

ATTACHMENT # 1

THE VISION FOR EAGLE MOUNTAIN - THE N.E.S.T.

The N.E.S.T.

Marlen Alvarez and Beryl Lopez won 1st place with the N.E.S.T. at the Emerging Green Builders Los Angeles Chapter competition, and took 3rd Place Honorable Mention in Chicago at the National U.S. Green Builders Council competition.

Eagle Mountain, a ghost town and abandoned mine inhabited by various endangered species, seeks to redeem its potential to a newly built community. In response to increasing tourism yet still maintaining a respect for the natural environment, we have chosen to design and model infrastructures after the features of a nest. A nest is simply defined as a "community of animals, a cozy, protected and secluded place, a conglomeration of things put together in a single unit, and a shelter made by using available natural materials." This all-inclusive concept will become the driving force for implementing a sense of community our group proposes which is the **N.E.S.T.: Nurturing an Environmentally Sustainable Town**. The N.E.S.T. strategizes to promote **the protection of the pristine desert landscape, promote eco-tourism by educating students and tourists about endangered species, and promote the enrichment of natural and industrial history**. The following paragraphs will describe the means of accomplishing these goals.

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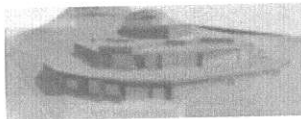
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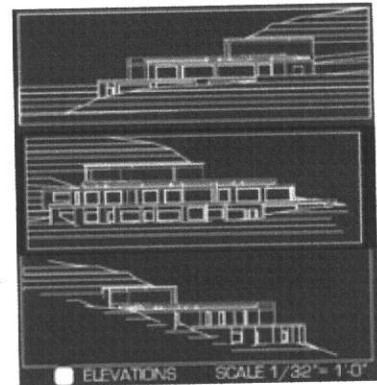
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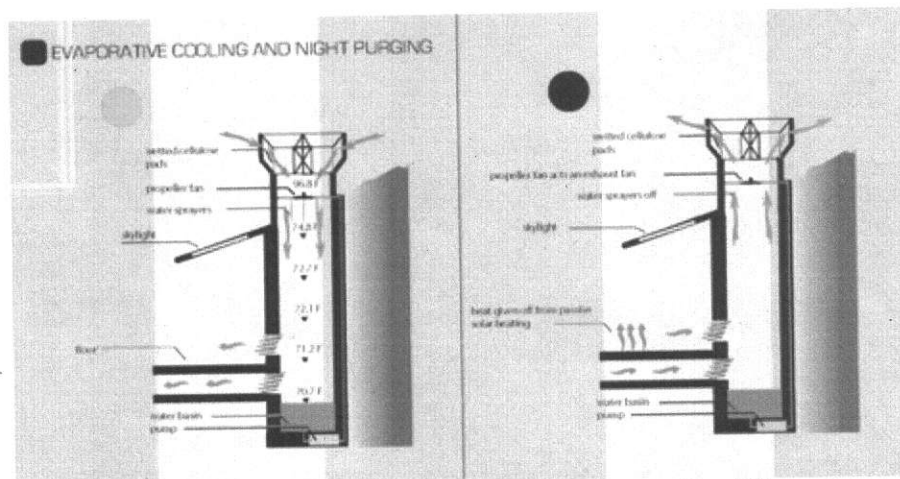
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By promoting certain goals in a desert environment, one needs to remind oneself to learn from the existing wildlife and habitat. Doing so

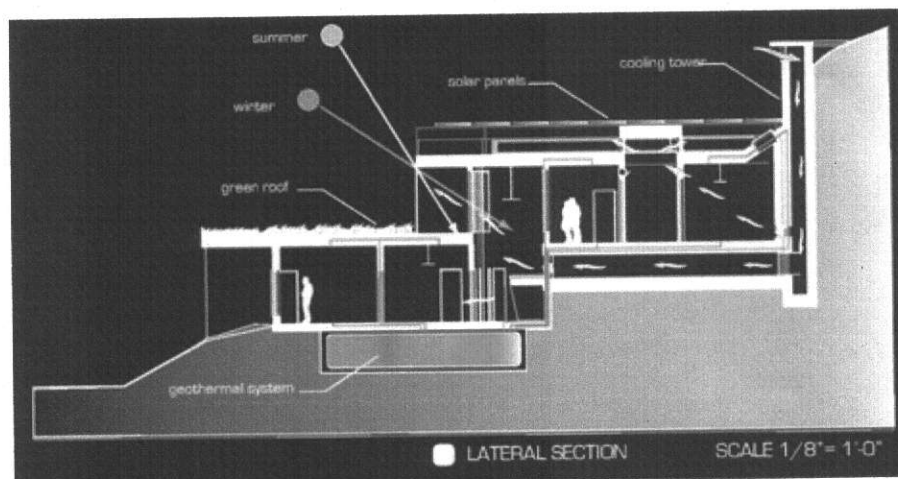
sheds a lot of insight as to how one ought to live and thrive in the desert. For instance, the endangered desert tortoise of Eagle Mountain spends 95% of its life in underground burrows. This strategy ensures the animal to protect itself from the desert's extreme temperatures. Likewise, the proposed N.E.S.T. Research Center/ Outpost is partially underground to facilitate high **thermal mass** and provide a constant temperature and **thermal comfort** for its occupants all year round. The outpost will have 1' thick walls and 1'-6" slabs adjacent to the earth reducing the impact of extreme temperatures.





