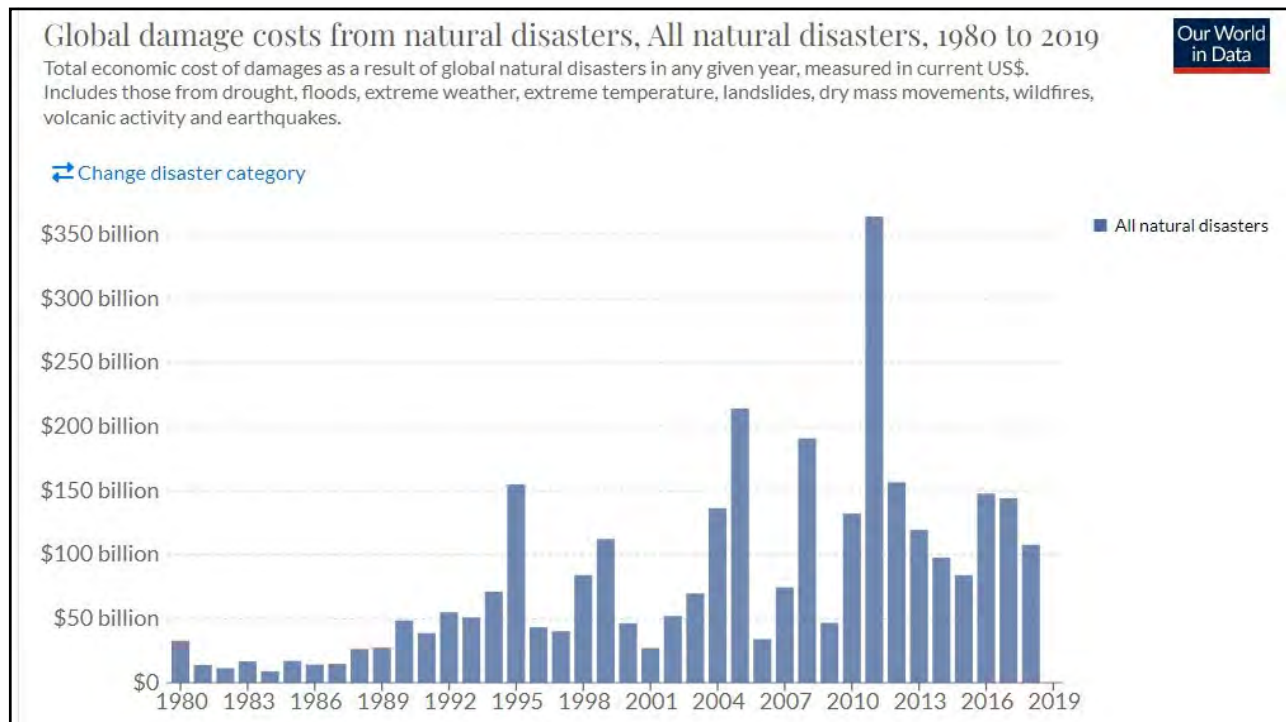
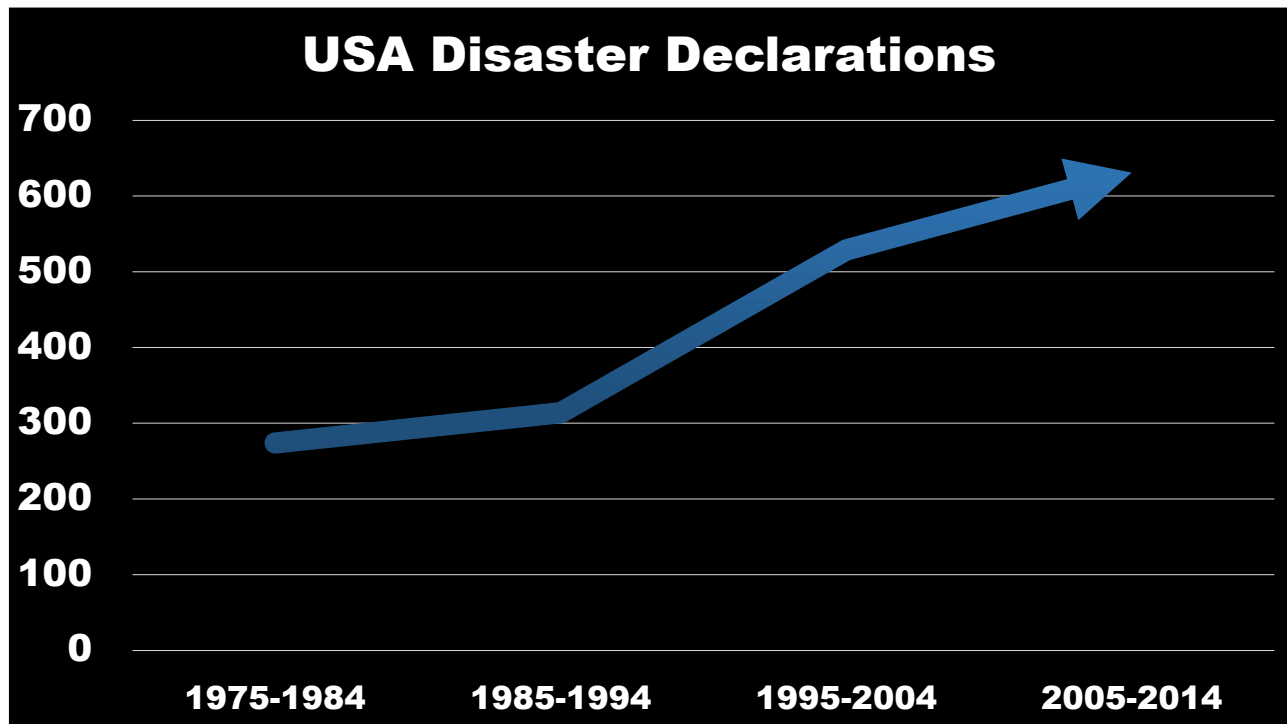


