SPOOLED UP FOR BIG PIPING CHALLENGES



See how Enerfab's capabilities, experience, technology, and partnerships make us the ideal contractor to tackle your piping challenges.

enerfab

Operating out of our state-of-the-art facility in New London, Wisconsin,

Enerfab fabricates pipe spools for projects in every area of industrial construction and ships all across the country.

The secret to our customers' success comes from our unique, broad-multicraft experience, our investments in technology, and our strategic partnerships. The benefits that Enerfab can bring to any project include:

- Operational Efficiency
- Unprecedented Visibility
- Strategic Partnerships
- Shop-to-Field Solutions



OPERATIONAL EFFICIENCY

How We Compete across North America

Enerfab is powered by the highly productive labor force in our region and our state-of-the-art facility in Wisconsin, but that doesn't mean our reach is anything less than national. Unmatched operational efficiency and smart logistics keep us competitive on projects while delivering you the best pipe fabrication solution in the country.

STRATEGIC PARTNERSHIPS

The Right Team Delivers the Best Solutions

Strategic partnerships strengthen our offering at Enerfab and allow us to provide customers with unique, creative solutions to their toughest challenges. Learn about our partnership with the lined-piping experts at Iracore and how we helped solve a decades long problem in the utilities industry. (page 7)

UNPRECEDENTED VISIBILITY

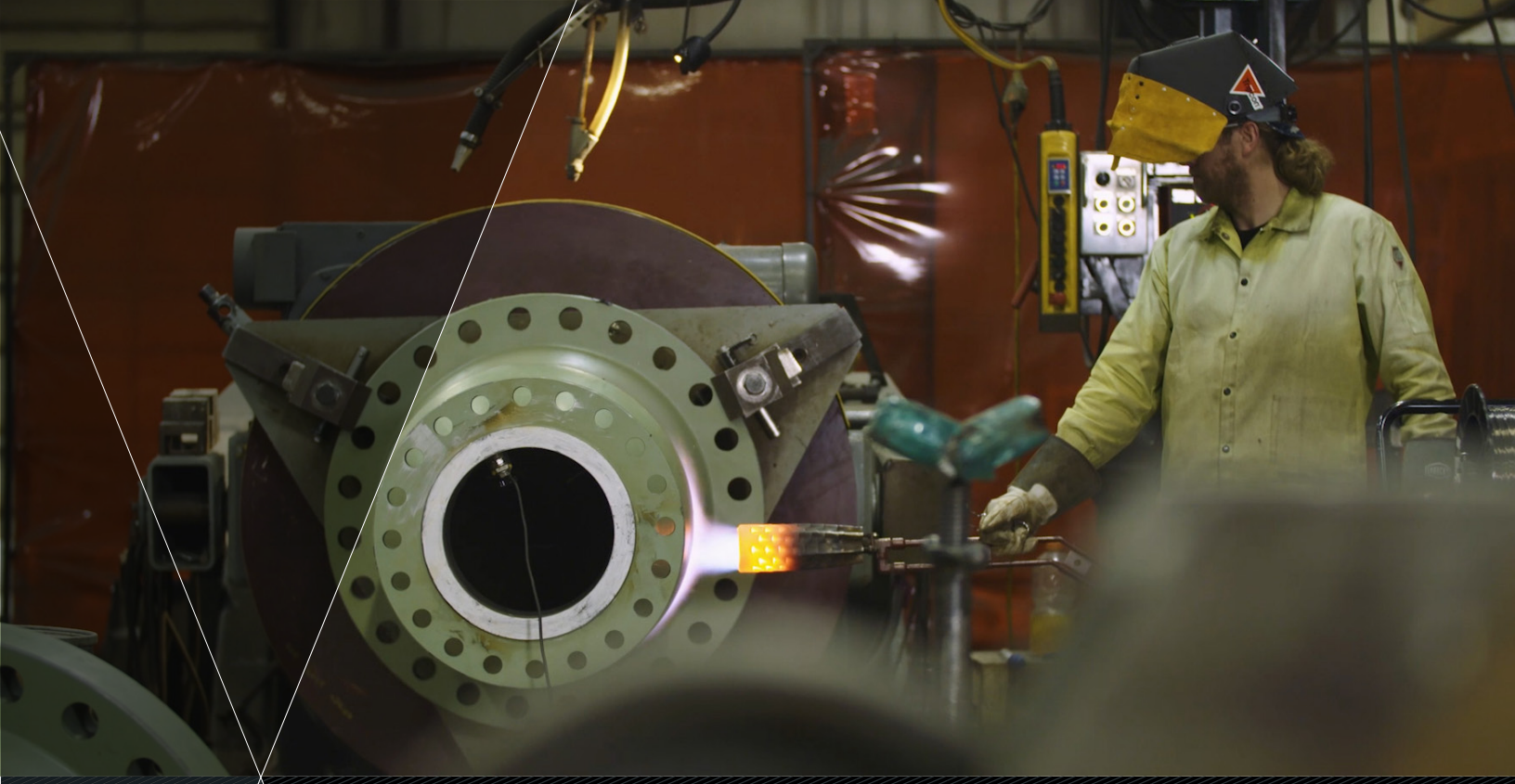
Introducing Viewfab

Viewfab is an online portal through which customers can instantly check the progress of their pipe fabrication jobs. With two ways to access the information — dashboard view and spool status — decision-makers at our customers' companies can instantly get the critical information they need, in real-time, to keep their projects moving forward.

SHOP-TO-FIELD SOLUTIONS

A Multicraft Approach to Critical Path Challenges

