

# **COST EFFECTIVE WAYS TO HELP BUILDERS ACHIEVE A DESIRED HERS™ INDEX SCORE**

Presented by SkyeTec



# About SkyeTec

**Green &  
Energy  
Solutions**

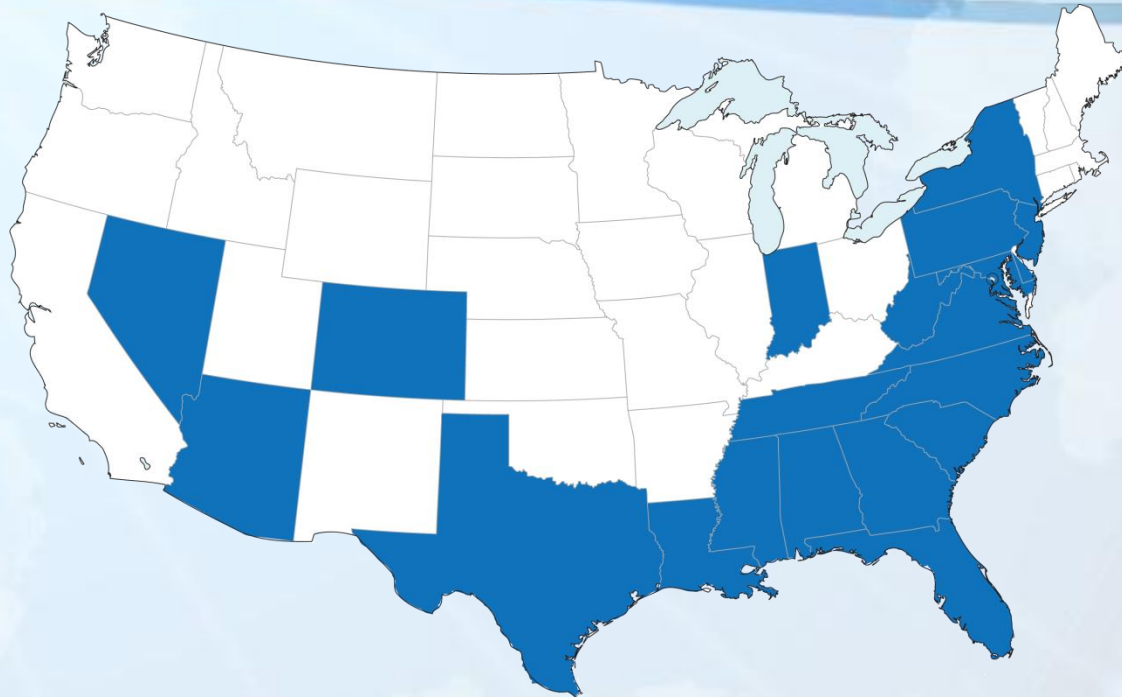


**Indoor Air  
Quality  
Solutions**

**Building  
Science  
Solutions**



# Geography



*SkyeTec has evaluated homes in numerous climate zones and construction styles across the U.S.*

# Experience

In 2013, SkyeTec  
on pace to rate  
approx. 13,000  
homes

# Agenda

- Rating misconceptions
- Design Phase
- Construction/Specifications

# Common Misconceptions

Increase the SEER  
of the HVAC unit



Decrease the SHGC  
and U-Factor

Increase insulation  
levels

There can be an exponential diminishing return on investment at a certain point.

