

Geo Power System

**An innovative air ventilation, air preconditioning, air filtration system
using shallow underground renewable energy**

System Benefits

- **Effective use of energy**
 - Condition outside air to moderate temperature
More than 50% of HVAC energy saving
 - Store “off-peak” lower cost energy and use it when the demand is high
- **Extremely high indoor air quality**
 - Fresh air supply without opening windows
 - Built-in filtration system removes dust and pollen
 - Slightly positive air pressure inside naturally push air outside
- **Low impact gentle breeze comfortable to human body**
 - Constant air movement and mild air temperature make you feel extremely comfortable

Energy Saving plus Natural and Healthy Living Environment

Unlike the air coming out from regular air conditioning system (too cold or too hot), the air from Geo Power System is gentle and mild. You feel fresh and gentle breeze all the time as air is always moving.

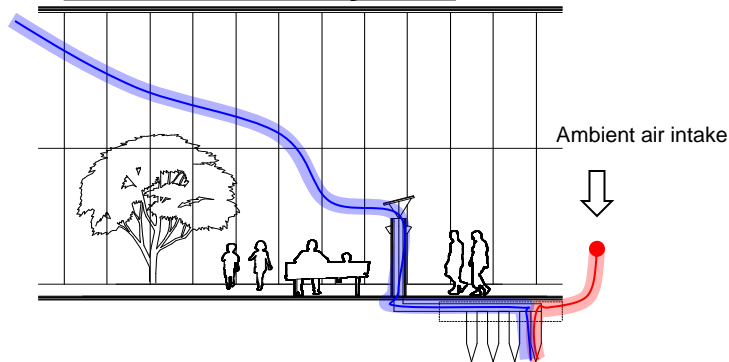
- **High-quality, fresh indoor air**
- **No more stuffy, stagnant air**
- **Filtered air free from dusts and pollens**
- **No need to open windows any longer**

Air ventilation is getting more and more important in very airtight buildings nowadays - Geo Power System perfectly addresses the issue.

Patent : US 6,293,120 B1
Building air conditioning system using geothermal energy

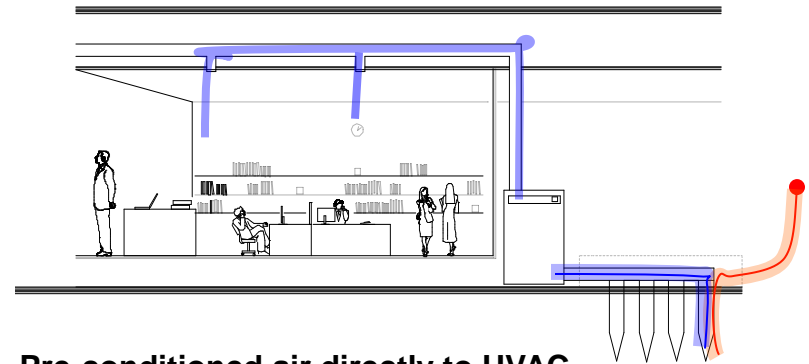
Various system configurations

Air Ventilation System



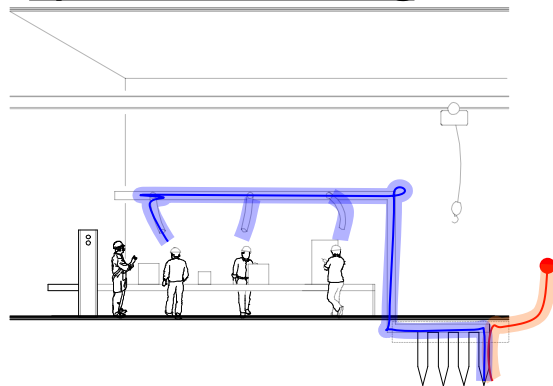
Pre-conditioned air directly to inside buildings
Large space entrance halls, Theaters etc.

Air Pre-conditioning System



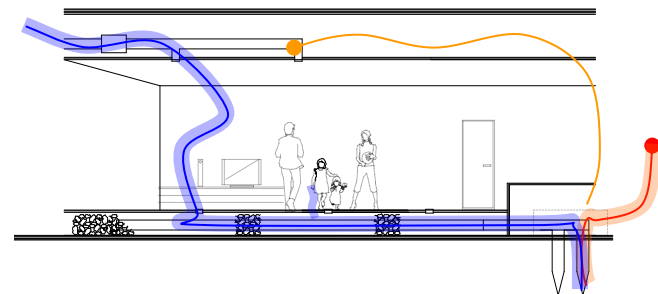
Pre-conditioned air directly to HVAC
Commercial and residential retrofit

Spot Air-Conditioning



Pre-conditioned air directly to work stations
Factories, Warehouses, outdoor work stations etc.