Often, hiring multiple contractors to manage each aspect of a project can create scheduling conflicts, delays, change orders, and an excess of personnel on-site. Enerfab and our family of companies offer you a complete contractor solution — we hire and manage multiple crafts to ensure the greatest efficiency from the shop to the field.



OPERATIONAL EFFICIENCY

UNMATCHED SHOP CAPABILITY

Have A Pipe Fabrication Project?

Good. Because we're built for it.

We're built for just about any pipe fabrication project you can send our way.

Our facility in New London, Wisconsin prioritizes your needs above all else. The shop layout allows us to spool entire jobs in the shop and segregates carbon and stainless steel products to keep projects moving without any risk for metal contamination.

These shop efficiencies along with our experienced leadership, highly-skilled labor, and an unrelenting emphasis on safety ensures industry-leading quality and on-time delivery for your next project — however big or challenging that may be.

MORE ABOUT OUR SHOP

Cutting-edge technology and a facility designed for productivity and efficiency mean we get your biggest and most complex projects in and out of our Wisconsin shop efficiently.

Wisconsin Shop Specifications

- Segregated fabrication bays with indoor loading
- CNC plasma and saw cutting
- Four 10-ton overhead cranes
- Semi-automatic welding
- Production capability of up to 1,500 pipe spools per month
- Materials of fabrication:
  - Stainless steel
  - Carbon steel
  - Urethane-lined
  - Alloy
  - Fiberglass
  - Rubber-lined



QUALITY CRAFTSMANSHIP

Some of the best pipefitters in the country are ready to deliver the highest quality on any project you can throw their way.

Code Stamps & Affiliations

ASME Code “PP”, “S”, “R”, & “U” Stamps

National Board “NB” Stamps

Affiliations

Mechanical Contractors Association of America (MCAA)

Charter Member – Pipe Fabrication Institute (PFI)

AWS Certified Welding Inspection (CWI)

