



Villa Toscana Memory Care Mountain View, CA

The D'Ambrosio family's Villa Toscana Memory Care Community is located in a new multi-story, mixed-use commercial building in Mountain View where their former full-service Italian restaurant once stood. Villa Toscana is an assisted living facility catering exclusively to those with memory care needs. The multi-recreational facility features outdoor patios, indoor lounges, an activity room, a salon, and a dining room with meal service through an on-site commercial kitchen.

At the time of the Villa Toscana project's inception and permitting, City of Mountain View reach codes prohibited the use of natural gas in new construction and extensive renovation projects.* As a result, kitchen designer Susan McDonnell was tasked with specifying electric cooking equipment to meet the foodservice needs of the care facility without sacrificing the performance associated with traditional natural gas-fired cooking equipment. Susan consulted the experts at the Frontier Energy Food Service Tech Center (FSTC) to ensure the equipment was energy efficient with a high production capacity to minimize the expected operating cost increase on their electric bill.

To maximize kitchen productivity, the FSTC team selected multi-functional and programmable combination ovens and an advanced-design tilt skillet to support the facility's batch cooking operation. The combination ovens and tilt skillet can cook numerous pre-programmed menu items with automatic hold or shutoff settings. Automation optimizes energy use management for the facility, which reduces the risk of staff accidentally leaving the equipment on.

**The new building reach code was active at the time of project permitting. In April 2024, the City of Mountain View suspended the all-electric new building requirements to comply with a court ruling.*

The FSTC also selected an energy-efficient, high-production griddle and four-hob induction range with oven base. The induction range surpasses the cooking performance of a comparable natural gas-fired range, making for a cooler and safer work environment for kitchen staff. The induction range is more energy efficient with quick cookware heat-up and zero standby energy use when cookware is removed from its surface.



Ventless High-Temp Door-Type Heat Recovery Dishmachine



(from left to right) Double-stacked Electric Combination Ovens, High-Production Electric Griddle, 4-hob Electric Induction Range, & Advanced Electric Tilt Skillet/Braising Pan

These features help reduce the operating cost when compared to natural gas and electric resistance ranges.

FSTC experts also recommended Susan select a cold-water feed only, ventless waste heat recovery dishmachine and an electric heat pump water heater for Villa Toscana. Even though the heat pump water heater specification was not feasible for the project due to space limitations, Susan was still able to specify and install the ventless dishmachine. Ventless heat recovery dishmachines eliminate a significant hot water load on the water heater and reduce the total operating cost even with slightly higher water use.

The partnership between Susan’s kitchen design firm and the PG&E-funded energy efficiency support programs at the Frontier Energy FSTC allowed Villa Toscana to reduce the typical increase in operating cost when switching from natural gas to electric cooking equipment. Thanks to PG&E’s extremely low electricity generation carbon footprint, the carbon footprint of the kitchen will be comparatively small.

With the continued focus on kitchen electrification, this project was an excellent example of best practice equipment specification and can serve as a model for other kitchen designers and operators constructing kitchens in buildings without natural gas infrastructure.

Ventless High-Temp Heat Recovery Dishmachine Savings

| Dishmachine Type | Standard Model | Cold Water Connected, Heat Recovery Model |
|--------------------------------------|----------------|---|
| Dishmachine Annual Energy Use (kWh) | 7,676 | 8,330 |
| Water Heater Annual Energy Use (kWh) | 3,095 | 0 |
| Total Annual Energy Use (kWh) | 10,771 | 8,330 |
| Annual Water Use (gal) | 16,060 | 15,695 |
| Annual Energy Cost* | \$4,093 | \$3,166 |
| Annual Water & Sewer Cost† | \$494 | \$483 |
| Total Annual Operating Cost | \$4,587 | \$3,648 |

*Assumes a PG&E B-19 electricity rate of \$0.38/kWh.

†Assumes a combined City of Mountain View Water & Sewer utility rate of \$23.00/CCF.

Villa Toscana Cookline Carbon Footprint & Operating Cost Comparison

| Fuel Source | Natural Gas | Electricity (As Built) |
|---|-------------|------------------------|
| Annual Energy (kBtu) | 121,234 | 52,964 |
| Annual Operating Cost‡ | \$2,619 | \$6,822 |
| Annual Cookline Carbon Emissions (MTCO ₂ e) [§] | 6.43 | 0.86 |

‡Assumes a PG&E B-19 electricity rate of \$0.32/kWh and the PG&E 2024 forecasted average G-NR1 natural gas rate of \$2.16/therm for non-covered entities.

§Carbon emissions based on PG&E 2022 benchmarking of greenhouse gas emissions for delivered electricity reporting of 0.089 lb CO₂/kWh.