# Design Phase Energy Saving Ideas



Roof Design

Framing Concepts

Overhangs

Ceiling Heights

HVAC Location

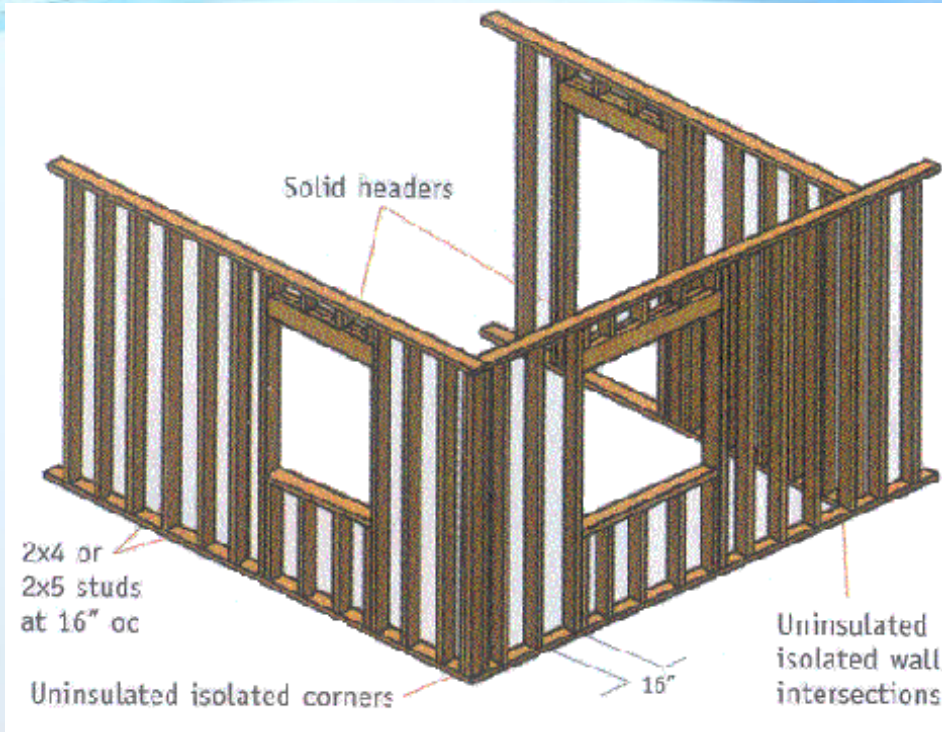
Windows

# Simplify Roof Design

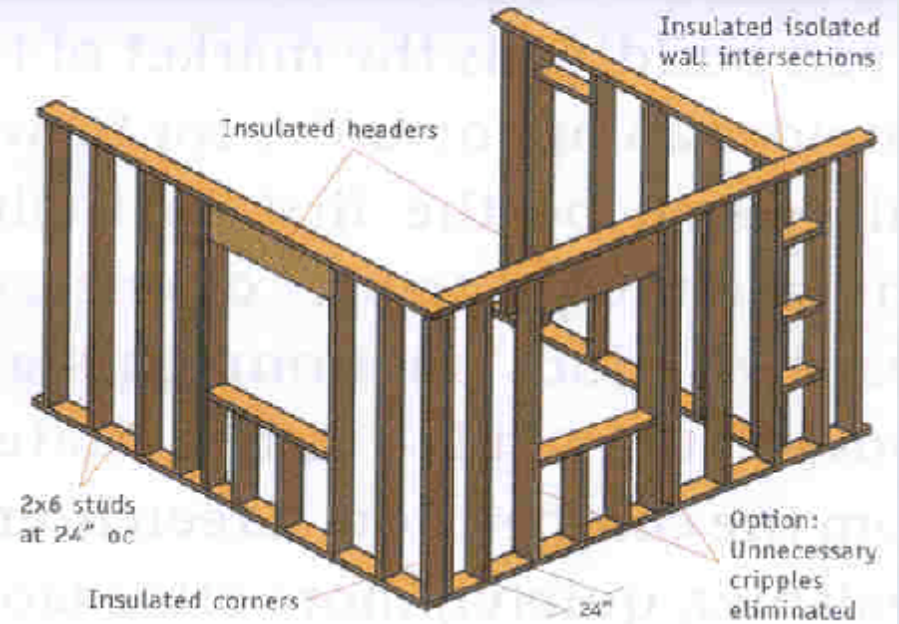




# Efficient Framing

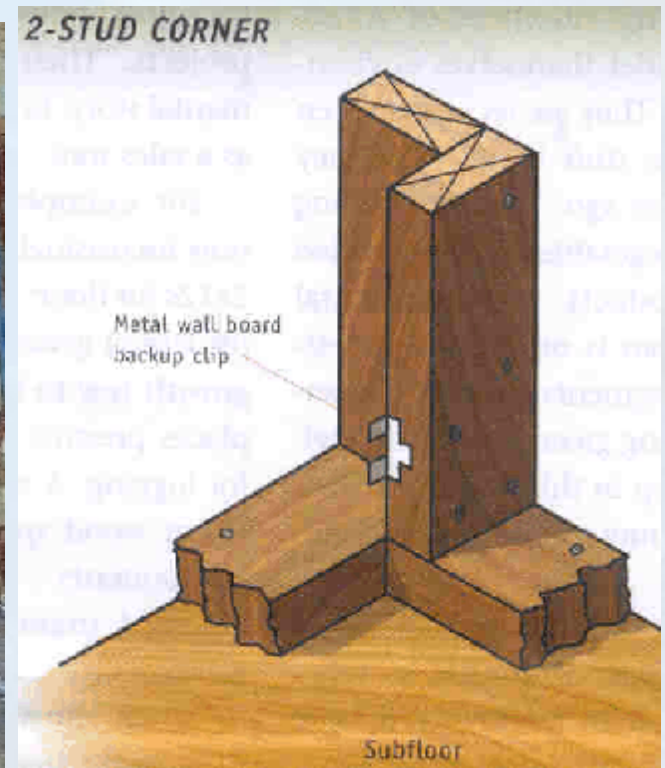


**EFFICIENT FRAMING**  
Framing placed at 24" on center.



# Two-Stud / California Corners

Allows for full depth of insulation in corner



