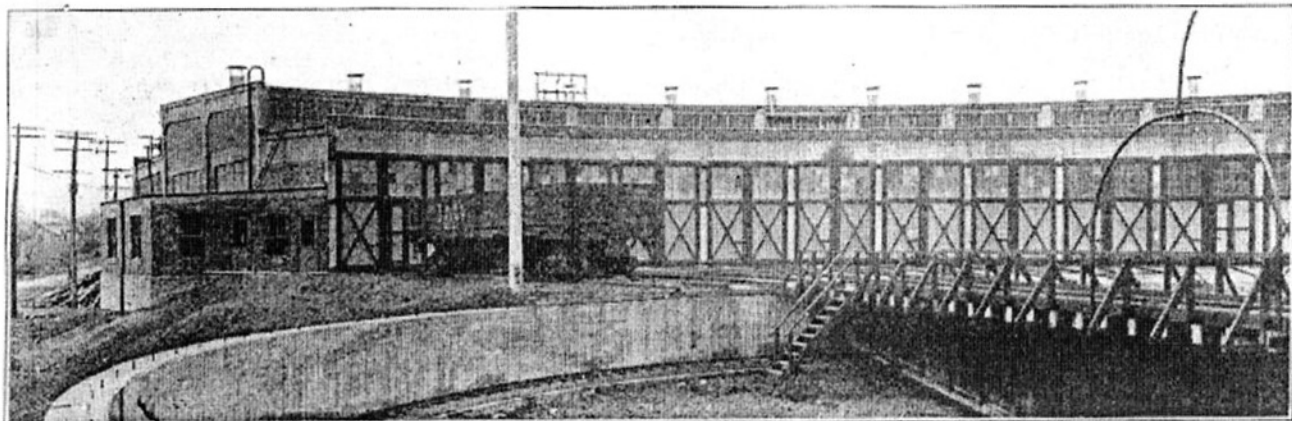


# **Toledo & Ohio Central Railroad**

## **West Columbus Roundhouse**

From *Railway Age*

April 18, 1919



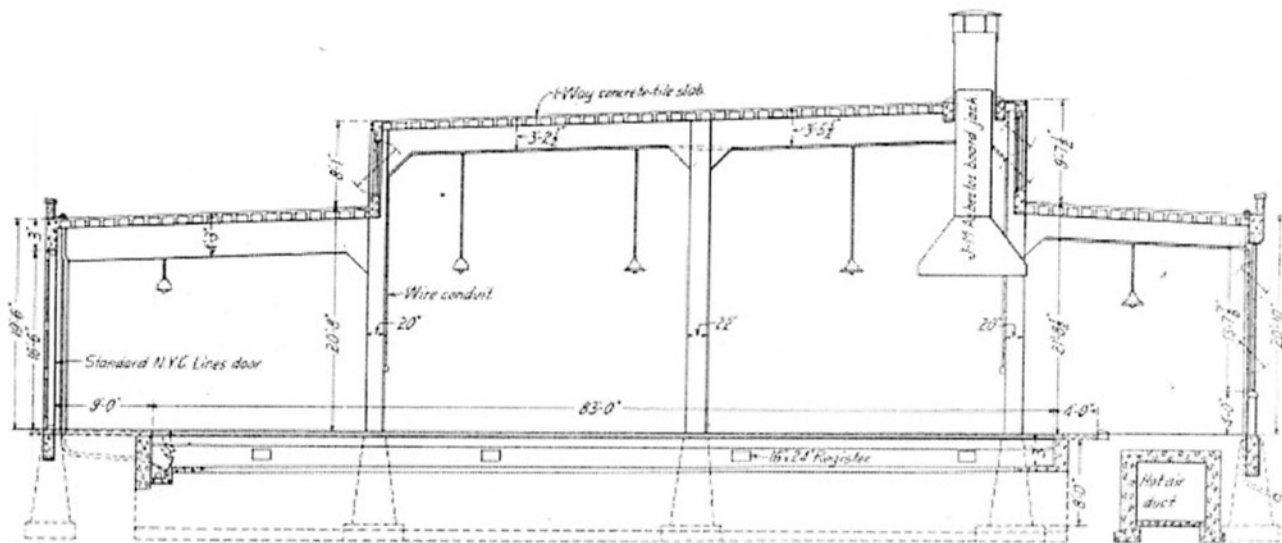
South Half of the Roundhouse with Office on the Left

