Sustainability Initiative for the Coachella Valley

Voluntary Green Building Program

SOUTHERN CALIFORNIA EDISON®

An *EDISON INTERNATIONAL*® Company

green4life

Desert Cities Energy Partnership

Program Coordinated By: CVAG

Under one umbrella …

Green Buildings

RetroCommissioning (RCx)

Building Energy Use Manager

Benchmarking Buildings

Voluntary Green Building Standards

Climate Action Planning

Greenhouse Gas Inventory

Climate & Energy Action Plans

Regional Framework for Collective Action

Voluntary Green Building Standards

"soft-opening"

local jobs/business

comprehensive

Regional Green Building Program

- **A Model Green Building Standards Policy**

. . . tailored to the region

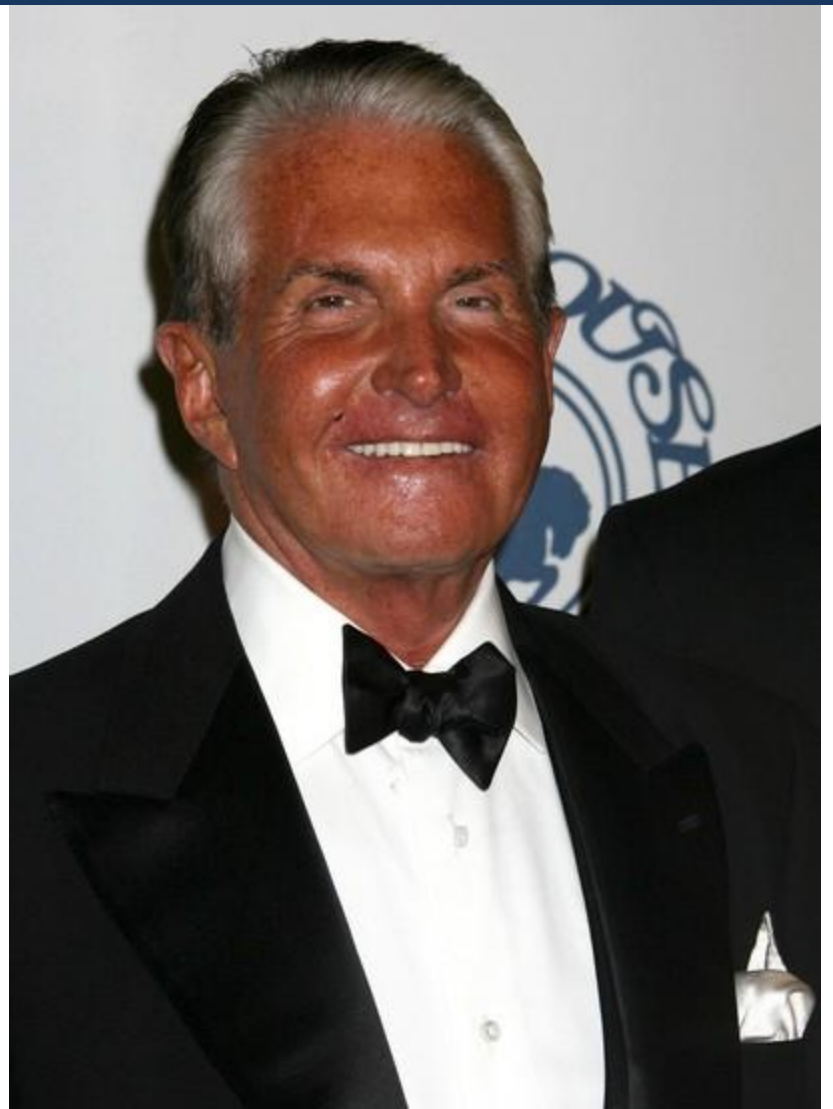

Extra Cream ICE CREAM
MIND THAT CHILD

Regional Green Building Program

Regional Green Building Program

- **Even our Actors have adapted to our climate!**

George Hamilton



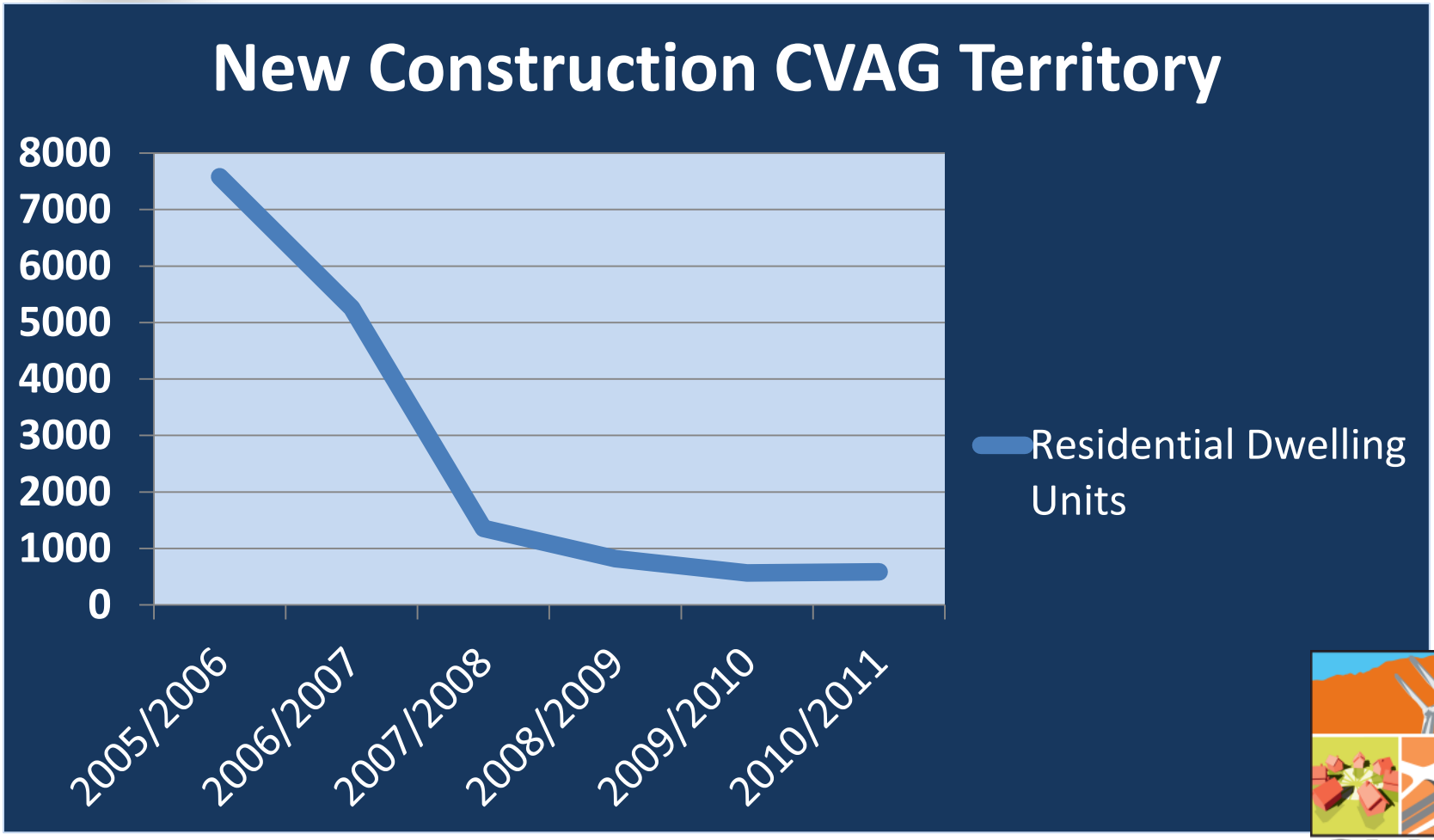
Shade Makes it Cooler!

Regional Green Building Program

- **Why a Voluntary Approach???**

Didn't want to Anger our Development Community

Regional Green Building Program



CVAG

Regional Green Building Program

How does it Help?

Elected Officials

- Efficient Buildings will help boost the Economy
- Train their local contractors for FREE
  - Help local Mom and Pop Contracts build cost effective Buildings
  - Help local contractors to be able to reach Zero Net Energy standards for Residential and Commercial by 2020 and 2030
  - Regional Wide Program- No City implements it alone

Regional Green Building Program

SOUTHERN CALIFORNIA EDISON


EVERY MONTH WE EXPORT
$60 MILLIONS OF
DOLLARS
from the COACHELLA
VALLEY
OF THAT ONLY A TINY
FRACTION STAYS LOCAL
FOR ELECTRICITY...

- About $700 Million a year is spent on electricity in the Coachella Valley.
- imagine if collectively we could SAVE just 10 percent.
- $70 Million dollars a year would stay in the Coachella Valley.
- Now THAT would create a lot of JOBS.

- Increase consumer spending on goods and services
- Increased Local Tax Revenues – Sales Tax, Property Tax, and Income Tax

Increases revenues to the City coffers!

LIKE HEALTHCARE - LEAST INVASIVE FIRST

environmental factors- SHADE

stop the bleeding- SEAL GAPS & CRACKS

treat the skin- COOL ROOF
WINDOW FILM

better circulation- CEILING & WHOLE HOUS FANS
OPENABLE WINDOWS

organ transplant- REPLACE THE AIR CONDITIONER

Regional Green Building Program

How does it Help?

Local Contractors

- Train local contractors for FREE
  - Help local Mom and Pop Contracts build cost effective Buildings
  - Help local contractors to be able to reach Zero Net Energy standards for Residential and Commercial by 2020 and 2030

Regional Green Building Program

How does it Help?

Local Contractors

- Provide them with a Green Building App that helps bridge the communication GAP between them and their clients
  - Marketing tools and materials
- Help them up-sell through energy efficiency.
- Gear the program towards remodels

IT'S NEVER TOO LATE TO

INSULATE

YOURSELF FROM HIGHER ENERGY COSTS

Adding any a... building can ...