Quality Programs

ASME Code Section I & Section VIII

ASME B31.1, B31.3, B31.4

NQA-1 US NRC 10CFR Appendix B

AFFORDABLE LOGISTICS

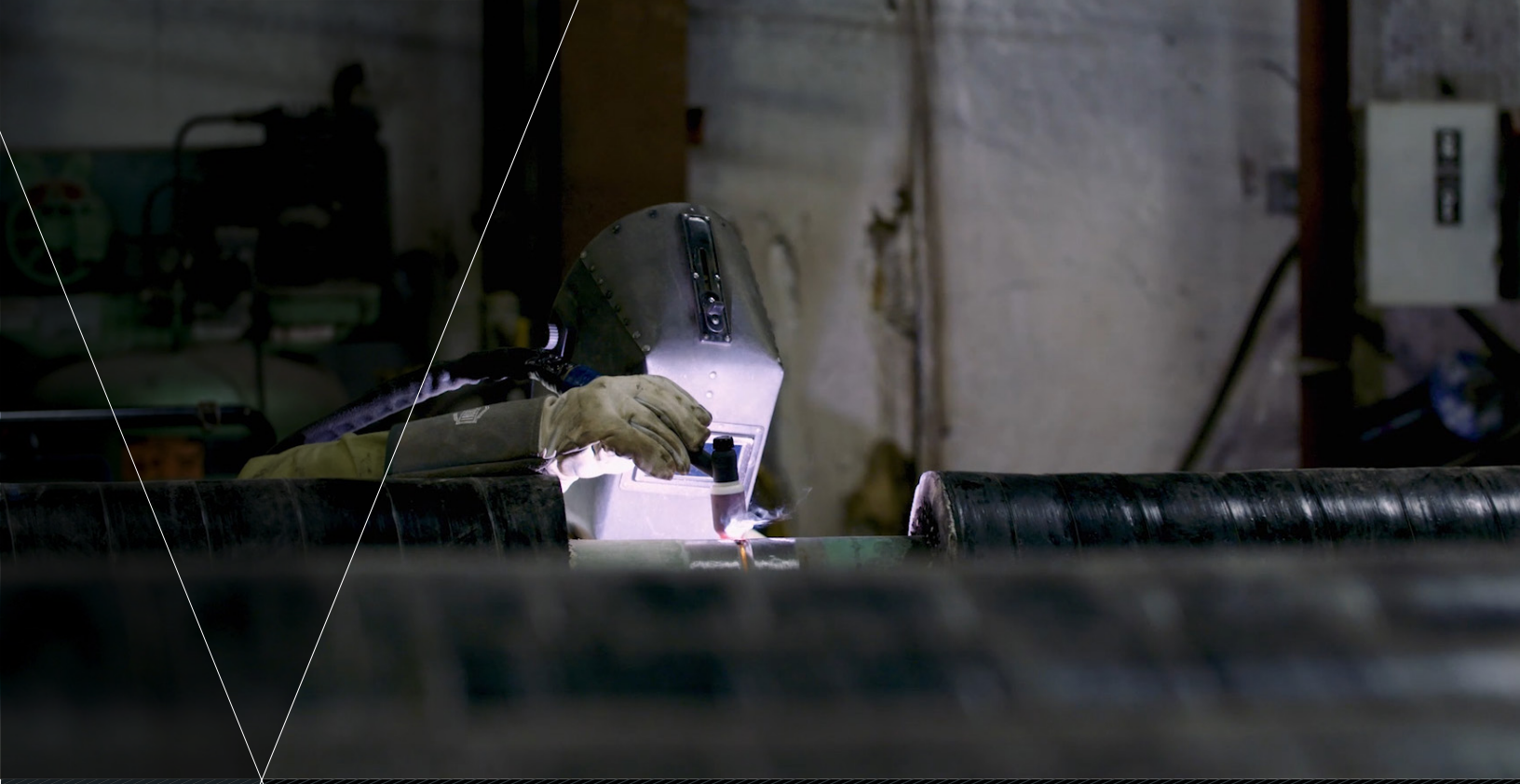
Potential customers bring us their toughest challenges, but also their concerns about shipping pipe from Wisconsin to other parts of the country. They’re relieved to find out that our safe and efficient loading practices and trusted logistics partners keep shipping expenses competitive to anywhere in the country.

