How can improvements or remodeling save me money?

Savings in the Kitchen

It is the most active room, the heart of the home. It presents the most opportunities to make an impact on your utility bills. Usage of lights & appliances, running water, gas, etc. can all be managed in a way that saves you money.

This guide presents **3 levels** of home improvements:

**Little to No Cost- $**
A guide to better kitchen habits and quick changes that can be done today.

**Modest Budget- $$**
Changes you can make yourself with some cost and a free weekend.

**Major Changes that Require Permits- $$$**
Changes that are regulated by the Energy Code, that require hiring a contractor, and getting permits from the city.
I want to start saving energy in my kitchen right now. What can I do? Level $

Power Down

Our kitchens have become the central hub of our homes. We do our office work, our homework, share meals, we hook-up and charge all our electronics in this multi-purpose room; so let’s power down.

Computers, cable boxes and other electronic gadgets consume a surprising amount of energy.

• Be sure to unplug them and/or turn them off when you’re not using them.
• If you have a computer in the kitchen, and you charge your electronic gadgets, use a power strip to turn them off.

Cookware

• Put a lid on it when you can, like when boiling water. Cooking without lids can use up to 3 times more energy.
• Don’t put a small pot on a large burner. When cooking on the stove, use a properly sized pot.
• Invest in high-quality cookware. A cheap pan with a warped bottom can use 50% more energy to boil water.
**Lighting**
- Turn off lights. This one is obvious. In addition to saving energy, turning off lights will keep your home cooler, reducing the need for, and use of, energy-intensive air conditioning.

**Appliances**
- Use the oven light to check food instead of opening the door and losing so much heat.
- An efficient dishwasher, uses 37% LESS water than washing the dishes by hand in the sink. Wait until you have a full load to run the dishwasher. Almost the same amount of water is used for half full and full loads.
- Freeze smart. Believe it or not, freezers are more energy efficient when they’re full — which is basically an excuse to stock up on ice cream, when you think about it.
- Setting your refrigerator temperature between 34 and 38 degrees is best. Also, check the door seal to make sure your fridge isn’t losing cold air throughout the day.
- Make sure your faucet isn’t leaking. A leaky faucet not only wastes a precious resource, but can cost up to $35 a year in electricity or natural gas.

**Look at the Layout**
- Locate heating appliances (stoves, ovens, and dishwashers) away from refrigerators.
- Let these appliances “breath”; allow for adequate air space around each appliance.
- Use your kitchen exhaust hood (select one that exhausts to the outside instead of recirculating kitchen air through a charcoal filter).
How can I start saving energy in my kitchen

With a Modest Budget?  Level $$

Lighting
Replace standard light bulbs with CFL (compact fluorescent lights) or LED (light emitting diode) light bulbs. They deliver lots of light using less power.

Seal the cracks
Air leakage occurs when outside air enters a house uncontrollably through cracks and openings.

- The most significant air leakage tends to occur around door and window frames.
- Ceiling air grilles and recessed lights, have small gaps that open into the attic - a direct route for conditioned air to escape.

Sealing the cracks significantly reduces cooling and heating costs, create a healthier indoor environment, and, as an added bonus, helps to prevent bugs from finding their way into the kitchen.

HVAC - Are your Air Ducts clean?
Contaminants that are pulled into the A/C system are re-circulated 5-7 times per day. A clean A/C system doesn’t have to work as hard to sustain the temperature you want and you’ll also have better air quality.

- Change your air filter every 2 to 4 months.
- Clean your air ducts every 3 to 5 years.
Important information about APPLIANCES
Whether simply replacing the old or doing a full remodel

$30 billion: Money saved by Americans using ENERGY STAR appliances, lights, and windows in 2013, saving the energy equivalent to 277 million metric tons of greenhouse gas emissions.

Select ENERGY STAR rated appliances. Your ENERGY STAR refrigerator, dishwasher, range/oven and small appliances will save you money.

Start with your Refrigerator. More than 60 million refrigerators in America are over 10 years old, costing consumers $4.7 billion a year in energy costs. Improvements in insulation and compressors have made today’s refrigerator much more efficient than older models.

Choosing your new refrigerator:
- Be sure to “right-size” your refrigerator; bigger means more energy use. Consider one with a capacity of 14-18 cubic feet.
- Select a refrigerator that does NOT have a through-the-door ice dispenser.
- It is best to avoid side-by-side models since they are energy hogs.
- Look at the yellow EnergyGuide label. Pick one that shows very low annual energy use (if possible, aim for 350 kWh/year or less).

