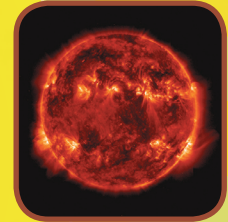


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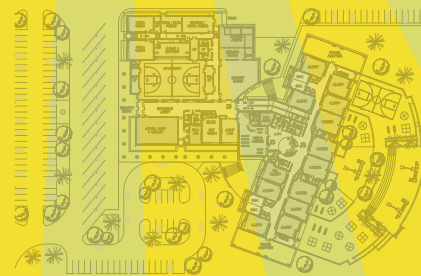
HEAT ISLAND EFFECT

Highly reflective materials for roofing were utilized to reduce the heat island effect and keep the building cool during the warmer months. Keeping the building cool reduces costs and contributes to stabilizing the local temperature. Dark roofs absorb heat from the sun and light colored roofs bounce heat off keeping buildings cooler. According to the EPA, global warming refers to an average increase in the earth's temperature, which in turn causes changes in climate. A warmer earth may lead to changes in rainfall patterns, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans. When scientists talk about the issue of climate change, their concern is about global warming caused by human activities. Making good decisions, such as keeping the tops of our buildings cool, can impact global warming and protect plants and animals that are sensitive to significant changes in daytime and nighttime temperatures.



DAYLIGHTING

The building orientation on the north/south axis allows for optimal daylighting. This reduces electric lighting loads and can balance the heat gain and loss in the school. The Analysis at Performance of Students in Daylit Schools from Nicklas & Bailey concludes that students in full-spectrum light were healthier and attended school 3.2 to 3.8 days more per year; Libraries with superior light resulted in significantly lower noise levels; Full-spectrum lighting induced more positive moods in students; Additional vitamin D received by the students in full-spectrum light produced 9 times less dental decay and an average growth of 2.1 cm taller (over the two year period) than students attending schools with average light. So, as you can see in the building diagram below, the classroom wing is aligned with the north/south axis to give students at Paradise Elementary School the best daylighting possible.



LIGHT POLLUTION REDUCTION

At night, exterior site lighting is controlled by the use of special light fixtures that project zero light above 90 degrees horizontal. Reducing light pollution reduces glare and saves energy. More light pollution means that fewer stars are visible. The picture to the left shows stars that can be seen when there is no light pollution. Bird migration is affected by light pollution. Typically birds and many other animals use the moon and stars to navigate through the night. Often, migrating birds are confused by light on buildings and fly into them. There is now a movement in cities to turn off all their lights at nighttime to keep birds alive and migrating. Nighttime lighting in the United States wastes 10 billion dollars a year. If only proper night lighting, aimed at the ground and not the sky, was used everywhere...think at how much money, energy, and animals we would save.

