

AN OPPORTUNITY FOR TYNDALL AFB

BY FUTURIST, INVENTOR, ARCHITECT, INDUSTRIAL DESIGNER

ANDREW DENNIS

INVENTOR OF SEVERAL WORLDS FIRSTS

FIRST ENVIRONMENTALLY FRIENDLY BUILDING SYSTEM 2007

VOTED BEST GREEN PRODUCTS BY POPULAR MECHANICS AND ENR MAGAZINES 2007

WORLDS FIRST FIRE RATED COATING OVER ICF FOAM REPLACING DRYWALL

WORLDS FIRST 9,000 PSI BALLISTIC RATED PLASTER COATING 2008

CARIBBEAN STRUCTURES SURVIVED HURRICANES JOAQUIN, MATHEW, MARIA, IRMA AND DORIAN

FIRST CATEGORY 5 DEPLOYABLE BUILDING SYSTEMS RATED TO CONSTANT 245 MPH WIND SPEED 2019

SELECTED BY DOE FOR HARDENING NUCLEAR FACILITIES IN USA AND JAPAN

NO WOOD, NO PORTLAND CEMENT, NO MOLD OR MILDEW, NONTOXIC FOOD GRADE INGREDIENTS

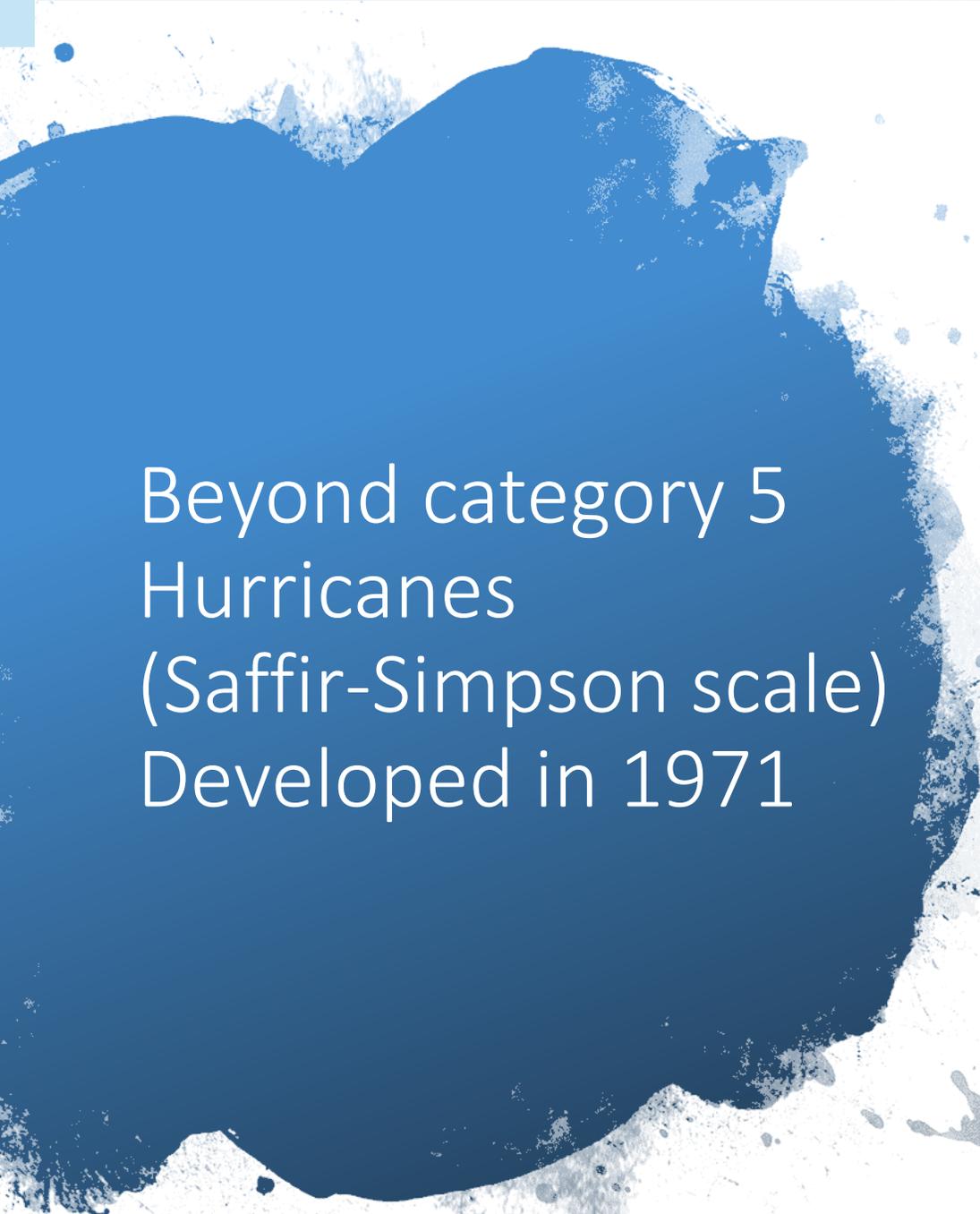
Fortified Green Building Systems

Tyndall should exploit **rapidly deployable** structures that withstand windspeeds of **245+ mph**, are designed to be flooded without mold growth or replacement yet be cost effective against slower masonry or cast in place concrete

