



MGEA Ground Source Heat Pump Commissioning/Completion Form

Permit No. _____

Job & Customer Information

Job Type	<input type="checkbox"/> Residential	<input type="checkbox"/> Commercial	<input type="checkbox"/> New	<input type="checkbox"/> Retrofit
Owners Name	_____		Phone Number	_____
Mailing Address	_____			
Address of Installation	_____			
Land Description	_____			

Company/Installer Information

Company Name	_____	Accreditation #	_____
Company Address	_____		
Designer Name	_____	Certificate #	_____
Installer Name	_____	Certificate #	_____
Loop Installer Name	_____	Certificate #	_____

General Information on Building

Type of Building	_____ (bungalow, cottage, etc.)		
If existing building:			
Existing Heating System	_____	Existing Cooling System	_____
Age of Building	_____	Size of Building in ft ² or m ² (excluding basement)	_____
Geoexchange system used for	<input type="checkbox"/> Living area space heating & cooling <input type="checkbox"/> Domestic water heating <input type="checkbox"/> Pool water heating <input type="checkbox"/> Heating & cooling of other adjacent buildings <input type="checkbox"/> Other _____		
Date Installation Began	_____	Date Installation Ended	_____
		Total System Cost (no tax)	_____

System Information

Heat Pump #	_____	Manufacturer	_____
Model/Serial #	_____	ARI Certified	<input type="checkbox"/> Yes <input type="checkbox"/> No
Distribution Type	<input type="checkbox"/> Forced Air <input type="checkbox"/> Hydronic <input type="checkbox"/> Combination		
Rated Heating Capacity	_____ BTUH at 32°F	Design C.O.P	_____
Rated Cooling Capacity	_____ BTUH at 77°F	Design EER	_____
Desuperheater	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____ BTUH	Auxiliary Heat <input type="checkbox"/> Yes <input type="checkbox"/> No K.W. _____
Air Filter Installed	<input type="checkbox"/> Yes <input type="checkbox"/> No	Size	_____
Type of Filter	<input type="checkbox"/> Pleated <input type="checkbox"/> Electrostatic <input type="checkbox"/> Electronic		

Thermostat Make Model #

Pumping Unit Make Model #

Resilient Pad Installed Yes No P/T Ports Installed Yes No

All Internal Building Piping Insulated Yes No Condensation Drain Connected & Trapped Yes No

Loops reverse flushed to purge air from system Yes No

Building Design Heat Load BTUH Building Design Cool Load BTUH

Percentage Sizing 70% Min. Per CSA 448.2-02

Copy of load calculation included with start-up report Yes No

Loop Information

Pipe Configuration Vertical Horizontal Lake

If closed Loop:

Depth of trenches or bore holes Number of bore holes

Horizontal trench pipe configuration

Reynolds Number Calculated Fluid Pressure drop

Antifreeze Type Freezing Point

Percentage Flow Constant

Bore Hole/Well Logs Yes No Loop Site Map Included Yes No

Tracer Wire Installed Yes No Bore Holes Grouted and Sealed Yes No

Supply & return valves installed properly, and labelled accordingly. Yes No

Label at loop charging valve shown: antifreeze type, concentration, and date. Yes No

Label showing contractor information and contact numbers. Yes No

Open Loop Information

GPM Flow Rate Reject well into same aquifer as production well Yes No

Distance Apart From Supply & Return Wells Solenoid valves installed Yes No

Provincial Water Rights Licence #

CFM Calculation/Auxiliary Heat Information

Air in °F Air out °F ΔT °F

Voltage Measured AMPS Measured

Auxiliary Heat Capacity K.W.

CFM = $\frac{V \times \text{Amps} \times 3.412}{1.08 \times \Delta T}$ Fan CFM

Unit Operation * Desuperheater Off

Entering Fluid Pressure	Leaving Fluid Pressure	Fluid Pressure Difference
Flow rate from Manufacturer Specs.		gpm
	Heating °F	Cooling °F
Entering Fluid Temperature		
Leaving Fluid Temperature		
Fluid temperature Difference ΔT		
Entering Air/Fluid Temperature		
Leaving Air/Fluid Temperature		
Air/Fluid Temperature Difference ΔT		
	Voltage	
Total Amps (Compressor & Fan Amps) C+F=		

Heat transferred (Btuh) = USGPM X ΔT X FC
 Where: USGPM = Manufacturer's USGPM rating from ΔT measured across heat exchanger
 ΔT = Temperature difference across coil
 FC = Flow constant (e.g. 490 for 20% methanol/500 for water) (varies based on type and percentage of antifreeze)

Heating	Heat transferred (HE) = USGPM X fluid ΔT X FC = Btuh
	Power input (watts) = Volts X amps X 0.90 (assumed power factor) = Watts*
	Power input (Btuh) = Watts X 3.412 = Btuh
	Total Btuh (HC) = Heat transferred + Power input in Btuh = Total Btuh
	Instantaneous COP = Total Btuh / Power input in Btuh = Instantaneous COP
Cooling	Heat transferred (HR) = USGPM X fluid ΔT X FC = Btuh
	Power input (watts) = Volts X amps X 0.90 (assumed power factor) = Watts*
	Power input (Btuh) = Watts X 3.412 = Btuh
	Total Btuh = Heat transferred - Power input in Btuh = Total Btuh
	Instantaneous EER = Total Btuh / Power input in Watts = Instantaneous EER

*For 3 phase V X A X 0.90 X 1.73 = WATTS

Miscellaneous Duct Work Connections

Type New Retrofit Flex Connectors Installed Yes No
 Plenum Insulated Yes No Air Filter Accessible Yes No
 R.A. Elbow Insulated Yes No Service Doors Accessible Yes No
 Size of existing ductwork verified to be sufficient. Yes No

Miscellaneous

Owner has been informed on system operation, thermostat functions, maintenance requirements. Yes No
 Manufactured document and warranty information provided to owner. Yes No

HE = heat of extraction HC = heating capacity HR = heat of rejection ΔT = temperature difference

General Installation Information & Overall Operation of System (Inspector Only)

Piping	<input type="radio"/> Great	<input type="radio"/> Good	<input type="radio"/> OK	<input type="radio"/> Bad
Duct Connectors	<input type="radio"/> Great	<input type="radio"/> Good	<input type="radio"/> OK	<input type="radio"/> Bad
Unit Installation	<input type="radio"/> Great	<input type="radio"/> Good	<input type="radio"/> OK	<input type="radio"/> Bad
Noise Level	<input type="radio"/> Very Loud	<input type="radio"/> Loud	<input type="radio"/> Quiet	<input type="radio"/> Very Quiet
Vibrations	<input type="text"/>			
System Installation Approved	<input type="radio"/> Yes	<input type="radio"/> No		

Additional Comments & Information

Declaration of System Compliance

I declare that all the contents of the foregoing Commissioning/Completion Report are true to the best of my knowledge, information, and belief.

Company Name: _____

Contractor /Installer Name: _____

Signature: _____

Date: _____

(This document represents CSA 448 standards and operational policies and procedures adopted by MGEA)