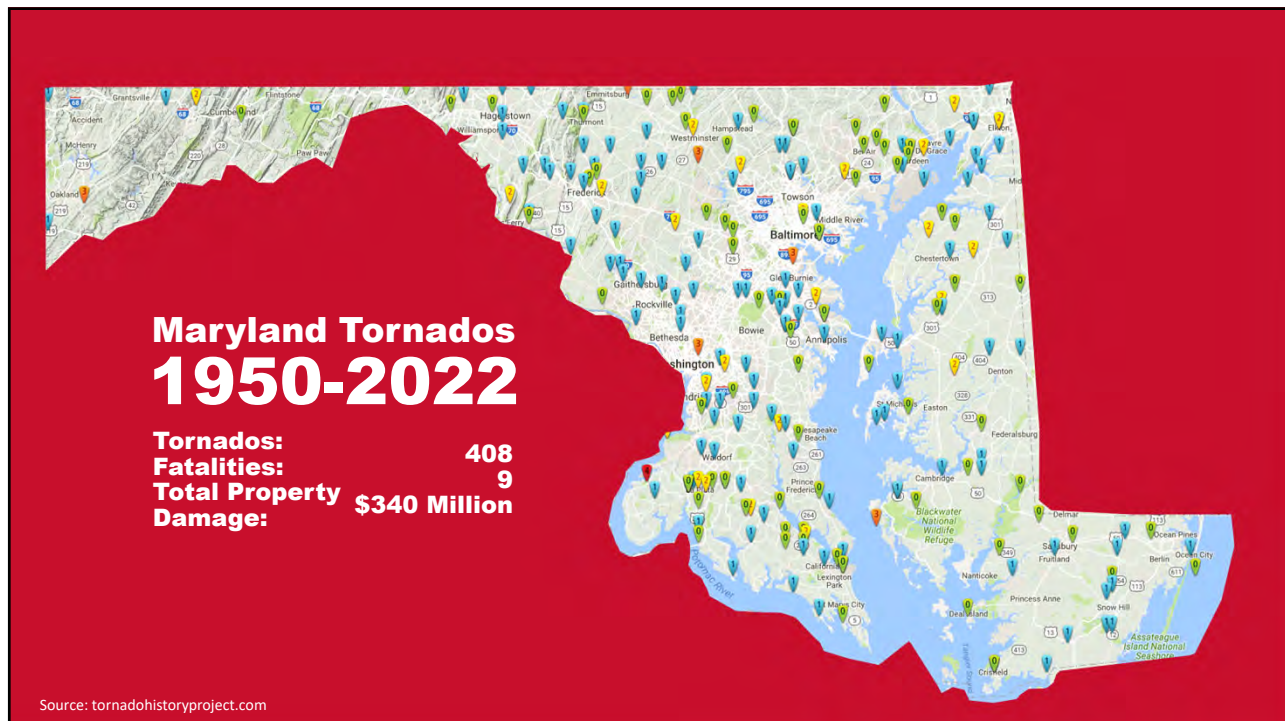
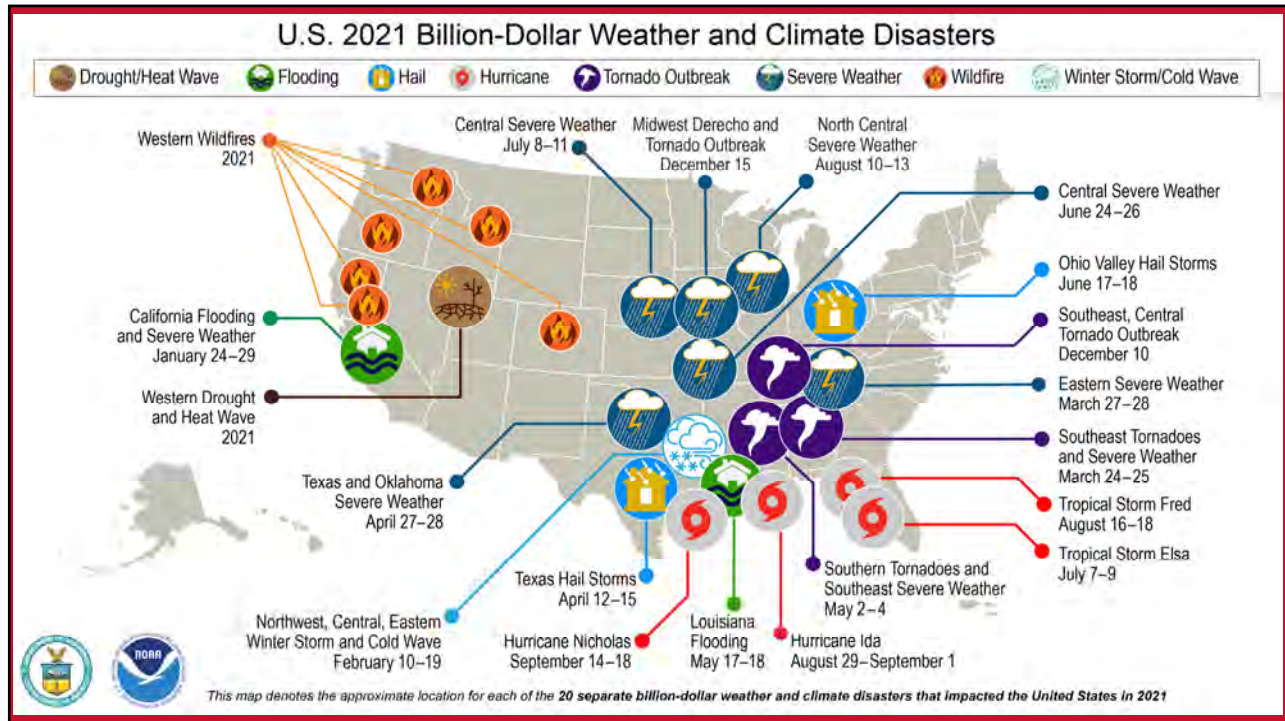