INSULATION

CAUTION: Ov... heat inside no... temperature d...

Combined to...

CREATE

SHADE

TO STAY COOL

Even in the win... hot. In our des... consumption.

SHADE ....the ...
....conc...
....conc...
islan...
....walls...
....winc...

CHOOSE THE RIGHT

HVAC

EQUIPMENT TO KEEP YOU COOL

Roughly 100 million to... the air each year from ...

MAINTAIN YOUR E...

- Check and replace f...
- Inspect condensate...
- Routine maintenanc...
- Inspect for cold-air l... AC coils
- Balance the air distr...

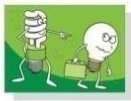
High-performance HV... duce energy savings ... period of about three ...

New...

MONITOR YOUR USE OF

ELECTRICITY

A building's int... consumer of el... source of intern...



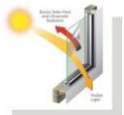
Indoor & outdoo... of electric consu...

A

WINDOW

ON SAVINGS

I've got old, leal...



A

COOL ROOF

OVER MY HEAD

- *Reflects the sun's radiation: "reflectivity"*
- *Gives off heat quickly: "emittance or emissivity"*

A "cool roof" can save up to 15% on your AC load and add years to the life of your roof.

So you save money immediately with lower electrical bills and in the long run by post-poning re-roof

You can SPRAY IT

- Spray foam is waterproof & provides high insulation value
- Lightweight but durable

You can OVERLAY IT

- White single-ply reflects up to 90% of the sun's energy
- Costs $3.50-$4.50/SF

You can REPLACE IT

with metal, light weight concrete, even asphalt

MAINTENANCE

WHY

GREEN

MEANS MORE BUSINESS

www.greenforlifecv.org

Understanding green principles & ways to finance upgrades will increase business. Being knowledgeable brings referrals.

Integrated Design

When building owners go green, lots of trades are involved. Costs are greatly reduced when the right strategies are designed as a system

- Energy efficiency
  Lighting, HVAC, Insulation, Mechanical controls
- Water
  Low-flow plumbing fixtures
- Indoor Air Quality
  Replace ducts, windows
- ...oofing
  Cool roof

...king is Green

...u do is only PART of the whole ...h & network of GREEN. ...is networking ...y you to other businesses

Incentives

Utility incentives:

- Southern California Edison (SCE.com)
- Southern California Gas Company (http://www.socalgas.com/)
- Go Solar California http://www.gosolarcalifornia.ca.gov/

Local incentives:

- City of Palm Desert "Set to Save" (http://settosave.com/)

Government incentives:

- California Energy Commission (http://www.fypower.org/)

Funding Sources

- Property Assessed Clean Energy (PACE): http://pacenow.org/blog/
- Energy Service Companies (ESCOs): http://www.naesco.org/

...ison under the auspices of the California Public Utilities Commission.

Green for LIFE

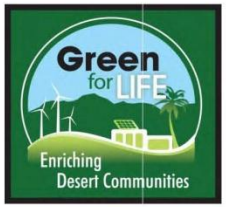
TECHNICAL BUILDING MEASURES AND POINT SYSTEM

FOR THE HOMEOWNER PLANNING TO BUILD A NEW HOME

9	ROOF: • Use "cool roof" coating or materials			
9.1	T24 • Rigid insulation on top of roof sheathing.			
9.2	T24 • Install "cool roof" system.	CG A4.106.5, AZ (Scott) & GPR P.E.1		
9.3	T24 • Install a radiant barrier at the roof level.	CG A4.205.1		
9.4	T24 • Consider "cool roof" coating for roofing	CG A4.106.5 & AZ (Scott)		
9.5	T24 • In a vented attic design, install continuous ridge vent and eave vents for effective thermally-driven ventilation.			
9.6	T24 • Use solar powered attic exhaust fan.			
9.7	• If metal roof system is being considered, design metal roof with stand-off battens to allow free flow thermally-driven air between roof sheathing and metal roofing.		2	☑ # ☑
9.8	• Avoid petroleum-based roof system.		2	# ☑
9.9	• Use roof with a high durability/low maintenance material such as concrete, slate, clay or fiber cement.	AZ (Scott)	2	#
9.10	• In a vented attic design, install continuous ridge vent and eave vents for effective thermally-driven ventilation.	AZ (Scott)	2	☑
9.11	• Use non-sawn lumber to frame the roof structure (at least 75%). Non sawn lumber uses less lumber. SEE FRAMING CONSIDERATION.	AZ (Scott)		
9.12	• Energy heels on roof trusses (75% of attic insulation height at outside edge of exterior wall)	GPR D.6	2	☑ #
	Subtotal:		10	

10	ATTIC: • Add insulation in the attic; Ventilate the attic; With evaporative coolers, discharge upducts through roof or the exterior.			
10.1	T24 • Perform third party blower door test to verify building envelope tightness.	CG A4.206		

cool roof



How to Build
or Remodel
Energy Efficient Homes
and Businesses

VOLUNTARY GREEN BUILDING MANUAL

This Voluntary Code was produced by the collaborative effort of **Southern California Edison, Coachella Valley Association of Governments, Terra Nova Planning & Research and Interactive Design Corporation**

A GUIDE TO THE
VALLEY-WIDE VOLUNTARY
GREEN BUILDING PROGRAM

GUIDE
GUIDE
GUIDE
GUIDE
GUIDE

Green For Life is an energy-saving program funded by the California Public Utilities Commission through Southern California Edison and administered by the Coachella Valley Association of Governments.

Green Building Program

Practical

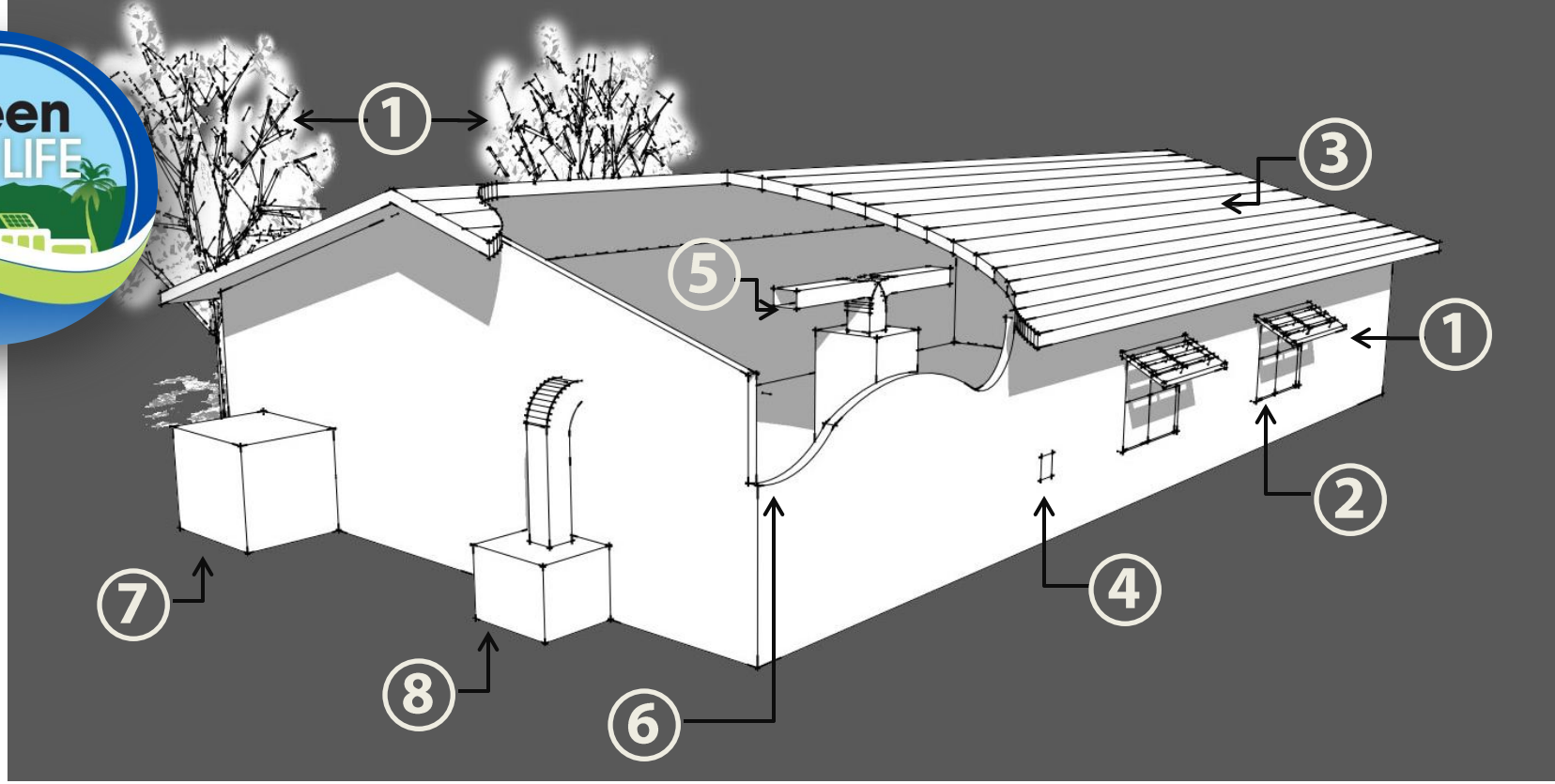
what should I do?

Informative

why will that help?

