



ENGINEERING SOLUTIONS



COMPANY PROFILE

www.jadengineeringgroup.com

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ABOUT US

JAD is passionate about supplying sustainable, turn-key solutions that will boost efficiency for our clients. Our design house has experience in high-end designs and shop detail drawings. With our strong background and experience in the industry, we can do any size job and provide on-time solutions to all our clients.

Along with problem-solving, we also initiate new ideas and skills to enhance workflow in operations.

Our team had the privilege of managing and rendering the drawing office of Anglo American - Sishen Iron Ore for seven years. We believe this gave us experience and expertise in various fields of engineering.

SOMETHING NEW

While design and draughting remain one of the top focus areas, the JAD team can manufacture and refurbish various industrial components.

“ We notice everything and have immense confidence in the solutions we put on the table. ”



WATCH OUR VIDEO



HOW WE BEGAN?

1994 Andre, the only shareholder at that time, started doing freelance work. Saldana commissioning phase.

2006 First large corporate vendor received Anglo American.

2013 Anglo American outsources their drawing office duties to JAD until 2020.

2014 Consulting engineers department added to our scope of work.

2015 MegaDraft Pty Ltd and JAD merge, incorporating specialized structural detailing into our expertise.

2020 JAD Manufacturing is formed, further broadening our services to clients.

2022 Research and Development Projects launched JAD to launch a product line that is called Create.



WHO ARE WE

What started with one draughtsman, experience, and outstanding professional relationships has now been transformed into an engineering house with an extensive service offering and soon-to-launch product range. While our focus and expertise have mainly been aimed at the mining and construction industries, we expand beyond these markets.

At JAD, we've always believed in finding innovative and sustainable solutions to make life easier for our clients. Whether starting from scratch or adding efficiency to an existing project, we're all about meeting and exceeding the needs of our valuable clients.

OUR VALUES



We always conduct business with integrity & fairness, investing transparency into every relationship forged.



We care about our clients, not just meeting but exceeding their needs, turning strangers into life-long supporters of JAD.



Striving for excellence in all we do is habit. We're always looking for opportunity to grow more, and serve better.



We are committed to the safety of those we surround ourselves with, creating an environment where employees and clients feel valued.

BUSINESS ACTIVITIES



Design & draughting, consulting, engineering, project management & 3D laser scanning.



With 25+ years of experience in steel detailing, Mega Draft will serve as a specialised division of JAD.



Safe Reach centres on assisting you in establishing fall protection solutions and safe working environments at elevated heights.

