- Install roof/ceiling insulation to limit heat loss and gain through the top of conditioned spaces.
- Install high-efficiency unitary air conditioner(s) and heat pump(s) with minimum efficiency requirements specified in the 2016 CA Green Building Standards Code.
- Install a Direct Digital Control System on HVAC system(s).
- Install motion sensors on lighting systems that are capable of automatically turning off all the lights in an area no more than 30 minutes after the area has been vacated.
- Install automatic daylighting control devices to control lights in daylit zones in response to the availability of daylight.
- All permanently installed outdoor luminaires employing lamps rated over 100 watts shall either have a lamp efficacy of at least 60 lumens per watt or be controlled by a motion sensor.
- Use on-site renewable energy sources such as solar, wind, geothermal, low-impact hydro, biomass and bio-gas.
- Design steel framing for maximum energy efficiency to avoid thermal bridging (i.e., heat loss through conventional wood framing).
- Install lower solar heat gain coefficient (SHGC) glazing on windows to reduce the amount of solar radiation that is allowed into a building.

City of Clayton Building Permit Process

The City of Clayton contracts with the Contra Costa County Building Inspection Division for construction plan checking and issuance of building permits. The Clayton Community Development Department first reviews construction plans for compliance with the Zoning Ordinance and engineering and stormwater requirements (if applicable), after which the plans are reviewed by the County Building Inspection Division for compliance with adopted building codes.

For More Information Contact:

Community Development Director
City of Clayton
6000 Heritage Trail
Clayton, CA 94517
(925) 673-7343

Additional Resources:

- *Contra Costa County:* www.cccrecycle.org
- *CA Integrated Waste Management Board:* www.calrecycle.ca.gov/GreenBuilding/
- *Go Solar Initiative (CA Energy Commission):* www.gosolarcalifornia.org/about/index.php
- *Cool Roof Rating Council:* www.coolroofs.org

CITY OF CLAYTON
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Energy Efficiency Measures Brochure

City of Clayton
Community Development Department

Purpose: This brochure is intended to provide an overview of some of the types of energy efficiency measures that designers, builders, and property owners may wish to consider during the planning and design process.

The measures presented in this brochure are considered voluntary in that they are not required by the 2016 California Green Building Standards Code, adopted by the City of Clayton. However, the City strongly encourages that each project within the City incorporate energy efficiency measures to the greatest extent feasible.

Residential

Site Planning and Design

- Orient buildings to optimize the use of solar energy with the long side of the house oriented within 30 degrees of south.

Energy Efficiency

- Reflective surfaces, especially on roofs and walls, will minimize the amount of solar heat that penetrates a building. Cool roofs, which consist of reflective materials and are bright white in color, reflect a large portion of the sun's heat energy back into the atmosphere. Materials should be selected for both high reflectivity and high emissivity.
- Install ENERGY STAR qualified hard-wired lighting fixtures and appliances if an ENERGY STAR designation is applicable for the appliance.
- Install ENERGY STAR ceiling fans in all bedrooms and living areas.
- Install a whole-house fan with insulated louvers or an insulated cover.
- If cooling equipment is installed, select cooling equipment with a Seasonal Energy Efficiency Ratio (SEER) higher than 13.0 and an Energy Efficiency Ratio (EER) of at least 11.5.
- Install ductwork to comply with at least one of the following:
  - Install ducts within the conditioned envelope of the building.
  - Install ducts in an underfloor crawl space.
  - Use ducts with an R-6 insulation value or higher.
  - Install ductwork which is buried in the ceiling insulation.
- Design windows to catch prevailing breezes and provide cross ventilation. Install high windows, skylights or cupolas with securable low windows to create a stack effect that exhausts rising hot air and draws in cooler outdoor air.
- Install energy-efficient windows (double-paned, low-conductivity frames and low-e coating).
- Install a solar water heating system.
- Install a solar photovoltaic (PV) system in compliance with the California Energy Commission New Solar Homes Partnership (NSHP).

  Or;

  Provide space on the roof surface and penetrations through the roof surface for future solar installation.
- Provide vegetative or man-made shading devices to create exterior shading at least 18 inches in depth on south and west windows.
- Use wall and floor materials that improve thermal mass to moderate indoor temperature swings (Concrete and other masonry products are ideal, having a high capacity for heat storage, moderate conductance that allows heat to be transferred deep into the material for storage, and high emissivity to allow absorption of more radiation than that which is reflected.).

Non-Residential

Site Planning and Design

- When site and location permit orient the building with the long sides facing north and south.

Energy Efficiency

- All equipment and appliances provided by the builder shall be ENERGY STAR labeled if ENERGY STAR is applicable to that equipment or appliance.
- Select one of the following for wall surfaces:
  - Provide vegetative or man-made shading devices for east-, south- and west-facing walls with windows, with 30 percent coverage to a height of 20 feet or top of exterior wall, whichever is less, for east and west walls.
  - Use wall surfacing with a minimum Solar Reflectance Index 25 (aged), for 75 percent of opaque wall areas.
- Utilize cool roofs to minimize the amount of solar heat that penetrates a building.