This is one such method

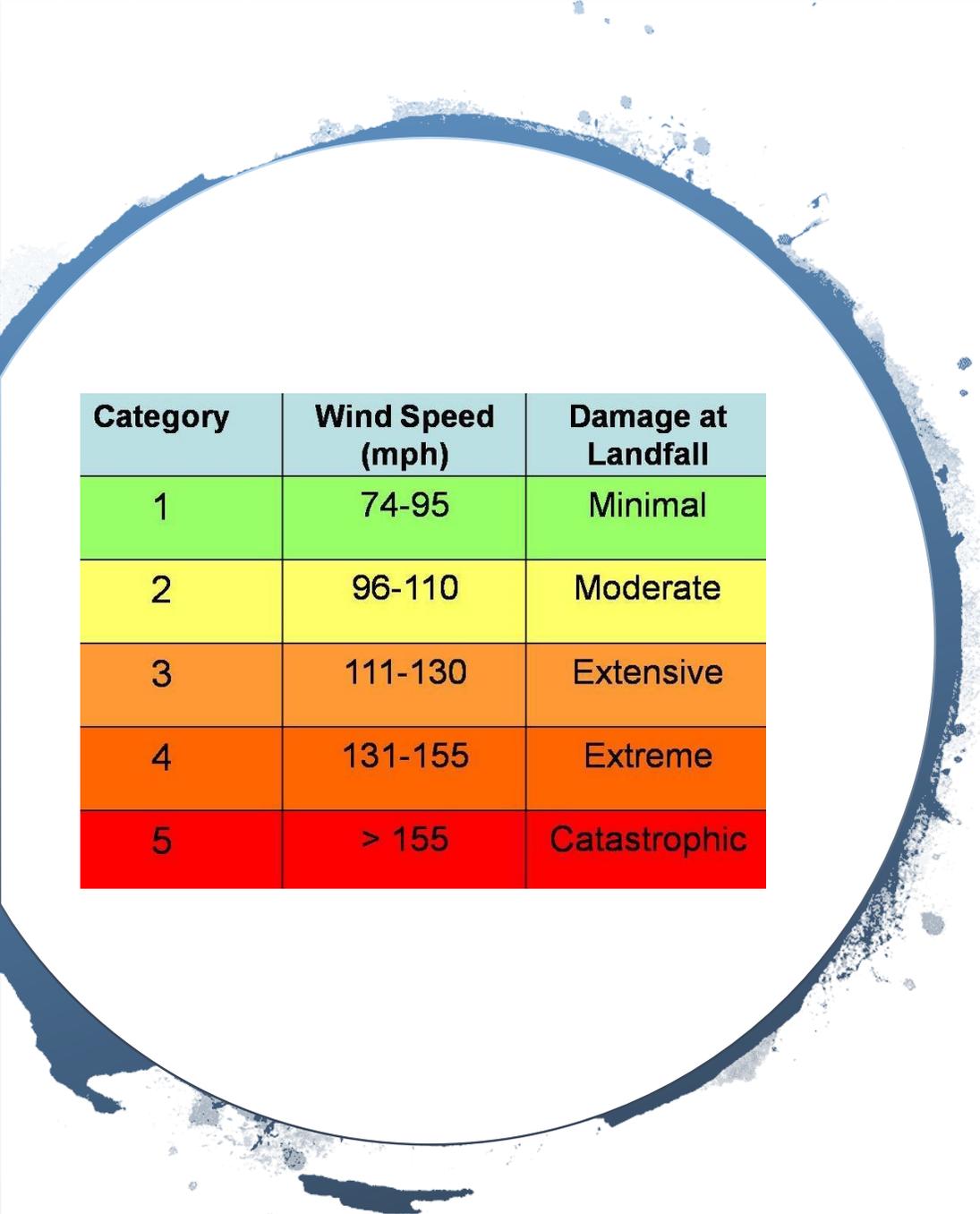
Technologies developed by





Beyond category 5 Hurricanes (Saffir-Simpson scale) Developed in 1971

- According to Robert Simpson, [born in 1912](#) he said there are no reasons for a Category 6 on the Saffir–Simpson Scale because
- "when you get up into winds in excess of 155 mph for as much as six seconds on a building it's going to cause rupturing damages that are serious **no matter how well it's engineered.**"
