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Developing with Insulated Concrete Forms



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What are Insulated Concrete Forms?






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Ken Miller Homes, Inc.

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THE KENDAL GROUP LTD.

Home costs \$120 to heat

By Cynthia Drexler

Ken Miller, 37, is a professional architect who has built about 150 homes in the last 10 years. He is known for his energy-efficient homes, which are built using Insulated Concrete Forms (ICF). Miller's homes are known for their low energy costs, with one home costing only \$120 to heat per year.

Miller's homes are built using ICF, which is a process where concrete is poured into forms made of expanded polystyrene (EPS) blocks. The blocks are stacked and joined together to form a hollow cavity. The concrete is poured into this cavity, and once it has set, the EPS blocks are left in place, creating a thick, insulating layer around the concrete structure.

Miller's homes are known for their low energy costs, with one home costing only \$120 to heat per year. This is due to the high insulation provided by the ICF walls, which are typically 12 inches thick. The insulation is so effective that it allows the homes to maintain a comfortable temperature even in the winter without the need for a traditional furnace or boiler.

Miller's homes are also known for their durability and low maintenance. The ICF walls are resistant to fire, rot, and insect damage. Additionally, the homes are built with high-quality materials and craftsmanship, ensuring that they will last for many years to come.

Miller's homes are a testament to the power of ICF construction. By using this innovative building method, Miller has been able to create homes that are not only energy-efficient but also durable and low-maintenance. This makes ICF a highly attractive option for homeowners looking for a sustainable and long-lasting living environment.

Windows placed carefully

Miller's homes are known for their energy efficiency, and this is achieved in part through the careful placement of windows. Miller uses double-pane windows with low-emissivity (low-E) coatings to reduce heat loss. Additionally, the windows are strategically placed to maximize natural light and ventilation while minimizing heat gain or loss.

Miller's homes are a testament to the power of ICF construction. By using this innovative building method, Miller has been able to create homes that are not only energy-efficient but also durable and low-maintenance. This makes ICF a highly attractive option for homeowners looking for a sustainable and long-lasting living environment.

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Kendal Lofts – Waukesha, Wisconsin – 42 Units

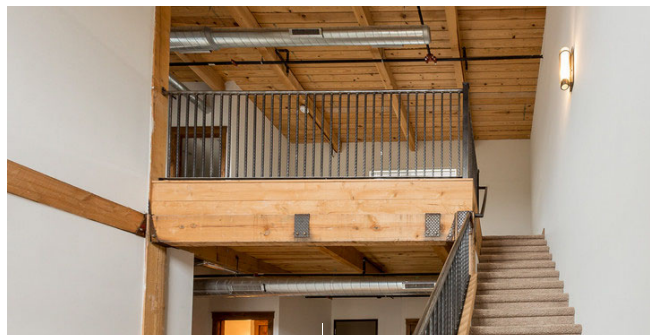
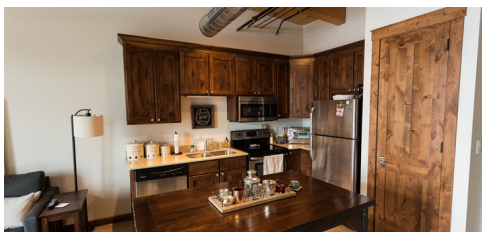
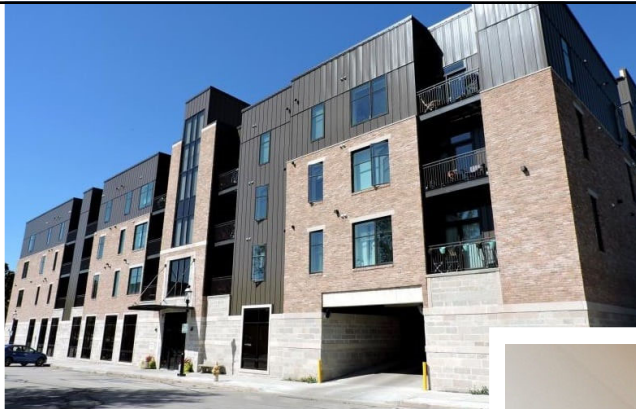


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Admiral's Wharf – Milwaukee, Wisconsin – 133 Units



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Cost Comparison?

ICF
vs.
Wood Frame

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Oconomowoc, Wisconsin

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

ICF + Wood Frame Interior Total: \$4,350,000

PROs of ICF during Construction:

1. Ability to pour Stair Towers and Elevator Shafts concurrent with structure, also making both more sound proof
2. Eliminate exterior vapor barrier
3. Continuous R-22 or greater insulation with added bonus of concrete thermal mass
4. Can pour in winter conditions
5. Structural integrity of wall for various possibilities – hanging balconies, masonry tower or trash chute tie offs, skip hoist tie offs, etc.
6. Improves sound transfer through exterior wall

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Cost Comparison?

