



## FURNACE & SMELTER SERVICES

**POWERING AFRICA'S FUTURE:**  
INNOVATIVE ASSET INTEGRITY & INDUSTRIAL SOLUTIONS

[www.dgc-africa.com](http://www.dgc-africa.com)

SOUTH AFRICA

ZAMBIA

DEMOCRATIC REPUBLIC OF CONGO

MADAGASCAR

ZIMBABWE

BRAZIL

CHINA

# FURNACE & SMELTER SERVICES



At **DGC AFRICA**, we provide high-quality asset integrity management and industrial solutions across the African continent. With over 50 years of experience in Africa and 110 years as part of the Dickinson Group of Companies, we serve industries such as mining, metals smelting, mineral processing, oil and gas, and power generation. Our focus on innovation, safety, and efficiency has established us as a trusted partner in the industry, committed to supporting sustainable growth and operational excellence for our clients.



**DGC AFRICA HAS BEEN  
IN THE FURNACE BUSINESS  
SINCE 1928;  
WHEN THE COMPANY WAS INVOLVED  
IN THE CONSTRUCTION OF ONE OF  
SOUTH AFRICA'S FIRST BLAST FURNACES**

Since then, the company has been extensively involved in numerous furnace Greenfield and Brownfield projects on industrial furnaces within the metals smelting, mineral process, power generation and petrochemical refining industries throughout sub-Saharan Africa, and internationally in numerous countries around the globe, including the Middle East, Scandinavia, Latin America, Russia and CIS Countries.

The company provides a comprehensive range of furnace services to support clients in various aspects of furnace projects and maintenance.

**DGC AFRICA'S FURNACE SERVICES COMPRISE OF THE FOLLOWING:**

**METALS SMELTING SERVICES / FURNACE REBUILDS & HOTWORK SERVICES  
FURNACE DEMOLITION SERVICES / REFRACTORY MATERIALS / REFRACTORY INSTALLATION  
PRECAST REFRACTORY SHAPES / FURNACE INSPECTION SERVICES**



## **METALS SMELTING SERVICES**

**DGC AFRICA** specializes in the intricate demands of metal smelting furnaces, including those used for copper, nickel, cobalt, titanium, and platinum group metals (PGM). We excel in delivering refractory solutions that withstand extreme temperatures and corrosive environments, ensuring efficient and sustainable smelting processes.

**The Metals Smelting Services offered by DGC AFRICA** cover a comprehensive range of processes for key metals such as Copper, Nickel, Cobalt, Titanium, and Platinum Group Metals (PGM) across sub-Saharan Africa. We stay ahead of industry trends by adopting the latest technologies and best practices, ensuring sustainable and effective solutions.



**WITH OVER A CENTURY OF  
EXPERTISE &  
OUR COMMITMENT TO  
QUALITY & OPERATIONAL  
EFFICIENCY WE ENSURE  
PRECISE EXECUTION & MINIMAL  
DISRUPTIONS, CONTRIBUTING TO  
OVERALL PROFITABILITY  
& EFFECTIVENESS**



# FURNACE REBUILDS & HOTWORK SERVICES

## SHUTDOWN PLANNING & EXECUTION

Efficient planning and execution of shutdowns, turnarounds, and outages are critical for maintaining plant operations and extending asset life. Properly managed shutdowns help maintain inventory levels and reduce revenue loss.

Our experts bring extensive experience in metals smelting industries, offering comprehensive shutdown management services that ensure safety, efficiency, and reduced costs. Their expertise ensures that shutdowns are carried out with precision, reducing negative business impacts and improving asset longevity.



**DUE TO THEIR LABOUR & MATERIAL-INTENSIVE NATURE, IT'S ESSENTIAL THAT SHUTDOWNS ARE EXECUTED SWIFTLY & EFFECTIVELY TO MINIMIZE DOWNTIME & BUSINESS IMPACT**



## FURNACE REBUILD SHUTDOWN SERVICES

DGC's total shutdown solution management teams typically consist of an integrated team of experts as needed for large and complex asset shutdowns, turnarounds and outages.

A furnace rebuild requires a wide variety of skills and expertise. It takes a dedicated team of professionals to successfully oversee. DGC Furnace Rebuild Shutdown Services has managed numerous major furnace rebuild and upgrade projects.

