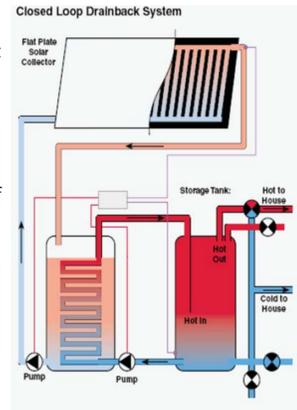


## SOLAR THERMAL:

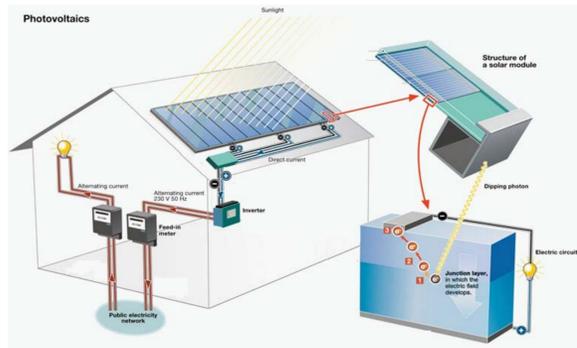
-provides financial savings since the energy used is not coming from the utility company

-are aluminum panels with copper tubes laid on their surfaces located on the roof

-don't use fossil fuels, thus reducing greenhouse gases

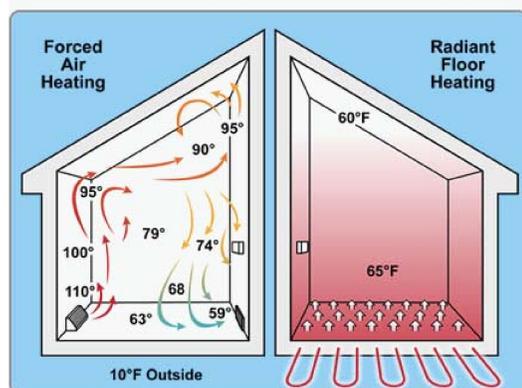


## PHOTOVOLTAICS:



- Solar panels located on roof of carport
- Utilizes net metering to buy and sell back to grid based on usage
- Long life span with moderate payback time

## RADIANT FLOORING:



- Hot water circulated under the floor
- Saves up to 40% on energy costs compared to forced air
- Payback period under 7 years

# I PRO 323 ZERO ENERGY COMMUNITY

## PASSIVE SYSTEMS:



### SOLAR GAIN:

- winter: south-facing glass provides heat gain, designed around winter solstice
- summer shading devices blocks intense sun, designed around summer solstice



### LIGHT SHELF:

- during day, light shelf brings light deep into spaces



### NATURAL VENTILATION:

- operable windows at floor and clerestories in bedrooms allow fresh air
- open-riser stair well with chimney releases air by stack ventilation



### INSULATING SHUTTER:

- during night, light shelf turns into insulating shutters, reducing heat

## VIEW OF MODULE FROM STREET



## PROBLEM STATEMENT

### THE PROBLEM:

The IPRO's problem is to utilize technology as a design tool in the development of a zero-energy residential community. In the current economic climate, the private sector will not likely be invested in such an endeavor. Energy usage is becoming an ever increasing concern and if communities can share infrastructure and share energy generated on-site, Zero Community may become a reality. This is an opportunity for the IIT community to establish guidelines for approaching forward thinking community planning in our near future. Current municipal zoning codes do not take into account the every changing technologies and methods used in construction and planning.

### OUR MISSION:

- create a zero energy community
- encourage Chicago suburbs to reassess standards
- influence planning of future communities
- community with a higher density than the typical
- community which collectively uses its available resources to produce energy unlike the typical.

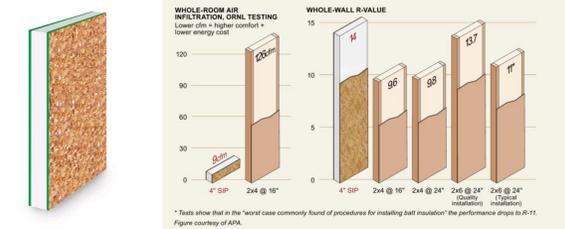
## STRUCTURAL INSULATED PANELS:

### THERMAL BRIDGING OF STANDARD STUD WALL:

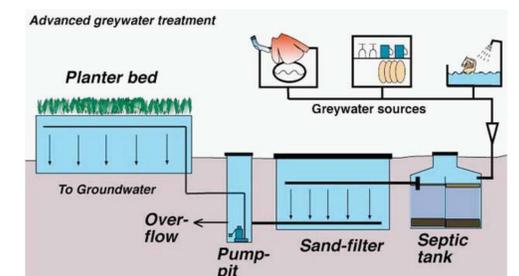
-Provides higher R-value energy to produce than fiberglass insulation



### PERFORMANCE:



## GREY WATER RECYCLING:



- Reuses shower, laundry water to irrigate landscaping
- Reduces amount of water sent off site