**“If you have to build it twice,
it’s definitely not green”**

– Aris Papadopoulos



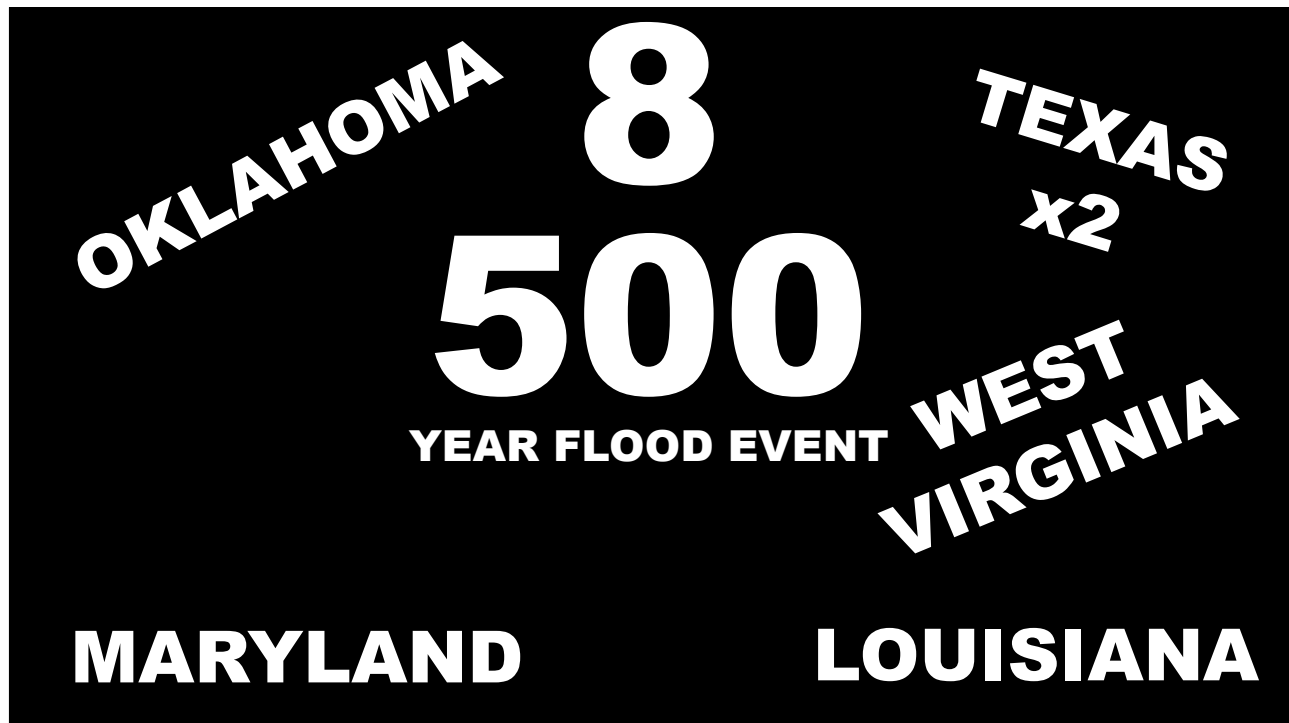
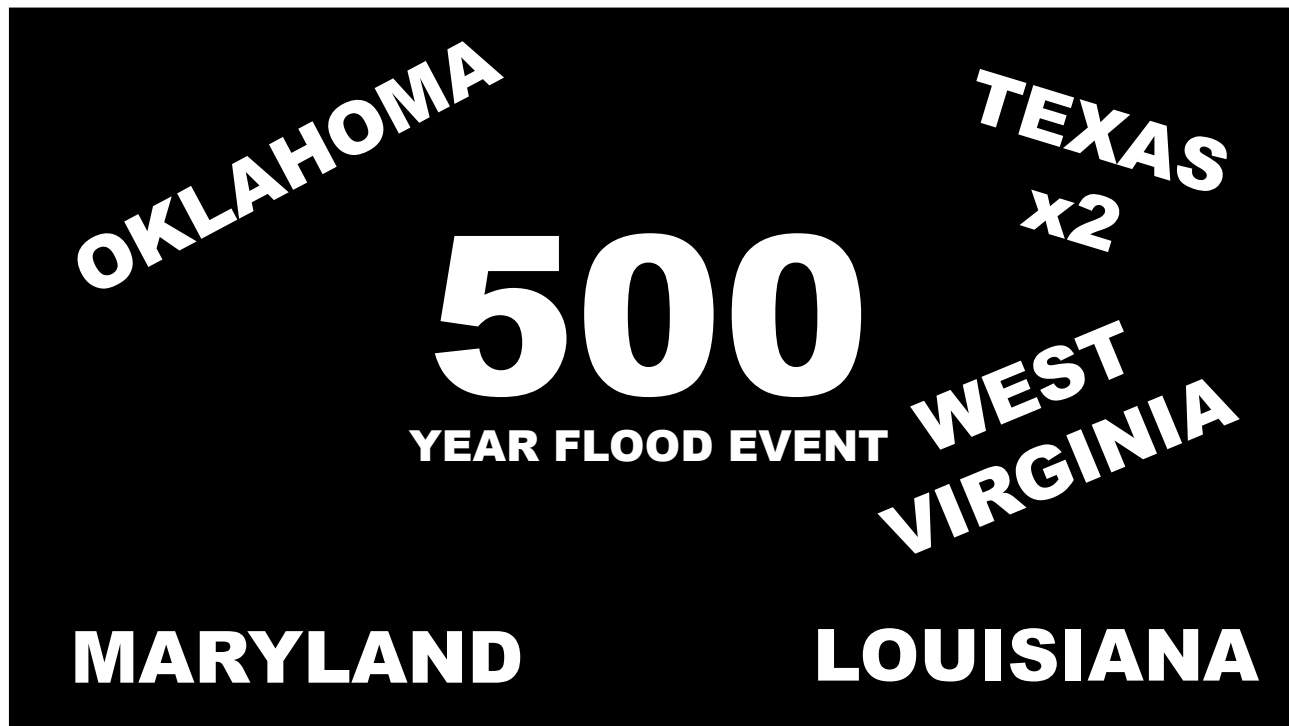






