
Training Services



2007 Training Course Catalog



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According to the NFPA 70E, a "Qualified Person" is one who is trained and knowledgeable of the construction and operation of the equipment or the specific work method, and be trained to recognize the hazards present. Such persons shall also be familiar with the use of the precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools and test equipment.

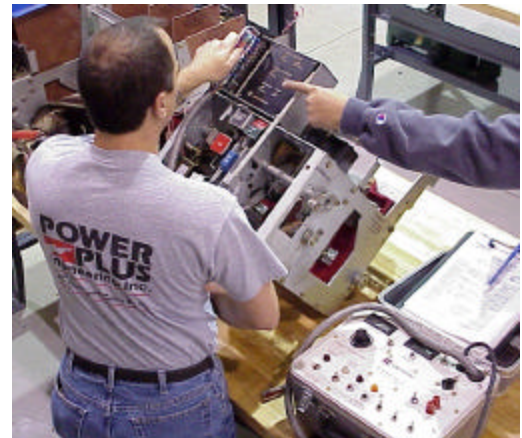
In addition, to be permitted to work within the limited approach of exposed energized conductors and circuit parts, the person shall be trained in all of the following:

- The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment
- The skills and techniques necessary to determine the nominal voltage of exposed live parts
- The minimum approach distances specified in this section corresponding to the voltages to which the qualified employee will be exposed
- The decision making process necessary to determine the degree and extent of the hazard and the personal protective equipment and job planning necessary to perform the task safely

Do your employees meet these requirements?

Power Plus Training Services has combined its technical knowledge and field expertise with sound instructional practices to offer onsite training nationwide designed to go beyond the classroom and onto the job. Unlike most third party training companies, Power Plus Training programs are real, site specific, "hands on" programs. Students walk away from our courses with confidence in their skills practiced during their training.

Courses are conducted by one of our staff of experienced and trained instructors in both the course topic and facilitation of the learning process.



The duality of field experience and instructional responsibilities of all of our instructors assures that they remain current in both the content and process of our training programs. All Power Plus Training Services instructors are NETA certified test technicians and spend time in the field. This ensures that our instructors stay current on testing standards.

The problem with most training programs is that the student may have a hard time applying the skills learned in a course when they return to work. The equipment used in the classroom may not be the same type and/or vintage of equipment that they will actually be working on. Plus, while the enrollment fees may seem inexpensive, employees incur travel expenses to travel to a location where the training is being held.

Power Plus Training Services specializes in onsite *nationwide* "hands-on" electrical testing and safety training. Our training staff will work with you to customize a training program to meet your specific training needs and that is specific to the equipment used at your facility. Power Plus Training Services understands training funds are hard to come by so we strive to give you the most effective training program possible at a very reasonable cost.



Advantages of Power Plus Training courses:

- Courses delivered on your site eliminating travel expenses for students
- Textbook and presentation customized to your power system equipment
- Students work on actual plant equipment so skills learned can be applied to their jobs
- Your facilities test equipment is used in class labs, unlike some courses that use training as a sales platform for their test equipment
- Students are onsite and available for plant emergencies
- Equipment used in labs receives full NETA testing and certification meeting your facilities preventative maintenance requirements

What our customers say about Power Plus Training courses:

- "I definitely have a much better respect and knowledge of going into a substation and performing various tasks" Brian – Electrician – General Motors
- "I think we will work safer since we understand the hazards and requirements better" Tom – Field Service Engineer – ABB Industrial Systems
- "The course and instruction was excellent!" Don – BASF Corp
- "Highly recommended" Ryan – Electrician – City of Novi, MI
- "The instructor was very competent, covered the course very well, and was knowledgeable and experienced in this line of work" –David - Electrician – General Motors Truck Group

**COURSE: ELECTRICAL AWARENESS FOR
EMERGENCY RESPONDERS**

DESCRIPTION: This course presents an overview of electrical hazard awareness and response procedures for unqualified electrical workers that are responsible for emergency response to electrical injuries.