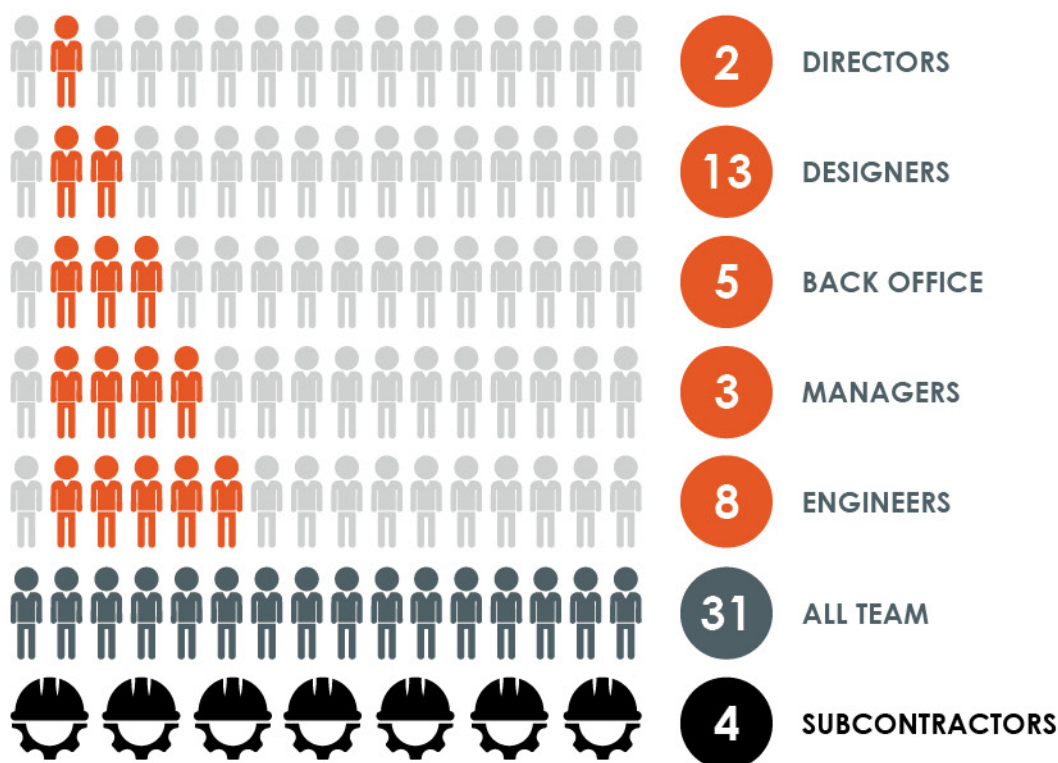
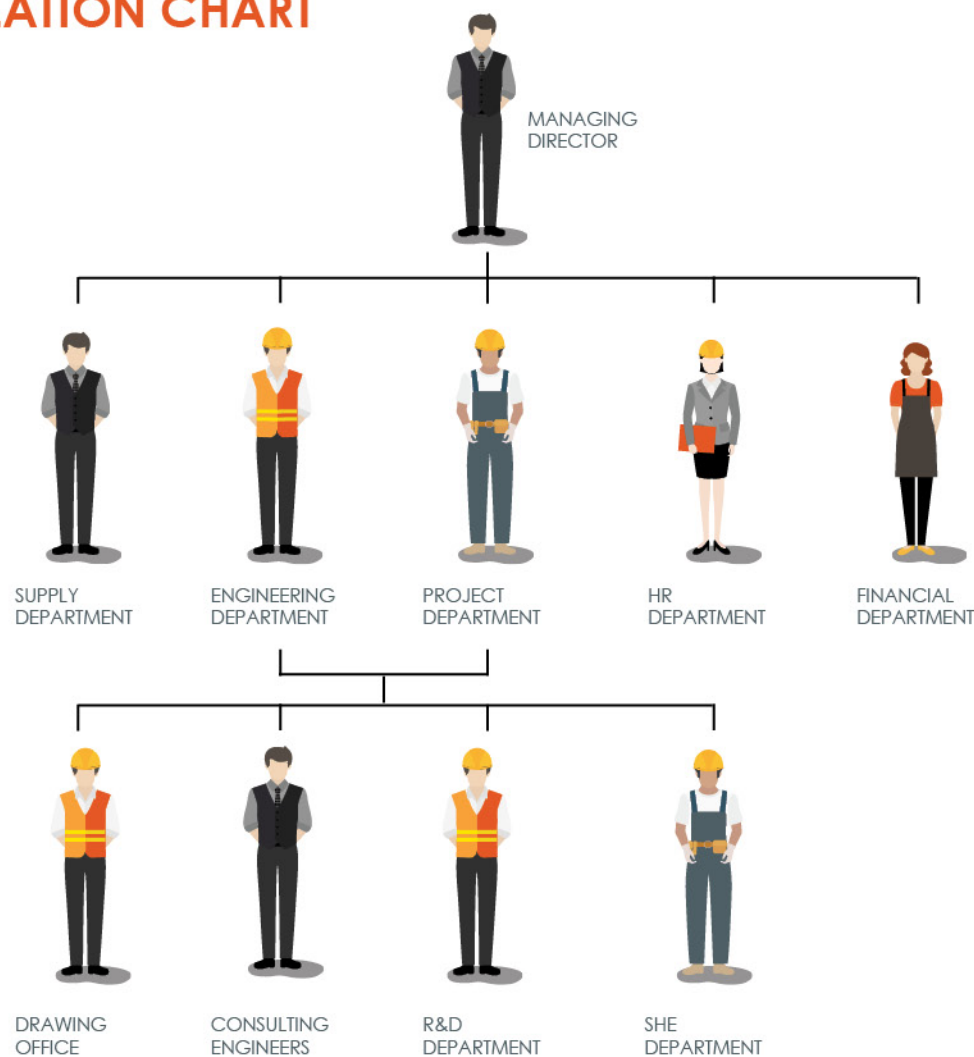


Born from the union of Mega Draft Pty Ltd and JAD Engineering. With a fusion of expertise and experience, we have become the go-to destination for all your mining industry supply needs.



We are excited to soon launch our extensive product range, which includes versatile mobile trolleys, reliable ladders, and more.

ORGANIZATION CHART





SCOPE OF BUSINESS



DESIGN & DRAUGHTING

We are a dynamic design house with a dedicated team of professional engineers and design draughtsmen. Our multidisciplinary drawing office is equipped to fulfil all your drawing requirements, seamlessly guiding projects from the initial design phase to manufacturing and construction, all while adhering to the highest industry standards.

We specialise in every aspect of engineering design, detailing, and the maintenance of built environments. Our mission is to deliver innovative, cost-effective, and sustainable solutions tailored to your unique needs. By designing from first principles and leveraging cutting-edge engineering resources, we ensure that every project is executed with precision and excellence.

Our experienced engineering team brings a wealth of knowledge to the table, capable of consulting on any engineering challenge. When specialised expertise is required, we collaborate with researchers and industry experts to provide comprehensive solutions. This collaborative approach allows us to tackle complex challenges effectively, delivering results that exceed expectations. At JAD, we are committed to transforming ideas into reality, offering end-to-end engineering solutions.



**We use only
the best available
industry-relevant
software for our
design house.**

The Software we use



AUTODESK
Architecture, Engineering
& Construction Collection



AUTODESK
Product Design &
Manufacturing Collection



Trimble
Real Works





CIVIL & STRUCTURAL ENGINEERING

Focusing on new projects and modifications to existing structures.

- Expertise in designing new plant structures, conveyor and crane gantries, and access systems for maintenance.
- We specialize in warehouse and factory design to optimize plant operations and efficiency.
- Offers detailed 3D modelling for office buildings and
- thorough structural analysis and design for industrial formations.



MECHANICAL ENGINEERING

We excel in mechanical engineering solutions, ensuring efficient and reliable project outcomes. Including:

- Finite element analysis (FEA) of structures and specialized components.
- Design of pressure vessels, heat exchangers, and safety features for mining equipment.
- Expertise in hydraulic systems, including cylinders and power packs.



