City of Detroit
Buildings, Safety Engineering & Environmental Department
Coleman A Young Municipal Center
2 Woodward Avenue, Examination Section - Room 404
Detroit, MI 48226
Telephone: 224-3184

May 2013

MEMORANDUM

Subject: Information Pertinent to First or Second Class Stationery License Application.

The City of Detroit Ordinance No: 706-G requires that an applicant for a First Class Stationery Engineer License shall have a valid Second Class Stationery Engineer License for two years, or otherwise quality. An application for a Second Class Stationery Engineer License shall have a valid Third Class Stationery Engineer License for one year, or otherwise qualify.

Bring a properly filled out application, proof of employment, and proper picture I.D. for the written examination. The exam is conducted on every second and fourth Monday of each month, fee of $81.00. Applicants will be interviewed at 8:00 a.m., the examination will begin at 8:30 a.m. punctuality being a very important part of this exam. You will be notified within 30 days of your score by mail. If the written/math examination is passed you will be given a date to take the required oral examination, fee of $251.00.

The subject matter of the written examination will include 1st Class (300), 2nd Class (200) multiple choice statements in the following categories. In addition, an applicant for a First Class Stationary Engineer's License will be required to successfully answer Three (3), of any Five (5), of a random number of (40), math problems pertaining to the following categories. The exam office will provide calculators. There will also be required drawings pertaining to the categories below. Do not bring personal calculators to office, the examination office will provide calculators for mathematics examination problems.

Boiler and Accessories: Boilers, foundations, and supports, safety devices their function and testing, water walls, water columns, headers, drum internal; other boiler appurtenances; laying up boilers, heat absorption rates of various water surfaces.
Boiler Plant Auxiliaries: Pumps; injectors; regulators; feedwater heaters; superheater, de-superheaters, economizers; air preheaters, collectors, valves, traps; separators; draft fans; automatic control equipment and operation.
Water and Steam: Steam cycle; blow-downs; water treatment principles and practices; scale causes and prevention; reactions under temperature and pressure; boiler water circulation; calorimeters; evaporators.
Fuels and Combustion: Smoke; fuel and storage; flue gas analysis and interpretations; coal analysis; heating of coal in storage.
Steam Engine, Turbines and Accessible: Types of engines and turbines, starting , stopping, lubrication, operating, valve arrangements, governing and fundamentals of heat engines, condensers, air ejectors; horsepower considerations; oil coolers and centrifuges; reduction gears; safety precautions with heat engines; routine tests and inspections; bearings and shafting.
Electricity: Fundamental concepts of AC and DC, impedance, volts, amperes, watts, operating characteristics, starting and stopping electric motor types, proper use of fuses, safety precautions with electricity, transformers, generators, exciters; phasing power factor; synchronization; circuit breakers panel type controllers.
Plant Operation: Foaming, priming, carry-over, and remedies, cutting in boilers, water hammer, reducing stations; expansion joints; accumulation, hydrostatic, and boiler rating test; intercoolers; bearings; low water and over pressure procedures; brick work maintenance; general safety precaution.
General Knowledge: Preparing boilers for inspection; scale removal; blow-off tanks; back-flow preventers; packing and gasket uses; lubricating oils and contaminants; oil preheaters; specific heats; measuring instruments; heat insulation; plant efficiency; piping and fittings, etc.

CONSTRUCTION DIVISION

Glenn A. Davis, Chief