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Illumination of Toledo & Ohio Central Engine Terminal at West Columbus, O.

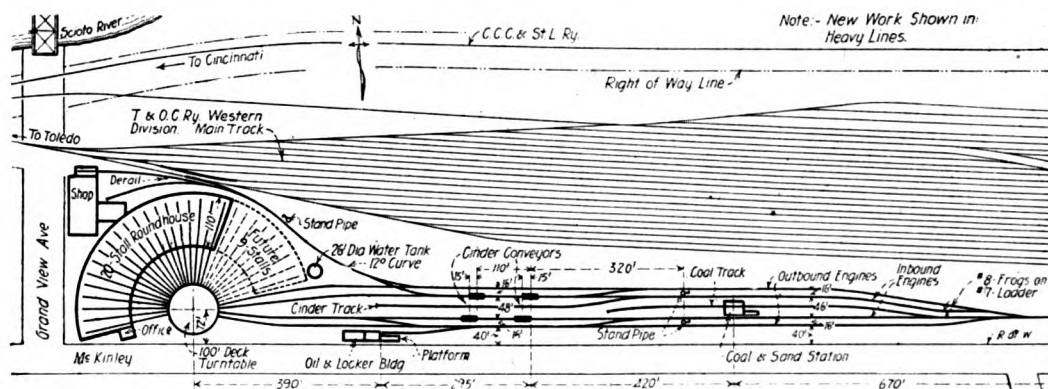
By R. E. RICE

There was published in our issue of March 8, a general description of the new engine terminal of the Toledo & Ohio Central R. R. at West Columbus, Ohio. In the present article there is given a detail description of the flood lighting system adopted for the illumination of the adjacent yards and also of the methods applied in lighting the interior of the enginehouse itself. The author is electrical supervisor of the road with office at Bucyrus, Ohio.

The lighting of the engine terminal yards of the Toledo and Ohio Central Railroad at Columbus, Ohio, is accomplished by the use of eight 1,000 watt Davis electric flood lights, mounted on platforms attached to the elevator house on top of the Roberts & Schaefer coaling station. The platforms are approximately eighty-five feet from the track level. Five of these lamps are placed on the west side of the elevator house, lighting the yards between the coaling station and round house, taking care of an area approximately eleven hundred feet long by two hundred and seventy-five feet wide. The remaining three lamps are mounted on the east side, lighting the approach to the terminal; an area of one thousand feet in length and two hundred feet wide. A much wider distribution could have been

The results obtained from an illumination standpoint are very satisfactory, as may be seen from the accompanying night view, which was taken from a stairway about sixty feet from the track level and directly under the lamps. The lights are mounted sufficiently high to be out of the range of vision and therefore do not interfere with signals given by switching crews about the yards.

A careful survey was made of the yard by means of a foot candle meter to determine the intensity of illumination. Readings were taken at different distances from the lamps and very little difference in intensity over the entire area was detected. The average reading was $\frac{1}{4}$ -foot candles, ranging from twenty-seven hundredths at coaling station to twenty-three hundredths at farthest point the distance between these two points being approximately one thousand feet. It was through the recommendation of B. J. Schwendt, superintendent of telegraph and signals, that the flood lighting units were installed and he, with Professor Caldwell, dean of electrical engineering at Ohio State University; J. A. Stocker, chief engineer, and C. L. Gardner, superintendent, conducted the inspection referred to, all being of the opinion that this is the ideal way of lighting such areas.



General Layout of West Columbus Engine Terminal, Toledo & Ohio Central R. R.

effected except that it was desired not to project any direct rays from the lamps into the classification yards and on the main track, which adjoin the engine terminal on the north.

All flood lights are controlled and fused separately from a panel board, located in the hoist house of the coaling station directly below the lamps. Even distribution of light was obtained by focusing each light separately, that is, turning out all lights but the one being focused and adjusting it so as to properly distribute the light over the area that is taken in by that light and then by repeating the operation until the entire area was covered, whereupon all the lights were turned on.

In laying out the lighting of the twenty stall re-inforced concrete round house, consideration was given to the best distribution of light with the pits occupied. Between each two pits there are five 150-watt "Mazda C" lamps. The three center lamps are separately fused and switched, the two at either end being controlled from a panel board and serving to light the walks, which extend the entire length of the house. This arrangement was made with a view to the saving of current as it allows the three center lamps to be turned off on idle pits, yet leaving the walks well lighted for employees to pass in performing their work. The three center lights are mounted high

and are equipped with Maxolite skirted base reflectors, the angle of cut-off being such that they light the entire locomotive and yet are out of the direct range of vision of the hostler seated in the cab of an engine. This does away with the use of extension lamps on work on the outside of the engines. The two end lamps were mounted somewhat lower because of the monitor roof construction. These were equipped with deep bowl Maxolite reflectors, the angle of cut-off being such as to light the walks and space in front and back of the engines, yet protecting the hostler from any direct rays while handling engines in and out of the house.

