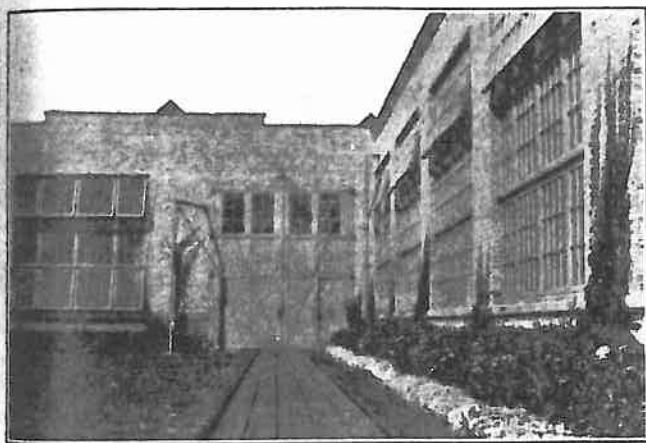


# A Compact Shop and Terminal Plant for a Small Railroad

*Lake Superior & Ishpeming layout at Marquette, Mich., embodies a number of unusual features*

**A** UNIQUE and ingenious coaling plant, non-inflammable roof, snow disposal facilities in the turntable pit and especial attention to landscape gardening are distinctive features of the engine terminal and repair shop recently completed by the Lake Superior & Ishpeming at Marquette, Mich., which comprise a distinctive example of a compact layout designed to meet the requirements of a small railroad. The plant as now constructed represents the completion of a project undertaken early in 1918 and carried out in two distinct contracts, a part of the plant being completed in 1919 and the remainder, undertaken as a second step in the fall of 1922 and finished about a year later. In preparing the plans for this shop and locomotive terminal, the engineers of the railroad had the advantage of a new site which enabled them to proceed without the necessity of fitting the new work



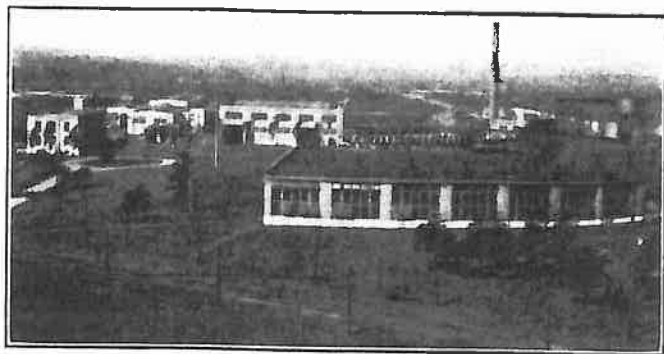
Paint Shop and Wood Shop

to existing structures. Also, the fact that the site was partly wooded and on the shore of Lake Superior made it possible to use much of its natural beauty in developing the landscaping effect.

As seen in the block plan the track layouts of the engine terminal and of the repair plant are entirely independent, except for a direct connection between the shop tracks and the turntable. The only other feature that is essentially common to both is the power plant which serves both units.

The engine terminal comprises a 20-stall roundhouse with an 80-ft. turntable, a coaling plant, a 50,000-gal. wooden water tank, a 14-ft. by 52-ft. sand house and a 15-ft. 5-in. by 61-ft. wet-type cinder pit. The roundhouse has brick and concrete walls, and a timber frame and roof and is covered with Johns-Manville five-ply asphalt-asbestos roofing. It is heated by hot air distributed by a fan through concrete and vitrified pipe ducts from steam coils in a room located in the rear of the house. Owing to the low winter temperatures experienced the downspouts from the roof gutters are carried inside the building.

The requirements of a cold climate are carried out in greater measure in the turntable pit. This is provided with a solid concrete pavement and a catch-basin so arranged that when desirable the bottom of the pit can be made to hold about a foot of water. Service pipes for both water and steam entering the pit afford the means of

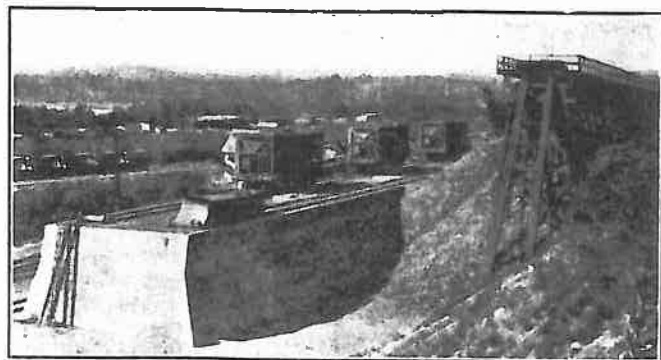


General View from the East—Top of Ore Dock

keeping the bottom of the pit covered with hot water to melt snow as it falls as well as such snow as may be deposited in the pit by a locomotive crane used to clear the space between the inside circle wall of the roundhouse and the turntable.

