

Spiraling Into Stability: A Successful Introduction of Helical Piers in Guilford County, NC

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Introduction

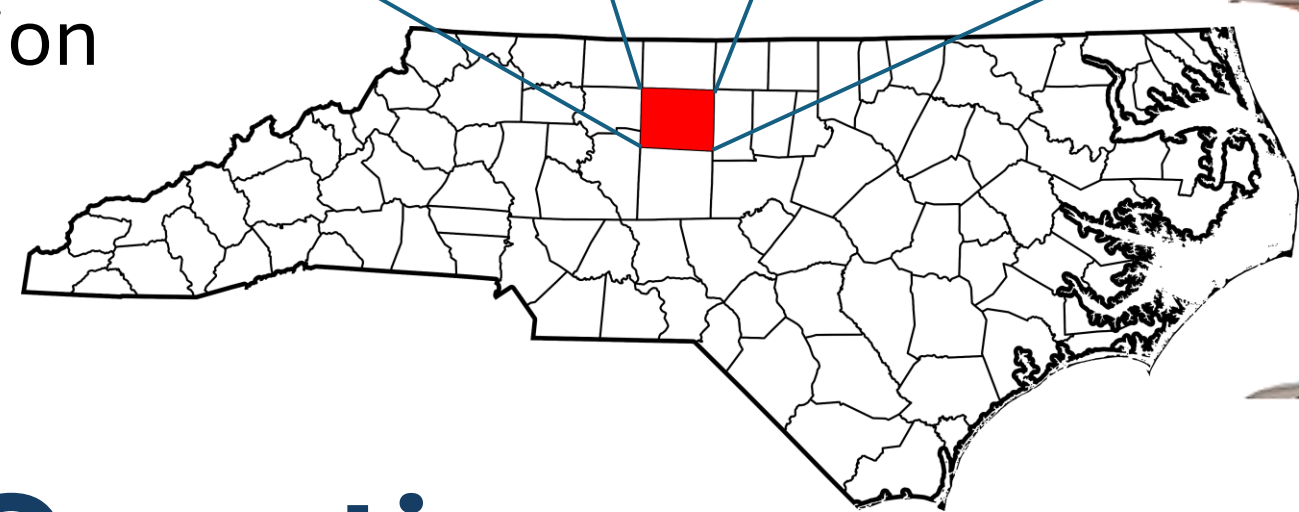
Helical Piers are an alternative foundation system, the introduction of this technology would benefit the housing community of Guilford County and make future housing stock more resilient.

Purpose

Collect data to inform the successful introduction and adoption of Helical Piers in the construction industry of Guilford County.

Climate Change Factors in Guilford County

- 9% of the buildings are at risk of severe flooding¹
- Worse air quality than half of the State
- Stronger hurricanes pushing further inland



Research Question

How can helical piers, technology that outlasts, installs faster, and has a lesser impact on the environment be consistently implemented in Guilford County, North Carolina, while responding to the current housing and climate change crisis?

Methodology

- 1 Survey
36 Homeowners/Renters
- 2 Interview
4 Building Professionals
- 3 Literature Review