## A Complete Modern Engine Terminal Installation

Reinforced Concrete Roundhouse for the Toledo & Ohio Central  
Is an Example of Modern Construction

A NEW 20-STALL reinforced concrete roundhouse recently completed for the Toledo & Ohio Central at Columbus is one of a number of engine terminal projects undertaken since the advent of government operation of the railroads, and represents an interesting tendency of the present day in engine house design. It replaces a small engine terminal that has proven inadequate both as to the capacity of the house and the area and arrangement of the approach

ceed without any interference with the existing engine terminal, yet providing for an arrangement of the approach tracks in such a way as to require but little change in the routing of engines to and from the terminal. In fact the new routing is similar to the old one, and while the length of the approach is somewhat greater, this increased distance is taken up largely in providing greater track capacity. The old terminal is located at the east end of the McKinley avenue



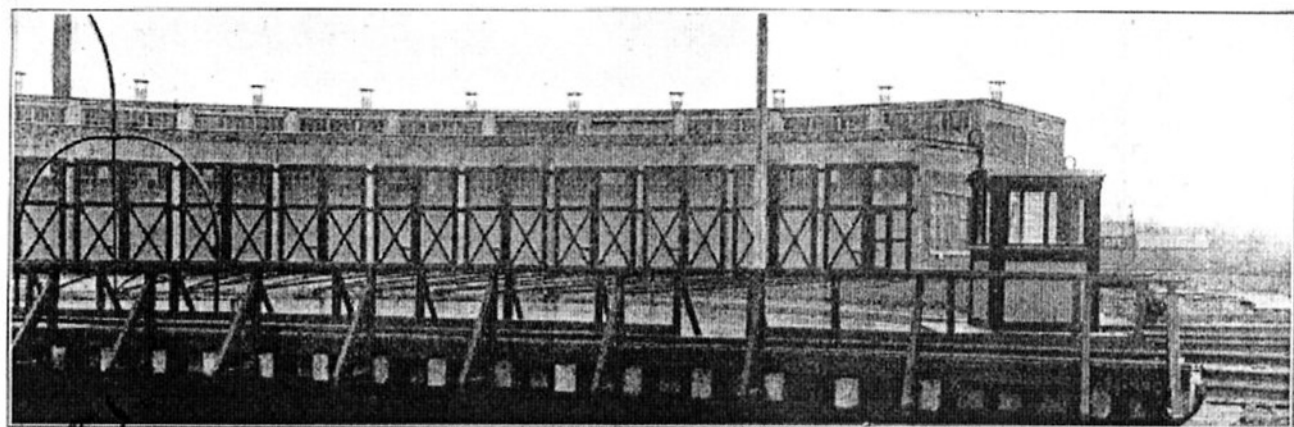
Longitudinal Section of a Stall

yard and auxiliary facilities. Three factors contributed to the successful completion of the project in spite of wartime difficulties—the completion of plans for the terminal in advance of the award of the contract, the entire avoidance of any interference between the construction of the new terminal and the operation of the old one, and the effectiveness of the contractor's organization.

