

# **ZERO NET ENERGY**

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**Mike Morina, Executive Director**



# BASIC INFORMATION

We have been going down this path full bore for only about 6 months

We are not experts, but we are learning every day

It is too soon to measure the effectiveness of what we are doing in terms of technology or marketing/PR

Do not get caught up with labels and definitions

Discuss the circumstances and the thought process that brought us to this place

## BACKGROUND

FHP has been building homes in south Hillsborough County for 25 years, constructing 1000 homes in multiple subdivisions we have developed.

Our aim is to continue the work we have been doing and expand our services to meet more needs

Ensure the long-term viability of FHP

Utilizing the USDA Mutual Self- Help Program

more than 50,000 built nationwide

Homeowners obtain construction/perm loans from USDA

We have a grant to help them work together in small groups to build their homes together.

Provide sweat equity, no down payment

USDA lower interest rates and 33- year amortization, PITI usually is \$650-\$850



# INSULATED CONCRETE FORMS- ICF

Jody asked one day:

“Would you like to greatly increase energy efficiency, improve the structural integrity of the home, and improve indoor air quality...without raising the price?”

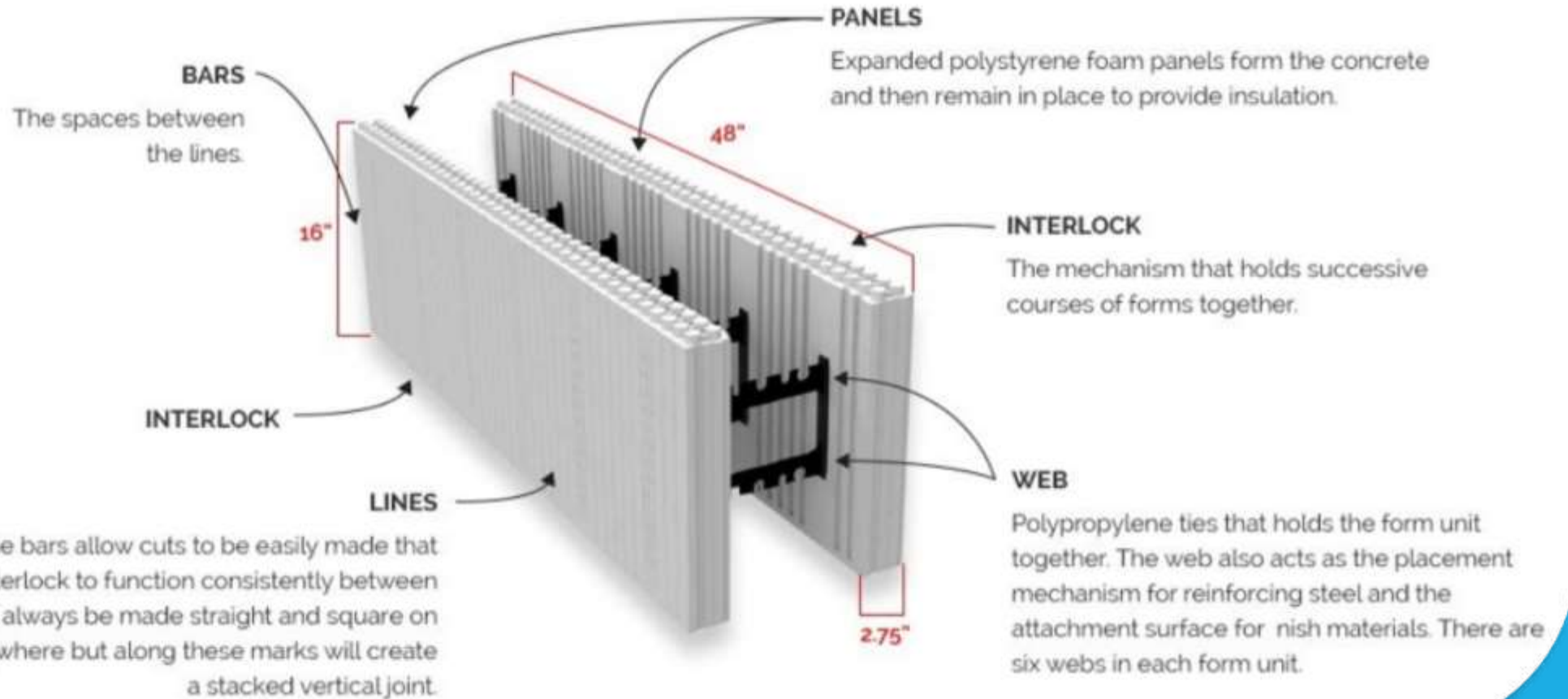
I thought about it and then said, well, I suppose....

