

SYSTEMS



THE SYSTEMS GROUP



THE SYSTEMS GROUP

Our Employees Provide The Safest And Most Responsive Services
And Products To Construct, Cool And Maintain Your Work Place.

This Systems Spray-Cooled™ Electric Arc Furnace (EAF) with extra tall sidewall and steep cone roof allowed the customer to save precious minutes on tap to tap time by going from a two bucket to a single bucket charge. It ran 5,800 heats with no downtime before being rotated out for routine maintenance. The customer has also upgraded a second furnace.

THE SYSTEMS GROUP

Our Number One Goal is Customer Satisfaction.

“Over 45 years ago Charles Hays Sr. had a vision: fulfill a market need for skilled craftsmen to connect process piping for industry. Since then Systems has grown exponentially into construction, maintenance, and products for heavy industry serving markets such as steel manufacturing, pipe & tube mills, non-ferrous metal manufacturing, chemical plants, oil & gas, mining, pulp & paper, and so many more.

We are still a family owned business and are here to serve you. We have a saying at Systems: “Our employees make the difference.” That is our difference. Our highly skilled employees can design, build, and maintain the most complex projects our served markets can dream up.

Look through the following pages for what we have done in the past, then let us show you what we can do for you in the future. Systems cares about the needs of our customers, and when we start a project, customer satisfaction is our number one goal. That is our personal guarantee.”



Michael Hays
COO

Michael Hays

Charles A. Hays, Jr.
CEO

Charles A. Hays, Jr.

Lee Morgan
PRESIDENT

Lee Morgan

SYSTEMS

SPRAY-COOLED

We Are The Safest and Easiest-to-Maintain Cooling System for EAF Meltshop Equipment

Let us introduce the many beneficial results of using our Spray-Cooled™ technology in your shop.

Advantages

- Lower Operating Cost
- Reduced Down Time
- Increased Safety
- Extended Equipment Life
- Reduced Spare Part Inventories
- Cleaner Operating Environment

Applications

- EAF Roofs
- EAF Shells & Sidewalls
- EAF Off-Gas Ductwork
- LMF Roofs
- BOF Hoods
- Smelting Furnace Roofs
- Panelized Applications



SYSTEMS

CONTRACTING

We Construct Your World
Process Piping • Mechanical • Steel Erection • Concrete

Systems Contracting is a well-rounded construction firm with experience in industrial, municipal and commercial construction markets.

Specialties

- Process Piping
 - Mechanical
 - Steel Erection
 - Concrete
 - Equipment Setting
- ... just to name a few.





SYSTEMS

FAB & MACHINE

We Turn Steel into High Quality ...

- AISC Structures • ASME Code Vessels • Prefab Piping • Handrails, Platforms & Ladders • Machined Parts • Custom Applications

Systems Fab & Machine is a CWB and AISC Certified Fabricator with the experience and capabilities to handle all types of fabrication & machining projectings.

Fabrication

- Certified Welders
- Piping
- Structural
- Exotic Metals
- Tube Bending
- Pressure Vessels

Machining

- CNC Milling
- CNC Drilling
- Plasma Cutting
- Threading
- Keyways

OUR MISSIONS AT SYSTEMS



SYSTEMS

PLANT SERVICES

We Keep Your Plant Running

Whether you need Systems Contracting to augment your staff or contract your total maintenance operations, maintenance and repair is a vital service offered by Systems Contracting.

Industries Served

- Steel Mills
- Slag Processors
- Steel Processors
- OSB Mills
- Stainless Steel Mills
- Chemical Plants
- Cold Rolling Mills
- Power Plants
- Pipe & Tube Mills
- Refineries
- Pulp & Paper Mills



Our Employees Make the Difference.

