David A. Paterson
Governor

Deborah VanAmerongen
Commissioner

New York State Division of Housing and Community Renewal
25 Beaver Street
New York, NY 10004

HOUSING MANAGEMENT BUREAU MEMORANDUM # 2008-C-01

To: All Housing Authority Executive Directors/Managers*
All Housing Company Managing Agents and Managers

From: Robert Damico, Downstate Director
Housing Management Bureau

Date: August 06, 2008

Subject: Utility Consumption Record — Form HM-3
Report on Maintenance of Heating Equipment — Form HM-38

The Housing Management Bureau routinely undertakes initiatives to assist housing companies and authorities in coping with the energy costs that represent a substantial and increasing portion of the operating budgets of our State-supervised housing developments.

The recording and analysis of energy usage is essential in controlling energy costs. In order to assure that energy utilization information is reported accurately and can be relied upon for analysis purposes, you are required to submit the Utility Consumption Record (HM-3) for the period from July 2007 through June 2008. In addition, to ensure that heating equipment is maintained at optimal operating efficiency throughout the year, you are required to submit the Report on Maintenance of Heating Equipment (HM-38). Detailed instructions for the use of each of these forms follow at the end of this memo.

While copies of these forms are enclosed for your reference, they are also available in an electronic format on DHCR's website at www.nysdhcr.gov, under "Housing Operations", "Forms" as Omni Form Mailable forms: HM-3.exe and HM-38.exe. To complete these forms electronically, enter the required information in the fields highlighted in yellow. Then save the files to your computer using your development's name, and send the completed forms back to us via e-mail. We encourage you to complete your HM-3 and HM-38 using this simple and convenient format. If you have any questions about use of the electronic versions of these forms, please call Mohammed Siddiqui at (212)480-7340.

Please carefully review the descriptions below for each form, as well as instructions for each. Questions concerning the information required on these forms should be addressed to your assigned Housing Management Representative (HMR).

A. **Utility Consumption Record (HM-3)**

In order to demonstrate the success of energy conservation measures - or the need for more effective ones - energy use and costs must be carefully monitored. The HM-3 is designed so that all essential energy-related information can be recorded and easily examined to monitor energy consumption and identify energy-saving opportunities.

The top part of the form, items 1-22, provides basic information about your energy systems. It is only necessary to complete items that have changed since your last submission. The bottom portion of the form contains summary information on energy use and expenditures for the period covered, from **July 2007 through June 2008,** based on utility bills or statements covering this period. Copies of these supporting bills or statements (electricity, gas, fuel, water, and sewer) should be maintained on file in the management office and be available for review by your HMR. **Please do not use any earlier version of the HM-3 or its previous supporting forms as the information required may have been changed.**

B. Report on Maintenance of Heating Equipment (HM-38)

It is critical that management and maintenance staff utilize the HM-38 as a working tool in maintaining the heating equipment throughout the year. Division field staff will be reviewing your maintenance procedures at the site. For this review, it is essential that you have available at the site your copy of the HM-38, plus the boiler room log and all maintenance records that support the work done on the heating equipment.

Submit the HM-3 and HM-38 either electronically to: msiddiqui@nysdhcr.gov, or by mail to the address below by August 31, 2008.

New York State Division of Housing and Community Renewal
Housing Management Bureau
25 Beaver Street
New York, NY 10004

ATTENTION: **Mohammed Siddiqui — Room 633**

The original forms and documentation should be retained for your records.

Robert Damico

* **This memorandum, unless otherwise indicated, is advisory or informational in nature for Federally-subsidized public housing projects.**

Encls: Form HM3 (01/04), Form HM-38 (6/05), Instructions for HM-3, Instructions for HM-38.

cc: Housing Authority Chairperson without Enclosures
Housing Company Owner without Enclosures

Instructions for Completion of
Utility Consumption Record (HM-3)

At the top of the form enter descriptive information on your housing development including: project number, project name, total number of dwelling units, and total number of rental rooms. *If the information on items 1-22 has not changed since your last submission, it is not necessary to reenter this information.* Please indicate the reporting period and complete the utility consumption and cost data on the bottom of the form.