Our recent analysis of projects spanning the last 3 years discovered our customers pay **an average of only**

3.2% of total project cost on shipping

which we’ve found is easily offset by our shop efficiencies and labor costs.





ULTIMATE VISIBILITY

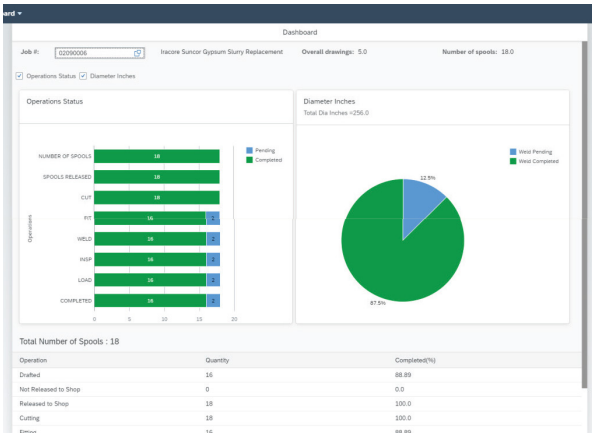
When it comes to information, we live in an instant gratification world. And this is a wonderful thing! Thanks to the magic Google machines we carry with us at all times, we can instantly find movie times, review incoming deliveries, or fact-check our friends' crazy conspiracy theories.

Of course, it's no surprise that any technology benefit we get used to in our personal lives will find its way into our professional lives. We now expect instant access to the information we need to make business decisions and recognize the difference in what we can achieve when we have it.

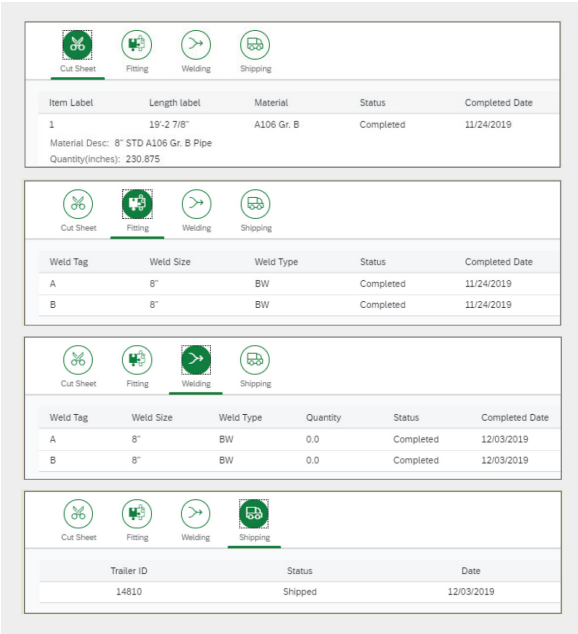
Enerfab's New London, Wisconsin facility is embracing this desire for instant access to information and transparency with our newest innovation: Viewfab.

viewfab

Viewfab is an online portal through which customers can instantly check the progress of their pipe fabrication jobs. With two ways to access the information — dashboard view and spool status — decision-makers at our customers' companies can instantly get the critical information they need, in real-time, to keep their projects moving forward.



Dashboard view in Viewfab brings data on the progress of a job to life in infographic form at a macro level. This information comes in two main graphics: Total percentage of the job complete; and Diameter Inches complete. These multiple views provide a more accurate picture of project progress.



In the **Spool Status view**, customers gain an even more in-depth look at their project's progress at a micro level. Viewfab allows the client access to the details of each individual spool on their project, at each stage of the fabrication process, as well as providing access to additional project-specific information such as physical spool drawings and project weld procedures and tolerances.

