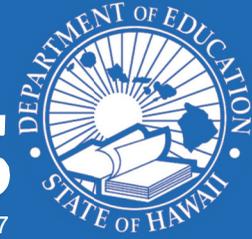


# Cooling schools

August 2017



## The challenge

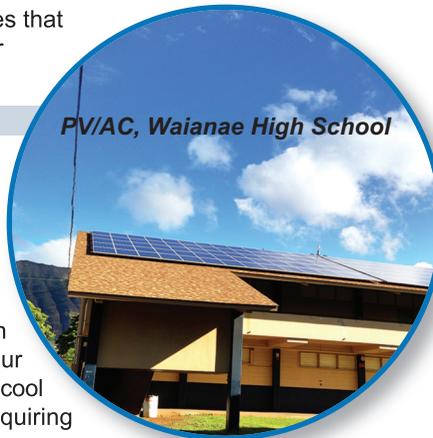
**Hawaii's cooling tradewinds are faltering, ocean temperatures are rising.** As climate change makes the Islands hotter, focus once again turns to quickly cooling our aging classrooms. As funding is released by the state, we will continue to whittle away our lengthy project list. Our goal is to make all classrooms comfortable, sustainably, using fact-based, data-driven methodologies that lead to effective long-term solutions. We will continue to work with the Legislature and community on this pressing issue.

New schools are built to modern standards, with technologies that ensure energy efficiency and stability. For the majority of our schools, however, the following are realities to keep in mind.

### OLD BUILDINGS, INFRASTRUCTURE

The majority of HIDOE schools are on average **more than 50 years old**. Their electrical systems reflect a bygone era. They weren't designed to support today's high level of energy demand — for computers and broadband networks, let alone air conditioning (AC). Many older classrooms have only four electrical outlets, for example. Schools that installed AC units without the proper electrical support have blown circuits to classrooms, even building wings. Also, most of our buildings are not designed to be air-tight. For an AC system to cool a room, the building envelope needs to be sealed, requiring replacement of windows and doors, among other things.

PV/AC, Waianae High School



### BUDGET CONSIDERATIONS

HIDOE spends about \$48 million annually on electricity. That will rise as more AC is installed. After Pohakea Elementary's AC went live, **its power bill doubled**. There are also ongoing maintenance costs with these systems.

### HEAT ABATEMENT OPTIONS

#### MECHANICAL COOLING

- Air conditioning, including photovoltaic AC
- Ceiling fans
- Nighttime heat flushing fans
- Solar light

#### PASSIVE COOLING

- Trees to reduce sunlight on buildings
- Heat reflective paint
- Awnings/coverings to cut direct sunlight
- Trellises, covered walkways and plant-covered walls

### CAN I DONATE AC?

Yes, anyone can donate AC units provided they meet health and safety requirements and are a match for the electrical system at the school.

Learn more: [bit.ly/HIDOE-ACdonate](http://bit.ly/HIDOE-ACdonate).

If you have additional questions, please contact HIDOE's Auxiliary Services Branch at 586-3452.

## Cool Classrooms initiative

On May 5, 2016, Gov. David Ige signed Act 47 into law appropriating \$100 million to fund equipment and installation costs for AC and other cooling measures at public schools, with a goal to have 1,000 classrooms cooled by the end of 2016. HIDOE released projects to bid the same day, covering needs at schools on the Heat Abatement Priority List (*right*).

Two problems emerged:

- Though more than 3,000 contractors were contacted to pre-qualify, the final pool was limited, which constrained bids.
- Among those bids, cost of equipment was roughly in line with estimates, but the cost of labor was extremely high, as much as six times the initial estimate.

HIDOE re-opened the contractor qualification process in June 2016 to expand the pool and will resubmit projects for bid in order to bring costs down and ensure the greatest number of classrooms will be cooled. As of Aug. 2017, AC has been installed in 855 of the 1,000 classrooms with more to come.

For details, answers to common questions, and an article from Asst. Supt. Carlson on the effort, please read the July 2016 edition of Education Update: [bit.ly/EdUpdateJUL16](http://bit.ly/EdUpdateJUL16)

### HEAT ABATEMENT PRIORITY LIST

1. Ewa Beach Elementary
2. Ilima Intermediate
3. Campbell High
4. Kamaile Academy
5. Kaimiloa Elementary
6. Nimitz Elementary
7. Mokulele Elementary
8. Pearl Harbor Kai EI
9. Lehua Elementary
10. Waimalu Elementary
11. Aliamanu Elementary
12. Aliamanu Middle
13. Waipahu High
14. Ewa Elementary
15. Barber's Point EI
16. Waipahu Intermediate
17. Pearl Harbor EI
18. August Ahrens EI
19. Waipahu Elementary
20. Waiialua H&I
21. Leihoku Elementary
22. Honowai Elementary
23. Nanakuli Elementary
24. Nanakuli H&I
25. Kaunakakai Elementary
26. Kilohana Elementary
27. Manana Elementary
28. Princess Nahienaena EI
29. Lahaina Intermediate
30. Lihikai Elementary
31. Kekaha Elementary
32. Kahakai Elementary
33. Maui High

### SCHOOLS WITH 100% AC

- Elementary: 33 schools
- Middle: 6 schools
- Elementary & Middle: 1 school
- High: 1 school
- K-12: 1 school

Learn about the Heat Abatement program: [bit.ly/heatabatement](http://bit.ly/heatabatement)