1 Enter the name of the utility or company that supplies electricity to your housing development and list the account number or numbers if you have more than one account.

2 If a different company than the company listed in 1 above also delivers the electricity to your housing development, enter the name of the utility or company that delivers electricity to your housing development and list the account number or numbers if you have more than one account.

3 Enter the rate or service classification applicable to your electric service.

4 If you have direct current (DC) electric service, enter the account number.

5 Depending on the type of metering at your housing development, you might have a master meter or the individual dwelling units might be individually metered or sub-metered. Enter the number of meters you have of each type.

6 If you purchase steam from another company, enter the name of the company and if applicable the account number.

7 Enter the total number of refrigerators in your housing development and the average age of all these refrigerators.

8 If you have natural gas service, enter the name of the utility or company that supplies natural gas to your housing development and list the account number or numbers if you have more than one account.

9 If a different company other than the company listed in 8 above delivers natural gas to your housing development, enter the name of the utility or company that delivers natural gas to your housing development and list the account number or numbers if you have more than one account.

10 Enter the rate or service classification applicable to your natural gas service.

11 If you use fuel oil, enter the name of the company that supplies fuel oil to your housing development and note the number grade of fuel oil supplied.

12 This section is used to provide information on any air conditioning system or units at your housing development. If you have a central air-conditioning system, enter the year installed, the number of chillers, the type of chillers (e.g., absorption, reciprocating, centrifugal, etc.), and the total installed tonnage. If your tenants have individual room or through-the wall air conditioners, enter the number of individual air conditioners.

13 Some housing developments may have interruptible natural gas service, and are at times asked to switch to an alternative fuel. If you have interruptible natural gas service, please describe.

14 This section is used to provide information on the heating system at your housing development. Enter the year installed and the fuel used. If you have a central heating system, enter the number of boilers, the total boiler(s) input, and the total boiler(s) output. If your tenants have individual heating units, enter the number of individual heating units and their average capacity (e.g., Btu/hr). Check the box for the heating distribution media at your housing development, either steam, circulated hot water or forced air. Also, provide information on the type of heating controls whether central controls or individual thermostats; if individual thermostats, indicate the number of thermostats.

15 This section is used to provide information on the provision of domestic hot water at your housing development. An important consideration is whether the hot water is generated through the same equipment used to provide space heating or the hot water is generated with separate equipment. With either configuration, indicate the year the equipment was installed and the fuel used to generate hot water. If you have a central hot water storage tank, indicate the size of the tank in gallons. If you have separate equipment to generate hot water, enter the total input and the total output. If your tenants have individual water heaters, enter the number of individual water heaters.

16 Enter the name of the supplier that provides water to your housing development.

17 Indicate the basis for the billing of water to your housing development, whether it is charged at a flat rate, is metered for gallons or cubic feet used, or some other billing basis.

18 If the company that provides sewage service to your housing development is different from the company providing water service, enter the name of that company providing sewer service to your housing development.

19 Does your housing development have a central laundry room? If so, please enter the number of washing machines and their average age.

20 Enter the total number of number of gas cooking ranges and / or electric cooking ranges in your housing development.

21 This section is used to provide information on the elevators in your housing development. Enter the total number of elevators as well as the type of elevator motors present.

22 This section should be used if you have any on-site generation of electricity. If you have on-site generation, enter the date of the installation, the name of the manufacturer of the generator(s), the number of generators, the total rated output of the generators in KW, and the total rated output in KVA.

On the bottom of the form, enter the period covered and record utility consumption and cost data using information provided on your utility bills or statements covering that period.

