

**european safety  
directive consulting**

The European Union (EU) requires that a manufacturer or his authorized representative in the Union declare that the product being placed on the market complies with the essential health and safety regulations applying to it.

These regulations demand a high standard of protection for the safety and health of persons. For many products, machinery included, these rules are significantly more stringent and comprehensive than the voluntary ANSI standards used in the US. Requirements related to the documentation, recalls and manufacturing quality are among those included in the EU directives but not the ANSI standards. Thus, for many products, the safety features required by ANSI will be just a starting point for the EU regulations.

Products that are in compliance with the EU regulations and have declared their compliance must be identified by having the CE Mark (Conformité Européenne) affixed to the product. As of January 1995, the CE Mark was generally required on products covered by the following directives:

- Machinery
- Certain Electrical Equipment
- Construction Equipment
- Gas Appliances
- Simple Pressure Vessels

There are many tasks that must be conducted prior to obtaining a CE Mark. These can include:

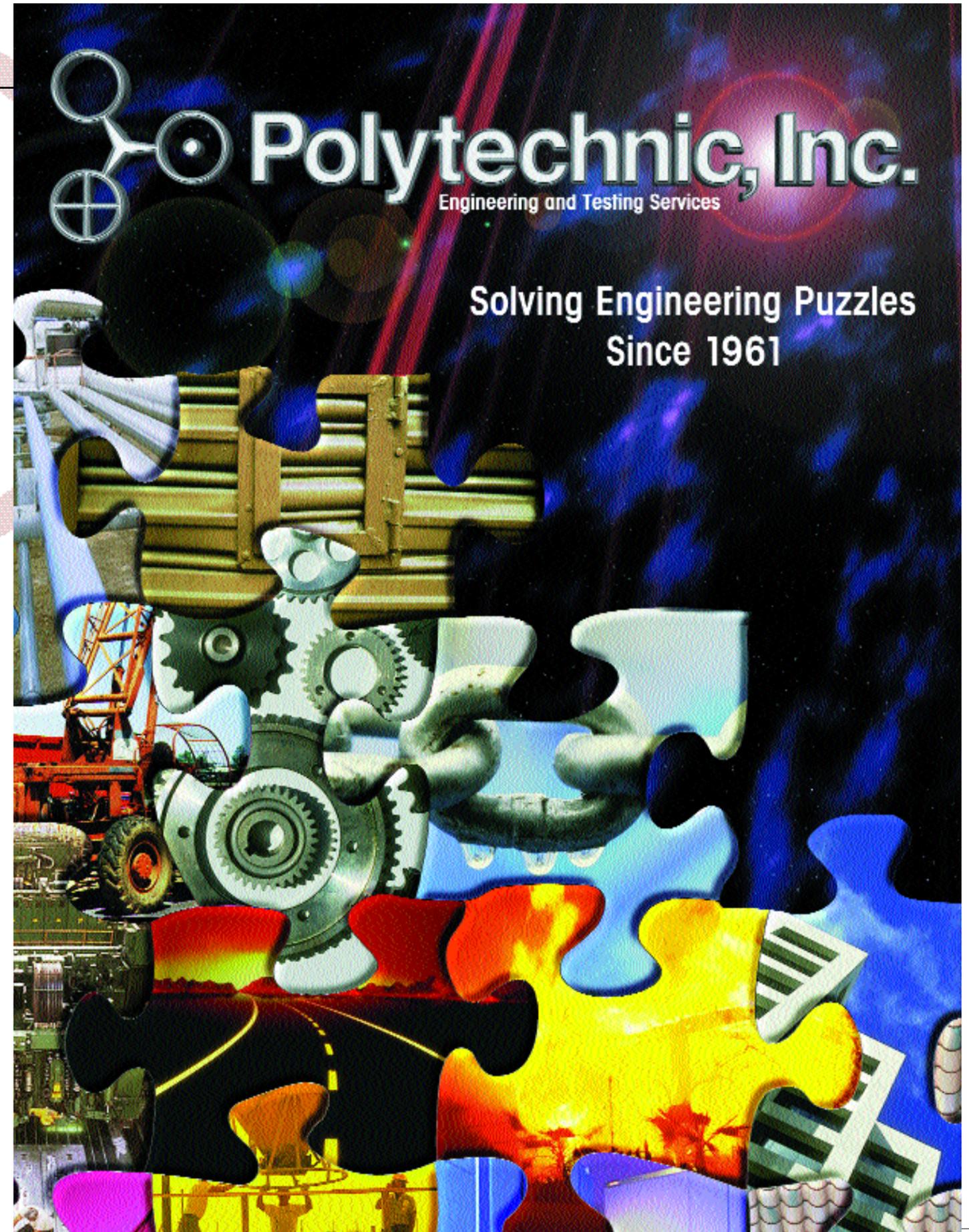
- Determining if certification is required.
- Determining which regulations, directives and standards are applicable.
- Preparing a technical file which, in general, documents the design of the product, the tests or analyses which were conducted, a description of the methods used to eliminate hazards and a copy of the manufacturer's instructions.
- Attaching a Declaration of Conformity to the product for shipment.

