

Phasing out Heavy Fuel Oil in NYC

New York City has passed new rules requiring the phasing out of No. 4 & 6 heavy fuel oil for all heat & hot water boilers

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Requirement of the new rules:

- Effective May 23rd 2011 no new boiler and burner installations burning No. 4 or 6 oil will be permitted in NYC. However in-kind replacement of No. 4 oil burners will be approved.
- Effective July 1st 2012 existing boiler and burner installations burning No. 6 oil must convert to No. 2 or 4 oil or natural gas before their next triennial renewal of the Certificate of Operation.
- All boiler and burner installations must convert to No. 2 oil and/or natural gas by January 1st 2030 or when replaced whichever is sooner.
- The new rules permit No. 6 fuel oil to be burned in combination with other fuels as long as the total emission are equivalent to what the emission would be with the new low sulfur No. 4 fuel oil (low sulfur No. 2 fuel oil after 2030). For all practicality, burning No. 6 fuel oil in combination with other fuels (including natural gas) will not be feasible or make economic sense for most buildings.
- The new rules require filing with both the NYC DOB and DEP however in most cases the filing can be done online by a NYC licensed oil burner equipment installer with one form (Limited Alteration Application) that will cover both agencies.

Although the new rules are clear as to which fuels need to be converted and when, the rules do not address existing DOB codes or practical requirements that need to be considered. The items that need to be address depend on the type of fuel to be used by the converted system. Some of the items that need to be considered to convert from one fuel type to another are as follows:

- **Converting from No. 6 to 4 Fuel Oil** - a NYC licensed oil burner equipment installer or other professional should determine if the existing oil burner can be converted or needs to be replaced; even if the burner can be converted the following items need to be address:
 - **Oil Pre-Heater** - disconnect the oil pre-heater (sometimes referred to as the sidearm oil heater because it is located on the side of the boiler). The minimum requirement is to disconnect the oil lines and cap or plug the oil connections on the pre-heater. Caution: all oil must be drained from the oil heater and the oil heater's sight glass removed to prevent expanding oil from rupturing the heater which could be dangerous and/or contaminate the boiler water with oil. This is because oil trapped in the pre-heater by the capped oil connections will have no place to go when it is heated and expands. A better solution is to remove the entire oil pre-heater.
 - **Nozzle Line Oil Heater** - the electric nozzle line oil heater can and should remain in place.
 - **Anti-Siphon Valve** - install an anti-siphon valve on the high point of the oil suction line before the oil pump. Without an anti-siphon valve, the entire contents of the oil tank could drain onto the floor if a leak occurred in the oil suction piping. This was not a potential problem with No. 6 oil because the viscosity of the oil was high and therefore too thick to siphon by gravity.