New York State
DIVISION OF HOUSING AND COMMUNITY RENEWAL
Office of Housing Management

Utility Consumption Record

Project Number: _____ **Project Name:** _____ **Total DUs:** _____ **Total RRs:** _____

1. Electric Supply Company Name:
Account Number(s)

2. Electric Delivery Company Name:
Account Number(s)

3. Electric Rate Class:

4. DC Service: ☐ No ☐ Yes
Account Number

5. Number of Electric Meters:
Individual Meters
Sub-Meters
Master Meters

6. Purchased Steam: ☐ No ☐ Yes

7. Refrigerators:
Number Average Age

8. Gas Supply Company Name:
Account Number(s)

9. Gas Delivery Company Name:
Account Number(s)

10. Gas Rate Class:

11. Fuel Oil Supplier Name:
Oil Type

12. Air Conditioning:
Central ☐ No ☐ Yes
Year Installed
No. Chillers
Type of Chillers
Total Tons
Individual AC ☐ No ☐ Yes Number:

13. Interruptible Service: ☐ No ☐ Yes
Describe

14. Heating System:
Year Installed Fuel
Central Heating Plant
No. Boilers
Total Input
Total Output
Individual Units
Number Capacity
Distribution Media
☐ Steam ☐ Water ☐ Air
Heating Controls
Central ☐ No ☐ Yes
Type
Individual Thermostats Number

15. Domestic Hot Water:
Year Installed Fuel
Generated with Heat ☐ No ☐ Yes
Separate Generator ☐ No ☐ Yes
Total Input
Total Output
Central Storage Capacity Gallons
Individual Water Heaters Number

16. Water Supplier Name:

17. Water Billing Basis:
☐ Flat ☐ Metered
☐ Other *(describe)*

18. Sewage Service Name:

19. Central Laundry Room:
☐ No ☐ Yes
Number of Washers Average Age

20. Cooking Ranges:
Number: Gas Electric

21. Elevators:
Number Motor Type(s)

22. On-Site Generation:
Date of Installation
Manufacturer of Generator(s)
No. of Generators
Output Rating KW
Output Rating KVA

From 7/20____ through 6/20____	Electricity Consumption				Gas Consumption		Oil Consumption		Water & Sewage	
	Total Usage (KWH)	Average Monthly Demand (KW)	Highest Demand Charge ($)	Total All Electric Cost ($)	Total Usage (CCF)	Total Gas Cost ($)	Total Usage (Gallons)	Total Oil Cost ($)	Total Usage (CF)	Total Water & Sewer Cost ($)
Year Total										

HM-3 (1/04)

Instructions for Completion of
Report on Maintenance of Heating Equipment (HM-38)

I Individual Gas-Fired Hot Air Furnaces
(usually found in one and two story buildings)

1 Furnace filters, usually disposable type, are designed to trap lint and dust before reaching the heat exchanger.

2 Clean burner tubes and check color of flame. If flame is yellow, check for cracks or improper setting of tubes or of air adjustment.

3 Check flue for tight fit. While burner is on, check for leaks around joints with a lit match or candle. If flame on match or candle goes out, it is an indication that combustion gases are being released which requires *immediate action*.

4-7 Recommended maintenance: lubricate bearings of blowers, change filters, clean heat exchangers, etc.

II Burners

1a Flame of oil burners should be red and free of smoke.

1b Flame of gas burners should be bluish with no yellow spots.

2 Resetting air-fuel ratios and negative drafts on dampers of burners and of breaching should be done by certified personnel. A good draft for burners should be around .2 inches of water and around .5 inches of water for flues (breaching).

3 Oil filter canister(s) located on suction side of pump for #2 oil has replaceable filter(s), while #6 oil uses strainers that must be cleaned periodically. Note that #6 oil must also be preheated to 140°F or 150°F before burning.

4 Boiler control panel should be in good working order showing:
green - when boiler is on
red - when boiler is off
yellow - when boiler is on stand-by
Draft gauges should indicate proper readings of drafts on burners and on breaching, boilers' lead-lag, etc.

5-6 Check working condition of gauges for: oil pressure including temperature of #6 oil, primary combustion air, negative pressure on vacuum systems and air pressure on supply or exhaust systems.

7 Check high fire modulation on large boilers.

8 Check reading on gauges (described on 5 and 6 above) that would indicate proper operation of fuel pump. Also, check for abnormal noise from pump bearings.

9 Good carbon dioxide (CO_2) readings for non-condensing type boilers are 11.5-13% for oil and 9-11%for gas. Higher concentrations of CO_2 are indicative of higher boiler efficiencies.

