DANIELSEN
CONSTRUCTION & ENERGY MANAGEMENT
BuildHomesGreen.com

Introducing:

Energy Savings Techniques with Real Time Payback

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Performance Based Contractor
New and Existing Construction

- Are you experiencing high energy bills in your home or office?
- Are you uncomfortable in your home or office?
- Do you wonder what you can do to solve these and other issues…is there a solution?

YES! THERE IS!!!

THERE'S NO SILVER BULLET
To Saving Energy

- Your home or office is a combination of components that work together in synergy as one system.
- Utilization or replacement of just one of these components is not the answer.

So, what is the answer?
An Integrated Whole House System

- The California Contractors Home Building Performance Association and Energy Star recommend the following integrated upgrades to cut your energy bills and create comfortable and healthy environments; thus decreasing your carbon footprint and increasing the overall performance of your home or office.

What Is
An Integrated Whole House System ?

1. Air-Tight Envelope
2. Insulation (QII)
3. Heating and Air-Conditioning (properly sized, installed and commissioned)
4. Ventilation
5. Lowering Electrical Consumption (Culture – how you live)
6. Affordable Solar Photovoltaic (PV)

Let’s discuss these…

AIR-TIGHT ENVELOPE

Caulking The Bottom Plate

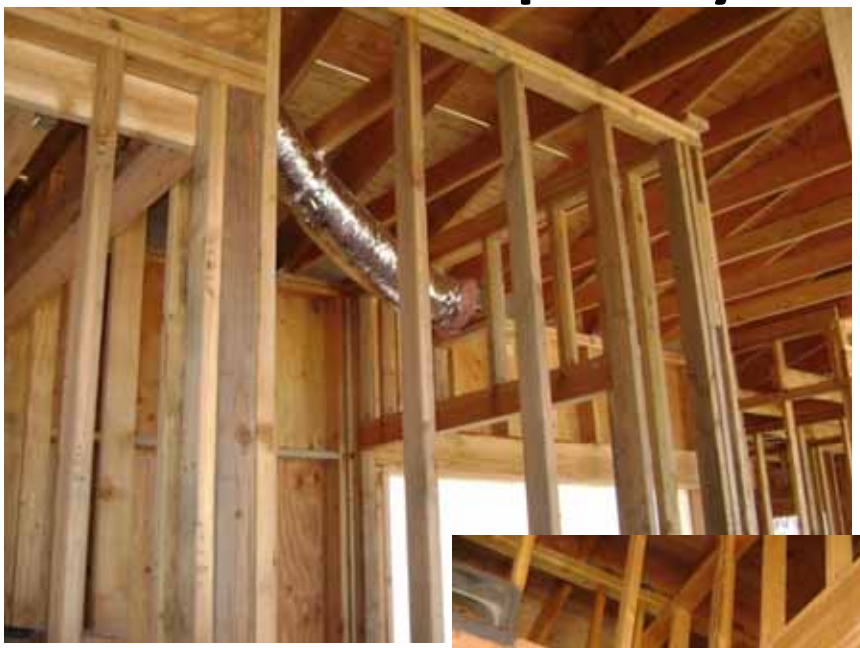
Conditioned Attic w/no attic ventilation

QII
Quality Installation of Insulation

Properly Sized H-AC System

- ACCA Manual J – for proper sizing of the heating and cooling equipment for the building
- Room to Room Calculations – for the proper amount of air for every room
- Register Size & Grill Design – properly mixing the air for every room (flow in and out)

Properly Installed H-AC



Properly Sized V (Ventilation)

- SUPPLY
- ASHRAE 62.2 Requirements
  - To Bring in a Low Amount of Filtered Air continuously 24/7/365

- EXHAUST
- Removing The Moisture From The Source
  - Kitchen
  - Bathroom
  - Laundry Room

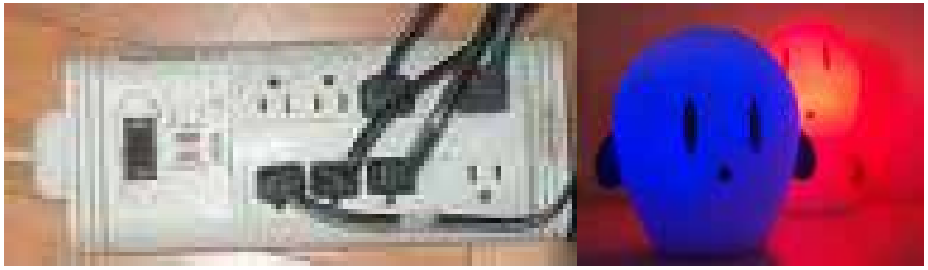
Properly Commissioned HVAC

- Balancing entire Heating & Cooling Systems
- Detailed startup to ensure:
  - Refrigerant charge
  - Fan Coil or Furnace running at requirements
  - Testing gas pressure & combustion

Lowering Electrical Usage

•Decreases the amount of energy used to light your home, heat water, air condition your home, heat and filter pools and spas, and run big energy users like refrigerators and dryers

Lowering Electrical Usage Culture

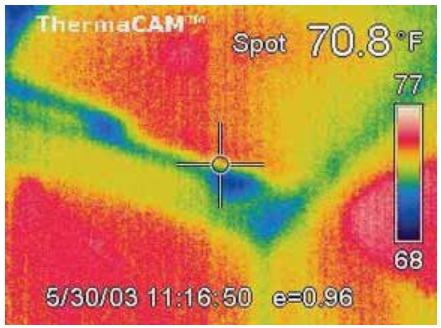


Phantom Loads

- Changing the way we live in our house

Testing

- Locating areas of improvement or work
- Safety of indoor environment
- Quantifying results upon completion of work
  - Blower door
  - Infrared camera
  - Duct testing and distribution
  - Combustion Safety Test



HYBRID SYSTEM

Reduction Before Production

The economic way towards Carbon Neutral

CASE STUDY

Home in Green Horn Creek

2008 Total Heating & Cooling Costs: $613

CASE STUDY

A Case Study

A 2,500 sq. ft. house in Angels Camp, at Greenhorn Creek

- New Construction Home completed in 2006
- Energy Upgrades and Mechanical Systems Consisted of:
  - Detailed air sealing
  - Insulation – cellulose and fiberglass batt
  - 40,000 BTU 90% Furnace
  - 2 ton 12 SEER Air-Conditioner (1,250 sq. ft. per ton of cooling)
  - Duct sizing and register design
  - Commission of HVAC system
- Cost of Upgrade - $7,800 (about $3/sq. ft. ; 1.7% additional cost to build)
- Buyback of Investment - Under three years
- Annual Heating and Cooling cost (2008) - $613 (.25 per sq. ft. per year) ($400 heating, $213 cooling)

QUESTIONS?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