Comprehensive

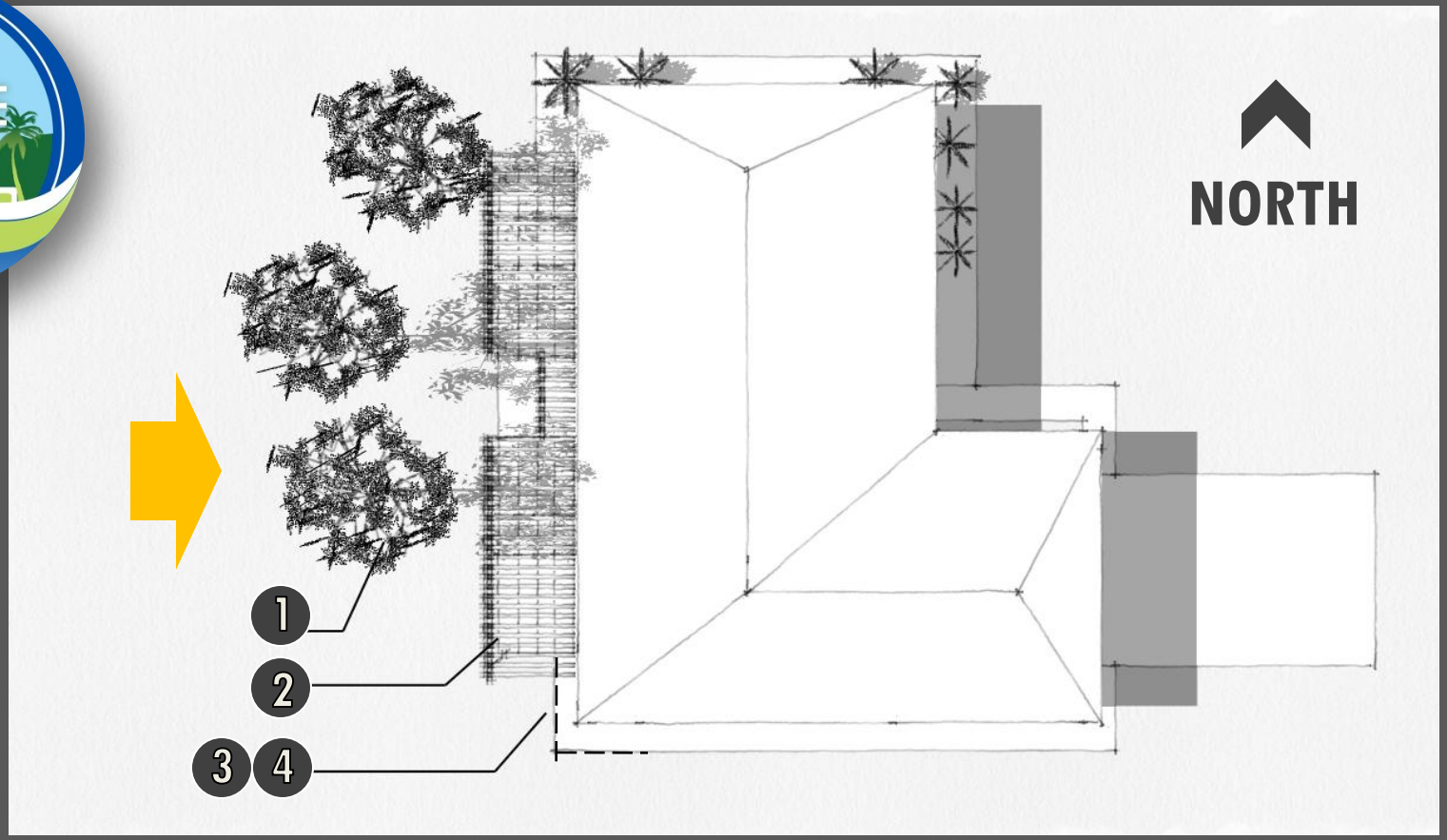
works with Title 24 & CALGreen



WHAT SHOULD I DO?

1 SHADE
2 WINDOWS (E, S & W)
3 COOL ROOF
4 AIR SEAL
5 DUCT SEAL
6 ENVELOPE INSULATION
7 HVAC ≥SEER 13
8 EVAPORATIVE COOLER