BULK MATERIALS HANDLING

JAD specializes in cutting-edge materials-handling solutions that enhance operational efficiency and safety. Including:

- Expert silo design to prevent material flow issues such as arching and ratholing.
- Comprehensive dust control solutions prioritizing safety, health, and environmental standards.
- Advanced discrete element modeling (DEM) for optimizing bulk material flow in chutes and bins.



ELECTRICAL ENGINEERING

Electrical engineering is essential for optimizing the performance and safety of production and manufacturing plants through advanced control systems.

- We specialize in industrial instrumentation and control systems for various process variables, enhancing operational efficiency.
- Designs comprehensive power infrastructure, including Motor Control Centres, substations, and transmission networks.
- Conducts feasibility studies and provides earthing and lightning protection solutions to safeguard personnel and equipment.



PIPING SYSTEMS

JAD delivers comprehensive design solutions for ducting and piping systems, ensuring efficiency and minimizing on-site challenges.

- Expert in pump selection, pipe routing, and creating detailed isometric drawings and bills of materials for various liquids, including slurries.
- Specializes in bracketing, support design, and thermo-hydraulic simulations to optimize plant performance and accommodate thermal expansions.



3D LASER SCANNING

JAD Engineering utilizes cutting-edge 3D laser scanning technology to transform engineering practices through accurate spatial data capture.

- Produces detailed as-built documentation of existing structures and facilities.
- Facilitates effective maintenance planning by monitoring asset condition and changes.
- Creates precise 3D representations for the digital preservation of historical sites and artifacts.



3D SCAN-TO-CAD

JAD Engineering utilizes advanced 3D scanning and CAD modeling to enhance facility design and performance.

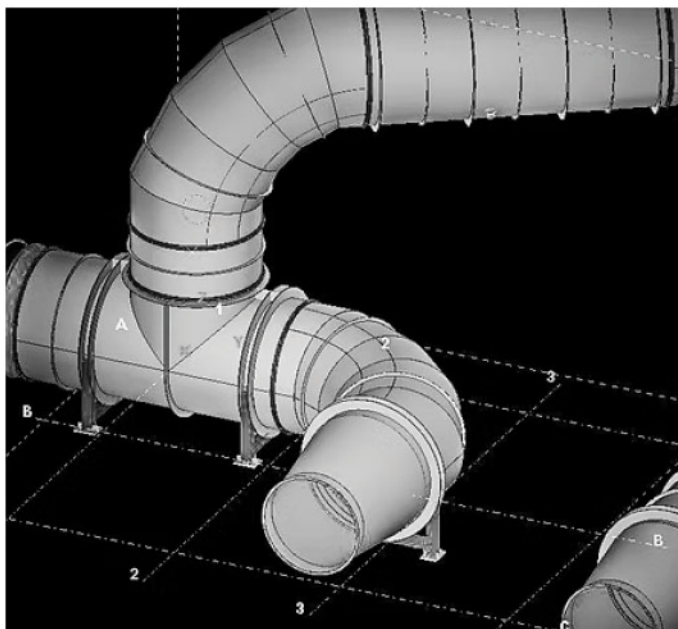
- Expert in reverse engineering and design improvements using CAD models.
- Comprehensive 3D modeling for facilities, equipment, and infrastructure optimization.
- Performs simulations and analyses to assess performance and ensure seamless retrofitting.



GENERAL CONSULTING

We provide comprehensive consulting engineering services tailored to meet the unique needs of our clients. Our expertise spans various disciplines, ensuring innovative solutions that drive project success and operational efficiency.

- Project Management
- Feasibility Studies
- Risk Assessments
- Regulatory Compliance & Standards
- Technology Integration & Innovation

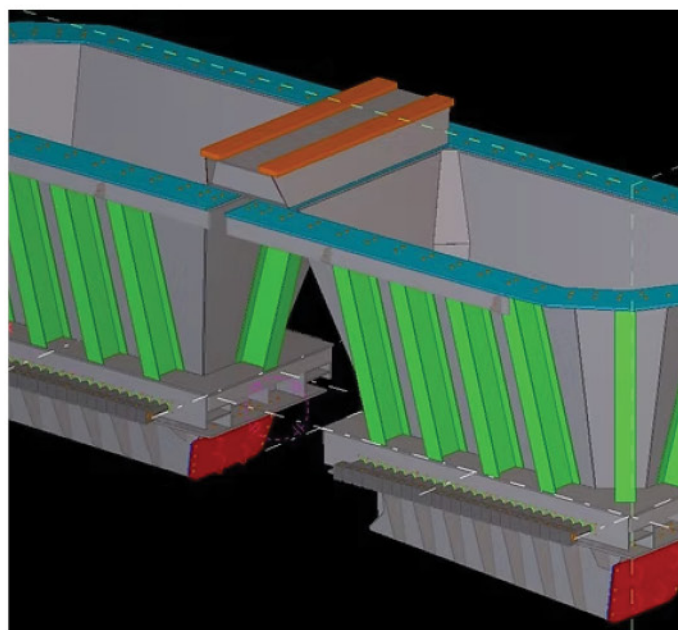
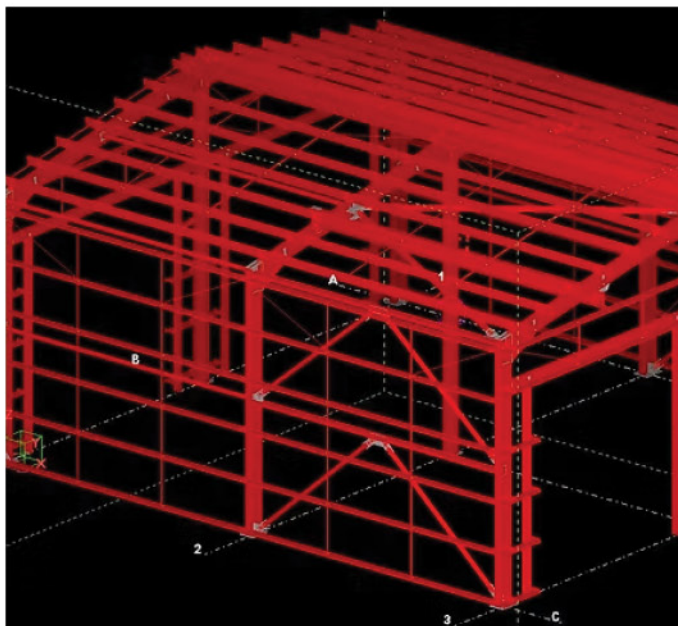


