

AMERICAN FLAT MILL, PRECIPITATION AND REFINING
BUILDING
(Comstock Merger Mine Mills, Precipitation and Refining Building)
Gold Hill vicinity
Storey County
Nevada

HAER NV-48-F
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
PACIFIC WEST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
333 Bush Street
San Francisco, CA 94104

HISTORIC AMERICAN ENGINEERING RECORD
AMERICAN FLAT MILL, PRECIPITATION AND REFINING BUILDING
(Comstock Merger Mine Mills)

HAER No. NV-48-F

Location: One mile northwest of Silver City, Storey County, Nevada. The American Flat Mill Precipitation and Refining Building is located at latitude: 39.27089, longitude: -119.66263. The coordinate represents the center point of the American Flat Mill Precipitation and Refining Building. This coordinate was obtained on December 6, 2014, by plotting its location with Geoplaner V2.7 (www.geoplaner.com). The accuracy of the coordinate is +/- 1 meter. The coordinate's datum is WGS 84 (World Geodetic System 1984). There is no restriction on releasing the location to the public.

**Present Owner/
Occupant:** United States Department of Interior, Bureau of Land Management (BLM).

Present Use: Vacant.

Significance: The American Flat Mill Precipitation and Refining Building is a contributing resource of the American Flat Mill District, an eight building silver ore processing mill complex. The American Flat Mill is significant under National Register Criterion A for its historical importance as the last remaining remnant of what was once the United Comstock and the Comstock Merger mining operations. The mill and its associated mining activities represented the last large scale underground mining efforts on the Comstock. Other early twentieth century mining activities on the Comstock were either much smaller in scale, or reflected the use of alternate technologies such as open pit mining or dredging. The American Flat Mill is also a contributing element to the Virginia City National Register District under Criterion A.

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The American Flat Mill is eligible for listing on the National Register under Criterion B at the local level due to the early and active participation of Royce Hardy and Alex Wise. These two local men were mining engineers who were involved in the formation of the United Comstock Mines Company and worked with the company until its demise in 1923. Wise began developing the "middle mines" which became a key part of the Comstock Merger operation. The American Flat Mill is the largest remaining physical reflection of their actions on the Comstock.

The American Flat Mill is eligible for the National Register under Criterion C at the national level as an early representative of the International Style of architecture, which stressed the metaphor of form following function, rejection of ornament, and use of modern building materials, including reinforced concrete, structural steel, and large window panels. All of these characteristics are strongly expressed throughout the American Flat Mill.

Historian: Written historical and descriptive data and large-format photographs were prepared by David C. Berg, historian for The Ottery Group in August through December of 2014.

Project Information: HAER documentation of American Flat Mill is part of the measures to mitigate the adverse effect that will result from demolition of all buildings at the site. The BLM has proposed the demolition of the mill for public safety reasons.

PART I. HISTORICAL INFORMATION

A. Physical History

- 1. Date of Erection:** 1921-22.
- 2. Engineer:** Walter L. Reid, consulting milling engineer; A. J. Weinig, metallurgist; Lee L. Fillius, superintendent of construction; B. P. Little, chief draftsman in charge of engineering office; and Robert McFarland Doble, in charge of power and electrical engineering.
- 3. Original and Subsequent Owners, Occupants, Uses:** United Comstock Mines Company, 1922-24; Comstock Merger Mines, Inc.(subsidiary of Gold Fields America Development Company/New Consolidated Gold Fields, Ltd., of London), 1924-26.
- 4. General Contractor:** United Comstock Mines Company.
- 5. Original Plans and Construction:** No original plans of the Precipitation and Refining Building are known to exist.
- 6. Alterations and Additions:** None known.

PART II. STRUCTURAL/DESIGN/EQUIPMENT INFORMATION

A. General Description

- 1.Character:** The Precipitation and Refining Building was a two-story rectangular building constructed of reinforced concrete. It had a low-pitch gable roof and horizontal rows of windows which covered less area than in other buildings for security reasons.
- 2. Condition of Fabric:** The Precipitation and Refining Building is presently in ruins. Only the reinforced concrete floor and concrete walls remain.

B. Description of Exterior

- 1. Overall Dimensions:** Approximately 112' long and 32' wide and 24' tall to the eaves.¹
- 2. Foundations:** Reinforced concrete.
- 3. Walls:** Reinforced concrete.
- 4. Structural System, Framing:** Reinforced concrete. Steel roof framing.
- 5. Openings:** Original openings consisted of Fenestra steel sash windows supported by reinforced concrete frame. Windows were covered with heavy grate bars for security.
- 6. Roof:** The roof is no longer extant. It was originally sheathed with galvanized corrugated steel.

