BUILD WITH STRENGTH
INVESTORS AND DEVELOPERS RESOURCE PACKET
Dear Developer,

We’re developing the world’s most energy-efficient building in Kansas City, Missouri. We realize that’s quite a bold statement, but there are three essential factors which make this a reality:

- Passive House system
- Lean product design
- Ready mixed concrete

Second and Delaware is a 276-unit multifamily development in downtown Kansas City. The project will be the largest Passive House certified structure in the world, which is more energy efficient than the highest LEED-building standard. As a result, the building will consume 90% less energy than comparable buildings in the area. For reference, the 16” custom-designed walls are comprised of concrete and insulation.

As a developer, or investor, you’re probably inclined to think softwood lumber would be the default building option. It’s cheaper, faster and easier to use, right? However, our first costs with concrete were actually lower per square foot than wood. Wood came in at $84; concrete $80. By combining Passive House with Lean Construction (a highly efficient project management system) and using concrete, we were able to have lower first costs and lower total lifecycle costs than buildings utilizing conventional wood framing.

Building with strength. And value.

We are members of Build with Strength, a coalition of architects, builders, engineers, developers and emergency services personnel who are raising awareness on the long-term benefits of concrete, especially for low- to mid-rise structures.

Specifically, we serve as co-chairmen of the Build with Strength Investors and Developers Advisory Council. Our role is to help people like you learn why building with concrete is good for your bottom line and the long term.

Need help designing your next project or want to learn more?
Please refer to the enclosed packet, which includes a variety of information on:

- The benefits of building with concrete
- The Design Assistance Program (free advice and planning)
- The MIT’s Concrete Sustainability Hub’s analysis on lifecycle costs of wood vs. concrete.

You can also find a plethora of information on our website at www.BuildWithStrength.com.

Please let us know if you have any questions or are looking for any particular resources. We are happy to connect you with Build with Strength’s team of experts, including builders, architects, and engineers, who can assist you with your building and design needs.

Sincerely,

Jonathan Arnold
President & CEO, Arnold Development
Co-Chairman, Build with Strength Investors and Developers Advisory Council

Jack Holland
Investment banker, Kansas City, MO
Build with Strength Investors and Developers Advisory Council

www.BuildWithStrength.com
Our technical experts offer free concrete project design assistance for structural and architectural design, cost estimating, codes and green building standards for any building type.

- Multi-family residential/mixed use
- Dormitories
- Long-term care
- Hotels and motels
- Office buildings
- Industrial
- Commercial
- Education
- Healthcare

**Structural Design**
Our expert team of structural engineers and architects will help you select the most appropriate concrete system to take advantage of concrete benefits including economy, resilience and sustainability.

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

**Cost Estimating**
We will help assemble a team of contractors and concrete suppliers to estimate the cost of building with concrete to meet your upfront and long-term budget needs.

**Energy Analysis**
Using energy simulation software, we can verify the effect of thermal mass in concrete frame buildings to show significantly lower energy use. The overall effect of thermal mass in concrete buildings will translate to energy cost savings over wood or steel framed buildings.

**LEED Optimization**
Our design team of green building experts can help optimize LEED certification using concrete building systems. We can demonstrate how concrete systems can impact credits including energy, life cycle assessment, environmental product declarations, noise reduction and indoor environmental quality.

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www.BuildWithStrength.com
Concrete structures are designed to last for centuries. Unlike other materials, concrete only gets stronger over time.

Building with concrete gives you a fire-resistant structure. When combined with other fire safety systems, you can exceed building requirements—instead of just meeting them.

Concrete won’t rot, mold, rust or deteriorate. It’s energy efficient and virtually maintenance free—which means the resources you invest in now will last for decades to come.

Concrete structures are designed to last for centuries. Unlike other materials, concrete only gets stronger over time.

Concrete’s strength, durability and energy efficiency make it an environmentally friendly material—especially when you consider the entire lifecycle of the building.

If a material isn’t easy to use, it doesn’t matter how strong it is. Good thing concrete can be molded into any shape, size or design you can imagine.

5 Key Elements to Building with Strength:

- **Safe and strong**: Building with concrete gives you a fire-resistant structure. When combined with other fire safety systems, you can exceed building requirements—instead of just meeting them.

- **Value that lasts**: Concrete won’t rot, mold, rust or deteriorate. It’s energy efficient and virtually maintenance free—which means the resources you invest in now will last for decades to come.

- **Stands the test of time**: Concrete structures are designed to last for centuries. Unlike other materials, concrete only gets stronger over time.