MEGA DRAFT

Wanting to assist our clients' turnkey needs further, JAD partnered with Mega Draft to form a special division for structural detailing. This gives our team the utmost confidence in being able to tackle any structural detailing task.

We offer 25+ years of experience in steel detailing, mining, and construction industries. We do commercial structures, e.g. shopping malls, and plant work like process steelwork structures, chutes, bins, conveyors, and piping.

The Mega Draft team can take a concept and turn it into a 3D model, allowing an in-depth review of any structure. This model uses detailed fabrication drawings from which the individual members can be manufactured and assembled to form the final structure.



Structural steel detailing and 3D modelling



Precise fabrication and workshop drawings



Detailed erection drawings & review models



Handrail schedules & grating layouts



Data for CNC machines & bill of materials



SAFE REACH

Masters of Fall Protection Solutions.

Our mission centres on assisting you in establishing robust fall protection solutions and safe working environments at elevated heights in strict accordance with prevailing regulations. We have assembled a proficient team of engineers and technical consultants with extensive experience to accomplish this.

Our team and network of partners are fully equipped to guide you through every phase of your project, from initial risk assessment to project completion. This encompasses identifying potential risks, conducting site surveys, designing custom fall arrest systems, selecting appropriate personal protective equipment (PPE), on-site installation and assembly, system certification, and a wide range of additional support services tailored to your specific needs.

We are committed to being your reliable ally in achieving and maintaining height-safe work environments.



**RISK
IDENTIFICATION**



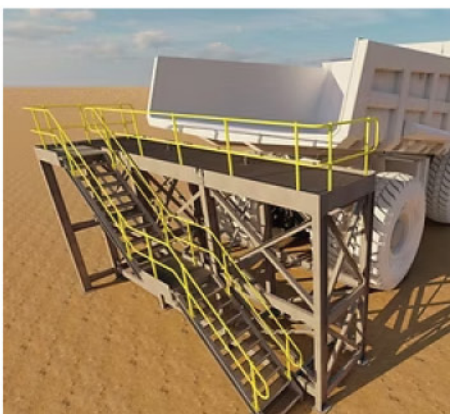
FACILITY DESIGN



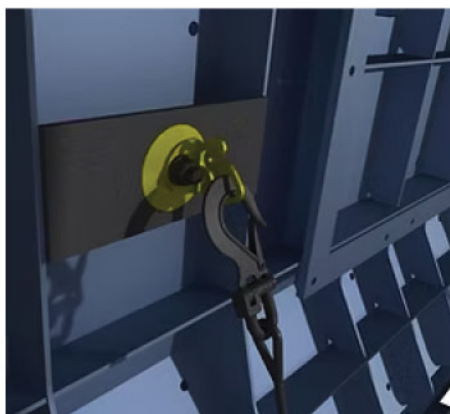
**PRODUCT
SELECTION**



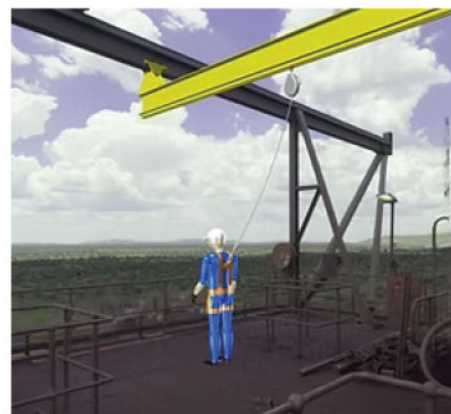
**INSTALLATION &
MANUFACTURING**



ACCESS



ANCHOR POINTS



LIFE LINE

MEGA SUPPLY

We noticed a growing challenge in the industry – clients struggling to piece together suppliers, ascertain product quality, compare prices, and ensure swift turnaround times. Having been deeply entrenched in turnkey projects within the mining sector, we seized the opportunity to mitigate this supply challenge.

