Using School Exemplars to Debunk the Myth that High Performance Schools Cost More.

High performance schools don’t have to break the bank

Chin Lin, HMFH Architects
HMFH ARCHITECTS

Story of five Ultra Low Energy elementary schools
Abbot-Downing School
Concord, New Hampshire
Christa McAuliffe School
Concord, New Hampshire
Thompson Elementary School
Arlington, Massachusetts
Low Capital Cost
Low Maintenance
Low Utility Bills
Alma del Mar Charter School
Energy Use Charrette
Agenda

• Review Building Use Schedule
• Understanding Energy Use
• Define Project Goals & Expectation
• Review Possible Energy Saving Measures
Building Use Schedule

• Normal School Day
• Vacation Weeks
• Weekends
• Summer Schedule / Summer School?
Energy Use

• Where do the energy go?
Total Energy Use: 10,437,407 kBTU
Total Energy Use: 3,655,633 kBTU
The daily low (blue) and high (red) temperature during the last 12 months with the area between them shaded gray and superimposed over the corresponding averages (thick lines), and with percentile bands (inner band from 25th to 75th percentile, outer band from 10th to 90th percentile). The bar at the top of the graph is red where both the daily high and low are above average, blue where they are both below average, and white otherwise.
The daily low (blue) and high (red) temperature during the last 12 months with the area between them shaded gray and superimposed over the corresponding averages (thick lines), and with percentile bands (inner band from 25th to 75th percentile, outer band from 10th to 90th percentile). The bar at the top of the graph is red where both the daily high and low are above average, blue where they are both below average, and white otherwise.
The daily low (brown) and high (blue) relative humidity during the last 12 months with the area between them shaded gray and superimposed over the corresponding averages (thick lines), and with percentile bands (inner band from 25th to 75th percentile, outer band from 10th to 90th percentile).
The daily low (blue) and high (red) dew point during the last 12 months with the area between them shaded gray and superimposed over the corresponding averages (thick lines), and with percentile bands (inner band from 25th to 75th percentile, outer band from 10th to 90th percentile).
Expectation
Human Comfort