### Some examples of the furnace types rebuilt:

- Flash Furnaces
- Six-in-line Furnaces
- Electric Furnaces
- Isasmelt Furnaces



DGC's Furnace Rebuild Shutdown Services  
for major furnace outages which can cover an entire scope of work including:

**REFRACTORY DEMOLITION & REMOVAL**

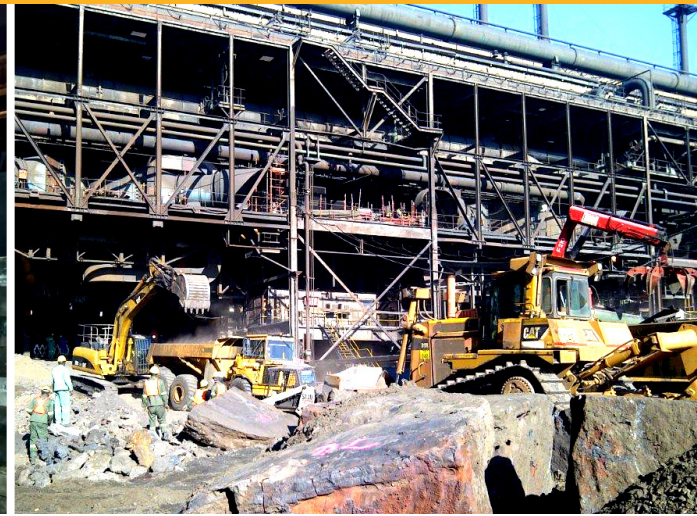
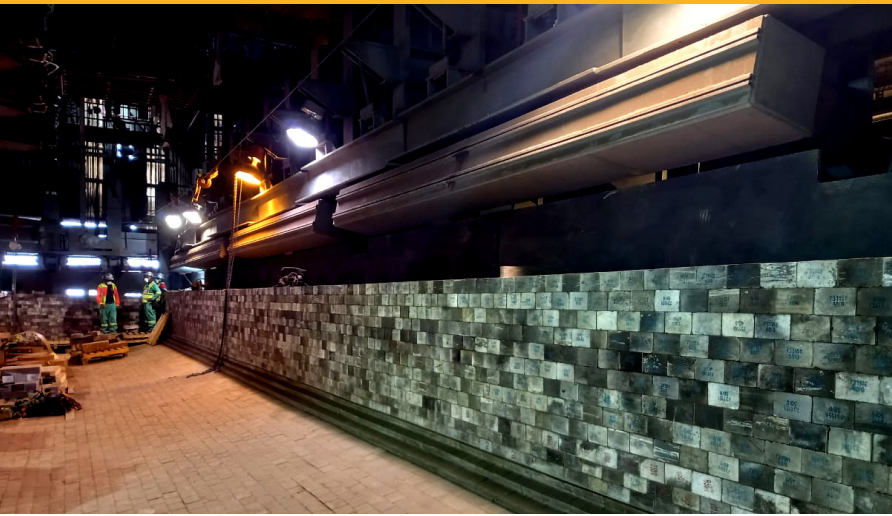
**PIPING REMOVAL & RE-INSTALLATION**

**COOLING ELEMENT REPLACEMENT**

**MECHANICAL WORK**

**ELECTRICAL & INSTRUMENTATION WORK**

**REFRACTORY INSTALLATION**



## **SHUTDOWN PLANNING**

Our shutdown and turnaround experts meet and work with your project team and the construction contractors that you select to agree on the plan and optimize the schedule.

At the completion of the planning phase, you and your contractors will have a comprehensive understanding of the agreed shutdown plan as well as all necessary documents to manage and execute the project.

**SCOPING & WORK - BREAKDOWN STRUCTURE (WBS)  
SHUTDOWN METHODOLOGY**

**SHUTDOWN SCHEDULE**

**ACTIVITY WORK PLANS SAFETY MANAGEMENT PLAN**

**RESOURCE SCHEDULING**

**QUALITY MANAGEMENT PLAN**

**LOGISTICS, RIGGING & MATERIALS HANDLING PLAN**

**RISK MANAGEMENT PLAN**





## SHUTDOWN EXECUTION MANAGEMENT

Acting as your shutdown manager, we can also coordinate all the resources, materials, and equipment needed to execute the project.

Starting with a comprehensive shutdown plan, our shutdown management teams can ensure that your shutdown is conducted on time and on budget, allowing you to return to full production with an asset that delivers according to plan.