- **Rewire Oil Pump** - rewire the oil pump so that it only runs when the oil burner is running. If the existing oil pump runs 24/7, this may require the installation of a relay interconnected to the burner to cycle the oil pump on/off when the burner starts and stops. Also any oil temperature controls that cycle the oil pump on/off based on oil temperature will need to be disconnected and/or removed.
- **Oil Containment** – Before the grade of oil can be changed, the oil tank, oil fill box and containment room must be up to current code. The code requires the following:
 - **Oil Tank** - the tank must be installed on saddles that keep the bottom of the tank above the floor (to prevent corrosion), the floor be impervious, such as sealed concrete, the containment room must be both impervious (for portions below the oil containment level) and fire rated. Note: oil tanks that were originally installed directly on a dirt floor that were later covered with concrete and therefore the bottom of the tank is now covered with concrete are not acceptable and such oil tanks will need to be raised and installed on saddles. Caution: sometimes oil tanks that do not have saddles cannot be modified practically because either the bottom of the tank is so corroded that repair is not feasible or saddles cannot be installed because the height of the oil tank room cannot accommodate the increase in height of the existing oil tank plus saddles.
 - **Fill Box Containment** - Oil fill boxes (oil fill connection) must have monitored containment boxes. Note: the DOB will accept existing fill boxes without monitored containment if the area around the fill box is solid concrete (cracked concrete, brick pavers and other pervious surfaces are not acceptable).
- **Change Oil in Tank** - plan to run the oil level down to less than 24” and refill the tank with No. 4 oil, burn that oil and then refill the tank with No. 4 oil once again before removing the oil pre-heater. Caution; if the sludge level in the bottom of the tank is more than 12” deep, running the oil level below 24” may cause burner shut down problems. A better solution is to have an oil tank cleaning company remove the existing oil from the tank and squeegee clean and inspect the tank before refilling with No. 4 oil. Caution: some oil tanks have weak spots or holes that don’t leak with No. 6 oil because the oil sludge in the bottom of the tank is so thick. Cleaning oil tanks may expose these hidden problems therefore consider cleaning oil tanks during the summer when shut downs for tank repairs will only effect hot water.
- **Converting from No. 6 to 2 Fuel Oil** - a NYC licensed oil burner equipment installer or other professional should determine if the existing oil burner can be converted or needs to be replaced; even if the burner can be converted the items listed below need to be address. Also converting from No.6 to 2 fuel oil is the same as to converting to No. 4 oil as outlined above (requirements pertaining to Oil Pre-Heater, Anti-Siphon Valve, Rewire Oil Pump, and Oil Containment are the same) except the following:
 - **Nozzle Line Oil Heater** - The electric nozzle line oil heater must be disconnected and preferably removed.
 - **Change Oil in Tank** - Before changing the oil in the tank from No.6 to 2 fuel oil, the oil tank and oil lines to/from the burner/oil tank need to be steam cleaned.
- **Converting from No. 6 Fuel Oil to Natural Gas or Gas/Oil Combinations** - a NYC licensed oil burner equipment installer or other professional should determine if the existing oil burner can be converted or needs to be replaced; even if the burner can be converted the

following items need to be address in addition to the items listed above relating to converting to No. 2 or 4 fuel oil:

- **Chimney Lining** – the existing chimney must be lined in order to burn natural gas; the by-products of combustion from natural gas contain significantly more water vapor than oil and this water vapor condenses on the chimney walls and can cause corrosion of unlined masonry or plain brick chimneys. Depending on the size of the chimney, liners can cost \$10,000 per story or more.
- **Availability of Natural Gas** – Most buildings in NYC have natural gas for cooking; however the quantity of natural gas needed for heat and hot water is significantly more than cooking and typically the size of the gas supply piping into the building is insufficient. Also the available gas pressure is a consideration; insufficient gas pressure will require a gas pressure booster. In addition, even if the existing oil burner can be converted to burn natural gas or the installation of a gas burner is feasible, the availability of natural gas is a major consideration. Contact your NYC licensed oil burner equipment installer or other professional to determine if the existing oil burner can be converted to burn natural gas or needs to be replaced and contact the natural gas supplier to determine the availability and cost of supplying natural gas. If there is no gas or insufficient gas in your area, ask the provider about contacting neighboring buildings about paying for supply lines jointly.
- **Required Licenses:**
 - **Oil Piping & Equipment:** NYC licensed oil burner equipment installers must obtain the permits and supervise the work for all work on or related to oil piping and oil fired equipment or installations.
 - **Gas Piping & Equipment:** NYC licensed master plumbers must obtain the permits and supervise the work for all work on or related to gas piping and gas fired equipment or installations.
 - **Duel Fuel Piping & Equipment:** Both a NYC licensed oil burner equipment installer and a NYC licensed master plumbers must obtain the permits and supervise the work for all work on or related to duel fuel piping and duel fuel fired equipment or installations.

Depending on the type of boiler & burner, fuel type and related equipment, systems and operating procedures, there may be other requirements or factors that will be necessary or should be considerations before planning or making any changes; therefore it is advisable to have a professional review your plans for changes and the existing equipment and systems and before you proceed.