



Zero-Carbon Alternative to Concrete

PRESENTED TO

NWCCC

10.19.22

CONFIDENTIAL

WWW.PROMETHEUSMATERIALS.COM

THE PROBLEM

The Problem

- The production and transportation of portland cement and concrete account for 8% of world's total annual CO₂ emissions
- Concrete is the 2nd most used material on earth next to water
- World-wide building stock is forecasted to double by 2060
- Production of Portland cement based concrete consumes 8-9% of annual global water production



SOLVE

OUR SOLUTION

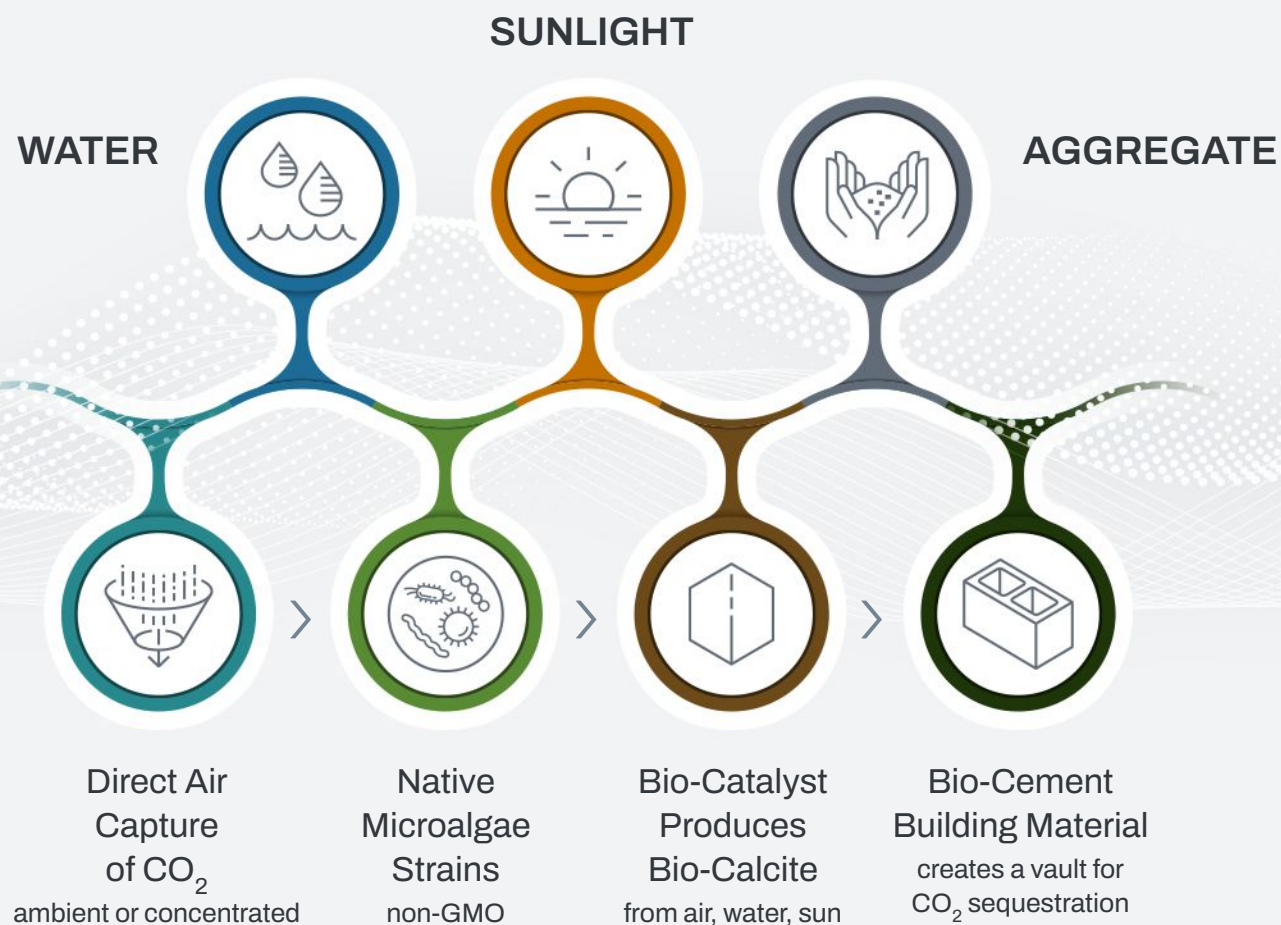
What We Do

- Deliver sustainable building materials that accelerate the world's transition to a carbon-negative future
- Inspired by the composition of coral reefs and seashells
- Develop a technology that uses naturally occurring microalgae to produce a zero-carbon bio-cement that offers an alternative to carbon-intensive portland cement