Thermal comfort will also be achieved and prioritized with different kinds of cooling—both low-tech and high-tech. Low-tech cooling is executed through **night cooling and exhaust ventilation**. For example, opening low operable windows at night allows cool air to come in and opening high operable windows during the day allows hot air to go out. Furthermore, **cooling towers** (located along the curvature of the outpost) are an integral aspect of this project by serving dual duties. These towers have double cavity walls that measure two meters or about 6 feet higher than the upper floor's roof. At night, these towers will capture cool wind primarily coming from the southwest and will condense on wetted cellulose pads near its windows. During the day, the cooling tower's fan act as a mister dispersing cool air and water into the interior atmosphere—bringing down the outside temperature to 15 degrees Celsius. The cool misted air will pass through cavities of the upper floor walls and will travel along tunnels connected to the lower rooms and circulation areas. This cool air will filter out hot air (gained from direct passive heating) through high windows and vents.

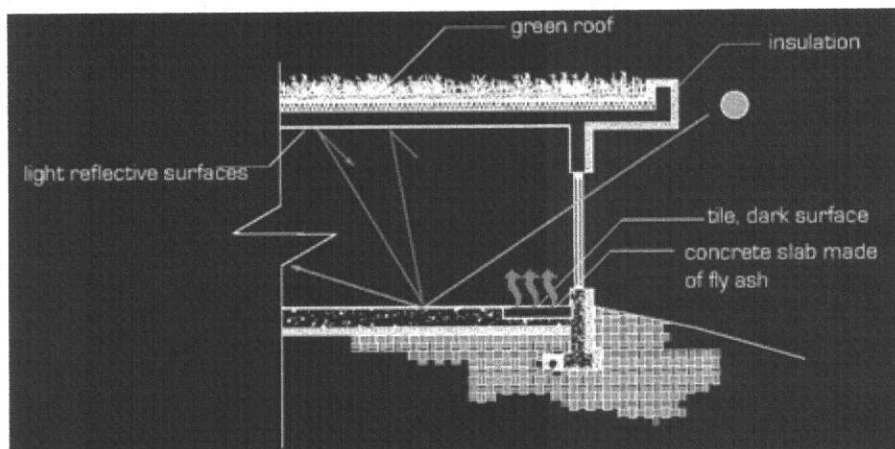
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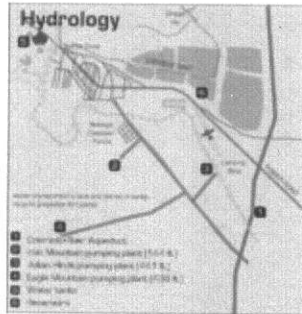
contrast to these low-tech cooling technologies, a high-tech cooling

method, through the use of an on-site geothermal system, will only be used to ensure an equal distribution of comfortable temperature throughout the interior despite its desert environment. "A **geothermal system** . . . consists of an indoor unit and a buried earth loop, [capitalizing] on . . . constant temperatures to provide 'free' energy. [For example] in the winter, fluid circulating through the system's earth loop absorbs stored heat and carries it indoors. The indoor unit compresses the heat to a higher temperature and distributes it throughout the building. In the summer, the system reverses, pulling heat from the building, carrying it through the earth loop and depositing it in the cooler earth" (Tradesman Heating and air Conditioning Services, LLC.).

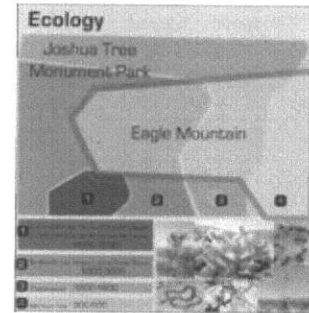
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addition to maximizing passive and active energy strategies to provide thermal comfort, using renewable energy (e.g. sun) is also highly prioritized. For example, solar panels will be placed flat on the top floor's roof while the bottom floor's roof serves as a vegetated or green roof. The **solar paneled roof** will collect as much on-site renewable solar energy possible. Besides using the sun as a renewable source of energy, the outpost will be reusing water through the means of a **greywater system** coming from the kitchen's dishwashers, dormitories' washing machines and showers. This system will provide sufficient water to irrigate the bottom floor's vegetated roof and the outpost's landscaping. A greywater system is just one of the ways of recycling at the N.E.S.T. Other means to reduce waste transportation to landfills is through designating segregated recycling trash cans. These recyclables will be transported via low-emitting vehicles to the recycling station situated in the abandoned mining equipment. The city's recycling department would have to gather these recyclables on a regular basis. More importantly, N.E.S.T. occupants will partake in a survey every 6-18 months determining what are possible solutions to recycling and re-using materials.