The site of the terminal was particularly fortunate since adequate space was found available in close proximity to the freight terminal yard which permitted construction to pro-

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freight yard while the new one is at the west end, at the corner of McKinley and Grand View avenues. The entire plant consists of a roundhouse, a shop building and power plant, a coal, oil and locker building, two cinder conveyors, a 70,000-gal. water tank and a coaling station. The lead to the terminal consists of four tracks, two inbound and two outbound, with the latter on the outside. These four tracks are independent all the way from the turnout to the table, it being the idea to provide a progressive movement in one direction on each track, with the engines receiv-



North half of the Roundhouse

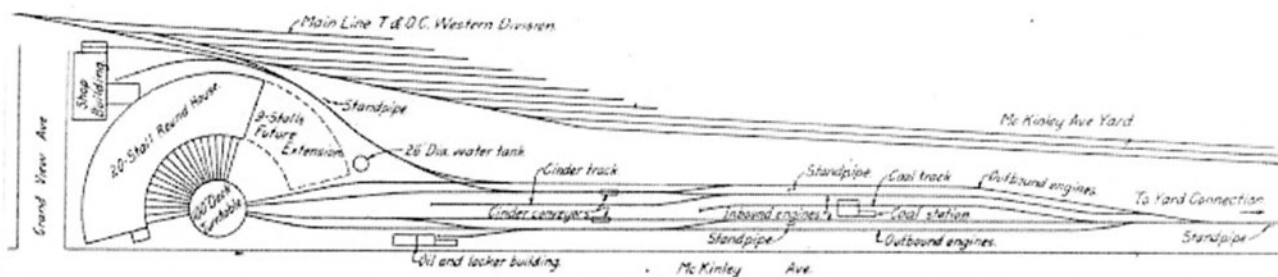
ing coal and water and dumping cinders while on the inbound movement and water only on the outbound movement. However, crossovers are provided between the inbound and outbound tracks of each pair so that engines may come in for coal and water or even to dump cinders and back out over the crossover onto the outbound track with a minimum of interference with the regular operation of the terminal. A track connecting with the north inbound and outbound tracks near the roundhouse affords a direct connection with the west end of the yard and serves also as a lead to the coal dock at the power plant.

The coaling station is a Roberts & Schaefer plant of 500-tons capacity with a complete sand drying plant in addition. The coal track for the station is located between the two inbound tracks and passes over a track hopper underneath the superstructure of the station. The cinder plant consists of two Robertson cinder conveyors, dumping into cars on a track between the two inbound leads. Provision has been made for installing two additional conveyors in case they are found necessary.

Water is delivered to the engines by four stand pipes. The

supported on a conical roller center with an extra-heavy electric tractor furnished by George P. Nichols & Bro., Chicago. As shown in the photograph the tractor is supplied with electric current from an overhead collector.

For the purpose of obtaining fire proof construction the roundhouse was built of reinforced concrete with brick curtain walls. As shown in the longitudinal section of the house, the framing consists of a subdivision of the house into four circumferential bays. The roof over the two interior bays is raised to about 9 ft. above the two outside bays to give a monitor construction, affording better illumination and ventilation through the use of the maximum amount of window area in the two sides of the monitor. The same treatment is used in the outer wall of the roundhouse in which all of the space between the columns from a height of four feet to the underside of the wall girder is used as window space. United steel sash are used for the outer wall windows as well as for the monitor windows, horizontal pivoted sections being introduced to afford ventilation. An interesting detail in connection with the outer wall is the arrangement of the brick work under the windows in three independent parts, sep-



Track Layout of the New Engine Terminal

water is stored in a 70,000-gal. redwood tank on a creosoted trestle frame. The new tank is supplied from the tank and treating plant located at the old terminal, but since the old tank is 10 ft. lower than the new one, the latter cannot be completely filled by gravity, so an automatic booster pump has been installed to supply the new tank. A further insurance against failure of supply is a direct connection with the city water supply.

#### Room for Future Extension

The roundhouse has been built for 20 stalls with provision for a future addition of 9 more. The stalls are 110 ft. deep with door posts 14 ft. center to center, while the width of the stalls at the rear is 25 ft. 11 in. The turntable is 100 ft. in diameter, designed for an equivalent of E-70 loading and

arated by vertical construction joints. In the event of an engine pushing out the rear of the house, the middle section of this wall would be carried away with little or no damage to the side portions.