That was when he first mentioned ICF or Insulated Concrete Forms. I asked him to explain-

“Like Legos that you fill with concrete”

# About ICFs

## TYPICAL ICF FORM UNIT    TYPICAL ICF WALL ASSEMBLY



## BUILT-IN RESILIENCE



### Wind Protection

Wind-rated to over 300 mph



### Fire Protection

4-hour fire rating



### Earthquake Protection

Engineering available for all seismic zones



### Moisture Protection

Does not rot







QUAD-LOCK

1x = HETA on edge panels

QUAD-LOCK



# FILLING WITH CONCRETE





# WIRES ARE RUN USING HOT KNIFE





CONIFLEX

2x4x14'

0088159153

TP NO.2  
310 KDHT SYP

# BASIC INFO ON ICF

- ❑ Helix Steel Fiber is mixed into concrete eliminating about 95 % of the rebar required.
- ❑ No need for furring strips or barriers – sheetrock can be screwed into connectors right on top of interior surface.
- ❑ Total R value of normal block wall R7-this is R22
- ❑ Best part- the net cost is about the same as block for a far superior product

- ❑ Amount of time as conventional block
- ❑ No problem finding a contractor to work with them
- ❑ Ultimately you have a 4- inch wide, continuous pour concrete wall, no joints or weak points anywhere-we are working with a structural engineer to quantify the strength of the ICF but for now, here is a picture worth 1000 words





**MEXICO BEACH**

# ADVANTAGES OF OPEN CELL FOAM INSULATION



- ❑ Instead of running a/c ducts through an attic that averages about 140 degrees, the open cell foam keeps the attic temperature at about 80 degrees
- ❑ This allows us to put the A/C equipment in the attic which is no longer allowed when using blown in insulation. This adds usable space within the home.
- ❑ There is no measurable increase in structural integrity but it creates a completely integrated, foam insulated building
- ❑ Because of the reduced temperature, the attic does not have to be vented so it is sealed
- ❑ This is very important because during hurricanes one of the major reason roofs blow off is the high-pressure air penetrates the attic space through the vents and the house can literally blow its top.
- ❑ Although the cost of the spray foam adds about \$1500 to the cost of the house we feel it is well worth it to create such a highly insulated, tight structure.



## OPEN CELL FOAM INSULATION

- ❑ We are now building homes that are considered Zero Net Energy Ready

***The U.S. Department of Energy (DOE) defines a zero energy ready home as “a high performance home which is so energy efficient, that a renewable energy system can offset all or most of its annual energy consumption.”***

- ❑ The tightness of the house mean that a reduced solar array will be able to bring the home to zero net energy.
- ❑ Requires 20 percent fewer solar panels than a home using normal block construction
- ❑ As owners begin to move into the ICF homes in the next few months we will be monitoring electric bills and comparing them to the bills of like models without ICF
- ❑ Heating and cooling share of electric bill has dropped from 60%-65% to 40to 45%
- ❑ Air quality in our homes is greatly improved.



# THE NEXT STEP

All of what we have talked about is Zero Net Energy Ready

We are about to start 7 homes that are actually “Zero Net Energy

Grant from a Bank interested in helping us go all the way

7 homes will have full solar and raised seam metal roofs

Zero net energy-little minimal cost for power

Roof stronger and will last the lifetime of mortgage

We expect this to generate a lot of excitement among buyers and funders

Help generate interest in FHP products

Help generate funding

Make buyers aware of what is possible and spur some builders to imitate us

# TAKEAWAYS- BEYOND THE NUMBERS

- ❑ What you do is not who you are as an organization – have a broad mission but don’t allow yourself to be pigeonholed
- ❑ Concentrate on improving don’t be satisfied with what you have done in the past-
- ❑ Don’t wait for anyone to give you permission or ideas- you if you start looking for something you will be surprised what you find
- ❑ Funders want to be associated with quality and innovation
- ❑ Technology is always improving and creating new opportunities. Do the best you can now but constantly be looking for ways to improve. This is particularly important for CDC’s and housing non-profits.