MiCoB®

Merging Art, Automation and Construction

11th Webinar on
Revolution in Infrastructure Development by 3D Concrete Printing

Delivering Sustainability, Optimization and Speed using 3D Concrete Printing technology

Concrete is the most prevalent construction material due to its low cost and durability

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- Concrete needs to be poured in formwork

Source: Link

Conventional construction

- Labour intensive
- Requires formwork
  - Limited flexibility
  - Cost increases with complexity
- Time consuming

Source: Link

The Pain-Killer

MiCoB®

Robotic construction

- Minimum labor
- Higher productivity

No need of formwork

- Ease of creating complex and optimized structures
- Minimal construction waste

Optimized 3D Designs

- Low material consumption
- Thermally efficient designs

Robust quality control

- Minimal human intervention
- Automated feeding, mixing, pumping and 3D printing

BIM and MEP integration

Video Link

Adoption Underway in Defence and Residential Civil Construction

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Video Link

Video Link

We work extensively with Indian Defence. We have built Blast and Impact resistant 3D printed structures for them

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450+ Impact and Blast resistant bunkers delivered

5,000 Bunkers expected to be delivered in next 2 years

Construction time reduced from 45 days to 7 days

Higher Ballistic performance compared to Conventional bunkers

Hindustan Times

lia World Cities Entertainment Cricket Lifestyle Astrol

al Trending Quickreads Daily Digest Festivals Quiz

Army to construct next-gen 3D-printed bunkers at LAC

India News

Updated on Nov 16, 2022 03:06 AM IST

The Indian Army will construct modular, 3D-printed, next generation bunkers to provide better protection to front-line soldiers guarding the country's border with China in the Ladakh sector.

ANI
@ANI
Official

3D-printed permanent defences have been constructed for first time by Indian Army's Corps of Engineers in desert sector. These defences were trial tested against a range of weapons from small arms to the main gun of T90 tank: Indian Army's Engineer-in-Chief Lt Gen Harpal Singh

We have built for Hills

MiCoB®

- Higher insulation – Reduced heating requirement
- Modular structures – Reduced construction timelines

We have built for Deserts

MiCoB®

- Higher insulation – Reduced HVAC load
- Modular structures – Reduced construction timelines
- Resilient structures – Protection against Sand-storms and wind

We have built for Coastal regions

MiCoB®

- Reduced corrosion – Lower maintenance, higher life
- Waterproof – Resilient against high humidity and monsoon

We have built for Highest Earthquake Prone Areas

MiCoB®

- Structural stability – Suitable for high seismic zones
- Lower insurance cost

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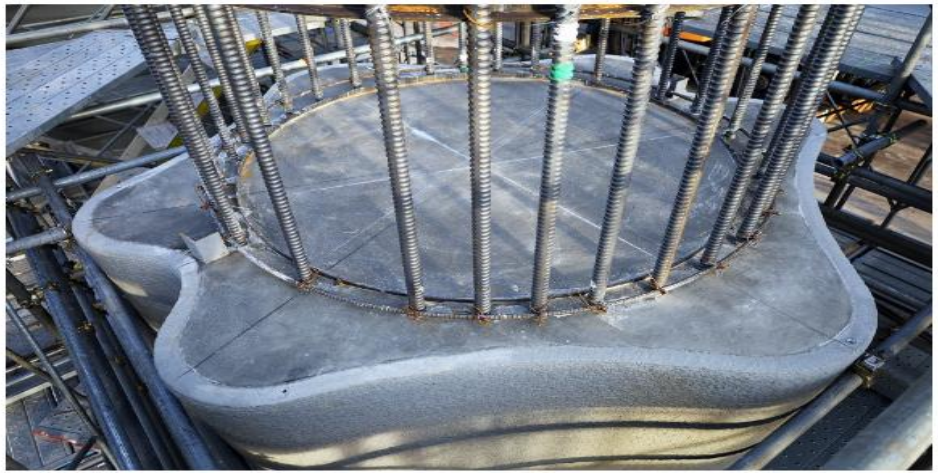
What can be built with 3DCP in Road Infrastructure

Bridges and Culverts

TU/e

Bridges and Culverts



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Bridges and Culverts

TU/e

Bridges and Culverts

TU/e

Bridges and Culverts

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Bus stands

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WINSUN

WINSUN

Tvasta / Godrej

Retaining walls

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MiCoB

WINSUN

WINSUN

Public utilities

Weber / Saint Gobain

CyBe

Source: Link

Road Dividers and Barriers

Manholes, Drains and Trenches

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Hyperion

La SADE

MiCoB

Limitations

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- Higher cost
- Limited pilot projects
- Long term durability and structural performance data
- Lack of Standards and Testing protocols

The Way Forward

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- Adoption Strategy

  - Short-term Adoption (1-2 years)
    - Road dividers and barriers
    - Manholes, Drains and Trenches
    - Bus stops, Public utilities, Toll booths

  - Mid-term Adoption (2-5 years)
    - Culverts
    - Retaining walls
    - Pedestrian bridges
    - Bridge pier formwork

  - Long-term Adoption (5-10 years)
    - Load bearing bridge components
    - Bridge foundations

The Way Forward

MiCoB®

- Pilots for feasibility studies, structural testing and long-term performance data
- Committees for development of IRC, BIS, ASTM and ACI codes and guidelines
- Industry-Academia collaboration for full-scale pilots and testing
- Government push for promoting pilots through NHAI, BRO, CPWD and PWDs
- Awareness sessions to promote short-term and long-term adoption

Best Way to Predict the Future is to Create it !

-Peter Drucker

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Let's Print the Future !!!