



RISING ENERGY COSTS GENERATE CONCERN—AND NEW OPPORTUNITIES

There is more interest in energy conservation in this country now than in the last twenty years. Recent events like the natural gas crisis in California, the blackout in the Northeast, aging nationwide energy grids, and rising gasoline prices have companies looking at the cost of energy more than ever. Additionally, companies that previously had staff specialists to monitor and manage their energy costs have not replaced those who have retired or whose functions have been outsourced. Good energy savings projects were always "on the list" but were most likely moved to the bottom of the list because of limited capital availability and more immediate capital needs.

Already, a large part of our business revolves around residential and commercial/institutional energy conservation in New England. RISE Engineering, a Division of Thielsch Engineering, looks at single family homes, multiple family dwellings, and office buildings to recommend improved insulating materials, lighting, HVAC, HVAC controls, new windows, etc. RISE coordinates financing in many cases, since local or federal funding is usually available. This same emphasis on energy conservation has been employed by the Process Engineering group within Thielsch. Over the years they have worked with a number of large ammonia, urea, and fertilizer manufacturers to improve energy utilization as they improve product yield.

"We're coming closer to the next energy crisis", said U.S. Representative Joe Knollenberg, R-Farmington Hills, MI. He is alarmed not only by recent spikes in gasoline and home fuel prices, but also by the fact that Congress has yet to deal with the problems that led to the massive blackout last

summer. With crude oil prices skyrocketing to a 14-year high, some insiders predict that the worst may be down the road.

There is no magic pill for saving energy dollars. You can pay less for the energy you use or you can use less energy. If you're looking to save money on energy, you need to look at both sides of the meter - the supply side (what you're spending in rates and peak demand charges) and the demand side (what you can do to reduce energy consumption). With this challenging environment in mind, Thielsch Engineering offers energy audits and energy conservation programs to both small and large companies.

These programs are designed to provide an understanding of the important relationships between product mix, throughput, and energy usage. Comprehensive energy audits enable Thielsch Engineering specialists to determine what "no" or "low" cost opportunities exist for reducing energy usage. In addition, a clearer understanding of a client's energy usage allows that client to manage peak demand charges and to develop a clearer understanding of the impact of process changes.

For more information concerning Thielsch energy conservation programs, please contact: Cary Franklin at (770) 350-7630 or by e-mail at cfranklin@thielsch.com or Vin Graziano at RISE (401) 784-3700 or by e-mail at vgraziano@thielsch.com.



MOLD - Commercial, Institutional, and Residential

THIELSCH ENGINEERING SCORES WITH THE NEW ENGLAND PATRIOTS

Thielsch Engineering became involved in the construction of Gillette Stadium because the Kraft family wanted to ensure that the stadium, which opened on September 9, 2002, was environmentally safe for fans and families. Their general contractor, Beacon, Barton & Marlow, enlisted the services of Thielsch Engineering to confirm that the construction materials were properly installed.

The Nondestructive Testing Group of Thielsch Engineering provided both videoborecope and radiographic examinations of several areas throughout the newly constructed stadium to verify the architect's specifications and criteria were met.

Radiographic examinations were performed on masonry walls to confirm the placement of rebar within the walls. Several areas were inspected and found to be in compliance. The utilization of a Radioactive Isotope was required in order to take x-rays. The x-rays were subsequently developed with portable darkroom equipment on the job site.

A videoboreoscopic examination was utilized in order to pinpoint any open valves which were allowing water to run constantly. Through a process of elimination, the open valves were identified and turned off, which corrected a potential problem. In the process, it also saved countless gallons of water and future repair expenses. The 275 foot videoborecope was also used to verify that the waste drain lines were clear of any construction debris, which would prevent proper drainage and possible back-ups.

Microbiological services were provided by Thielsch Engineering's BAL Laboratory. They performed microbial assessments of the ductwork in all of the suspected problem areas. They provided the acceptable criteria for maintaining an environmentally safe building. Throughout the construction process, they also monitored the levels of viable and nonviable molds within the stadium. Monitoring such parameters during construction resulted in a healthy indoor environment.



Arthur Haley (left), Manager, Non-destructive Testing Group, accepting a ceremonial football from stadium owner, Robert K. Kraft.

December of 2003, where the company was commended for their efforts and support of the project.

BOSTON INSTITUTIONS ADDRESS MOLD

Construction managers and private institutional owners in the Cambridge, MA area have recognized the growing concern over environmental issues, specifically mold growth in buildings during the construction or renovation phase of a project. Over the past year, Thielsch Engineering has been retained by several construction managers to provide mold prevention programs for institutional construction projects. As in the Gillette Stadium project, Thielsch Engineering employed the use of BAL Laboratory, the Construction

Testing Services Laboratory, and professional engineers as an integrated team. This utilized our biological expertise in mold growth; our construction expertise in commercial construction practices; and our engineering expertise to develop a cost-effective custom mold prevention and identification program.