The NFPA 70E requires all employees involved in the operation or maintenance of electrical systems, or who have access to these systems are required to be trained to be able to recognize the hazards present, this course provides the student with the information necessary to meet these requirements

Supplemented by graphic videos and stimulating class discussions this course has the impact required to ensure the employee is aware of the potential hazards he/she may encounter during rescue efforts

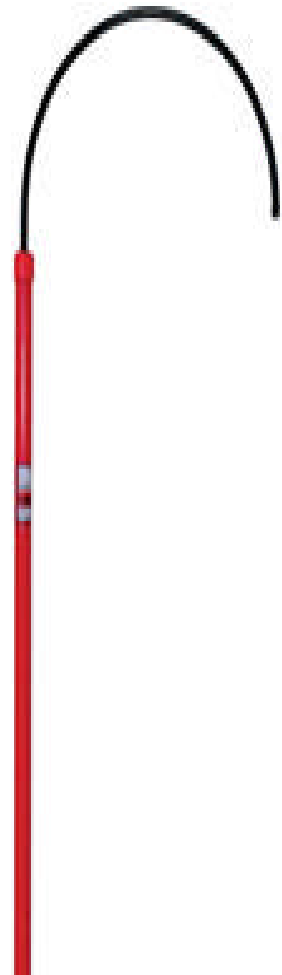
DURATION: 2 HOURS

**FORMAT: Power Point Presentation
Instructor Demonstrations
Substation Tour**

AUDIENCE: Medical staff, first response team members, and other personnel responsible for providing first aid to electric shock/burn victims

OBJECTIVE: This course will provide the student with the necessary knowledge to safely provide medical assistance to electric shock/burn victims while avoiding additional injuries during the rescue efforts

**TOPICS: Applicable NFPA 70E requirements
Burns, Shock, and Hazards of electricity
Safe work clearances for applicable voltages
First aid treatment of electrical shock and burns**



COURSE: ARC FLASH HAZARD AWARENESS

DESCRIPTION: This course introduces the student to the hazards of an arc flash event and how to set up an arc flash safety program based on the NFPA 70E "Standard for Electrical Safety in the Workplace" 2004 Edition.

Students will learn the factors affecting arc flash hazards, selection and use of PPE for arc flash protection and equipment labeling requirements.

Supplemented by graphic videos and stimulating class discussions this course has the impact required ensuring the student understands the importance of arc flash protection.

DURATION: 4 Hours

FORMAT: Power Point Presentation
Instructor Demonstrations

AUDIENCE: Supervisors, Engineers, Managers and any other personnel involved in the operation of industrial electrical equipment. Safety personnel should also attend to evaluate their facility safety programs and identify the needs of their employees.

OBJECTIVE: This training program will provide the student with the information required to comply with the NFPA 70E and NEC requirements regarding arc flash protection.

TOPICS: Applicable NFPA 70E requirements
Hazards of an arc flash event
Proper use of safety equipment
Selection and use of protective clothing for arc flash protection
Care of Personal Protective Equipment
Arc Flash calculations
Labeling



COURSE: NFPA 70E ELECTRICAL SAFETY

DESCRIPTION: This course presents electrical safety information based on the NFPA 70E *“Standard for Electrical Safety in the Workplace”* 2004 Edition. These rules establish the work practices to be used during the operation and maintenance of electrical systems.



The NFPA 70E requires all employees involved in the operation or maintenance of electrical systems, or who have access to these systems are required to be trained in the safety related work practices.

Supplemented by graphic videos and stimulating class discussions this course has the impact required to ensure the employee actually uses the procedures taught.

DURATION: 8 Hours

FORMAT: Power Point Presentation
Instructor Demonstrations

AUDIENCE: Electrical Trades, Supervisors, Engineers, Managers and any other personnel involved in the operation of industrial electrical equipment. Safety personnel should also attend to evaluate/establish their facility safety programs and identify the needs of their employees.

OBJECTIVE: This training program will provide the student with the information required to comply with the NFPA 70E requirements in electrical safety, as well as to follow practices found to be valid through years of field experience.

TOPICS: Applicable NFPA 70E requirements
Burns, Shock, and Hazards of electricity
Personal Protective Equipment care and use
Establishing an Electrically Safe Working Condition
Hazardous energy control, Lockout and Tagout
Proper use of safety and test equipment
Grounding for employee protection
Conducting Flash Hazard analysis
Selection and use of protective clothing for arc flash protection
Shock hazard analysis
Energized Electrical Work Permit
Safe work clearances

COURSE: NFPA 70E COMPLIANCE

DESCRIPTION: This course presents electrical safety information based on the NFPA 70E *“Standard for Electrical Safety in the Workplace”* 2004 Edition. These rules establish the work practices to be used during the operation and maintenance of electrical systems.



