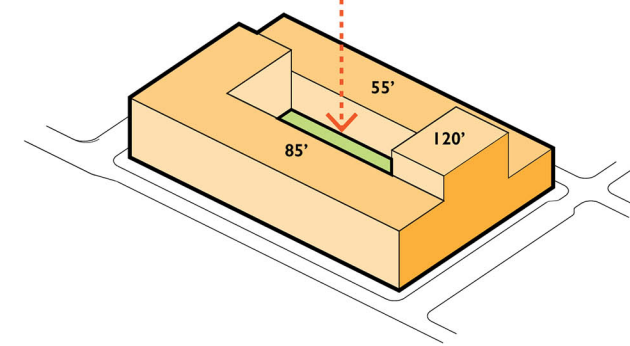
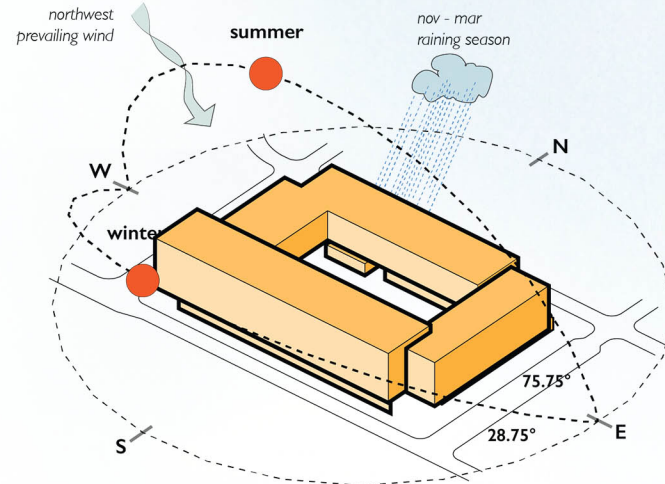


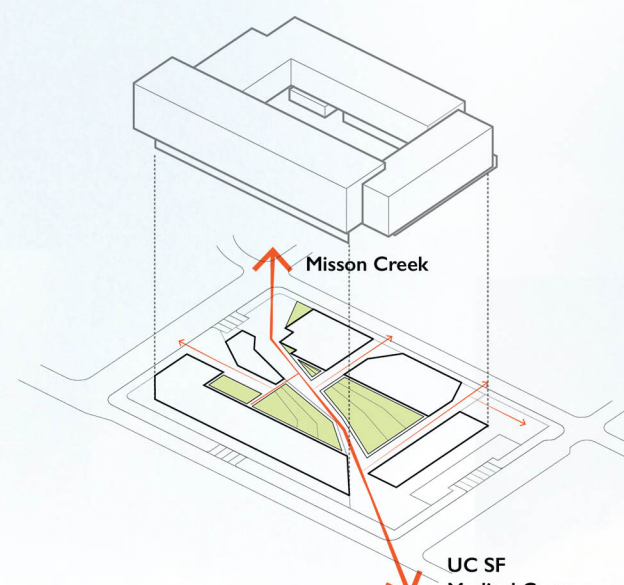
// maximize the solar energy surface



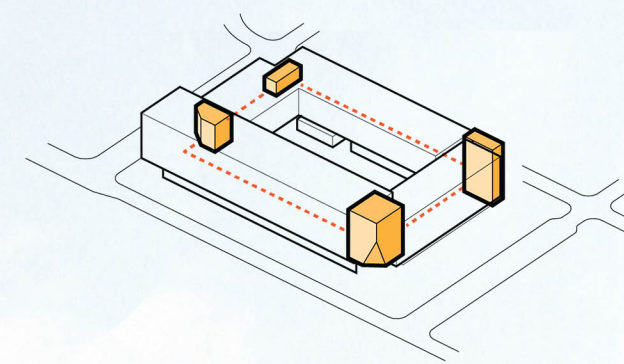
// height constraint // create a secure playground for children center



// adjust the building to achieve  
1. optimal light  
2. solar heating  
3. block cold wind from streets



// site response  
create a pedestrian path connecting two major destinations (promote walking)



// corner public space  
where each volume connects, creates public space to utilize the public stair, study & cafe // circulation between buildings, reduces the amount of in and out

**“Transformer”** - the transforming robot with human emotion. We would like to design a building with many high-tech elements to provide its energy consumption, also with beautiful interior/exterior and pleasant human living experience.