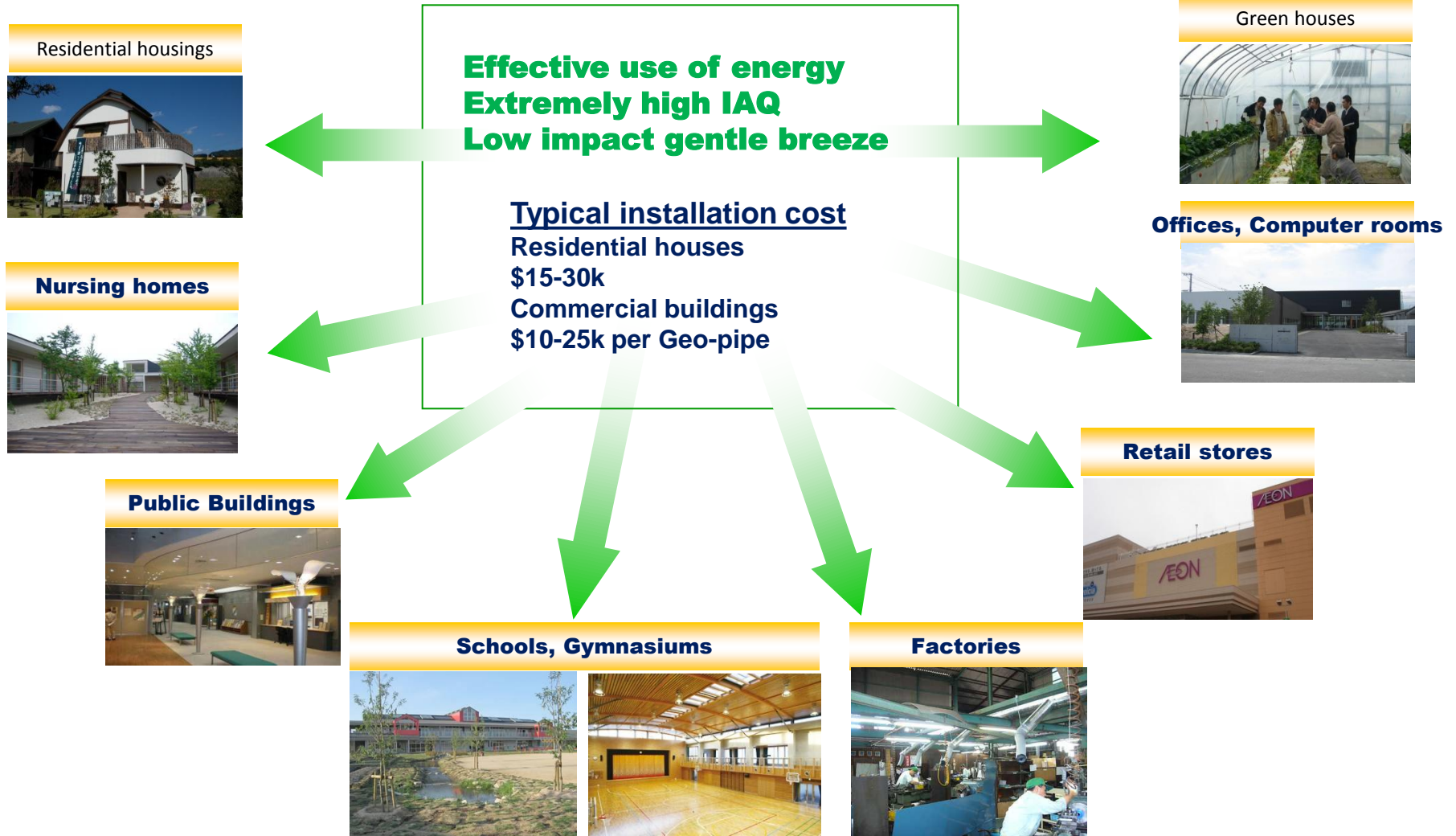
New Construction



Designed in complete system
New commercial and residential buildings

Proven Technology

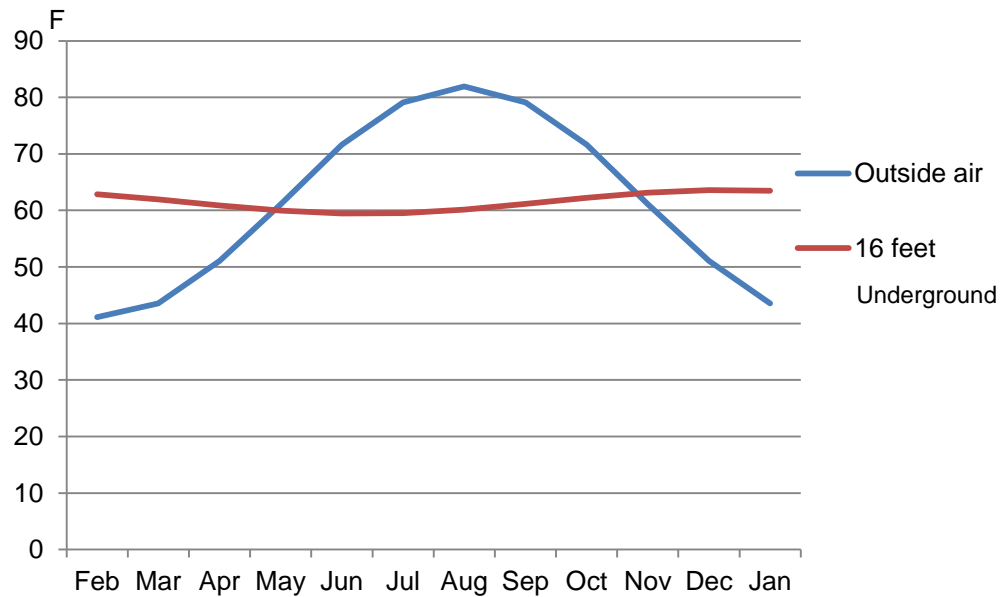