PIONEER

Our Zero-Carbon Bio-Cement

Just a glimpse of the unique process that will accelerate the world's transition to a carbon-negative future



Concrete Crafted by Nature

- CMUs specified by architects, engineers, property and facility developers, and others in the construction industry as a zero-carbon alternative to portland cement
- Beyond CMUs, will commercially produce other zero-carbon building products, including precast bio-concrete elements and “Just Add Water” bio-cements
- Will partner with companies interested in licensing PM bio-cement technology to develop new, groundbreaking zero-carbon building products



Compared to Traditional Concrete, PM Bio-Cement ...

- **Decarbonizes construction**
 - Net-zero carbon emissions during production
 - Carbon sequestration following production, making the material carbon-negative
- **Uses less water and recycles water**
 - Significantly smaller amounts of water are required during production
 - Following production, virtually all water is recycled or returned to the atmosphere
- **Uses practically any type of water**
 - PM bio-cement can be produced with practically any type of water – freshwater, saltwater, even some wastewaters
 - Portland cement requires the use of potable freshwater and consumes 8% of industrial water production annually



PM Bio-Concrete vs. Traditional Portland Cement

	PM Bio-Concrete CMU	Portland Cement CMU
Thermal Conductivity	10%	100%
Weight	85%	100%
Embodied Carbon	<10%	100%
Days to Full Strength	7	28
Compressive Strength (PSI)	~3200	2000
Water Recycled	99%	5%



OUR VISION

Concrete Masonry Units (CMUs)

Here to Stay ... and Grow

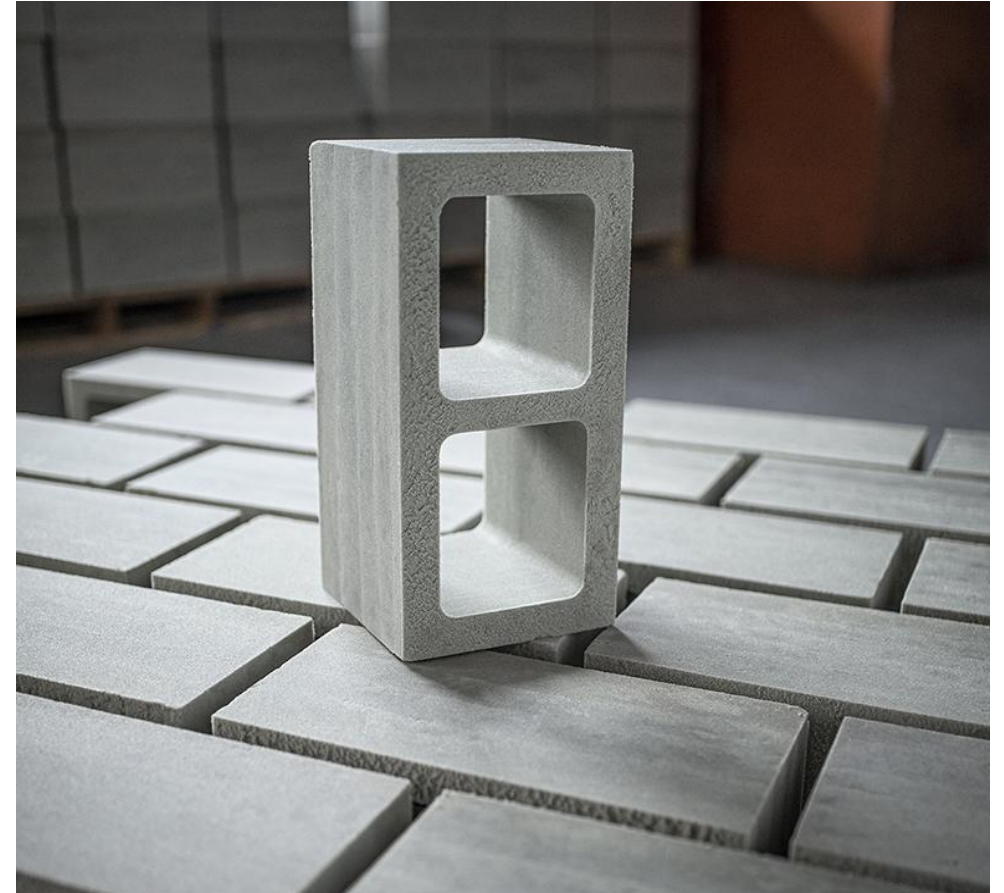
- CMU market size is \$6.5B in US alone
- Growing to \$7.2B by 2026
- 40% non-residential bricks and blocks
- WW building stock to double by 2060