- Nonetheless, the counties of Broward and Miami-Dade in Florida have building codes that require that **critical infrastructure buildings be able to withstand Category 5 winds**
- ***OLD RULES BASED ON OLD TECHNOLOGIES, TIMES HAVE CHANGED AND SO SHOULD CODES THERES ALREADY TALK ABOUT A CATEGORY 6 OR 7***



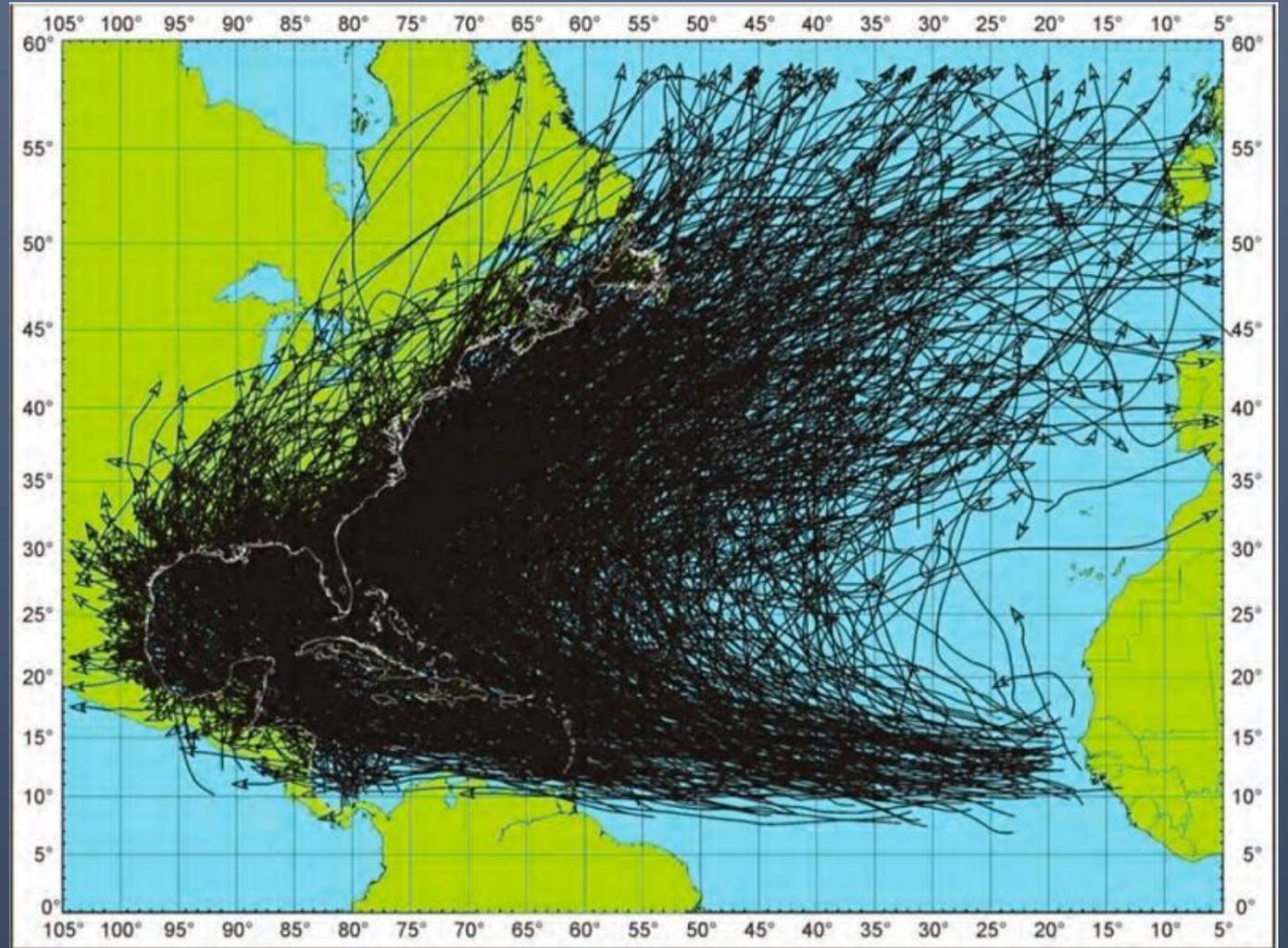
Category	Wind Speed (mph)	Damage at Landfall
1	74-95	Minimal
2	96-110	Moderate
3	111-130	Extensive
4	131-155	Extreme
5	> 155	Catastrophic