### SCHEDULE MANAGEMENT

### SCOPE MANAGEMENT & CO-ORDINATION

### SAFETY MANAGEMENT

### QUALITY MANAGEMENT

### LOGISTICS, RIGGING & MATERIALS MANAGEMENT

### REPORTING

### WORK EXECUTION

## FURNACE HOTWORK SERVICES

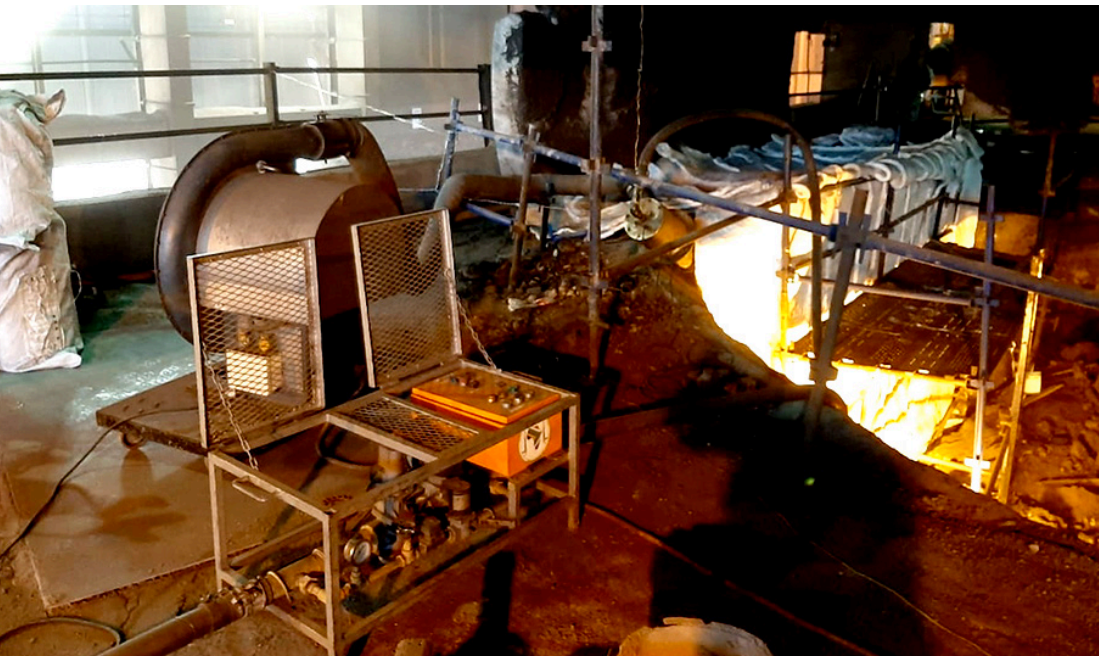
DGC AFRICA's Furnace Hotwork Services provide comprehensive solutions to optimize furnace performance and longevity. Our services include Refractory Dry Out, using high-velocity burners for uniform moisture removal, and Furnace Heat-Up, ensuring efficient thermal performance through precise temperature control.



**FURNACE ONLINE REPAIRS ADDRESS ISSUES LIKE FURNACE ROOF REPAIRS & SEALING,**  
WHILE OUR ON-SITE HEAT TREATMENT ENHANCES MATERIAL INTEGRITY IN HIGH-STRESS AREAS, ENSURING DURABILITY & MINIMIZING DOWNTIME



We also offer Furnace Expansion/Contraction Control, maintaining stability during refractory expansion, and Glass Furnace Cullet Fill-In, enabling smooth production startup. For continuous operations, our