STEEL

Systems Teams Excel @ Every Level



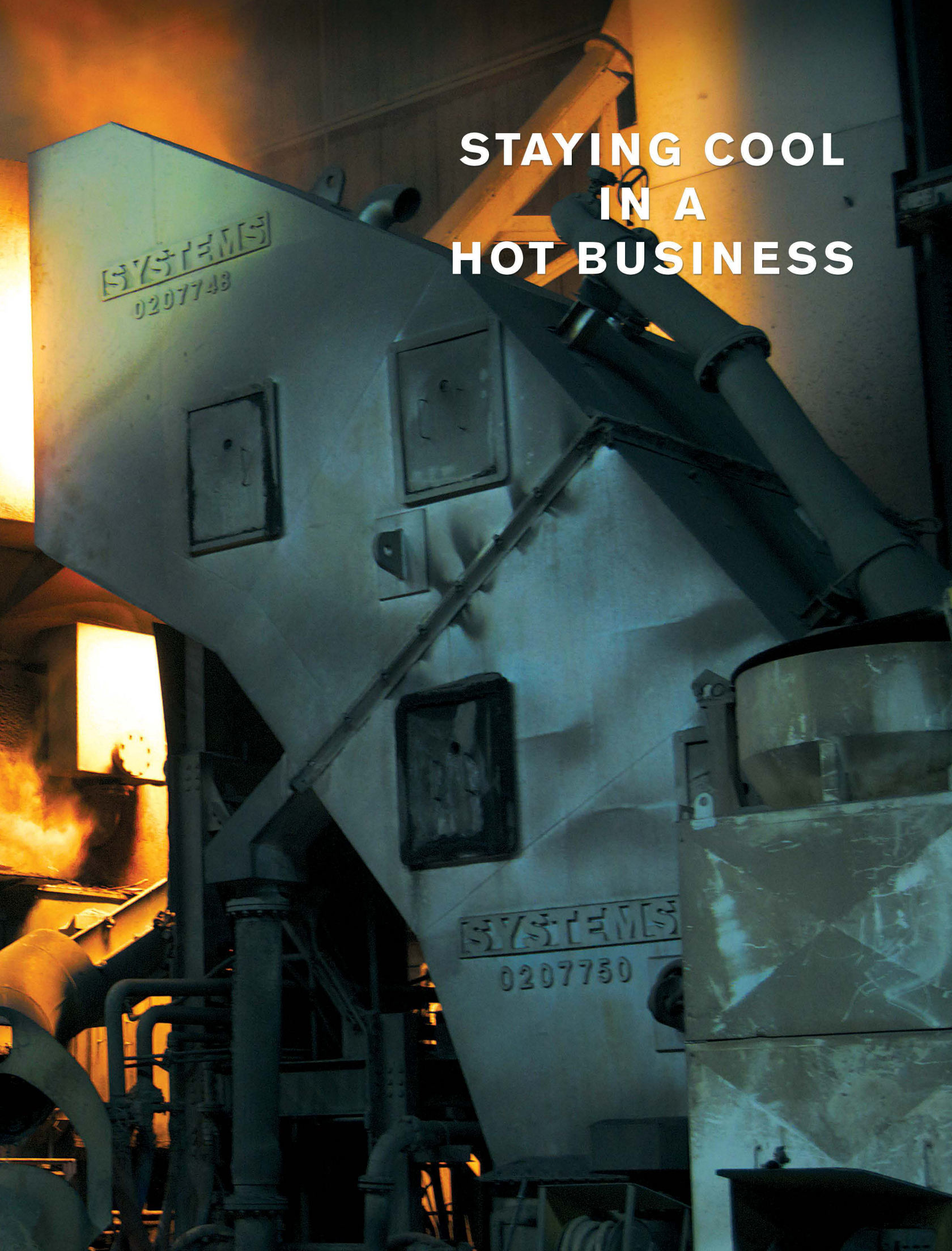


SYSTEMS
SPRAY-COOLED

SYSTEMS

SYSTEMS
SPRAY-COOLED™

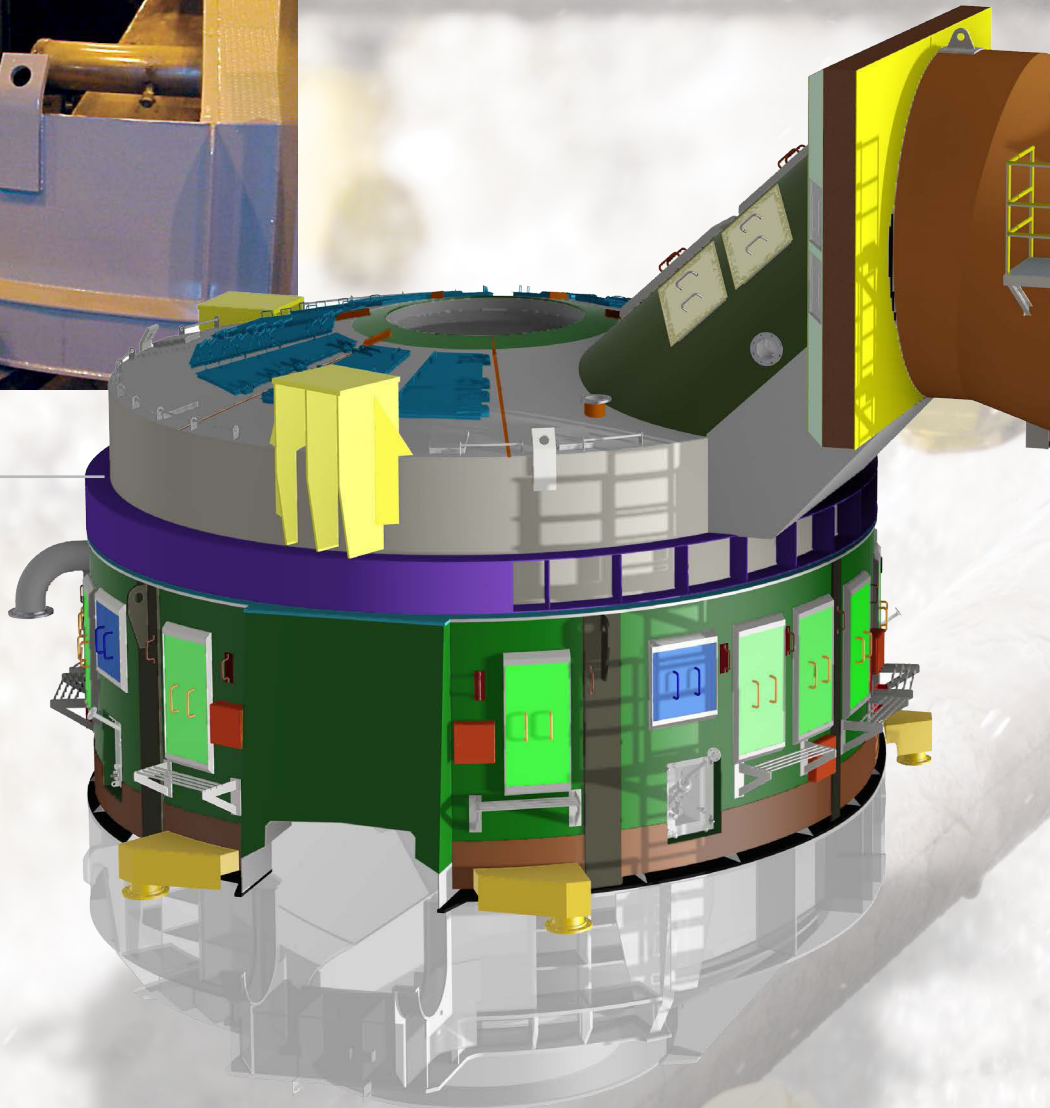
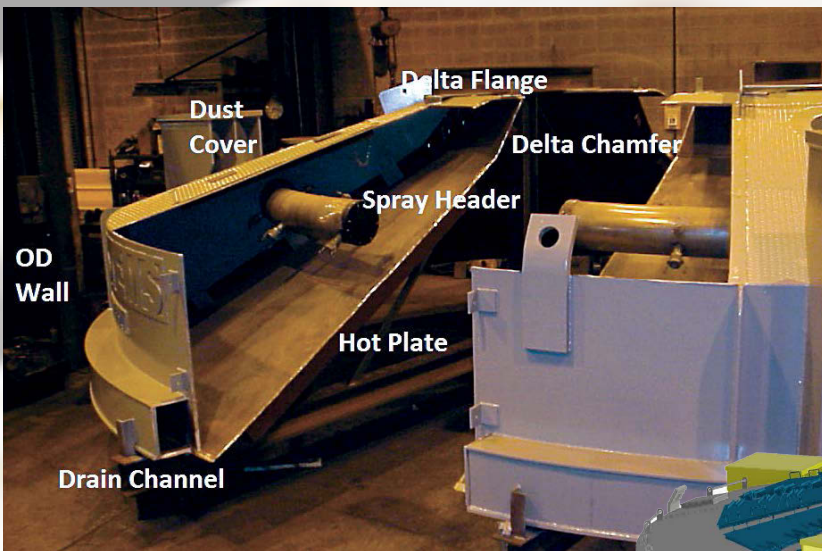
17 Countries
89 Installations
Worldwide