Concrete Masonry Units (CMUs) – continued

Used Extensively in Buildings of All Types

- Developing countries
- Data centers
- Schools
- Low-rise commercial buildings
- High-rise building infrastructure
- Residential



Concrete Masonry Units (CMUs) – continued

The Perfect Launch Pad for PM

- Low regulatory barriers to entry (2-3 months)
- Capital-efficient
- Provides early revenue and immediate CO₂ reduction opportunity
 - Large form reinforced ~24-month regulatory approval process



Go-to-Market

- Begin production EOY 2022
- Steady month-over-month production ramp
- Regulatory approval for CMUs



Go-to-Market

- Pricing – TBD
- Business Development partner licensing model
- Pre-cast products
- Reinforced regulatory approval ~24 months



Go-to-Market

- Initial focus on CMUs
 - Internal non-structural
 - Internal structural
 - Exterior structural
- Demand-side focused
 - Products specified by the AEC firms and large buyers



Our Mid-Term Vision

- Carbon negative building materials
- Pre-cast products
 - Roofing tiles
 - Floor, ceiling and wall panels
 - Sound barriers
- Just-add-water bio-cement



CMU Block



Acoustic panel with wood fiber



Reinforced precast elements



Precast bridge girder

DIVERSIFY

Our Mid-Term Vision

continued

- Licensing model
- Geographic expansion
- Future products
- Reinforced applications
- Ready-mix



EXPAND

Our Long-Term Vision

- Reduce annual CO₂ emissions by 1 gigaton
 - 1 billion metric tonnes
 - ~250M vehicles
- New product and market innovation
- Current technology is just the beginning
- SOM Urban Sequoia



THRIVE

Our Long-Term Vision

continued

- Be the WW leader for Advanced Bio **Building** Materials
- Establish centers for Bio materials innovation WW
- Build \$1B+ shareholder value



SUCCEEDED

Our Long-Term Vision

continued

- Be the WW leader for Advanced Bio *Building* Materials
- Establish centers for Bio materials innovation WW
- Build \$1B+ shareholder value



SUCCEEDED

WHO WE ARE

Our Origin

- In April 2016, our team from University of Colorado Boulder responded to a DOD call for proposals related to engineered living materials
- While the team developed a product that satisfied the DOD requirements, we imagined that our technology could potentially shift the course of climate change
- By harnessing microalgae to be used as a living building material, we created a replacement for traditional portland cement
- In 2021, Prometheus Materials Inc. was founded – and our concrete alternative is beginning production

CHALLENGE

Our Origin: Approaching a Zero-Carbon Future



Department of Defense RFP

The Biological Technologies Office of the Department of Defense issued a call for proposals to conduct work on engineered living materials.



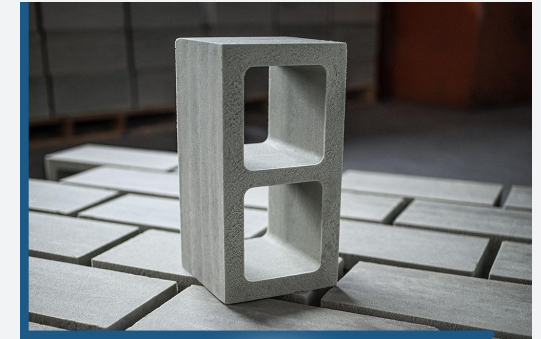
Proof of Concept

After a year of testing in the lab, the team was required to build a product to test. They harnessed the microalgae to be used as a low-carbon concrete masonry unit (CMU) – otherwise known as a cinder block.



Formed Company

Prometheus Materials was founded, raised seed capital, and licensed intellectual property from the University of Colorado. The company attracted the attention of major architectural and technology firms.



Microsoft Pilot Demo

Prometheus Materials receives Series A funding and is currently manufacturing its low-carbon concrete alternative to be used in a pilot demonstration for Microsoft.

