



Fuel Oil Conversions

Association of Energy Engineers (AEE)

September 20, 2011

Our Plan to Improve Air Quality

1. Heating Oil Regulations
2. Accelerating Conversions
3. Streamlining the Process

General Requirements


- A separate application is required for each unit of equipment or apparatus, unless identical units of equipment or apparatus are to be installed, altered or operated in an identical manner in the same building.
- Each application must be signed by the applicant and professionally certified. For an operating certificate application, the certifying engineer must also certify that he/she inspected the equipment and that the equipment satisfies the requirements of the code.
- Installations must pass an engineering inspection and performance test to be granted an operating certificate.
- Certificates are renewed every three years and requires an inspection by the DEP. Applicants should use the BO9 (DOB Boiler Inspection Report/ DEP Boiler Renewal Request) until July 1, 2012. DEP is working with DOB to modify the current renewal process such that renewal applications that are switching off of #6 fuel oil will file the APC 314C (Application to Renew Certificate to Operate) with DEP instead of the BO9 with DOB.
- The fee for filing the APC 5-0 (Fossil Fuels Combustion Equipment Application for Permit to Construct and Certificate to Operate) and the BO9 or the APC 314 C to be used is based on the gross input rating or designed fuel consumption rating in millions of btu/hr which ranges from \$345 per boiler to \$1440 with an additional \$125 for each additional 10 million btu/hr.

Standards for Granting Permits

The applicant must demonstrate and certify that:

- The equipment is designed and will be installed or altered to operate in accordance with the provisions of the Air Code.
- The equipment incorporates state of the art air pollution control developed for the kind and amount of air contaminant.
- Operation of the equipment will not prevent the attainment or maintenance of applicable emission criteria.
- All parts of the equipment can be readily cleaned and repaired and available for inspection.

PC 157 Rev 1/90



THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Environmental Compliance
55-17 Junction Boulevard, 9th Floor, Flushing, New York 11373
Records Control (718) 990-3959

Caswell F. Holloway
Commissioner

**Notice of Application Plans Approval
Work Permit**

Carlter H. Strickland Jr.
Deputy Commissioner for
Sustainability

Michael Gilsenan
Assistant Commissioner
Environmental Compliance

DISPLAY CERTIFICATE ON PREMISES NEAR EQUIPMENT
This Certificate is NOT Valid Without Official Seal

Application File #	Date Mailed	Date Issued	Expiration Date	E.P.#	E.R.
--------------------	-------------	-------------	-----------------	-------	------

Professional Engineer:

--

Owner:

--

Premise Address: _____ Floor _____ Borough _____

Zip Code _____ Block _____ Lot _____

We are pleased to advise you that your application for legalization of the existing installation has been approved. One set of the approved plans is returned herewith to the filer of the record. Note bottom paragraph.

We are pleased to advise you that your application for work permit for the new installation / alteration has been approved. One set of the approved plans is returned herewith to the filer of the record. Note bottom paragraph.

Description of Installation:	Used:	
	Hours / Day:	Days / Year:

Description of Equipment:

--

Exhaust Equipment:

--

Control Equipment:

--

This permit is issued pursuant to a Certification by the professional engineer of record, acting as designated agent for the equipment owner, that all documents submitted in connection with this application are completed and fully comply with all applicable laws, codes, rules, regulations, and directives of the Department of Environmental Protection of the City of New York in effect at the time filed.
No person shall cause or permit the use or operation of equipment or apparatus for which an installation or alteration permit is required, without first obtaining an Operating Certificate. Any supported or altered transfer of this permit automatically revokes the permit, pursuant to the New York City Air Pollution Control Code.
To obtain a Certificate of Operation, a written request for an inspection must be made to this Division on Form # A1005. This must be done within thirty (30) days after completion of a new or altered installation.

Special Conditions / Remarks

--

Installer:

--

Raphael A. Hodga, P.E.
Director of Engineering / For the Commissioner

FOR GENERAL INFORMATION, QUESTIONS, AND INQUIRIES: Please visit our website at www.nyc.gov/dep or call 311