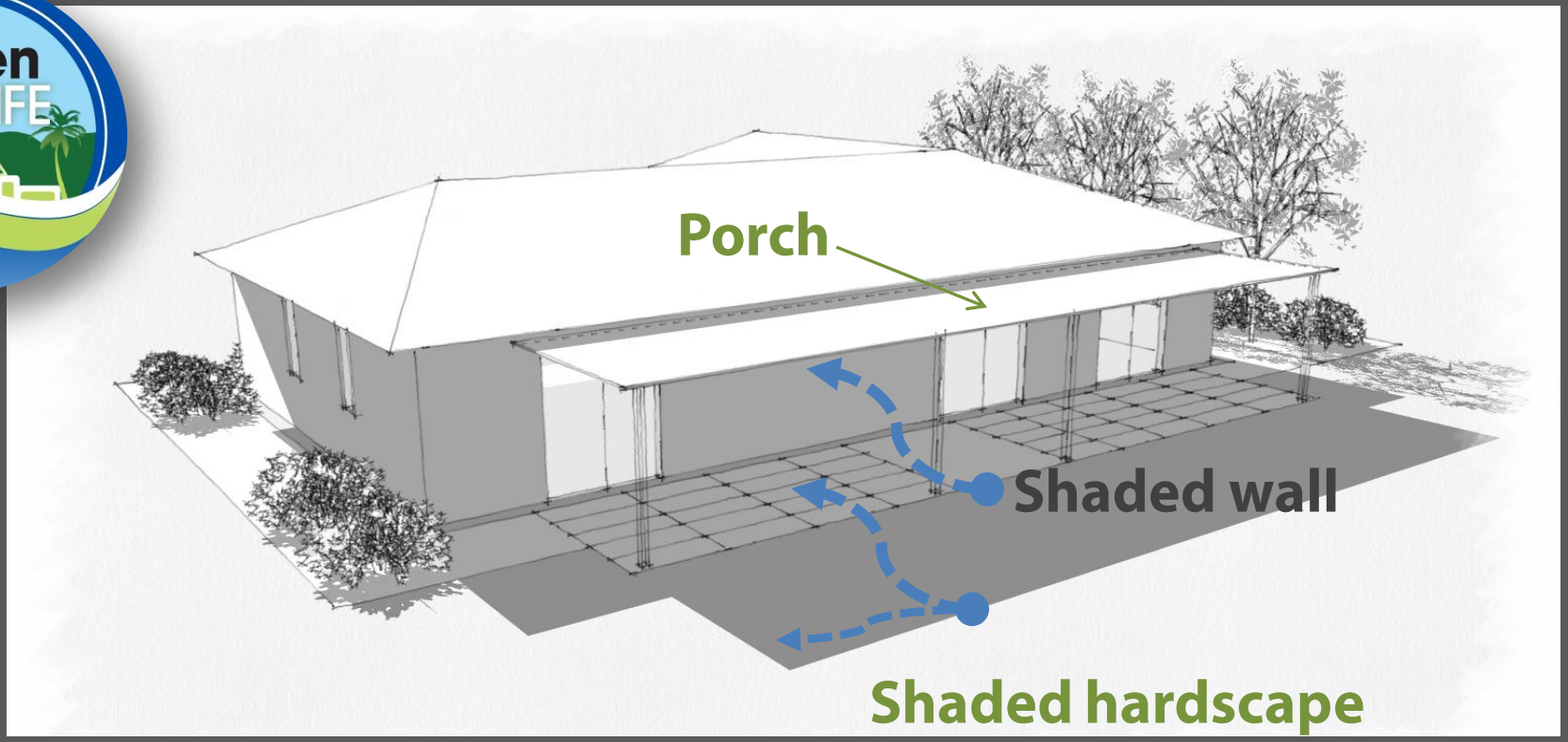
the basics

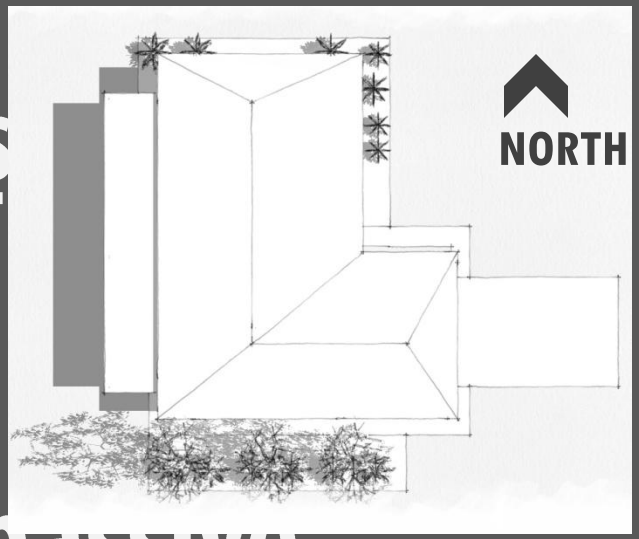


Shade western exposure

1. TREES
2. PATIO COVER
3. LATTICE/VINES
4. VENTILATED WALL

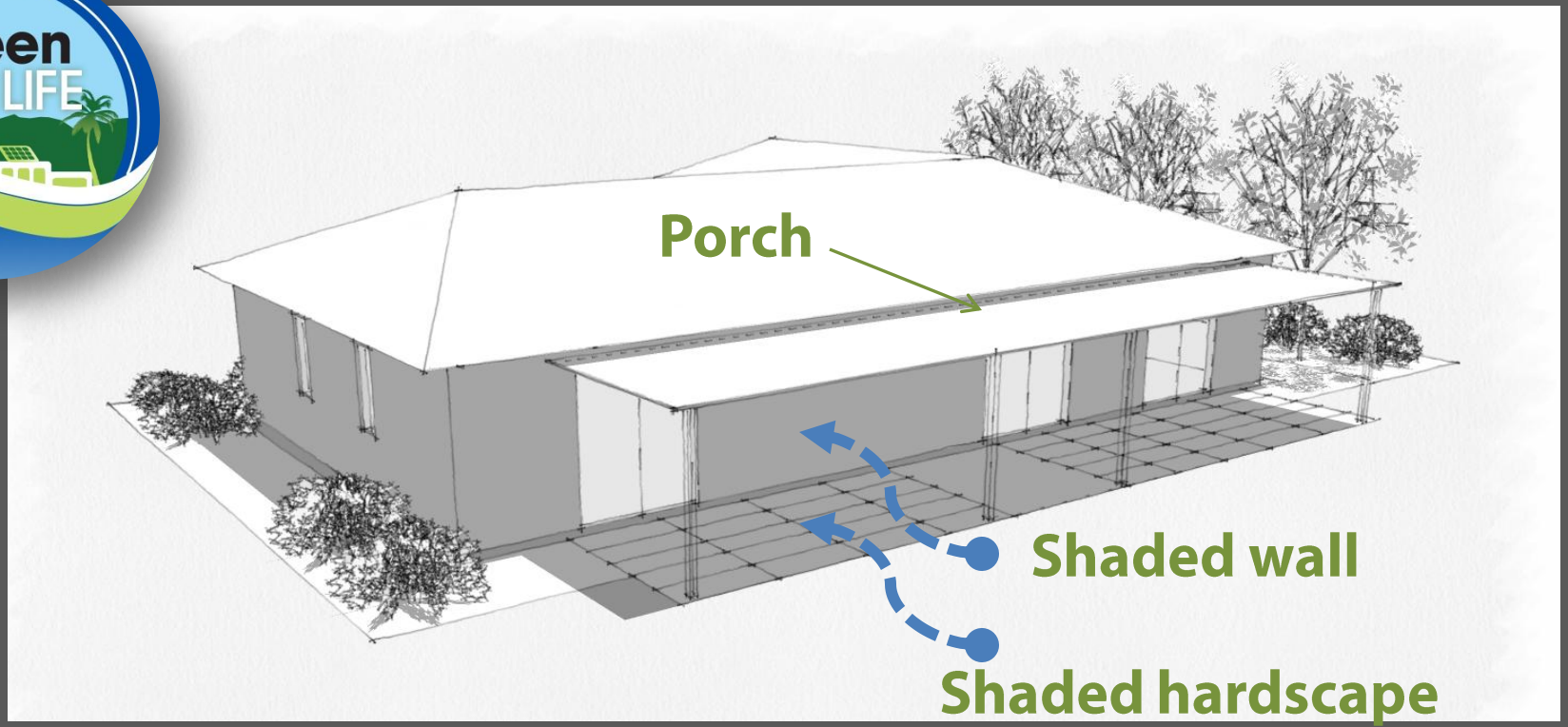
site considerations

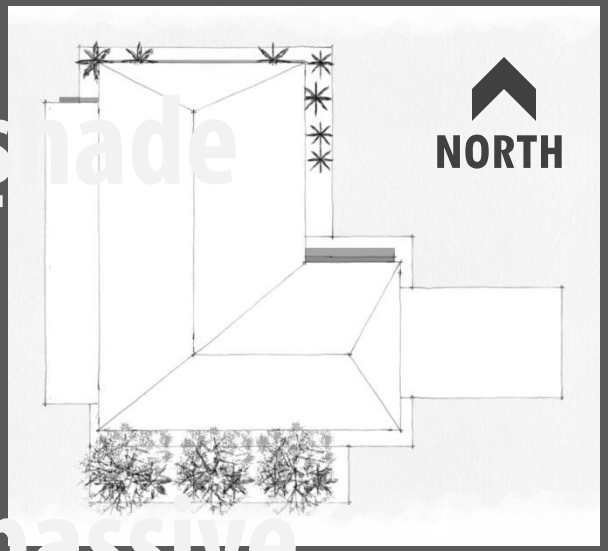




JUNE 21, 8am

passive

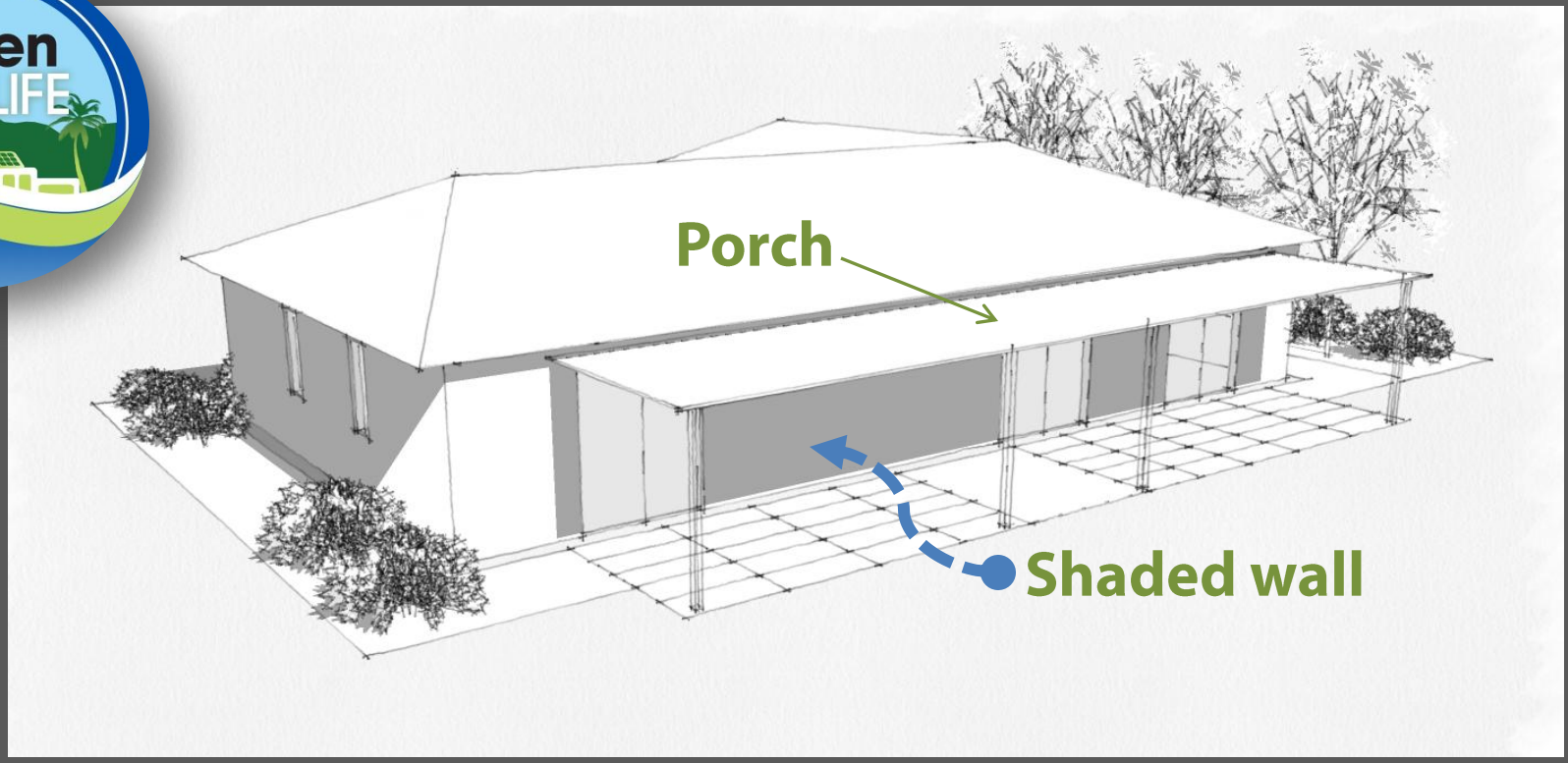


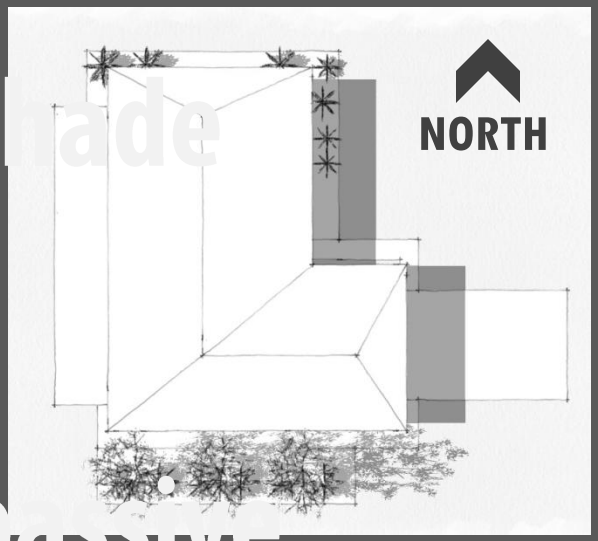


Shade

passive

JUNE 21, 12pm

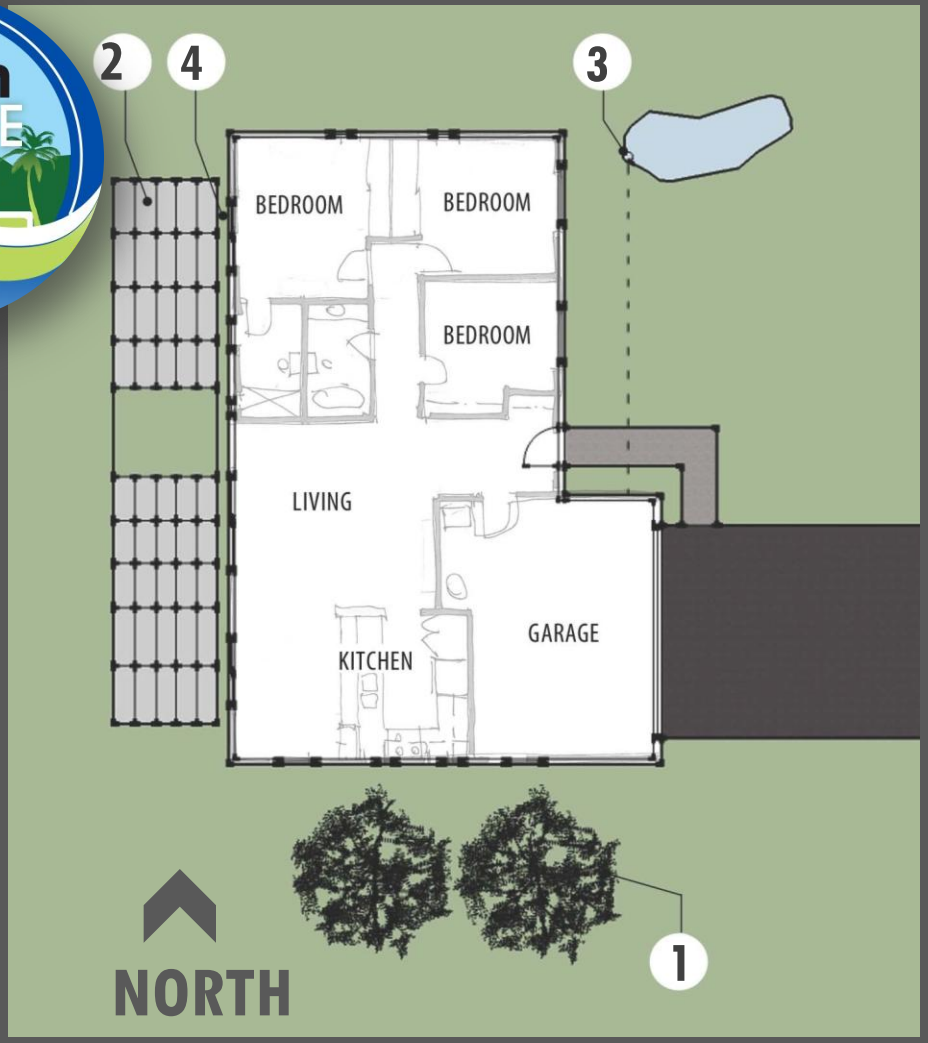




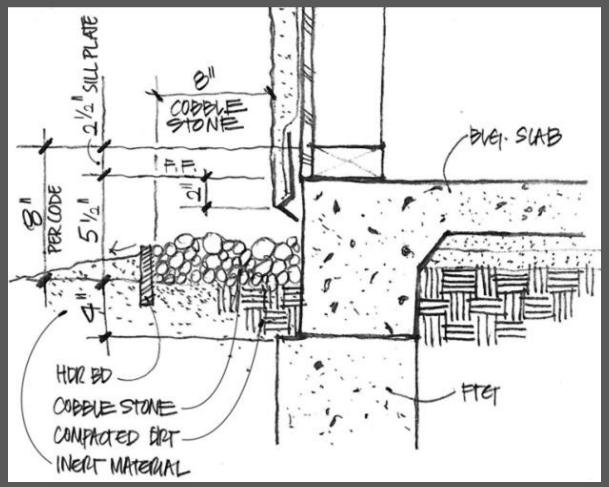
Shade

passive

JUNE 21, 4pm



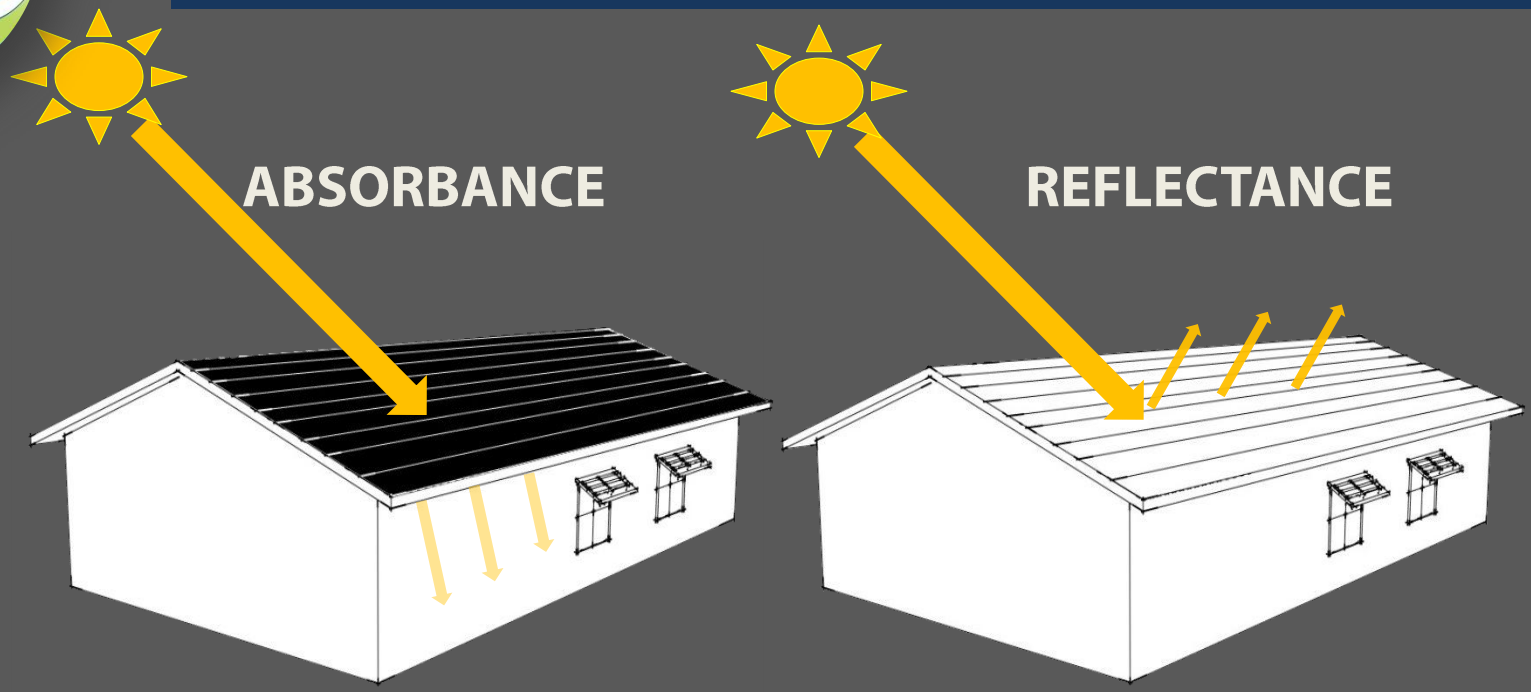
