

# Working to stop disposable buildings

PITCH VIDEO INVESTOR PANEL



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Software Technology Construction Clean Tech Smart Cities

OVERVIEW UPDATES 3 WHAT PEOPLE SAY 14 ASK A QUESTION 3

## Highlights

- 1 Total addressable market is all commercial buildings in the world (5.9 million in the US alone.)
- 2 The CEO has 10+ years of building industry experience as a registered architect.
- 3 Reduce operational costs for commercial & public buildings.
- 4 Reduce carbon footprint of the building industry by lengthening building lifespan.
- 5 Reduce landfill waste resulting from premature demolition, which is 1.8 times the amount of municipal waste in the US.

## Our Team



**Clair Marie McDade** Founder and CEO

Data Scientist and Registered Architect of over 40 buildings in the US and abroad. Also a front-end developer.

As an architect working in construction for over 10 years, I was appalled to see sturdy, robust buildings being demolished. Owners spend tens to hundreds of millions on construction, and their building immediately needs work. Public building repairs are breaking budgets. The problem has gotten out of control.



**Daniel Cummins** Co-Founder and Lead Software Engineer

Software Engineer and hackathon award winner with a career foundation at Cisco and



Software Engineer and Hackathon and a Winner with a career foundation at Cisco and Sophos. Comp sci grad from University of Illinois Urbana Champaign with Magna Cum Laude.

## Pitch



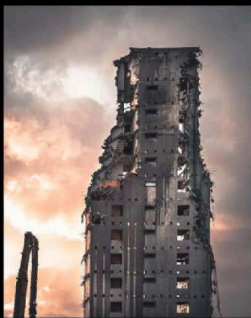
## The Problem

2

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### The Problem

### Low Building Quality



- Unpredictable, High Operational Costs
- High vacancies
- Lower Rents
- Poor Occupant Health
- Safety Issues & Fines
- Lawsuits
- Vulnerability to environmental events
- Premature demolition
- Landfill waste

3

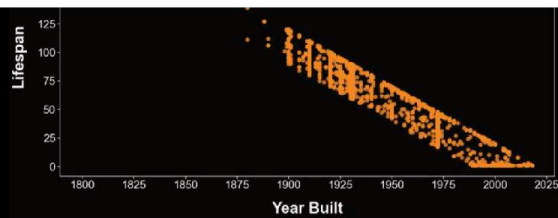
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## Evidence

### Lifespan by Year Built

200  
175  
150

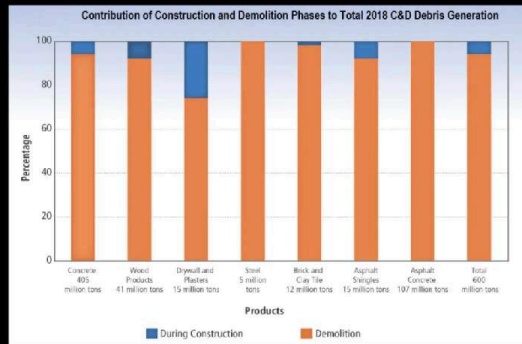
A dataset of 4,000 buildings demolished in New York City was analyzed using a permit



4

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## More Evidence



5

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## The Harsh Reality

600 million tons of construction & demolition debris were disposed of in 2018. (US EPA)

90% of these are building demolition.



6

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## How Big is the Waste Problem?

■ = 100 million tons



US Municipal Waste (2018)



US Construction Waste (2018)

90% is from demolition  
540 million tons

7

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## Harmful Effects of Demolition Waste

1. Embodied carbon in buildings turns into greenhouse gases. Waste releases methane which increases global warming.
2. Disposal stimulates demand for new buildings. Manufacturing products for new buildings causes more greenhouse gas emissions.

3. Poor and minority households systematically live in more polluted neighborhoods.  
- Banzhaf, S. 2012. "An Introduction." The Political Economy of Environmental Justice.
4. Natural resources are limited.
5. Landfills create air and water pollution.
6. Sand mining for concrete is causing impacts such as disappearing river deltas.  
- BBC, 2019. "Why the world is running out of sand."
7. Concrete disposal can cause diseases such as asthma and scoliosis.

8

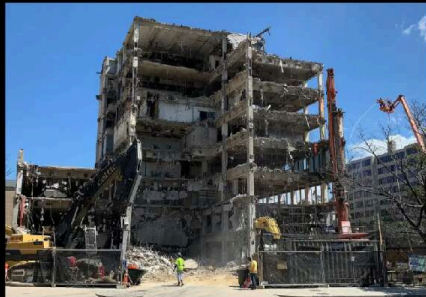
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# Economics

9

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## The Tipping Point



When the cost of improvements is greater than the cost of building new, demolition occurs.