ICF
VS.
Wood/Steel Stud

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Sarasota, Florida

Total Square Footage = 71,769

Wood Frame @ \$24.00 SqFt = \$1,722,456


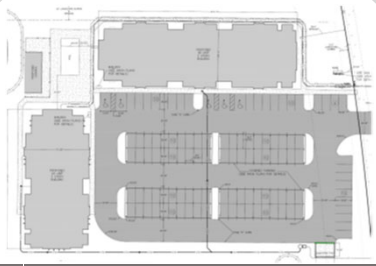
All Concrete/Steel Stud:

- 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:

1. Disaster Resistant
2. Mold Resistant
3. Termite Proof
4. Energy Efficient

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Ownership

1. Retention

- Comfort, Safety, Efficiency
- Approx. 30-40% annual turn over of units with wood frame, ICF 15-25%

Math: 100 units, turn over/ rental costs of \$500/unit

Wood Frame: \$15,000-\$20,000

ICF: \$7,500-\$12,500

\$7,500 increase to NOI or \$136k of value at 5.5%CAP



2. Reserves/Deferred Maintenance

- With ICF we are able to reduce our reserves by 30%.

Math: 100 units, \$250/unit per year

Wood Frame: \$25,000

ICF: \$17,500

\$7,500 increase to NOI or \$136k of value at 5.5%CAP

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Ownership

3. Energy Efficiency

- Conservatively speaking 50% savings in heating and cooling

Math: 100 units, Average heating and cooling common areas = \$2,500 month

Wood Frame: \$30,000

ICF: \$15,000

\$15,000 increase to NOI or \$272k of value at 5.5%CAP



4. Insurance

- Possible savings of 10-15% off annual insurance premiums

Math: 100 units, \$400/unit per year

Wood Frame: \$40,000

ICF: \$34,000-\$36,000

\$4,000 to \$6,000 increase to NOI or \$72-\$109k of value at 5.5%CAP

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Ownership

+\$34,000 to NOI
OR
+\$618,000 to Value at 5.5%CAP

Additional: If owner is responsible for utilities....

Math: 100 units, \$100 average monthly heating/cooling costs

Wood Frame: \$120,000/year

ICF: \$60,000/year

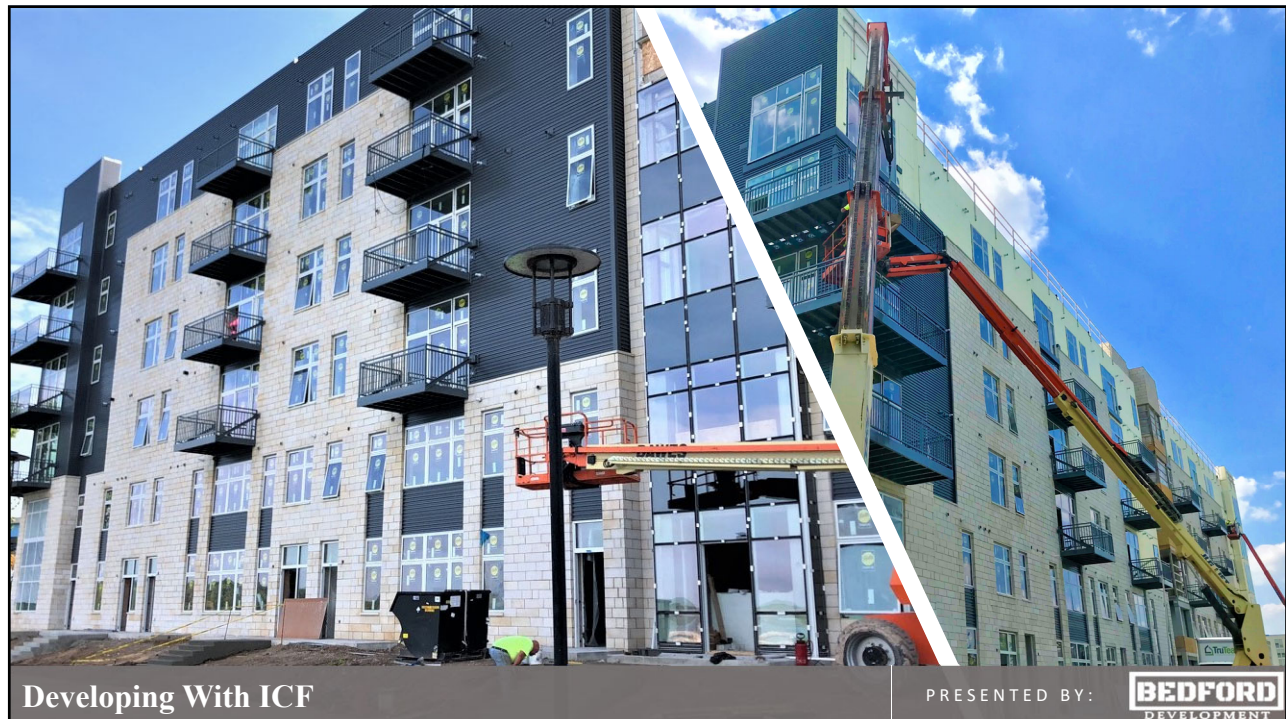
\$60,000 addition to NOI or \$1,090,000 in Value at 5.5%CAP

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