1. TREES
2. SAW CUT INTO PATTERN & REMOVE SOME
3. INSTALL GUTTER & CREATE DRY CREEK BED RETENTION AREA
4. SEPARATE THE CONCRETE, REPLACE WITH PAVERS (SEE DETAIL BELOW)



make the site work for you

site considerations

AIR TEMPERATURE: 37°C (99°F)

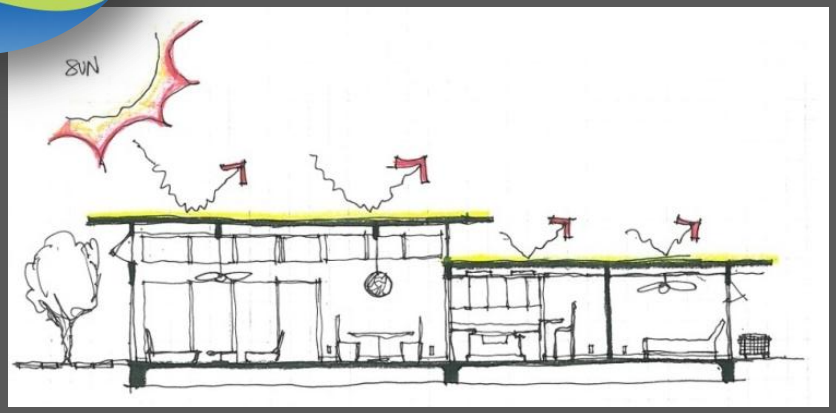


DARK ROOF : 80°C (177°F)

LIGHT ROOF : 44°C (111°F)

66°F Difference

cool roof



	METHOD	COST	LIFE SPAN (YEARS)
1	Spray Coating	$2-3/SF	5 - 10
2	Single-ply Roof Membrane	$4-5/SF	30
3	New tiles	$4-5/SF	30

1

2

3

AIR CONDITIONING NUTS & BOLTS

What is the existing condition?