## A Unique Coaling Station

The most unique feature of the terminal is the coaling plant, which has been designed to afford the most con-



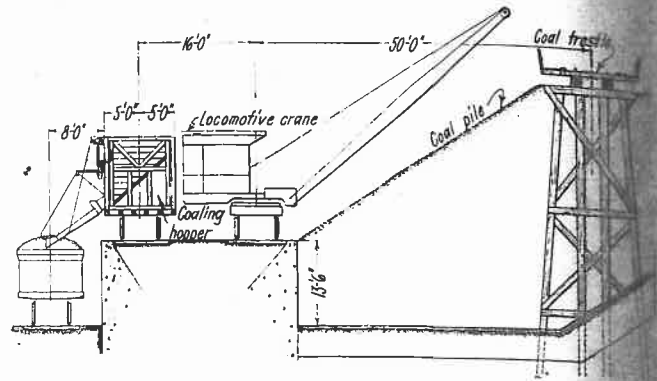
East End of Coaling Plant—Storage Capacity 30,000 Tons

venient method of handling coal unloaded from a nearby dock. Ore cars into which the coal is loaded at the dock are dumped from a pile trestle 630 ft. long built against the slope of the ore dock approach. This slope has been covered with planking, causing the coal to move down the slope towards a coaling dock 13½ ft. high, consisting of an earth fill 27 ft. wide supported between two concrete retaining walls. This coaling dock supports two tracks, 16 ft. center to center, which are used for loading coal from the storage pile under the trestle into three es-

pecially constructed locomotive coaling cars by means of a locomotive crane. The locomotive crane occupies the inner track and the coaling cars the outer track where they are located in a suitable position for discharging coal directly into the tenders of locomotives occupying a track on the surface adjacent to the dock. The space under the trestle between the embankment and the coaling dock affords room for a coal pile of 30,000 tons. The locomotive coaling cars are spotted anywhere within the length of 504 ft. of the dock, depending on what portion of the coal pile is to be worked, the locomotive being spotted opposite the cars in whatever position they may happen to be. The cars are of wooden construction and are divided into three pockets, each of which is equipped with an apron and gate for the delivery of coal and a capacity equal to that of the average tender. The advantage of this arrangement is that after the crane has loaded all three cars, adequate storage capacity has been provided for coaling nine locomotives so that the crane may be used for other service, such as the loading out of cinders from the cinder pit. These coaling cars are used also for loading out company coal into cars for use on other portions of the line.

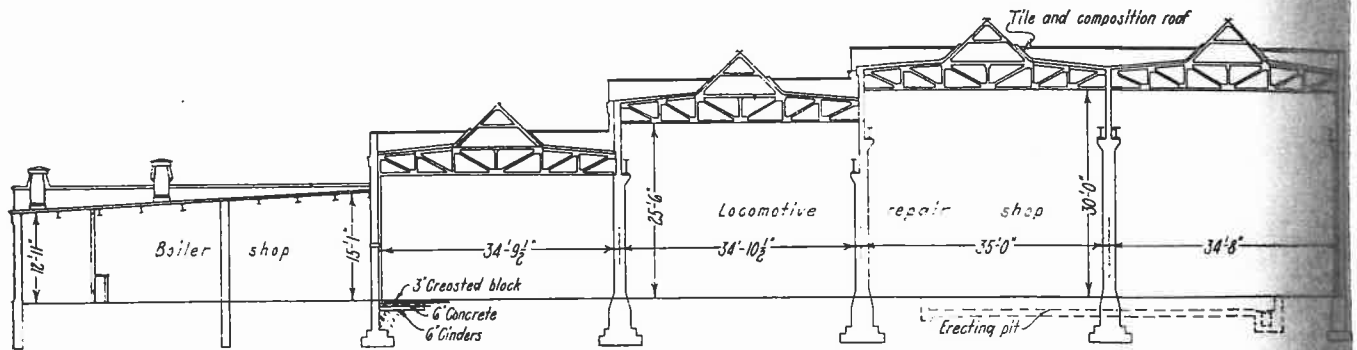
The shop buildings are of a size and character to meet

woodworking mill and a fourth serving only the car repair shop. Another group comprises the locomotive machine and erecting shop and the blacksmith shop, the former being served by five tracks, all of which are pro-



A Unique Type of Coaling Plant

vided with engine pits and one of them with a Whiting locomotive hoist. The buildings have brick and concrete walls, steel frames and roof trusses and pre-cast gypsum