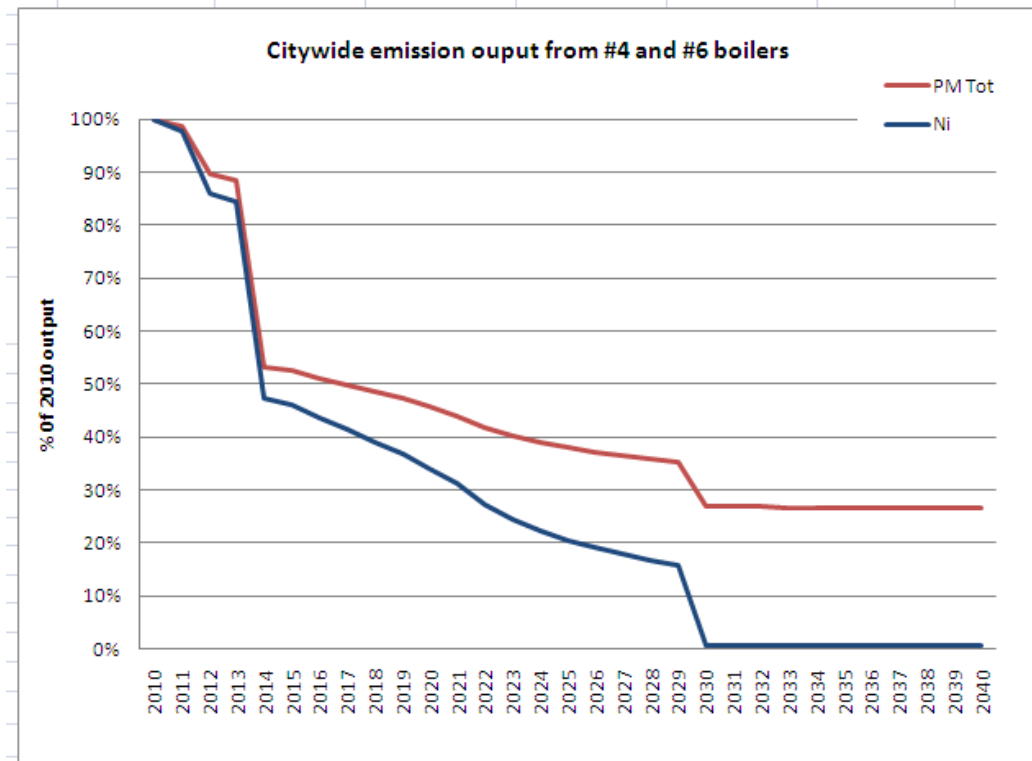
DEP Rule

After extensive analysis and outreach, the most cost-effective approach was the program adopted in the rule:

1. No new #4 or #6 boilers permitted, effective immediately
2. Phase out of #6 to new low sulfur #4 between July 1st 2012 and 2015
3. Mandatory switch to #2/NG by 2030 or boiler retirement (whichever is first)

Results

- Early emissions reductions produce significant cumulative benefits
- Particulate matter is reduced by 10 times, or 15,605 tons (cumulative from 2010-2040)
- Nickel is reduced by 7.5 times, or 413,367 lbs (cumulative, 2010-2040)



Fuel Grade Choices

❖ The rule provides the following options for new work permits for fuel burning equipment using #4 or #6 fuel oil submitted after May 23, 2011 and for work permits for the same submitted prior to May 23, 2011 where the request for the certificate of operation is made after May 23, 2011:

1. The applicant submits an amendment specifying the use of #2 fuel oil or natural gas.
2. The applicant demonstrates to the satisfaction of the Commissioner that the PM and NOx emissions of the #4 oil # 6 oil to be used will be equivalent to or less than the emissions from #2 fuel oil. We have attached the information on how to demonstrate equivalency.
3. Effective July 1st, 2012, all boilers upon their expiration date, will be required to switch from No. 6 oil to the new low sulfur No. 4 heating oil by 2015, or to an equivalent cleaner fuel.
4. Existing boilers that have not been replaced by January 1st, 2030 must be modified to meet the equivalent emissions of burning low sulfur No. 2 oil or natural gas.
5. In kind replacement for boilers using #6 fuel oil requires a new application.

Requirements when Switching Fuel Oil Grade

❖ Title 15, Chapter 2 of the Rules of the City of New York address the Department of Environmental Protection's requirements related to use of fuel oil burning equipment. §2-11(d) 2 (vi) provides direction as to what is required when switching from a heavier fuel oil to a lighter fuel oil. The relevant information is provided below:

When **boiler utilizing #6 oil is converted to #2 oil**, the following steps must be taken:

(a) Primary heater.

- (1) Primary heater must be disconnected, dismantled and physically removed, or
- (2) Primary heater oil lines (suction & discharge) must be disconnected. However, water or steam line(s) going into heater may be left intact in order to prevent corrosion and insure proper support. Pipe plugs must be installed in place of oil line(s) connections and it must be properly sealed by suitable materials and/or wire and lead seal to prevent reconnections.

(b) Electric heater.

- (1) Electric heater must be disconnected, dismantled and physically removed, or
- (2) (i) Disconnect electrical wiring
(ii) Electrical elements and coil must be removed; opening must be properly closed by blank flange plates.
(iii) Empty secondary electric heater cylinder (shell) must be properly sealed by suitable materials and/or wire and lead seal to prevent reconnections.

When **boiler utilizing #6 oil is converted to #4 oil**, the following steps must be taken:

(a) Primary heater.

- (1) Primary heater must be disconnected, dismantled and physically removed, or
- (2) Follow the same procedure which is described above for #6 oil to #2 oil.

