

Installing Sustainable Equipment Helps Harvard University Kitchen Renovation Achieve LEED Certification

CAMBRIDGE, MASSACHUSETTS

Harvard University Dining Services (HUDS) launched the final of its 12 dining hall renovations in the summer of 2005. A 7,480-square-foot gut renovation took place over 10 and a half weeks in a shared kitchen known as Dunster/Mather.



The primary focus was to upgrade the mechanical systems, equipment, operational efficiency and appearance of the operation. An additional goal to make the renovations as sustainable as possible was incorporated after learning lessons from previous projects. At the conclusion of the renovations, the Dunster/Mather kitchen was the first commercial kitchen in the country to achieve a Leadership in Energy and Environmental Design for Commercial Interiors (LEED-CI) Silver certification.

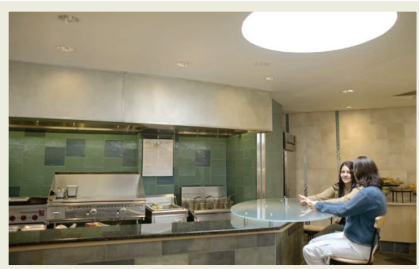
In order to improve the quality of food while lowering energy consumption, HUDS included key sustainable design elements. A Melink exhaust hood control was installed with the ability to control the variable-speed-drive exhaust fans according to actual conditions. Being able to adjust the controls has pronounced environmental benefits because most of the cooking is centered around three meal periods with lulls in activity between meals. The hood exhaust fan is tied to the make-up air units by new DDC controls, and they adjust make-up air accordingly.



A Somat pulper allows the grinding of all organic waste from the kitchen. The waste is then transported to the Hydra-Extractor on a nearby loading dock. Water from the waste is extracted and the remaining product is ready to be composted. The system reuses 80 percent of the water from the scrapping troughs and is expected to divert more than 240,000 pounds of waste from landfills each year.

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The first Caroma dual-flush toilets were installed in the first-floor employee restrooms. The toilets have a 1.6-gallon regular flush and a 0.8-gallon liquid flush. Two Hobart dishwashers with Opti-Rinse™ technology were installed in each of the kitchens. The two dishwashers will save more than 500,000 gallons of hot water annually, which equals a savings in water and energy of more than \$18,000 per year.



Large skylights were put in place to harvest daylight. Additionally, new lighting throughout the kitchens and serving stations are 16 percent more efficient than the guidelines suggested by the Illuminating Engineering Society of North America.



Finally, Frontline International Waste Oil Tanks were installed to meet the EPA's secondary containment regulations. The fryer oil is directly plumbed to the tank so the vegetable oil can be collected without the risk of spill. Harvard's Recycling and Waste Management department has converted one of its recycling trucks to run on straight vegetable oil.

Throughout the renovation project, efforts were made to reuse and refurbish materials. All old equipment was shipped to Spanish Town, Jamaica, for use in area orphanages. More than 95 percent of construction and demolition waste was diverted from landfills because a waste plan was instituted with the assistance of the Institution Recycling Network.

The Dunster/Mather renovation was budgeted at \$7 million, and not an item was chosen that would force new, ongoing expenses. The Melink exhaust hood runs at full speed seven hours per day and 50 percent for the remainder. The controllable system has reduced electricity usage by 30 percent. The Somat pulper and Hydra-Extractor cut expenses by allowing Harvard to compost in Massachusetts, as opposed to shipping the trash to South Carolina. Finally, the aforementioned Hobart dishwasher saves costs in water and energy of more than \$18,000 annually.