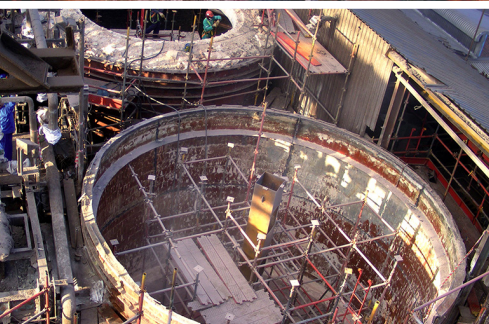




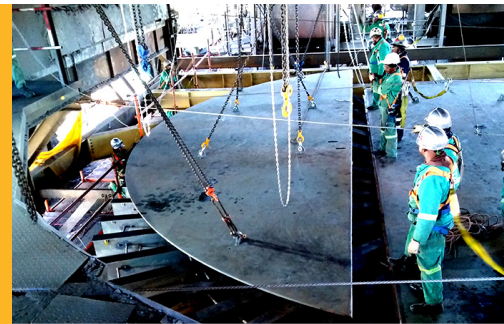


## FURNACE REBUILD SERVICES

With over 90 years of experience, **DGC AFRICA** excels in providing turnkey **furnace rebuild projects** for the metals smelting, mineral processing, power generation, and petrochemical refining industries. Our comprehensive services cover the entire scope of work, including project and construction management, furnace decommissioning, salamander tapping, furnace demolition, refractory installation, civil, electrical, mechanical fabrication, and furnace commissioning.



WE COLLABORATE WITH  
LEADING ENGINEERING  
& DESIGN FIRMS  
TO PROCURE,  
MANUFACTURE, & INSTALL  
REFRACTORY MATERIALS  
THAT COMPLY WITH  
STRINGENT QUALITY &  
SAFETY STANDARDS, ENSURING  
COST-EFFECTIVENESS  
& RELIABILITY



Our experienced management, expert supervision, and highly skilled personnel utilize state-of-the-art equipment and adhere to rigorous health, safety, and environmental protocols.

Our standard operating procedures ensure the highest level of quality, providing clients with cost-effective, tailor-made integrated solutions. **DGC AFRICA** delivers professional turnkey services to large, global, diversified minerals processing and metals smelting companies, consistently exceeding industry standards and client expectations.

## FURNACE DEMOLITION

DGC AFRICA excels in furnace demolition, specializing in complex projects across sub-Saharan Africa. Serving blue-chip clients in mining, metal smelting, mineral processing, and industrial sectors, we possess the technology, expertise, and innovative methodologies to handle complex furnace demolition tasks.

Our extensive experience and commitment to safety and innovation enable us to undertake furnace demolition projects of any scale. By utilizing cutting-edge equipment and customized approaches, we ensure the efficient and secure dismantling of furnaces, reducing downtime and maintaining high safety standards. DGC AFRICA's dedication to excellence and client satisfaction positions us as a trusted partner for complex industrial demolition needs.

OUR ADVANCED,  
PURPOSE-DESIGNED  
MECHANICAL DEMOLITION  
EQUIPMENT ENSURES  
IMPROVED & SAFER  
**ACCESS**  
TO CHALLENGING SITES,  
MEETING THE RIGOROUS  
DEMANDS OF LARGE-SCALE  
PROJECTS WITH PRECISION  
& EFFICIENCY



### AREAS OF EXPERTISE

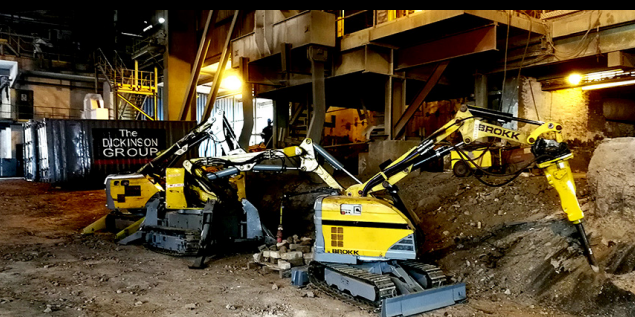
- **Turnkey demolition** of furnaces
- **Demolition and removal** of refractories
- **Confined space** demolition
- **Remote controlled** demolition equipment
- **Technology and expertise** for effective demolition of hot and cold materials
- **Mechanical demolition** and dismantling of equipment and structures
- **Site clean-up** and rehabilitation
- **Fast-track shutdowns** under 24/7 conditions
- **Accredited** with high safety standards

### SPECIALIST & INNOVATIVE EQUIPMENT

The latest technology and methodologies used substantially reduce the man power, project duration and improve the safety profile of projects.

#### The technologies utilized include:

- Remote controlled demolition equipment
- High powered crawler excavators & hydraulic breakers
- Mechanical dismantling & rigging
- Thermal oxygen lancing
- Liquid nitrogen cooling
- Controlled hot blasting



## REFRACTORY INSTALLATION

DGC AFRICA excels in the specialized field of refractories, providing installation, repair, and maintenance of refractory linings for metals smelting, mineral processing, chemical, refining, and thermal power industries. Our expertise encompasses techniques such as bricklaying, pneumatic gunning, shotcreting, ramming, pumping, vibrocast, and ceramic fiber products.