The NFPA 70E requires all employees involved in the operation or maintenance of electrical systems, or who have access to these systems are required to be trained in the safety related work practices.

Supplemented by graphic videos and stimulating class discussions this course has the impact required to ensure the employee actually uses the procedures taught.

DURATION: 16 Hours

FORMAT: Power Point Presentation
Instructor Demonstrations

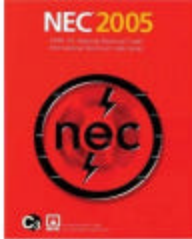
AUDIENCE: Electrical Trades, Supervisors, Engineers, Managers and any other personnel involved in the operation of industrial electrical equipment. Safety personnel should also attend to evaluate/establish their facility safety programs and identify the needs of their employees.

OBJECTIVE: This training program will provide the student with the information required to comply with the NFPA 70E requirements in electrical safety, as well as to follow practices found to be valid through years of field experience.

TOPICS: Applicable NFPA 70E requirements
Establishing an effective electrical safety program
Burns, Shock, and Hazards of electricity
Personal Protective Equipment selection, care, and use
Establishing an Electrically Safe Working Condition
Hazardous energy control, Lockout and Tagout
Proper use of safety and test equipment
Grounding for employee protection
Short circuit and arc flash studies
Conducting Flash Hazard analysis
Selection and use of protective clothing for arc flash protection
Shock hazard analysis
Energized Electrical Work Permit
Safe work clearances
Basic First Aid relating to electrical injuries

COURSE: UNDERSTANDING THE NATIONAL ELECTRICAL CODE

DESCRIPTION: The purpose of the National Electrical Code (NEC) is to inform the electrical industry and other interested parties of the many revisions, deletions, and rearrangements made in the 2005 Edition of the NEC.



This course covers the entire 2005 edition of the National Electrical Code (NEC). The material and worksheets are presented in sequential order to the NEC and illustrates a step-by-step procedure on how to apply the NEC.

The Authority Having Jurisdiction (AHJ) has the final authority for interpretation, per 90.4 of the NEC. This course meets the state of Michigan certification requirements. The certificate must be retained until the 2006 renewal year.

DURATION: 32 Hours

FORMAT: Power Point Presentation

AUDIENCE: Master and Journeyman electricians, electrical contractors, registered code officials, electrical inspectors, engineers, and any other person involved in the installation of electrical equipment.

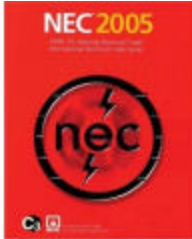
OBJECTIVE: Using "Understanding the National Electrical Code Volume 1 and 2" based on the 2005 NEC, students will learn valuable insights into 100% of the articles in the code, explaining each in detail and offering practical examples to illustrate how they are applied.

These workbooks allow the student to navigate easily through the NEC requirements by organizing discussions into logical subject groupings, from wire raceway and box sizing through special applications wiring. In addition, promoting an understanding of how the code is interpreted in specific field situations.

TOPICS: Chapter 1 General
Chapter 2 Wiring and protection
Chapter 3 Wiring methods and materials
Chapter 4 Equipment for general use
Chapter 5 Special occupancies
Chapter 6 Special equipment
Chapter 7 Special conditions
Chapter 8 Communication systems
Chapter 9 Tables

COURSE: Changes to the 2005 NEC

DESCRIPTION: This course presents electrical code wide changes and more. The purpose of the course is to inform the electrical industry and other interested parties of the many revisions, deletions, and rearrangements made in the 2005 edition of the National Electrical Code (NEC).



The Authority Having Jurisdiction (AHJ) has the final authority for interpretation, per 90.4 of the NEC. New or revised technical content in this edition is indicated by a vertical line next to the paragraph, table, or figure in which a change occurred.

DURATION: 16 Hours

FORMAT: Power Point Presentation

AUDIENCE: Master and Journeyman electricians, electrical contractors, registered code officials, electrical inspectors, engineers, and any other person involved in the installation of electrical equipment.

The certificate must be retained until the 2009 renewal year.