Beyond satisfying the customers' need for immediate visibility within their project, Viewfab delivers tangible business benefits as well, such as:

- The ability to audit and expedite projects at their discretion.
- Enabling field management to make changes to their project schedule and crew deployment quickly and confidently, knowing that the piping deliveries will align with the change.
- More accurate forecasting for labor needs with precise tracking of shipments.
- Shop workers have more and better access to project-critical information that leads to improved quality and improved efficiency.

Built with best-in-class SAP HANA Technology, Viewfab is a proprietary platform provided exclusively to Enerfab customers on any pipe fabrication job. We're excited to offer this innovative technology benefit to our customers.





LINED FOR DURABILITY AND SUCCESS

AN ENERFAB AND IRACORE CASE STUDY

Thomas Hill Energy Center (THEC) had a problem: its current ash handling system had become a maintenance headache. The system — common in most power plants and consisting of ceramic-lined pipe and fittings that moved a highly-abrasive ash and water slurry — was holding up well except at changes in direction, where blockages were common.

Workers would frequently bang on the pipes to clear those blockages, causing the brittle ceramic lining to fracture and break down quickly. The broken lining and damaged pipes led to increased outages, costing the plant time and money.

WHO IS ... ?

enerfab

Enerfab's premier pipe fabrication facility is located in New London, Wisconsin; part of their Great Lakes region. Enerfab Great Lakes fabricates, ships, and installs pipe nationwide. Its purpose-built shop and investments in pipe fabrication technology and labor make Enerfab a premium pipe supplier within many industries — including power generation, refining, chemical, and food & beverage.

IRACORE
ADVANCING WEAR TECHNOLOGY

Iracore International LLC designs and manufactures custom wear materials to solve abrasion and corrosion issues. Across the markets it serves, its clients get more from their assets, experiencing better reliability and significantly increasing their equipment lifecycle.
The 3+ million feet of pipe installed with Iracore linings, custom rubber projects, and hundreds of thousands of molded and cast parts have been proven worldwide.

AN OPPORTUNITY FOR PARTNERSHIP

Enerfab and Iracore saw the THEC project as an opportunity to showcase both companies' unique capabilities and offer THEC a solution new to their industry that had proven successful in others.

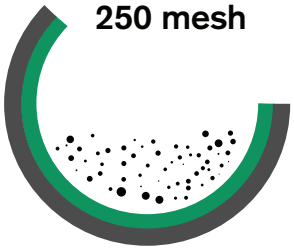
An already-trusted pipe fabricator for Associated Electric Cooperative Incorporated (AECI), owner and operator of the Thomas Hill facility, Enerfab approached leadership and offered to install test spools of elbows and straight-run sections that made use of Iracore's specialty product — polyurethane-lined pipe designed to resist corrosion and stand up to the beating these pipes took regularly.

The test would prove the value of polyurethane-lined pipe by reducing the overall cost of operation in the form of lower maintenance costs compared to the previous ceramic-lined system.



