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## Geothermal and Green Building

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Green Building is becoming an increasingly important part of construction and development and is the fastest growing segment of the construction industry. Building owners are increasingly demanding green and sustainable building practices for a simple reason: they make economic sense. Various studies have shown green buildings command a premium in terms of sales price and rents.

There are varying objectives related to green building. Whether you are interested in LEED® Certification, Zero Net, or Smart Buildings, the goal is always to reduce the amount of energy it takes to run your buildings. Some facts to consider:

- Approximately 65% of a building's energy consumption is spent on heating and cooling
- 5%-10% of a building's energy consumption is spent on hot water
- GHP systems can reduce up to 72% of the energy consumed for heating and cooling, and GHP systems can use the excess heat during cooling periods for hot water use

The following outlines what is achieved by utilizing a GHP system for your building:

### *Zero Net Energy Buildings*

Zero Net is basically an effort to make buildings energy self-sufficient. This is achieved through both generation on the supply side and efficiency on the demand side. GHP can reduce total energy use in a building by up to 50% depending upon heating and cooling loads. Therefore, simply opting for GHP technology can get you up to half way to achieving Zero Net. The fact that GHP systems are compatible with any energy or building program makes it the perfect foundation for a Zero Net Energy building. [Learn more about GHP and Zero Net Energy.](#)

### *Energy Program Compatibility*

GHP systems are completely compatible with any conventional or alternative energy system. In fact, GHP make it easier to use solar photovoltaic, wind or other alternative energy systems by drastically reducing the amount of energy required to operate a building. If you are relying on conventional energy from the grid, it will greatly reduce peak demand and thus significantly lower utility bills. Similarly, since GHP focuses on heating and cooling, it is entirely compatible with other green building practices in the areas of materials, insulation and recycling.

### *Demand Side Management and Energy Efficiency*

Demand side management is one of the most important aspects of green building. The ultimate goal isn't to continue to consume at high levels with less guilt; the goal is to reduce consumption. By reducing consumption, we delay the need to build new power plants and transmission lines, we decrease our dependence on imported fossil fuels and other dirty forms of energy, and we increase our energy security and independence. Given the immense energy savings, longevity and versatility provided by a GHP system, it should be the first system considered by architects, designers and engineers when planning a new building or retrofit.

## **LEED® certification**

If you are seeking LEED® certification for your building, GHP is one of the fastest and most economical ways to earn LEED® points. Basic LEED® certification requires a total of 40 points. Based on industry estimates, a GHP system could be worth up to 34 of those points if it were to qualify for the maximum number of points in all relevant categories. At a minimum, GHP can earn up to 19 points, nearly half number needed to achieve LEED® certification. [Learn more about GHP and LEED certification.](#)

Below is a list of points that a GHP system can qualify for:

### **Energy and Atmosphere**

- Prerequisites specifications: complied
- Optimize Energy Performance – 1 to 19 point
- Enhanced Refrigerant Management – 2 point
- Measurement and Verification – 3 point
- Green Power – 2 point

### **Indoor Environmental Quality**

- Prerequisites specifications: complied
- Controllability of Systems\_Thermal Comfort – 1 point
- Thermal Comfort Design – 1 point
- Thermal Comfort Verification – 1 point

### **Innovation and Design Process**

- Innovation in Design Credits 1.1 to 1.5 – 1 to 5 points

Verify your plans with your architect, designer and USGBC. For more information on LEED® visit the [U.S. Green Building Council.](#)

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