Over 1,500 Systems installed in Japan



Industrial and commercial buildings are our initial target for US market.

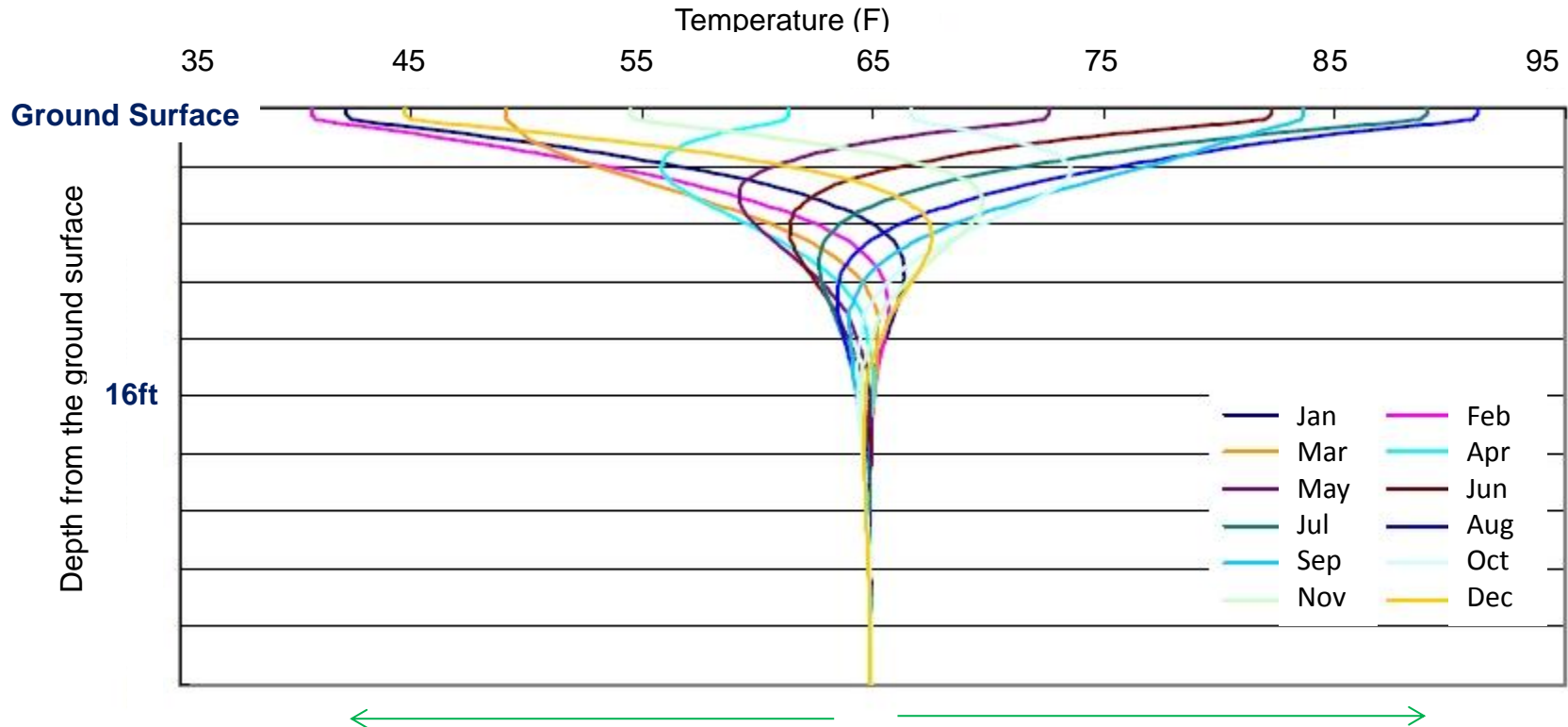
Make use of renewable underground energy