10

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## Relationship of Quality to Longevity



Poor Man's boots



Rich Man's boots

This is the "two boots" theory of economics. If a rich and poor man each bought boots, the poor man will spend more over the the same number of years because of the cost of having to replace boots that wear out.

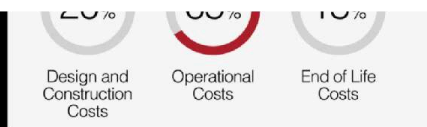
We are doing the same thing in the construction industry - building low quality buildings and then having to replace their systems, or the whole building, in a relatively short period of time.

11

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## Breakdown of Total Cost of Ownership





Low quality buildings cost more over their lifespan. Reducing initial construction cost (leftmost circle) by sacrificing quality causes operational costs to go up, because the building needs more maintenance and more frequent replacement of systems. The most effective way to reduce total cost of ownership is to build higher quality upfront, because this will lower operational costs which are the greater portion of total costs. If the building is already built, the most effective way to reduce total costs is to improve quality. For both new and existing buildings, lengthening lifespan will also reduce the total cost of ownership.

12

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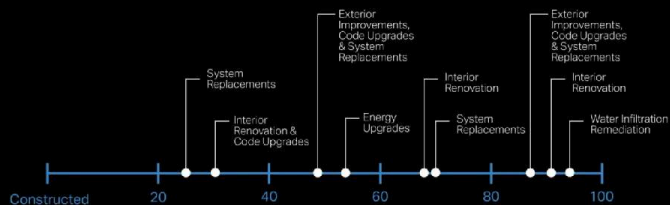
## Reducing Total Cost of Ownership

- Build higher quality from the beginning
- Do improvement projects
- Higher quality = more rent
- Higher quality = less frequent system replacements
- Higher quality = less vacancies
- Higher quality = less maintenance emergencies
- Pay off loan --> more funds available for profit & improvements

13

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## The Periodic Improvement Model



Spread capital improvements out **over time**.

Build cash reserves from **earning adequate rent**.

14

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## The Periodic Improvement Model - Explained

For a building to last 100 years, it has to be built high quality and undergo periodic improvements throughout its lifespan. This involves projects like system replacements (i.e. HVAC), interior and exterior renovations, code upgrades, energy upgrades, and repair projects to solve problems like water infiltration. Many owners postpone doing these improvement projects as long as possible. But when too many projects build up at once, the cost skyrockets and the tipping point is reached, leading to premature demolition.

The BQI analysis looks at what quality improvements are needed and how to plan out these improvement projects over time. When the cost is spread out, it's more feasible. The rent also has to be high enough to cover the cost of these improvements, which means that quality has to be high.

15

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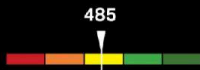
# The Solution

16

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## The Solution

Measure Building Quality with the BQI



### Benefits:

- Identify problems before acquisition
- Reduce expenses during the hold
- Plan Improvements
- Extend lifespan
- Third-party evidence of quality for disposition

17

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## Why use the BQI?

1. Asset management
2. Capital Improvement Planning
3. Transactions

18

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## Features

589

Score Between  
1-1000



Quality  
Improvement  
Recommendations



Risk Reduction  
Recommendations



Economic  
Analysis

19

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## The Technology

BQI Score Report



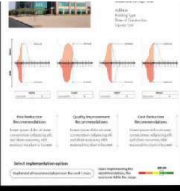


**current:**



PDF Report +  
Pending utility patent +  
proprietary algorithm

**future:**



Cloud-based B2B data  
analytics dashboard using  
machine learning

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## What We Are Building

**Front End**

- User interface to upload source documents (drawings, specs, pdf, word files, budgets, BIM model etc.)
- Transaction process with customer agreement, payment and account functions.
- User interface to view and interact with building data.
- Automated visualizations of BQI results.

**Back End**


- Process to extract data from source documents.
- Process to verify accuracy of extracted data.
- Collection and organization of our own databases.
- Automation of BQI calculation from source data.
- Automation of economic analysis from source data.
- Automated upload of BQI results to cloud based website.
- Automate creation of a downloadable report.
- Connections to API's such as flood and fire maps.