C. Description of Interior

- 1. Floor Plan:** The first story of the northwestern half of the building formed two reinforced concrete rectangular tanks into which the barren solutions would flow from the Merrill Presses on the floor above. The southeast side of the building held a furnace for melting and a vault for bullion storage.
- 2. Flooring:** Reinforced concrete.
- 3. Wall and Ceiling Finish:** Interior walls and ceiling were originally finished with metal lath and plaster. These finishes were destroyed during salvage efforts in 1926.

D. Site Layout

The Precipitation and Refining Building is located southwest of the Warehouse and northeast of the Assay Office.

¹ Walter L. Reid "Design and Construction of United Comstock Mills," *Mining and Metallurgy* 191 (1922): 44-47.

Part III. OPERATIONS AND PROCESS

The strong and weak pregnant solutions would be pumped from the Cyanide Plant to the Merrill presses in the Precipitation and Refining Building. As the silver and gold precipitated out of the solutions, barren solutions drained into the tanks on the ground floor and were then pumped to the leach tanks for reuse. The precipitate was sent by a small precipitate car to the furnace and melted into bullion. The resulting bullion was stored in the vault.

PART IV. SOURCES OF INFORMATION

A. Architectural Drawings

Selected drawings depicting process flow charts, plans and sections of buildings at the mill may be found in: George Young, "New Treatment Plant of United Comstock Mines," *Engineering and Mining Journal* 114 (1922): 846-853.

B. Early Views

Early views of the American Flat Mill are available from the Nevada Historical Society, Special Collections and University Archives Photographs at the University of Nevada, Reno. The views during operation range in date from approximately 1922 to 1926, with some later views dating from the 1940s and 1950s, representing a total of 86 views. An additional private collection owned by Mr. Joseph Curtis of Virginia City represents approximately 50 views of the mill during its operating years. Some unique views of the building and its machinery may be found in George Young, "New Treatment Plant of United Comstock Mines," *Engineering and Mining Journal* 114 (1922): 846-853. One aerial view of the mill ruins from 1947 is available from the University of California, Davis, in the Eastman's Originals Collection, Department of Special Collections, General Library.

C. Interviews

Glass, M. Royce *Aller Hardy: Reminiscence and a Short Autobiography*. Oral History Program, University of Nevada, Reno, 1965.

D. Selected Sources

- Bray, John L. *The Principles of Metallurgy*. Boston: Ginn and Company, The Athenaeum Press, 1929.
- Gavazzi, I., and R. Kendall. *American Flat: Stepchild of the Comstock*, Virginia City, Nevada: Mark Twain Bookstore, 2001.
- Goin, P., and E. Raymond. *Changing Mines in America*. Santa Fe, New Mexico: The Center for American Places, 2004.
- Hamilton, E. M. *Manual of Cyanidation*. New York: McGraw-Hill Book Company Inc., 1920.
- Hardesty, D. *National Register Evaluation of the East Yellow Jacket Mine and the American Flat Mill Sites, Storey County, Nevada*. Report prepared by University of Nevada, Reno. Submitted to Bureau of Land Management, Carson City Field Office, 1998.
- Kendall, Robert E. "American Flat: Stepchild of the Comstock Lode - Part II," *Nevada Historical Society Quarterly* 41(2): 1998.
- Lincoln, Francis Church. *Mining Districts and Mineral Resources of Nevada*. Reno: Nevada Newsletter Publishing Company, 1923.
- Morse Brothers Machinery and Supply Company. "Mining and Milling Machinery of The Comstock Merger Mines and Mills at Virginia City, Nevada" Catalog by the Morse Brothers Machinery and Supply Company, Denver, Virginia City, Reno, ca. 1927. Located in the Special Collections and University Archives, University of Nevada, Reno.
- Reid, Walter L. "Design and Construction of United Comstock Mills," *Mining and Metallurgy* 191 (1922): 44-47.
- Weinig, A. J. "A General Study of United Comstock Metallurgy," in *Papers Related to the Geology, Mining, Metallurgy and Milling of the Comstock Orebodies of the United Comstock Mines Company*, San Francisco: American Institute of Mining and Metallurgical Engineers, 1922.
- Young, George. "New Treatment Plant of United Comstock Mines Company," in *Engineering and Mining Journal* 114 (1922): 846-853.

Zeier, Charles, Michael Drews and Ron Reno. "An Architectural and Archaeological Inventory of the American Flat Mill, Storey County, Nevada." Clinton, Tennessee: Zeier and Associates, 2009.

E. Likely Sources Not Yet Investigated

Newspaper clippings on file at the Nevada Historical Society, Subject Card Index: "American Flat".