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Optimization is ultimately the product of detailed preparation. **We can help.**



- For more than 85 years, NRMCA has been the leading authority in ready mixed concrete design & construction.
- NRMCA offers numerous guides and tools – many of them free – to help design and construction teams build more efficiently, safely, economically and reliably.
- NRMCA certifications also help to ensure reliable performance in the ready mixed industry.

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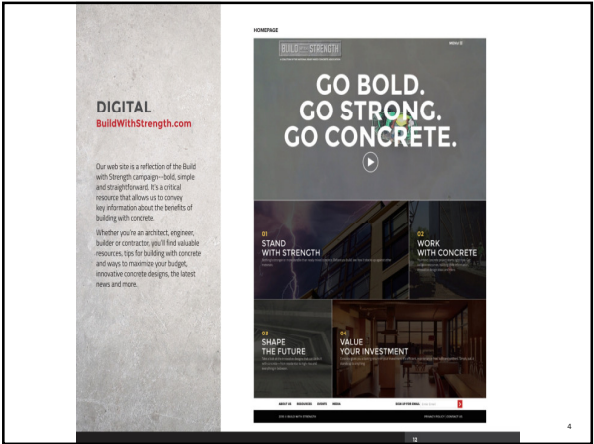
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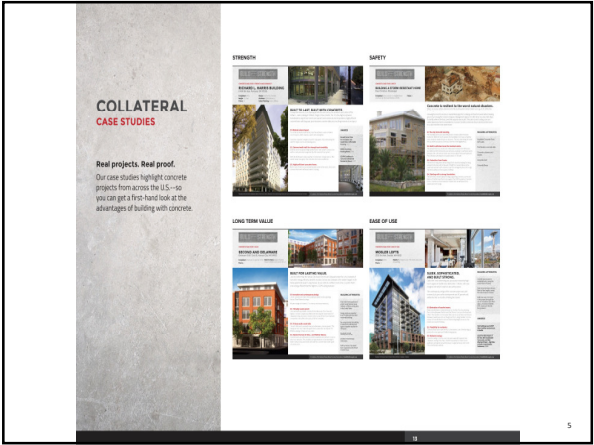
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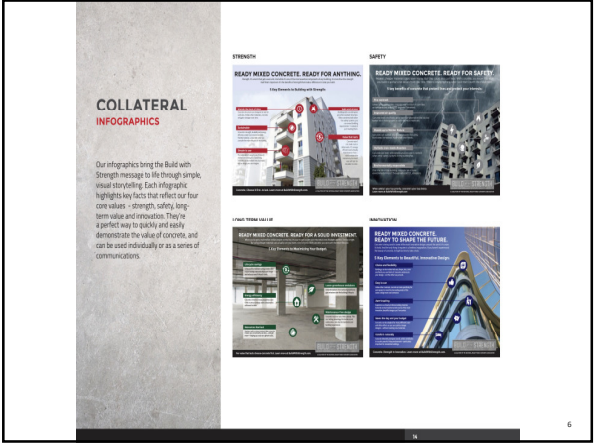
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### NRMCA Design Assistance Program

What is DAP?  
NRMCA professional design team in conjunction with our partners will provide Design Assistance that will include enough guidance to the developer, project designer, contractor, or owner to allow them to design, specify, and/or Build with Strength



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### Concrete Design Center

Architectural Design | Structural Design | Cost Analysis  
Energy Analysis | LEED Optimization



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### What Do Developers Want?



- First cost is the biggest hurdle with Developers
- They understand value of concrete –durability, noise, fire
- They appreciate seeing concrete alternatives
- REIT's understand risks of wood vs. benefits of concrete
- Increasing preference for “green building” among tenants

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# Value – First Cost

300 unit multi-family project in Florida  
Could save \$1.9M by using ICFs  
Trim 8-9 weeks from construction schedule

- One trade – 6 steps (Concrete, Insulation, Sheathing, Furring, Air Barrier, Vapor Barrier)
- Reduced Floor to Floor Height (~12" per floor – saves on finishes)
- Reduced Mechanical Sizing (high performance envelope saves \$\$\$)
- Reduced Electrical Service Sizing (smaller mechanical system required)
- Lower Builders' Risk Insurance (non-combustible construction ~40%)
- Reduced Labor for Trades (much faster install)
- Reduced Weather Delays (concrete!)
- Reduced Waste (Tipping Fees)



# Value – First Cost




Cost and Schedule comparison for a multi-family project in the Mid-Atlantic  
ICF versus Wood


| RECOMMENDATION BY DESIGN                |  | BY WOODEN FORMS |  | BY WOODEN FORMS |  | BY ICF   |  |
|---|--|-----------------|--|-----------------|--|----------|--|
| Concrete Wall at 12" Thick              |  | BY WOODEN FORMS |  | BY WOODEN FORMS |  | BY ICF   |  |
| Form Cost (12" Thick, 100' x 10')       |  | \$15,750        |  | \$15,750        |  | \$15,750 |  |
| Form Labor Cost (12" Thick, 100' x 10') |  | \$12,450        |  | \$12,450        |  | \$12,450 |  |
| Form Total Cost (12" Thick, 100' x 10') |  | \$28,200        |  | \$28,200        |  | \$28,200 |  |
| Form Labor Cost (12" Thick, 100' x 10') |  | \$12,450        |  | \$12,450        |  | \$12,450 |  |
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| Form Labor Cost (1                      |  |                 |  |                 |  |          |  |

### Value – LEED Optimization

- Energy
- Life cycle assessments
- Environmental product declarations
- Noise reduction
- IAQ
- Innovation
- Resilience




### Value – Energy Efficiency



**“The best performing building in a multifamily new construction four stories or greater that SWA has ever worked on in that category.” – Steven Winter Associates, Inc. (SWA)**

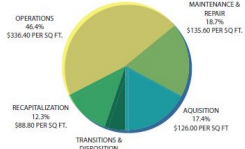
**INTRODUCTION**

Beach Green Dunes will be designed to meet stringent energy standards set by Passive House Institute US (PHIUS), the New York State Energy Research and Development Authority (NYSERDA), and more. The development will also include resilient features to weather the heavy storm conditions in Far Rockaway, Queens, New York.



