Krech Ojard’s Mechanical Group provides custom engineering solutions for bulk material storage facilities, rail and marine transload facilities, and heavy industry. Whether clients require design or remediation, our capable team can meet your engineering needs.

With a breadth of real-world experience in the paper, rail, and energy industries, our employees are uniquely positioned to understand the needs and expectations of our clients. We develop realistic, effective, and functional solutions that add value and minimize costs for long-term operation.

We work at length with projects involving materials handling, and are pleased to coordinate with clients to design functional systems that reduce the amount of material degradation during processing, effectively saving the client money.

Krech Ojard’s mechanical team has the skills, insight, and experience to make any project a success.
PRECONSTRUCTION VISUALIZATION

Krech Ojard & Associates has the capability to create 3D modeling of the projects to let the client fully visualize what the final product could look like. This allows the design to center around the existing equipment and space and help recognize problem areas before construction would begin. Working with plant operations and maintenance personnel, existing plant drawings, and extensive field work, a design can be developed that will allow greater productivity and the new larger equipment to be placed with improved access for maintenance within the confines of the existing structures.

Featured above was feasibility study at an iron ore mine to improve their taconite balling process. The project involved the replacement of two existing ten foot diameter drums with two twelve foot diameter drums, reworking feed and takeaway conveyors, and replacing the existing roll screens with wider, longer roll screens. The current equipment could be difficult to maintain with limited access, so a key element of the design is to improve access to the new equipment.

LIMESTONE MATERIAL HANDLING STUDY
Northern Minnesota
The mining facility's product requires milled limestone in the agglomerator plant for the production of flux pellets. Provided engineering support to facilitate mounting and equipment modification for the new hole detection system on the #3 Paper Machine. Modeled the existing paper machine in 3D to facilitate installation of a new web Inspection machine and edge marker. Mounting brackets were also drawn in 3D for placement and fitting and detailed drawings were produced directly from the models.

LOAD OUT IMPROVEMENT STUDY
Northern Minnesota
Investigated options for improving the loadout operations at a crude ore facility. The two issues addressed in the study are accurate ore car blocking and protection from locomotive equipment collisions during loadout operations. Provided general arrangement drawings for each of the proposed modifications including cost estimates.

LIMESTONE MATERIAl HANDLING STUDY
Northern Minnesota
The mining facility's product requires milled limestone in the agglomerator plant for the production of flux pellets. Provided engineering support to facilitate mounting and equipment modification for the new hole detection system on the #3 Paper Machine. Modeled the existing paper machine in 3D to facilitate installation of a new web Inspection machine and edge marker. Mounting brackets were also drawn in 3D for placement and fitting and detailed drawings were produced directly from the models.
Krech Ojard has performed multiple services for this facility, the largest coal trans-shipment facility on the Great Lakes and in the Midwest area. MERC has been a repeat customer for KO’s Mechanical, Marine and Structural engineers. This large scale facility has been extensively upgraded in recent years and has been a source of variable and unique projects for KO. Recently assisted in the expansion of MERC’s annual capacity from 18,000,000 to 25,000,000 NT, the design of a dustless conveyor transfer points, the design of a rail car dust suppression system, design of a full station, increase stockpiling and car unloading rate from 3500 NT to 5000 NT/HR and the design of a rotary coupler rail car dump. Other services that KO provided included preliminary engineering (layout and cost estimate) project management, equipment specification and purchasing assistance, detail design (engineering, material handling, structural design), marine and structural assessments of pier and dock structures, start-up assistance and retrofits to existing plant with minimal shutdown.

TACONITE HARBOR ENERGY CENTER
Schroeder, Minnesota
Investigated the capital and operating costs of upgrading the facility’s coal-delivery systems. The harbor and rail facilities serving this power station were examined by our mechanical and rail engineering divisions, to determine the costs associated with delivery of coal by rail, as well as the potential for increasing the capabilities of the existing ship-unloading facilities.

