



PDC INC. ENGINEERS

Transforming Challenges into Solutions



Fort Knox Gold Mine Shop / Warehouse / Office

This 64,000 SF building is the primary maintenance and operations center for a \$400,000,000 gold mine development 20 miles north of Fairbanks. PDC was responsible for the design of the building foundation, slabs, docks, below-slab pits, and truck wash bay.

The structure was a pre-engineered building. The building frame was designed as “fixed” at the base which led to high overturning moments. In order to accommodate those moments, the bases of the columns were embedded in concrete pilasters that were secured to large spread footings. This system resulted in significantly reduced steel frame weight. The design of the slabs was driven by the large rock trucks with heavy wheel loads as well as the need to pull in large bulldozers. There were many special detailing needs to accommodate slab abrasion, slab shrinkage, drainage, and thermal differential movement. The design included below-slab work pits and mud pits. These mud pits were designed with ramps to accommodate skid steers so that the mud could be removed.

The wash bay walls are constructed with 12” CMU and are 40 feet high. These walls were designed to carry cantilevered steel walkways on three sides of the bay. Water jets are mounted on swivels around the catwalks, and from these points the rock trucks can be washed before they are serviced.

Client:

Fairbanks Gold Mining, Inc.

Location:

Fairbanks, Alaska

Project Completion:

1996

PDC Involvement:

- Structural Engineering

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