- **Sustainable**: Concrete’s strength, durability and energy efficiency make it an environmentally friendly material—especially when you consider the entire lifecycle of the building.

- **Simple to use**: If a material isn’t easy to use, it doesn’t matter how strong it is. Good thing concrete can be molded into any shape, size or design you can imagine.
When safety’s your top priority, concrete’s your top choice. Learn more at BuildWithStrength.com.
When you’ve got a multimillion-dollar project on the line, it’s easy to get caught up in the initial costs. Budgets are thin. Timing is tight. But using cheaper materials can actually cost you more in the long run. With concrete, you save over the entire lifecycle.

5 Key Elements to Maximizing Your Budget:

**Lifecycle savings**
Using quality materials during construction means having a structure that lasts longer and reduces overall lifecycle costs.

**Lower greenhouse emissions**
Concrete saves 3-5% in reduced greenhouse gas emissions over the building’s lifecycle.

**Energy efficiency**
Concrete’s thermal mass properties save 5-8% in annual energy costs compared to softwood lumber.

**Maintenance-free design**
Concrete requires very little upkeep. This is a lasting advantage for builders and contractors, but also for landlords and building supervisors.

**Resources that last**
Starting with a strong material like concrete means you can actually use less—and get more—helping you save on upfront costs.
READY TO PASS THE TEST

MIT researchers examined the environmental impacts of code-compliant buildings and homes over a 60-year period. The results showcased the sustainability, energy efficiency and lasting value of concrete compared to softwood lumber.*

ENVIRONMENTALLY RESPONSIBLE

Over the building's life cycle, concrete reduced greenhouse gas emissions by 3% to 5% over softwood lumber.

LASTING VALUE

While initial costs were less than 5% higher than softwood lumber, the energy efficiency, reduced maintenance and building resiliency contributed to overall value and savings over the building’s life cycle.

AIR TIGHTNESS AND QUALITY

In cold climates, the thicker wall insulation and tight air filtration levels saved 23% on total operating energy costs.

ENERGY-EFFICIENT

Concrete’s thermal mass properties saved 5% to 8% annually on energy bills.

*The full report titled Methods, Impacts, and Opportunities in the Concrete Building Life Cycle can be downloaded from the MIT Concrete Sustainability Hub web site at http://web.mit.edu/cshub

If you’re not building with ready mixed concrete, it might be time to start. Learn more at BuildWithStrength.com.
ADDITIONAL RESOURCES
CONCRETE CASE STUDY

SECOND AND DELAWARE
Delaware St & E 2nd St, Kansas City, MO 64105

Completed: Scheduled to open fall 2016  
Floors: 4  
Claim to Fame: Largest Passive House-certified structure in the U.S.

BUILT FOR LASTING VALUE.
Look no further than the Kansas City-based Second and Delaware project for a true example of concrete's energy efficiency benefits in action. Second and Delaware is the nation’s largest multi-family apartment project using Passive House Institute-certified construction, a system that’s more energy efficient than the highest LEED® building standard.

01. Innovative and contemporary design.
Use of concrete will mirror the durable precedent set by adjoining historic River Market buildings. Modern design will interest 21st century real estate investors.

02. Virtually sound-proof.
Units will feature polished concrete floors. Because of its mass and rigidity, concrete is especially effective in reducing the transmission of unwanted noise and sound. Sound control is one of the most important components that affect the quality of life of a resident.

03. If these walls could talk.
16-inch-thick walls sandwich insulation between concrete panels. This design will not only make the apartments quieter, but will require 70-80% less energy to heat and cool units.

04. Stands the test of time... and Mother Nature.
Concrete walls will withstand all extreme weather and are built to last at least two centuries. This durability will give investors more building for their money as insurance rates are lower for concrete than other types of construction.

BUILDING ATTRIBUTES:
Only multi-family apartment project using Passive House Institute-certified construction in the United States

Energy costs are projected to be 70-80% less than other residential buildings

By using concrete, the building is expected to withstand all types of weather and last for 200 years

Developer: Arnold Development Group

Architect: Direct Design Enterprises

Built by Kansas City-based team organized as the Smart Growth Group

www.BuildWithStrength.com
Join us. We have all the tools you need to start your next concrete project, including key data and research, professional support and hands-on educational resources such as videos, infographics and case studies. Find out how you can get involved at BuildWithStrength.com.
Visit www.BuildWithStrength.com today or call 1-888-864-7622 to get started.