

Solar Screen Proposal

By:

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Mission Statement: To maintain energy in the CTE hallway at Carson Middle School, through environmentally friendly ways we will put solar screens on the windows and doors in the hallway.

Statement of Need: Overall, CMS is lacking when it comes to temperature management and regulation. CMS needs to be more efficient in solar energy production and storage. We need to also maintain heat in the stem hallway without wasting energy. The school must work on maintaining the solution to this problem so we don't have it again.

Goals & Objectives: To cool down the stem hallway with solar screens for the hotter seasons and to sell back energy, and make things more cost-efficient for the school. We also step by step would like to continue the project. We would do this by slowly putting solar screens in all the classroom windows in the school. This would help because in a lockdown because you can see out but it would be harder for people to see in.

Project Activities: To insert solar screens into the CTE hallway. We would start with the windows near the stem rooms and then go to the doors and windows down the hallway. The whole stem class would have to be involved in addition to administration and people that would be able to get solar screens and insert them. We would also want someone or some company to sponsor solar screens like Tesla.

Justifying the Investment: Solar shades are a perfect way to passively (without using electricity) control the temperature when it's especially hot outdoors. The end of the CTE hallway is always drastically different when compared with the rest of the school, making students and even teachers uncomfortable. This causes the classrooms' to be less effective learning environments as the students' health heavily affects their ability to learn. They end up too distracted by the temperature and lose focus that should be concentrated on schoolwork. As they say; healthy school, healthy students.

Data Collections:

Measurements of the Windows and Doors
<p><u>Doors</u> 41 $\frac{7}{8}$ inch, 31 $\frac{1}{2}$ inch</p> <p><u>Top Window</u> 24 $\frac{1}{2}$ inches, 48 inch</p> <p><u>Windows</u> 40 inch, 45 $\frac{1}{8}$ inches, 36 $\frac{3}{8}$ inches, 2 inch</p>

Cost Share: A fund from Tesla could help us pay the cost. Tesla sponsors projects that help the environment. Tesla makes electric cars.

Impact Analysis:

<u>Pros</u>	<u>Cons</u>
<ul style="list-style-type: none"> ● They are very inexpensive ● Reduce glare ● Blocks ultraviolet radiation that causes fading or damage ● Can keep the school 10-15 degrees cooler by blocking solar energy from heating ● You can see through solar screens but people outside cannot see you 	<ul style="list-style-type: none"> ● Replacing screens if students mess with them and wear over time ● Isn't aesthetically pleasing ● Could make the school too chilly

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For *Carson Middle School*
Carson City, NV

Project Members: Alexandra L-C, Brynn R, Emily T, Taylor H

Statement of Need

CMS is failing to control temperature in the STEM/CTE hallway. Our school needs to become more efficient in regards to solar energy production and storage, meaning that we must manage the hallway's thermoregulation without wasting energy. In order to prevent the problem from occurring again, CMS will have to work towards maintaining the solution.



Pros

- Aesthetically pleasing/attractive
- Reduces glare/reflection from sun
- Durable
- Blocks ultraviolet radiation that causes fading or damage on interior walls
- Can keep the school 10-15 degrees cooler by blocking solar energy from heating
- One-way view: people inside can see out, but people cannot see in from outside



Cons

- Replacing screens if students physically interact with them and wear over time
- Installment of solar screens for a large area of window coverage, cost can be higher than expected
- Could potentially make the school too chilly
- Possibility of having a darkened effect in the hallway/classrooms (although is sometimes pleasant and relaxing for certain learners)



Justifying the Investment

As you can see in the picture to the right, these solar screens help regulate the temperature in the classroom especially in hot weather. The temperature is always changing, inside and outside, making the students and staff of CMS uncomfortable. Even though the solar screens would be in the STEM hallway and in classrooms, we would potentially hope to expand the solar screening throughout the school in the future.

As they say: healthy school, healthy students.