OBJECTIVE: This code up-date class is for license renewal in the state of Michigan, however, it may be used by anyone wishing to learn more about the NEC. This course is based on the 2005 NEC changes. The material and work sheets are presented in sequential order to the NEC.

Covering the changes and proceeding with a step-by-step procedure on how to apply the changes of the 2005 NEC.

TOPICS: Applicable NFPA 70 requirements
Chapter 1 General
Chapter 2 Wiring and protection
Chapter 3 Wiring methods and materials
Chapter 4 Equipment for general use
Chapter 5 Special occupancies
Chapter 6 Special equipment
Chapter 7 Special conditions
Chapter 8 Communication systems
Chapter 9 Tables
Michigan part 8

COURSE: TRANSFORMER CONSTRUCTION AND MAINTENANCE

DESCRIPTION: This program is designed to teach the student how to prepare for and perform preventative maintenance and test procedures including theory, construction, troubleshooting, and basic repairs.

Each participant performs transformer inspection and testing procedures. Safety considerations that apply to transformer testing will also be covered.

DURATION: 16 Hours

FORMAT: Presentation
Instructor Demonstrations
Participant Hands-On

AUDIENCE: Electrical Skilled Trades, Supervisors, Engineers and any other personnel involved in the operation or maintenance of plant power distribution transformers

OBJECTIVE: This training program will enable personnel to:

- Understand construction and operation of distribution transformers
- Perform NETA and NFPA 70B recommended maintenance on distribution transformers
- Reduce maintenance costs
- Gain confidence through real hands-on training

TOPICS: Transformer construction and operation
Electrical theory as applied to transformers
Inspection, maintenance and testing procedures
Safe work practices
Record keeping and material history



COURSE: LOW VOLTAGE CIRCUIT BREAKER MAINTENANCE

DESCRIPTION: This program is designed to teach the student how to prepare for and perform preventative maintenance and test procedures including theory, construction, troubleshooting, and basic repairs of Low Voltage power circuit breakers.

Each participant performs circuit breaker and testing procedures. Safety considerations that apply to circuit breaker maintenance will also be covered.

DURATION: 16 Hours

FORMAT: Presentation
Instructor Demonstrations
Participant Hands-On

AUDIENCE: Electrical Skilled Trades, Supervisors, Engineers and any other personnel involved in the operation or maintenance of plant power circuit breakers

OBJECTIVE: This training program will enable personnel to:

- Understand construction and operation of circuit breakers
- Perform NETA and NFPA 70B recommended maintenance on power circuit breakers
- Reduce maintenance costs
- Gain confidence through real hands-on training

TOPICS: Circuit breaker construction and operation
Electrical theory as applied to circuit breakers
Inspection, maintenance and testing procedures
Safe work practices
Record keeping and material history



COURSE: SUBSTATION SAFETY AND OPERATION

DESCRIPTION: In order to safely operate substation equipment, personnel need to be familiar with the construction and operation of the equipment. This includes the understanding of specific distribution system configurations, switching operations, key interlocks, and system lockout requirements.



This site-specific training program meets all State and Federal OSHA training requirements of personnel operating power distribution systems. The new NFPA 70E requirements regarding arc flash protection will also be discussed.

DURATION: 16 Hours

FORMAT: Power Point Presentation
Instructor Demonstrations
Hands-On Operation of site specific equipment

AUDIENCE: Electrical Skilled Trades, Supervisors, Engineers and any other personnel involved in the operation or maintenance of plant power distribution equipment.

OBJECTIVE: This training program will enable personnel to:

- Operate your sites power distribution equipment
- Safely restore from power outages on power distribution systems, thus reducing costly downtime
- Comply with OSHA and NFPA 70E safety standards for substation work
- Gain confidence through real, hands-on training

TOPICS: Applicable NFPA 70E and OSHA requirements
Burns, Shock, and Hazards of electricity
Hazardous energy control, Lockout and Tagout
Proper use of safety and test equipment
Safe work clearances
Grounding for employee protection
Selection and use of PPE
Industrial Power Distribution Systems
Substation Construction
Substation Operations

COURSE: SUBSTATION MAINTENANCE

DESCRIPTION: The National Fire Protection Association recommends routine maintenance to be performed on distribution switchgear. In order to properly perform this maintenance, personnel need to be familiar with low and medium voltage power systems. This includes the understanding of specific distribution system bus configurations, switching operations, key interlocks, system lockout requirements, and distribution system maintenance techniques for industrial facilities.