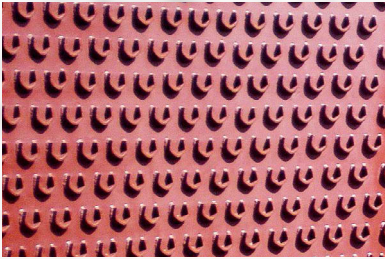
**STAYING COOL
IN A
HOT BUSINESS**

SYSTEMS
0207748

SYSTEMS
0207750



SLAG CUPS INSIDE OF SPRAY COOLED ELECTRIC ARC FURNACE (EAF)



THE SYSTEMS GROUP

SCAN TO LEARN MORE ABOUT SYSTEMS SPRAY-COOLED™

YOUR BEST OPTION FOR KEEPING FURNACES SAFELY COOLED





The normal causes of failure for water-cooled equipment are fatigue cracking, erosion or corrosion.

With tubular equipment, this normally results in down time and equipment replacement.

Eliminates high pressure, high volume water leaks.

SAFETY
FLEXIBILITY
INCREASED UP-TIME
LOWER MAINTENANCE COSTS

With Systems' non-pressurized spray-cooling, down time is drastically reduced.

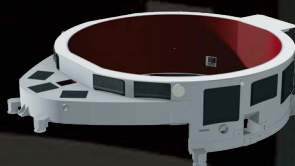
Adding, removing or moving burner openings, alloy holes, fume holes, etc. is relatively easy and does not require equipment replacement.

Spray-Cooled™ equipment has a very long life and is repairable – eliminating the need to continually buy replacement panels and equipment.

Spray-Cooled™ equipment is covered by multiple patents that optimize cooling efficiency and long life.

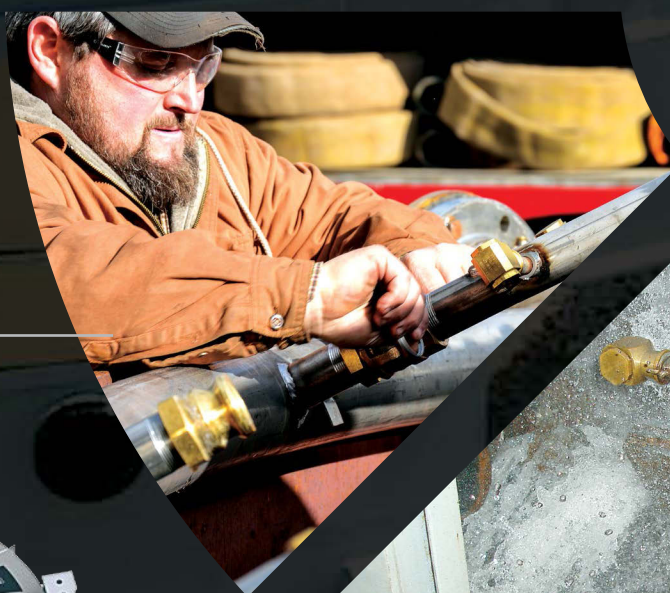
Spray-Cooled™ furnace roofs exhibit excellent slag retention improving heat retention and efficiency of the furnace; this permits the furnace to perform at peak efficiency for longer periods. There is less than a 1% energy increase compared to refractory roofs. The Spray-Cooled™ sidewalls increase furnace volume by eliminating conventional internal tubular panels.

Perfected in the harshest steelmaking environments, the benefits and adaptability of Systems Spray-Cooled™ Equipment has been proven in melt shops, BOF shops and smelting operations around the world. Roofs, sidewalls, elbows, ducts, hoods, drop-out chambers and ladle furnace roofs are just the beginning.



The one-piece construction eliminates individual panel joints reducing flame leakage and air infiltration and exfiltration, which also keeps the outer surface cooler.

Cam-lock "quick disconnects" allow for rapid removal, inspection and reinstallation of individual spray bars.



Quick weld repairs from the cold side lowers maintenance costs and reduces downtime.





“We will be changing some roofs that will be in excess of 10,000 heats and not a lot of maintenance on the Spray-Cooled™ equipment.

I had twenty three years experience at my old shop before I even dealt with Spray-Cooled™. I started my career in '96 with Spray-Cooled™ and I won't ever go back to tubular equipment.”