Geo Power System utilizes “Always On” underground energy from the shallow earth (16 - 24ft).
Underground temperature below 16ft stays very constant all year round.
It is approximately the same as average annual temperature of the area.



Underground temperature (by month)

constant all year around below the depth of 16ft

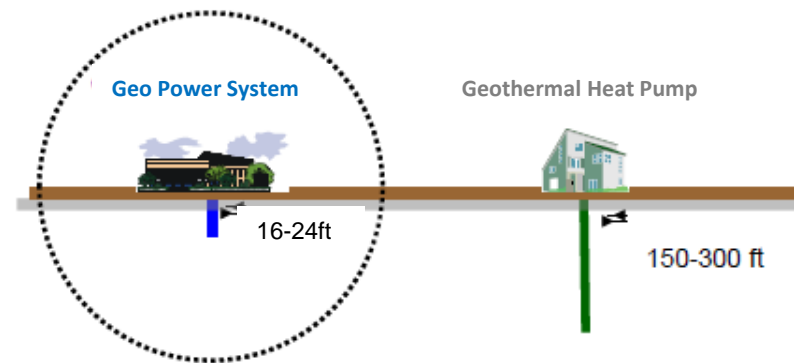
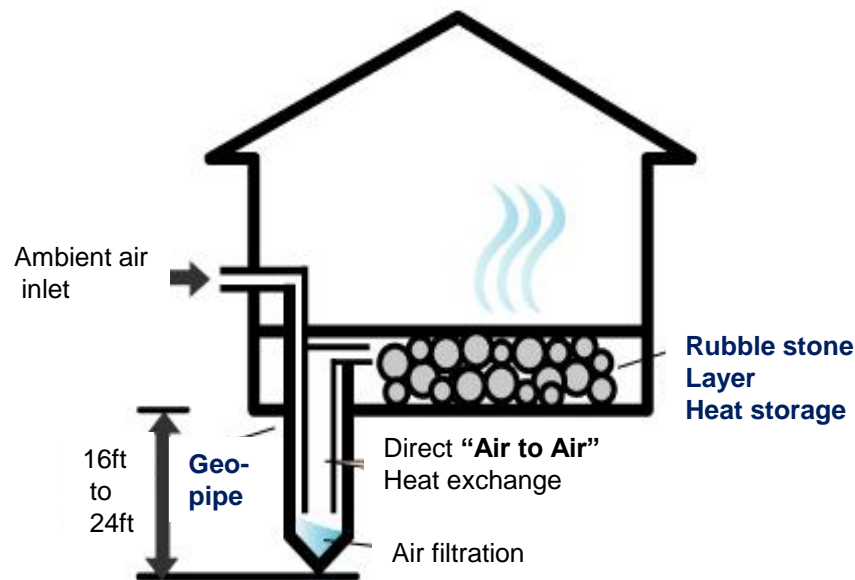


The system utilizes the temperature differences between underground and ambient air for heat exchange.

Unique Structure of Geo Power System

“Air to Air” heat exchange

Thermal energy transfer to air is far easier than to water or other media. That is why we can utilize energy from shallow underground.



