Senior Housing Design Competition - 196

Top

Design Objectives

The Senior Housing Design Project demonstrates innovative sustainable design intended to enhance essential energy efficiency. The design attempts to obtain the greatest possible advantage of the natural climate properties of the area.

- Units are distributed and rotated on the site to take best advantage of the sun path and wind pattern.
- Roofs are raised on pillars to protect walls from undesired sun exposure, to obtain maximum view through the elevations, and to enhance heat insulation. They are carefully angled to maximize the sun exposure of solar panels installed on them.
- Double-function exterior walls of units have smooth curvature to maximize interaction with the sun and to control wind pattern; both the sun and the wind provide energy to operate the units. Solar panels are installed on curved walls that follow the sun path. Walls comprise double layers with louvers facing the prevailing westerly wind. This construction allows wind to pass through turbines that generate energy to complement solar panels when winter limits sun exposure; the wind also provides air exchange throughout the units.
- Rain gutters installed at each unit collect roof rain water into ponds that function as soothing, esthetic elements while irrigating the surrounding landscape and gardens.
- Bioswales are provided at the perimeter of parcel to collect storm water and direct it into storm drains
- Gardens and grape vines on the property encourage gardening and social activities, and provide resources for residents.
- Each unit has a water-recycling system which takes waste water from washing machines, showers and sinks, and uses that water to flush toilets. The system is expected to reduce annual water consumption by 30%.
- Heat-recovery ventilators that recycle heat, thereby saving energy and providing a constant supply of fresh air for improved indoor-air quality.
- All units rest on concrete pads; the walls have standard aluminum framing, highly efficient thermal insulation, waterproof membrane, and cement panels.
- The floor system consists of five layers as required for concrete pads: oak wood floors over insulation over concrete pads over more insulation over compacted components.
- The interior building system uses vacuum-insulated component panels that are highly insulated and airtight. A system for controlling ventilation, room temperature, humidity and shading is individually installed in each unit.
- Walls and windows have an acceptable, passive U value; windows have integrated shading devices.
- All appliances feature low energy consumption.
- Lighting systems use LED technology.
- *Clothes* dryers operate by means of heat pumps.
- Heating, cooling and hot-water systems use reversible heat pumps.
- Motorized integrated blinds balance the T and G values throughout the day, eliminating glare while maintaining views and allowing daylight to enter.
- Sewage, electrical and water lines are designed to be connected to the main utilities system on Topaz Drive.

Units Summary:

The main concept of the units design is to create open space living areas that provide flexibility in arranging living space for different uses. It also allow high efficiency use of space that suites different residents needs

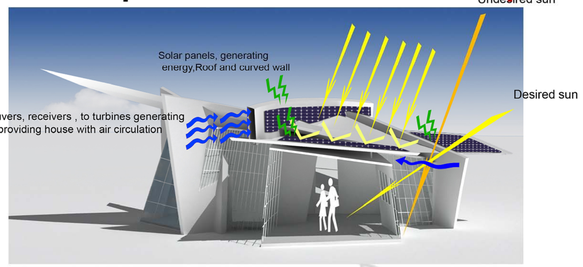
- 7- Two bedrooms at 1230 Sq. Ft. 5 of the units have attached second unit at 750 Sq. Ft.
- 9- One Bedroom units at 920 Sq. Ft. 7 of the units have attached second unit at 650 Sq. Ft.
- 7- Studio units at 663 Sq. Ft

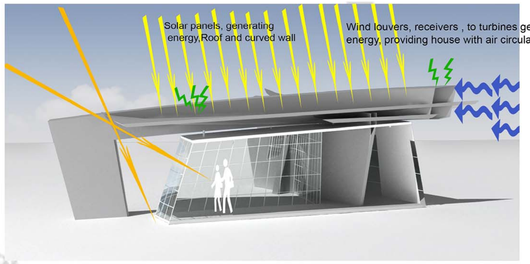
Conceptual Cost Estimate:

Construction cost is estimated on the basis of cost per square foot and results of research on similar type of projects in the area. Also Construction cost in based on considering the use of the most green and efficient materials and systems that may have caused increase to the initial cost of construction, however, it pay off in the long term life cycle cost.