This building design is intent to create a highly energy efficient mixed-use complex, also motivate human interaction and social connection with surrounding community. The site is located between northwest side of UCSF medical campus and residential neighborhood on north.

**Secured Community** - We don't want to have this building as another residential complex like others around, we want this building could act as a connector between campus and residential community - a community nook. We maximized central courtyard space by pushing building profile to the edge of the site, leave central area as a community garden for the residents and visitors, also playground for children.

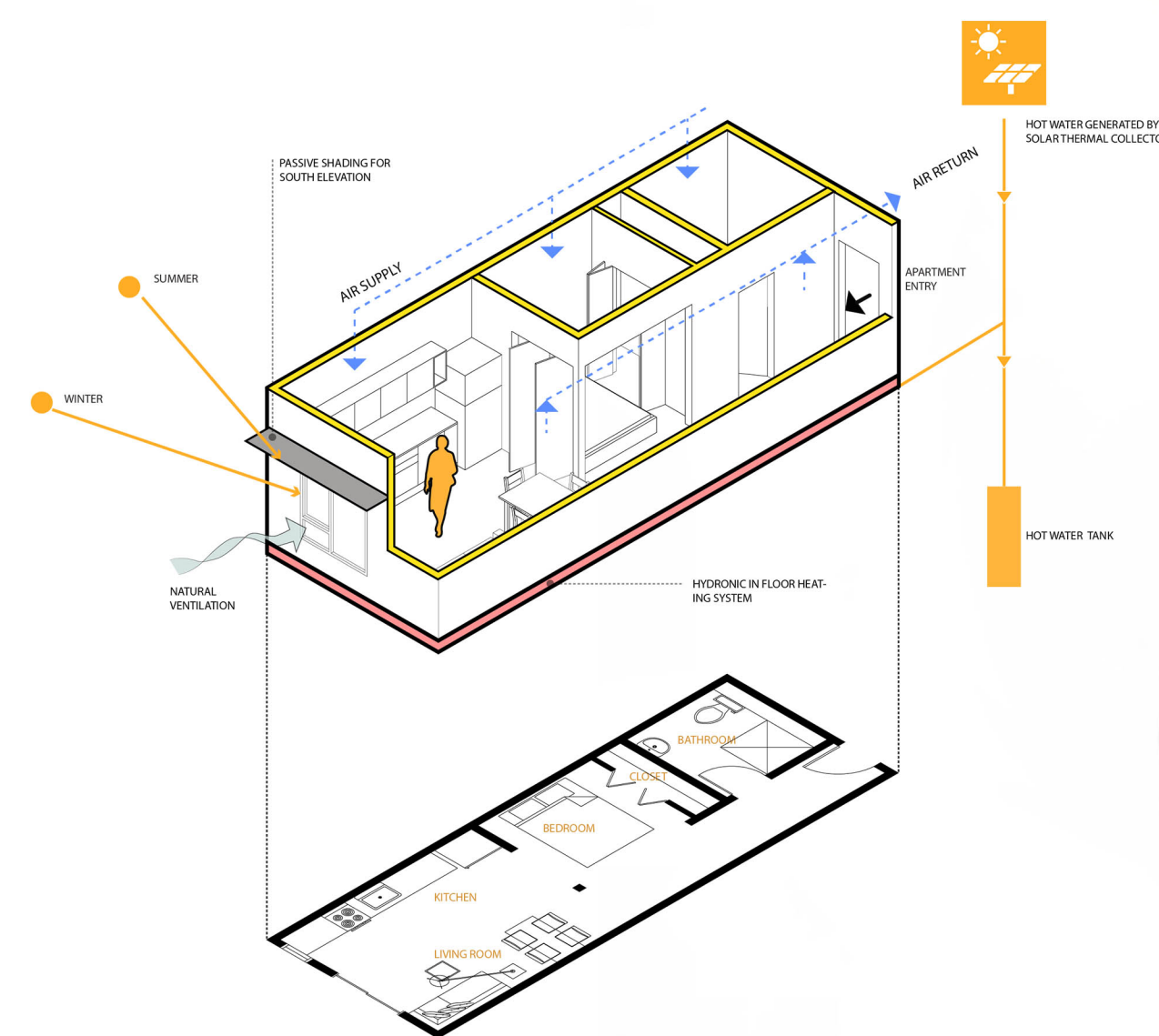
**Public space** - where the 3 buildings join, we created well lighted shared space for residents to hang out and social on each floor. Intriguing open public space with cafe and study tables, contrasts with enclosed apartment rooms. This will allow people to come out studying or hanging out, and eventually reduce lighting and video gaming electricity consumption. Moreover, the open stair is located next to the public space of each floor. It will promote using stair behavior and reduce elevator energy.