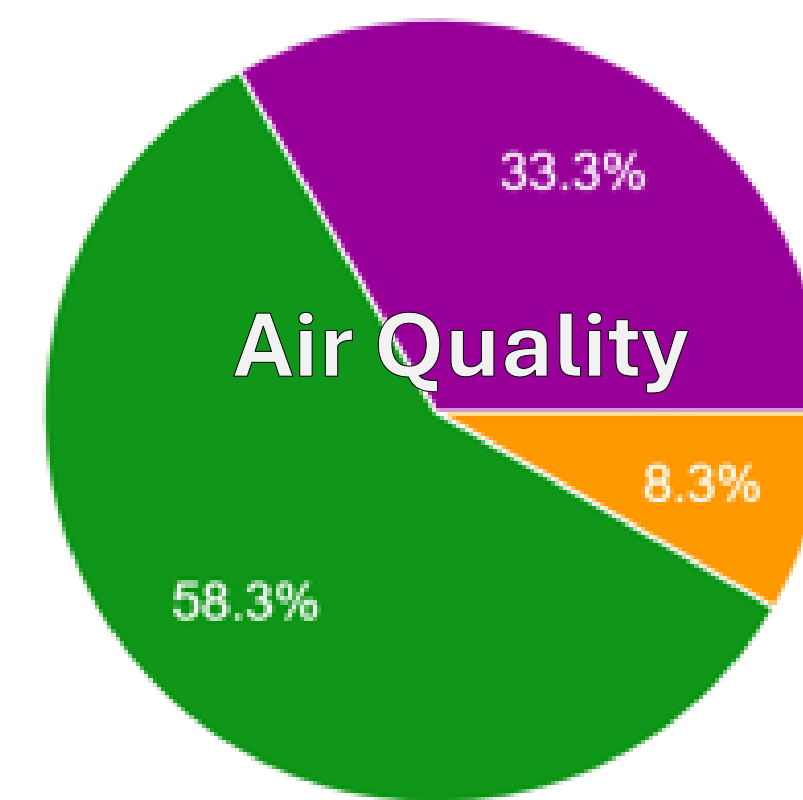
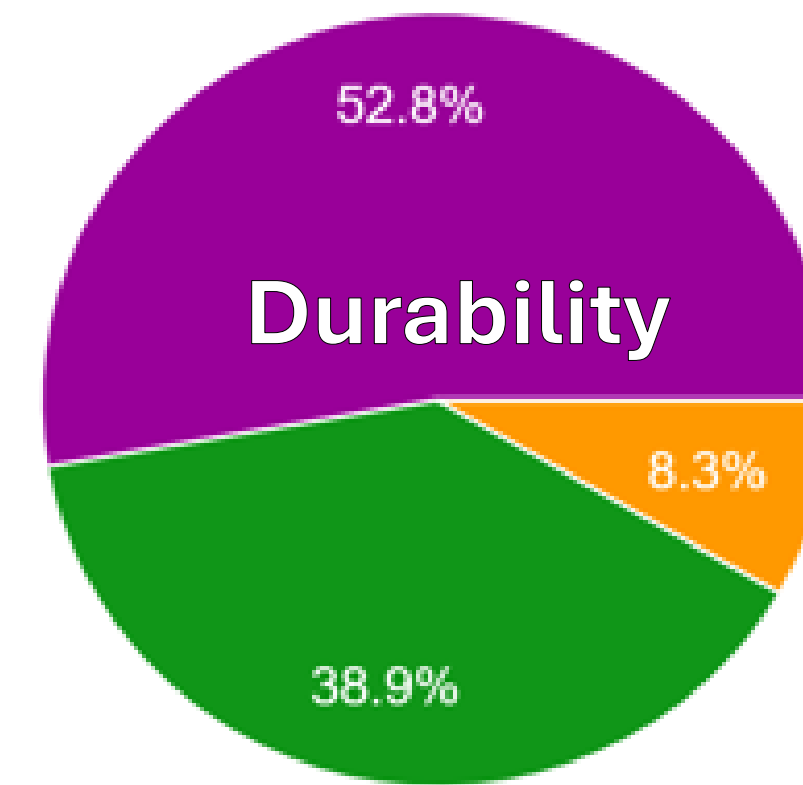
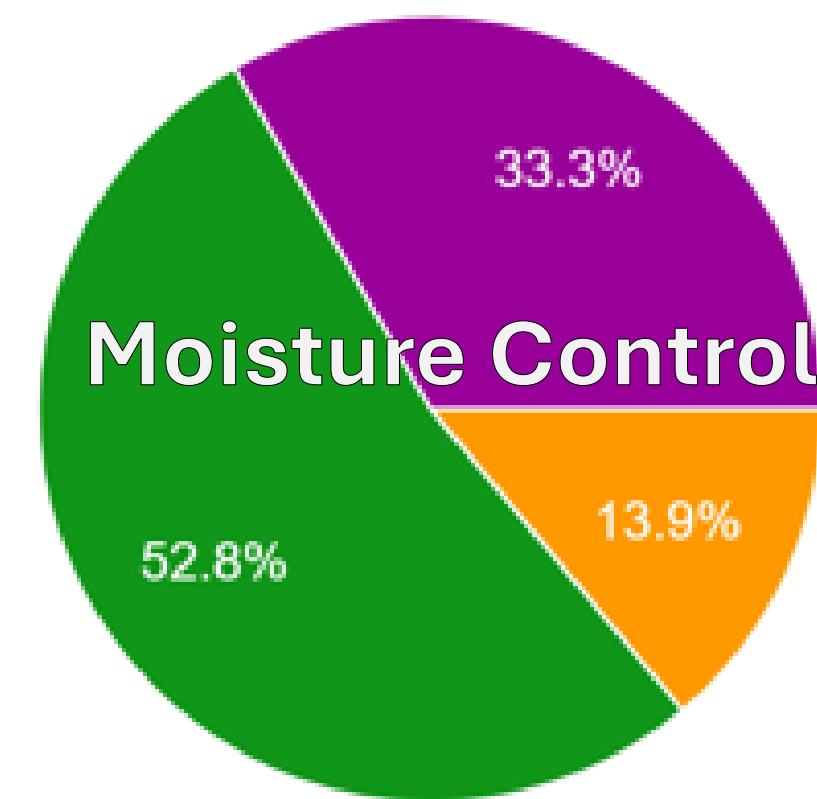
Data collected that describes homeowners and renters' largest interest in building design, and how this information will encourage builders to use helical piers