Gas boilers require a mandatory carbon monoxide (CO) test when installed. This test should be performed if CO is suspected in boiler room. It is recommended that CO detectors be installed in all boiler rooms with gas boilers.

The flame of a gas boiler should be bluish with no yellow tips.

Stack temperature for non-condensing boilers should be above 270°F. Normally, stack temperatures are around 350°F- 450°F. A high stack temperature equates to a higher heat loss through the chimney. High chimney temperature may indicate that cleaning or replacing tubes on steel boilers or cleaning flue passages on cast iron boilers is in order. Some boilers are inherently inefficient which results in a stack temperature higher than normal. High efficiency boilers (i.e. condensing type boilers) have flue temperatures of less than 150°F.

III Boilers

1-3 Inspection reports from insurance company.

4 Cleaning refers to soot removal by scraping and vacuuming tubes of either steel boilers or cast iron sections of boilers. The effect of soot built up on fuel consumption is as follows:

Thickness of Soot	1/32"	1/16"	1/8"
Approx. Efficiency Loss	2.3%	4.5%	8.3%

5 Plugged tubes reduce the efficiency of a boiler while increasing the temperature of its flue.

6 One or more pressure relief valves for each boiler are located on top or side of each boiler. Domestic hot water (DHW) boilers and DHW tanks must have relief valves for both pressure and temperature.

7 Refractory materials on fire boxes, baffles, etc. are designed to prevent combustion flames from impinging and damaging unprotected elements in the interior of boilers. Damaged or improperly installed refractory materials will shorten the life expectancy of boilers. Also, check refractory wall for soot deposits. If soot is visible, check for proper setting of burner linkages or for proper spray pattern of nozzle.

8 Abnormal pressure and/or temperature changes should prompt the operator to look for possible malfunctions and take corrective action.

9 The temperature switch (one for each large boiler) is designed to shut off the fuel supply when temperature exceeds 165°F. The switch should be installed 6-12 inches above the burner.

10 If, after the boiler is switched on (predetermined time measured in seconds), the flame is not on, the boiler will shut down on safety.

11 Ideally, hydronic systems require little or no make-up water and therefore require little or no water treatment.

Steam systems require make-up water to replace water discharged during blow downs. Also, steam systems are prone to lose water, in the form of vapor, through defective steam traps or as condensate through corroded return condensate pipes. The soundness of a heating system can be determined from the amount of water that must be replaced within the system.

12 Pressure relief valves discharge either because they are defective or because the system they are designed to protect has reached its design pressure. When expansion tanks become water logged, the pressure relief valves of hydronic systems will discharge water. Usually, boiler operators do not take this seriously; however, over time this spillage will have an adverse affect on the life expectancy of boilers, as well as that of the rest of the heating distribution system.

III A Steam Only

1 Automatic chemical feed should be part of any central steam heating system.

2 Boiler operators should make sure that chemicals are always present inside the dispensing drum and that the chemical feed pump is working. Also, they should check water consumption on the make up water meter to confirm that the proper amount of chemical is injected into the system.

3-5 The reason for blowing down equipment (float chambers in boilers and on piping connected to automatic water feeder, low water cut off, site glass, etc.) is to keep it free of sediment while maintaining the boiler safe and at optimum efficiency.

6 If heat exchangers provide heat or DHW as per design and do not leak, they should not be tampered with. Leaks in heat exchangers can be detected as follows:

A On steam systems look for excess condensate.
B On hydronic systems look for abnormal pressure differences.
C Over time, exchangers for DHW may become partially blocked with mineral deposits and must be either cleaned or replaced.

III B Small Modular Boilers

1-5 Self explanatory.

6 Indicate whether coil (heat exchanger) is inside the tank or external.

7 Boiler capacity in BTU/HR or SQ. FT. of radiation can be read from the name plate on each boiler.

8 Burners should be opened annually, their nozzles should be renewed and, if necessary, other parts should also be renewed and/or adjusted.

9-11 Self explanatory.