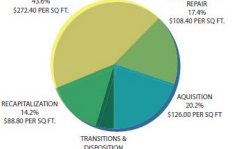
### Value – Life Cycle Cost Analysis

40 YEAR LIFE SPAN  
WOOD STRUCTURE AS DESIGNED vs.  
RECOMMENDED CONCRETE STRUCTURE



**WOOD 40 YEARS**

|                             |       |                      |
|-----------------------------|-------|----------------------|
| OPERATIONS                  | 46.4% | \$336.40 PER SQ. FT. |
| MAINTENANCE & REPAIR        | 18.7% | \$135.60 PER SQ. FT. |
| ACQUISITION                 | 17.4% | \$126.00 PER SQ. FT. |
| RECAPITALIZATION            | 12.3% | \$88.80 PER SQ. FT.  |
| TRANSITIONING & DISPOSITION | 3.2%  | \$23.00 PER SQ. FT.  |



**CONCRETE 40 YEARS**

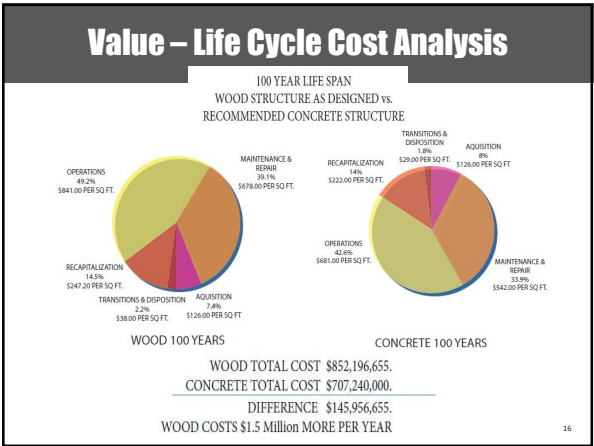
|                             |       |                      |
|-----------------------------|-------|----------------------|
| OPERATIONS                  | 43.6% | \$372.40 PER SQ. FT. |
| MAINTENANCE & REPAIR        | 17.4% | \$126.60 PER SQ. FT. |
| ACQUISITION                 | 20.3% | \$126.60 PER SQ. FT. |
| RECAPITALIZATION            | 14.2% | \$88.80 PER SQ. FT.  |
| TRANSITIONING & DISPOSITION | 4.0%  | \$29.00 PER SQ. FT.  |

WOOD TOTAL COST \$320,379,720.

CONCRETE TOTAL COST \$276,088,815.

DIFFERENCE \$44,290,905.

WOOD COSTS \$1.1 Million MORE PER YEAR



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### Concrete Design Center

Are you looking for more cost-effective ways to integrate concrete into your building projects?

Looking for an easy way to secure an advantage over your competition?

Could you benefit from having free design support to win that next project?

NRMCA's Concrete Design Center is for YOU!

**Let NRMCA help you win that next project and differentiate your business to give you the competitive edge you need.**

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**BUILD WITH STRENGTH**  
www.buildwithstrength.com  
A COALITION OF THE NATIONAL READY MIXED CONCRETE ASSOCIATION

## DESIGN CENTER

Free concrete project design and technical assistance is available through the National Ready Mixed Concrete Association's Design Center. The Design Center can assist you in choosing the right concrete solution for a wide variety of projects, from multi-family residential/mixed use to industrial and health care facilities. NRMCA's expert team of engineers and architects are available to help you select the most appropriate concrete system, including:

- Concrete frame and post-tension flat plate systems
- Voids slab systems
- Insulating concrete forming (ICF) systems
- Tilt-up concrete wall systems

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### THE TEAM



Lionel Lemay  
Sr VP, Structures and Sustainability



John Loyer  
Sr Director, State and Local Government Affairs



Gregg Lewis  
Sr Director Building Innovations



Michelle Roberts  
Sr Director Building Innovations



Tien Peng  
VP, Sustainability Codes and Standards



James Bogdan  
Sr Director, Sustainability Initiatives



Michael Wymant  
Sr Director Building Innovations



Patrick Matsche  
Sr Director Building Innovations

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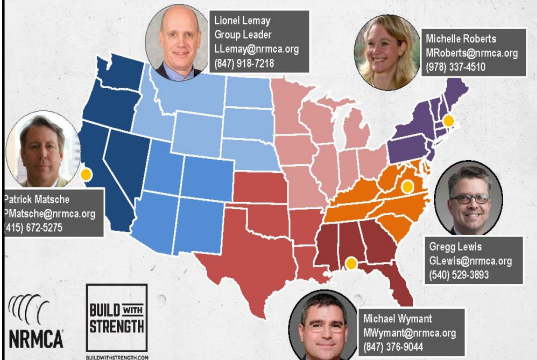
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### NRMCA PROJECT PROMOTION TEAM







Lionel Lemay  
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**BUILD WITH STRENGTH**  
BUILDBYSTRONG.COM

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### THANK YOU

@CONCRETEHUGGER



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**Questions?**

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