Our Inventors and Co-Founders are Professors at the University of Colorado Boulder



Wil V. Srubar III, PhD

Chief Technology Advisor and Co-founder

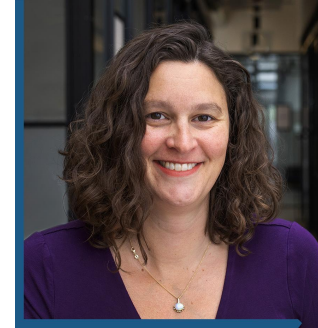
- Materials Science & Engineering Program and Architectural Engineering at CU
- Expert in structural engineering and materials science of polymer- and cement-based materials for building and construction applications, with a specific emphasis on novel living cementitious material systems
- Published 100+ peer-reviewed technical journal articles, book chapters and conference proceedings
- Holder of two US Patents



Mija Hubler, PhD

Chief Engineering Advisor and Co-founder

- Civil Engineering, Co-Director of the Center for Infrastructure, Energy and Space Testing (CIEST) at CU
- Expert on degradation and damage of construction materials due to aging and its impact on structural performance
- Published 20+ articles in the major mechanics and engineering journals
- Authored an international recommendation for predicting concrete creep and shrinkage



Sherri M. Cook, PhD

Advisor and Co-founder

- Expert in environmental biotechnology and quantitative sustainable design
- Focused on developing and applying quantitative sustainability and resilience assessments



Jeffrey C. Cameron, PhD

Advisor and Co-founder

- Dept. of Biochemistry where he leads the Cameron Lab at CU
- Fellow at the Renewable and Sustainable Energy Institute (RASEI) – joint appointment with NREL
- Expert in the physiology and biochemistry of microbes including photosynthetic cyanobacteria with a focus on how cells grow in complex physical environments

INNOVATE



Scientific Expertise Coupled with Business Acumen

Loren Burnett

President, CEO and Co-founder

- Serial entrepreneur with 30+ years leadership of technology companies as CEO, COO and CFO
- Founded of 6 tech companies – 4 based on tech transfer agreements
- Founded e-Chromic Technologies – an energy efficiency electrochromic window and film company based on technology from NREL
- Delivered 5 exits generating \$375M in shareholder gains
- Raised \$190M in funding
- Led 17 M&A transactions and 1 IPO filing
- Passionate about reducing CO₂ and value creation

An Executive Team with a Proven Passion for Sustainable Design Solutions



Vaughn Bigelow

Vice President of Manufacturing

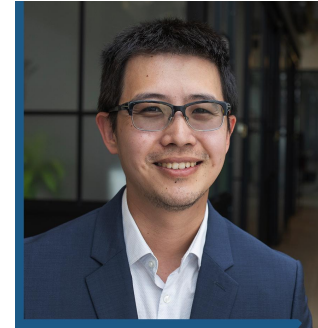
- Over 25 years experience in manufacturing and construction with both startups and large corporations
- Experience includes modular, scaled supply to OEM customers
- Promotes safety, quality, and efficiency in production environments
- Named on a number of utility and design US patents



Stephen Bell, PhD

Director of Biotechnology

- Passionate, metric-driven scientist with interests and training that intersect biology and chemistry
- Earned Ph.D. at University of Kentucky where he studied natural product biosynthesis and synthetic biology approaches for producing valuable chemical compounds
- Worked in the pharmaceutical and agricultural industries before joining PM, which provided diverse experiences and a wide range of skills



Linfei Li, PhD

Director of Product Development

- Expert on the long-term performance and durability of cement-based construction materials
- Received Ph.D. degree in Civil Engineering at CU Boulder in 2019 and worked as a postdoc research associate before joining PM
- Experienced in experimental investigation with a theoretical understanding of mechanics
- Published 10+ peer-reviewed research articles in the area of cement-based construction materials



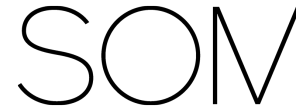
Lara Darvie

Director of Marketing and Communications

- Career marketer serving as both client and agency liaison
- Built global brands and executed large-scale campaigns and events
- Held a range of posts, serving diverse clients and industries such as technology, entertainment, consumer packaged goods, and pharmaceutical
- Holds a master's degree in corporate and public communication

Our Investors & Partners

- Some of the most respected and influential organizations in the world support our mission to decarbonize the building materials industry – and heal our planet in the process
- They support us all by supporting the future
- We are honored to continue earning their trust, pursuing their principles and benefiting their institutions every day



Significant Press & Media Attention

The Washington Post TIME

Smithsonian
MAGAZINE

IHUFFPOST

nature biotechnology

The New York Times

ENR
Engineering News-Record

ScienceDaily®

9NEWS 

*"Prometheus 'Bio-cement' Touted as Portland Cement Sub ...
Biological binding agent is called nearly carbon free"*

CLF Carbon
Leadership
Forum

CellPress

 Medium

ARMI

Concrete
PRODUCTS

de
Zeen

 **EurekAlert!**

THE CONVERSATION

THE DENVER POST

FASTCOMPANY



Zero-Carbon Alternative to Concrete

THANK YOU

Loren Burnett
President and CEO

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