



U.S. Department of Energy
Energy Efficiency and Renewable Energy

Case Study: Geothermal in a College Setting

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Fisher Performing Arts Center Model





Fisher Performing Arts Center Today



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Well Pipes At Performing Arts Center





First Project: Language Center in 1985

- 16 dormitories in past six years
- Key issue then & now: build wells with correct capacity
- Determine UP FRONT if back-up system needed
- Issues vary re: dry wells vs. well water



Dorm Geothermal Installation





Benefits from What You DON'T Need

- **No fossil fuels on site**
- **No combustion**
- **Low service requirements**



More Benefits from 'No's'

- **No residues from fuel source**
- **No oil tanks or gas lines**
- **No chimney or stack required**
- **No cooling tower**



Benefits: Lowered Costs

- **Low service costs**
- **Water flow/pumping = small capacity, low cost.**
- **Little make up water needed**
- **Well piping = durable plastics, no joints; all couplings fused.**
- **Wells sealed in earth, piping placed into earth.**



Benefits: Clean, Comfortable

- **End users control heating/cooling**
- **No residues from fuel source; no oil tanks/gas lines**
- **Backup with small generators in power failure**



Disadvantages

- **Difficult to get personnel trained to service heat pumps.**
- **Design of system is important to get efficient use.**
- **When parts need replacement, down time may be longer than furnace.**
- **Adequate insulation to building envelope is key.**
- **First cost installation may be more expensive.**
- **Many are skeptical about getting heat from ground.**



Debating the issues

Myths/Misunderstandings:

- **“Inefficient” - air to air heat pump**
- **“Too expensive”: well drilling**
- **“High service requirements”**

Reality:

- **Costs run about 35-40% of fossil fuels costs, no oil bills, no gas bills.**
- **Central A/C built in.**