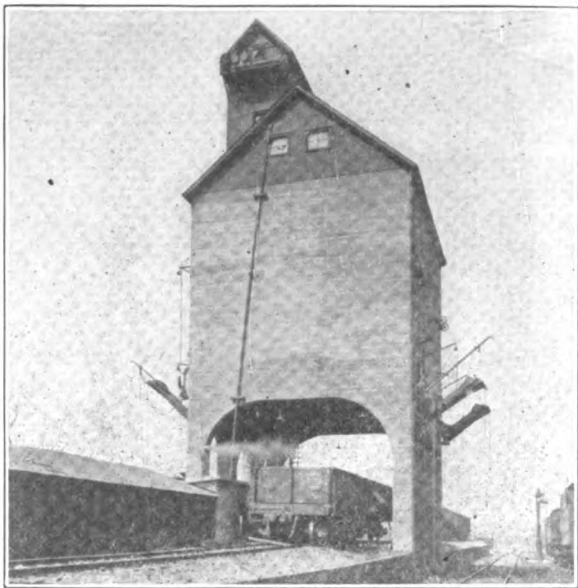
Between each pit there are three Crouse-Hinds Type R. Q. H. plugs, mounted on the concrete supporting columns, from which power is taken for portable lamps these are of sufficient capacity to operate electric drills, grinders, etc.; in addition there is one "Ralco" three-phase plug from which power is taken to operate the portable 150-ampere Lincoln Electric welding set.

At the center of the house there are Crouse-Hinds panels for power and lighting mounted in metal cases on the walls, these containing the fused entrance switches and fused switches for controlling and protecting the various main circuits. All wiring is in metal conduit imbedded in the concrete, leaving only the stems supporting the lighting units exposed to the action of smoke and gases. These are made of one-half-inch "Shearduct" and provision for easy replacement is made in the junction boxes, which are also imbedded in concrete.

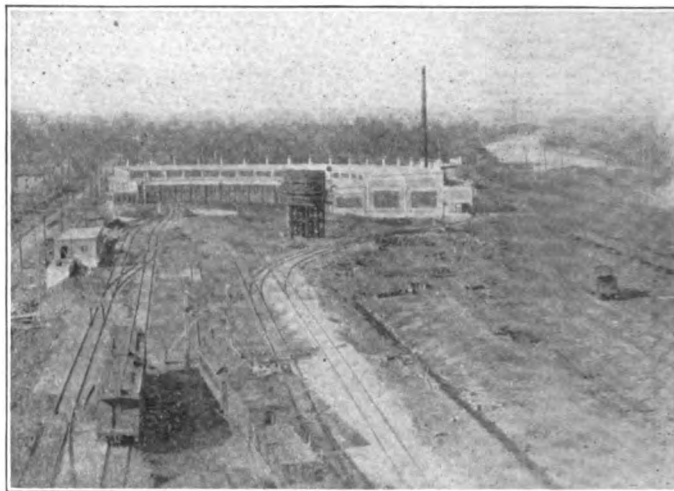
In the oil storage building also, which is of reinforced concrete and brick, all wiring is in metal conduit imbedded in concrete, and all lamps are equipped with gas proof globes.

The Roberts & Schaefer coaling station is of reinforced concrete operating on the Holmen principle with a capacity of 500 tons, served by an automatic electric hoist driven by a General Electric 22 horse power motor with magnetic brake to prevent drifting of the bucket. The control was furnished by Cutler-Hammer Mfg. Co. All wiring is in metal conduit and is concealed as in the round house and oil house.

Water for locomotive use is obtained from a softening plant, located near the site of the old round house, approximately three thousand feet from the new terminal. Allis-Chalmers centrifugal pumps, driven by motors of the same make, take the water from the softener and deliver it to the tanks, located adjacent to the new round house. These pumps are controlled by float switches mounted in the tanks and are used in connection with automatic compensators located at the pumps. This method serves to keep the water level constant at the tanks.



Flood-Lights Mounted on Roberts & Schaefer Coaling Station, Toledo & Ohio Central R. R., West Columbus, O.



Day View of Toledo & Ohio Central Engine Terminal, Columbus, O.

In the machine shop all machine tools are individually driven by Allis-Chalmers induction motors. They consist of two engine lathes, one shaper, one upright drill press, one five-foot radial drill, one Acme double head bolt cutter; and in the blacksmith shop there is one Bradley hammer, taking its power from a line shaft driven by a 7½ horse power motor; also one blower driven by a 3 horse power motor. The 100-foot turntable is driven by a Nichols tractor with a 20 horse power General Electric motor.

All power and light is purchased from The Columbus Railway, Light & Power Co. at present and is taken at 440 volts, 3 phase, 60 cycles for power and 110-220 volt, three wire, single phase 60 cycles for lighting. There will be an emergency service installed in the near future with the lines of The Municipal Light Plant. Adjacent to the transformers there is a building for electrical repairs in which will be installed main distributing panels for light and power and on which will be mounted all meters and an arrangement of double throw switches for connecting to either service. Space for additional switches will also be provided to take care of future requirements.

Supreme Court Upholds Wire and Freight Rates

The United States Supreme Court, in decisions handed down on June 2 upheld the increased telephone and telegraph rates put into effect on January 21 under the order of Postmaster General Burlison and the increases in the railway passenger and freight rates made by the railroad administration last June.

In the railroad cases the North Dakota supreme court decrees enjoining the Northern Pacific R. R. and Director General Hines from enforcing an order of the railroad administration increasing rates in that state were reversed.

The court also set aside lower court decrees which held that, under section 15 of the railroad control act, pre-existing intrastate rates remained in effect as lawful police regulations. The court held that the authority conferred by the resolution and the act were war powers conferred on the president and that the power of the federal government "was supreme and conclusive." The opinion was unanimous.

"No elaboration," Chief Justice White said, "could make clearer than do the act of congress of 1916, the proclamation of the president exerting the powers given, and the act of 1918 dealing with the situation created by the exercise of such authority, that no divided but a complete possession and control were given the United States for all purposes as to the railroads in question.

"How can any other conclusion be reached if consideration



Night View of Toledo & Ohio Central Engine Terminal,
Columbus, O.