Compare to conventional Geothermal heat pump

- Smaller foot print
- Easier and lower cost installation
- Installation flexibility (Retrofit possible)

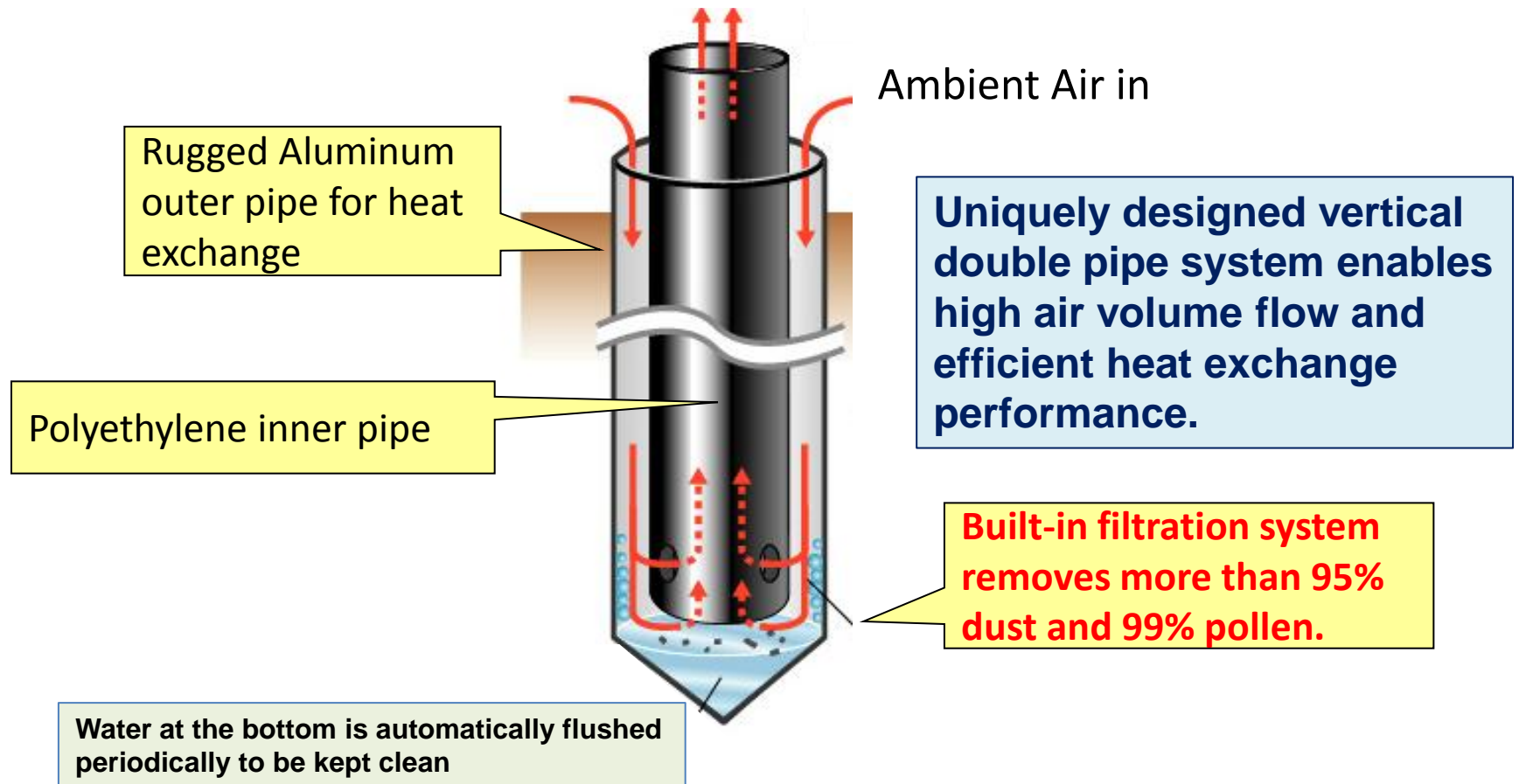
Major components

Geo-pipe : Heat exchanger to make outside air cooler or warmer

Heat storage chamber : Heat capacitor to store energy

How Geo-pipe works

Conditioned air to indoor



The system is completely closed/sealed so that nothing will come in from underground.