Over the years, we have nurtured invaluable relationships with suppliers worldwide, making us the prime facilitator for seamless procurement processes.

Moreover, our in-house manufacturing facilities elevate us above the rest. Crafting our own products tailored to the mining industry, we offer an added advantage of quality assurance and customisation to suit your needs.



**HEAVY MINING
EQUIPMENT**



**PLANT
EQUIPMENT**



**BULK MATERIAL
HANDLING**



**WORKSHOP
TOOLS**

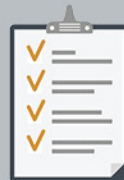
At Mega Supply, we are dedicated to simplifying your procurement journey.



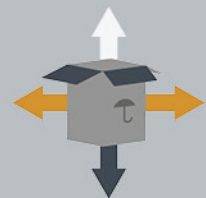
**When our clients
present their
requirements, we
spring into action.**



**We have access to
suppliers on a global
scale, and delve into
price comparisons to
secure the best deal.**



**Rigorous checks
are conducted to
ensure suppliers align
with the client's
specifications.**



**We leverage our
global network to
ship directly from
various suppliers
worldwide, ensuring
efficiency and
cost-effectiveness**







CREATE

JAD CREATE

JAD CREATE is born from a passion for progress and innovation, backed by years of hands-on design and manufacturing experience within the mining and heavy engineering industry.

We've developed a product line with specialised features that will assist in delivering safe and practical solutions for various environments and industries.

WHY TO BUY

-  Locally Manufactured
-  Operational Manual & Supporting Documents
-  After-Sales Support Experts
-  Shipped 100% Fully Assembled



**MOBILE PLATFORMS
& LADDERS**



TROLLEYS



STORES/STORAGE



BARRIERS



SAFETY CAGES



**MATERIAL
HANDLING BASKETS**



DOZER JACKS



PERFORMANCE



OUR MARKETS



MINING

From transfers and chutes, feeders, and conveyors, we've designed effective solutions, no matter the size of the job.



EARTHMOVING

Add-ons, modifications, and new components have been part of our scope of work in this industry.



CONSTRUCTION

From plant extensions to industrial installations and control systems - we deliver excellence, efficiency, and professional results.



FACTORY

Our portfolio includes the designing of structures and detailed geometrical verification of specialised equipment.