STAN SMITH
MELTS SHOP MAINTENANCE
MANAGER



COMPARE THE DIFFERENCE



PRESSURIZED TUBULAR COOLING:

A two square inch hole in a tubular panel results in over 16,000 gallons of water spilled into the furnace in one hour, equal to a typical backyard swimming pool!



SPRAY COOLED:

The same two square inch hole in our hot face results in less than five gallons of water spilled into the furnace in the same one hour!





**STAYING COOL
IN A HOT BUSINESS**

Serving the global metals and minerals industries, Systems' patented Spray-Cooled™ Technology provides a safer, greener alternative to conventional pressurized water-cooled, exotic alloy, and refractory equipment for extreme heat load applications.

Using non-pressurized, non-evaporative water-cooling, Systems Spray-Cooled™ offers a complete line of electric arc furnace (EAF), ladle metallurgical furnace (LMF), basic oxygen furnace (BOF), submerged arc furnace, post combustion, and dust evacuation system components.

SYSTEMS
SPRAY-COOLED

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SYSTEMS
CONTRACTING

SYSTEMS



Systems installed the vast majority of the piping in this mill when it was constructed in the late 1980s, and most of the piping for every capital expansion since then.

We are still on-site maintaining the steel mill today.

SYSTEMS
CONTRACTING

- Grease
- Hydraulic Oil
- Lube Oil
- Process Cooling
- Water
- Plant Air
- Oxygen
- Natural Gas
- Nitrogen
- Argon
- Potable Water
- Fire Water
- Sanitary Sewer



PERFORMING COMPLEX PROJECTS AROUND THE WORLD

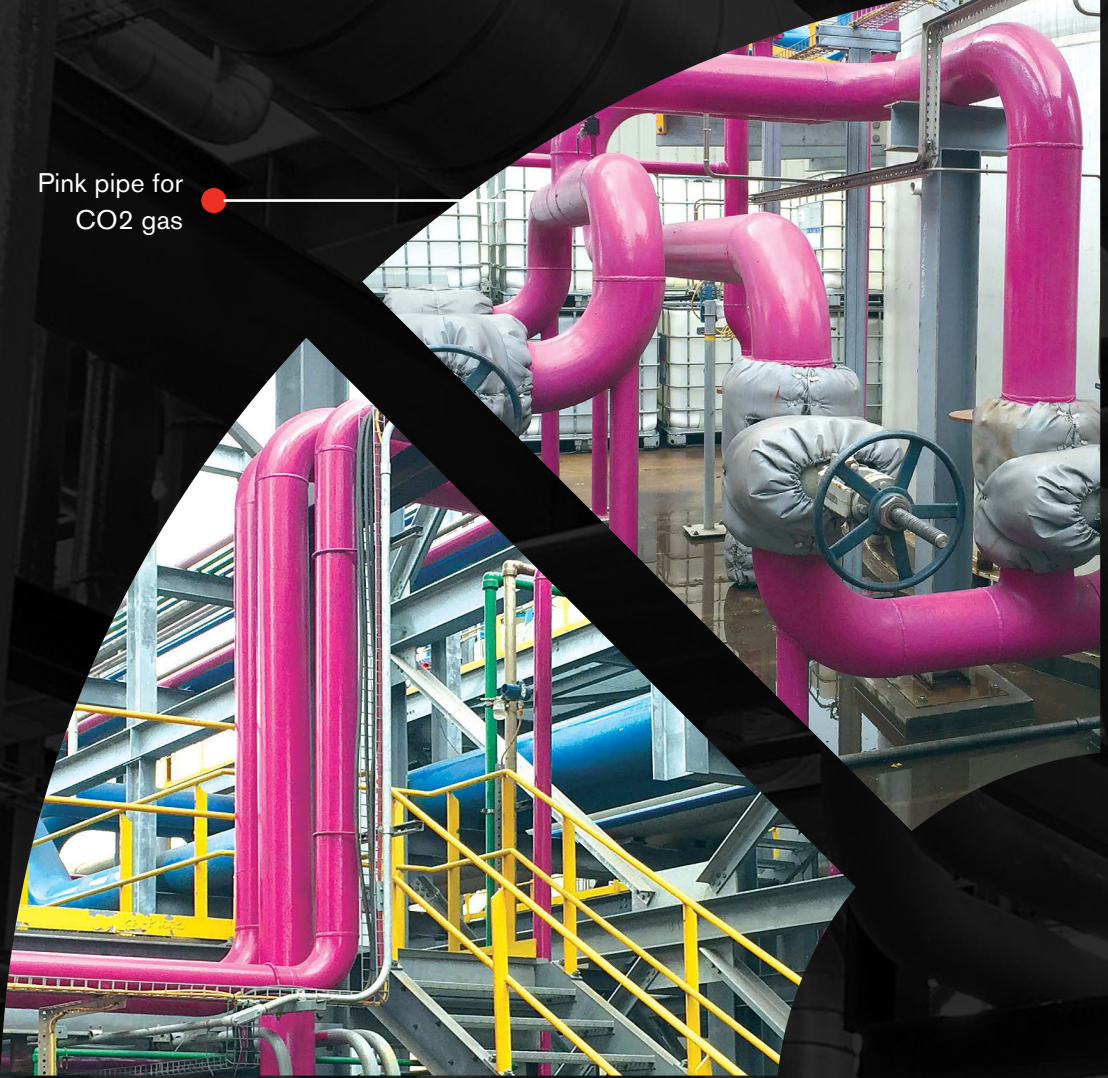


Systems Contracting offers our customers the most highly trained and qualified craftsmen in the industry.

We go above and beyond the industry norm and utilize the training, assessments and performance verifications developed by The National Center For Construction Education and Research (NCCER).