An interesting adaptation of specialized reinforced concrete construction is the use of a one-way tile slab in the roof. The air spaces in these tiles are expected to affect a material reduction in the condensation from the underside of the roof in cold weather. The roof is covered with Barrett composition roofing.

In accordance with modern practice the roundhouse pits are of concrete 3 ft. 11 in. wide, by 3 ft. to 4 ft. deep and slope toward the door end where catch basins have been installed. Down spouts from the roof attached to the door posts drain into these catch basins which in turn empty into the

exterior drainage system consisting of a 12 in. sewer pipe leading to a settling basin in the yard. This was provided to remove sludge from the blowout water before allowing it to enter the sewers.

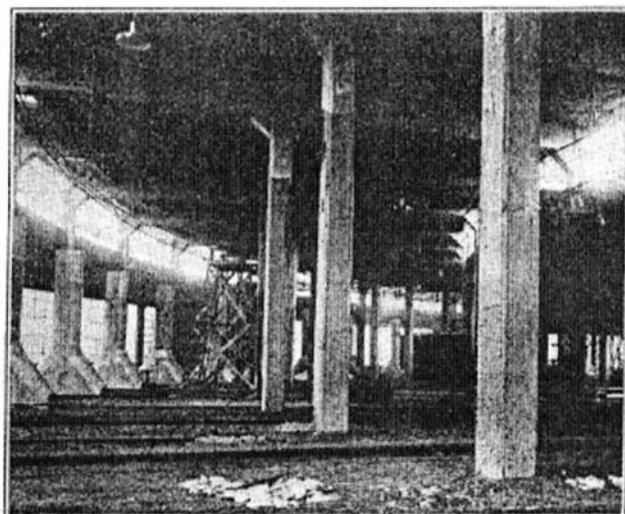
Stalls 17, 18 and 19 are intersected by a driver-removal pit, 7 ft. 6 in. wide by 6 ft. 10 in. deep, and stalls 18 and 19 by a truck wheel pit, 4 ft. wide by 4 ft. 9 in. deep. Each of these special pits is equipped with a 24-in. gage track for wheel trucks. An interesting detail has been worked out as shown in the drawing in connection with these special pits to facilitate the handling of the rail beams which carry the pit tracks over the special pits. The heavier of these girders weigh 690 lb. each, which is too great a load to be handled conveniently by hand. Accordingly T-bars have been provided to span across the pits as shown. The rail girder is pivoted on one side of the stall and the T-bar at the other side. When it is necessary to swing the girder out of the way, the T-bar is swung out across the pit and its upper surface serves as a support for the free end of the girder as it is swung across the pit. Rails are secured in place on the side walls of the pits by means of clip bolts fitted into slots imbedded in the concrete. The upper portions of the pit walls are broadened out to afford adequate space outside of the rails for the support of jacks.

#### Carefully Planned Illumination

Special attention was given to the lighting arrangement. Five lighting fixtures have been installed in the lines of columns between the stalls. As indicated on the longitudinal section of the house each fixture consists of a lamp socket attached to a section of pipe conduit and equipped with an enameled steel reflector. To light the passageways along the front and rear of the house every other lamp in the front row of lights is connected up in one circuit controlled by a master switch, while another switch controls the alternate lights in the outside row. The other four lamps in each row are controlled by local switches so that any stall may obtain additional light as needed. Supplementary to these lights there