This site-specific training program meets all State and Federal OSHA training requirements of personnel operating and working on power distribution systems. The NFPA 70E requirements regarding arc flash protection will also be discussed.

Supplemented by graphic videos, stimulating class discussions, and interactive power point presentations, this course has the impact required to ensure the employee actually uses the procedures taught.

DURATION: 40 Hours

FORMAT: Power Point Presentation
Instructor Demonstrations
Participant Hands-On

AUDIENCE: Electrical Skilled Trades, Supervisors, Engineers and any other personnel involved in the operation or maintenance of power distribution equipment.

OBJECTIVE: This training program will enable personnel to:

- Safely troubleshoot and restore from power outages on power distribution systems, thus reducing costly downtime
- Perform NETA and manufacturer recommended maintenance
- Reduce maintenance costs
- Comply with OSHA and NFPA safety standards for substation work
- Gain confidence through real hands-on training

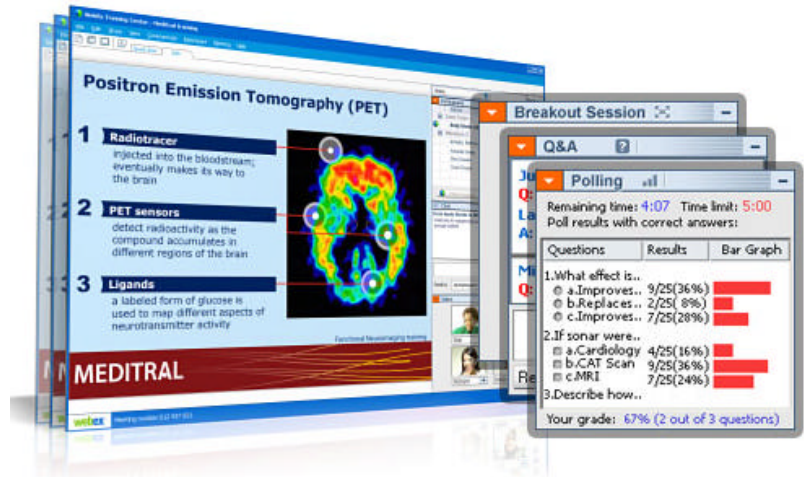
TOPICS: Electrical Safety
Substation Construction and Operation
Switchgear Maintenance
Transformer Fundamentals and Maintenance
Circuit Breaker Fundamentals and Maintenance
Introduction to protective relaying

What's a Webinar?

A webinar is an online seminar or presentation with interactive elements. You can interact with the audience, let people "raise their hand" to ask questions, take polls, and more.

How does it work?

The student will log on the internet using any type of internet connection and call a toll free phone number for teleconferencing. The presentation is instructor led and completely interactive allowing for questions, demos via webcam, and desktop sharing for applications or documents.



The advantage of using a Webinar format is the elimination of travel expenses for the instructor and the students if they are in the field or remote offices.

Pre-recorded webcast

A webcast is a presentation without the interaction, like watching a film rather than attending a workshop.

A prerecorded presentation is available on line 24/7 for students to view at their convenience. Courses may be custom built to meet your training needs and incorporate videos, photos, and procedures from your facility.

While this format does lose the interactivity of the Webinar format it allows for greater flexibility for getting people free at the same time for a training session, they just log on at any time to view the presentation.

Check for upcoming training sessions at <https://epowerplus.webex.com>

COURSE: NFPA 70E ELECTRICAL SAFETY - WEBEX

DESCRIPTION: This online course presents electrical safety information based on the NFPA 70E *“Standard for Electrical Safety in the Workplace”* 2004 Edition. These rules establish the work practices to be used during the operation and maintenance of electrical systems.



The NFPA 70E requires all employees involved in the operation or maintenance of electrical systems, or who have access to these systems are required to be trained in the safety related work practices.

Supplemented by graphic videos and stimulating class discussions this course has the impact required to ensure the employee actually uses the procedures taught.

