CERTIFICATE OF COMPLIANCE	CF1R-PLB-01-E
Hydronic Heating System Worksheet	(Page 1 of 1)

Project Name:	Date Prepared:

A. Pipe Heat Loss Worksheet

01	02	03	04
Pipe Diameter (inches)	Pipe Heat Loss Factor (kBtu/year/ft)	Pipe Length (ft)	Pipe Heat Loss (kBtu/year)

05	Sum of all pipe heat losses (kBtu/hr)	
06	Average Hourly Pipe Heat Loss (Btu/hr)	

B. Hydronic System Calculations for Large Storage Gas

01	Recovery Efficiency/AFUE of the water heater or boiler (unitless)	
02	Average Hourly Pipe Heat Loss (Btu/hr)	
03	Rated Input of water heater or boiler (Btu/hr)	
04	Standby Loss—percentage (if known)	
05	Standby Loss—Power (from appliance database, if known) (Btu/hr)	
06	Pump Watts (Watts) (if applicable)	
07	Pump Energy (Btu/hr)	
08	Effective AFUE	

A. Pipe Heat Loss Worksheet

01 Enter all the different pipe diameters of the system.
02 Using the table below, determine the pipe heat loss factor for the corresponding pipe diameter
03 Enter the pipe length
04 Multiply line B02 by B03, this is the pipe heat loss
05 Enter the sum of all pipe heat loss
06 Divide line B05 by 8760 times 1000

Pipe Heat Loss Factor Lookup Table

Pipe Nominal Diameter	Pipe Heat loss factor
.75	66.6
1.0	78.8
1.5	100.3

B. Hydronic System Calculations for Boiler or Large Storage Gas

01 Enter the Recovery Efficiency/AFUE from manufacturer's literature or the appliance database
02 Enter average hourly pipe heat loss sum A06 from section A above
03 Enter the rated input from manufacturer's literature or the appliance database
04 Enter the standby loss percent from manufacturer's literature or the appliance database. Can be skipped if unknown
05 Standby loss energy (from appliance database) is used if standby loss percent is not known. Enter the standby loss energy from manufacturer's literature or the appliance database.
06 Standby loss energy (calculated) is line A03 times line A04
07 Enter the pump watts
08 Pump energy is line A06 times 3.414 / 1000. If unknown then default value is 0.2
09 Effective AFUE is [line A01 – (line A02+ line A05 + (line A07 / line A03)]