**Human scale** - We broke down and zig-zag the hallway in order to avoid having extremely long hallways.

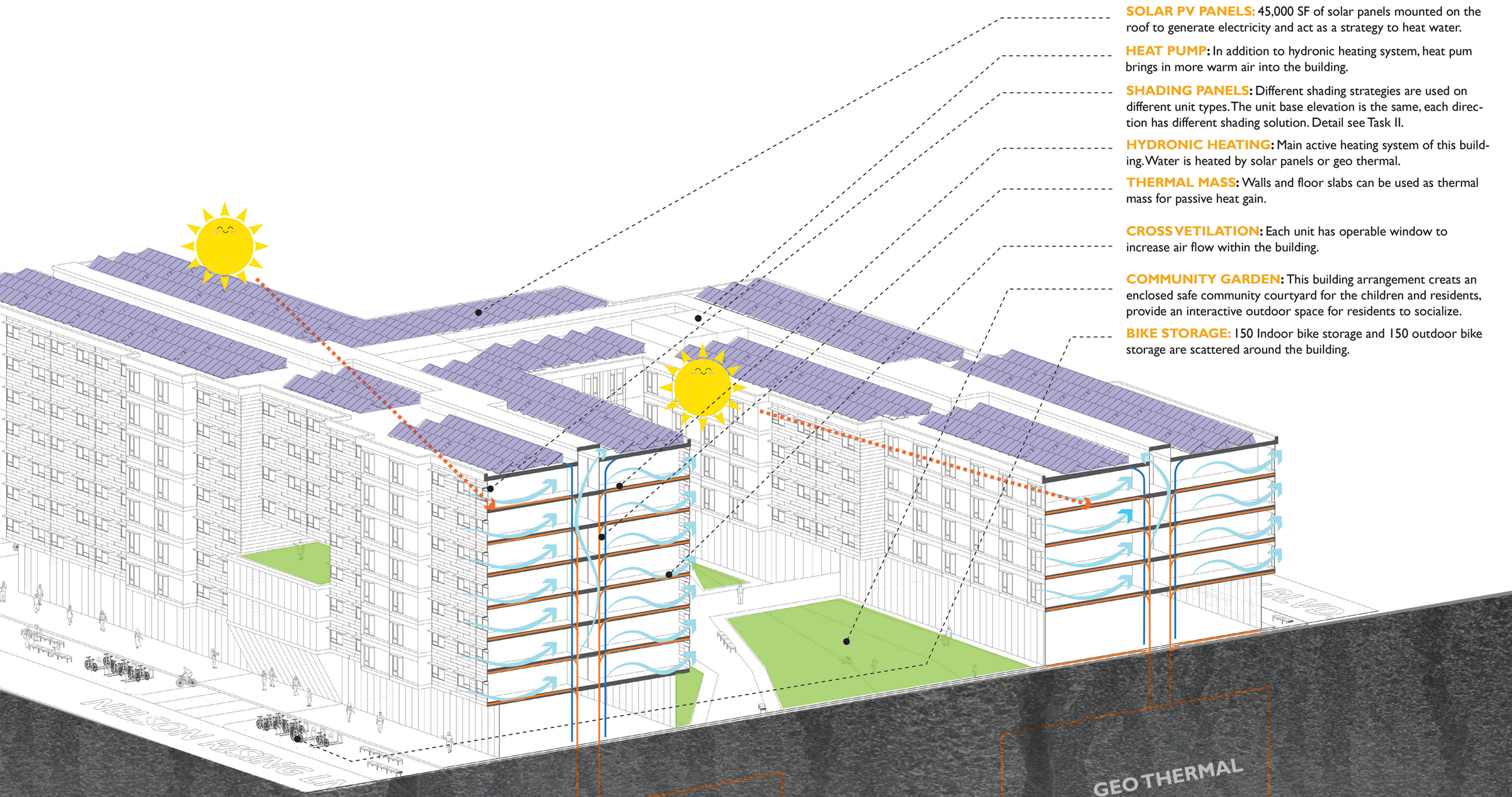
**Tight Building** - The wall, window, and roof are highly insulated and sealed with controlled fenestration.

