

# Engineering Notebook

El Paso Mountain Star and Educational Tourist Center

Fabens High School

Fabens HS Team1

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## **Problem Statement**

The problem that my team was faced with was to create a tourist center and also find a more efficient way to power the famous El Paso Star. We started by finding the scale of our tourist center and finding out how many solar panels we would need to power the tourist center. We added the solar panels onto the roof of our tourist center and faced the panels on the roof facing south. We then implemented the star with approx. 400 bulbs (LED). We decided to use LED lights since it is more conservative and ecofriendly. We continued building up onto the star and implemented the led lights. The problem we had was the positioning and placement of the panels and LED lights and how many LED lights we would need to emit the same amount of light like the old lights the star had.

### **Cost and Feasibility**

(including estimate number of annual visitors)

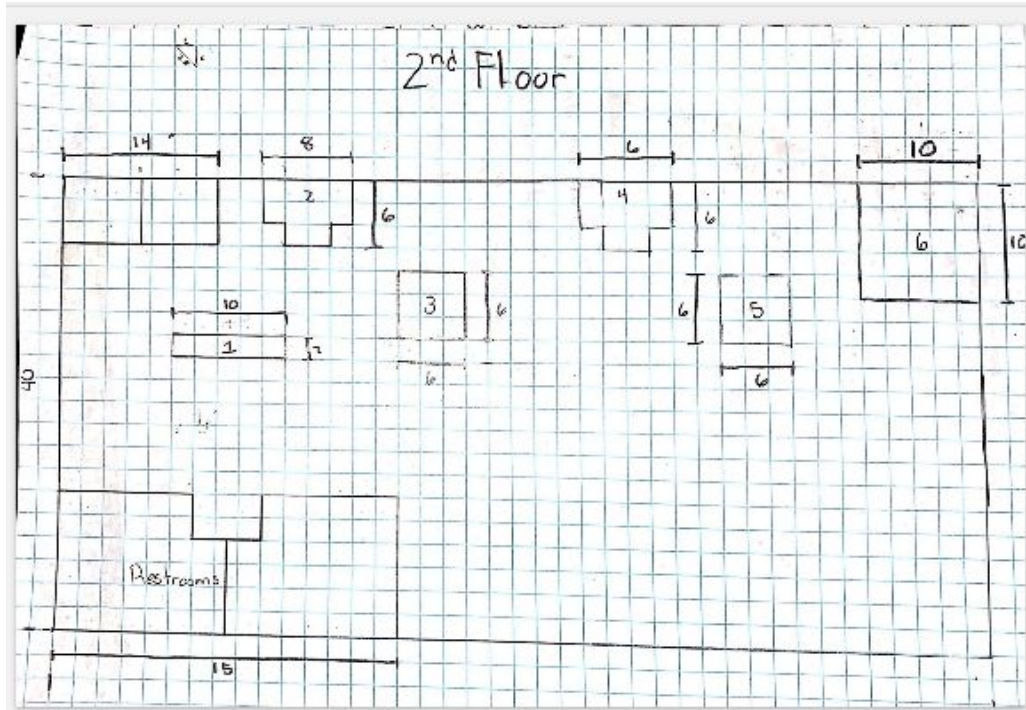
In order to completely power the building on solar power we need 30 solar panels the average cost is 3,900\$ dollars to get 30, 285 watt solar panels. The attendance rate for el Paso tourist locations such as museums and other locations. Although el Paso has a history of receiving large donations due to lack of funding in which our visitation may gain the interest of those donors. Also our education and tourist center will have a digital memorial display for those who lost their lives in the el Paso Walmart shooting which will take donations.