DO YOUR HOMEWORK

1. Leaky ducts?
2. Leaky house?
3. Leaky windows?
4. Oversized equipments?

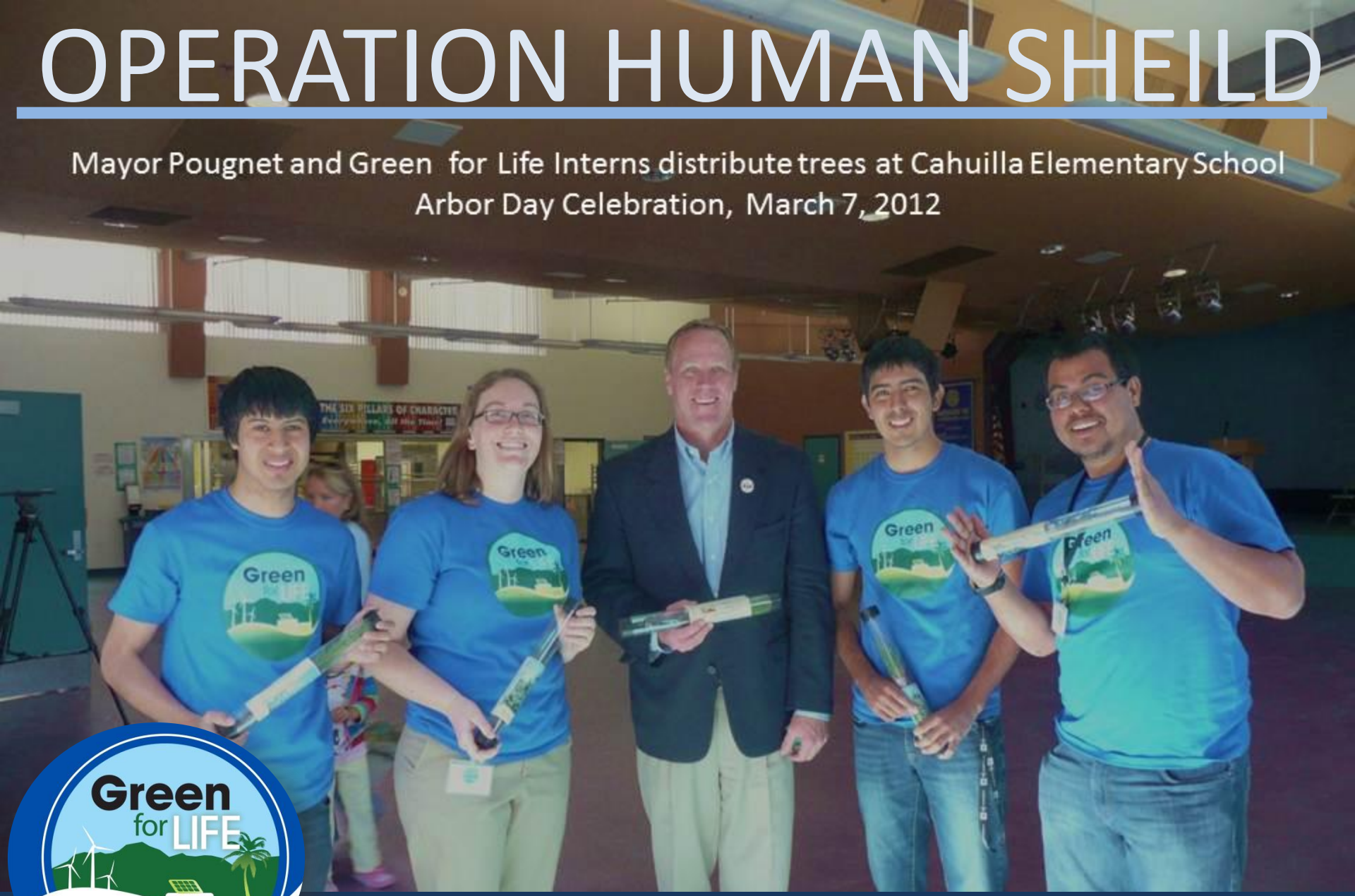
Team involved:

- HERS professional
- Mechanical Contractor
- SCE audit

IMPROVEMENTS WHICH REQUIRE PERMITS

1. WINDOWS
2. WATER HEATER REPLACEMENT
3. HVAC (A/C) CHANGE OUT
4. REROOF
5. PATIO ENCLOSURE

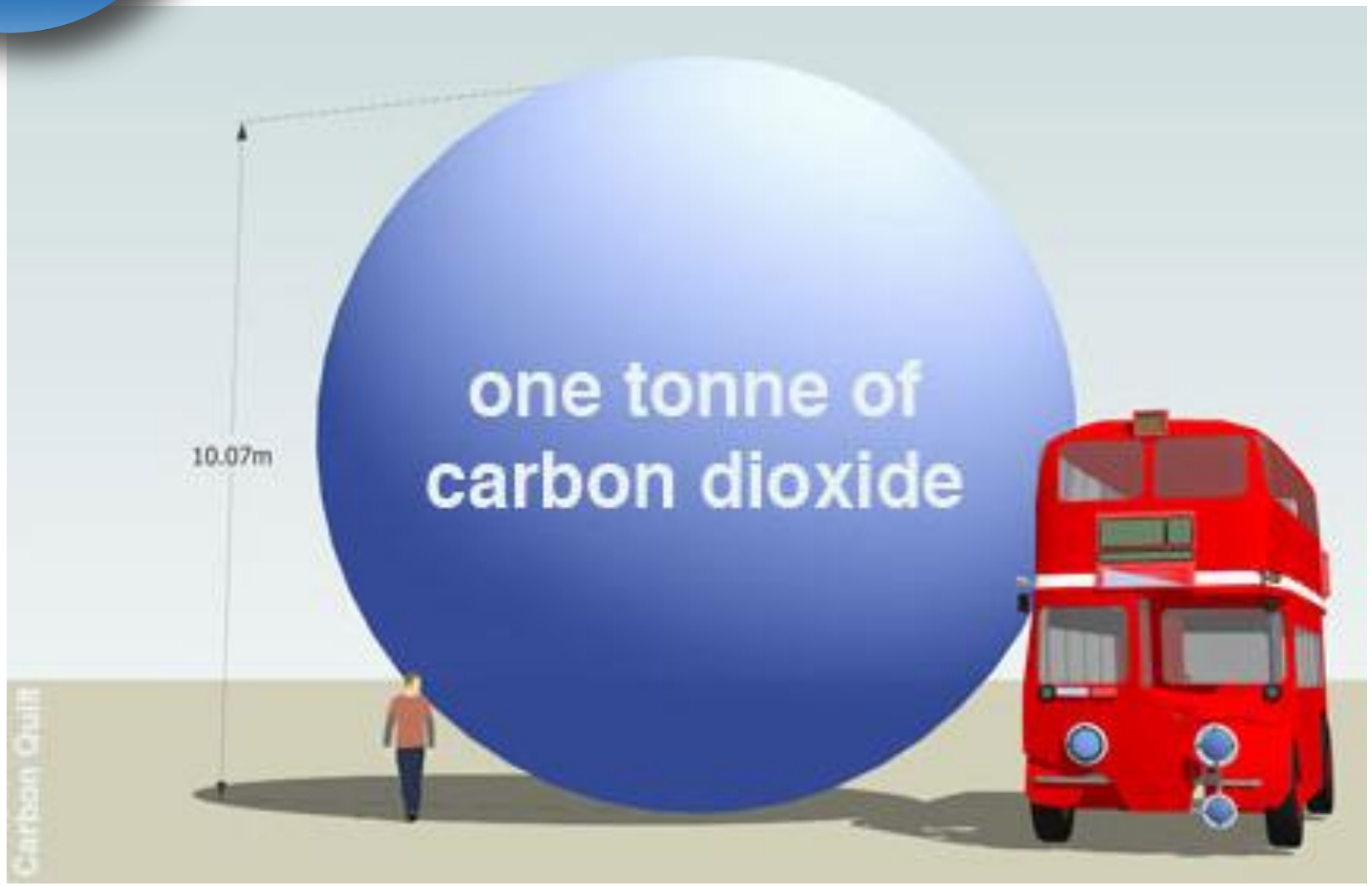
OPERATION HUMAN SHEILD



Mayor Pougnet and Green for Life Interns distribute trees at Cahuilla Elementary School Arbor Day Celebration, March 7, 2012

Interns in Action!

Invisible Carbon Dioxide



Emissions Time Bomb

32 ft.
1 TON CO2

70 ft.

74 ft.
OC Great Park Balloon


1 TON CO2
Meet Future Challenges Together
California Emissions...
You Can Save A Ton!

Copenhagen's ONE Tonne of CO_2!

Green for LIFE

SOUTHERN CALIFORNIA EDISON

Do not touch it!
Immediately CALL 911!


HVAC?
SEER 16
SEER 13
WINDOWS
SHGC?
0.36
0.30
INSULATION
R-VALUE?
R-13
R-19
UPFRONT
$
payback
¢¢¢¢¢
¢¢¢¢¢
¢¢¢¢¢

Green Building Web App

Art Concept

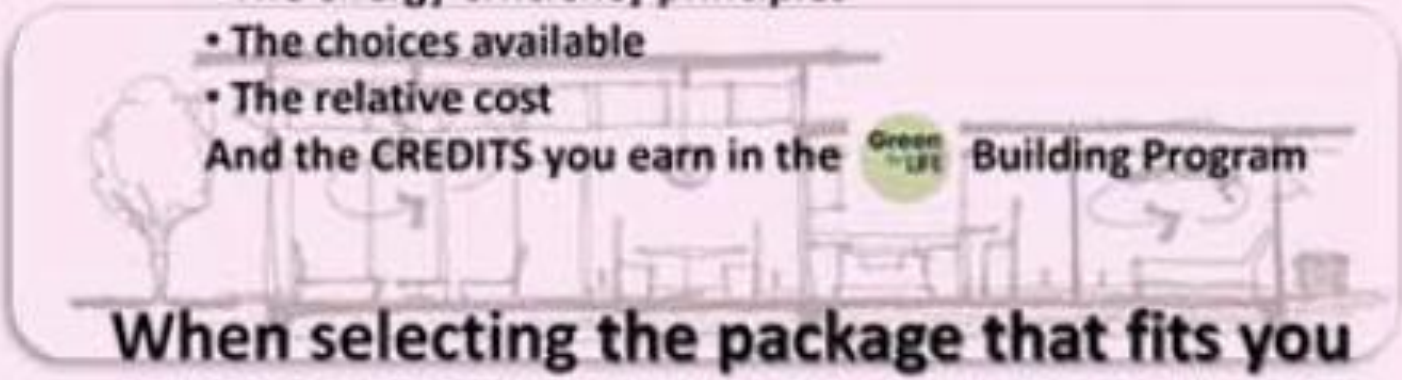
my DESERT Green for LIFE Home

When selecting the parts

You can learn about

- The energy efficiency principles
- The choices available
- The relative cost

And the CREDITS you earn in the Green for LIFE Building Program

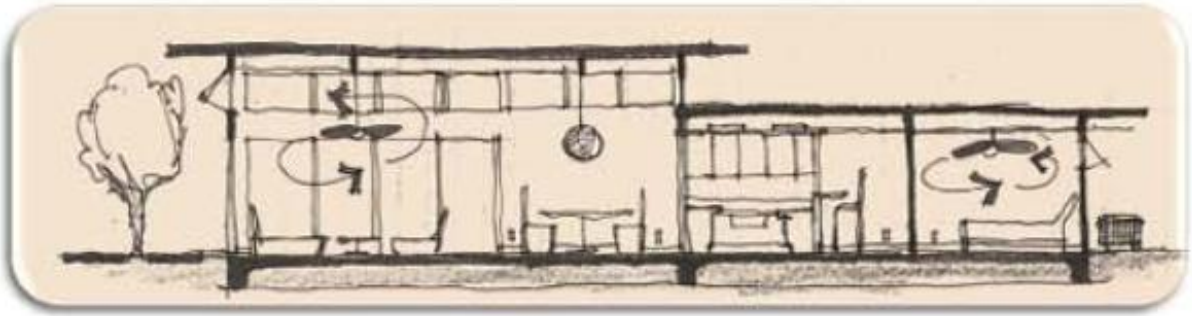


When selecting the package that fits you

- You can immediately see how the Group of choices made for you work as a whole at your desired level of involvement

