

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

November 8, 2007

**PERMIT TO INSTALL
334-07**



ISSUED TO
Ford Motor Company Wixom Assembly Plant

LOCATED AT
28801 Wixom Road
Wixom, Michigan

IN THE COUNTY OF
Oakland

STATE REGISTRATION NUMBER
A5260

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: October 22, 2007	
DATE PERMIT TO INSTALL APPROVED: November 8, 2007	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant/Measurement Abbreviations	
AQD	Air Quality Division	Btu	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H ₂ S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	NO _x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM-10	Particulate Matter less than 10 microns diameter
MSDS	Material Safety Data Sheet	pph	Pound per hour
NESHAP	National Emission Standard for Hazardous Air Pollutants	ppm	Parts per million
NSPS	New Source Performance Standards	ppmv	Parts per million by volume
NSR	New Source Review	ppmw	Parts per million by weight
PS	Performance Specification	psia	Pounds per square inch absolute
PSD	Prevention of Significant Deterioration	psig	Pounds per square inch gauge
PTE	Permanent Total Enclosure	scf	Standard cubic feet
PTI	Permit to Install	sec	Seconds
RACT	Reasonably Available Control Technology	SO ₂	Sulfur Dioxide
ROP	Renewable Operating Permit	THC	Total Hydrocarbons
SC	Special Condition	tpy	Tons per year
SCR	Selective Catalytic Reduction	µg	Microgram
SRN	State Registration Number	VOC	Volatile Organic Compounds
TAC	Toxic Air Contaminant	yr	Year
TEQ	Toxicity Equivalence Quotient		
VE	Visible Emissions		

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The AQD District Supervisor shall be notified, in writing, of a change in ownership or operational control of the stationary source or emission unit(s) authorized by this Permit to Install pursuant to R 336.1219. The notification shall include all of the information required by R 336.1219(1)(a) and (b). In addition, a new owner or operator must submit a written statement pursuant to R 336.1219(1)(c), agreeing to and accepting the terms and conditions of this Permit to Install, and shall notify the AQD District Supervisor of any change in the contact person for this Permit to Install. (R 336.1219)
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**

8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.
11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

Emission Unit Identification

Emission Unit ID	<i>Emission Unit Description</i>	Stack Identification
EU-HOUSEHEATING	Seven natural gas, roof mounted, heating units with a heat capacity of 20 MMBTU/hr each	NA
EU-WATERHEATING	Two natural gas hot water units with a heat capacity of 15 MMBTU/hr each	NA
EU-SPACEHEATING	30-40 indirect natural gas heating units with a total heat capacity of 13.525 MMBTU/HR	NA
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.		

Flexible Group Identification

Flexible Group ID	Emission Units Included in Flexible Group	Stack Identification
FG-GASHEATING	EU-HOUSEHEATING, EU-WATERHEATING, EU-SPACEHEATING	NA
FGFACILITY	All process equipment at the facility including equipment covered by other permits, grand-fathered equipment and exempt equipment.	

FG-GASHEATING

FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Emission Units: EU-HOUSEHEATING, EU-WATERHEATING, EU-SPACEHEATING

POLLUTION CONTROL EQUIPMENT

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Nitrogen Oxides (NOx)	49.64 tons per year	Based on a 12-month rolling time period as determined at the end of each calendar month	FG-GASHEATING	SC VI.2	40 CFR Part 52.21 R336.1205
2. Carbon Monoxide (CO)	95.96 tons per year	Based on a 12-month rolling time period as determined at the end of each calendar month	FG-GASHEATING	SC VI.2	R336.1205

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Natural Gas	1190.7 million cubic feet per year	Based on a 12-month rolling time period as determined at the end of each calendar month	FG-GASHEATING	SC VI.1	40 CFR Part 52.21 R336.1205

2. The permittee shall not substitute any fuel for the natural gas which would result in an appreciable change in the quality or any appreciable increase in the quantity of the emission of an air contaminant without prior notification to and approval from the DEQ-AQD. **(R336.1201(3))**