**Solar Gain** - building concept is highly driven by the units. We developed four different types of elevation for four types of units. And their shading different directions.

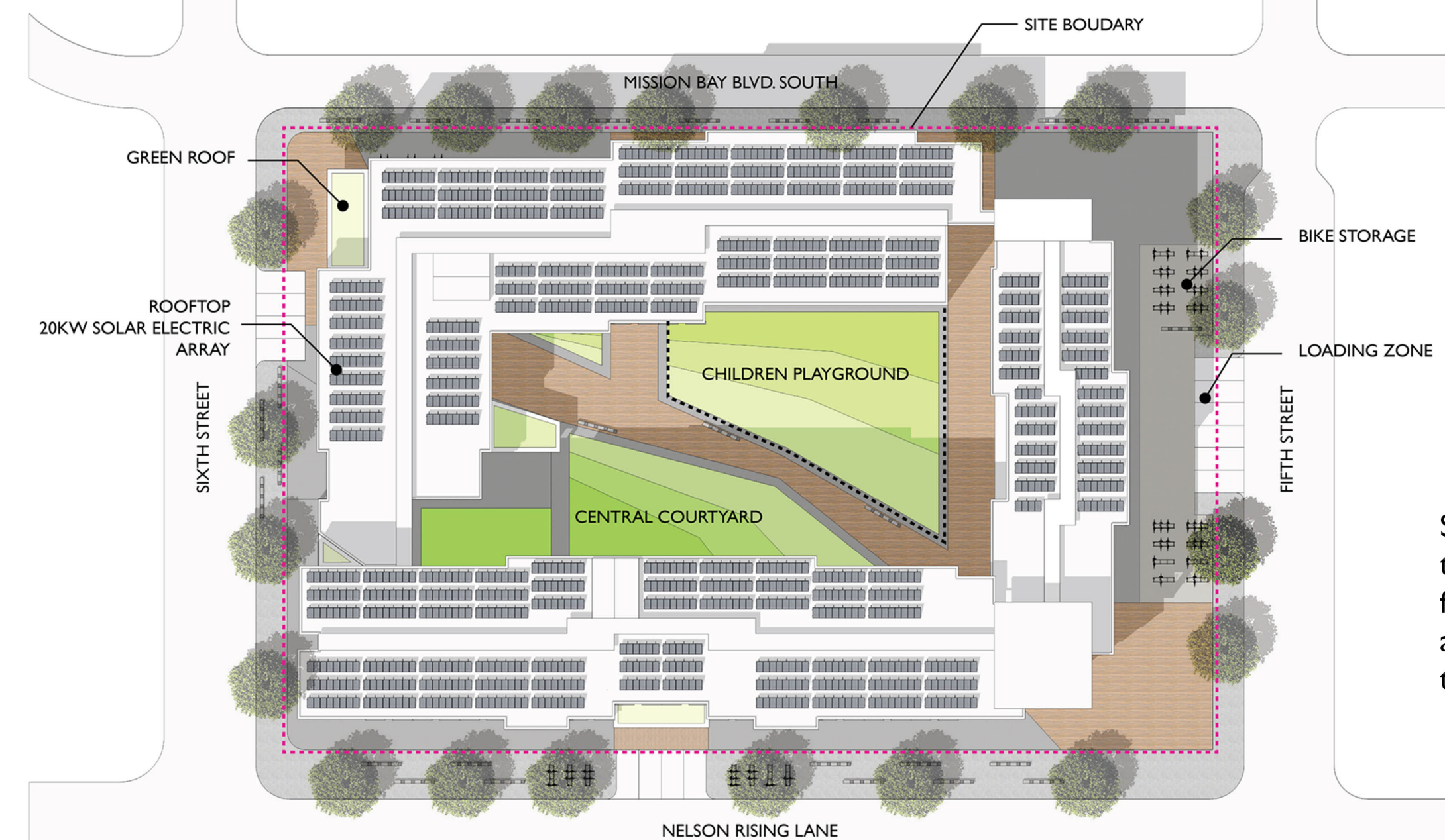
**Technology** - We implemented solar panel, geo thermal, hydronic heating system, thermal mass, shading panels, etc. to reduce building energy consumption from other source.



