



# RADIANT SNOW MELTING COMPARISON

	<b>HEATIZON Low Voltage Electric</b>	<b>ELECTRIC High Voltage Radiant System</b>	<b>HYDRONIC Hot Water Radiant System</b>
<b>Energy Source</b>	One energy source — electric; no emissions		Two energy sources — Natural Gas/Propane products of combustion: CO, CO <sup>2</sup> , Nitrous Oxides (greenhouse gases); plus electricity for pumps, valves, etc.
<b>Energy Efficiency</b>	100% — operates only during snowfall hours		25 to 65% — Wintertime idling plus snowfall hours. Depending on geographic location
<b>Maintenance</b>	Zero maintenance — no moving parts to maintain, nothing to oil or clean		Annual maintenance required — continuous maintenance of equipment including glycol replacement, air bleed, balance valves, pumps, boiler, heat exchangers, pressure valve certification, etc.
<b>Venting</b>	No Venting Required		Venting required for both exhaust and fresh air
<b>Fall Start Up</b>	Simply check circuit for continuity and power output (less than 10 minutes/circuit)		Test, repair and replace parts, pump seals, valve balance, glycol renewal, boiler parts, branch glycol flow rate checks, etc.
<b>Required Floor Space</b>	None — Control units wall mounted, typically next to main power panel		A mechanical room is required. Size ranges from 100 ft <sup>2</sup> up to 600 ft <sup>2</sup> based on system size. Room space costs is \$100 to \$500/ft <sup>2</sup>
<b>Performance</b>	Standard design is 22 to 25 W/ft <sup>2</sup> (87 Btu/ft <sup>2</sup> ) with E101 Tuff Cable Heating Element on 12" spacing; melts up to 1.5"/hour of snowfall	Standard design is 28 to 30 W/ft <sup>2</sup> (100 Btu/ft <sup>2</sup> ) with SMB/SMC heating cable on 12" spacing. Melts up at 1.5"/hour of snowfall.	Standard design is 100 Btu/ft <sup>2</sup> with PEX tubing on 12" spacing. Melts up to 1.5"/hour of snowfall.
<b>Upset Condition</b>	Overcurrent/ Under-current protection built in to Control Unit circuitry. No damage and no environmental issues.	Control system with ground fault safely shuts down system. No damage and no environmental issues.	Leaking glycol to soil continues until someone notices leaks or is alert to loss of glycol in the system. Environmental issues.
<b>Repair Plan (If Needed)</b>	Electric detection method locates fault within 1 to 2 feet. Cable fault location is exposed and the heating element is repaired.		Glycol leak requires first checking fittings outside pavement. Second, "in-pavement" leak cannot be easily located. EPA must be notified.
<b>Installed Cost</b>	\$11 to \$16/ft <sup>2</sup> based on size and local conditions		\$15 to \$22/ft <sup>2</sup> based on size, mechanical room value, and local conditions
<b>Operating Cost</b>	Typically less than snow plow service		Must include both energy sources (i.e. electricity and natural gas/propane) consumed during idling time and snowmelt time.



# RADIANT COST COMPARISON

## SNOW MELT SYSTEM COST ANALYSIS (1700 Ft<sup>2</sup> Plaza, 3 zones)

**HEATIZON**  
Low Voltage  
Electric  
Radiant  
System

**ELECTRIC**  
High Voltage  
Radiant  
System

**HYDRONIC**  
Hot Water  
Radiant  
System

### INSTALLATION COST

	6" Spacing	12" Spacing	12" Spacing
Equipment	\$23,172	\$17,000	\$15,000
Labor	\$3,500	\$7,000	\$11,000
Energy Feed, Labor, Engineering	\$1,000	\$3,000	\$2,000
Hydronic Control Room Space	\$0	\$0	\$10,000
<b>TOTAL</b>	<b>\$27,672</b>	<b>\$27,000</b>	<b>\$38,000</b>

### OPERATING COSTS

Snowmelt Time (300 Hours)	\$967/yr	\$1,224/yr	703/yr *
Idling Time (2300 Hour)	\$0	\$0	\$2,698/yr *
Maintenance	\$0	\$0	\$800/yr
<b>TOTAL</b>	<b>\$967/yr</b>	<b>\$1,224/yr</b>	<b>\$4,201/yr</b>

**PRESENT VALUE** 5-yr payback before taxes, 30-year straight line depreciation, 40% tax rate (equivalent to 16% ROI)

Installed Cost	\$27,672	\$27,000	\$38,000
Operating Cost	\$4,835	\$6,120	\$21,005
<b>Net Comparative Cost</b>	<b>\$32,507</b>	<b>\$33,120</b>	<b>\$59,005</b>

### FORMULAS

**Heatizon Low Voltage Electric:**

$$\frac{23.71 \text{ W/ft}^2}{1000 \text{ W/kW}} \times 1700 \text{ ft}^2 \times 300 \text{ hours} \times \$0.08/\text{kWh} = \$967$$

**High Voltage Electric:**

$$\frac{30 \text{ W/ft}^2}{1000 \text{ W/kW}} \times 1700 \text{ ft}^2 \times 300 \text{ hours} \times \$0.08/\text{kWh} = \$1,224$$

### Hydronic Snowmelt:

$$\frac{102 \text{ Btu}}{\text{Hr-ft}^2} \times \frac{1700 \text{ ft}^2 \times 300 \text{ hours} \times \$1.15/\text{therm}}{.85 \text{ eff} \times 100,000 \text{ Btu/therm}} = \$703$$

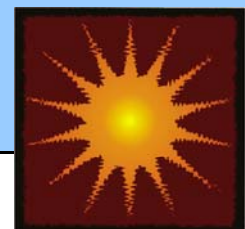
### Hydronic Idling (50% Snowmelt Rate):

$$\frac{102 \text{ Btu}}{\text{Hr-ft}^2} \times 50\% \times \frac{1700 \text{ ft}^2 \times 2.300 \text{ hours} \times \$1.15/\text{therm}}{.85 \text{ eff} \times 100,000 \text{ Btu/therm}} = \$2,698$$

\* Does not include electrical portion of energy consumed by pumps, valves, exhaust fans, etc.



www.heatizon.com



**HEATIZON**  
SYSTEMS

©2006