12-13 Depending on the system (DHW and/or heating, and the time of year) the temperature range (160°F - 180°F) may be readjusted. It must be noted that the lower the range the less energy is required to provide the same heat and/or DHW. Also, the high number on the range should always be 10°F less than the high limit setting. Under no circumstances should hydronic and DHW systems have the high limit set at more than 210°F.

This is a DHCR requirement. (See III. 9 above)

14 Tests and maintenance work on all boilers should be *recorded in the boiler room log.*

IV Heat Distribution System

1 Maintenance staff should periodically check the settings of thermostats, valves, aquastats, pressure controllers, etc. Also, they should check and clean contactor relays including those of thermostats, clean air vents, louvers, etc.

2 When work cannot be done in-house (e.g. resetting valves on pressure reducing station, replacing components and/or re-balancing vacuum systems, etc.), contractors or consultants should be hired.

3-6 Self explanatory.

7-8 Life expectancy of steam traps varies greatly (5-10 years) depending on the type, and wear and tear, due to the amount of condensate going through them. Most of DHCR's low pressure steam systems have F&T (float & thermostatic) traps on steam mains and thermostatic traps on the return side of radiators. Normally, F&T traps are located at the end of steam mains and risers in basements or in boiler rooms. Steam escaping from the condensate vents indicates that some traps are malfunctioning. Malfunctioning radiator valves will cause rooms/apartments along that riser to be either cold or overheated.

Starting with malfunctioning steam mains and risers, maintenance staff should inspect, repair and/or replace all steam valves. This required cyclical work should be scheduled over several summers. All repairs and/or replacements should be *entered in the boiler log.*

9 Automatic zone valves respond on signal from the controller. Several other sensors within the system must work properly in order to supply the right information to the controller.

10-11 Self explanatory.

V Miscellaneous

Self explanatory.

State of New York Division of Housing and Community Renewal
25 Beaver Street
New York, New York 10004

Report on Maintenance of Heating Equipment

To: Director, Bureau of Housing Management
NYS Division of Housing & Community Renewal

From: Project Name: _____ Number: _____ Date _____

Note: Prepare original and duplicate for Division and such other copies as project may require.

Section I - Individual Gas-Fired Hot Air Furnaces *

	Yes	No
1. Air filter cleaned or replaced annually:	☐	☐
2. Burners checked and cleaned annually:	☐	☐
3. Flue checked for leaks and tightness annually:	☐	☐
4. Manufacturer's recommended cycle: _____		
5. Date equipment was last lubricated: ___/___/___		
6. Blower motors oiled:	☐	☐
7. Lifetime lubricated:	☐	☐

*** All apartments w/furnaces must have CO detectors installed.**

Section 11 - Burners*

	Yes	No
1. Burners flame checked daily by project staff:	☐	☐
2. Burners checked yearly by authorized representative:	☐	☐
3. Oil filters: *#2 - Replaced annually at a minimum* *#6 - Cleaned twice/month at a minimum*	☐	☐
4. Indicating lights/gauges on boiler control panels in good working, order:	☐	☐
5. Oil and vacuum gauges, in good condition:	☐	☐
6. Preheaters in good working order *(#6 oil only):*	☐	☐
7. Flame modulator/oxygen trim control in good working order:	☐	☐
8. Oil transfer pumps in good operating condition:	☐	☐
9. Test CO_2 and stack temperature for each oil fired boiler monthly; if required, clean tubes or flue passages and reset air-fuel ratios as needed:	☐	☐

*** All gas fired boilers should have CO detectors inside boiler rooms.**

Section III - Boilers

1. Boilers inspected by State certified insurance company on: ___/___/___ Inspection was: ☐ Internal ☐ External
2. The report of the insurance company's inspection was received on: ___/___/___
3. All deficiencies noted in the insurance company's report have been corrected except: *(If none, write* **None)**

_____

_____

_____

_____

_____

	Yes	No
4. Tubes and breeching cleaned:	☐	☐
5. Leaky or plugged tubes replaced:	☐	☐
6. Relief valves popped (tested) monthly <u>for all boilers:</u>	☐	☐
7. Refractory in good condition:	☐	☐
8. Pressure and temperature gauges in good condition:	☐	☐
9. Thermal switches tested:	☐	☐
10. Flame failure system tested:	☐	☐
I 1. Record boiler make up water readings weekly:	☐	☐
12. Pressure relief valve(s) discharges on boiler room floor*:	☐	☐

