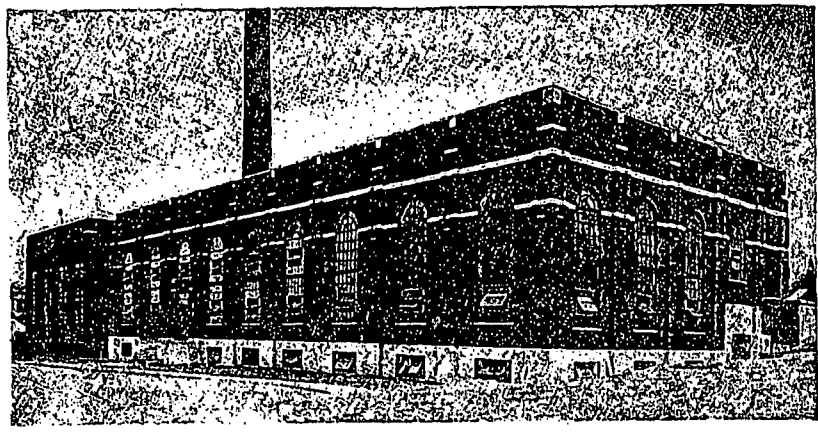


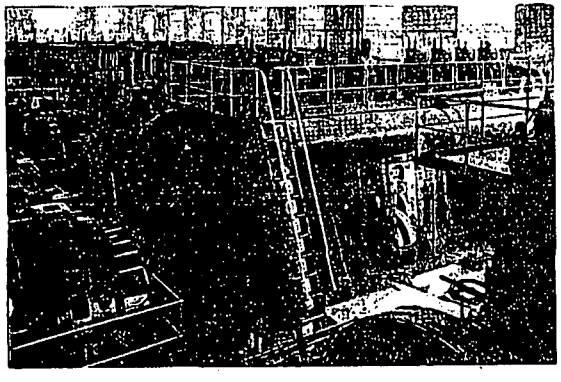
FRONT VIEW shows diesel power plant in foreground, steam plant, now used as standby, at rear. Diesel plant was built in three stages: four boys in center were erected in 1931, two at left of entrance in 1937, three at right just completed

Extension Ups Grand Haven Diesel Plan

Addition of 3850-hp engine makes Michigan municipal largest in U. S.; thorough study reveals advantages of diesel generation; proposed future development to provide about 23,000 hp

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ENGINE ROOM: In foreground is 2250-hp engine installed in 1937, followed by 3850-hp unit of 1941 (piston being pulled), three 1140-hp engines (1931-34), new 3850-hp unit at far end. Space beyond new unit available for similar generator set

▶ MARKING ANOTHER MILESTONE in its more than 50-year history, the Grand Haven, Mich. municipal diesel plant has just completed an extension, which brings its present capacity to 13,370 hp, believed largest in U. S., and provides for another similar unit to lift total to 17,220 hp. As part of the thorough study confirming the wisdom of continuing diesel generation, plans were made for development which would permit installing more than 20,000-hp firm capacity in the building as now extended.

A manufacturing and resort town on Lake Michigan where Grand River enters it, Grand Haven has generated power municipally since 1896. The original steam plant grew until it attained the present 3000-kw capacity in 1928. Increased loads and high production costs led in 1929 to expansion by construction of a diesel power plant southwest of the steam plant (photo



REAR VIEW shows recently built extension with exhaust and intake housing at rear. Diesel icebreaker *Mackinaw* is lying in Grand River nearby. Fuel-oil-storage tanks are buried in sand: 150,000-gal tank in foreground; others are 100,000 gal

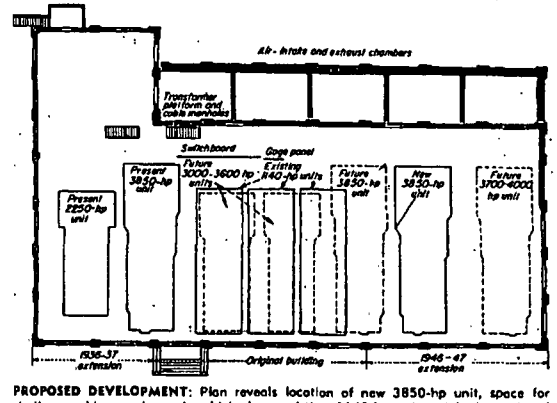
to 13,370 Hp

above). Two 1140-hp 800-kw Baldwin DeLaVergne 4-cycle engines in 1931, were followed by a duplicate in 1934.

Continued load growth led to extending the diesel plant in 1937; the building was added to on the northeast (see photo) and a 2250-hp 1600-kw 2-cycle Nordberg diesel installed. Remaining space in the extension was filled in 1941 by another Nordberg 2-cycle unit, of 3850 hp, 2715 kw.

Steam Plant. Since the first diesel was installed, firm capacity (full load with largest unit out) has been inadequate to meet peak demand, and so the steam plant has been maintained as standby. When one diesel is out for inspection or overhaul, steam-plant boilers are held on bank. This is expensive in fuel and also labor, since the layout prevents diesel-plant operators attending the steam plant.

In 1946, *in a long-range study to determine* how to meet current and future loads, returning to steam generation was examined. But more extensive building alterations would be needed to modernize and expand the steam plant, and the nature of the load worked against economical steam operation. Present load runs from a peak of about 6500 kw at 11:30 am down to 1000-1200 kw in early morning. Most factories do not run extensive night shifts and load drops substantially after 10:00 pm. There was no indication of any general shift in the nature of the predominantly industrial demand.



PROPOSED DEVELOPMENT: Plan reveals location of new 3850-hp unit, space for similar machine, and way in which three existing 1140-hp units might be replaced

Having decided to continue diesel generation, we planned plant extension at the southeast end (see plan). This meant rearranging intake and exhaust facilities for the older engines at this end. The three 4-cycle engines now have their intakes at front of building, with exhaust mufflers at rear, in a housing. Where the old one-story intake and exhaust building stood, we extended