

HIGH PRESSURE FIRE AND AUXILIARY FIRE SYSTEMS IN THE UNITED STATES AND CANADA

TABLE I.
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CONTINUED ON
REVERSE SIDE PREVIOUS
PAGE.

City	Population U. S. Census 1920	Date of Installation	Type of Power	Gals. per Minute	Maximum Pressure Pounds	Lin. Feet of Main	Size of Main in Inches	Type of Main	No. of Hydrants	Type of Hydrants	Suction Supplies	Cost of System	No. of Acres	Cost per Acre
Atlantic City	50 707	Partly in Service	Connections to hotel pumps	10 000							To Cover Board Walk District.			
Baltimore	733 826	1912	1 Station, 3 Allis-Chalmers horizontal Corliss, twin simple, non-condensing, crank and fly wheel pumps; 1 Epping Carpenter, horizontal, duplex, direct acting, compound non-condensing (1 000 g.p.m.) pump; 3 Edgemoor water tube boilers, 1 100 h.p. each.	13 000	250	46 700	10-24	Lap welded steel, open, hearth steel with special universal joint.	226	Flush with Rose, portable service head.	One from distribution system, One from salt water.	\$534 050*	230	\$2 300*
Boston	748 060	1921	No. 1 Station, 2 Worthington 2-stage double suction centrifugal pumps direct connected to Westinghouse 750 h.p. steam turbine, horizontal impulse type, 1 105 r.p.m., steam pressure 175 pounds, atmospheric exhaust. No. 2 Station, 2 Worthington 4-stage, single suction, centrifugal pumps, direct connected to Westinghouse 750 h.p., 235-volt, D. C. shunt wound interpole motor, 800 to 1 050 r.p.m.	12 000 18 000	300	62 029	12-20	Cast iron double lead groove in bell and spigot, special joint alloy.	313	Post Compression Independent Gates.	Two from distribution system, one from salt water, in each station.	1 370 000	450	2 854
Brooklyn	2,018 356	1908	No. 1 Station, five Worthington 5-stage, horizontal, centrifugal pumps driven by General Electric 800 h.p., 6 600-volt, induction motors. No. 2 Station, three units of same type and capacity.	24 000 40 000	300	200	12-20	Cast iron double lead groove in bell and spigot.		Post Compression Independent Gates.	Two from distribution system.	1 384 500	1 420	975
Buffalo	506 775	Installation in Progress.	1 Station, three 4-stage, centrifugal pumps, 1 500 r.p.m., driven by three 750-h.p. Terry steam turbines, 3 170 r.p.m., steam pressure 225 pounds, speed reduction by set of herring bone spur gears, running in oil.	9 000	300		12-20	Cast iron with Universal machined bolted joints.		Post Compression Independent Gates.				
Cincinnati	401 247	1917	Gravity†	10 000	150		8-20							
Cleveland	796 841	1907	1 Station, motor-driven centrifugal pumps	12 000	270	37 665	8-20					170 000*	338	500*
Coney Island		1905-6	1 Station, 3 Gould triplex pumps driven by Nash gas engines.	3 600	150		8-16					90 000	147	612
Detroit	993 678	Installation in Progress.	1 Station, six 4-stage centrifugal pumps driven by 700 h.p. motors.	15 000	300	62 099	8-20	Cast iron bell and spigot.	270	Post Compression Independent Gates.				
Fitchburg	41 029		Gravity†	5 000	180	28 250	8-16					50 000	346	144
Fort Worth	106 482	1910	1 Steam Station, emergency connection to Distribution System.	5 000	100 to 200	42 200	8-16			106			245	
Jacksonville	91 558	1911	1 Station, motor-driven centrifugal pumps	5 000	175 to 192	22 688	8-20			90		58 000	180	537
Lawrence	94 270	1906	Gravity†	3 000	134	10 200	10-12			39			120	
Newark	414 524	1905	Gravity†	3 500	160	15 000	20-30			52		135 000	303	446