*** If yes, facilities with hydronic systems only should check condition of expansion tank and reset air volume or air pressure.**

Section III - A - Steam Only

	Yes	No
1. Automatic chemical feed system:	☐	☐
2. Pump operation and quality of chemical checked daily:	☐	☐
3. Low water Cut Off. *a) - Tested weekly* *b) - Disassembled and checked yearly*	☐	☐
4. Blow down weekly: glass gauges, tri-cocks and equalizing lines*:	☐	☐
5. Blow down mud legs twice a year or as needed*:	☐	☐
6. Heat exchangers in good working order:	☐	☐

Facilities with steam systems should have contract with a chemical testing company.
***Stop flushing (blow down) once water becomes clean.**

Section III - B - Small Modular Boilers

1. Name and model of boilers: _____

2. Total number of modules: _____

3. System is used for: ☐ Hot water ☐ Heat ☐ Both

4. Fuel used: ☐ Oil ☐ Gas ☐ Dual fuel capability

5. Boiler room location: ☐ Basement ☐ Roof ☐ Other: _____

6. Hot water storage tank: ☐ Yes ☐ No

   a) If yes, indicate tank capacity: _____ and check one: ☐ internal coil ☐ external coil

7. Total capacity of boilers: BTU/HR _____ or Sq. Ft. of Radiation _____

	Yes	No
8. Burners checked/adjusted annually:	☐	☐
9. Boilers and flues cleaned annually:	☐	☐
10. All boiler dampers operate properly and soot free:	☐	☐
11. Nozzles (oil burners only) changed annually:	☐	☐
12. Hi-limit aquastats set at 200°F:	☐	☐
13. Operating aquastats staggered from 160°-180°F (or lower):	☐	☐
14. Thermal switches installed for each group of 6 modular boilers:	☐	☐
15. Log maintained for each module showing test results and repairs to components:	☐	☐

Section IV - Heat Distribution System

	Yes	No
1. Distribution controls checked by project staff:	☐	☐
2. Distribution controls checked by contractor: *(If yes, attach Contractor's statement of work done)*	☐	☐
3. Distribution controls in good condition:	☐	☐
4. Temperature gauges in good condition:	☐	☐
5. Circulating pumps (couplings included) in good condition:	☐	☐
6. Condensate and vacuum pumps in good condition:	☐	☐
7. Maintenance schedule for F and T traps:	☐	☐
8. Maintenance schedule for radiator traps:	☐	☐
9. Zone control valves in good working order:	☐	☐
10. Radiators - convectors in good working order:	☐	☐
11. Electric heating equipment in good working order:	☐	☐

Section V - Miscellaneous

	Yes	No
1. Boiler rooms clean of trash, debris, etc:	☐	☐
2. Boiler room sump pumps including float control in good working order:	☐	☐
3. Oil storage tanks checked for sludge and water:	☐	☐
4. Boiler room logs properly maintained: *	☐	☐
5. Boiler room fire extinguishers in place:	☐	☐
6. Boiler room fresh air vents clean and unobstructed:	☐	☐
7. Fire extinguishers tested as prescribed by manufacturer	☐	☐
8. Photo-copy of HM-3 for most recent 12 month period is attached:	☐	☐
9. All supply and exhaust fans in good working order:	☐	☐

*** Enter test results of all equipment.**

Section VI - Comments

_____

_____

_____

_____

I have reviewed this report, made such spot checks as I feel are necessary, and, subject to the conditions I have noted under "Comments", I am of the opinion that the heating equipment covered by this report has been properly prepared.

Date: _____ ,20_____ Signed: _____ , Sr. Project Maintenance Employee

_____ , Project Manager

For DHCR Use Only

I have reviewed this report, made such spot checks as I feel are necessary, and agree with its contents except:

_____

_____

_____

_____

Open items will be followed up to completion.

Date: _____ ,20 _____ Signed: _____

Management Representative