(b) Electric heater.

- (1) Electric heater may remain intact and operating or
- (2) Electric heater may be disconnected and removed as described above for #6 oil to #2 oil conversion.

When **boiler utilizing #4 oil is converted to #2 oil**, the following stops must be taken:

(a) Electric heater.

- (1) Electric heater must be disconnected, dismantled and physically removed or
- (2) Electric heater must be disconnected as described in #6 oil to #2 oil conversion.

Furthermore, contractor must consult with manufacturer of burner regarding suitability of using #6 oil pump for #2 oil, because of change in viscosity of oil. It is also advised that contractor must make proper adjustments or tune up of burner in order to assure proper and complete combustion.

Equivalency Form- Effective Until 3/21/2012



#6 Fuel Oil Combustion Equivalent to #2 Fuel Oil for New Applications

1. Square footage of building..... sq ft
2. Predicted gallons of #6 Fuel Oil burned per year
(Multiply line 1 by 0.36 for residential use or
Multiply line 1 by 0.34 for commercial use)..... gal/yr
3. Annual heat input from #6 Fuel Oil (Multiply line 2 by 0.15)..... MMBtu/yr
4. Maximum allowable gallons of #6 Fuel Oil burned per year
(Multiply line 3 by 2.5)..... gal/yr

The value on line 4 is the maximum allowable gallons of #6 Fuel Oil burned per year. If this value is exceeded, penalties may be imposed.

The calculations on this form are based on emission factors from AP-42 and fuel usage values from the United States Department of Energy. If the applicant chooses not to use this form to determine equivalency levels then the submission of detailed calculations and supporting documentation to verify the equivalency levels by either a Professional Engineer or Registered Architect is required.

Please send the completed form to:
THE CITY OF NEW YORK
ENVIRONMENTAL PROTECTION
Bureau of Environmental Compliance
59-17 Junction Boulevard, 9th Floor, Flushing, New York 11373
Records Control (718) 595-3855

City Works To Minimize Costs

- The City is working to minimize costs:
- ❖ DEP/DOB agreement to streamline permit process, on fuel switch from No. 6 to No. 4 oil shall now be allowed under a Limited Alteration Application (LAA).
- ❖ The LAA is part of the “one-stop” method where applicants will file the LAA with DOB. Effective July 1, oil burner installers may file Limited Alteration Applications to change fuel grades for a cleaner oil. LAA permits will be accepted for piping work to change a fuel grade from Number 6 to Numbers 4 or 2, or from Number 4 to Number 2.
- ❖ The Department of Buildings requires a \$100 filing fee and, when an ACP5 is required, the associated \$47 asbestos filing fee. When there is no change in the firing rate, the Department will also accept the \$65 payment for the Department of Environmental Protection’s fuel grade oil change fee. Checks or money orders must be made payable to the Department of Buildings.
- ❖ When the firing rate of the system changes, applicants must file an Amendment AR355 form directly with DEP, and make the \$65 fee payment to the Department of Environmental Protection. Download DEP’s [AR355 form](http://nyc.gov/DEP/html/dep/pdf/air/amendment.pdf) at nyc.gov/DEP/html/dep/pdf/air/amendment.pdf.
- ❖ Applicants who are switching to natural gas will likely need a new burner and/or boiler which would require a new work permit to obtain a certificate of operation.
- ❖ Applicants must renew their certificate of operation every three years with the New York City Department of Environmental Protection (DEP). Prior to July 1, 2012, this renewal may be done using DOB/DEP application form (B09) that is filed at DOB or DEP’s Form APC 314C (Application to Renew Certificate to Operate) that is submitted to DEP. Renewal fee is determined by size of boiler based on btu/hr. As renewals occur after July 1, 2012, DEP will request that all applications that relate to #6 and #4 fuel oil be submitted on the APC 314C.

Compliance Agreements for Building Owners

- We do not have to predict ahead of time which buildings will have difficulty, instead, building owners will have the option to apply on a case-by-case basis based on demonstrated need.
 - ❖ Factors include financial hardship, whether the owner is an equity owner of the buildings, the presence of underground tanks that must be remediated because of the conversion of existing boilers, prior good faith efforts to comply, the scale and timing of commitments to convert to the cleanest fuels, the levels of PM and NOx emitted by the boilers, whether the boilers are located in neighborhoods with high densities of boilers that use #4 oil or #6 oil, and the public health consequences of delayed compliance with the Proposed Rule
- Compliance agreements will be narrowly tailored paths to minimize any public health impacts to residents
 - ❖ Financial hardship is a factor
 - ❖ Underground storage tank remediation costs not paid by insurance are a factor
 - ❖ Public health consequences are a factor

❖ For more information:

❖ http://www.nyc.gov/html/dep/html/air/buildings_heating_oil.shtml