# Insulated Headers



# Ladder Framing



# Strategize Overhangs



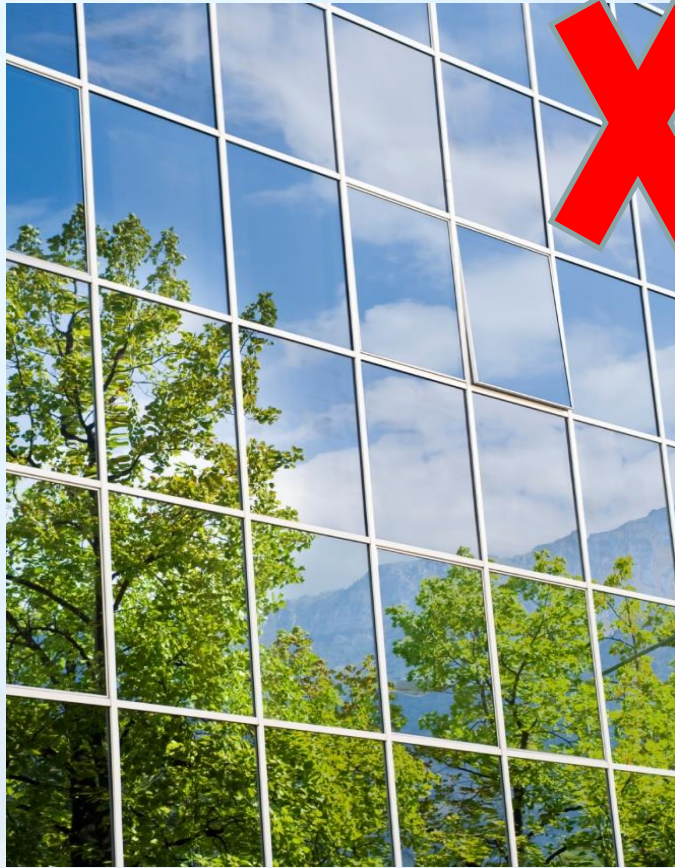
# Minimize Ceiling Heights



# Interior Air Handler



# Minimize Number/Size of Windows





# Construction/Specifications

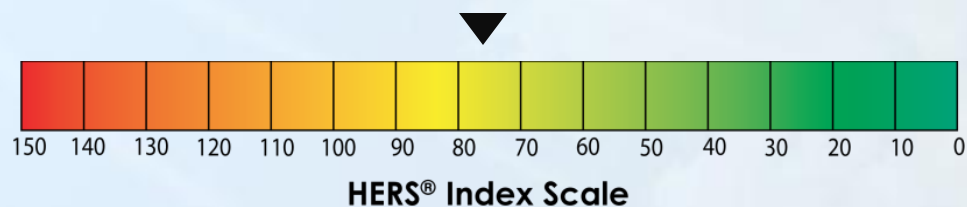


# Demonstration Home

Location	Charleston, SC	Windows	U = .35
SQ Ft. Living	2318	SHGC	.29
A/C Seer	13	Insulation Walls	R13
Furnace AFUE	80%	Insulation Ceilings	R30
Construction	Wood Frame	Insulation Knee walls	R19