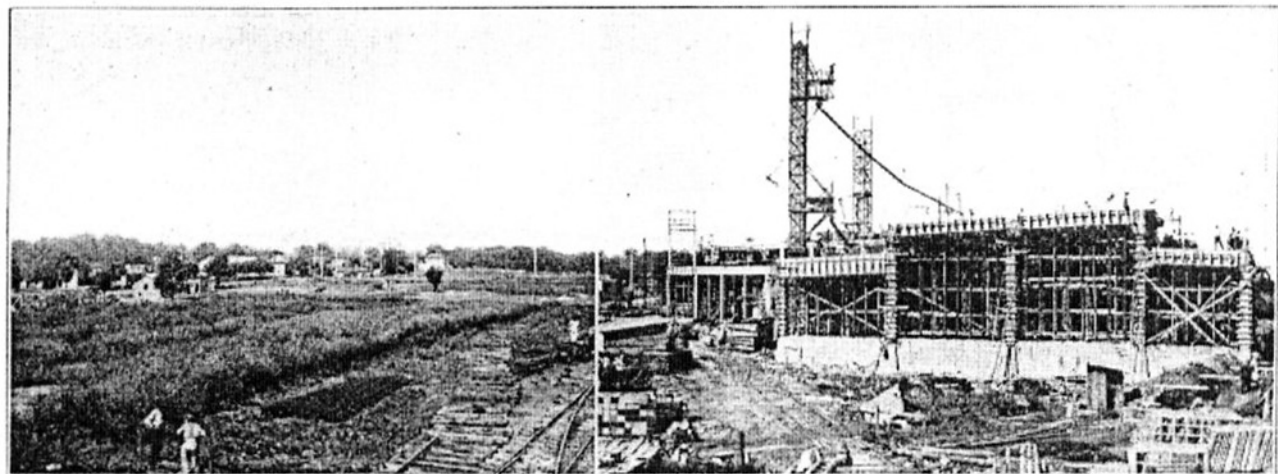
conducted from this heating plant through a system of conduits having a main duct leading along the rear of the house with branches between the stalls terminating in registers of 16 in. by 24 in. size in the engine pits, equipped with adjustable shutters.

The power house and shop building is a structure 60 ft. by 120 ft. connected to the roundhouse proper by a wing 40 ft. by 55 ft. It has a steel frame with brick curtain walls



Interior of the Roundhouse During Construction

and wooden roof construction following a standard design used by the contractor and for which he was able to supply the steel frame ready to erect. This building consists of a boiler room equipped with two 250-hp. Union Iron Works water tube boilers with Jones automatic stokers fed by hand. The coal is received from cars by dumping from a low trestle



Engine Terminal Site on June 28, 1918

Progress on the Roundhouse on September 15, 1918

are outlets on two posts between each pair of stalls for extension cord lamps. There is also a socket at the rear of every second stall for an electric welding circuit. Illumination of the engine terminal outside of the roundhouse has been provided by installing flood lights on the top of the coal-station.

#### Hot Air Heating System

The roundhouse is heated by a hot air, forced draft system from a fan and heating coils in the power house. The air is

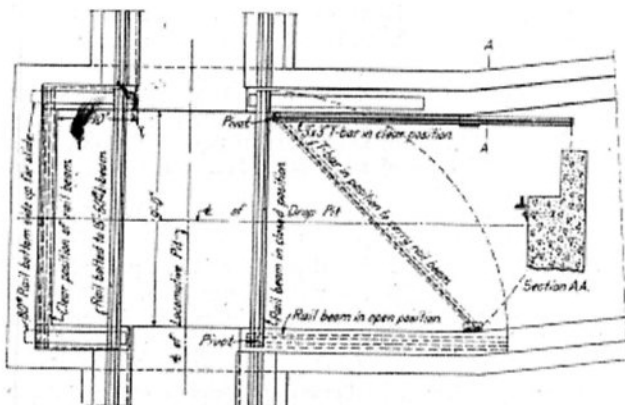
so that the hand work is limited to transferring the coal from the pit under the trestle to the stoker hoppers. Adjacent to the boiler room is an engine room containing a two-stage air compressor with a capacity of 1,250 cu. ft. of free air per min. to 110 lb. pressure. This air is used to supply the ash conveyors, sand plants and two miles of 1½-in. train charging line in the yard.

