FORMWORK IO

Overview

Real estate and construction sectors worldwide are pivotal in the fight against climate change, accounting for nearly 40% of global CO2 emissions. A significant portion of these emissions, roughly 85-90%, are Scope 3 emissions—indirect emissions from activities not owned or directly controlled by the organization but occurring within the value chain, such as the production of building materials and construction practices. These embodied carbon emissions represent an immediate and irreversible impact once construction is completed, posing a significant challenge to sustainability efforts. Moreover, the parallel crisis of escalating waste from industrial and consumer sources adds to the environmental burden.

How We Solve It

Formwork IO innovates with the development of carbon negative building materials that integrate circular economy principles. Through its suite of proprietary carbon mineralization technology, Formwork IO produces precast building materials that capture and mineralize CO2 while upcycling industrial byproducts and organic waste. These versatile processes transform building elements such as tiles, panels, and paving blocks into active carbon sinks that sequester CO2 during and post production.

Our unique material formulation integrates alternative binders, industrial byproducts, organic waste and recycled aggregates with proprietary carbon curing/bio-carbonization/direct air capture techniques to produce carbon-negative, performance code-compliant concrete. Further adding to the sustainability of the product, organic waste such as coffee grounds are repurposed as bio-pigment, enhancing the product's value while reducing waste.

CO_2 Emission

Formwork IO's strategy for CO2 emission reduction is dual-pronged, aiming both to reduce and remove emissions, in line with guidelines from the IPCC and SBTi. Our flagship product **AtmosBrick™** & **AtmosTile™** boasts a carbon emission saving of 1.145 kg CO2e per unit, a 110% reduction in carbon footprint compared to conventional concrete blocks. This equates to a saving of around 322 kg CO2e per tonne or 716 kg CO2e per cubic meter. These carbon negative outcomes have been independently verified by the Hong Kong Polytechnic University, underscoring our commitment to delivering scientifically accredited, environmentally beneficial solutions to the real estate and construction sectors.

Please get in touch to learn more at antoniong@formworkio.com.

https://linktr.ee/formwork_io

FORMWORK IO

Formwork IO was founded with a vision. A vision where carbon negative cities are a reality — with the help of innovative, circular construction materials that make urbanization carbon negative.

As an upfront and Scope 3 carbon specialist, we give developers and asset managers access to a wide range of scalable carbon negative/neutral materials that can drastically reduce upfront carbon and Scope 3 emissions in the construction and building industry.

Recent completed Nan Fung Group HQ pilot project at AIRSIDE, Hong Kong

AtmosBrick™ : Key features and technologies

- Carbon capture/mineralization
- Circular (industrial & consumer waste)
- Bio-pigments
- Certified carbon negative
- Performance code compliant
- Dimensions : 100x200x60mm

Color Range

COFFEE

UNDYED

ALGAE

INDIGO

CLAY

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Recent photos of latest prototype

AtmosTile™ : Key features and technologies

- Direct air carbon capture
- Circular (industrial & consumer waste)
- Bio-pigments
- Up to carbon negative footprint
- Performance code compliant
- Dimensions : 300x400x50mm

Color Range

COFFEE

UNDYED

INDIGO

FORMWORK iO

Traction

We are generating interests from real estate conglomerates, construction firms, architects/ engineers and government in terms of pilot projects and collaborations.

Recently, we completed a successful pilot project at **AIRSIDE**, Kai Tak Hong Kong for the **Nan Fung Group**.
Upcoming pilot projects 2025/2026 in Hong Kong, Dublin and Dubai.

南豐集團 NAN FUNG GROUP

BUILD CONSTRUCTION & ENGINEERING AWARDS 2025

Most recently, we were awarded **Carbon Reduction Innovators of the Year 2025** by BUILD's Construction and Engineering Awards 2025 in UK.

SUITz

We have been selected by the prestigious **SUITz Tokyo accelerator 2025** by the Tokyo metropolitan government.

We were awarded as finalist at the **Global Adaptive Cities Innovator Awards** at the **Climate Week NYC 2024** in New York, USA and been mentioned by Climate Insider and Hack Summit as **top 100 carbon capture and removal pioneers** to watch in the world.

CLIMATE INSIDER

HACK SUMMIT

Our work has been featured on **The State of Sustainable Built Environment 2024** report commissioned by the Hong Kong Gov in coordination with Construction Industry Council HK and HK Green Building Council.

HKGBC 香港綠色建築議會

CONSTRUCTION INDUSTRY COUNCIL 建造業議會

HKSTP PARTNER

We are a **Hong Kong Science Technology Park (HKSTP) company**

We were selected as **Sustainable Tech Trailblazers 2023** by UBS.

UBS

We were invited as speaker on Climate Tech during the BAM festival 2023 by Mercedes Benz.

We went through a similar rigorous vetting process at gener8tor from Chicago USA and were accepted by their accelerator program 2024.

gener8tor

Lastly, we are in discussion on collaboration and partnership with some of the biggest engineering, construction and building materials firms in the world.

ARUP

SAINT-GOBAIN

BOUYGUES CONSTRUCTION

TAKENAKA