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# The Company


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## Founders



**Clair Marie McDade**  
Founder & CEO

Data Scientist, Registered Architect & Front-End Developer  
10+ years construction experience  
B-Arch, Cooper Union  
Flatiron School Data Science



**Daniel Cummins**  
Co-Founder & Lead Software Engineer

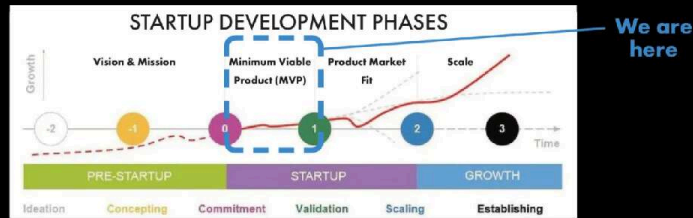
Previously with Cisco, Sophos  
BS Computer Science  
University of Illinois Urbana-Champaign  
Magna Cum Laude

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## Our Stage

We currently have a **paper MVP**. This means we can do an analysis manually, using excel and pdf. We are currently in the process of building a functional MVP.

We have 2 potential case studies lined up to test the system on real buildings. We are currently in contract negotiation and expect to have signed contracts soon. Once we complete these case studies, which will take roughly 2-4 weeks each, then we will use them as marketing to obtain our first paid customers, establishing product market fit. The case studies are free building analyses.



24

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## Power in Numbers

**200 Buildings:** Descriptive statistics such as standard deviation are possible.

**2000 Buildings:** Predictive analytics using machine learning is possible.

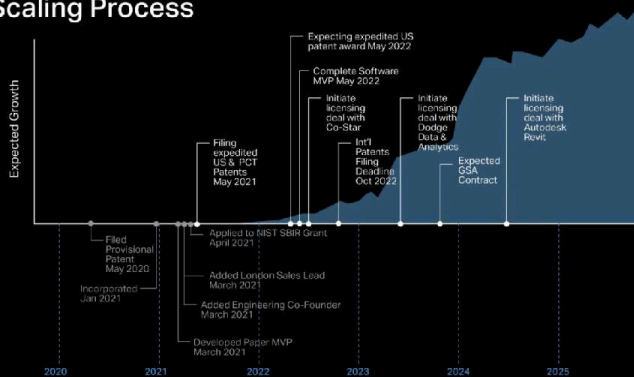
**10,000 Buildings:** Predictive analytics using machine learning become extremely precise.

25

These are forward looking projections and are not guaranteed.

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## Scaling Process



26

These are forward looking projections and are not guaranteed.

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## Scaling Process - explained

The BQI was planned with scaling in mind from the start. Our goal is not only to sell a product and make money, but to create a massive shift in the way the industry does business. Right now the industry is focused on short-term gains, adopting environmental features to meet required regulations or for marketing purposes. We want to see an industry that focuses on increasing long-term performance of buildings.

We expect our sales to be challenging at first, as we are creating a new market. Once we have a patent and a software MVP, we plan to begin licensing deals. The BQI user interface will be similar to Co-Star in the way that data is presented, with different information. It would fit beautifully as another tab on Co-Star's product, which has 150,000 users and \$1.7B annual revenue. Co-Star approached us for acquisition over 2 years ago, when there was nothing but an idea. They are our first target for a licensing deal. The other most relevant targets are Dodge Data & Analytics and Revit (for the new construction version of the BQI).

While our algorithm is proprietary, there is some risk in pursuing the licensing deals too soon as competitors could attempt to copy us. This would be very difficult, because our algorithm is a trade secret. To protect our IP, we plan to wait until after we have been awarded a patent to pursue licensing deals that would lead to broad distribution of the product. We are filing US and international applications in May 2021. With Track One expedited processing, the usual time for final determination of the US patent is 12 months. By May 2022 we expect to have a patent and a software in hand. With these, we will pursue licensing deals as well as promoting BQI sales through our own processes.

27

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# Competitive Landscape

28

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## Healthy Building Approach



### LEED, BREEAM etc.

A deep dive into environmental performance. Point system can be gamed.

vs.

### BQI

A standardized, patent-pending test with a proprietary key. As tough as an audit. Impartial. Uses KPI's in lieu of points.

### WELL

A deep dive into occupant health. Used for design and post-occupancy testing.

vs.

### BQI

A broad overview into the building's environmental, technological, and financial performance.

### EDAC

A scientific approach to healthcare building design.

vs.

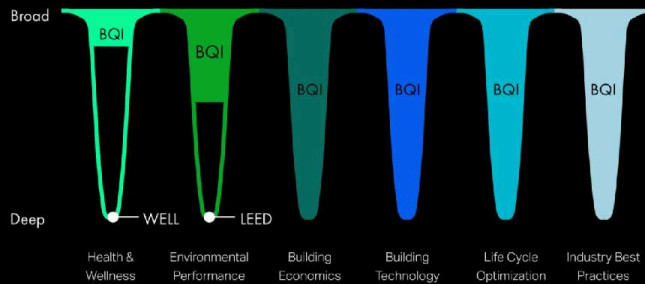
### BQI

A big-picture tool for all types of existing buildings.