Data and Results

1 Survey

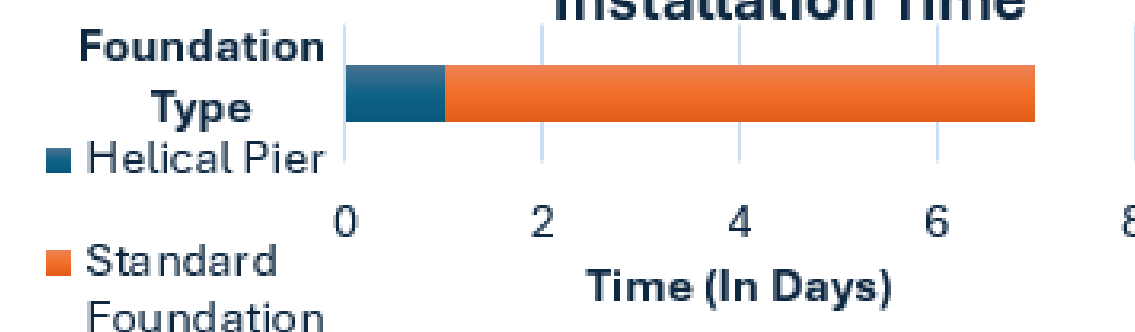
Top three building characteristics important to survey respondents:

- 1- Lowest Priority
- 2- Low Priority
- 3- Neutral
- 4- High Priority
- 5- Highest Priority



2 Interview

Comparison of Foundation Installation Time



Faster installation time reduces labor cost, weather dependency, and brings housing to the market faster



Fast Install



Reuse Potential

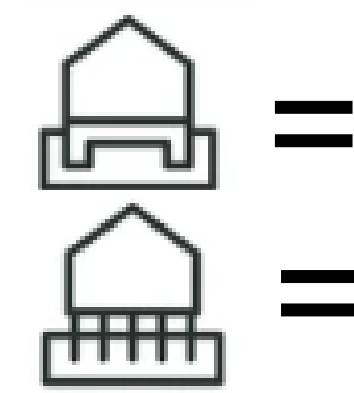


Longevity

3 Literature Review



Air quality



Higher mold contamination associated with NC homes built with crawlspaces²



Proposed insurance increase of

42%

Due to buildings at risk of stronger storms due to climate change⁴



Lack of scientific research on the correlation of helical piers and high performance

Discussions and Conclusions

The most important building characteristics to homeowners and renters align with the building characteristics that come with using helical piers. The research shows that helical piers outlast standard foundation systems and are better capable of withstanding the stronger storms, worsening air quality, and increased risk of flooding that Guilford County faces with climate change.

