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Sustainable Kitchen Operations



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Supporting the sustainable kitchen
through sustainable design.



Kevin Woods, LEED AP



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Supporting your sustainable kitchen through sustainable design.

- Core goals for sustainability
- Building a sustainable kitchen
- Examples of energy and water cost reduction

Good for the environment, good for your business.

- Drive to reduce costs
- Promote the design, construction and manufacturing of buildings and equipment that are environmentally responsible
- Marketing opportunities



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Core sustainability goals:

- Higher energy efficiency
- Reduced water and waste consumption
- Durability and overall efficiency to lower life-cycle cost
- Improved indoor air quality
- Addressing environmental impacts

Standards for sustainability

- U.S. Green Building Council (USGBC)
 - Leadership in Energy and Environmental Design (LEED) Green Building Rating System
 - LEED grades sustainable performance with rating points and credits
 - Provides exceptional economic benefits
- ENERGY STAR: The symbol of exceptional energy efficiency



Building a sustainable kitchen.

Kitchen design starts with the goals of efficiency, productivity and quality

Add sustainable design and you can increase profitability and lower your impact on the environment



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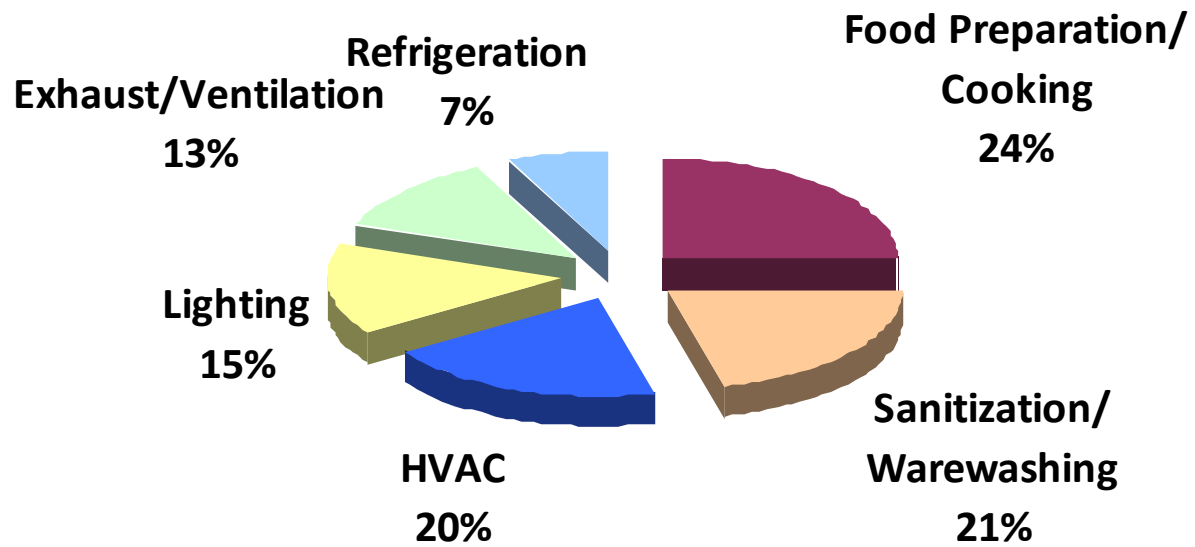
Kitchen layout

- Design kitchen space for optimum equipment performance and maximum convenience
- Equipment should be properly positioned, vented and shielded



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Energy Consumption



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Exhaust ventilation system

- Manage the interaction between HVAC, makeup air and exhaust systems
- Hood selection and sizing are essential
- Lower energy costs to heat/cool
- Kitchens are more comfortable—and more productive—work environments



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Exhaust ventilation system and air filtration

- Proper ventilation and air filtration improve indoor environmental air quality
- Air Filtration Systems
 - Entirely biodegradable natural wool filters
 - Keep metal baffle filters and exhaust hood systems virtually grease-free and lengthens equipment life



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Kitchen equipment

Select equipment designed for high energy efficiency, low water consumption and good sustainability value:

- Durability
- Immediate and long-term cost of ownership
- Day-to-day efficiency of your kitchen
- Regularly schedule preventive maintenance
 - Lengthens equipment life and enhances operating efficiency

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Equipment that lowers water consumption

- Look for warewashers, pre-spray nozzles, steamers, combi ovens and other water-intensive equipment engineered to conserve water, lower water and sewage bills, and reduce the energy cost of heating water
- Select warewashers that meet or beat LEED and ENERGY STAR standards for every kitchen, no matter what the configuration
- Minimize water consumption to reduce the burden on municipal water supply and wastewater systems



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Warewash equipment

- Some high- and low-temperature undercounter, single-tank door-type, single-tank conveyor and multiple-tank conveyor machines are now eligible for the ENERGY STAR rating: 25%+ less energy and 25%+ less water than other models
- Can save businesses energy (about 90 Btus) and an average of **\$850/year** on their energy bills
- Can expect to save more than **\$200/year** and 52,000 gallons/year



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Energy-efficient ovens

- Bakery ovens designed for higher energy efficiency
- Reduce energy consumption by 15%



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Refrigeration

- Look for ENERGY STAR labeled commercial solid-door refrigerators, freezers and hot-food holding cabinets
- Can lead to energy savings of as much as 45% with a 1.3-year payback
- Can expect to save **\$140** annually per refrigerator and **\$100** per freezer



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Refrigeration: saving energy without sacrificing safety

- There can be no compromise when it comes to food safety
- Some manufacturers may limit run time, turn off fans and heaters, or otherwise compromise the cooling efficiency of their units to achieve energy savings
- Ensure your food is safe and fresh with precise microprocessor temperature control

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Food preparation: ENERGY STAR rated Fryers



- Minimum efficiency of 50% gas and 80% electric
- Savings of up to **\$400/year**
- Some new gas fryers achieve 70%+ efficiency through enclosed forced-air modulating burner and exclusive heat exchanger
- Reduces long-term costs of operation, extends oil life, reduces oil absorption by food and achieves rapid heat recovery

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Food preparation: ENERGY STAR rated Steamers

- Electric: savings of **\$450/year**
- Gas: savings of **\$820/year**
- Compartment steamers are now a category included
- Save 90% or more on water



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Waste reduction

- Typical trash/meal = 1.5 lbs
(food waste, grease trap waste, fryer oil waste)
- Adopt zero-waste strategies
- Advance a closed-loop recycling program
 - No Styrofoam as disposable food ware
 - Minimize packaging; recycling cardboard and freight materials
 - Purchase recycled, environmentally preferable products
 - Reuse products or materials
- Donate leftover food

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Waste reduction: creating waste to energy opportunities

Turn trash into “green garbage”

- Convert waste oil to biodiesel fuel
- Grease traps of the future: catalytic converters of “brown grease” with no heat or pressure to create biodiesel, fertilizer and/or glycerin
- Composting

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High-volume composting: fewer trips to the dumpster and landfills

Pulper

- Cut foodservice waste volume by as much as 88% to reduce your disposal costs



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Water treatment equipment for longer working life

- Water treatment solutions protect your equipment investment
- Reduce scaling and other deposits that affect equipment life and performance
- Regular maintenance schedules are critical to the performance of your water-related equipment



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Lighting

- Today's daylighting orientation and improved fluorescent lighting dramatically reduce energy costs and improve visibility in your working kitchen
- Improve test scores and reduce absenteeism in schools
- Increases productivity in the workplace



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Partners

- Outside consultants and companies help make your kitchen design efficient, productive, healthy—and environmentally responsible

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