- MARCH 2019 ISSUED MIAMI DADE COUNTY NOA (NOTICE OF ACCEPTANCE) FOR AN ENTIRELY NEW WAY TO CONSTRUCT A RAPIDLY DEPLOYED BUILDING SYSTEM THAT **EXCEEDS CATEGORY 5 REQUIREMENTS**
- PASSING SUSTAINED WIND SPEEDS OF 245 MPH (BLACKWATER TESTING LIMIT) WITH NO FAILURES
- THIS IS **F5** TORNADO WIND SPEEDS (200 MPH OR GREATER) AND COULD BE **CONSIDERED CATEGORY 7**

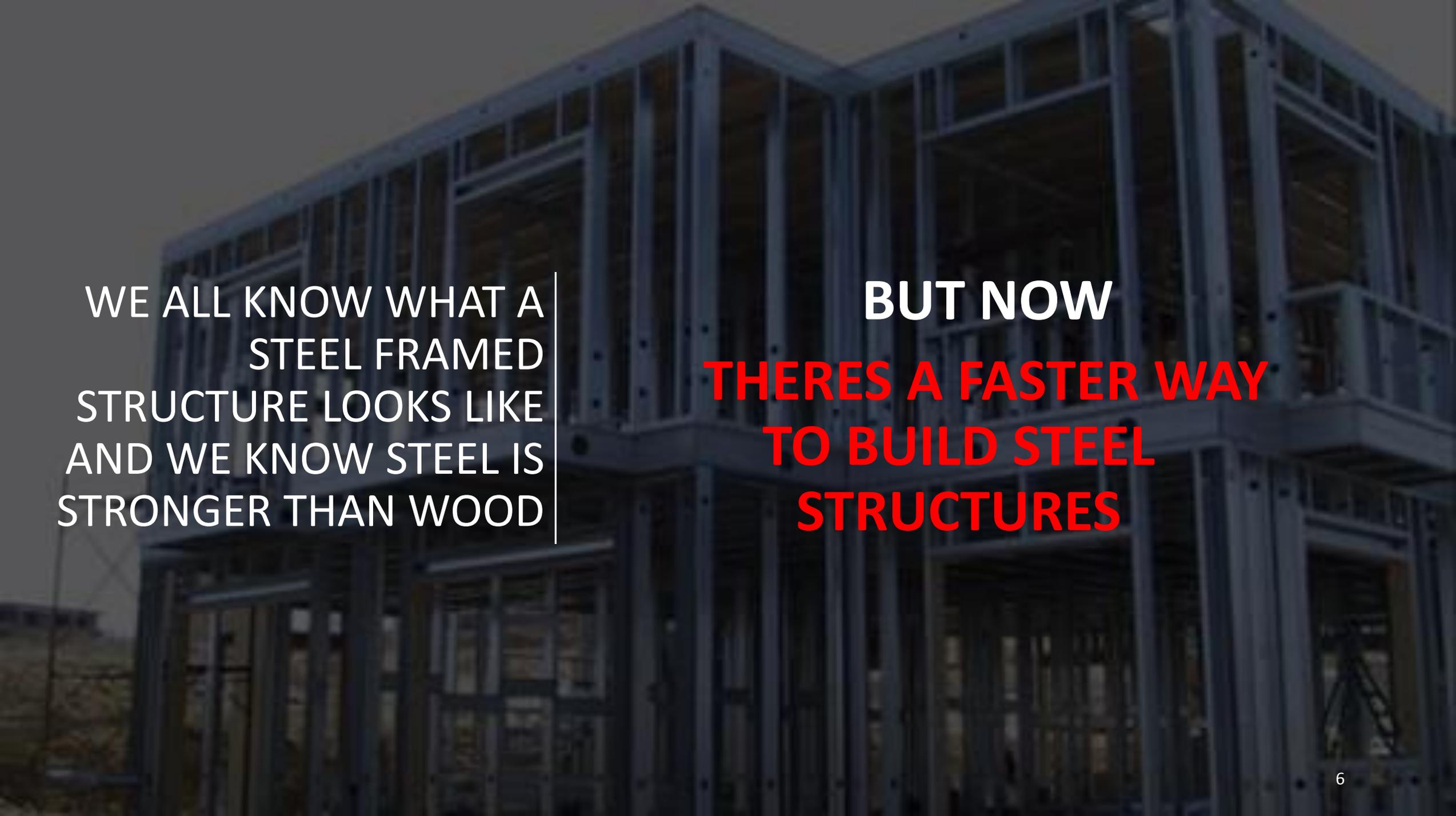
North Atlantic tropical storms and hurricanes