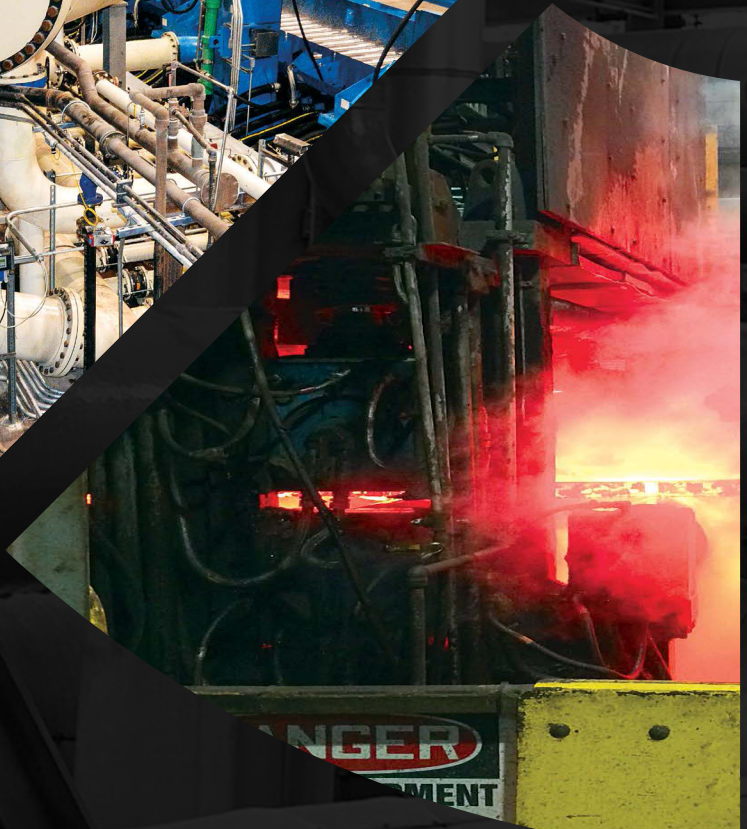
Pink pipe for CO2 gas




Water piping in steel mill




We view each project with each customer as an opportunity to build trust, showcase our expertise, knowledge and dedication to customer service and secure opportunities to perform future projects.






Our customers are never viewed as “one time” customers, which is why we are very frequently given the opportunity of repeat business. We are called to perform complex projects throughout the world due to our customers’ willingness to always give us the highest recommendations.



Natural gas compression and cooling station



By self-performing work, we substantially increase control and performance over the successful execution of the project. Our rock solid record of performance has gained Systems an ever-increasing market share.



WE ARE THE LEADER IN HIGH QUALITY INDUSTRIAL PIPING AND CONSTRUCTION.



SCAN TO LEARN
MORE ABOUT
SYSTEMS
CONTRACTING



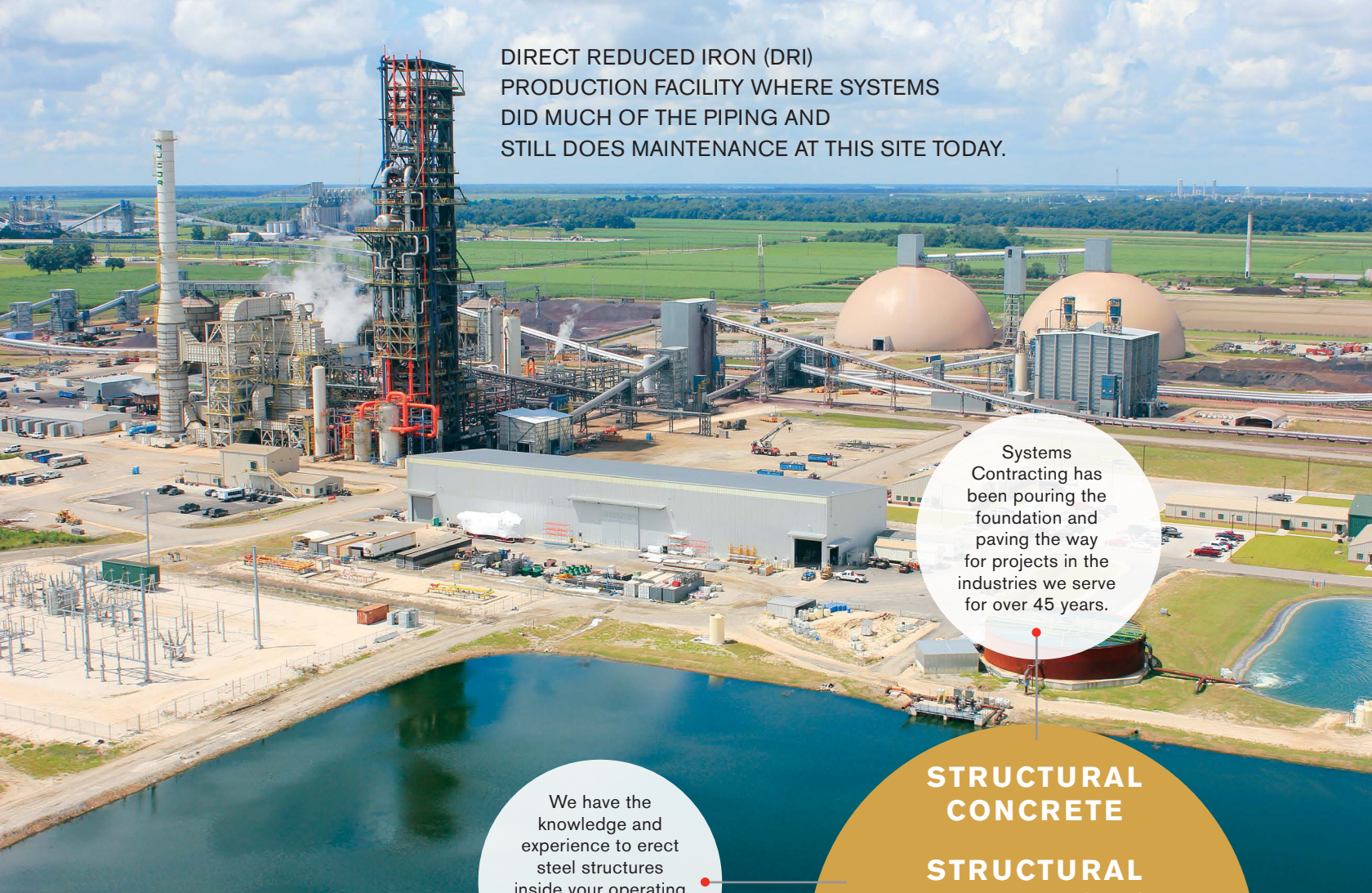
Systems provides engineering and drafting services to support its construction and maintenance activities in the following areas:

- Structural Steel Design
- Foundation Design
- Process Piping and Instrumentation
- Site Drainage
- Pressure Vessel Calculations
- Hangers and Supports

Systems Contracting is experienced in working with all forms of piping materials:

- Aluminum Piping
- Carbon Steel Piping
- Concrete Lined Pipe
- Copper Piping
- Ductile Iron Piping
- Fiberglass Pipe
- Glass Lined Piping
- High Chrome Piping
- Nickel & Alloy Piping
- PVC/CPVC Piping
- Stainless Steel Piping
- Teflon & Polypropylene Lined Piping
- HDPE Piping





DIRECT REDUCED IRON (DRI)
PRODUCTION FACILITY WHERE SYSTEMS
DID MUCH OF THE PIPING AND
STILL DOES MAINTENANCE AT THIS SITE TODAY.

Systems Contracting has been pouring the foundation and paving the way for projects in the industries we serve for over 45 years.

We have the knowledge and experience to erect steel structures inside your operating plant while minimizing the interruption to your business.

**STRUCTURAL
CONCRETE**

**STRUCTURAL
STEEL ERECTION**

**EQUIPMENT SETTING
AND ALIGNMENT**

**BOILER & PRESSURE
VESSEL
SERVICES**

We can off-load and install one piece of equipment or relocate, assemble and set an entire plant.

Systems Contracting holds the ASME U, S, and PP stamps, as well as the National Board R stamp.

We have approved welding procedures for specialized welding services and repairs.



Systems Contracting is a well-rounded construction firm with experience in industrial, municipal and commercial construction markets. We continually strive for innovation in our industry to better serve our customers and have made significant investments in equipment, know-how and people to that end. Systems has specially trained and certified personnel that are skilled in the setup and operation of automatic orbital welding equipment. We use state-of-the-art, microprocessor-based software and tools.



This photo shows Systems Contracting performing a heavy lift of a vessel. Systems fabricated and erected the structural steel, installed all the vessels and equipment, and fabricated and installed all of the piping.



With over 45 years of construction and maintenance experience, Systems Contracting has experience in all facets of construction. The primary types of work we perform on a daily basis are:

- Process Piping
- Structural Concrete
- Structural Steel Erection
- Equipment Setting and Alignment
- Plant Maintenance Services
- Boiler & Pressure Vessel Installation, Service & Repair
- Machining and Fabrication Services

Some of the piping services we have experience installing include:

- Ammonia
- Argon
- Black Liquor
- Bromine
- Chlorine
- Compressed Air
- Condensate
- Contact Cooling Water
- Fuel Oil
- Grease
- Green Liquor
- Hydraulics
- Hydrogen
- Hydrogen Sulfide
- Lube Oil
- Natural Gas
- Nitric Acid
- Nitrogen
- Non-contact Cooling Water
- Oxygen
- Potable Water
- Pulp Lines
- Refrigeration
- Sanitary Sewer
- Service Water
- Steam
- Sulfur Dioxide
- Sulfuric Acid

