

CALUMET & HECLA ROUNDHOUSE
Northeast corner of Mine & Depot Streets
Calumet
Houghton County
Michigan

HABS MI-428
MI-428

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY
National Park Service
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240-0001

HISTORIC AMERICAN BUILDINGS SURVEY

CALUMET AND HECLA ROUNDHOUSE

HABS No. MI-428

- Location: Northeast corner of Mine and Depot Streets, Calumet, Houghton County, Michigan.
- Present Owner: Universal Oil Products, Inc., Des Plaines, Illinois.
- Present Use: Vacant. It has not served as a roundhouse for several years; however, UOP has used it for some equipment storage. Presently, the roundhouse is part of the Coppertown, USA master plan for restored mining buildings.
- Significance: The Calumet and Hecla Roundhouse, built in four stages between 1886 and 1928, is a handsome train maintenance building constructed in the particularly distinguished broken ashlar patterns imported to the region by Cornish miners (fig. 1). The shed serviced the locomotives and cars of the Calumet and Hecla Mining Company. This copper mining firm operated its own railroad and maintained its own stock to insure the efficient operation of all its interests.
- Historian: Kevin Harrington, 1975.

PART I. HISTORICAL INFORMATION

A. Physical History.

1. Date of erection: The earliest drawings are dated 1886, but construction is believed to have begun in 1887. Although photographic evidence reveals that construction was not complete in 1888, active use of the roundhouse started that year.
2. Architect: Members of the architectural sections of the Engineering Department of the Calumet and Hecla Company were responsible for the structure's design. After 1905 and until 1947, the Chief Draftsman, that is to say the chief designer, was Henry E. Williams, a Cornell engineering graduate who came to the company in 1898. It is likely then that Williams had a hand in the design, if only to approve the staff's plan.
3. Original and subsequent owners: The roundhouse and its addition were built by and for the Calumet and Hecla Company and remained in its possession until April of 1968 when the company merged with Universal Oil Products, Des Plaines, Illinois. The chain of title for the site follows.

I. E ½ S ½ of NW ¼, SW ¼ of SW ¼ E ½ of SW ¼

PATENT

State of Michigan to
St. Mary's Falls Ship Canal Co.
May 25, 1855, rec. September 4, 1875.
Vol. 17, p. 2.

II . E $\frac{1}{2}$ S $\frac{1}{2}$ of NW $\frac{1}{4}$, NE $\frac{1}{4}$ of SW $\frac{1}{4}$, S $\frac{1}{2}$ of SW $\frac{1}{4}$
St. Mary's Falls Ship Canal Co. to
St. Mary's Canal Mineral Land Co.
June 8, 1860, rec. June 23, 1862.
Vol. 5, p. 316.

WARRANTY DEED

III. E $\frac{1}{2}$ S $\frac{1}{2}$ of SW $\frac{1}{4}$, S $\frac{1}{2}$ of NW $\frac{1}{4}$, NE $\frac{1}{4}$ of SW $\frac{1}{4}$
St. Mary's Canal Mineral Land Co. to
Hecla Mining Co.
September 11, 1866, rec. October 15, 1866.
Vol. 8, p. 371.

WARRANTY DEED

IV. Merger of Hecla with Calumet Mining Co. to form the Calumet and Hecla
Mining Co.
March 1871.
p. 72, Red Metal.

V. Formation of the Calumet and Hecla Consolidated Copper Co.
September 10, 1923.
p. 140, Red Metal.

VI. Calumet and Hecla merged with Universal Oil Products
April 25, 1968.

4. Builder or contractor, suppliers: The construction department of the Calumet and Hecla Company was responsible for the original building and its additions. The materials were largely supplied by the company; the poor rock was mined, the woodwork done by the carpenter shop, and the cast iron forged. However, the rolled steel I-beams and glass were imported.

5. Original plans and construction: The original roundhouse described approximately 170 degrees of a circle made of two sections. One, about $\frac{1}{3}$ of the whole (60 degrees) was 70' front to back, and contained four train bays, each with a 60' 3" pit. The larger section (110 degrees) contained eight bays, each with a 46' pit, and measured approximately 55' front to back. The train turntable around which the building was organized had been established at 60' diameter.

