

# FACILITIES FOR 21<sup>ST</sup> CENTURY LEARNING



## Ideas for 21<sup>st</sup> Century Facilities

### Facility as a Teaching Tool

Every square foot of the building and the grounds can be seen as an educational opportunity. Giving students an understanding of how the school building works can foster their sense of ownership and engagement with their learning environment. There are many ways that the building can be a teaching tool; the list of ideas below serves as a starting point for identifying these opportunities.

#### Building/General

- Make systems visible, especially in gathering/ assembly areas – open structure can give opportunities to show the structure and systems of the building.
- Provide windows into spaces such as the mechanical room. Label the piping and equipment and provide information on how these systems work.
- Provide signage around the school describing sustainability, technology, utility systems
- Open up a section of wall to show how the utilities run through it.
- Provide a learning street to show how the building works and display student projects.
- Identify indigenous plants used in the landscape.
- Make connections to natural resources – how many natural resources go into a book?
- The school can be presented as a “body”: consider an “Operation Game” in which the data/electrical wiring represents veins, HVAC represents lungs, and the building structure represents bones.



► High Tech High, San Diego, CA

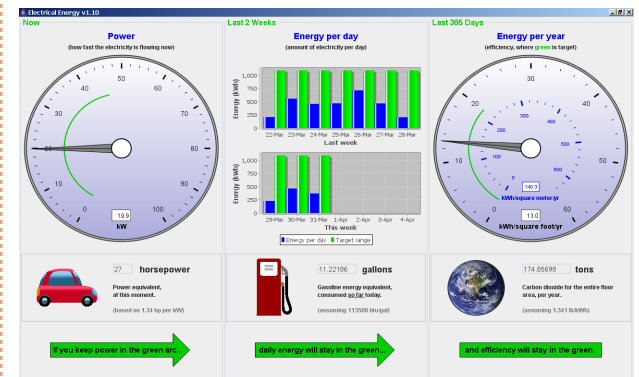
- Have the students give tours of the building – the building teaches the students – the students teach the visitors.
- Highlight local culture or the legacy of who the school is named for.

#### Energy/Utilities

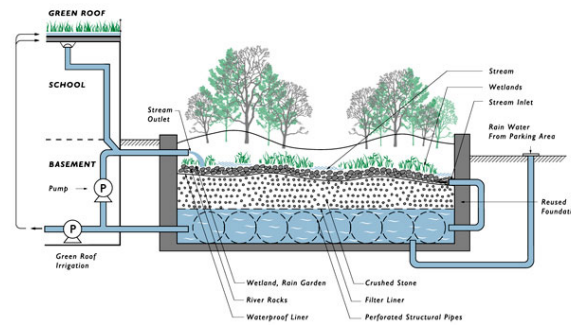
- Provide all new schools with some sort of

“dashboard” display in a prominent area which would provide information on the energy usage of the building.

- The dashboard may also be connected to demonstration solar panels or wind turbines specifically for educational use.
- Install solar charging stations for laptops and handheld devices.
- Meter the different wings or areas of the building separately: when the wing goes red, students find out why; making a competition out of it engages students at a new level.
- Sub-metering can provide ways to give the students data they can use to monitor the energy usage of the building.
- Allow students to have some control over the settings on window shading for lessons on daylight and energy usage.
- With building systems becoming more and more complicated and integrated, provide simple signage that explains how and when to use the system.



- Install a photocell that turns green when light levels are low enough that supplemental lighting is needed; this gives students the “green light” to flip the light switch on.
- Use rainwater harvesting to demonstrate the water cycle.
- An external gauge on the cistern will allow students to monitor the water level.
- Clear piping can be provided to see the rainwater flowing to the rainwater harvesting system.
- Spillways or troughs may be used as water features when utilizing the harvested rainwater for irrigation in an outdoor classroom.
- Explain Low Impact Development (LID) features used at the school and their connection to the water cycle and responsible stormwater management.

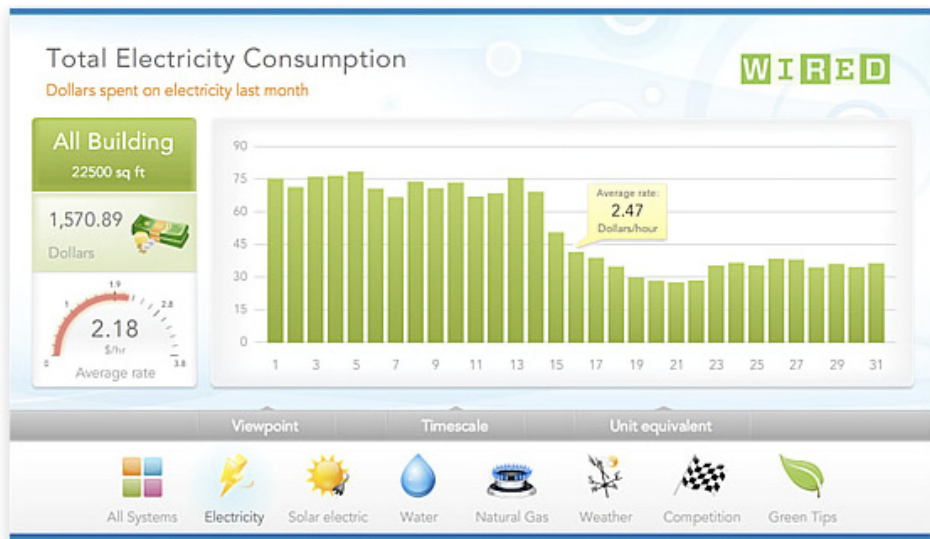


**RAIN GARDEN - HOW DO YOU USE AN EXISTING 16 FOOT DEEP BASEMENT?**

- ▶ Rain Garden, Rogers IB Environmental Magnet, Stamford, Connecticut
- ▶ Photo Courtesy of Tai Soo Kim Partners, LLC



- ▶ Sun Shades and Light Shelves, Rosa Parks School, Portland, Oregon
- ▶ Photo Courtesy of Architectural Record



- ▶ Interactivity with green technology
- ▶ Image Courtesy of Wired Magazine



- ▶ Green roof, Tarkington School of Excellence, Chicago, IL
- ▶ Photo Courtesy of Architectural Record