SYSTEMS
CONTRACTING

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SYSTEMS
FAB & MACHINE

SYSTEMS

**SYSTEMS
FAB & MACHINE**

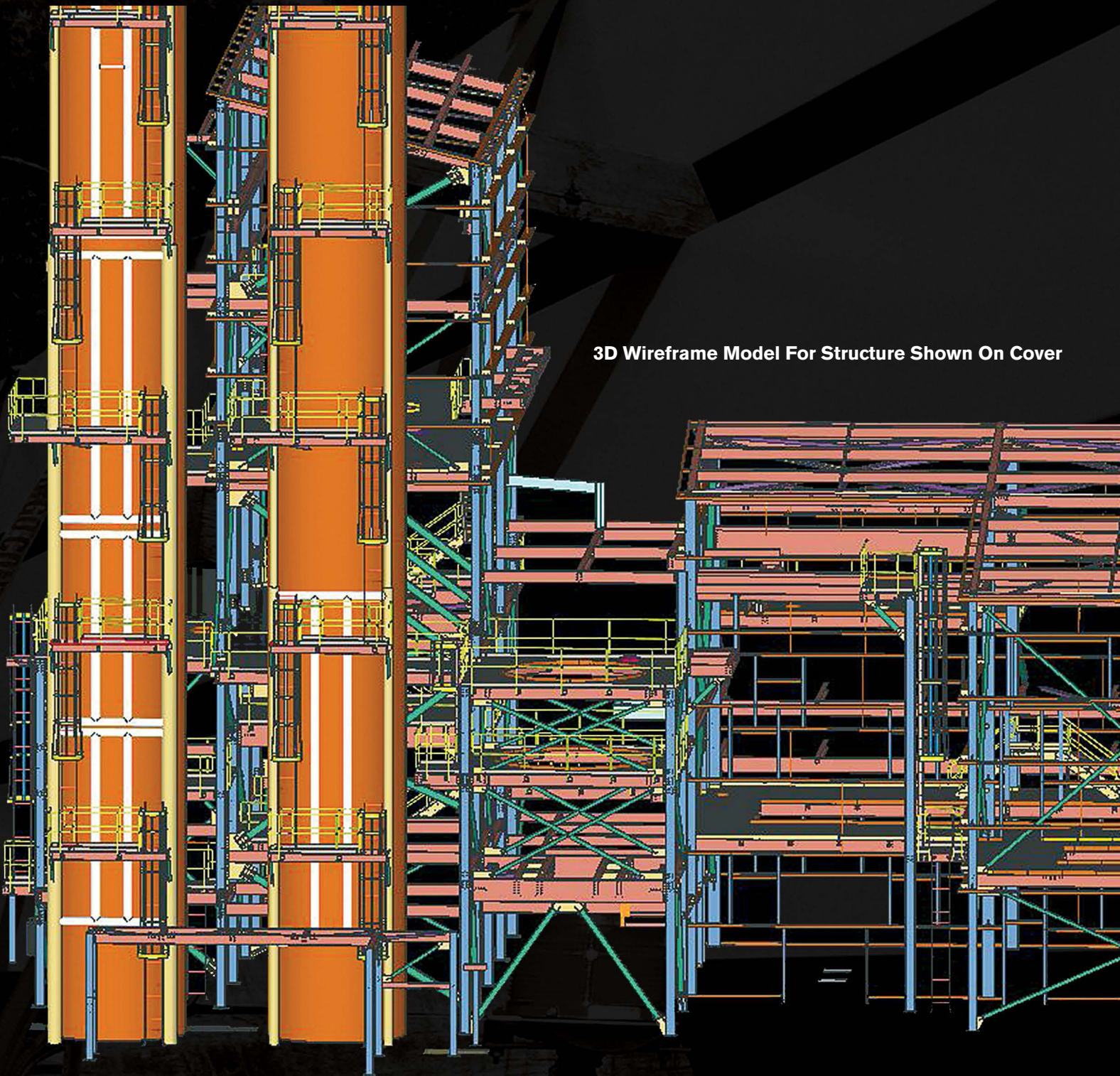


FABRICATING THE WORLD OF TOMORROW ... TODAY.

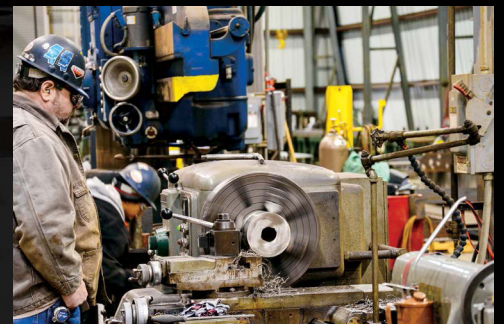
All the structural steel seen in this photo was fabricated by Systems Fab & Machine. Systems Contracting erected the steel, set the equipment, and fabricated and installed the piping.

This project began with our design and detailing staff creating the 3D wireframe model shown inside.

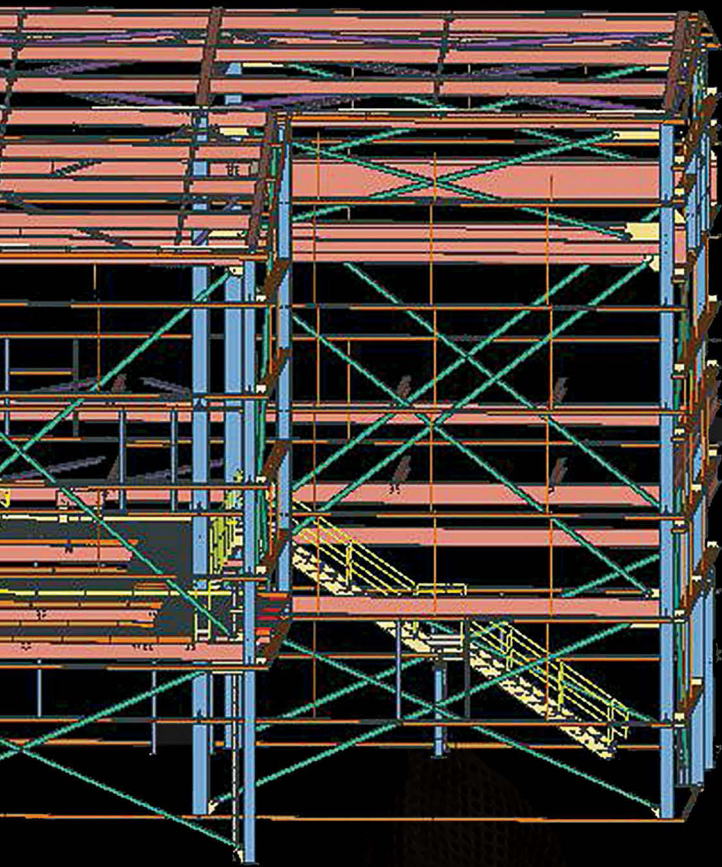




3D Wireframe Model For Structure Shown On Cover



WE INSPIRE A LEVEL OF CONFIDENCE UNMATCHED BY OUR COMPETITORS.



AISC ~ American
Institute of Steel
Construction
Certified Fabricator
for standard
building structures

Systems Fab
and Machine
can fabricate
all types of
industrial
structural steel.

AISC
Sophisticated
Painting
Endorsements
P2 & P3

**QUALITY
CONTROL**
DIVERSITY
**STATE-OF-
THE-ART
SOFTWARE**

We are
experienced
in developing
complex models
using Auto-Cad
Inventor.