my DESERT Green for LIFE Home

How to be $mart $aving energy



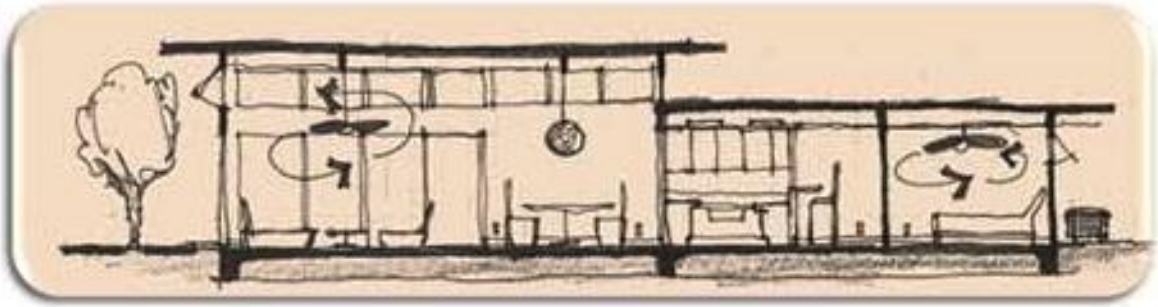
- select the parts *yourself*
- select the packages *that fits you*

DOWNLOAD GREEN BUILDING MANUAL

DOWNLOAD GREEN BUILDING CHECKLIST

Easy to use with Basic Information

my DESERT Green for LIFE Home

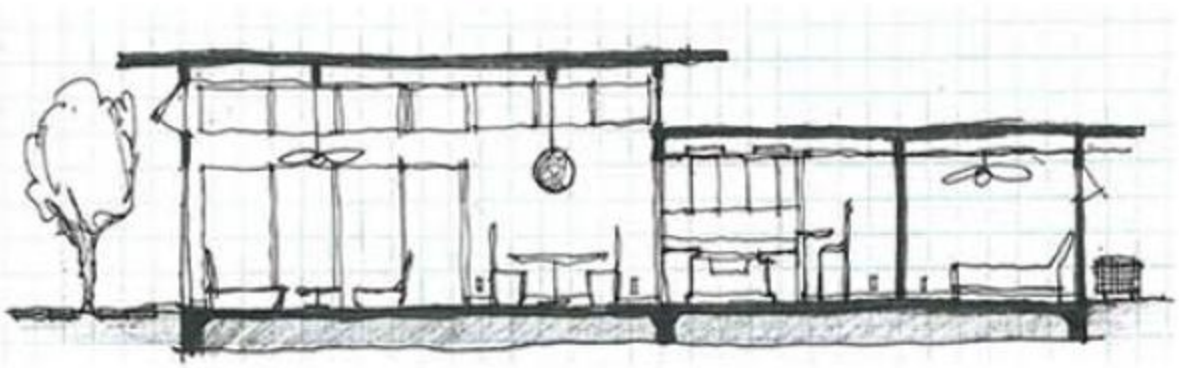


How big is your house? SF

What year was it built?

CVAG

What type of Green for LIFE PACKAGE for you?



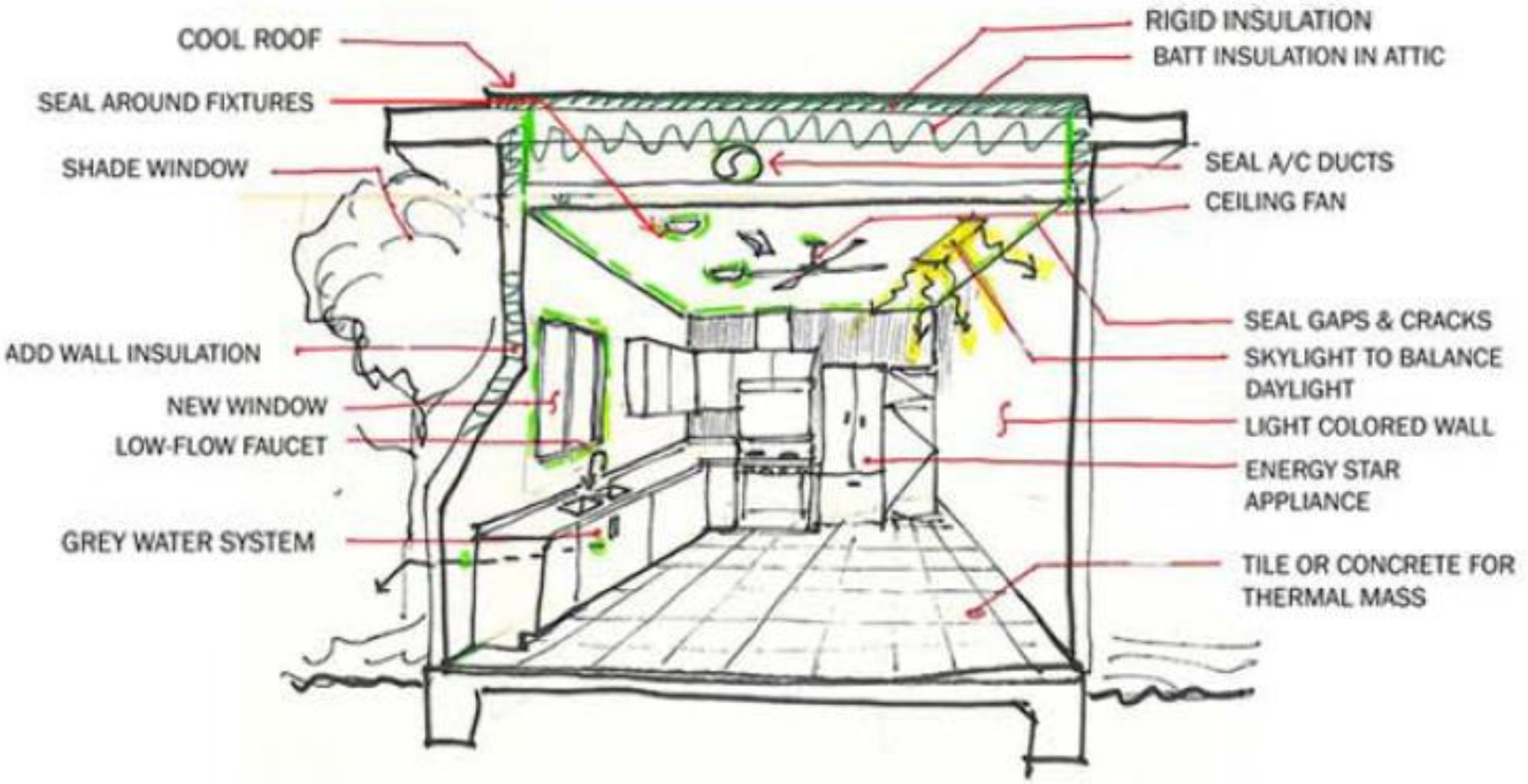
Room Remodel

- Family Room
- Kitchen
- Bathroom
- Add a Room

Around the House

- Beginner
- Intermediate
- Advanced
- Emergency

my Green for LIFE KITCHEN REMODEL



Green for LIFE beginner PACKAGE

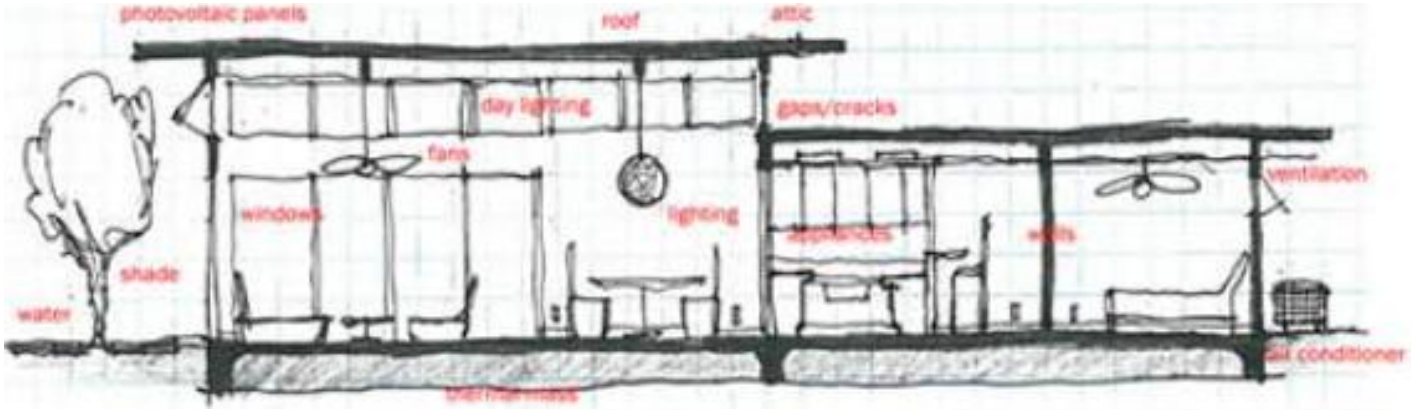
Site
- Orientation
- Shade
- Water (Rain, Drainage, Usage)