**The US burns the
equivalent of a
1 million-occupant
city every year.**







**“...but I'm alive and
that is something I
have to be very
thankful for.”**



**WE CAN DO
BETTER**





CODES



**Building to code
means building the
most unsafe
building you can
legally build.**

**FEMA reports that
every \$1 invested in
Resilience Capacity
saves \$4 in
hazard-related costs.**

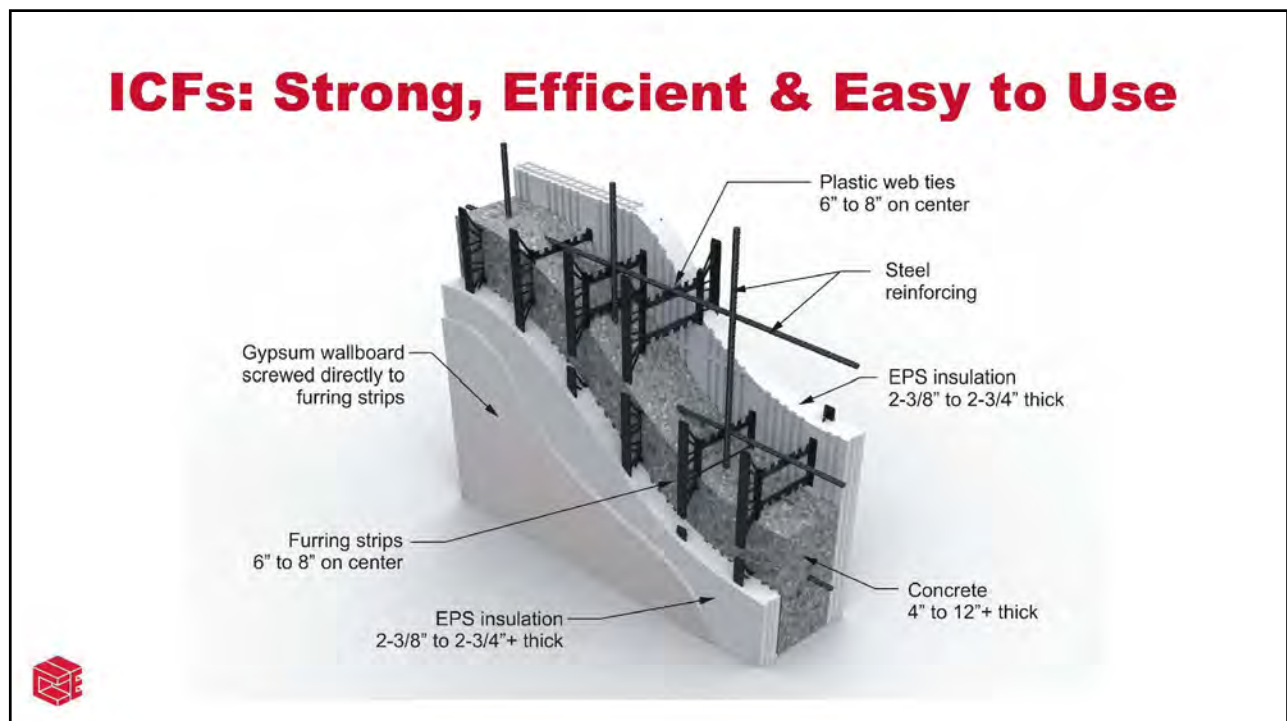


DIFFERENTIATE WITH STRENGTH



CODE+ DESIGN

CONCRETE
MAKE AMERICA RESILIENT AGAIN!