We utilize
the latest SDS/2
steel detailing
software.



Utilizing our SDS/2 Steel detailing software, we are able to generate wire frame drawings of complex structures and then let SDS/2 automatically generate connections.

Once drawings are checked, we can download CNC files for all members and connection material to then be processed on our CNC beam lines, CNC angle line, CNC plate duplicator or CNC plate burning table.



Machining and Fabrication Services

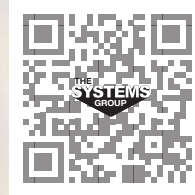


Systems Fab and Machine produces straight handrails, stair handrails and circular handrails from all material shapes and material types, and can provide any coating to meet customer specifications.



In addition to industrial work, Systems Fab & Machine is an AISC Certified Fabricator with the experience and capabilities to handle all types of fabrication projects. In the commercial market we have fabricated structural steel for:

- Major League Baseball Parks
- Hospitals
- Schools
- Office Buildings



SCAN TO LEARN
MORE ABOUT
SYSTEMS FAB
& MACHINE

We can fabricate anything from a ship ladder stair to a multi-level industrial stair tower. If your project requires it, we can shop bolt stair assemblies after coating to reduce erection cost.



Systems also has proven experience in ASME code welding.

With the continual investments in our facilities, technology and our Team Members we have grown greatly over the years, and have shipped fabrication to almost every state in the U.S. as well as internationally to Canada, Mexico, Costa Rica, South Africa, Trinidad and Thailand.



SYSTEMS FAB & MACHINE LOCATIONS:



EL DORADO, ARKANSAS



BLYTHEVILLE, ARKANSAS



COLUMBUS, MISSISSIPPI

With over 30 years of fabrication and machining experience, Systems Fab & Machine (formerly American Steel) has the capabilities to fit your needs. From design to fabrication to painting and galvanizing to shipping, we have you covered. Our primary capabilities include:

- Structural Steel
- Pipe Fabrication
- ASME Vessels
- API Tanks
- OEM Equipment
- Large Duct and Stack Fabrication
- Handrails
- Ladders
- Stair Towers
- Platforms
- Complex Fabrications
- Heavy Machining

Our attention to detail, state-of-the-art equipment and plant facilities, an aggressive quality control program and a modern fleet of trucks and specialized trailers ensures that the most aggressive scheduling demands can be met or exceeded at competitive prices.



A grayscale photograph of an industrial valve with a large handwheel, set against a dark background. The valve is the central focus, with various bolts and fittings visible. The text is overlaid on the right side of the image.

SYSTEMS
PLANT SERVICES

SYSTEMS



SYSTEMS
PLANT SERVICES

A close-up photograph of a welder working in a factory. The welder is wearing a teal protective jacket and heavy-duty gloves. They are using a grinding wheel to smooth a metal pipe, which is held in a vise. A large amount of bright, orange sparks are being generated from the grinding process. The background is a blurred industrial setting with various pieces of machinery and equipment.

**WE KEEP
YOUR PLANT
RUNNING**

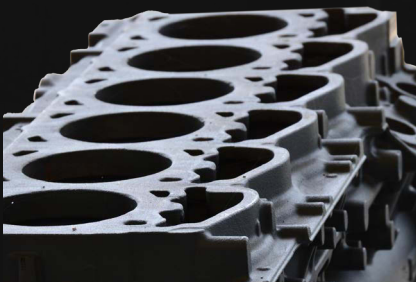
SYSTEMS MAINTAINS LONGSTANDING CONTRACTS WITH SOME OF THE LARGEST COMPANIES IN THE U.S.

Our clients and their facilities demand routine and emergency service for daily operation. We view our customers as partners, and our objective is to lower our customers' cost of ownership, and cost of operation. Whether you need Systems Plant Services to augment your staff or contract your total maintenance, Systems Plant Services will Keep Your Plant Running!

- On site piping
- Prefabricated piping
- Structural steel
- Machine repair and or refurbishing
- Welding
- Fabrication, shop and field
- Handrails
- Ladders
- Machine installation
- Motor/gearbox installation and alignment
- Trenching and underground piping
- Troubleshooting
- Preventative maintenance
- Shutdowns
- Breakdowns



PULP AND
PAPER MILLS





CHEMICAL PLANTS



REFINERIES

STEEL MILLS



We understand that our customers' objectives are number one and must be met with very strict timetables in mind.

We provide highly trained and experienced personnel for industrial plant maintenance.

Great effort and planning are required to fulfill plant maintenance safely, effectively and efficiently.

**OUR
EMPLOYEES
MAKE THE
DIFFERENCE**

Safety is the top priority of Systems Plant Services. We believe that "Safety is Job One."



FACILITIES DEMAND ROUTINE MAINTENANCE FOR DAILY OPERATION.



Quality Craftsmanship



SCAN TO LEARN
MORE ABOUT
SYSTEMS PLANT
SERVICES

Systems Plant Services currently provides plant maintenance to the following industries on a daily basis:

- Steel Mills
- Slag Processors
- Steel Processors
- OSB Mills
- Stainless Steel Mills
- Chemical Plants
- Cold Rolling Mills
- Power Plants
- Pipe & Tube Mills
- Refineries
- Pulp & Paper Mills
- Galvanizing Lines
- Pickle Lines



Safety Is
Job One



SYSTEMS
PLANT SERVICES

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SYSTEMS

Safety is
JOB ONE.

THE SYSTEMS GROUP



214 N. Washington, Suite 700 • El Dorado, Arkansas 71730
www.tsg.bz • 870-862-1315



Systems is headquartered in El Dorado, Arkansas and occupies the top three floors of this historic eight story office building that was built in 1926.