Construction is of random ashlar masonry in the typical pattern introduced by Cornish miners beginning in the 1840s. Door and window openings were framed in stone with shallow segmental arches of row-locked brick over the top. The train bay doors were spanned by cast iron lintels. Since the roof was replaced in 1928, the original roof

shape cannot be precisely determined. A plan of October 21, 1986, (C&H 276) indicates that a low gable of steel truss rods was contemplated. However, a photograph of the building under construction in 1888 indicates a shed roof, similar in section to the existing one, was under construction. Another photograph of 1893 or 1894 clearly indicates the shed roof.

6. Alterations and additions: In 1902, the roundhouse was extended in its arc about 55 degrees. Five train bays were added, and this section was of the 70' depth of the larger of the original sections. The Copper Country Evening News of Monday, May 19, 1902, noted that this increase to seventeen total bays would make this the equal of any roundhouse in the nation in terms of facilities, if not in size. The plan on file for this extension (C&H 1387) indicates only the last two bays. The intervening three bays are not documented by any drawings in the files. However, Thomas W. Knight, a designing engineer who came to Calumet and Hecla in 1933 and now works for UOP, says that the 1902 addition consisted of the entire five bay section, all built at the same time. A small rectangular sand house was appended to the back of bay twelve as well (C&H 1387).

In 1907, three more additions were made. Two were a small shed and a sand-drying house thrown up on either side of the sand house of 1902. The major addition was a rectangular workshop measuring 60' x 75', on the back of the roundhouse at about the center point. Track from train bays eight and nine was extended into this area. Each was to have a pit and stack jack. It was later known as the erection shop where cars as opposed to locomotives were erected and repaired. The 60' width was to be roofed by a low gable, supported on the long axis of the addition by 12" x 12" wooden posts on the centerline. The eave and cornice treatment was to match that on the existing roundhouse. The eastern wall of the addition was to have two doors so cars could enter from that direction as well as from the roundhouse. The walls themselves were to be of the same type and material as the original building. Examination of the fabric makes clear the slight difference in appearance between the two surfaces, however.

In 1928, the company acquired a new locomotive that was too large for the existing bays of the roundhouse. Another rectangular addition, therefore, was needed and it was joined to the back of the roundhouse generally incorporating the 1902 and 1907 wood and sand storage sheds. It was to have a wheel storage track of 35' extending from the track in train bay five. The remainder of the space was intended for a stock room, washroom, and wood and sand storage. The 1928 addition generated two major alterations to the roundhouse overall. First, a new track pit was built, largely in the area of the 1902 roundhouse addition to accommodate the greater size of the new locomotive, and a new pit for track five was made. The second major alteration was to raise the roof of the roundhouse by 18". Existing I-beam columns, girders, rafters, and purlins were reused, but modified as necessary. The new roof was built of pyrobar with a composition surface.

B. Historical events and personages associated with the building

This building was used as the principle locomotive and car storage and maintenance facility of the Calumet and Hecla Company. The company operated its own extensive rolling stock to service its separate mining facilities. Persons associated with this building include Henry E. Williams, J.S. Cocking, C.H. Benedict, as well as J. MacNaughton, Alexander Agassiz and Q.A. Shaw.

PART II. ARCHITECTURAL INFORMATION

A. General statement

1. Architectural character: The Calumet and Hecla Roundhouse represents a handsome meeting of two traditions. The massive load bearing walls are laid in the typical and traditional Cornish manner, while the roof and pit areas are supported by steel I-beams and fulfilled their modern and purposeful function. The massiveness of the walls and the large areas of glass are most impressive.

2. Condition of fabric: Fair to good.

B. Description of exterior

1. Overall dimensions: The roundhouse is a one-story structure that is semi-circular in shape with two rectangular projections. Facing the turntable, the 1886-88 façade extends for twelve bays, plus another five bays on the 1902 addition. Facing Mine Street, there are three bays; these were constructed in 1928 although the building dates to 1902. The 1907 addition has two bays in the east wall, while the northeast wall of the 1928 addition contains one bay.

2. Foundations: The foundations are made from masonry, unexcavated.

3. Walls: The roundhouse walls consist of hammer-dressed, random ashlar masonry, pointed, of the predominantly gray, local poor rock.

4. Structural system, framing: There are load bearing masonry walls, with annular "I" beam, post and lintel structure in the interior. Wooden support posts are used only in the 1907 addition.