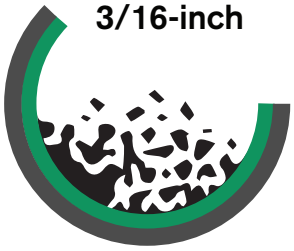
IRACORE
LINING LOSS

Particle Size 80%
250 mesh



.50 MM
LINING LOSS

Particle Size 30%
3/16-inch



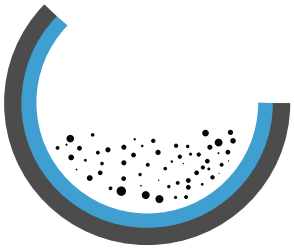
.75 MM
LINING LOSS

Particle Size 20%
5/8-inch



1.25 MM
LINING LOSS

COMPETITOR
LINING LOSS



1.45 MM
LINING LOSS



3.00 MM
LINING LOSS



6.00 MM
LINING LOSS

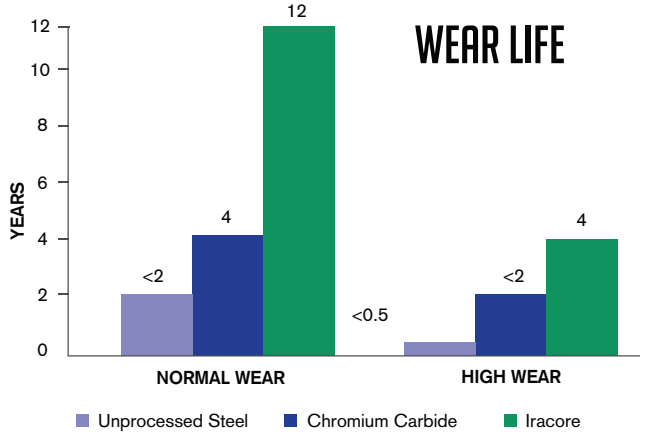
BUILT FOR THE LONG-TERM CHALLENGE

Enerfab installed the test run during a routine outage in 2013. And because the ash handling usually requires high maintenance and inspection, the durability of Iracore's polyurethane lining was observed closely.

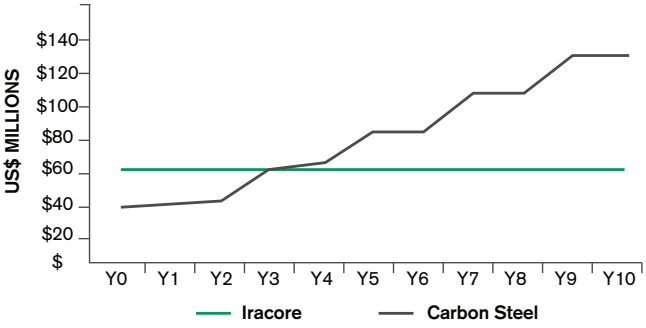
The result: After seven years of continuous use, there was little-to-no visible erosion-related wear. No system-related outages were required due to lining breakdown — a huge improvement over the previous ceramic lining. In fact, the routine beating of the pipes to clear ash blockages had no effect on the polyurethane-lined pipe whatsoever.



WEAR LIFE



CUMULATIVE COST OVER LIFE



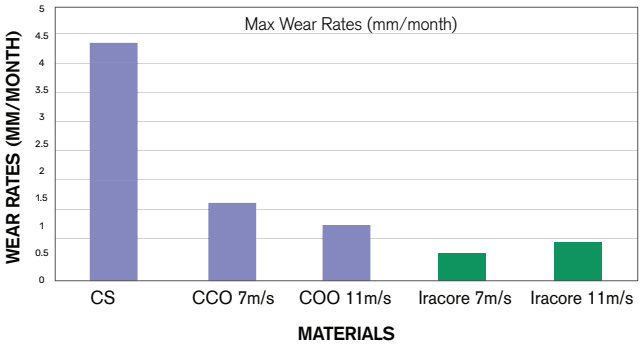
Compares 30 km. 30-inch diameter unlined pipe with IRACORE 30 km. 30" diameter lined pipe.

RESULTS THAT ADD UP

While AECI decommissioned the piping system in 2020, plant managers at Thomas Hill remained confident that the lined pipe would have lasted much longer than the seven years it was in operation. Leadership at AECI was so impressed that they wrote a letter of referral.

Compared to the rate at which the old system needed parts replaced, the premium for polyurethane-lined pipe was more than made up for in maintenance savings. The result was a very successful test for AECI and confidence to use the system on a larger scale in the future.

SUNCOR™ HIGH VELOCITY FIELD RESULTS



Compares lining loss rates between carbon steel, chromium carbide, and IRACORE lined pipes in independent Suncor testing. Lower lining loss indicates higher durability.

Data and graphs courtesy of Iracore.



PARALLEL PATHS

RESOLVING THE CONFLICT BETWEEN ELECTRICAL AND MECHANICAL

On any job site where multi-craft work is happening — specifically mechanical and electrical work — you can almost guarantee there will be conflicts. After all, the bulk of mechanical and electrical work occurs right on top of one another.