Of the 36 respondents to the survey, 59.4% were unfamiliar with helical piers and 54.3% were not interested in learning more about them. To successfully introduce helical piers, the public needs to be more interested in the buildings they live in. Steps that can be taken to make residents more aware of alternative building systems like helical piers are:

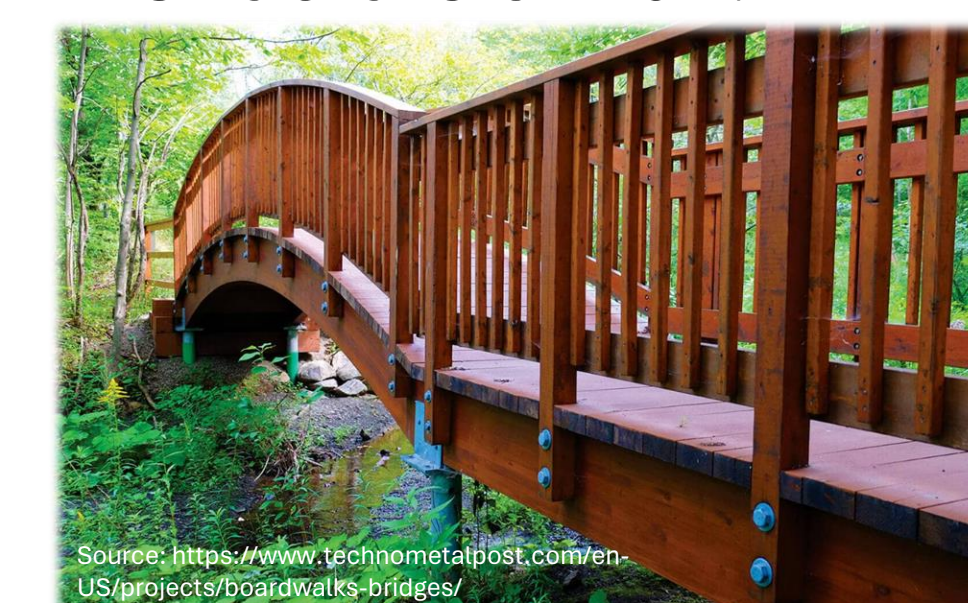
1 Starting a local Building Science group



The Building Science and Beer Show is a global group with local chapters that allow interested homeowners and renters to discuss topics like helical piers with building professionals.

2 Work with a local park to incorporate helical piers into a trail or structure.

Include infographics describing the uses of helical piers to the structure or trail.



References

- ¹Sharai Lewis-Gruss, Michael Kaminski, Marguerite Lally, Collyn Chan, Max Arnell, Elizabeth Bertan, & Ilan Bubb. (2020). First Street Foundation's National Flood Adaptation Database [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.6569763>
- ²Miranda, M., Galeano, M., Hale, B., & Thomann, W. (2011). Crawl spaces as reservoirs for transmission of mold to the livable part of the home environment. *Reviews on Environmental Health*, 26(3), 205-213. <https://doi.org/10.1515/reveh.2011.028>
- ³Larsson. (2014). Risk-Reduction Strategies to Expand Radon Care Planning with Vulnerable Groups. *Public Health Nursing (Boston, Mass.)*, 31(6), 526-536. <https://doi.org/10.1111/phn.12111>
- ⁴King, J. (2024, January 15). *Premium surcharge: The cost of climate change*. Carolina Forward. <https://carolinafoward.org/blog/premium-surcharge-climate-insurance/>