We provide turn-key solutions to the following Engineering Fields



CIVIL & STRUCTURAL
ENGINEERING



MECHANICAL
ENGINEERING



PIPING
SYSTEMS



ELECTRICAL
ENGINEERING



BULK MATERIALS
HANDLING



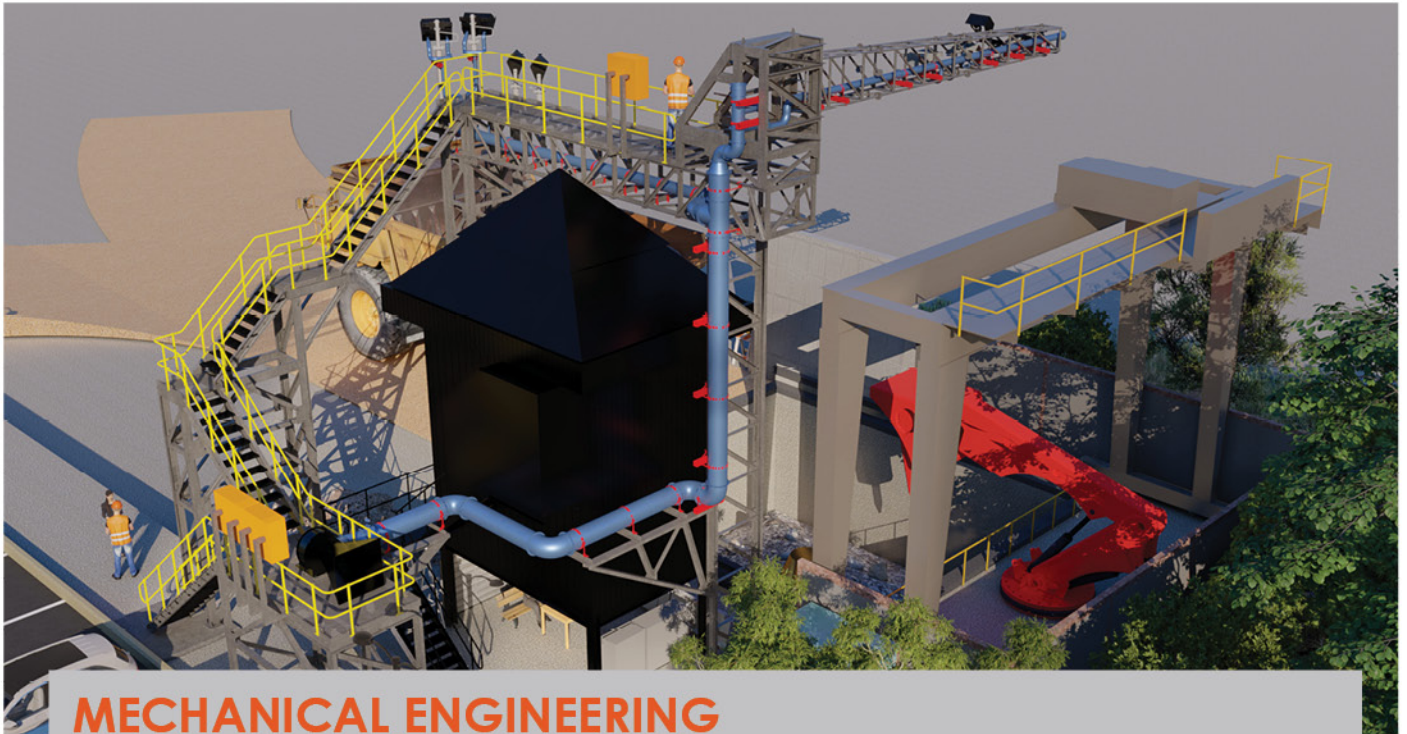
PETROLEUM/GAS

SOME OF OUR CLIENTS





PROJECTS



MECHANICAL ENGINEERING **A FULLY MECHANISED MOBILE UNIT**

CLIENT: Anglo American Sishen Iron Ore

PROJECT DURATION: 1 Month

SECTOR: Mining, Mechanical Engineering

STANDARDS: MHS Act 29 of 1996, Anglo American Standards

PROJECT DESCRIPTION

The proposed dewatering project for a mining area involves the extraction of groundwater through the use of boreholes that reach depths of up to 400 meters. Currently, this process is carried out manually, requiring personnel to uncoil and recoil heavy lengths of electrical cable. This method poses significant safety risks, including potential injuries from repetitive strain and accidents related to handling bulky equipment.

To address these concerns, we have developed an innovative solution: a fully mechanised mobile unit designed specifically for this purpose. Our unit can efficiently wind and unwind cables with a diameter of up to Ø60 mm and a length of 400 meters. It is powered by a petrol engine that drives a hydraulic pump, ensuring both reliable operation and high performance in demanding environments.

This project not only enhances operational safety by minimising manual handling but also exemplifies our dedication to teamwork and collaboration. We are committed to meeting the evolving needs of our clients while implementing solutions that prioritise their safety and operational efficiency.

Introducing our innovative fully mechanised mobile unit, designed to revolutionise groundwater extraction in mining while prioritising safety and operational efficiency.



BULK MATERIALS HANDLING

40-TON APRON FEEDER

CLIENT: Anglo American

PROJECT DURATION: 2 Month

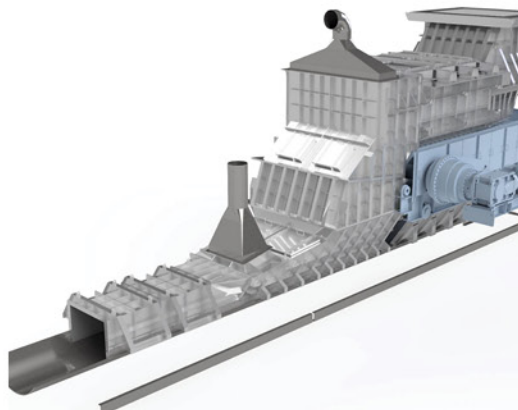
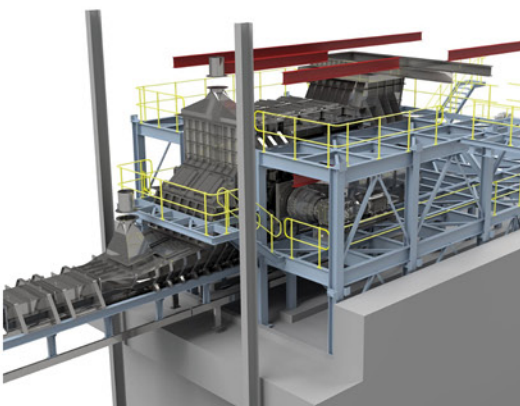
SECTOR: Mining