Our professional engineering and technical staff is prepared to work with your staff and assist you in complying with the new regulations and obtaining a CE Mark by:

- Identifying applicable directives and their requirements
- Identifying hazards and recommending approved methods for elimination or protection from the hazards.
- Evaluating the human factors, reliability, maintenance and control issues which must be considered.
- Reviewing and analyzing the contents of your technical file.

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POLYTECHNIC INC.'s staff can offer a broad range of consulting services tailored to satisfy your specific requirements. Our professional staff of qualified engineers and technicians stand ready to assist you in evaluating any residential, commercial or industrial loss. POLYTECHNIC INC.'s expertise, combined with a laboratory and technical support services, can provide you with the answers you need.

- Field Inspections
- Cause and Origin Determinations
- Collection of Evidence/Samples
- Examination and Testing
- Fire Codes/Building Standards
- Photographic Documentation
- Video Documentation
- Process Flow Analysis
- Design Review and Analysis
- Laboratory Tests and Evaluation
- Structure Analysis
- Stress Analysis/Stress Testing
- Failure Analysis
- Noise/Vibration Testing
- Ergonomic Analysis
- Instructions, Warnings and Labeling
- Standards Search and Review
- Product Performance Testing
- Technical Literature Searches
- Model Making Displays
- Graphics/Animation
- Court Testimony

**engineering services industrial equipment**



Since the dawn of the Industrial Revolution, workers have been at risk from the machines they work with. Even as early as the late 1800's, the need for worker safety was recognized. For instance, the first interlocking press guard (618,064) was patented in 1899, and the first known two-hand machine control (374,349) was patented in 1877.

Although the trend has improved over the years, hazards still exist with many types of industrial equipment, such as:

- **Metalworking Machinery and Equipment:**  
Punch Presses, Shears, Press Brakes, Lathes, Drills, Grinders, Welders,
- **Woodworking Machinery and Equipment:**  
Saws, Shapers, Routers, Planers,
- **Plastic and Rubber Processing Equipment:**  
Molding Machines, Granulators, Calendars,
- **Material Handling Equipment:**  
Conveyors, Cranes, Fork-Lifts,
- **Coiling and Slitting Equipment**
- **Personnel Supports:**  
Ladders, Scaffolds, Aerial Lifts, Elevators,
- **Maintenance Equipment:**  
Paint Sprayers, Floor Polishers or Buffers,
- **Food and Bakery Equipment**
- **Packaging and Filling Equipment**



**engineering services consumer products**



If you look through any newspaper, you'll find advertisements for a bewildering array of consumer products. Most of these products rightfully claim to make life easier, more comfortable or more convenient, and as a result - sell.