The heating plant consists of a Sturdevant fan blowing air through the coils, receiving exhaust steam from both the fan engine and the air compressor, although in cold weather



it will be necessary also to use live steam direct from the boilers. The fan and ducts are designed of adequate capacity to supply air to the nine additional stalls contemplated in the design of the engine terminal. The remaining space in the shop and power plant building is used as a machine shop, air brake room and store room, with a toilet for the roundhouse employees.

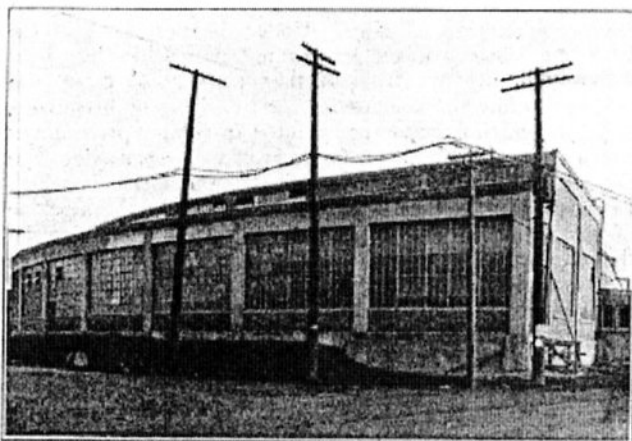
Another auxiliary facility of the terminal is an oil house and locker room for the enginemen. This consists of a building 76 ft. 4 in. long by 22 ft. wide, with a platform 40 ft. by 10 ft. 8 in. It is one-story high, with a basement,



Special Arrangement to Facilitate Handling of Rail Girders Over Drop Pits

and as it is located adjacent to McKinley avenue, and as the level of the engine terminal is considerably above that of the street, the structure is virtually two stories high on the street side.

One end of the first floor is used for a locker room for the enginemen, with a small space partitioned off for the engine dispatcher, while the other end is used for an oil room



Rear of the Roundhouse Showing the Large Expanse of Glass

and the basement underneath for oil storage tanks. Further tank space is provided under the platform, which is supported on concrete walls extending to the natural ground level. The oil is handled by a complete installation of Bowser pumps. The walls of this building are brick and the floors and roof are of reinforced concrete, except in the enginemen's room, where the floor is on cinder fill.

#### Construction

The level of the ground in the engine terminal is about 7 ft. above the natural ground surface of that of the adjoining

street and it was necessary to provide about 100,000 cu. yd. of filling material, about 50 per cent of which was granulated slag. Owing to this difference in elevation it was necessary to support the walls and columns of the roundhouse considerably above the original ground surface. To do this with any economy it was found desirable to support the walls on reinforced concrete girders spanning between pedestals. In the case of the roundhouse pits, however, the full section of the wall was extended to the foundation level but the floors of the pit were placed on back filled material. The excavation for the turntable pit was made with teams and slips, but that for the roundhouse pedestal foundation was done by hand.

Cement was delivered in cars but sand was brought to the work by motor trucks from the washing plant near by. Water was pumped from the Scioto river about 500 ft. away. The concrete for the roundhouse was poured from two concrete towers, one in the front and one in the rear of the house. In addition to these a third mixer was used for a part of the pits and the pedestals. The two towers are shown in the illustration on the preceding page. The tower on the inside of the house was used for concreting a large portion of the front of the building and about ten complete stalls on one end, whereas the tower in the rear was used for pouring the other 10 stalls of the superstructure and a considerable portion of the rear of the building.

The plans for this work were prepared by the engineering department of the Toledo & Ohio Central, at Columbus under the direction of J. A. Stocker, chief engineer and C. V. Bucher, assistant engineer, who were also responsible for the supervision of the construction. The Austin Company, Cleveland, Ohio, had the contract for the roundhouse and other building work with the exception of the coaling station and was later given a contract for the filling and the equipment work.



From the Buffalo Courier

Nothing to Do but Walk