(1851-2006) (NOAA)

TAKEN FROM SMITHSONIAN
INFORMATION



**THE WEATHER IS NOT CHANGING FOR THE BETTER
SO WE NEED TO CHANGE THE WAY WE BUILD**



WE ALL KNOW WHAT A
STEEL FRAMED
STRUCTURE LOOKS LIKE
AND WE KNOW STEEL IS
STRONGER THAN WOOD

BUT NOW
THERES A FASTER WAY
TO BUILD STEEL
STRUCTURES

NOT A PREFAB

NOT A “SIPS” PANEL
(STRUCTURAL INSULATED PANEL)

NO WOOD

NO DRYWALL

NO ROT, MOLD OR MILDEW

NO PORTLAND CEMENT

NO SILICA

**IT IS A STEEL FRAMED
PRE-ENGINEERED
245MPH+ BUILDING**

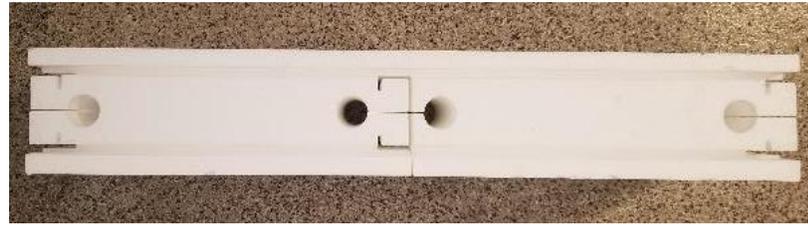
HERE'S A SOLUTION THAT IS FASTER TO CONSTRUCT THAN WOOD OR MASONRY AT **NO EXTRA COSTS**

- IT IS A STRUCTURAL STEEL FRAMED BUILDING BUT **ERECTED IN A SIMPLER WAY UTILIZING LOW SKILLED LABOR** (SKILLED LABOR IS HARDER TO FIND)
- BUILDING WITH MINIMUM **R28 RIGID EPS INSULATION FIRST**
- THE EPS FOAM DETERMINES WHERE THE **STRUCTURAL STEEL COMPONENTS DROP IN** AND CONNECT WITH BOTTOM AND TOP TRACKS. NO MEASURING
- FINALLY **EXTREME PERFORMANCE COATINGS** ARE APPLIED OVER THE INSULATED PANELS **CREATING A COMPOSITE SYSTEM** FAR BEYOND CATEGORY 5 REQUIREMENTS