Envelope
- Roof
- Attic
- Walls
- Windows
- Gaps & Cracks

On-site
- Photovoltaic Panels
- Solar Thermal

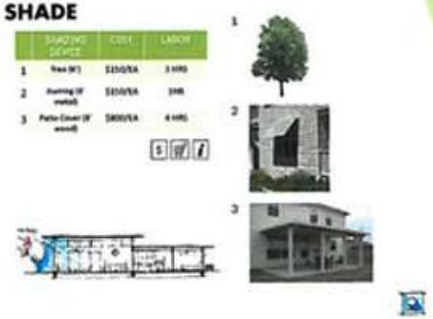
Passive
- Thermal Mass
- Day lighting
- Lighting
- Ventilation

Equipment
- Air Conditioner
- Water Heater
- Evaporative Cooler
- Exhaust /Whole House fan
- Appliances



Green for LIFE beginner PACKAGE

SHADE



(2) Trees @ $300

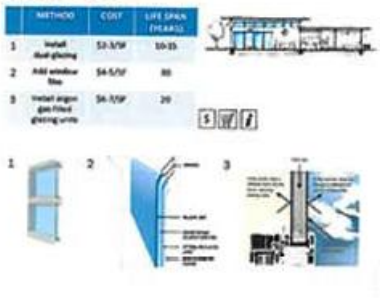
ROOF

my DESERT Home

Your roof is scorched by the sun everyday. A "cool roof" reflects some of the heat and doesn't store heat. "Reflectivity" and "emissivity" are the technical terms.

Spray Coating @ $2/SF

WINDOWS



Window film @ $1/SF

Gaps & Cracks @ $20 per foam can

my DESERT Green for LIFE Home

CVAG

How to be $mart $aving energy

- select the parts *yourself*

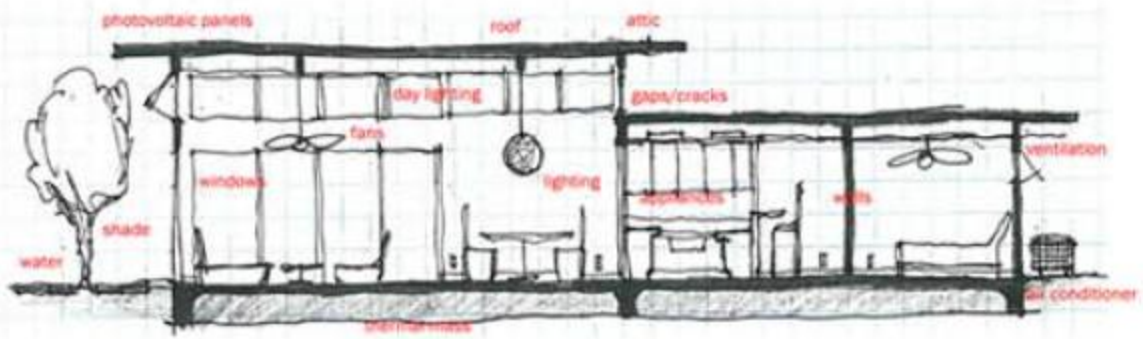
- select the packages *that fits you*

DOWNLOAD GREEN BUILDING MANUAL

DOWNLOAD GREEN BUILDING CHECKLIST

my DESERT Green for LIFE Home: the PARTS

and how they can save me money



Site
- Orientation
- Shade
- Water (Rain, Drainage, Usage)

Envelope
- Roof
- Attic
- Walls
- Windows
- Gaps & Cracks

Passive
- Thermal Mass
- Day lighting
- Lighting
- Ventilation

Equipment
- Air Conditioner
- Water Heater
- Evaporative Cooler
- Exhaust /Whole House fan
- Appliances

On-site
- Photovoltaic Panels
- Solar Thermal

COOL ROOF for my Green for LIFE

ome

Choos

Your roo f the heat

and doe erms.

SP

MY GREEN HOME

$

My Green for LIFE **SHOPPING CART** for **the PARTS**

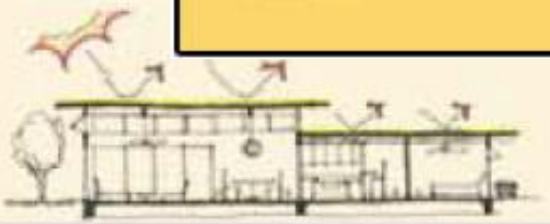
Your house is 1500 sf

was built in 1976

HAVE YOU CONSIDERED...

- Roof
- Attic
- Walls
- Windows
- Gaps & Cracks

continue shopping



My Green for LIFE **SHOPPING CART** for: **the PARTS**

Your house is 1800 sf
was built in 1976

SITE
outside elements affecting your home
- Orientation
- Shade
- Water (Rain, Drainage, Usage)

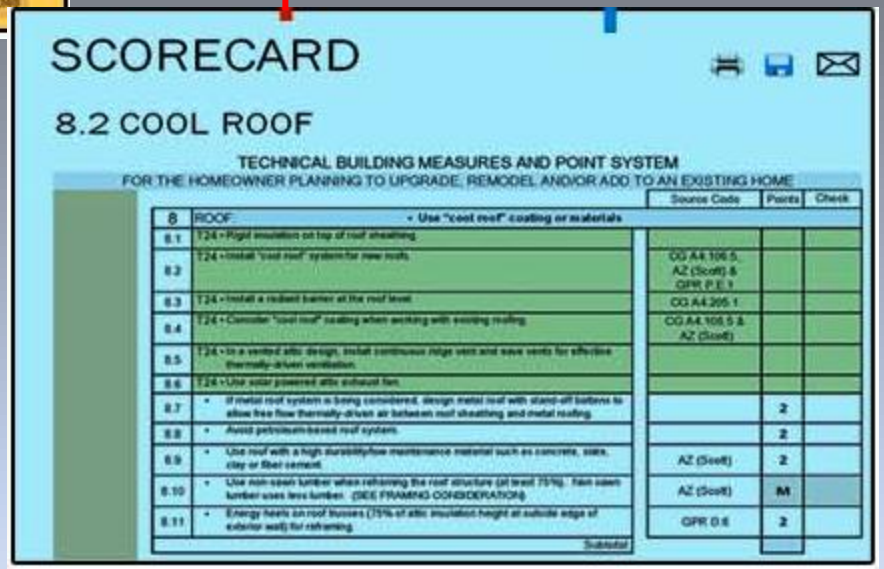
ENVELOPE
separates inside from outside
- Roof
- Attic
- Walls
- Windows
- Gaps & Cracks

PASSIVE
moderates temperature
- Thermal Mass
- Day lighting
- Lighting
- Ventilation

EQUIPMENT
conditions air and water
- Air Conditioner
- Water Heater
- Evaporative Cooler
- Exhaust Fans (Whole House)
- Appliances

ON-SITE GENERATION
utilize the sun's energy
- Photovoltaic Panels
- Solar Thermal

OPTION	COST	UPGRADE	CREDITS	POINTS
TREES [3] TREES @$350]	$ 1,050	$	2.2e	5
SPRAY COOL ROOF [1,000 SF @ $2.5]	$	$ 5000	8.2	4
WINDOW (FILM) [6] WDWS @ $25]	$ 150	$	8.6e	2
GAPS & CRACKS [SEALANT @ $500]	$ 500	$	4.7	2
THERMAL MASS [REMOVE CARPET, PAINT CONCRETE 600 SF @ $2]	$ 1,200	$	6.1	3
DAYLIGHT [1] TUBULAR SKYLIGHT @ $600/EA]	$ 600	$	6.3e	1
LIGHT [8] CFL @ $10/EA]	$ 80	$	6.2e	
CEILING FANS [2] FANS @ $400/EA]	$ 800	$	7.2	3
SUBTOTAL	$ 4,380	$ 5000		
TOTAL	$			9,380



SCORECARD

8.2 COOL ROOF

TECHNICAL BUILDING MEASURES AND POINT SYSTEM
FOR THE HOMEOWNER PLANNING TO UPGRADE, REMODEL AND/OR ADD TO AN EXISTING HOME

		Source Code	Points	Check
8	ROOF: • Use "cool roof" coating or materials			
8.1	T24 • Rigid insulation on top of roof sheathing			
8.2	T24 • Install "cool roof" system for new roofs	CG A4.106.5, AZ (Scott) & GPR P.E.1		
8.3	T24 • Install a radiant barrier at the roof level	CG A4.205.1		
8.4	T24 • Consider "cool roof" coating when working with existing roofing	CG A4.106.5 & AZ (Scott)		
8.5	T24 • In a vented attic design, install continuous ridge vent and eave vents for effective thermally-driven ventilation			
8.6	T24 • Use solar powered attic exhaust fan			
8.7	• If metal roof system is being considered, design metal roof with stand-off battens to allow free flow thermally-driven air between roof sheathing and metal roofing		2	
8.8	• Avoid petroleum-based roof systems		2	
8.9	• Use roof with a high durability/low maintenance material such as concrete, slate, clay or fiber cement	AZ (Scott)	2	
8.10	• Use non-sawn lumber when reframing the roof structure (at least 75%). Non-sawn lumber uses less lumber. (SEE FRAMING CONSIDERATION)	AZ (Scott)	M	
8.11	• Energy heels on roof trusses (75% of attic insulation height at outside edge of exterior wall) for reframing	GPR 0.6	2	
	Subtotal			

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California Public Utilities Commission.