That is, of course, if the job in question is using separate contractors for the electrical and mechanical work. Which leads to the question: **Is there a better way?**

One solution Enerfab and our family of companies offer is the concept of the complete contractor. Using this approach, we employ our scale, resources, and labor availability to operate at the absolute highest level, with all crafts working in concert to increase efficiency from the shop to the field.

The beauty of the complete contractor model is the simplification and optimization of the communication and project management structure, which the example of mechanical and electrical perfectly illustrates.

SIMPLIFIED SCHEDULING

On a job site using separate contractors, the first hurdle to overcome where mechanical and electrical are concerned is scheduling. With both teams vying for the same space, conflicts arise where communication breaks down. And communication always breaks down.

With a complete contractor, communication and scheduling are simplified. A single project manager team is scheduling both labor crews with full autonomy and transparency. The PMs know when and where to move teams to keep the project moving and out of one another's way.

Delays caused by hiccups in the supply chain can be overcome in a similar manner. Instead of having idle work crews on a site, the complete contractor can redirect manhours to another part of the job or sideline crews altogether until delays are smoothed over.

FEWER CHANGE ORDERS

Delays and schedule changes lead directly into another benefit of the complete contractor model: reduced expenses due to fewer change orders.

With your typical model of individual contractors, as soon as one crew is affecting the work of another, change orders are inevitable. These costs can add up quickly and make staying within budget even more of a chore.

When one complete contractor is handling several crafts — in this case, electrical and mechanical — these change orders are reduced to a minimum since the contractor has only itself to blame for any such delays or changes.

OPTIMIZED SAFETY & QUALITY

The more separate crews you have on a job site, the more safety and quality staff you are bound to have. And while you can never have too much safety or quality, there is such a thing as too many cooks in the kitchen.





With the complete contractor model, a single team for safety and another for quality can oversee multiple teams of craftworkers, optimizing the amount of on-site personnel and simplifying communications and planning even further.

The next time you have a chance, observe how mechanical and electrical work proceeds on a job site, and ask yourself how much smoother the complete contractor model could make the process.

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June 11, 2020

Mr. DeValk

In 2013, Associated Electric Cooperative, Inc (AECI) was looking for solutions for an ash handling system that had become a maintenance disaster. The system carried boiler ash from the economizer section of the boiler to the drag chain conveyor at the bottom of the boiler.

The system consisted of 8" pipe with a 1.5" thick ceramic lining on the interior. Although the piping is exposed to abrasive boiler ash and water, its wear was not too extreme other than at and around elbows or 45-degree bends. The biggest issue with the lined pipe is that our operators would regularly beat on it to clear ash blockage, which often caused the liner to break and plug the line. This in turn caused premature replacement of the piping.

Enerpipe heard about our issues, reached out to one of their valued suppliers and leading industry experts for erosion and corrosion control, Iracore International. They worked with us to evaluate one of the highest maintenance areas in the system, then offered an experimental elbow and straight run set of test spools incorporating Iracore's polyurethane-lined piping technology. This piping was installed during the next outage in 2013.

Because the rest of the system still required considerable maintenance, we inspected the test spools many times throughout the last 7 years and found that they held up exceptionally well. Both pieces had minimal wear and no mis-bonding between the urethane and steel. One exceptional feature of the urethane-lined pipe is that if the operators beat on it, it does not break loose and cause blockage, which leads to repeated replacement of the piping and related downtime.

AECI experienced exceptional performance in above-average erosion conditions with this product. Another excellent feature is that Enerpipe can fabricate this product to almost any dimension desired. While AECI just decommissioned this piping system during the 2020 spring outage, I feel it is a superior product and can drive down business cost.

Sincerely

C. Keith Jordan

Maintenance Superintendent

Thomas Hill Energy Center