- **PREMANUFACTURED SHAPES**
- Insulation panels are cnc-cut to accept the structural steel
- **No measuring**, already squared and aligned
- Unskilled labor drop in studs and screw through the foam to make the stud to track connections

There are **only 3 shapes**

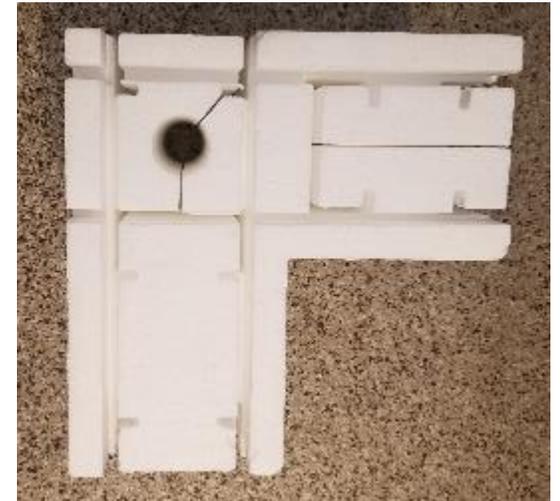
- Straight panels
- “C” for corners
- “T” for intersecting walls



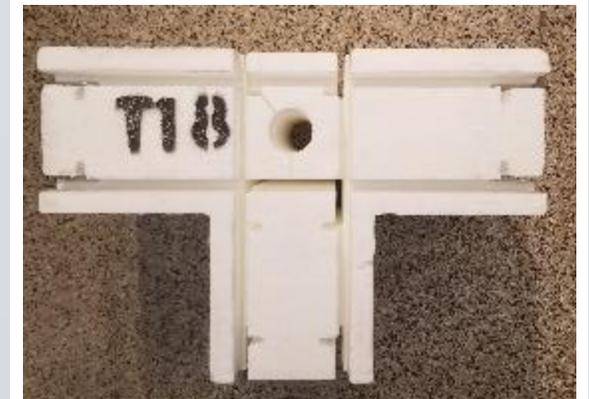
1FT-2FT-3FT-4FT PANELS



VERTICAL ELECTRICAL CONDUITS



12X12 CORNER



18X12 TEE





Slot pre-cut foam panel onto
galvanized steel bottom tracks



- **Structural Steel Studs slide into pre-cut foam shapes**
- **Pre-engineered, ICC approved 18 gauge galvanized double steel studs (4x4) make patented connectors. Note the studs are centered inside the eps foam and do not touch outside surfaces.**
- **No thermal bridging = high energy savings**

