

Cookline Replacement Study

Moffitt Café
San Francisco, CA

Committed to energy efficiency...

The University of California campuses are committed to implementing energy efficiency best practices to help reach their 2025 carbon neutral goals. As foodservice is very energy intensive, the UC wanted to gain a better understanding of the energy use of one of its dining facilities.

Due to its high traffic, the Moffitt Café, located on the second floor of the University of California, San Francisco (UCSF) Medical Center on the Parnassus Campus in San Francisco, was chosen as an optimal site for the Commercial Cooking Equipment and Kitchen Ventilation System Baseline & Replacement Characterization study to research existing kitchen energy use and demonstrate energy savings through strategic equipment replacement. Frontier Energy, Inc., working in conjunction with Pacific Gas & Electric (PG&E) Company performed the technical study for the California Energy Commission's (CEC) Natural Gas Research and Development Program.

The Moffitt Café serves as the Medical Centers' main dining facility serving breakfast, lunch, and dinner for dining room patrons and room service from 7 am to 7 pm daily.



Pre-makeover convection ovens (Units A & B)



BEFORE:

- The cookline was equipped with: two double stack convection ovens, one six-burner range, two non-thermostatic griddles, and two 18-inch fryers.
- The existing ovens used the most energy of any appliance on the line, consuming about 50% of the line's total energy.
- The ovens consumed an average of 15.5 therms/day
- The cookline consumed an average of 32 therms/day.

Over the years, the two double stack convection ovens received heavy use, operating 14+ hours per day. As a result, the door seals were out of alignment, allowing outside air to infiltrate the cooking cavities and increasing the amount of energy used.

Annual Oven Operating Costs¹

Pre-Makeover Costs  \$5,658

Post-Makeover Costs  \$2,592

¹ Gas utility rates based on \$1.00/therm.

Oven Operating Savings¹

Annual Energy Savings  \$3,066

Rebate Savings²  \$2,000

¹ fishnick.com/saveenergy/rebates.

² Rebate = \$500 per oven cavity.





ENERGY STAR convection oven (Unit A)



ENERGY STAR convection oven (Unit B)

AFTER:

- The cookline is now equipped with: two ENERGY STAR® double stack convection ovens, one six-burner range, two non-thermostatic griddles, and two 18-inch fryers.
- Energy use of the two double stack convection ovens decreased 55%.
- The ovens consume an average of 7 therms/day.
- The current cookline consumes an average of 24 therms/day.

Replacement of the two double stack convection ovens resulted in significant energy savings without sacrificing cooking performance. The energy efficient ovens featured automatic ignition, which eliminated the need for standing pilots. Operating hours, amount of food cooked, and type of food cooked in the ovens did not change between pre and post replacement.

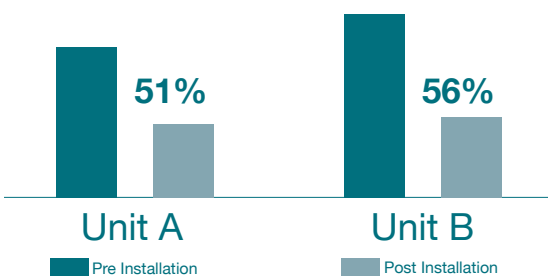
Quick Guide to Moffitt Cafe's Savings

	EQUIPMENT UPDATE	ENERGY SAVINGS	BENEFITS
ENERGY ASSESSMENT	Cookline	N/A	Identified energy intensive pieces of equipment that were costing UCSF money to operate
MAXIMIZED CONVECTION OVENS	Replaced convection ovens with two ENERGY STAR double stack convection ovens	55%	Improved performance, decreased cooktime, faster recovery

The combined oven energy was reduced 55%. This amounts to 3,100 therms annually. Now the ovens only account for 30% of the total energy consumption at Moffitt.

An energy assessment is critical to understanding kitchen energy use to help identify equipment that may need to be maintained or replaced. After characterizing Moffitt Cafe's kitchen for energy consumption, researchers found that many appliances were either not used often enough to be candidates for replacement (e.g. fryers) or were installed with physical impediments to measuring accurate data (e.g. hard-piped range & griddles). However, replacement of the two double stack convection ovens alone saved Moffitt thousands per year on their utility bill. The results revealed that even the smallest individual upgrades to a cookline can amount to remarkable energy savings.

Oven Energy Reduction (Therms)



UCSF cookline