Our extensive experience includes numerous initial construction and furnace rebuild projects across sub-Saharan Africa and internationally, serving countries such as South Africa, Botswana, Zimbabwe, Namibia, Mozambique, Zambia, Democratic Republic of Congo, Tanzania, Malawi, Gabon, Nigeria, Niger, Senegal, and beyond. Our global reach extends to countries like Israel, United Arab Emirates, Saudi Arabia, Argentina, and Iceland.



**WE OFFER A QUALIFIED  
& INDUSTRY-EXPERIENCED TEAMS OF  
ENGINEERS, SUPERVISORS,  
BRICKLAYERS, GUNNING CREWS,  
& CARPENTERS WITH  
SPECIALIZED KNOWLEDGE  
IN ALL FACETS OF REFRACTORY  
DESIGN & CONSTRUCTION**



Whether you need repairs to current facilities or are looking to establish a new plant, our team is dedicated to managing the entire process from pre-planning to ongoing refractory installation and demolition works throughout the furnace's service life.

We believe that refractory management is a long-term partnership, and our team is committed to being available to support your needs at every stage, ensuring optimal performance and longevity for your industrial operations.





## REFRACTORY MATERIALS

DGC Refractories, a division of DGC AFRICA, provides innovative and sustainable ISO 9001:2008 certified refractory solutions, backed by decades of expertise and a strategic alliance with CNBM, the world's largest building materials group. Our comprehensive product range includes shaped and monolithic refractories, as well as graphite electrodes, designed to withstand extreme conditions across diverse industries.



**WITH STATE-OF-THE-ART PRODUCTION FACILITIES, RIGOROUS QUALITY CONTROL, & A COMMITMENT TO DURABILITY & EFFICIENCY, DGC REFRACTORIES IS A TRUSTED PARTNER IN DELIVERING HIGH-PERFORMANCE SOLUTIONS THAT OPTIMIZE OPERATIONAL EFFECTIVENESS & SUSTAINABILITY**

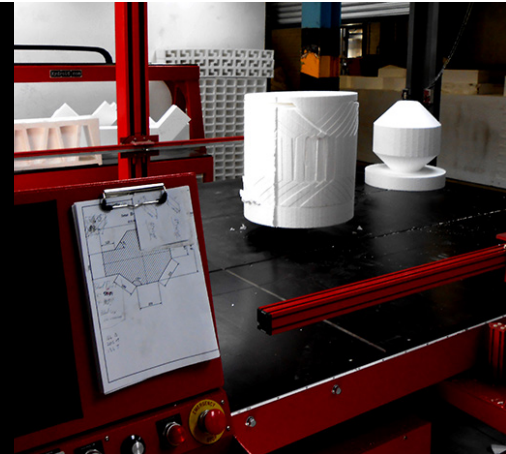


## PRECAST REFRACTORY SHAPES

DGC AFRICA's Precast Refractory Shapes division, established in 1986, is a leader in designing and manufacturing customized precast refractory shapes for various industrial applications. Utilizing world-class facilities and engineering technology, we produce a wide range of precast shapes that enhance performance and service life, under controlled conditions ensuring high-quality standards.



**THESE SHAPES ARE PIVOTAL  
IN INDUSTRIES**  
WHERE HIGH TEMPERATURE  
& DURABILITY ARE CRUCIAL,  
**PROVIDING EFFICIENT,  
TAILORED SOLUTIONS**  
FOR OPTIMAL FUNCTIONALITY



Whether you need repairs to current facilities or are looking to establish a new plant, our team is dedicated to managing the entire process from pre-planning to ongoing refractory installation and demolition works throughout the furnace's service life.

We believe that refractory management is a long-term partnership, and our team is committed to being available to support your needs at every stage, ensuring optimal performance and longevity for your industrial operations.



## FURNACE INSPECTION SERVICES

At DGC AFRICA, we offer specialized **Furnace Inspection Services** to enhance the safety and efficiency of industrial furnaces across multiple sectors, including metals smelting and mineral processing. Utilizing advanced techniques like high-temperature endoscopy and infrared thermography, our services provide critical real-time diagnostics and assessments.

### BENEFITS

#### ENHANCED EFFICIENCY & RELIABILITY

We optimize maintenance costs and extend the life of your furnaces, ensuring smooth and efficient smelting and processing operations.