## **Innovation of Solar System**

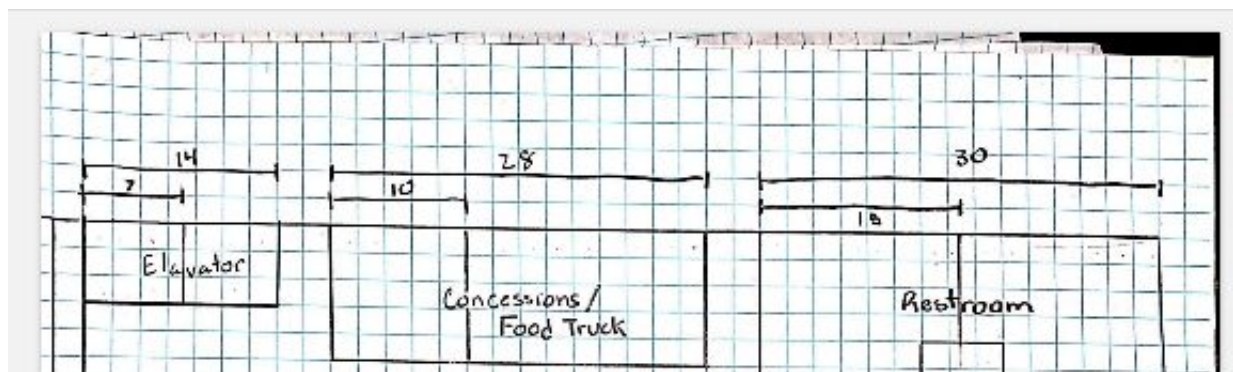
A common size solar panel array is usually around 5kW and takes up around 400 square feet of space. An array of this size can produce an average of 350-850 kWh of AC energy per month. To power a 3000 square foot building it would take 30 solar panels each 285 watt panels with a standard 60 cell.

## Education Center Sketches

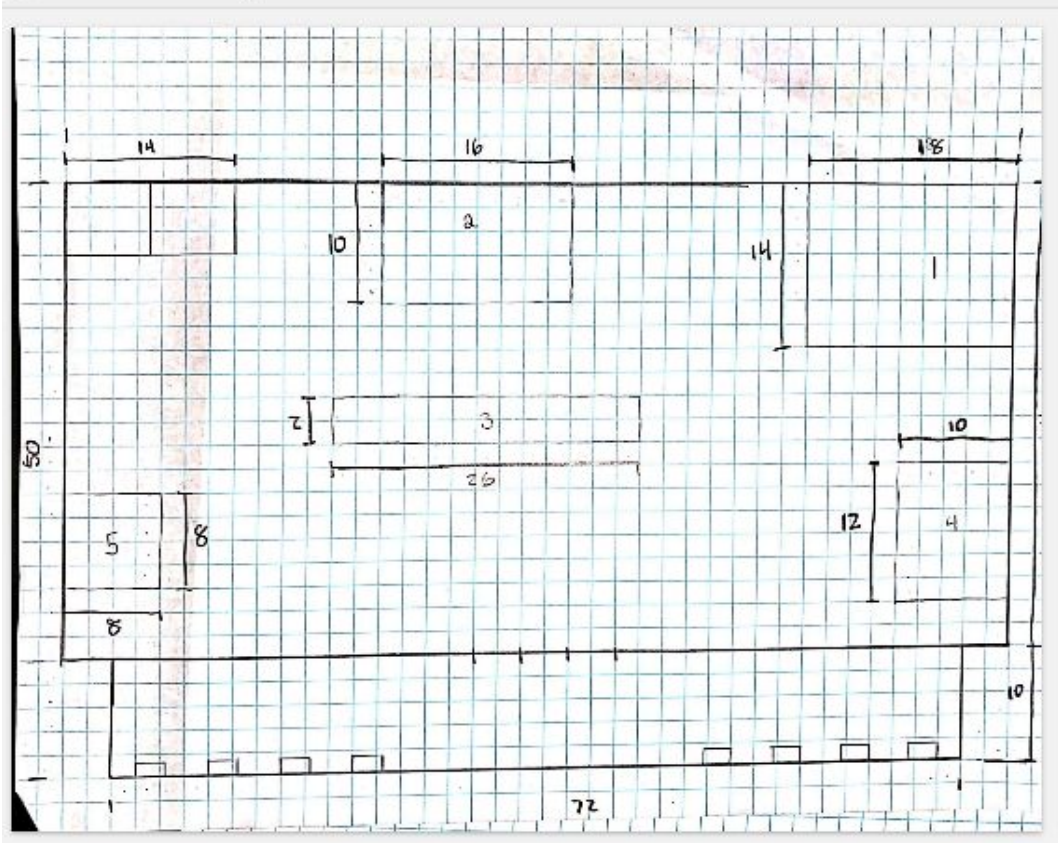
Second Floor:



First Floor:



Third Floor





LED Lights



Satco lighting

single 30 watt White medium (E26) LED bulbs

\$60.95

Voltage 100.277

solar panels



Panasonic AC Module 330W

White/Black

## Operational Benefit Analysis

### Reduced Operating Costs

Solar power systems will reduce or even eliminate your office building's electric bill. For big and small businesses, this money savings can have a tremendous impact

- Good Return on Investment

Investing in solar power generates both long-term savings and quick payback

- Maintenance-Free & Reliable

Once installed, a solar power system will require little or no maintenance at all, most especially if there are no batteries being used