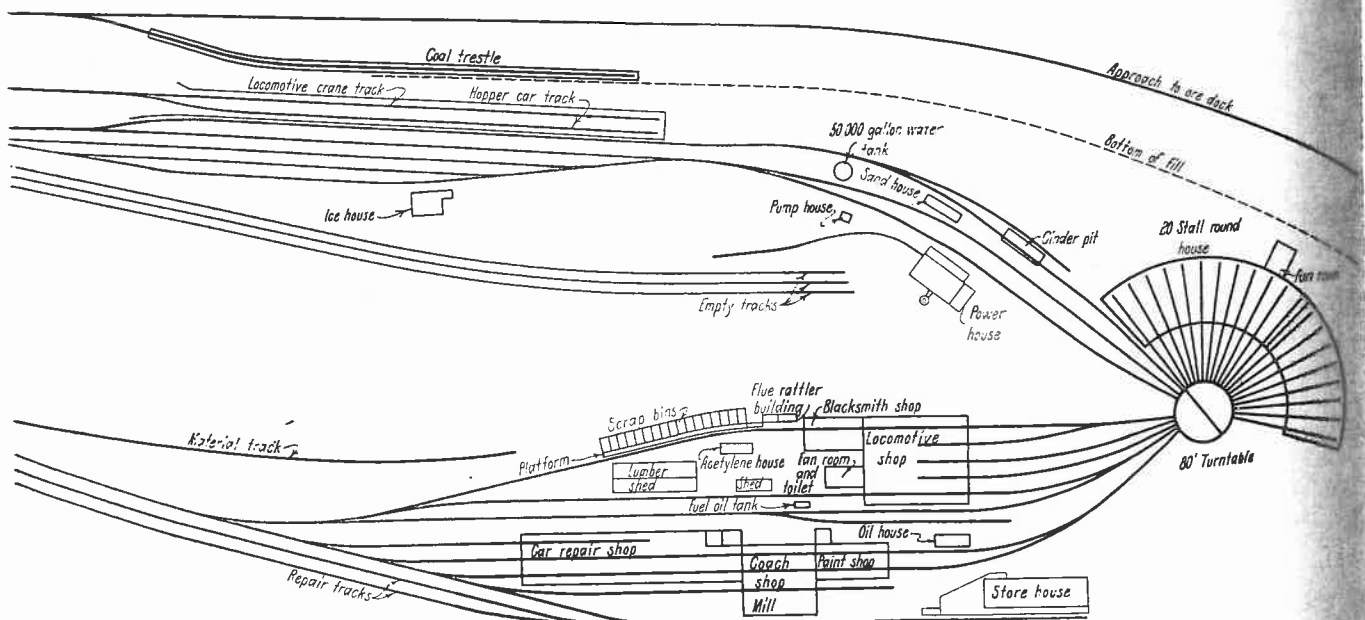


Typical Section of the Locomotive Shop

the needs of a small railroad and are grouped in a compact arrangement possible only with a small layout. Thus, the car repair facilities comprise a building of three units, the car repair and steel shop, the coach shop and woodworking mill, and the paint shop. Two tracks extend through all three units, with a third track serving the

roof slabs covered with Johns-Manville asphalt-asbestos roofing. The roof trusses are of peculiar design, affording an A-frame monitor or single saw-tooth skylight at mid span equipped with Pond metal frame continuous operating sash.

The car repair shop has a main bay, 25 ft. 3 1/4 in.



General Layout of the Shops and Engine Terminal

clear under the roof trusses, provided with a 10-ton crane having a span of 44 ft. 4 in. from center to center of the crane rails, together with a side bay 20 ft. 10 in. wide. The locomotive shop is divided into four bays transverse to the tracks with spans ranging from 34 ft. 10 in. to 35 ft., three of which are provided with five-ton cranes for handling locomotive parts. The clear height under the roof trusses in this shop varies from 18 ft. to 30 ft. Adequate toilet facilities and locker rooms are provided in connection with both the locomotive and car shops.

Other features of the shop layout include a two-story brick storehouse, 40 ft. by 143 ft., an oil house, 28 ft. by 48 ft., a flue rattler building, a material shed, an acetylene

generating house 14 ft. by 44 ft., a lumber shed 40 ft. by 115 ft., and a battery of scrap bins 20 ft. by 200 ft. The power house, 50 ft. by 65 ft. is designed primarily for the supplying of heat to the various units of the plant, as electricity for both lighting and power is purchased from the Cleveland Cliffs Iron Company's hydro-electric plant, with a breakdown connection with the hydro-electric system of the city of Marquette.

The shop and locomotive terminal layout was designed and built under the direction of R. C. Young, chief engineer of the Lake Superior & Ishpeming, Marquette, Mich. Plans were prepared and all construction work was carried out by the Arnold Company, Chicago.