New York Manhattan	2 284 103	1908	2 Stations, each equipped with 6 Allis-Chalmers 2-stage, centrifugal pumps, direct connected to Allis-Chalmers 800-h.p., 6 600-volt, 3-phase, 25-cycle, induction motors, 740 to 750 r.p.m.	36 000 60 000	300 200	289 500	12-24	Cast iron double lead groove in bell and spigot.	1 200	Post Compression Independent Gates.	Two from distribution system, One from salt water.	3 280 000* 3 950 400	1 430	2 300* 2 763
Miami	29 571	1913	2 Stations, motor-driven centrifugal and steam pumps	5 500	175	7 450	8-16			29			136	
Oakland	216 261	1910	Oil engines geared to centrifugal pumps	2 000	200	12 000	10-14					146 000		
Philadelphia	1 823 779	1903	No. 1 Station, 7 Deane, vertical, triplex, double-acting pumps, 1 200 g.p.m., each driven by 8-cylinder, 4-cycle, vertical, 306-h.p., Westinghouse gas engine; 2 pumps of same type, 350 g.p.m., each driven by 125-h.p. gas engine. No. 2 Station, 10 Deane, vertical, triplex, double-acting pumps, 1 200 g.p.m. each; 1 pump of same type 350 g.p.m.; all driven by nine 350-h.p. and one 125-h.p. Westinghouse gas engines, same type as No. 1 Station.	9 100 12 250	300	85 008 163 689	8-20	Cast iron with flanged bolted joints. Cast iron with Universal machined bolted joints.	280 600	Gate valve and Post Compression. Post Compression with Independent Gates.	From Delaware River. From reservoir of 5 000 000 fed by City service.	3 030 000*	512	1 150*
Providence	237 595	1897	Gravity†	7 000	116	20 400	12-24	Cast iron two lead grooves in bell.	89	Flush.	From City Reservoir.	143 136	358	400
Rochester	295 750	1874	No. 1 Station, 2 steam pumps, one 2-stage, centrifugal pump driven by steam turbine. No. 2 Station, motor-driven, 3-stage, centrifugal pump.	9 000	140	102 960	4-20	Cast iron bell and spigot.						
San Francisco	506 676	1912	Gravity. 10 500 000-gal. reservoir with 2 pumping stations in reserve equipped with 4 Byron-Johnson 2-stage centrifugal pumps, direct connected to Curtis 750-h.p., horizontal, non-condensing steam turbine, 250-h.p. Babcock and Wilcox boilers.	32 000	300	508 000	10-20	Cast iron two lead grooves in bell.		Post Compression	Reservoir and San Francisco Bay.		5 300	
Toledo	243 164	1917	1 Station, four 2-stage, horizontal, centrifugal pumps direct connected to 550-h.p., 3-phase, 25-cycle, 4 000-volt motors.	8 000	300	22 625	10-16	Cast iron bell and spigot.	66	Post Compression Independent Gates.	Two intakes from Maumee River.		140	
Toronto	515 000	1909	1 Station, 2 McDugall, 2-stage, centrifugal pumps, direct connected to Westinghouse Parsons 1 500-h.p., condensing, multiple stage, impulse type, steam turbines.	8 333	300	40 770	6-20	Cast iron bell and spigot.	146	Post Compression Independent Gates.	Two intakes from Toronto Bay.	500 000	287	1 742
Winnipeg	178 304	1907-8	1 Station, six triplex, double-acting pumps driven by 4 Crossley, 2-cylinder, tandem, gas engines, 540 h.p. each; 2 Crossley, 2-cylinder, tandem, gas engines, 250 h.p. each; one producer gas plant consisting of 2 Crossley type producers, 500-h.p. each and 2 of 1 000 h.p. each; city gas also available. Two motor-driven centrifugal pumps	10 800 4 320	300 150	15 840	8-20	Cast iron with double lead groove bell. Cast iron.		Post Compression Independent Gates. Post.	Intake from Red River.	650 000	275	2 364
Worcester	179 754		Gravity†	5 000	165	100 320	8-30	Cast iron.		Post.			1 380	

* Excludes of pumping station and equipment.
† System consists of extension of pipes from High Service into area covered by Low Service.