Slash your electric bills with an Energy Star Certified Refrigerator which are about 10% more efficient than refrigerators that only meet the federal minimum standards.

There are no permits required when you replace your appliances, but permits may be required if you move or add electrical receptacles.
Building Envelope

Undertaking a kitchen remodel is a big deal, and a good opportunity to improve the “skin” of your home, the building envelope. During the remodel it is possible that the walls and ceiling will be opened up, perhaps the roof may need to be replaced. These are the “building envelope” and improvements to them last a lifetime.

Roof and Attic

If some or all of your roof needs to be replaced as part of your kitchen remodel, use a “cool roof.” It is not required by the California Energy Code, but it is the first line of defense to keep heat out of your home.

Your attic is where you can make a huge impact to reduce heat gain or loss. In the summer, the attic can exceed 120 degrees – so ADD INSULATION – minimum R-30 (about 12” thick).

If you add batts on top of the ceiling, your A/C ducts will be running through the hot air.

If you add insulation just under the roof, then the attic is considered “conditioned space” and the A/C system runs more efficiently.

In either case, seal all gaps and cracks to prevent conditioned air leaking out.

Minimum Required by Energy Code:

- Install R-30 insulation.
- Seal all cracks at the roof-to-wall joints.
**Replacing Insulation**

R-13 is required for 2x4 wood framing but by adding rigid insulation over the exterior plywood sheathing, you stop heat before it gets into the wall.

**Minimum Required by Energy Code:**
- R-11 insulation for existing walls.
- R-13 insulation for new 2x4 walls.
- R-19 insulation for new 2x6 walls.

**Replacing Windows**

In measuring the U-factor (Window Insulation Factor) and the SHGC (Solar Heat Gain Coefficient) of windows, lower is always better.

**Minimum Required by Energy Code:**
If you replace less than 75 sq. ft. of old windows, the required values are:
- U-value = 0.40 min.
- SHGC = 0.35 min.

**Lighting Design**

Pick a focus area, like an island, to highlight with special lighting. Use high efficiency lighting everywhere else.

**Minimum Required by Energy Code:**
- At least half (50%) of the light fixtures must be “high efficacy” (meaning high efficiency) lighting.

**Daylighting**

Use sunlight to light the kitchen (also consider the rest of the house) by installing solar tubes and/or skylights. Natural light makes food look better, is visually pleasing, and is free.
The steps you need to follow

REPLACE, or ADD to your current system

What should YOU do when remodeling your kitchen?

- Assemble the right design team to plan out a budget, design, and construction plans for your desired improvements.
- Select the right contractor – one who is licensed and understands Energy Code requirements.
- Submit certificates, application and plans as a part of getting a permit from your building department.
- Schedule inspections with your local building inspector to review paperwork including certificates and work completed. Inspections may include pre-inspection, tests, and final inspection.

Things to consider when your kitchen remodel project includes the exterior of your home.

- If you simply replace something, say a window that is the same size and appearance, check with the Building Department for permit information.
- If you alter the look of the exterior, like changing the size of your windows or adding a french door, check with your City Planner and/or your HOA (Homeowner’s Association) for limitations or restrictions, especially if your home is considered historic.

Visit your local Building and Planning Department for very helpful information including specific requirements for permit submittal and approvals. Design approval submittal may be required.
Building Department Checklist
Plans, Permit, and Inspection

For PLANS and PERMIT
TO OBTAIN a PERMIT, submit
1. Building Permit Application and Fees.
2. Energy Code Certificates (if needed) for A/C work or new lighting.
   a. For minor work related to HVAC: Certificate of Compliance Form CF1R-ALT-05-E Residential Alteration.
   b. For altered or added lighting fixtures: Certificate of Compliance Form CF1R-ALT-01-E Residential Alterations for Lighting/Electrical Conformance.

For CLOSEOUT
TO COMPLETE THE PROJECT:
1. Schedule inspections with the City.
2. Complete ALL applicable Certificates of Installation and Field Verification forms. For example, for lighting you will need Certificate of Installation Form CF2R-LTG-01-E.
3. Assemble and provide to the inspector all product information, product labels and forms.
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KITCHEN IMPROVEMENT SAVINGS
www.sgvenergywise.org

Check out other improvement ideas...

Electricity
Insulate
Shade
Windows
Cool Roof
Air Conditioning
Addition