III. PROCESS/OPERATIONAL RESTRICTION(S) NA

IV. DESIGN/EQUIPMENT PARAMETER(S) NA

V. TESTING/SAMPLING NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201)**

1. The permittee shall keep a record of the natural gas used in FG-GASHEATING in cubic feet year based on 12-month rolling time period as determined at the end of each calendar month. The permittee shall keep records in the format specified in Appendix 1 or an alternate format that has been approved by the AQD District Supervisor. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. **(40 CFR Part 60, Subpart Dc, 60.48c, R336.1205)**
2. The permittee shall keep a record of the annual NOx and CO emission calculations from FG-GASHEATING in tons per year based on a 12-month rolling time period as determined at the end of each calendar month. The permittee shall keep records in the format specified in Appendix 1 or an alternate format that has been approved by the AQD District Supervisor. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. **(40 CFR Part 52.21, R336.1205, R336.1203(1))**

VII. REPORTING NA

VIII. STACK/VENT RESTRICTION(S)

1. The exhaust gases from the stacks shall be discharged unobstructed vertically upwards to the ambient air. **(336.1201)**

IX. OTHER REQUIREMENT(S) NA

APPENDIX 1
EG-GASHEATING:

Nitrogen Oxides (NOx) Emissions:

X = Natural gas usage in Combustion Equipment in million cubic feet (mm cft).
G = Million cubic feet of gas per month
N = Weighted factor from permit application
b = Current month plus 11 preceding months

NOx:

Air Supply Houses:

$$X \text{ mm cft nat gas} * \frac{84 \# \text{ NOx}}{10 \text{ E6 cft nat gas}} \times \frac{1 \text{ ton}}{2000 \#}$$

The combined yearly NOx emissions shall be < 36.29 tons/year

Two Hot Water Heaters :

$$X \text{ mm cft nat gas} * \frac{73.5 \# \text{ NOx}}{10 \text{ E6 cft nat gas}} \times \frac{1 \text{ ton}}{2000 \#}$$

Other Monthly Natural Gas Calculations

$$\text{Monthly NOx emission rate (tons per month)} = \frac{GN}{2000}$$

$$\text{Annual NOx emission rate (ton per 12 month)} = \sum_{B=1}^{12} \frac{GN}{2000}$$

The combined yearly NOx emissions shall be < 8.28 tons/year

New Space Heaters :

$$X \text{ mm cft nat gas} * \frac{100 \# \text{ NOx}}{10 \text{ E6 cft nat gas}} \times \frac{1 \text{ ton}}{2000 \#}$$

The combined yearly NOx emissions shall be < 5.07 tons/year

Carbon Monoxide (CO) Emissions:

X = Natural gas usage in Combustion Equipment in million cubic feet (mm cft).
 G = Million cubic feet of gas per month
 N = Weighted factor from permit application
 b = Current month plus 11 preceding months

CO:

Air Supply Houses:

$$X \text{ mm cft nat gas} * \frac{189 \# \text{ CO}}{10 \text{ E6 cft nat gas}} \times \frac{1 \text{ ton}}{2000 \#}$$

The combined yearly CO emissions shall be < 81.65 tons/year

Two Hot Water Heaters :

$$X \text{ mm cft nat gas} * \frac{89.25 \# \text{ CO}}{10 \text{ E6 cft nat gas}} \times \frac{1 \text{ ton}}{2000 \#}$$

Other Monthly Natural Gas Calculations

$$\text{Monthly CO emission rate (tons per month)} = \frac{GN}{2000}$$

$$\text{Annual CO emission rate (ton per 12 month)} = \sum_{B=1}^{12} \frac{GN}{2000}$$

The combined yearly CO emissions shall be < 10.05 tons/year

New Space Heaters :

$$X \text{ mm cft nat gas} * \frac{84 \# \text{ NOx}}{10 \text{ E6 cft nat gas}} \times \frac{1 \text{ ton}}{2000 \#}$$

The combined yearly CO emissions shall be < 4.26 tons/year

Natural Gas Consumption :

TOTALNG_i = Total Natural Gas Consumed in Month i (Obtained from Utility Invoices) (MM Cu Ft/Month)

$$\text{TOTALNG}_i = \sum_{\text{EU} = 1.1}^{1.16} \text{NG}_{\text{EU},i} \quad (\text{Total Natural Gas equals the sum of natural gas consumed on emissions units})$$

NG_{EU,i} (MM Cu Ft/Month) is determined using internal plant meters and engineering estimates of natural gas consumed.

Daily Natural Gas consumption is determined by dividing monthly consumption by the number of days in the month.

Note – Total natural gas consumed equals the sum of natural gas consumed on emissions units

Where:

TOTALNG_i = Total Natural Gas Consumed in Month i (Obtained from Utility Invoices)

NG_{EU,i} = Natural gas consumed on emission unit EU during month i.