# Demonstration Home

Original HERS  
Score = 85



Desired HERS  
Score with  
little/no cost to  
the builder = 75

*Using Energy Gauge USA Software*

# Construction Techniques

To lower the HERS Score, we will consider the following areas:

- **Air Conditioning System**
  - Specifically Duct Leakage
- **House Envelope**
  - Specifically Air Changes Per Hour

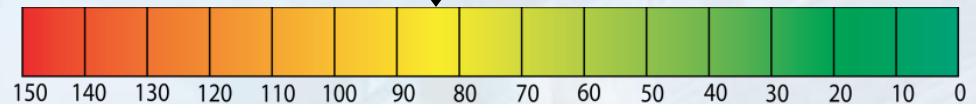
# Duct Leakage

HERS Score  
at 12%  
Leakage

85

HERS  
Score at 4%  
Leakage

83



HERS® Index Scale

# Tips to Improve Duct Leakage

Seal around area  
where  
supply/return  
boots meet the  
wall/ceiling/floor

Seal all areas  
around air  
handler/ Furnace

Have A/C  
company or  
Rating company  
check for leaks  
during installation

# Examples



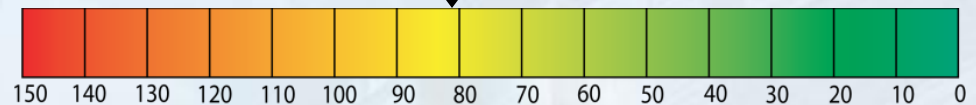
# HVAC in Conditioned Space

HVAC in  
Unconditioned  
Space

83

HVAC in  
Conditioned  
Space

81



HERS® Index Scale



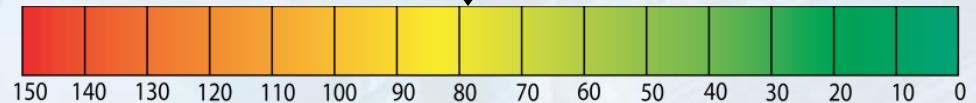
# Home Infiltration

HERS Score at  
12.15 air changes  
per hour (4%  
leakage factored  
in)

81

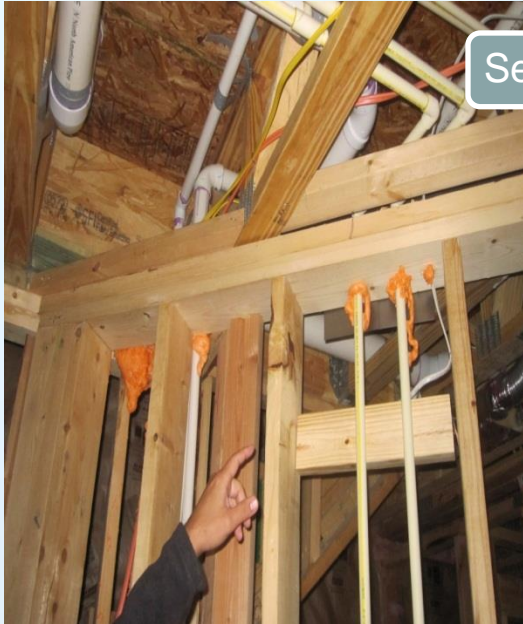
HERS Score at 5  
air changes per  
hour (4% leakage  
factored in)

