware of the basic equipment requirements and selection criteria at this phase of their training. They will be introduced to more in depth rigging practices later in their training. [Prerequisite MATH117]

HEO107-Introduction to Heavy Equipment Operations

This program provides an overview of heavy equipment operation, operator responsibilities, while covering basic operating principles and functions. Also learned in this program are procedures used in preventive maintenance of heavy equipment, identification of the most commonly used pieces of heavy equipment in the construction industry before leading into individual equipment and their proper use. This program is essential to the trainee since it directly relates to the heavy equipment they will be training on later in the program.

HEO204-Heavy Equipment Safety

Provides a comprehensive overview of safety requirements on job sites, with emphasis on OSHA requirements. Also presents basic safety requirements for personal protection on the job site, on and off the equipment, along with HAZCOM. This course finishes with safety techniques required for heavy equipment operators, with emphasis on organizing and conducting safety meetings, performing safety inspections/investigations, and proper inspection reporting.

HEO220- Soils II

The objectives of this course are to provide additional understanding of soil science as related to soil composition, properties and bio-chemical reactions so that students understand the importance of soils types and conditions to heavy equipment operations and site preparation

HEO160- GPS for Field Systems

Introduction to the theory of GPS (Global Positioning System) in relation to heavy construction equipment, installation, operation, and troubleshooting of site vision on the machine.

LETTERS OF SUPPORT



Pamela S. Roberts, Cabinet Secretary
Tel: 605.773.5395 | Fax: 605.773.6184 | www.sdjobs.org

October 4, 2011

Mark Wilson, Director
Office of Career and Technical Education
800 Governors Drive
Pierre, SD 57501

Subject: LATI Heavy Equipment Operations Program

Director Wilson:

The South Dakota Department of Labor and Regulation (DLR) supports Lake Area Technical Institute (LATI) in their effort to start a Heavy Equipment Operations degree program. Such a program is a key workforce development aspect for South Dakota's construction and energy industries.

Crane, bulldozer, excavators, large Agriculture, and other heavy equipment operators are a growing need in South Dakota. Looking forward through 2018, DLR anticipated needing over 90 new operators annually. In addition, the retirement of the existing operators will drive the demand even higher. Just as important, LATI understands operators must also have the knowledge and skills to do routine preventative maintenance and fix minor malfunctions.

DLR recognizes LATI as a technology education leader, a close partner with industry, and a faithful steward of public funds. LATI has assembled a strong community team which will be augmented by the participation of the DLR Local Office, the City of Watertown, and South Dakota Office of Career and Technical Education.

We urge you to endorse LATI's Heavy Equipment Operations program application. Thank you for your consideration.

Sincerely,

A handwritten signature in black ink that reads 'Pamela S. Roberts'. The signature is fluid and cursive, with a long horizontal line extending from the end.

Pamela S. Roberts
Secretary

**ASSOCIATED GENERAL CONTRACTORS
OF SOUTH DAKOTA, INC.**

HIGHWAY-HEAVY-UTILITIES CHAPTER
"THE CONSTRUCTION ASSOCIATION OF CHOICE"

300 East Capitol Avenue, Suite 1 • Pierre, SD 57501
Phone: 605-224-8689 • 1-800-242-6373
FAX: 605-224-9915 • EMAIL: info@sdagc.org • WEB: www.sdagc.org



October 11, 2011

Office of Career and Technical Education
800 Governor's Drive
Pierre, SD 57501

Ref: LATI Heavy Equipment Operations Program

Director Wilson,

The Associated General Contractors of South Dakota, Highway-Heavy-Utilities Chapter (AGC), offers this letter as our statement of support for Lake Area Technical Institute's application to start a Heavy Equipment Operations degree program.

Today's construction workforce is aging at an alarming rate and it is virtually impossible to find young people with a solid background in heavy equipment operation. Such a program will be a key workforce development aspect for South Dakota's Construction Industry.

The AGC has a long standing relationship with Lake Area Technical Institute through providing scholarships and hiring LATI grads in our industry. We look to further this relationship through active participation on the advisory board of this program.

Once again, I would like to state our support for this program at LATI.

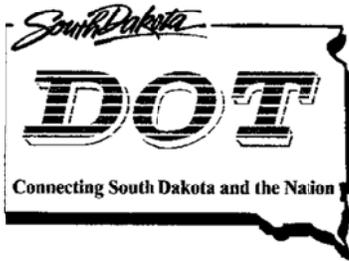
If you have any questions, or require further information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Toby L. Crow'.

Toby L. Crow, PE
Executive Vice President

Toby L. Crow, P.E.
Executive Vice President
toby@sdagc.org



Department of Transportation

Office of the Secretary

700 E. Broadway Ave
Pierre, SD 57501
Phone: 605-773-3265
FAX: 605-773-3921
Web site: www.sddot.com

October 7, 2011

Office of Career and Technical Education
800 Governor's Drive
Pierre, SD 57501

RE: LATI Heavy Equipment Operations Program

Greetings:

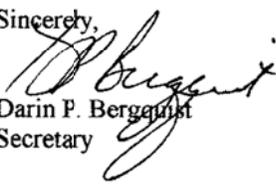
The South Dakota Department of Transportation strongly supports Lake Area Technical Institute (LATI) in their effort to start a Heavy Equipment Operations degree program. Such a program is a key workforce development aspect for South Dakota's highway construction industry.

Crane, bulldozer, excavator, and other heavy construction equipment operators are an ongoing need in South Dakota. Highway contractors in South Dakota struggle to hire and retain the quality equipment operators needed to complete important highway construction projects. In addition, the retirement of existing operators will drive the demand even higher.

Just as important, LATI understands that operators must also be able to do routine preventative maintenance as well as making minor repairs. The South Dakota Department of Transportation recognizes LATI as a technology education leader, as a close partner with industry and as a faithful steward of public funds.

We urge you to endorse LATI's Heavy Equipment Operations program application.

Sincerely,


Darin P. Bergquist
Secretary

ATTACHMENT 2: Letters of Support



P.O. Box 1474
17226 447th Avenue
Watertown, SD 57201-6474
P: 605.886.0930 F: 605.886.0932
www.towersystems.com

October 7, 2011

Office of Career and Technical Education
800 Governor's Drive
Pierre, SD

Re: LATI Heavy Equipment Operations Program

To Whom It May Concern:

Tower Systems, Inc, based in Watertown, SD supports Lake Area Technical Institute's application to start a Heavy Equipment Operations degree program. A program such as this is a key workforce development aspect for South Dakota's growing Energy and Construction Industry.

Tower Systems has a long-standing relationship with Lake Area Technical Institute, most recently working with the Wind Energy program to install the turbine foundation for their new turbine located in Watertown. We work closely with the instructors of this program to recruit their graduating students to employ within our company. Our industry requires our workers to be knowledgeable in the operation of heavy equipment such as cranes, backhoes, boom trucks, etc. as well as obtaining CDL licenses. The addition of this course of study would be a huge asset in acquiring qualified employees not only for our company, but for the construction industry as a whole.

Thank you for your consideration in this matter. If you would like to discuss the benefits of this program further, please don't hesitate to contact me at 605-886-0930.

Sincerely,

Charles O. Erickson
Vice President

Tower Systems is a registered trademark of Tower Systems, Inc.

INTEGRITY SERVICE SAFETY

