

Field Test DELTA Snapshots: Classroom Lighting

From grade schools to universities, the classroom environment is changing, with teachers increasingly using audio-visual projections to communicate with their students. Traditional instructional technology (chalkboards) required only one mode of general lighting. New instructional technologies require a second lighting mode—darker in the front of the room and brighter in the student seating areas.

The Integrated Classroom Lighting System (ICLS) provides these two lighting modes with controls technology to facilitate switching between modes. Seven schools in New York State participated in a demonstration of the ICLS. At each of the seven schools, the DELTA research team evaluated the lighting before and after retrofit of the ICLS in four classrooms.



Above: General mode (uplight and downlight) and Whiteboard light.
Below: A/V mode (downlight only).

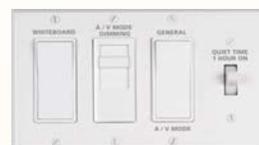


Lighting objectives

- Provide lighting for both audiovisual presentations and general teaching conditions
- Provide task lighting on the main teaching board
- Integrate the lighting and controls technologies into an easy-to-use system for teachers

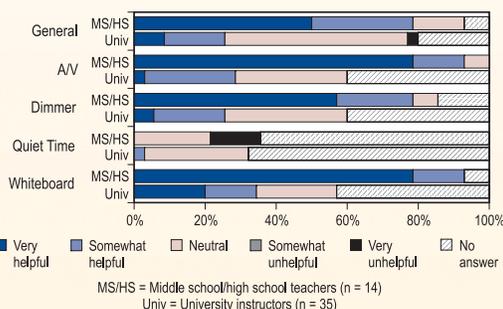
Lighting system

The ICLS typically includes two rows of pendant direct/indirect luminaires and a separate wallwash luminaire for the main teaching board. The teacher control center (TCC) allows the teacher to change the lighting distribution from General mode (both uplight and downlight) to A/V mode (downlight only). The A/V mode, intended to be used during audio-visual presentations, includes an adjustable dimmer. The Whiteboard switch allows the teacher to direct light towards the main teaching board. The Quiet Time switch overrides the occupancy sensor for one hour, keeping the lighting on during long periods of occupied non-movement such as standardized testing. The TCC is located near the main teaching board. Other controls in the ICLS include a hybrid ultrasonic/infrared occupancy sensor and a master on/off switch at the door.



Teacher control center

"Do you find _____ mode helpful in your teaching?"



Results

Six schools reduced their lighting power density with ICLS relative to previous lighting. Energy savings from all seven schools together averaged 38%.

Teachers at the middle and high schools rated the ICLS favorably. Feedback from university instructors was more mixed, perhaps due to less familiarity with the ICLS' features. Overall, teachers considered the ICLS better than their previous lighting system.

Sponsors

New York State Energy Research and Development Authority (NYSERDA)

ICLS Manufacturer: Finelite, Inc.

Field Test DELTA Snapshots: Classroom Lighting is available at www.lrc.rpi.edu/programs/delta.



View LRC Project Sheets at www.lrc.rpi.edu/resources/newsroom/projectsheets.asp