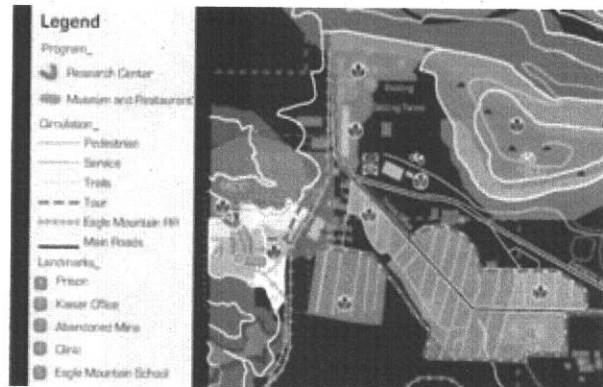
Besides waste and recycling management, supporting a new community in the desert entails a **water supply** that will sustain the outpost and its camping grounds. Water will be provided from the three



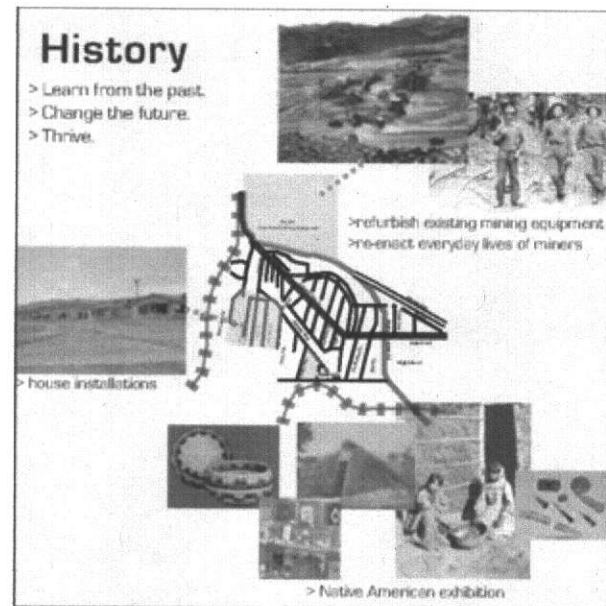
major pumping plants connected to the Colorado River Aqueduct—the Iron Mountain, Julian Hinds, and Eagle Mountain plants. This water will then be transported and stored in water tanks near the site. This water supply and also the aforementioned greywater system will sustain an ecology exclusive at Eagle Mountain and the Joshua Tree National Park. **Indigenous plants** will be planted around the site; so that the existing wildlife will not find themselves foreign to such plants. Campers and visitors, who are situated only at the developed land (thereby preserving the untouched lands only for research purposes), will be able to experience the desert biome and how it was to live like an Eagle Mountain resident. Through a visitor's perspective, one sees breathtaking views and an outpost that aims to sustain it to its natural glory.

Camping and hiking are not only the means of experiencing the Eagle Mountain environment; the N.E.S.T. specifically has three goals—entertain, enrich, and encourage—for a visitor to experience when they visit Eagle Mountain.

In this time and age, Hollywood and the realm of television has constantly been an important part of pop culture. **Entertainment** has shaped our society's frame of mind and culture, though good or bad. However, the N.E.S.T. proposes to do the former by equipping one's knowledge about Eagle Mountain's history with a "Backlot (Ghostown) Tour". With the use of electric powered trams,



visitors will be able to tour around the existing ghosttown. Upon arriving at the N.E.S.T. from the train ride (coming from the off-site parking lot to the outpost), the visitor would be given a schedule of the tours. The tours will include exhibitions, consisting of actors and installations. The tour starts with viewing the prison and the old Kaiser office from a distance; afterwards, visitors would



stop by the "Mine Exhibition," wherein they would encounter actors (actual residents and volunteer students) re-enacting everyday Kaiser steel miners and simulations depicting how the old iron ore mine worked before. Succeeding the "Mine Exhibition," is a long ride around the existing ghosttown viewing the clinic, current residences, and the high schools. Visitors are purposefully kept within the confines of the trams to ensure safety. After a few minutes, visitors will come across the "Native American Exhibition"; wherein current Native Americans will be able to share a part of their history with visitors and residents alike. This exhibition is visible both from the train and tram ride. Just a few miles ahead before heading back to the N.E.S.T., visitors can get a glimpse as to how people lived in Eagle Mountain before being abandoned in 1984. Refurbished house installations in the "House Exhibition" containing artifacts are visually accessible to visitors but are tightly safe guarded. After touring these exhibitions, visitors are directed to a Museum housing artifacts from the mine and residences that are more exquisite and fragile. The overall purpose of this whole "Ghosttown/ Backlot Tour" is to **enrich** one's knowledge on the history of the site and to let a visitor rethink about the harmful impacts men can put on the environment. Furthermore, the tour continues on to the Underground Research Center or Outpost; wherein it will further **encourage** visitors to live in a sustainable way. They will be taught concepts about sustainability as simple as recycling and using less of the earth's resources. This new town will not only have an economic strategy that will redevelop the old town and fund for research and exploration of the existing habitat; but it will also involve the current community, other neighboring communities, and visitors alike to pursue a sustainable way of life. The N.E.S.T. strives to encourage a new culture, a **legacy** that will aim towards environmental protection.