Northern Minnesota
Conveyor P2 is a luffing conveyor that builds the loadout stockpile. Because of the deteriorated condition of the existing P2 boom, it was recommended to replace the entire boom assembly with a new shop fabricated assembly. The design of the replacement boom truss included features to enable improved maintenance of the P2 conveyor. The pivot assembly was designed to allow intermittent duty. The head of the truss included features for pulley removal, including an overhead trolley and a secure point to lift the belt away from the pulley. Also at the head, the dust spray and wind screen were included in the design. Walkways and head platforms were designed to accommodate the placement of a drive pulley and cart for removal to grade or access by crane near the base of the tower.

The harbor and rail facilities serving this power station were examined by our mechanical and rail engineering divisions, to determine the costs associated with delivery of coal by rail, as well as the potential for increasing the capabilities of the existing ship-unloading facilities.
Krech Ojard & Associates was retained by Cedar Falls Building Systems, Inc (CFBSI) for engineering services from the preparation of preliminary flow sheets through final construction documents for a 2.6 million tons per year frac sand processing facility.

Upon completion of flow sheets, Krech Ojard began design of the plant layout and process. The project included multi-disciplined coordination of civil, structural, architectural, mechanical, electrical, piping, scheduling, process flow diagram (PFD), and piping and instrumentation design (P&ID) engineering.

Design components for the plant include:
- Foundation and Structural Steel Design
- Conveyors and Elevators
- Material Handling Equipment
- Piping
- Rail and Truck Dumps
- Raw and Processed Sand Storage
- Electrical Power
- Control Systems
- Scheduling

The frac sand facility was a fast track design/build method of delivery requiring close coordination between the contractor and Krech Ojard. This delivery method provided an opportunity to collaborate closely with our client to design the plant to meet their needs within the fast-tracked time frame.

The intricate workings of multiple KO disciplines, multiple contractors, and including the aggressive schedule had made this an intense and exciting engineering exercise. The project required numerous planning sessions, tight controls, and continuous communication across the board.

The site consists of 12 product silos, a 148,000 square foot sand storage building, a three story below grade truck unloading building, wet and dry sand processing facility, as well as dozens of conveyors, hoppers, feeders and chutes.

The site was designed to meet the needs of the client within the fast-tracked time frame. The project required numerous planning sessions, tight controls, and continuous communication across the board.

Krech Ojard & Associates was retained by Cedar Falls Building Systems, Inc (CFBSI) for engineering services from the preparation of preliminary flow sheets through final construction documents for a 2.6 million tons per year frac sand processing facility.

The frac sand facility was a fast track design/build method of delivery requiring close coordination between the contractor and Krech Ojard. This delivery method provided an opportunity to collaborate closely with our client to design the plant to meet their needs within the fast-tracked time frame.

The intricate workings of multiple KO disciplines, multiple contractors, and including the aggressive schedule had made this an intense and exciting engineering exercise. The project required numerous planning sessions, tight controls, and continuous communication across the board.

The site consists of 12 product silos, a 148,000 square foot sand storage building, a three story below grade truck unloading building, wet and dry sand processing facility, as well as dozens of conveyors, hoppers, feeders and chutes.

Krech Ojard & Associates was retained by Cedar Falls Building Systems, Inc (CFBSI) for engineering services from the preparation of preliminary flow sheets through final construction documents for a 2.6 million tons per year frac sand processing facility.

The frac sand facility was a fast track design/build method of delivery requiring close coordination between the contractor and Krech Ojard. This delivery method provided an opportunity to collaborate closely with our client to design the plant to meet their needs within the fast-tracked time frame.

The intricate workings of multiple KO disciplines, multiple contractors, and including the aggressive schedule had made this an intense and exciting engineering exercise. The project required numerous planning sessions, tight controls, and continuous communication across the board.

The site consists of 12 product silos, a 148,000 square foot sand storage building, a three story below grade truck unloading building, wet and dry sand processing facility, as well as dozens of conveyors, hoppers, feeders and chutes.

Krech Ojard & Associates was retained by Cedar Falls Building Systems, Inc (CFBSI) for engineering services from the preparation of preliminary flow sheets through final construction documents for a 2.6 million tons per year frac sand processing facility.

The frac sand facility was a fast track design/build method of delivery requiring close coordination between the contractor and Krech Ojard. This delivery method provided an opportunity to collaborate closely with our client to design the plant to meet their needs within the fast-tracked time frame.

The intricate workings of multiple KO disciplines, multiple contractors, and including the aggressive schedule had made this an intense and exciting engineering exercise. The project required numerous planning sessions, tight controls, and continuous communication across the board.

