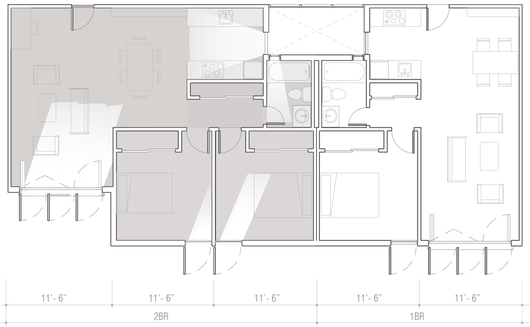
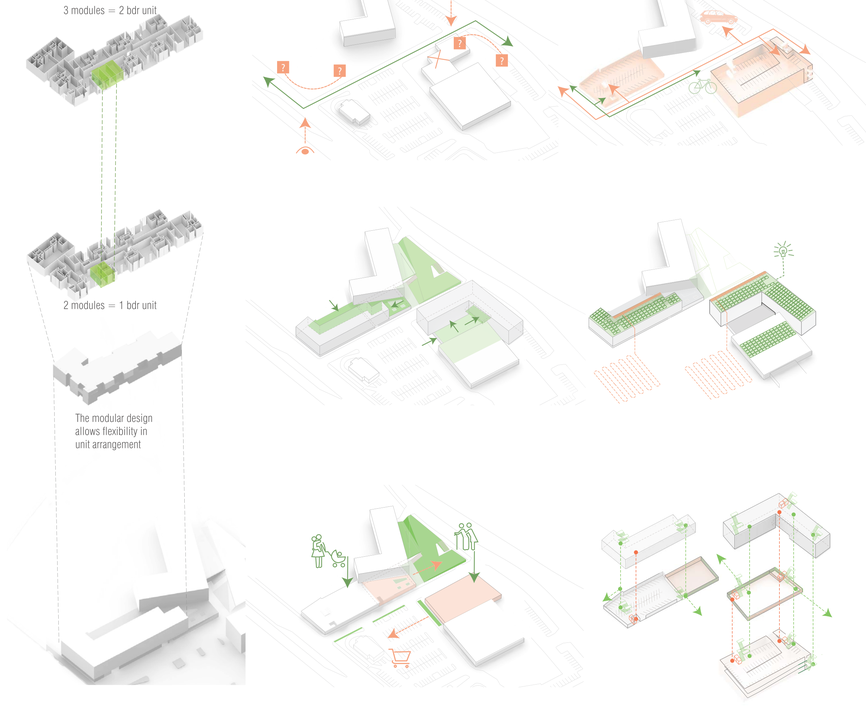
Technology, especially the internet, encourages people to believe the world's resources are unlimited and that infinite consumption will make our lives better. The proposed design examines an alternative to such a commonly held belief system. Our design suggests that contentment can be achieved by embracing limitations. We envision developing a modern and interdependent village. One that will supply it's own energy as well as provide basic/necessary services for the residents and for the community at large.

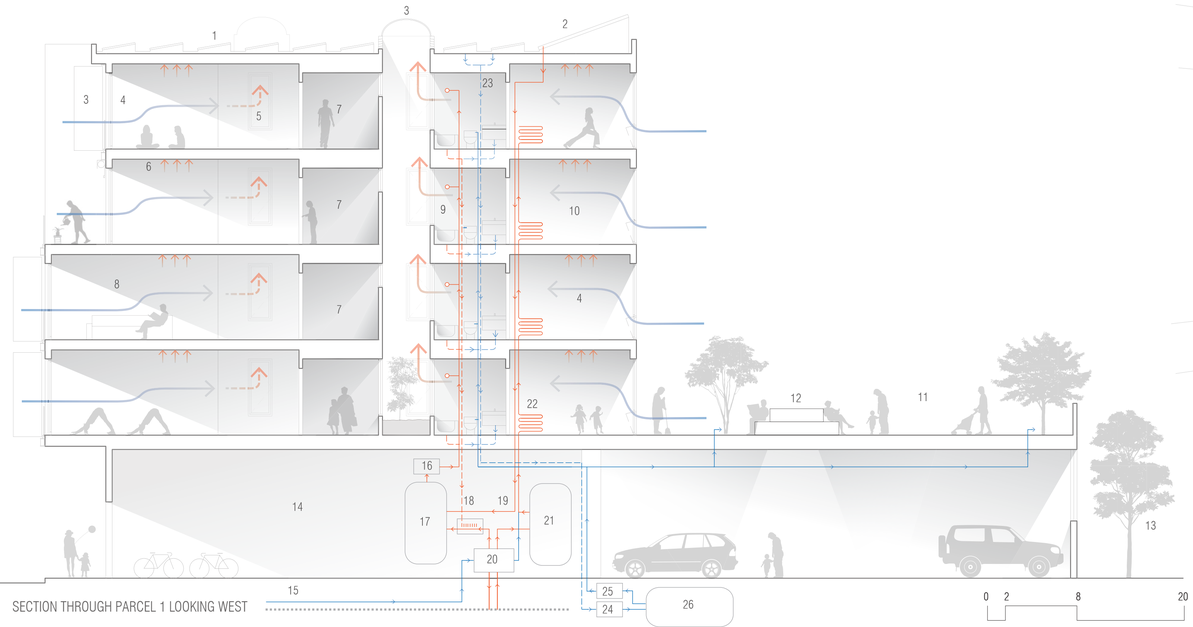
Energy Self Sufficiency:
The project achieves Zero Net Energy through conservation and advanced technology. Efforts to conserve begin at the building cell level. The rooms are compact. Leaving less distance between units in order to create more space for outdoor communal areas. Thus the energy that would have been used to heat and cool excess surplus space becomes unnecessary. The units are developed based on a 11'-6" module which allows for flexibility and layout variations. The concept is also adaptable to prefabrication. Through passive design this high-performance building absorbs solar energy to heat it in the winter and breathes in fresh air to cool it in the summer. The supplemental energy is provided through highly efficient roof photovoltaic arrays, a solar thermal collector and a ground source heat pump.