5. Porches, stoops, balconies, bulkheads: None.

6. Chimneys: No masonry chimneystacks were ever built for this building, however, metal smoke jacks, furnace and forge flues were. In June of 1975, there are eight stacks visible. One is for the heating furnace, another allocated to the forges. The latter stack was necessary after the installation of a blacksmith shop in 1963. Three others are "stack jacks," or metal flues placed in the roof. Stack jacks were designed to exhaust the smoke of locomotives in the train bay directly underneath them. The last three stacks are of unknown use, although because there once were as many as fifteen stack jacks, it is likely that these three served as stack jacks at some time.

7. Openings: Very few openings seem unaltered since their construction. Some have been rebuilt. Others have been closed completely or partially changed from a window to a door or vice versa. The following is based on examination of the drawings as well as examination of the existing fabric.

a. Doorways and doors: In the original roundhouse, built between 1886 and 1888, there are twelve train bays. All of these faced the turntable. Eleven of them measured 12' 1" at their opening end, while one measured 14' 1". The 1902 addition to the roundhouse saw another five train bays tacked onto the structure. Unfortunately, the dimensions of these five bays cannot be determined from the drawings or, since the bays have been closed, can the dimensions be determined from examination of the fabric. The 1907 addition contained two bays on its east wall. Also on its west wall, shared with the original roundhouse, another two bays were opened. The 1928 addition contained one train bay in its outside wall and one connection bay into the roundhouse. Also at this time, three train bays were opened in the wall parallel to Mine Street in the 1902 addition. All these doors were made of wood, with glazed panels. Many had man-sized doors in one of the lower panels. The doors were framed by masonry side piers, which were occasionally encased by cast iron plates. The lintels of each bay were made out of cast iron.

b. Windows and shutters: There were no shutters. The masonry window frames were largely made of stone except for the lintels, which were brick rowlock, segmental arches. The windows themselves were generally twin, six-over-six double-hung but not weighted sashes, with an eight light segmental, fixed overlight. All material, including the sills, was wood.

Of the remaining windows, many have been altered. In the original roundhouse, there were eight windows; in the 1902 section, another four; in the 1907 addition, another eleven; and finally, in the 1928 expansion, another six windows were installed.

8. Roof:

a. Shape, covering: A low shed roof slopes to the outside and away from the train roundtable; it is covered by composition felt paper.

b. Cornice, eaves: The building has a square, un-detailed cornice and concrete (pyrobar) eaves.

c. Dormers, cupolas, towers: None.

C. Description of interior

1. Floor plan: The roundhouse is a one-story structure encompassing 225 degrees of train roundhouse with three rectangular additions alongside the outside of the ring (fig. 2). One addition, recently (ca. 1965) built of concrete block, is merely a corridor connecting the roundhouse with the paint shop to the north. Since the roundhouse was originally

designed to service locomotives and other railroad cars, the interior spaces were fitted to that purpose. The additions were designed to enhance and support that activity. Of the maximum of nineteen train bays, only about eight could still be used for that purpose since other doors have been closed up in or tracks removed, or both. The additions are now used as work, storage, and office space by a two-person crew of Universal Oil Products' employees and as a warehouse by Coppertown, USA.

2. Stairways: The only stairs in the structure provide access to a work platform built to service a locomotive.

3. Flooring: The flooring consists of poured concrete.

4. Wall and ceiling finish: The rough ashlar interior walls were painted in a series of shades of a dull green, semi-gloss paint. Several corners were protected by cast iron "L" or "U" plates. The ceiling, part of the 1928 work, is 3 ½" x 12" x 30" hollow Pyrobar-brand slabs, set on inverted "T" brackets. The brackets are set over the roof purlins.

5. Openings:

a. Doorways and doors: Those doors and windows which give access to the outside are different in treatment and appearance from their outside only in paint color. The doors, which have since been put in the 1928 addition, are all made of wood, with some set in glass, and all of mediocre quality.

6. Decorative features and trim: Some of the work platforms and pits remain.

7. Hardware: None of note.

8. Mechanical equipment: Pit jacks and hoisting and traveling cranes as well as three forges are still in place. The building is also serviced by electricity, water and heating furnace associated with its purpose.

D. Site

The roundhouse faces west. It was closely related to other mining buildings in the immediate area and to those in the region.