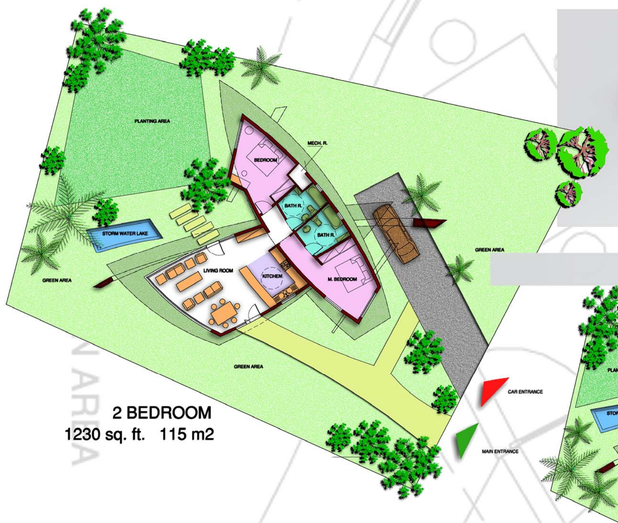
On an average of $200-$300 per Sq. Ft.

Total units construction cost range:	$5,850,000 – 8,775.00
Total site improvement cost:	$10,255,000
Total Project cost	$16,105,000