#### SAFETY & COMPLIANCE

Our innovative technologies and strict safety standards keep your operations safe and compliant with environmental regulations.

#### COMPREHENSIVE SOLUTIONS

From metals smelting to furnace rebuilds, demolition, refractory installation, and inspection services, we offer a wide range of tailored services to meet your specific needs.

#### EXPERTISE AND EXPERIENCE

With extensive industry knowledge and specialized equipment, our experienced team delivers high-quality services you can rely on.

#### IMPROVED PRODUCTIVITY

We minimize downtime and enhance your plant's performance, ensuring efficient operations and reducing production stoppages.

#### INNOVATIVE TECHNIQUES

Our advanced systems and methods ensure efficient and effective service, incorporating modern technologies for superior results.

#### SUSTAINABLE PRACTICES

We provide sustainable solutions that ensure the long-term viability of your operations, focusing on eco-friendly practices and materials.

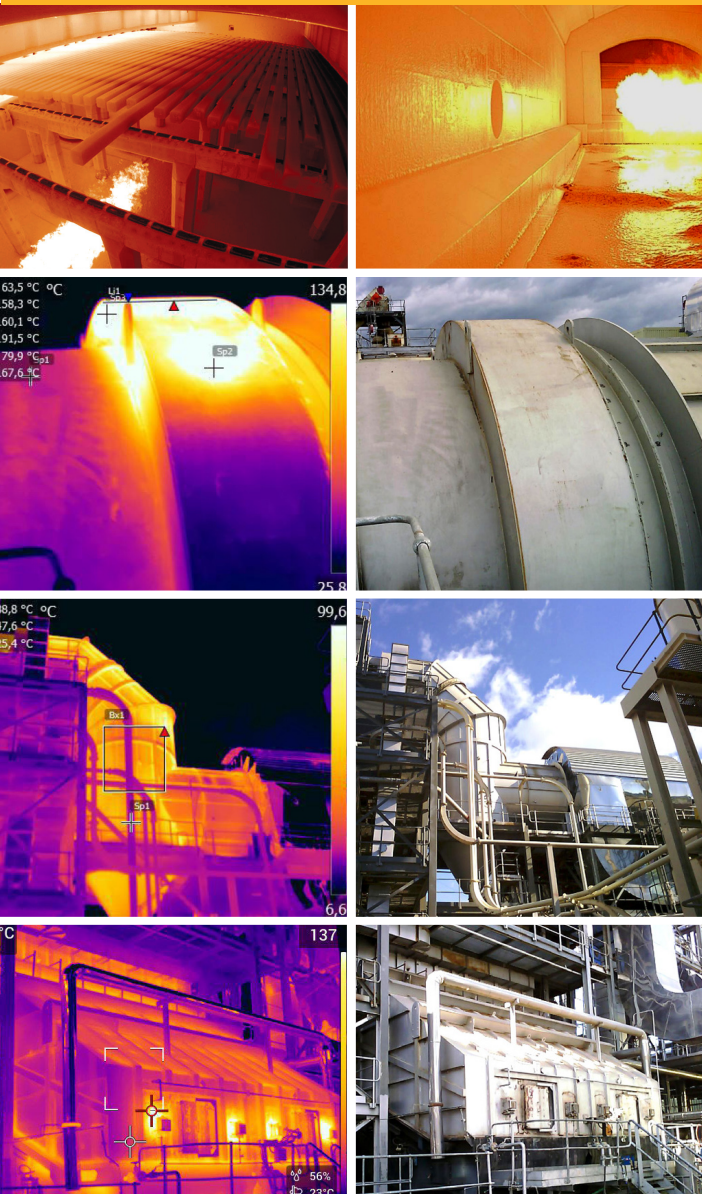
#### CUSTOM SOLUTIONS

Our ability to create customized precast refractory shapes and tailored solutions ensures your specific operational requirements are met.

#### REAL-TIME MONITORING

Our furnace inspection services use advanced techniques like endoscopy and infrared thermography, allowing for real-time monitoring and early issue detection.

THIS CAPABILITY ALLOWS  
OPERATORS TO MONITOR  
THE OPERATIONAL CONDITION  
**OF FURNACES**  
AT HIGH TEMPERATURES,  
ENSURING OPTIMAL  
**PERFORMANCE  
& PREVENTING**  
POTENTIAL FAILURES



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# OUR OFFICES



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