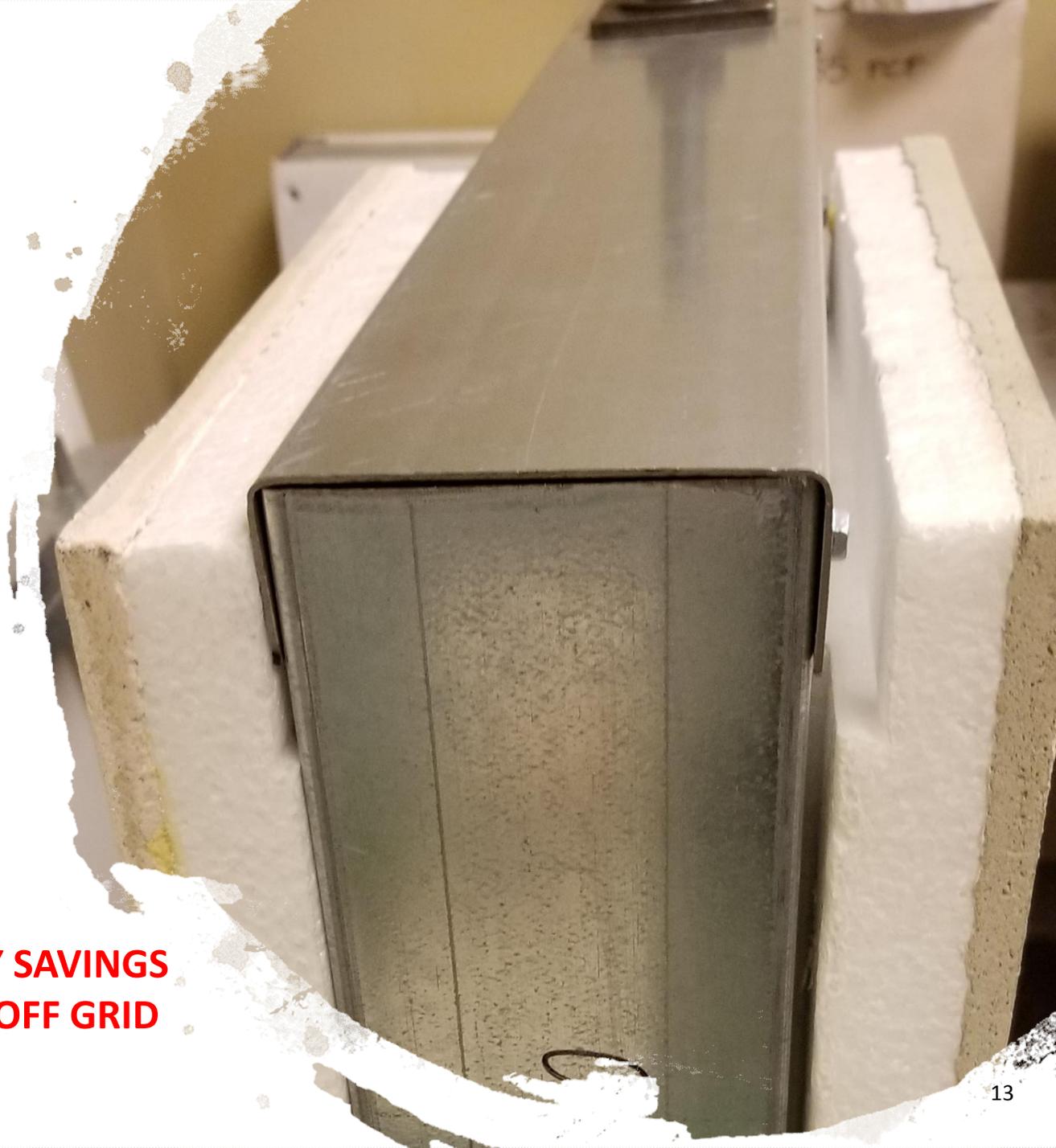
- **Hurricane and seismic tie down anchors connect the roof into the foundation and put the entire structure in compression**

(like head bolts on a car engine)



- **NOTE THE COATINGS NEVER TOUCH THE STRUCTURAL STEEL GIVING A LARGE THERMAL BREAK BETWEEN INTERIOR AND EXTERIOR TEMPERATURES**
- **NO OTHER BUILDING SYSTEMS OFFER THIS CATEGORY 5 CODE APPROVED, FIRE RATED, WATERPROOF METHOD**
- **NOT POSSIBLE WITH CONVENTIONALLY FRAMED WOOD OR STEEL STUDS**
- **NOT POSSIBLE WITH 3D PRINTED CEMENT WALLS (NOT CATEGORY 5 TESTED/APPROVED)**

NO THERMAL BRIDGING MEANS 50% TO 60% ENERGY SAVINGS WHICH MEANS HALF AS MANY SOLAR PANELS TO BE OFF GRID





Extreme engineered premanufactured roof brackets designed for 200+ mph hurricanes

Vertical conduits are **pre-cut** into panels on both sides of each stud

Using a hotwire cutter, outlets are cut onsite in seconds and align with vertical **pre-cut conduits**

This allows for outlets to be placed **very quickly** anywhere on a wall, no more drilling holes through structural wood studs or chiseling channels into cement blocks





- Using a hotwire cutter, **install plumbing** and vent lines and bond in-place with fire rated PU foam supplied in the premanufactured building kit
- Plumbing is now locked in place and **insulated** from heat or freezing
- No more drilling and clipping lines to studs
- Faster installation times equals **big savings**



Final coatings are easily mixed and applied with conventional plaster and stucco tools



