



Multi-Disciplined Engineering

Graymont Kiln #5 Expansion

(Cover image and Inside)

Going Green

Krech Ojard's LEED® Architects design an environmentally friendly building at Taconite Ridge

Academic Architecture

Projects at the University of Minnesota Duluth

What's up at KO

Rail Infrastructure Group

New Employees & Recent Certifications

Krech Ojard & Associates was hired to design all of the refractory, process, and storage equipment, on pile and helical anchor deep foundations, to support the installation of a new kiln at the Graymont facility in Superior, Wisconsin. Additional work focused on development of "Balance of Plant" process flow, conveyor systems, crushing and screening operations, material re-claim tunnel, integrated rail and truck load-out systems, as well as significant structural modifications to existing buildings to support the new process equipment.



PROJECT SCOPE

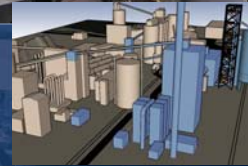
Design services provided included:

- 1 Project Management
- 2 Civil Engineering
- 3 Surveying
- 4 Rail System Design
- 5 Structural Engineering
- 6 Mechanical Engineering
- 7 Construction Administration of Design Work
- 8 3D Plant Renderings



KILN #5 ERECTION SHORING

The staged erection and welding of a 13' diameter steel rotary kiln shell required the design of custom saddles, shoring towers, and timber crib foundations. The design considered kiln alignment requirements, poor soil conditions, and lateral bracing requirements during the construction phase.



umd academic architecture

Krech Ojard & Associates has an excellent relationship with the University of Minnesota Duluth. Over the years, Krech Ojard has provided high quality service and design on many UMD projects, including the high-profile Kirby Plaza. Among other projects, KO has been heavily involved with renovations, additions and code upgrades throughout the entire campus including student housing, multi-purpose spaces support facilities.



Our multi-disciplined approach was evident with our civil engineers designing the transit bus hub, along with our structural engineers and architects collaborating on the design and dynamics of Kirby Plaza.



Krech Ojard's architects and structural engineers designed this Fleet/Grounds facility (left) within limited existing space which needed unique,

oversized service bays. The 9,200 sf facility includes six bays, support maintenance space and offices.



More recently, Krech Ojard architects are working with the University to upgrade and renovate the space formerly occupied by the School of Business and Economics for future use.



Also being renovated are the Stadium Apartments, a unique set of student apartments on the edge of the campus.

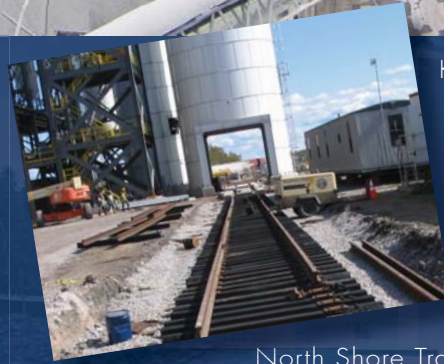
multi-disciplined engineering



Krech Ojard's work on this project demonstrates our ability to perform on complex, multi-disciplinary, fast-track projects.

CV-322 CONVEYOR RIGGING ANALYSIS
A 160-ft box truss conveyor galley was designed and then modified to accommodate a two crane lift arrangement with a mid-air splice connection.

Our engineers worked closely with Lakehead Constructors and the conveyor vendor to ensure that the structural design considered load-reversals and rigging attachments in the fabricated structure



Krech Ojard's Civil and Rail Group's designed a material re-claim tunnel, integrated rail lines, truck load-out systems, in-line scale and structural modifications to existing buildings to support the new process equipment.

North Shore Track delivered on track construction services at the facility.

leadership in leed® design

Krech Ojard & Associates has recently completed the Taconite Ridge Operations and Maintenance Building which serves ten wind turbines installed by Minnesota Power. Early in the design, this building was meant to meet LEED® requirements for a LEED® Certified building. The unique exterior features of this building include: white, exterior paving, a series of four rain gardens, a roof system planted with climate specific plantings, indigenous grasses and plants, and no external irrigation. Structurally, the building uses R-24 architectural precast panels. The metal fascia and panels on the exterior are approximately 100% zinc which can be entirely recycled at the end of the building's lifecycle.