The mold prevention program uses inspection techniques such as borescopic, thermal imaging, visual inspection, moisture detection, and air quality testing. This approach has proven effective in detecting moisture and mold in areas not visually accessible. These tools give Thielsch Engineering the ability to look into walls and identify areas where a more detailed investigation is necessary. The inspection results are then provided in a report to the construction manager, which details where moisture and mold may be hiding and any remediation efforts that may be necessary. Once the remediation is done, a follow-up inspection is performed and a final report, which clears the building of mold, is provided to the construction manager and the owner.

CAN I LIVE IN THIS HOUSE?

A customer was referred to BAL Laboratory by Jeffrey May (a world renowned author on mold contamination - "My House is Killing Me"). The customer was in the process of purchasing a home as the one she owned had a serious mold problem. She asked BAL to inspect the new home in conjunction with a structural engineer.

BAL performed a full biological indoor air quality analysis. The analysis was of the utmost importance because she had been exposed to extreme levels of mold contamination in her previous home. In this investigation, it was not only important to provide the customer with the concentration of mold(s) present within the home but also their genre. BAL was particularly interested in detecting the presence of any toxin producing molds. These are of particular danger to individuals who are hypersensitive to the presence of mold. In the end, BAL was able to impartially provide the customer with the information she needed to make an informed buying decision. The prospective home did have mold. As a result of the report and the recommendation of the engineer, she decided not to purchase the home.

These stories illustrate the cost-effectiveness of using one company to provide the combined expert capabilities of engineers and laboratories. Thielsch Engineering's array of integrated services helps to support commercial, institutional, and residential real estate facilities.

Services provided include:

- Custom Mold Prevention
- Environmental Clearance
- Water Infiltration & Monitoring
- Microbiological & Environmental Science
- Construction Engineering
- Energy Conservation
- Contamination Identification

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Thielsch Engineering Capabilities

Whether a customer is a real estate developer, a large integrated pulp and paper mill, a power generating facility, a refinery, or a small manufacturer with a corrosion problem, we know they have common needs - to keep assets operating safely and in an environmentally friendly manner with minimum cost and disruption to ongoing operations.

At Thielsch, we employ an integrated engineering approach that addresses the basic components of the production process. Our Mechanical Integrity (MI) programs ensure equipment reliability by providing an approach that minimizes maintenance and inspection costs while maximizing production. MI programs can be developed for one facility or an entire corporation. We also offer engineering expertise to review and refine existing MI programs to ensure that equipment performs efficiently and economically.

We provide 24/7 response, mobilizing a variety of technical skills to solve problems. We support our engineering teams with complementary internal laboratory and fabrication services to evaluate both the process and the equipment to cost-effectively resolve the problem. The same capabilities that are utilized on a day-to-day basis to ensure a facility's mechanical integrity are immediately mobilized in the case of an unexpected outage. Our technical, welding, and repair resources are ready to respond to any emergency. Whether it is a deaerator failure in Mexico, a press failure in Michigan, or a smokestack failure in California, we can determine the cause of the failure, engineer a lasting solution, and implement that solution.

Our mission is to deliver value-added, integrated services to our customers. We strive to reduce operating costs and increase profitability by improving reliability and safety, extending the operating life of capital equipment, and conserving energy.

OPERATING GROUPS:

- **Professional Engineering Division:** Failure Analysis, Engineering Evaluation, Expert Testimony, and Insurance Claims Analysis
- **Paper & Process Industries Division, Utility Engineering Services Division, and Fabrication Services Group:** Condition Assessment, Engineering Analysis, **PRIME** (PRogram for Inspection, Maintenance & Engineering), and Industrial Fabrication and Welding Services, ASME "R" Stamp Program, and Mechanical Integrity Program
- **Process Engineering:** Energy Conservation, Feasibility Studies, Used Equipment and Physical Plant Assessments/Due Diligence, and Client Representation in Major Projects
- **RISE Engineering:** Energy Conservation Studies and Implementation

LABORATORIES:

- **Materials Testing Laboratory:** A metallurgical evaluation laboratory; A2LA Certification Number 2144.01
- **ESS Laboratory:** A full service laboratory specializing in analytical testing for environmental management
- **BAL Laboratory:** A state certified laboratory providing testing services in the areas of environmental and public health microbiology
- **Nondestructive Testing:** ASNT Level III and QA/QC Services
- **Construction Testing Services:** Quality assurance services; field and laboratory testing of soil, concrete, and asphalt

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20 Years Young - Old Pros in Engineering Solutions

In 2004, Thielsch Engineering, Inc. celebrates 20 years in business. Over the years, we have become one of the premier consulting engineering and service companies in the nation, going from 7 to 275 employees through growth, acquisitions, and generation of annual revenues over \$40 million. During that time, we have continued to build a skilled team of professionals and support personnel who use the latest technologies available and apply imagination, ingenuity, and dedication to all services offered.