Typical Geo-pipe ability/efficiency

Air Volume per Geo-pipe	Number of people served (10cfm/person)	Number of people served (20cfm/person)	Covered area (once an hour ventilation)
360 cfm	36 people	18 people	2,400 sf

For instance, one Geo-pipe serves equivalent to a typical class room with 30 people or a residential house of 2,400 sf.

Heat storage chamber

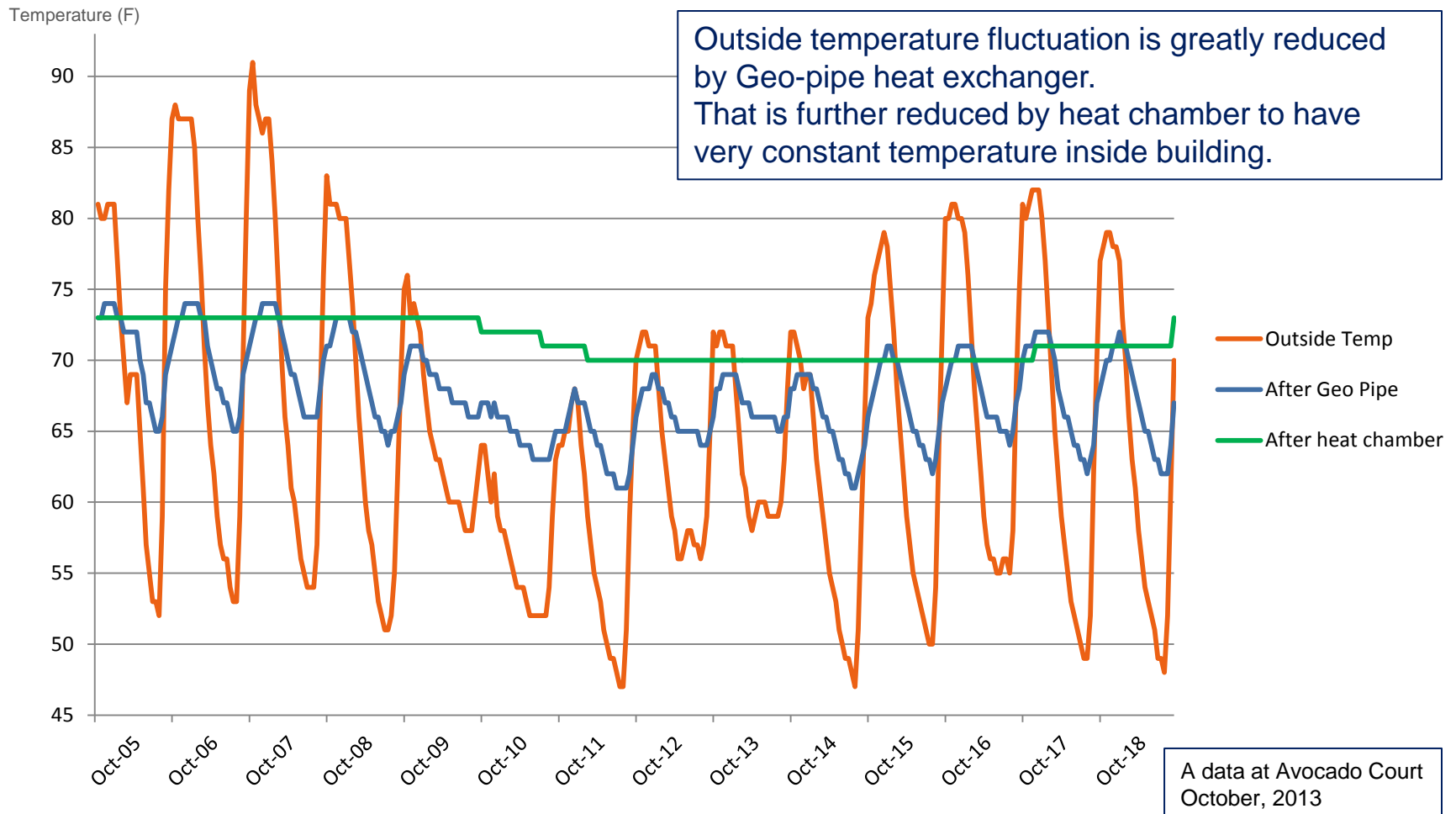
Rubble stones are high heat capacitor and the chamber stores thermal energy of conditioned air from Geo-pipe. The temperature fluctuation is further reduced in the chamber.

