**Building Systems**

**Economic benefits:**
- Reduce operating costs
- Enhance asset value and profits
- Improve employee productivity and satisfaction
- Optimize life-cycle economic performance

**Health and community benefits:**
- Improve air, thermal, and acoustic environments
- Enhance occupant comfort and health
- Minimize strain on local infrastructure
- Contribute to overall quality of life

**System Integration**

**System Information**

**Solar Water Heating**
- 7 ft. tub back without subsidies
- 30% federal tax credit & 30% state grant
- Gas prices are more likely to increase
- Cost: $7000 without subsidies

**Geothermal Heat Pumps**
- Quiet
- Need little maintenance
- No smelly byproduct
- Minimal Indoor Equipment
- Use 30-50% less electricity than conventional heating & cooling systems
- Reduce emissions by 94% (greenhouse gas), 90% (electric resistance heating)
- Cost approximately $2 per pound to heat (10% of new construction)

**Radiant Flooring**
- More efficient than force-air heating (no energy loss through ducts)
- 25% less energy than traditional systems
- Improves thermal comfort
- Large floor area/low water tempeater-saving $$$
- Used with many floor coverings: wood, carpeting, tile, etc.

**Passive Chilled Beams**
- More efficient
- Use of Space
- Energy savings
- Lower Maintenance
- Improved Occupant Comfort
- Short Buyback time (2-5 years)

**Project: 357**

**Green Building Design: Concept and Integration**

**Project Description**

Mixed-use buildings have been proven to be a viable solution to meeting environmental, economical, and societal needs. Through extensive research, we have found this to be especially true for the Village of Oak Park and have developed a business plan for a replicable mixed-use building to be integrated into the neighborhood.

**Market Research**

- Oak Park Businesses
- Commute to Work in Oak Park
- Less than 20 employees
- Greater than 20 employees

**Mixed Use Benefits**
- Smart growth movement leads to more companies capable of construction
- Equalizes rising land prices (especially for commercial areas)
- Increases the sense of community
- Big growth office employment results in demand for office space which calls for surrounding amenities and uses
- Economies of scale for hvac, maintenance, parking, infrastructure.
- Allows for special duty pricing and market synergy
- Faster absorption schedule
- Greater long-term appreciation in land and property values

**System Details**

**Construction Process**

1. PREFABRICATED PANELS are brought to the site by trucks and put in place by cranes.
2. Floor panels are put in place after a wall level is in place.
3. Next, in-side connections of electrical and communication is conduit.
4. High strength grading is applied to all perimeter wall/floor connections.
5. Interior non-load bearing walls can now be built with wood or steel studs and drywall.