The site consists of 12 product silos, a 148,000 square foot sand storage building, a three story below grade truck unloading building, wet and dry sand processing facility, as well as dozens of conveyors, hoppers, feeders and chutes.

Krech Ojard & Associates was retained by Cedar Falls Building Systems, Inc (CFBSI) for engineering services from the preparation of preliminary flow sheets through final construction documents for a 2.6 million tons per year frac sand processing facility.

The frac sand facility was a fast track design/build method of delivery requiring close coordination between the contractor and Krech Ojard. This delivery method provided an opportunity to collaborate closely with our client to design the plant to meet their needs within the fast-tracked time frame.

The intricate workings of multiple KO disciplines, multiple contractors, and including the aggressive schedule had made this an intense and exciting engineering exercise. The project required numerous planning sessions, tight controls, and continuous communication across the board.

The site consists of 12 product silos, a 148,000 square foot sand storage building, a three story below grade truck unloading building, wet and dry sand processing facility, as well as dozens of conveyors, hoppers, feeders and chutes.

Krech Ojard & Associates was retained by Cedar Falls Building Systems, Inc (CFBSI) for engineering services from the preparation of preliminary flow sheets through final construction documents for a 2.6 million tons per year frac sand processing facility.

The frac sand facility was a fast track design/build method of delivery requiring close coordination between the contractor and Krech Ojard. This delivery method provided an opportunity to collaborate closely with our client to design the plant to meet their needs within the fast-tracked time frame.

The intricate workings of multiple KO disciplines, multiple contractors, and including the aggressive schedule had made this an intense and exciting engineering exercise. The project required numerous planning sessions, tight controls, and continuous communication across the board.

The site consists of 12 product silos, a 148,000 square foot sand storage building, a three story below grade truck unloading building, wet and dry sand processing facility, as well as dozens of conveyors, hoppers, feeders and chutes.

Krech Ojard & Associates was retained by Cedar Falls Building Systems, Inc (CFBSI) for engineering services from the preparation of preliminary flow sheets through final construction documents for a 2.6 million tons per year frac sand processing facility.

The frac sand facility was a fast track design/build method of delivery requiring close coordination between the contractor and Krech Ojard. This delivery method provided an opportunity to collaborate closely with our client to design the plant to meet their needs within the fast-tracked time frame.

The intricate workings of multiple KO disciplines, multiple contractors, and including the aggressive schedule had made this an intense and exciting engineering exercise. The project required numerous planning sessions, tight controls, and continuous communication across the board.

The site consists of 12 product silos, a 148,000 square foot sand storage building, a three story below grade truck unloading building, wet and dry sand processing facility, as well as dozens of conveyors, hoppers, feeders and chutes.

Krech Ojard & Associates was retained by Cedar Falls Building Systems, Inc (CFBSI) for engineering services from the preparation of preliminary flow sheets through final construction documents for a 2.6 million tons per year frac sand processing facility.

The frac sand facility was a fast track design/build method of delivery requiring close coordination between the contractor and Krech Ojard. This delivery method provided an opportunity to collaborate closely with our client to design the plant to meet their needs within the fast-tracked time frame.

The intricate workings of multiple KO disciplines, multiple contractors, and including the aggressive schedule had made this an intense and exciting engineering exercise. The project required numerous planning sessions, tight controls, and continuous communication across the board.

The site consists of 12 product silos, a 148,000 square foot sand storage building, a three story below grade truck unloading building, wet and dry sand processing facility, as well as dozens of conveyors, hoppers, feeders and chutes.

Krech Ojard & Associates was retained by Cedar Falls Building Systems, Inc (CFBSI) for engineering services from the preparation of preliminary flow sheets through final construction documents for a 2.6 million tons per year frac sand processing facility.

The frac sand facility was a fast track design/build method of delivery requiring close coordination between the contractor and Krech Ojard. This delivery method provided an opportunity to collaborate closely with our client to design the plant to meet their needs within the fast-tracked time frame.

The intricate workings of multiple KO disciplines, multiple contractors, and including the aggressive schedule had made this an intense and exciting engineering exercise. The project required numerous planning sessions, tight controls, and continuous communication across the board.