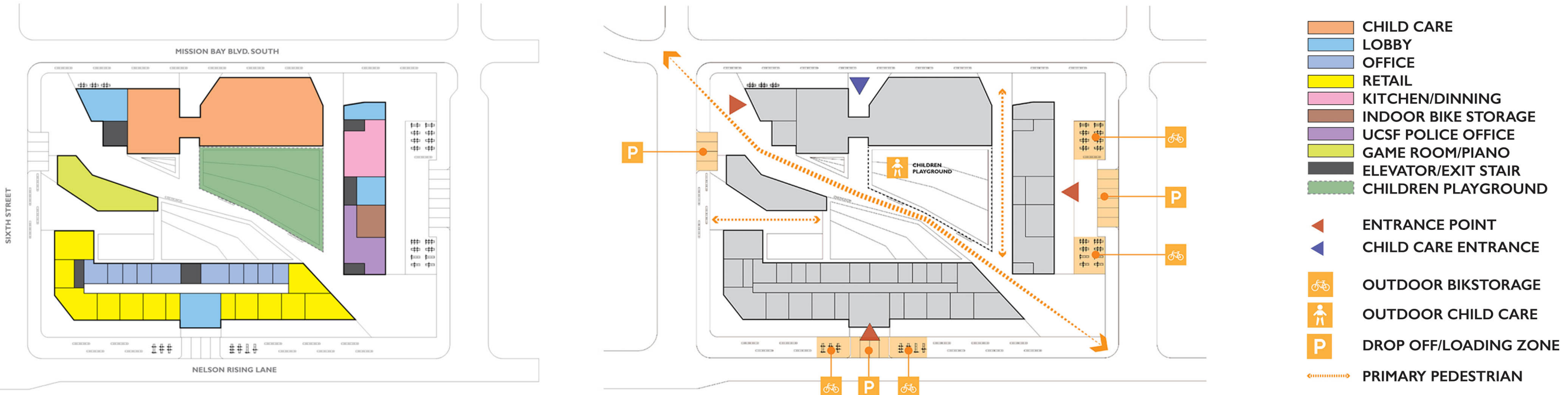
TYPICAL 1 BEDROOM UNITS



- SOLAR PV PANELS:** 45,000 SF of solar panels mounted on the roof to generate electricity and act as a strategy to heat water.
- HEAT PUMP:** In addition to hydronic heating system, heat pump brings in more warm air into the building.
- SHADING PANELS:** Different shading strategies are used on different unit types. The unit base elevation is the same, each direction has different shading solution. Detail see Task II.
- HYDRONIC HEATING:** Main active heating system of this building. Water is heated by solar panels or geo thermal.
- THERMAL MASS:** Walls and floor slabs can be used as thermal mass for passive heat gain.
- CROSS VETILATION:** Each unit has operable window to increase air flow within the building.
- COMMUNITY GARDEN:** This building arrangement creates an enclosed safe community courtyard for the children and residents, provide an interactive outdoor space for residents to socialize.
- BIKE STORAGE:** 150 Indoor bike storage and 150 outdoor bike storage are scattered around the building.



Southeast and northwest corner of the building ground floor opens up for pedestrian passage to create additional social interaction between campus and community



# TRANSFORMER

A High-Tech Building with Human Spirit

# ARCHITECTURE AT ZERO 2015