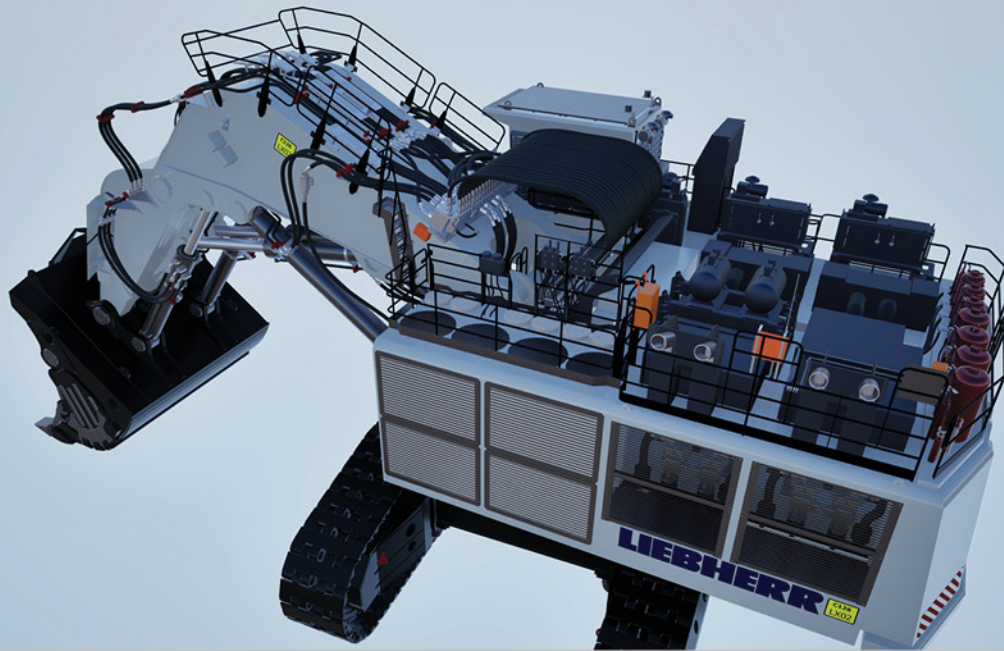
STANDARDS: SANS, CEMA, Anglo American

PROJECT DESCRIPTION

We were actively engaged in the detailing and manufacturing drawings for a 40-ton apron feeder chute. This project involved a comprehensive design process where precision and accuracy were paramount. Our team focused on ensuring that every aspect of the chute was optimized for efficiency and performance.

We were excited about the potential of this project and looked forward to sharing the complete details and scope of work with you once everything was finalized. Optimization was particularly crucial in this undertaking, as it significantly enhanced the overall functionality of the feeder.





3D LASER SCANNING LIEBHERR SHOVEL

CLIENT: Anglo American

PROJECT DURATION: 1 Month

SECTOR: Mining, 3D Laser Scanning

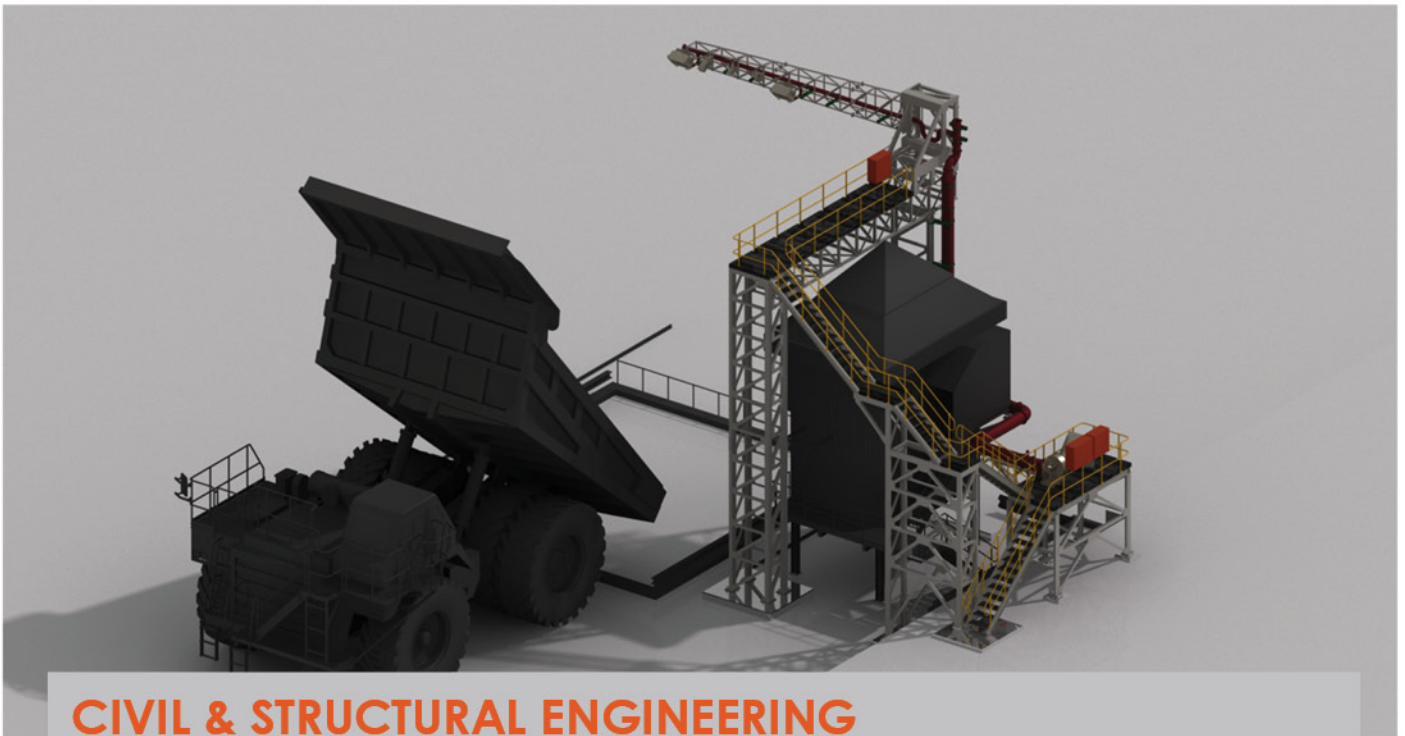
STANDARDS: ASTM E2807, 3D Scanning QCPs

PROJECT DESCRIPTION

The company Anglo American wants to create digital copies of all their large plant equipment. They've asked JAD for help to make 3D scans and models of heavy mobile equipment at their Kolomela and Sishen Mines.