Internally, the building uses linoleum for flooring and casework recycled content ceramic tile, recycled plastic toilet partitions, Shetkstone window sills, and low voc adhesives, carpet, paints and sealants. The mechanical systems uses a high efficient VAV boxes to deliver air to where it is needed and

uses water efficient fixtures to reduce the use of potable water in the building. Electrically, indirect T5HO fixtures are used in the occupied spaces along with no-mercury, LED lamps in the exterior soffit as well as the showers. All of the occupied spaces have motion detectors to automatically shut off lights in unoccupied rooms and light sensors to turn off lights if there is adequate daylight.

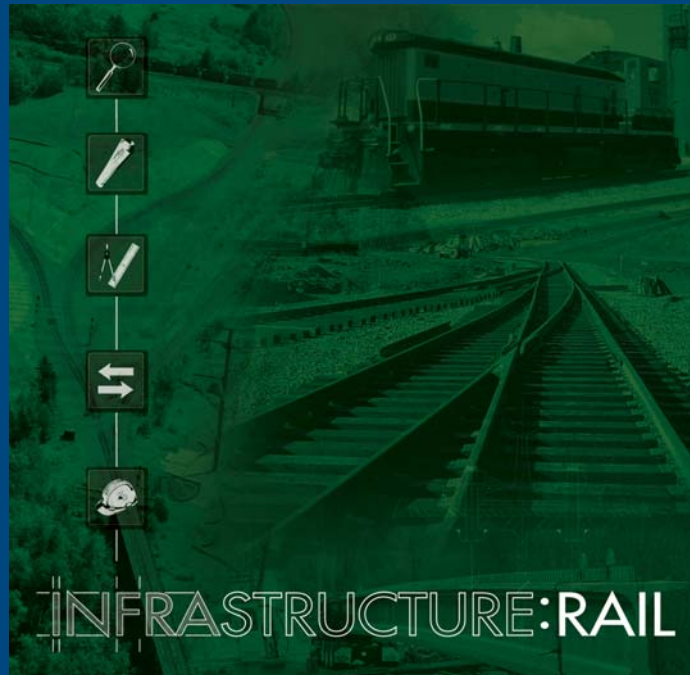


what's up at ko

Krech Ojard has created a new division within our firm. In the Rail Infrastructure Group, our rail and civil engineers provide a full range of rail engineering and operations services ranging from rail line evaluations and design to rail operations planning and logistics. Our founders and staff have many years of industry experience in the design, maintenance, construction, and operations of railroads. Our expert solutions are derived from our employees' unique first-hand experience in the field and are provided through the skills of individuals versed in multiple engineering disciplines.

Additionally, North Shore Track (NST), a sister company of Krech Ojard and Associates, provides numerous rail services - from track inspection and maintenance functions, to track rehabilitation and new construction.

Being part of a full-service design team, Krech Ojard and North Shore Track (NST) work closely together and can provide Design-Build services on any rail project.



new-employees & certifications



Mike Anderson has joined Krech Ojard's Structural Group as an Engineering

Designer. Anderson graduated from the University of Minnesota Duluth with a BS degree in Industrial Engineering, and a Master's in Environmental, Health and Safety.



Lee Winters has joined Krech Ojard's Structural Group as an Engineer-in-

Training (EIT). Winters graduated from North Dakota State University in Fargo, ND with a Bachelor of Science in Civil Engineering degree.



Pat Leow, PE has recently earned a Registered Professional Engineer status in the

State of Minnesota. Leow is a Structural Engineer in Krech Ojard's Duluth Office.



Tim Meyer, AIA, LEED[®] AP of Krech Ojard's Architectural Group was recently certified as

a Leadership in Energy and Environmental Design Accredited Professional (LEED AP). Meyer's work is at the forefront of effective environmental design.

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