79



HERS® Index Scale

# Home Infiltration



Seal penetrations



Use weather-stripping



Seal around windows

# Finishing Materials



Paint Color



Floor Finish



Shading



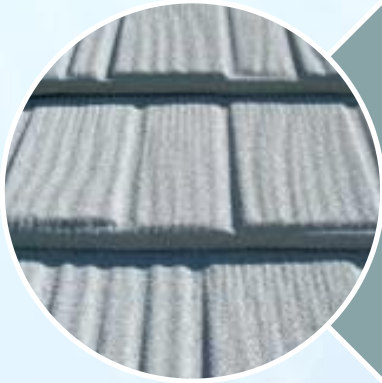
Roof Color



\*Light Bulbs



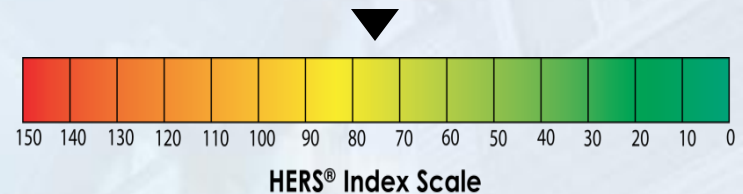
# Paint Colors



**HERS score  
with medium  
exterior paint  
color = 79**



**HERS score  
with light  
exterior paint  
color = 78**



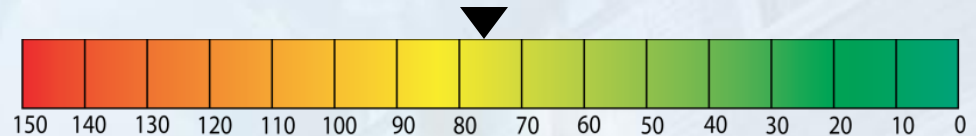
# Window Shading

Without any  
window  
shading

78

With  
window  
shading

77



HERS® Index Scale

# Possible Free Points

Heating &  
cooling  
efficiency

Use of  
energy  
efficient  
appliances

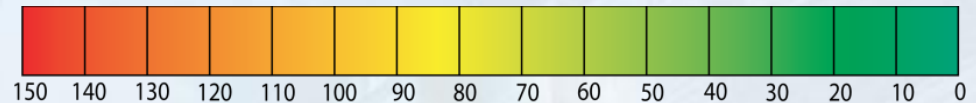
# Programmable Thermostat

Without a programmable thermostat

77

With a programmable thermostat

75

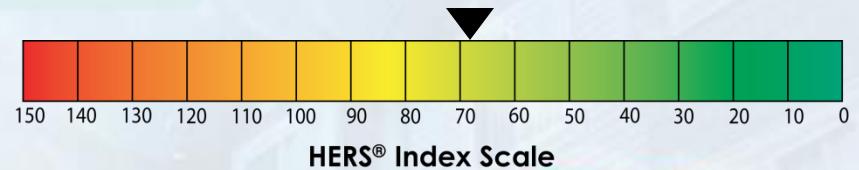


HERS® Index Scale



# Increasing Fluorescents Lights

There were zero (0) fluorescents in the original modeling of this home.





# Overview

Earned 6 points from Training of sub contractors and builders and bringing the Air handler/furnace into conditioned space.

Paint color decreased another point

Programmable thermostat earned us 2 points and brought us to a 75

By adding florecsents we were able to lower the score by as much as six points for a score of 69

These methods are some of many that can be used to help lower the HERS Score.

As the energy code continues to evolve and the required scores become lower, raters will be able to guide you through the most cost-effective ways to achieve your efficiency goals.

# Benefits of Lowering your HERS Rating

## Increased Home price

- Enjoy higher revenue and sales, better construction techniques, and reduced warranty costs

## Enhanced Homebuyer Satisfaction

- Help homebuyers save money on energy bills and enjoy thermal comfort

## Reduced Liability

- Limit potential construction defects

## Marketability

- Associate each new home with high energy performance, as consumers are aware of the benefits of energy efficient homes

# Additional Cost Saving Tips

## Rebates and Incentives

- Utilize your Rater's knowledge of rebates and incentives in the area.

## Energy Efficient Home Credit

- Ask your Rater to analyze the eligibility of each home for the Tax Credit

# Questions