Most consumer products are designed, manufactured and packaged in a way that makes them safe for use by the average consumer. However, from time to time, accidents occur. At these times, it is often necessary to determine whether or not a defect exists in the product.

POLYTECHNIC, INC.'s staff has a wide range of experience in evaluating the engineering and safety aspects of various consumer products. This experience can assist you in evaluating accidents involving consumer products such as:

- **Appliance Gas Controls**
- **Stoves and Ovens**
- **Beauty or Health Care Appliances**
- **Lawn and Garden Equipment**
- **Do-It-Yourself Hardware**
- **Portable or Stationary Tools**
- **Food Processing Equipment**
- **Electric Blankets and Heating Pads**
- **Toys and Bicycles**
- **Ladders and Stepstools**
- **Disposable Butane Lighters**
- **Snow Removal Equipment**
- **Camping Heaters**
- **Snowmobiles and ATV's**



**fire and explosion investigation**

An uncontrollable fire can consume or destroy those things which are in its path, leaving only a trail of charred or melted remains. The untrained eye sees the destruction but usually misses the clues, such as the burn pattern or the globules of melted metal which can allow the trained eye to determine what happened.

POLYTECHNIC INC.'s experienced staff have served the insurance and legal profession since 1961 in all aspects of fire, arson and explosion investigation. Over the years, POLYTECHNIC, INC.'s staff have investigated fires in such diverse areas as:

- **Residences**
- **Cars/Trucks/Boats**
- **Motor/Mobile Homes**
- **Industrial/Commercial Buildings**
- **Grain/Bulk Material Silos**
- **Disposable Butane Lighters**
- **Boilers/Heaters/Furnaces**
- **Gas Controls**
- **Ovens/Stoves**
- **Household Appliances**
- **Solvent Storage and Use**

**vehicle laboratory**

Vehicles affect our lives in many ways each day. As the complexity of vehicles increases, so does the need for better information and advice about them. This need is felt by all those involved directly or indirectly in the use, or misuse, of vehicles.

POLYTECHNIC INC.'s VEHICLE LABORATORY brings a professional engineering dimension to your consulting needs. We can provide a full spectrum of services and facilities. Our expertise and experience span a wide range of disciplines in the field including automobiles, trucks, industrial vehicles and mobile equipment, agricultural vehicles, watercraft and recreational vehicles.

Our singular ability to structure our services to fit your individual needs is a direct result of our long experience in dealing with a wide variety of clients. Our confidential, customized service is dedicated to solving your particular problem. We can provide:

- **Safety Analysis and Control**
- **Accident Investigation/Reconstruction**
- **Crashworthiness Evaluation**
- **Vehicle Dynamics Evaluation**
- **Product Design Reviews**
- **Ergonomics (Human Factors) Evaluation**
- **Fluid Power System Analysis**
- **Standards Compliance Verification**
- **Reliability Assessment**
- **Failure Mode/Effects Analysis**
- **Manufacturing Defects Analysis**
- **Court Testimony**
- **Fire Investigation**
- **Restraint System Evaluation**
- **Systems Analysis - Steering, Braking, Suspension, Power Train, Electrical, Structural**

**environmental services**

POLYTECHNIC has been involved in environmental matters since 1961. Consulting has been provided in air pollution and noise issues to many cities and municipalities as well as private industry.

POLYTECHNIC has contributed to dozens of municipal and county zoning ordinances throughout the country by preparing the text of the industrial zoning sections

Past clients in industrial zoning include Allstate Insurance Company, Clark Oil Company, Natural Gas Pipeline Company of America, and cities such as Baltimore, Maryland, Little Rock, Arkansas, Milwaukee, Wisconsin and Providence, Rhode Island.

Environmental surveys have been conducted on behalf of the Illinois State Tollway Authority, Olin Corporation, the Metropolitan Water Reclamation District of Greater Chicago, and ITT Continental Baking Company.