The site consists of 12 product silos, a 148,000 square foot sand storage building, a three story below grade truck unloading building, wet and dry sand processing facility, as well as dozens of conveyors, hoppers, feeders and chutes.

Krech Ojard & Associates was retained by Cedar Falls Building Systems, Inc (CFBSI) for engineering services from the preparation of preliminary flow sheets through final construction documents for a 2.6 million tons per year frac sand processing facility.

The frac sand facility was a fast track design/build method of delivery requiring close coordination between the contractor and Krech Ojard. This delivery method provided an opportunity to collaborate closely with our client to design the plant to meet their needs within the fast-tracked time frame.

The intricate workings of multiple KO disciplines, multiple contractors, and including the aggressive schedule had made this an intense and exciting engineering exercise. The project required numerous planning sessions, tight controls, and continuous communication across the board.

The site consists of 12 product silos, a 148,000 square foot sand storage building, a three story below grade truck unloading building, wet and dry sand processing facility, as well as dozens of conveyors, hoppers, feeders and chutes.

Krech Ojard & Associates was retained by Cedar Falls Building Systems, Inc (CFBSI) for engineering services from the preparation of preliminary flow sheets through final construction documents for a 2.6 million tons per year frac sand processing facility.

The frac sand facility was a fast track design/build method of delivery requiring close coordination between the contractor and Krech Ojard. This delivery method provided an opportunity to collaborate closely with our client to design the plant to meet their needs within the fast-tracked time frame.

The intricate workings of multiple KO disciplines, multiple contractors, and including the aggressive schedule had made this an intense and exciting engineering exercise. The project required numerous planning sessions, tight controls, and continuous communication across the board.

The site consists of 12 product silos, a 148,000 square foot sand storage building, a three story below grade truck unloading building, wet and dry sand processing facility, as well as dozens of conveyors, hoppers, feeders and chutes.

Krech Ojard & Associates was retained by Cedar Falls Building Systems, Inc (CFBSI) for engineering services from the preparation of preliminary flow sheets through final construction documents for a 2.6 million tons per year frac sand processing facility.

The frac sand facility was a fast track design/build method of delivery requiring close coordination between the contractor and Krech Ojard. This delivery method provided an opportunity to collaborate closely with our client to design the plant to meet their needs within the fast-tracked time frame.

The intricate workings of multiple KO disciplines, multiple contractors, and including the aggressive schedule had made this an intense and exciting engineering exercise. The project required numerous planning sessions, tight controls, and continuous communication across the board.

The site consists of 12 product silos, a 148,000 square foot sand storage building, a three story below grade truck unloading building, wet and dry sand processing facility, as well as dozens of conveyors, hoppers, feeders and chutes.
IRON ORE MINE & PROCESSING FACILITY

Routinely provides this Minnesota iron mine with plant engineering support, upgrades to pellet stockpiling, and pellet loadout and train handling capacity.

- Plantwide structural conditional assessment recommendations.
- Damaged conveyor support tower repair design (column replacement).
- Rebuild P-2 loadout conveyor boom with access and dust control improvements.
- Monorail ratings and extension designs.
- Fines crusher tripper beam repair and fatigue analysis.
- Storage building and maintenance shop schematic designs.
- Slurry pumping equipment mounting bases.

IRON ORE MINE & PROCESSING FACILITY

Hired to provided multiple engineering and design services for a confidential client on two Minnesota iron ore mine facilities from equipment stand ratings and truck sling bracket reviews, to manbasket ratings, rail loops, loadouts, grinder device reviews, air handling units, and more.

Facility upgrades include:
- Conversion from train haul of raw ore to truck haul
- Installation of a limestone circuit for flux pellets
- Upgrade of dust collection systems
- Upgrade of pellet loadout systems for train loading
- Analysis of crushing circuit for 2nd & 3rd Stage crushing
- Installation of a biomass fueling system for furnaces

MINING INDUSTRY EXPERIENCE

Since our inception in 1984, Krech Ojard has provided engineering support to the mining industry on the Iron Range in Northern Minnesota and across the globe. Our experience ranges from concept to operations and includes the following:

- Bankable feasibility studies
- Conceptual site development plans for mines, ports, and transshipment facilities
- Rail and marine transportation studies
- Operational logistics and planning
- Material handling and equipment selection
- Process integration and capital/maintenance planning
- Detailed design and program management
- Plant engineering support
- Construction administration and commissioning

Our staff approach projects with real-world management, operation and maintenance experience and know what it takes to keep facilities working in all ranges of environmental conditions. This experience and our reputation for high-quality, consistent performance has take us from the jungles of South America to the northern regions of Canada and Alaska.