29

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## System Emphasis



30

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## Why is it Unique

- 1 The only rating system with economic analysis to justify better performance.
- 2 The only rating system with a hidden key.
- 3 The only system designed to stop disposable construction.

2

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# Business Model

32

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## Target Customers



**Private Building Owners**



**Government**

Once we complete our free case studies, we will sell analyses to building owners. We can resell to the same customers every 3-5 years or after the building has gone through construction. Later, we will sell the completed analyses to companies buying and selling real estate, before the transaction occurs.

33

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## BQI Pricing

<b>First building</b>	Free
<b>All other buildings</b>	Report fee + 15% of annual savings in operating budget, renewable annually for half of hold period.  <b>Example:</b> For an office building: report fee is \$10,000. Recommendations create a \$100,000 annual savings in operating budget over a 10-year hold.  \$10,000 report fee + \$15,000 per year for 5 years.
<b>Portfolios</b>	Reduced rates for a greater number of buildings.

(Pricing is subject to change and may vary for different types of buildings or geographic locations)

34

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## Report Fee

Type of Building	Report Fee
Warehouse, Storage, Utility	\$5,000
Industrial, Manufacturing, Data Center	\$7,000
Office, Business, Retail, Hospitality, Multifamily, Outpatient Healthcare	\$10,000
Mixed-use, Public Buildings, Education	\$12,000
Hospital, Scientific	\$16,000

(Pricing is subject to change and may vary for different types of buildings or geographic locations)

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# The Market

36

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## The Market

Existing  
Commercial  
Buildings:  
**5.6 million  
Buildings (US)**

New  
Construction:  
**\$2.5 Trillion  
(Global)**

Construction  
Industry Growth:  
**5% CAGR  
(US)**

## Divine Timing: Biden Infrastructure Plan

American Jobs Plan Line Item	Proposed Budget	How we can plug in
Improve Ports, Waterways and Airports	\$42 billion	Many of these facilities need modernization projects. BQI includes a planning for capital improvements - perfect for aging buildings.
Improve public housing system infrastructure	\$40 billion	BQI can be used on any multifamily property public or private. There may be funds available through HUD.
Climate focused R&D	\$20 billion	We plan to apply to grants with the EPA, NSF and/or future grants within our niche of waste reduction/reducing embodied carbon.
Upgrade and build new public schools	\$100 billion	BQI can be used on both existing and new schools.
VA Hospitals and Federal Buildings	\$28 billion	These funds are for acquisition, construction or renovation of VA & federal buildings - the BQI is ideal for these use cases.

38

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# Fundraising Ask

39

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## Fundraising Ask - Minimum

Operating Expenses Until Customer Acquisition	
\$7,500	Patent
\$5,500	Marketing
\$2,400	Insurance
\$700	Web Hosting & Software
\$20,000	Cost Estimating Consultant for Free Case Studies
\$5,000	API Integrations
\$5,150	Software Development Expenses
\$3,750	Wellunder Fee
<b>\$50,000</b>	<b>Total</b>

40

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## Fundraising Ask - Maximum

Operating Expenses Until Customer Acquisition	
\$7,500	Patent
\$9,500	Marketing
\$2,400	Insurance
\$700	Web Hosting & Software
\$38,000	Cost Estimating Consultant for Free Case Studies
\$2,000	PR
\$5,000	API Integrations
\$22,400	Software Development Expenses
\$7,500	Wellunder Fee
\$5,000	Business Development
<b>\$100,000</b>	<b>Total</b>

41

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## Why a Revenue Share?

Archneura is pursuing opportunities with the Federal Government through 8a certification, for agencies such as GSA. To be eligible for these opportunities, Archneura must keep its woman-owned status. Introducing equity investors will make it harder to reach this goal.

42

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## Benefits of a Revenue Share

No liquidity event needed to get paid!

You receive your investment as soon as the company meets its revenue threshold.

43

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## Revenue Share Detailed Terms

**TERM:** 60 months from closing date

**INVESTMENT MULTIPLE:** 2.5X, with 3X for all investors up until \$20,000 has been reached.

**PAYMENTS:** Annual

**PAYMENTS BASED ON:** 10% of Revenue

**REVENUE THRESHOLD:** \$100,000 annual revenue.

**OFFERING AMOUNT:** \$50,000 minimum, \$100,000 maximum.

**ADDITIONAL TERMS:** At close of campaign, investors receive an electronic note. Wefunder files a form C as soon as the minimum threshold \$50,000 is reached. Once the form C is filed, the detailed legal terms become visible on Wefunder.com. This page provides a summary of the legal terms. Form C is required by the SEC for regulation crowdfunding. Archneura may prepay the notes at its discretion. If the minimum threshold is not reached, the company does not disburse funds to investors. Notes do not renew. There are no stockholder rights included with the note.