ADVANTAGES OF ICF

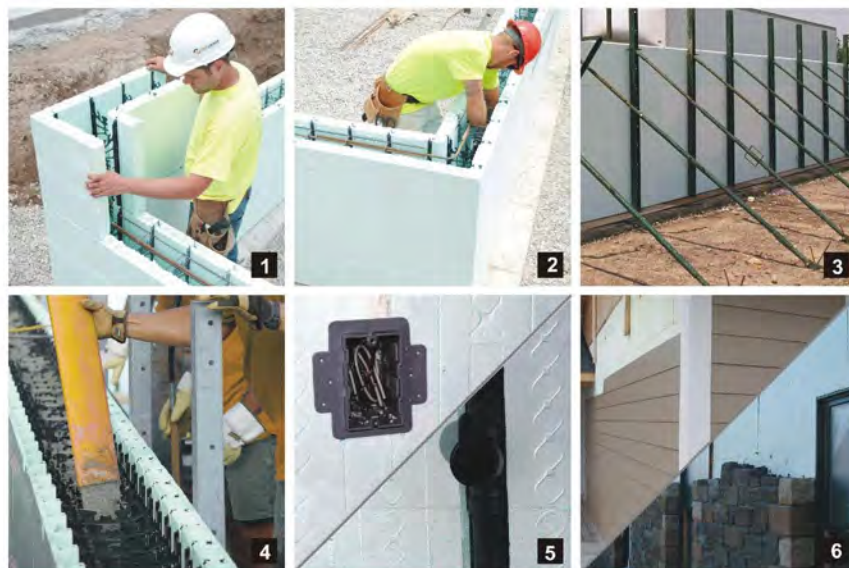


Ideal for Load Bearing Mid-rise

- Safer and Easier to Use
- Resilient and Non-Combustible
- Very Competitive on First Cost
- Quiet – Happy Owners Save you Money
- Fast – Saving Time Saves you Money
- Fewer Trades – Saves Money
- Energy Efficient – Saves Money
- Lower Insurance Costs – Saves Money
- Well Established - 1000's of buildings nationally
- Flexible – Easily receives any finish and all building systems
- **Sustainable – USE-PHASE CARBON is DRAMATICALLY REDUCED**
- A Higher Quality Asset with Lower Cost of Ownership



6 STEPS IN 1



CONCRETE IS SAFER



- Walls (Fire Ratings)
 - 2 hrs for 4" wall
 - 3 hrs for 6" wall
 - 4 hrs for 8" wall
- Floors (Fire Ratings)
 - 2 to 3 hrs
 - Depends on system



THE NUMBERS WORK



Wisconsin Multifamily

- Total Square Foot of Wood Frame Construction = 176,444
- Cost of Wood Framing including Exterior Insulation = \$4,320,000 or \$24.48 SqFt
- Cost of Wood Framing MINUS Exterior Walls = \$3,400,000 or \$19.27 SqFt
- Cost of Insulated Concrete Form Exterior Walls = \$950,000 or \$5.38 SqFt
- Wood Frame Total: **\$4,320,000** vs. ICF + Wood Frame Interior Total: **\$4,350,000**
- PROs of ICF during Construction:
 - Ability to pour Stair Towers and Elevator Shafts concurrent with structure, also making both more sound proof
 - Eliminate the need for an additional exterior vapor barrier
 - Continuous R-22 or greater insulation with added bonus of concrete thermal mass
 - Can pour in cold/winter conditions
 - Structural integrity of wall for various possibilities – hanging balconies, masonry tower or trash chute tie offs, skip hoist tie offs, etc.
 - Improves sound transfer through exterior wall



>1%



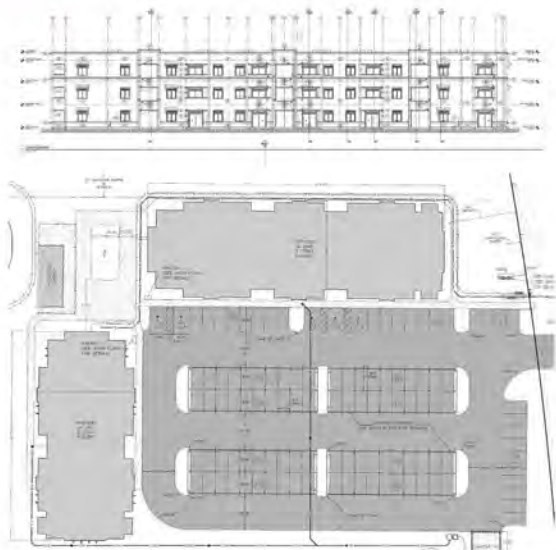
THE NUMBERS WORK

Florida Multifamily

- Total Square Footage = 71,769
- Wood Frame @ \$24.00 SqFt = \$1,722,456
- All Concrete/Steel Stud:
- ICF = \$920,000
- Precast Concrete w/ Stairs & Topping = \$680,000
- Steel Stud Interior Walls = \$175,000
- Total ICF/Steel Stud = \$1,775,000


PROs of ICF in Florida:

- Disaster Resistant
- Mold Resistant
- Termite Proof
- Energy Efficient





>3%

BUILD WITH STRENGTH
A COALITION OF THE NATIONAL READY MIXED CONCRETE ASSOCIATION

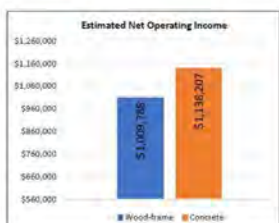


SEEING IS BELIEVING

Microtel Inn & Suites by Wyndham Study
Prepared by Leigh Overland Architects, LLC
The Overland Group
for




Estimated Net Operating Income



Construction Type	Estimated Net Operating Income
Wood Frame	\$1,003,786
Concrete	\$1,136,207

“In speaking with the architect before, there are no Microtel projects that are ICF, he is a fan of the product but did not think the numbers would work for the Microtel Brand.”