KRECH OJARD KNOWS THE IRON RANGE

Located near Minnesota’s Iron Range, North America’s largest iron ore mining district, Krech Ojard & Associates has worked in the iron ore mining and pelletizing industry for over 25 years and has completed hundreds of projects involving upgrades and modifications to these massive facilities. Projects range from mining and crushing facilities to concentrating, pelletizing, firing and shipping of the final product. Senior employees with the firm have come from the mining industry and are experts with mining, processing and shipping of the pelletized products. This experienced leadership directs the core of Krech Ojard’s engineering groups.

IRON ORE MINES & PROCESSING FACILITIES

Has been an engineering partner for a confidential client in iron ore mines and plants for over twenty years and has completed hundreds of projects at these facilities. This iron ore processing facility which produces 4.5M tons of taconite pellets per year. Projects range from logistics studies to upgrades in concentrating and pelletizing.

- Replacement of raw ore train unloading system
- Upgrade and expansion of grinding & concentrating circuits
- Re-commissioning of idled boiling circuits
- Re-commissioning of idled furnaces
- Assist with planning for a Direct Reduced Iron facility
- Upgrade of dust collection systems
- Upgrade of train loadout facilities
- Upgrade of train loadout and train handling capacity.

IRON ORE MINE & PROCESSING FACILITY

Routinely provides this Minnesota iron mine with plant engineering support, upgrades to pellet stockpiling, and pellet loadout and train handling capacity.

- Plantwide structural conditional assessment recommendations.
- Damaged conveyor support tower repair design (column replacement).
- Rebuild P-2 loadout conveyor boom with access and dust control improvements.
- Monorail ratings and extension designs.
- Fines crusher tripper beam repair and fatigue analysis.
- Storage building and maintenance shop schematic designs.
- Slurry pumping equipment mounting bases.

IRON ORE MINE & PROCESSING FACILITY

Hired to provided multiple engineering and design services for a confidential client on two Minnesota iron ore mine facilities from equipment stand ratings and truck sling bracket reviews, to manbasket ratings, rail loops, loadouts, grinder device reviews, air handling units, and more.

Facility upgrades include:
- Conversion from train haul of raw ore to truck haul
- Installation of a limestone circuit for flux pellets
- Upgrade of dust collection systems
- Upgrade of pellet loadout systems for train loading
- Analysis of crushing circuit for 2nd & 3rd Stage crushing
- Installation of a biomass fueling system for furnaces

MINING INDUSTRY EXPERIENCE

Since our inception in 1984, Krech Ojard has provided engineering support to the mining industry on the Iron Range in Northern Minnesota and across the globe. Our experience ranges from concept to operations and includes the following:

- Bankable feasibility studies
- Conceptual site development plans for mines, ports, and transshipment facilities
- Rail and marine transportation studies
- Operational logistics and planning
- Material handling and equipment selection
- Process integration and capital/maintenance planning
- Detailed design and program management
- Plant engineering support
- Construction administration and commissioning

Our staff approach projects with real-world management, operation and maintenance experience and know what it takes to keep facilities working in all ranges of environmental conditions. This experience and our reputation for high-quality, consistent performance has take us from the jungles of South America to the northern regions of Canada and Alaska.

KRECH OJARD KNOWS THE IRON RANGE

Located near Minnesota’s Iron Range, North America’s largest iron ore mining district, Krech Ojard & Associates has worked in the iron ore mining and pelletizing industry for over 25 years and has completed hundreds of projects involving upgrades and modifications to these massive facilities. Projects range from mining and crushing facilities to concentrating, pelletizing, firing and shipping of the final product. Senior employees with the firm have come from the mining industry and are experts with mining, processing and shipping of the pelletized products. This experienced leadership directs the core of Krech Ojard’s engineering groups.