1. Historic landscape design: The general surroundings are rather messy. This is reinforced by the particularly inert or sterile nature of the poor rock cinders, which generally cover the ground in the area, and throughout the mining building complex. There are no significant grade changes in the vicinity or any water features.

2. Outbuildings: None.

PART III. SOURCES OF INFORMATION

A. Primary and unpublished sources

1. The following tracings or blueprints, in the C&H archives were used

Drawer #	Drwg. #	Date	Title
97	1749	ca. 1905	Old roundhouse misc. details
9	1991	10/1907	Addition plan, elevation, details
185	276	10/1886	Roof truss rods
185	282	08-09/1887	Plan
185	401	11/1886	Smoke stack
185	402	10/1886	Roof details
185	839A	06/1897	Lintel, posts & post bases
185	839B	09/1897	Sash details
185	1387	05/1902	Extension, plan & details
185	8950	02/1927	Details, 60' turntable
185	8963		Drop pit jack, general arrangement
185	8964		Drop pit jack, details
185	8965	06/1928	Storage addition, general arrangement
185	8966		Roof details
185	8967		Storage addition, lintel & screen C details
185	9071		Foundations drop & track pit details
185	9072	11/1927	Roof: plan of steel work
185	9073	12/1927	Sections & details
185	9074	12/1927	Roof, steel details 1
185	9075		Roof, steel details 2
185	9076		Roof, steel details 3
185	9077		Roof, steel details 4
185	9077A		Clip details
185	9077B	ca. 06/1928	Galvanized clips, general arrangement
185	9078	03/1928	Smoke jacks
185	9180		Turntable pit, details
185	9434	11/1932	Smoke jacks
185	9788	05/1934	Shop crane and runway
185	10279	12/1941	Roundhouse boiler shop, general arrangement
185	10280		Roundhouse boiler shop, details
185	11074	06/1948	Roundhouse diesel locomotive repair and service shop, fuel oil storage tank
185	11076	06/1948	“, lighting and wiring diagram
185	11081		“, fuel oil pipe lines, etc.
185	11087		“, knee braces and trolley beam
185	11097		“, working platforms general arrangement & details
185	11111		“, removable rails general arrangement & details
185	11120		“, exhaust jacks

185	11126		“, exhaust jack for track 1
185	11129		“, working platform bridges
185	11165	02/1949	Car repair shop, crane runway hangers general arrangement and details
185	11256	11/1949	Roundhouse diesel locomotive repair & service shop, office
185	12510	11/1963	Roundhouse blacksmith shop, air hammer foundation details
185	12511	12/1963	Roundhouse blacksmith shop, forge smoke exhaust system general arrangement details
185	15465	06/1948	Roundhouse diesel locomotive repair and service shop, fuel oil storage tank

2. Reports:

George Muern, (architectural data sheet on the C & H Roundhouse) prepared 1974.

Kathryn Eckert, assistant historian, Michigan History Division, Michigan Department of State, 208 M Capitol, Lansing, Michigan, “Calumet and Hecla Industrial District,” National Register of Historic Places Inventory - Nomination Form, 8 Nov 1973.

3. Interviews:

Thomas W. Knight, UOP engineer, employed by Calumet and Hecla since 1933, June 17, 1975.

4. Photographs:

Photograph of Calumet, 1888. Reprint in “Calumet Township Centennial Souvenir Program,” 1966.

Photograph of the mining site, 1893-94. In possession of Martha Parker, July 1975.

B. Secondary and published sources

“(article on Roundhouse extension).” The Copper Country Evening News. Monday, May 19, 1902.

C. Likely sources not yet investigated

With the exception of some correspondence dated from late December 1927 to mid-April 1928, which has been copied and filed in the field notes that accompany this report, no company communications about the planning, intentions and design of the building have been found. These files, reportedly, are now being kept in the bathhouse building, on the Calumet and Hecla property.

PART IV. PROJECT INFORMATION

Documentation was done in the summer of 1975 by Kevin Harrington and Wendy Nicholas for the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER), a division of the National Park Service.

Fig. 1 View looking west to east generally at the roundhouse's Mine Street (west) elevation.
Note section in foreground dates to 1902. Photograph by author, 1975.

Fig. 2 Sketch plan of the roundhouse.