Right now, they want to scan six haul trucks and four excavators/shovels, but more equipment will be added later. Planning the 3D scans is important because there are only certain times when the equipment is available for maintenance. Anglo will use the 3D models to add other equipment and plan where to put electrical cables. By doing this project, JAD will help Anglo make the equipment easier to maintain and inspect.





CIVIL & STRUCTURAL ENGINEERING EL-SOLDADO SIZER WHILE TIPPING

CLIENT: Anglo American El Soldado Mine

PROJECT DURATION: 6 Month

SECTOR: Mining, Structural Engineering, Mechanical Engineering

STANDARDS: NCH 2369, SANS 10160, SANS 10162-1, SANS 0100-1, Eurocode 3, Anglo American Standards

PROJECT DESCRIPTION

This development aimed to enhance the mining industry's ability to monitor and control particle size distribution, leading to improved efficiency and product quality.

Our work revolved around designing a robust portal frame that supported a mechanical boom, which underwent thorough Finite Element Analysis (FEA) to ensure it could handle operational stresses. We integrated a precision-engineered gearbox into the system to facilitate essential rotation for accurate measurements.

In order to effectively mount various equipment on the structure, we conducted a detailed thermal hydraulic analysis. This analysis ensured positive airflow and temperature control, safeguarding the performance of the sensitive equipment.

After completing our calculations, we developed a detailed 3D model of the PSA system. This model served as the basis for manufacturing drawings and comprehensive work instructions, guiding the on-site assembly team in a safe and efficient manner.

The PSA system at El Soldado Mine represented a significant step forward in particle size analysis technology, and we were eager to see its impact on mining operations and enhanced performance in the field.



ELECTRICAL ENGINEERING AIR CURTAIN (PERU)

CLIENT: Anglo American Quellaveco Mine

PROJECT DURATION: 6 Month

SECTOR: Mining, Structural Engineering, Mechanical Engineering

STANDARDS: DS 024-2016; EN 1991-1-4; ASCE/SEI 7-10; AISC 360-10, 641-10, 303-10; AISI S100-2007, Uniform Building Code UBC-97, Anglo American Standards

PROJECT DESCRIPTION

Anglo American Quellaveco Mine engaged us to engineer a PSA crusher air ducting system tailored for a South American mining operation. The primary objective was to establish a duct network that facilitates positive airflow across critical equipment, including instruments, lights, and scanners, effectively mitigating dust accumulation on optical surfaces. This design helps to reduce the frequency of manual lens maintenance.

Our team of Draughtsmen collaborated closely with the design engineer to model the facility and strategize the duct routing within the existing steel infrastructure of the crusher. Our skilled engineers conducted detailed simulations to optimize duct dimensions and configurations, ensuring compliance with client specifications. Additionally, we performed a thermo-hydraulic system analysis, beam loading assessments, and bracket designs to support the ducting infrastructure.

The drawing office contributed significantly by integrating extra steel supports and brackets to accommodate fans and ducting throughout the crusher assembly. Ultimately, we produced a comprehensive set of manufacturing drawings for the fabrication process in Peru.



3D SCAN-TO-CAD HAUL TRUCKS & EXCAVATORS

CLIENT: Anglo American Sishen Iron Ore and Kolomela Mines

PROJECT DURATION: 1 Month

SECTOR: Mining, Digital Twin, 3D Laser Scanning

STANDARDS: ASTM E2807, 3D Scanning QCPs

PROJECT DESCRIPTION

Anglo American as part of an initiative to produce digital twins of all their plant equipment, has requested the assistance of JAD to 3D scan and 3D model Heavy Mobile Equipment (HME). This will take place at their Kolomela and Sishen Mines.

The current list of equipment includes haul trucks and excavators/ shovels, with more to be included in future. 3D scan planning is crucial, as there is only a limited timeframe during maintenance windows where access to the equipment is available.

The 3D models generated from the scans will be used by Anglo in order to model in additional 3rd party equipment, along with the electrical cable routing for said equipment. By undertaking this project, JAD will assist Anglo with the standardization of equipment cable routing, for easier maintenance and inspection activities.





PIPING SYSTEMS WEC CONTAINER PLANTS

CLIENT: WEC Projects

PROJECT DURATION: 2 Month

SECTOR: Wastewater Treatment, Mechanical Engineering

STANDARDS: National Water Act 36 of 1998

PROJECT DESCRIPTION

JAD has collaborated with WEC Projects to deliver four wastewater treatment plants earmarked for deployment in Guinea. WEC Projects brings extensive expertise in the water treatment industry, having developed proprietary filter media. The project scope encompasses the process, mechanical, electrical, piping, and instrumentation aspects of the plants, featuring a configuration of one 250 m³/day facility, one 150 m³/day unit, and two 60 m³/day plants.

Each facility integrates septic tanks, trickle filters, and clarifiers, with quantities tailored to the respective daily treatment capacity. The modular design of the containerized process sections facilitates flexibility in achieving and constructing varying plant capacities.

To eliminate potential design clashes, we produce detailed 3D models that clearly outline all piping and cabling routes, inclusive of bracketry and instrumentation. This precision is particularly critical in the clarifier containers, which house both the switchgear and control panel. The pre-fabrication and installation of the container units can thus proceed seamlessly, guided by the comprehensive drawings generated.



“

To offer sustainable Engineering solutions & products to assist with problem-solving, and ensure efficiency throughout various industries.

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