- **Mixed and applied on site**
- **NO Portland cement**
- **NO silica sand**
- **All nontoxic safe materials premanufactured in bags, just add water, mix and apply**
- **Clean up with water only**



Extreme performance coatings are applied directly over EPS foam panels

All panel seam lines are covered over to create a seamless and durable ceramic hard 3,500 to 9,000 psi finish



Extreme performance coatings designed to outperform all known plasters and stuccos where abuse resistance and low maintenance is important

Thin coat applications 3/16" to 1/4" thick with integral fiberglass mesh

Tough enough to stop "12 LARGE MISSILE IMPACTS" Miami Dade TAS 210-94 testing

Built by veterans



AFTER THIS **.50 CAL LIVE SHOOT DEMO**, WE TRAINED THIS US ARMY RANGER SPECIAL OPS VETERAN WHO ASKED TO GET INVOLVED



"VETERANS ONLY" BUILT THIS 43,000 SF FORD SERVICE CENTER AND SET UP A TRAINING SCHOOL IN ARIZONA TO DEPLOY TEAMS ANYWHERE WE NEED A VETERANS ONLY CREW

The building system is simplified to utilize low skilled local labor. The house below shows the first floor of a 3,200 sf house in Accra Ghana, dried in with a roof in **11 days with a crew who have never built a house before**



We only trained this man

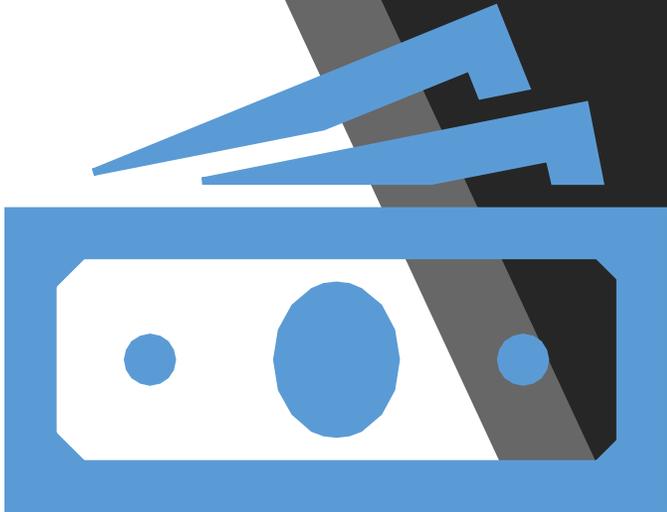




VALUE PERSPECTIVE

Architects, Engineers, Specifiers

- **Miami Dade County Hurricane code approval NOA 19-0326.04**
- **ASTM E C587-04 Bond Strength, Impact Strength, Joint Strength**
- **ASTM C1629-06 Abuse Resistance**
- **ASTM D4977-03 Adhesion**
- **ASTM D5420-04 Impact Resistance**
- **ASTM G21-96 Will not support mold or Mildew**
- **ASTM E-84 E-136 Fire test (American Standard Testing Methods)**
- **NFPA 286-3 Fire Test (National Fire Protection Agency)**
- **UBC 26-3 Fire Test (International Building Code)**
- **NIJ LEVEL III Ballistics test (HP White Labs)**
- **NIJ LEVEL IV Ballistics test (HP White Labs)**
- **Exceeds USEPA (environmental protection agency) no VOC's**
- **Recognized by LEED and US Green Building Council**



- In the past, being “Green” typically cost 15% to 20% more. This is no longer the case because the entire way to build has changed, not just the materials.
- Speed to build utilizing premanufactured components = lowers costs, less labor, less waste, less clean-up
- **What took months, can now take weeks**
- The savings are in less labor and time, therefore finished construction costs are equivalent to and sometimes less than conventional building costs but **with huge benefits in energy savings, durability and Category 5 hurricane resistance.**

Fortified Green Building Systems

**BUILD TO WEATHER ANY STORM
BUILD GREEN & BUILD TO LAST**

Technologies developed
by Andrew C. Dennis for

The logo for GigaCrete, featuring a green leaf icon above the word "GigaCrete" in a sans-serif font, all contained within a white rectangular box with a thin black border.