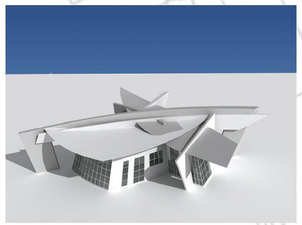


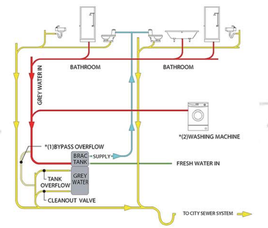


ARIAL VIEW PERSPECTIVE



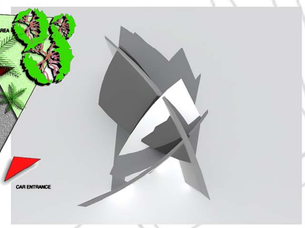
2 BEDROOM
1230 sq. ft. 115 m2

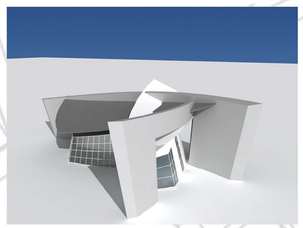


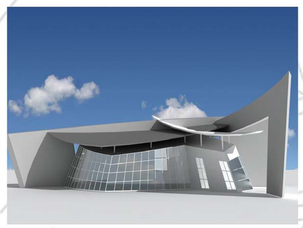


2-BEDROOMS PERSPECTIVES

1 BEDROOM
920 sq. ft 85.6 m2

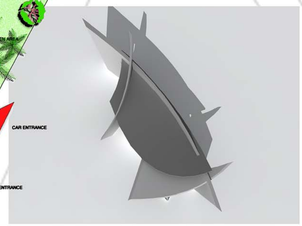


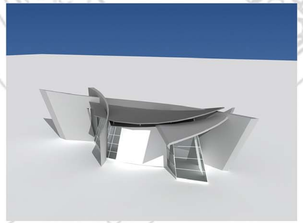


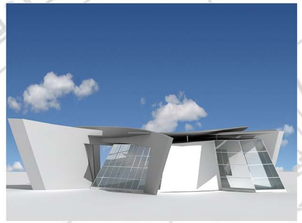


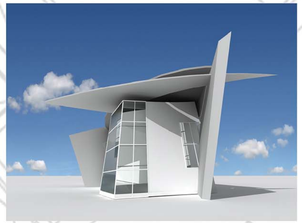
1-BEDROOM PERSPECTIVES

STUDIO
663 sq.ft. 61.6 m2



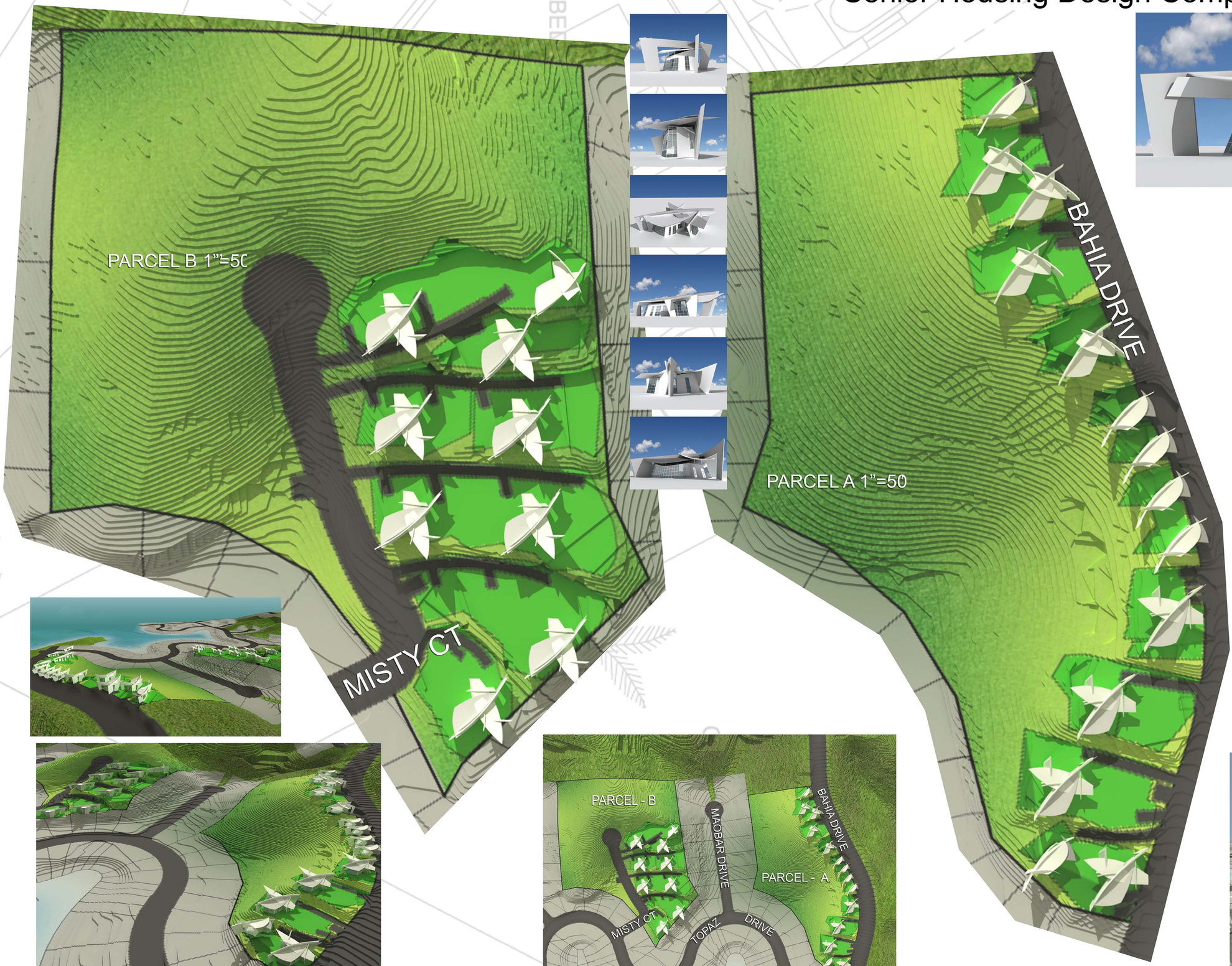


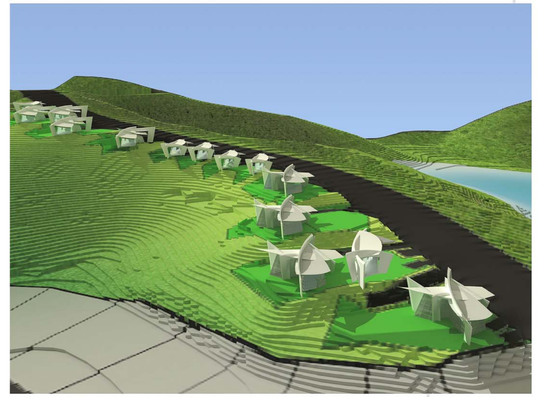




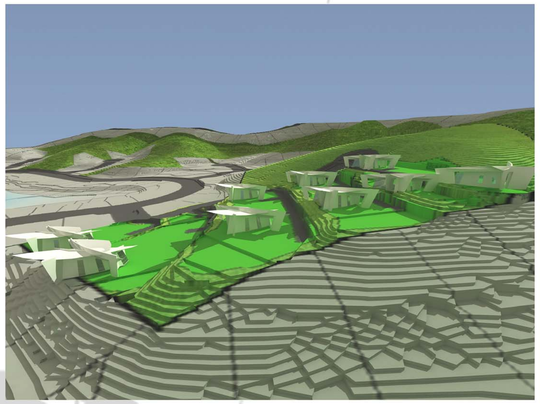
STUDIO PERSPECTIVES

Senior Housing Design Competition - 196 Bottom





PARCEL A PERSPECTIVE



PARCEL B PERSPECTIVE