DURATION: 6 Hours

FORMAT: Webex Online Broadcast
Power Point Presentation

AUDIENCE: Electrical Trades, Supervisors, Engineers, Managers and any other personnel involved in the operation of industrial electrical equipment. Safety personnel should also attend to evaluate/establish their facility safety programs and identify the needs of their employees.

OBJECTIVE: This training program will provide the student with the information required to comply with the NFPA 70E requirements in electrical safety, as well as to follow practices found to be valid through years of field experience.

TOPICS:

- Applicable NFPA 70E requirements
- Burns, Shock, and Hazards of electricity
- Personal Protective Equipment care and use
- Establishing an Electrically Safe Working Condition
- Hazardous energy control, Lockout and Tagout
- Proper use of safety and test equipment
- Grounding for employee protection
- Conducting Flash Hazard analysis
- Selection and use of protective clothing for arc flash protection
- Shock hazard analysis
- Energized Electrical Work Permit
- Safe work clearances

COURSE: ARC FLASH HAZARD ANALYSIS - WEBEX

DESCRIPTION: This course introduces the student to the hazards of an arc flash event and how to set up a arc flash safety program based on the NFPA 70E *“Standard for Electrical Safety in the Workplace”* 2004 Edition.



Students will learn how to perform an arc flash hazard analysis, gather information for labeling equipment, and selecting the proper personal protective equipment for arc flash protection.

Supplemented by graphic videos and stimulating class discussions this course has the impact required ensuring the student understands the importance of arc flash protection.

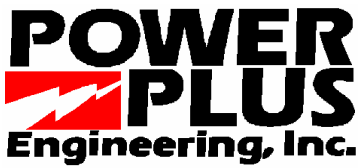
DURATION: 4 Hours

FORMAT: Webex Online Broadcast
Power Point Presentation

AUDIENCE: Supervisors, Engineers, Managers and any other personnel involved in the operation of industrial electrical equipment. Safety personnel should also attend to evaluate their facility safety programs and identify the needs of their employees.

OBJECTIVE: This training program will provide the student with the information required to comply with the NFPA 70E and NEC requirements regarding arc flash protection.

TOPICS: Applicable NFPA 70E requirements
Hazards of an arc flash event
Proper use of safety equipment
Selection and use of protective clothing for arc flash protection
Care of Personal Protective Equipment
Arc Flash calculations
Labeling



Training Services

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REQUEST FOR QUOTE

DATE: _____
NAME: _____
TITLE: _____
COMPANY NAME: _____
ADDRESS: _____
CITY, STATE, ZIP: _____
PHONE & FAX: _____
E-MAIL _____
COURSE: _____
TOTAL NUMBER OF PARTICIPANTS: _____

WHERE DID YOU HEAR ABOUT POWER PLUS TRAINING?

- ☐ TRADE SHOW
☐ INTERNET
☐ NETA WORLD MAGAZINE/WEBSTIE
☐ REFERED TO BY: _____
☐ OTHER: _____

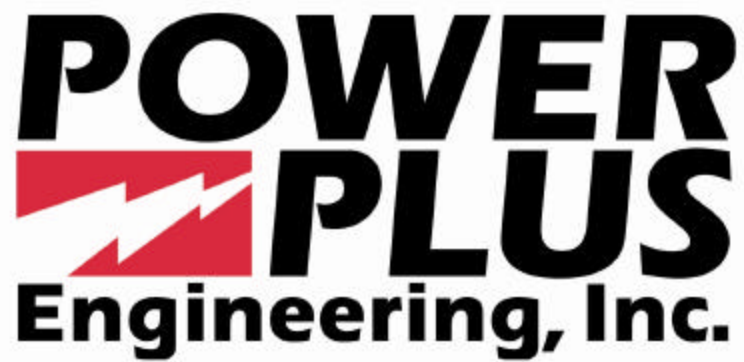
☐ REQUEST CUSTOMIZED COURSE

DESCRIPTION OF THE POWER DISTRIBUTION EQUIPMENT AT YOUR FACILITY:

JOBS TASKS THAT THE PERSONS ATTENDING THIS CLASS WILL BE RESPONSIBLE FOR INCLUDE:

PLEASE COMPLETE THE ABOVE AND FAX TO: (248) 305-9105

OR MAIL TO: Power Plus Engineering
46575 Magellan Drive
Novi, Michigan 48377



Knowledge is power!

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