Cost Estimate 78 Room Microtel, Gambrills, MD

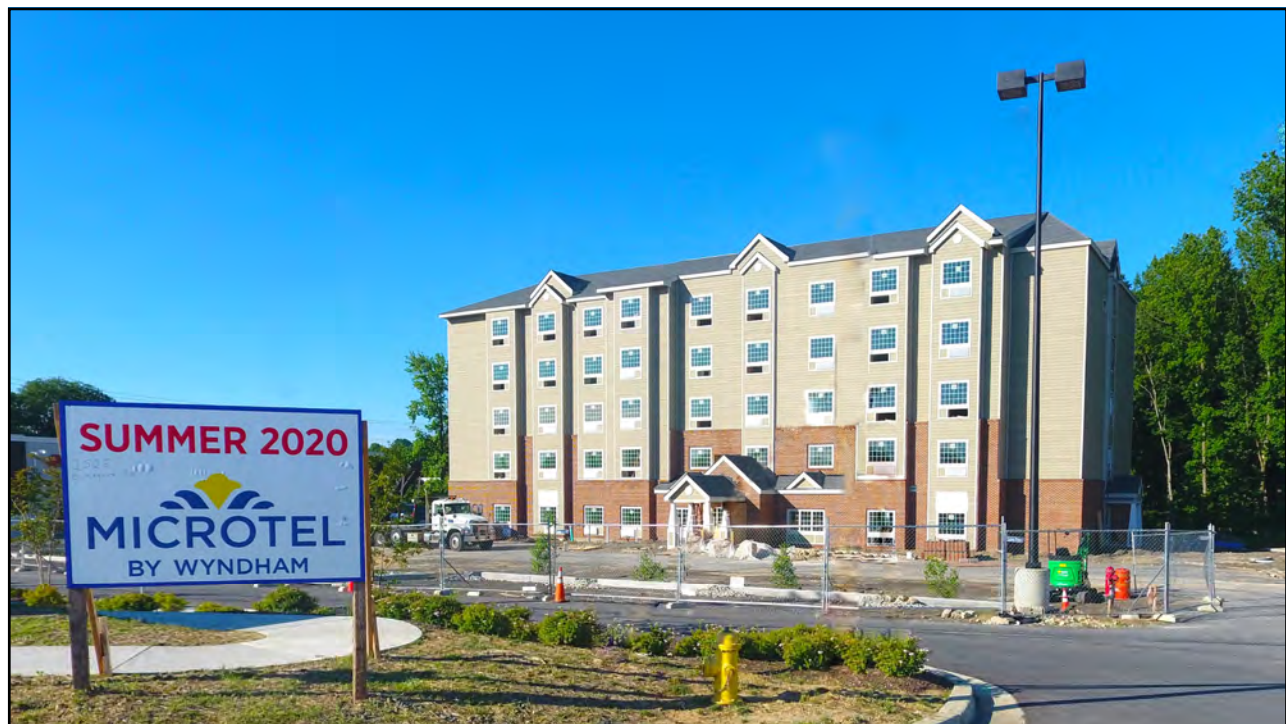
A preliminary cost estimate was conducted for Microtel in Gambrills, MD using Annapolis, MD costing data from RS Means. The building consists of 78 hotel rooms. The cost estimate was conducted for both combustible construction and non-combustible construction. Cost estimates were derived from RS Means, the most widely known and respected cost estimating data available.