The air run through the gap between rubble stones and is sent to inside building through floor registers etc.

You can use this storage chamber to cut peak power demand.

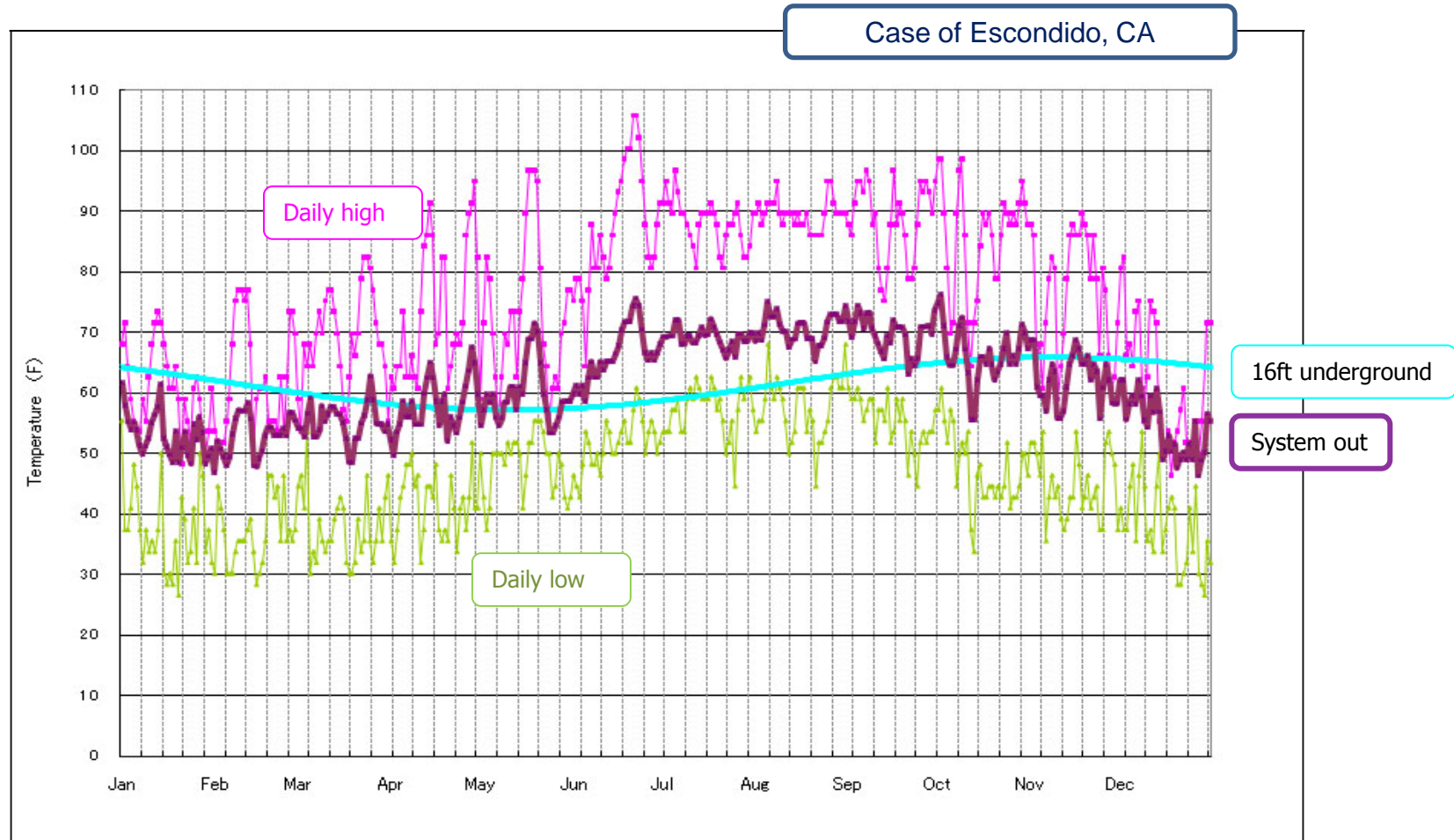


How outside air temperature gets conditioned through Geo Power System?



Temperature simulation tool

You can predict the effect of Geo power System in your area before installation using past temperature data.



Geo Power System works well in regions where there are summer and winter (greater temperature differences). The system is less effective in tropical and severely cold area on heat exchange performance.