Site Strategy Service self sufficient:
The buildings rest on the edges of the property enhancing the streetscape thereby welcoming shoppers and residents to the new development. This strategy also helps shelter the open spaces from street noise and the elements. The new building on parcel one defines the northern edge of the shopping center with pedestrian friendly walkway and bike lanes. Basic services are provided on-site allowing residents more time to spend with family and to participate in the community activities. A grocery store is located on top of the underground parking garage for the convenience of customers and residents above parcel two. The childcare facility proposed on the east side of parcel one will offer sunlight and easy access to the outdoor playground.



TYPICAL AFFORDABLE 2 BEDROOM FLOOR PLAN



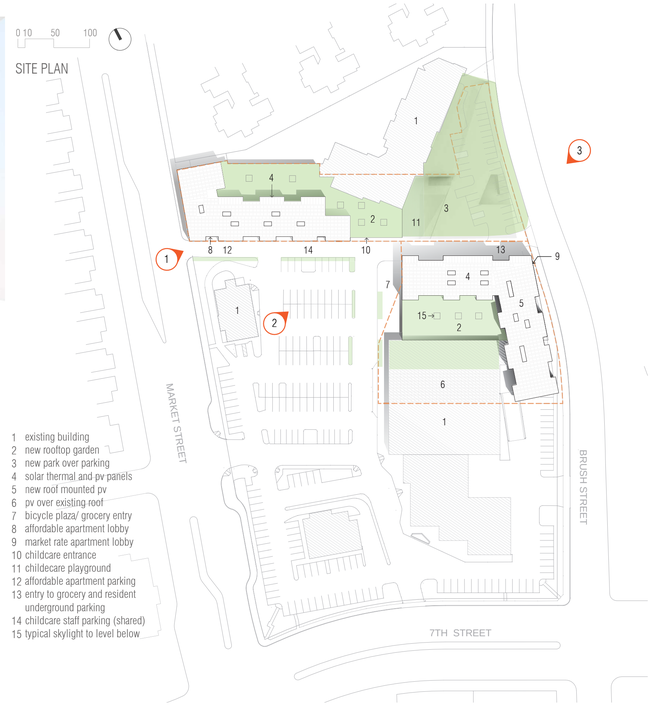


SECTION THROUGH PARCEL 1 LOOKING WEST

SECTION THROUGH AFFORDABLE 2 BEDROOM UNIT

1 photovoltaics
2 solar thermal collector for dhw
3 operable perforated metal shadding device
4 intake fresh air
5 exhaust air through kitchen
6 phase change material ceiling
7 corridor
8 living room
9 bathroom
10 bedroom
11 community garden at podium level
12 lightwell to garage
13 existing senior center garden
14 garage for residents
15 water supply
16 on-demand circulation pump
17 domestic hot water boiler
18 hot water heat recovery system
19 hot water from solar thermal collector
20 ground source heat pump with summer bypass
21 water heating boiler
22 radiant wall
23 gray water recovery
24 filter system
25 circulation pump
26 gray water cistern

1 incoming fresh air
2 exhaust air to lightwell
3 PCM ceiling
4 zone control thermostat
5 in-wall radiant heat
6 LED pendant light
7 LED down light
8 LED down light with dimmer
9 occupancy sensor
10 movable shading device
11 guardrail
12 parking garage



1 existing building
2 new rooftop garden
3 new park over parking
4 solar thermal and pv panels
5 new roof mounted pv
6 pv over existing roof
7 bicycle plaza/ grocery entry
8 affordable apartment lobby
9 market rate apartment lobby
10 childcare entrance
11 childecare playground
12 affordable apartment parking
13 entry to grocery and resident underground parking
14 childcare staff parking (shared)
15 typical skylight to level below

Embracing limits

ARCHITECTURE AT ZERO

2014