As we go forward, we will continue to provide a full range of coordinated, integrated engineering services on regional, national, and international levels in the pursuit of increased equipment reliability, operating efficiency, and safety for our clients, their facilities, and sites.

We are grateful to our many clients who, over the years, have continued to rely on us to provide them with cost-effective, competent and reliable solutions, and we look forward to serving them for many years to come. As Helmut Thielsch, our founder, told the Providence Business News, "If we make a customer successful, we are successful. Our goal is to make more profitable and more successful customers."

Safe and Reliable Operation are the Cornerstone of the Process Industry

We are in an era of reduced maintenance budgets and increased outsourcing. It is imperative for the successful economic operation of a manufacturing facility for its management to continue to be focused on insuring plant reliability and safety. Choosing the right company to assist with these issues - whether they consist of mechanical integrity inspections, due diligence for used equipment or entire operating units, process hazards analyses, energy audits, or process evaluations - is one of the most critical decisions a plant manager will make. The right choice will lead to improved on-stream rates, reduced maintenance and insurance costs, and increased profitability. The wrong choice can lead to higher maintenance costs, poor on-stream rates, increased potential for personal injury, and dramatically reduced profits.

Thielsch Engineering has made being the right choice the core of our business. For over twenty years, Thielsch personnel have been working hand-in-hand with plant owners to improve reliability, efficiency and safety. Thielsch Engineering has a multi-disciplined engineering staff able to support clients with everything from equipment inspections and repairs, to control system reviews and modifications, to process evaluation and optimization.

Some of our recent projects highlight the diversity of our assignments, while reinforcing the common theme of reliability:

- In one project, we assisted a local chemical manufacturer in relocating their total manufacturing capability

Tough Times Call for a Fresh Approach!

The Paper and Process Industries (PPI), a division of Thielsch Engineering, serves highly competitive and capital-intensive industries that are subject to increasing price and profitability pressure. Corporate managers seek to increase revenue but the business environment does not support price flexibility. They clearly need to find a way to deliver reliable quality production, reduce operating costs, and stabilize or reduce headcount. **With this in mind, the objectives of Thielsch Engineering's Integrated Services are:**

- To increase production by extending normal inspection cycles and inspecting equipment based on quantified risks.
- Reducing capital spending and maintenance costs by extending the life of capital equipment.
- Design repairs for business needs. Don't repair for a twenty-year life if the unit will need to be replaced in five years.
- Engineered selection of materials to meet the client's goals. Select appropriate materials of construction to minimize inspection and repair costs.
- Reduce downtime by using failure analysis and repair strategies. If failure occurs, find out why and address the root cause. Prepare for failures by developing repair strategies in advance.

from their existing site to a larger and more industrial location. There were many factors involved with this relocation as conditions can vary from one site to another. Air temperature, water quality, soil conditions, feed stock composition (gas or oil), availability of electricity, and environmental and pollution control environments are some of the factors that are involved with this type of relocation.

- When a client in Florida needed a fabricated stainless steel tank, we were able to give them two viable options: a) to fabricate the tank to their exact dimensions; or b) to locate an existing tank from the used equipment market, research the tank's history, and assess suitability. The first option is a replacement in kind, with a delivery dictated by availability of stainless steel. The second option is a compromise - much better delivery, less or equivalent cost, with some retrofit required to allow the installation of the tank.
- We've been involved with due diligence of Chemical and Power Plants. The process includes: a) identifying critical equipment; b) developing inspection strategies; c) evaluating equipment asset value and expected life; and d) documenting the results.

If an assignment requires evaluating equipment, keeping equipment running, rapidly responding to unexpected outages with a cost-effective repair strategy, or developing programs to improve plant reliability, Thielsch Engineering is ready to mobilize experienced personnel to meet the client's needs.

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To reduce operating costs through engineering management of inspections as well as develop the inspection protocols based on quantifiable risks.

- Evaluations of inspection and data collection ensure that the data is not only collected, but analyzed and appropriate action is taken in a timely manner.
- Use client's maintenance personnel during shutdowns; "R" Stamp repairs under the Thielsch "R" Stamp Program with the client's certified welders.
- Provide coordinated outage management service - tank cleaning, inspection tasks organization, engineering supervision of inspections, etc.

To reduce or stabilize headcount by complementing, supplementing, or replacing in part or entirely the responsibilities of the client's limited resources.

- We serve as the client's maintenance/engineering coordinator on-site and provide practical proven software to manage inspection results for the client's critical equipment.

For information about this program, contact Ad Hagan at (401) 467-6454 or by e-mail at ahagan@thielsch.com, or Cary Franklin at (770) 350-7630 or by e-mail at cfranklin@thielsch.com.