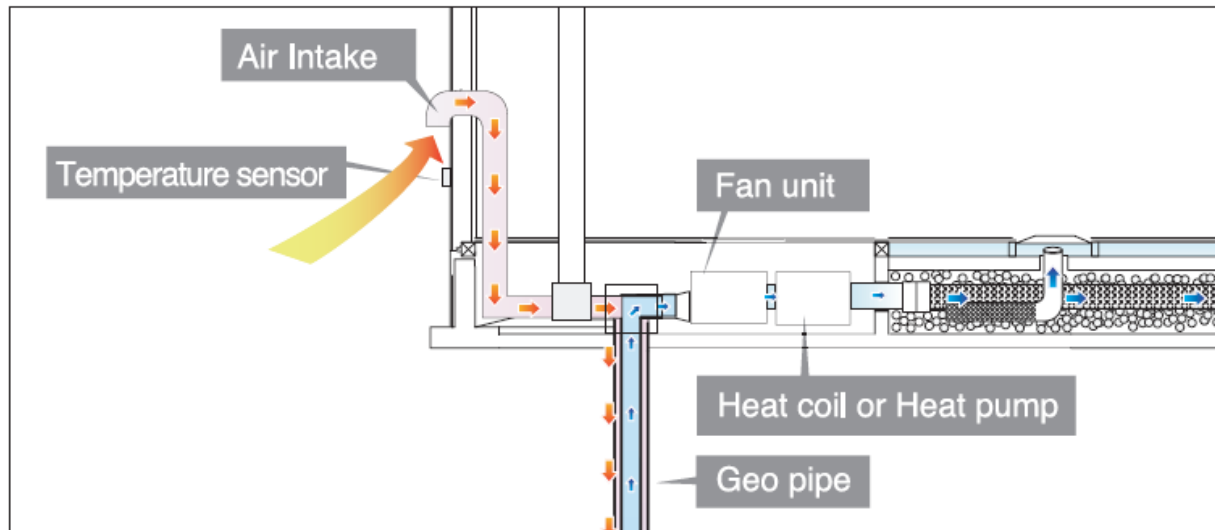
Additional techniques to enhance the effect

- Small capacity heat pump

To further control for system output temperature
Could replace or downsize high tonnage air conditioners

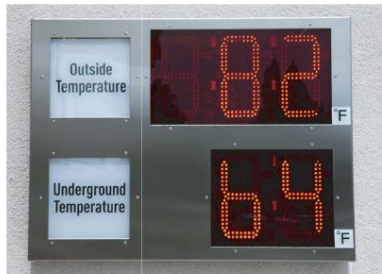
- Heat coils using Well water or Solar heated water

When added improves system efficiency



Geo Power System is now up and running in California

Geo Power System has been serving the community center of the Avocado Court apartment complex in Escondido CA since its opening in February 2013.



A site tour, courtesy of Community Housing Works, is available by appointment.

Geo Power System patents

- **US patent**

US 6,293,120 B1 Sep.25, 2001

Building air conditioning system using geothermal energy

- **List of Japanese patents**

- **Air conditioning system of buildings using natural power**
- **Regional air conditioning system**
- **Air conditioning system using geothermal energy**
- **Air conditioning/ventilation system for buildings**
- **Ground heat exchange vessel**
- **Heat pump system air conditioning device**
- **A circulation style humidity mechanism inside buildings**
- **Dehumidification air conditioning system**
- **Ventilation system with air deodorization and purification functions**
- **Others**

Geo Power System business model

Technology licensing

- Right to use patented technology and trade secret
- Transfer of installation and marketing knowhow
- System design assistance

Key components supply

- Geo-pipe, System control unit etc.

A message from the chairman and founder of Geo Power System



Mr. Toko Hashimoto

"After a number of years in construction business, I realized the need for alternative energy resources and became interested in newer concepts, such as the use of geothermal energy as the driver of natural air-conditioning. Utilizing my background as an engineer, I spent many years conducting R&D to create Geo-Power System.

As an unlimited resource, geothermal energy offers an ideal means of conserving fossil fuel-derived energy. What is more, it provides natural comfort and contributes to health.

We are committed to creating eco-friendly homes and buildings, and invite you to join us working together to do the same in your area using Geo-Power System."

Company profile

- Business**
1. Construction of Geo Power System for homes and other buildings
 2. Development and marketing of Geo Power System
 3. Licensing technology and knowhow of Geo Power System

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