The combustible construction consists of wood frame construction for all the walls, floors and roof of the building. The non-combustible construction consists of Insulating Concrete Walls (ICF) construction for the exterior, corridor, demising and fire walls and precast hollow core plank for the floors and roof framing. The following are the results of the cost estimate:

Wood Frame: \$7,116,764
Concrete: \$7,201,326

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THE CLIENT EXPERIENCE

BUILD WITH STRENGTH

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- Walls
 - STC: 55-70
- Floor
 - STC: 50+
 - IIC: 50+





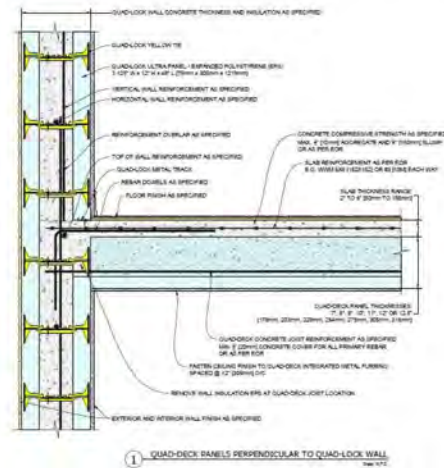
NOISE COSTS MONEY



Every Multi-Family Operator will tell you:

- Annual apartment unit turnover ~30-50%
- 11% of those tenants vacate due to noise
- Cost to turn each unit is \$3000
- 80,000 units x 40% = 32,000
- 32,000 X \$3000 = \$96 million
- \$96 million X 11% = \$10.5 million

Noise Costs \$10 million/year



SPEED AND SAFETY



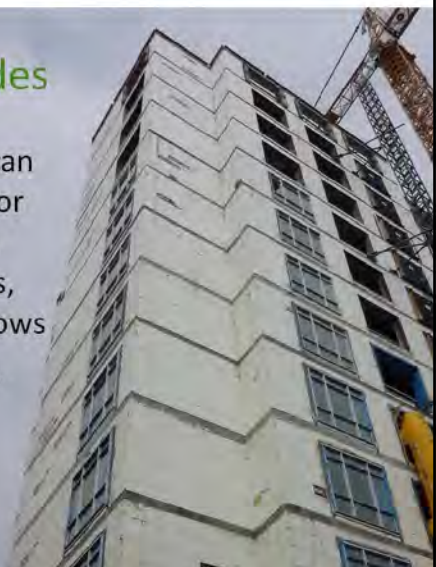
- Build through winter
- Place floor slabs 3 days after a wall pour
- Finishes can be attached directly to interior and exterior of forms
- Install windows while superstructure is being built
- Fewer Trades = Safer Job
- Structure is unaffected by the elements
- Warmer work environment in winter
- Cooler work environment in summer



A FASTER PROCESS

Fewer Trades

- Same crew can install exterior wall system, interior walls, floors, windows & roof deck.



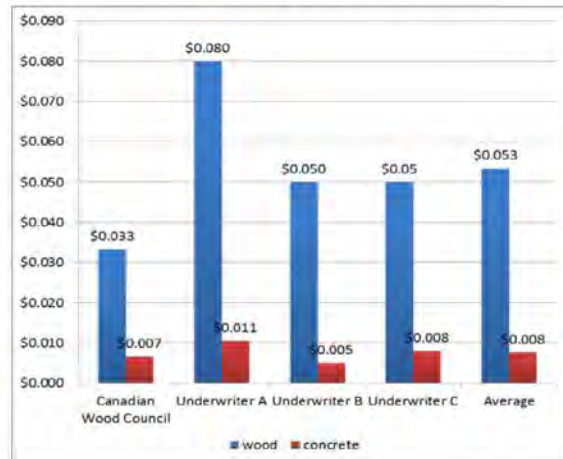
REDUCE RISK

- Insurance costs more than six times greater for wood frame buildings than for concrete buildings - Globe Advisors - Study of Insurance Cost for Midrise Wood Frame and Concrete Residential Buildings, 2015

For developer Trammell Crow Residential, a project in a "hot spot" city where fires have happened could cost \$400,000 to \$450,000 to insure for a year, up from \$150,000 to \$200,000 in 2015, according to Scott Woodward, Trammell Crow's risk management and legal director in Dallas. Some insurance carriers are refusing to insure any housing projects in the wake of fires, Woodward said.



Course of Construction, Builders Risk Insurance Rates per \$100 Monthly



Source: Data drawn from Confidential Interviews and Canadian Wood Council



Net Zero ICF schools started in Kentucky

- Nation's First Net Zero Energy School
- 77,466 SF
- 550 students
- ICF, geothermal, daylighting, PV
- Warren County Schools has yet to receive a single utility bill for this project!



THESE ARE ALL CONCRETE AND ICF

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A COALITION OF THE NATIONAL READY MIXED CONCRETE ASSOCIATION

Multi-family

Commercial

Schools



FREE DESIGN ASSISTANCE

BUILD WITH STRENGTH
A COALITION OF THE NATIONAL READY MIXED CONCRETE ASSOCIATION

**CONCRETE
DESIGN
CENTER**

WE CAN HELP YOU BUILD FOR A LIFETIME.

