

EmiratesGBC Technical Workshops *by* Readymix Gulf, a member of Holcim

Decarbonizing the UAE Built Environment

Presented by

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8 of March 2024



DECARBONIZING THE UAE BUILT ENVIRONMENT

Naved Sayed, VAP & Solutions Manager
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HOLCIM COMMITMENT TO DECARBONIZATION

~60K 
Employees

Net Zero

1.5°C-aligned 2030 & 2050 targets
validated by SBTi

2300 
Operating Sites
around the world

60 Markets
around the World

29^B CHF
Net Sales 

21% 
reduction in our CO₂ per net sales
by 21%

100+ Startups 
In our open
innovation ecosystem

#1 
R&D
organization in
our industry

5 
worldwide R&D
hubs

ON A MISSION AT HOLCIM

FOUR PILLARS OF DECARBONIZATION / REDUCING EMBODIED CARBON



GREEN OPERATIONS
Decarbonizing Holcim



BUILDING BETTER WITH LESS
Decarbonizing construction



CIRCULAR CONSTRUCTION
Building new from old



MAKING BUILDINGS SUSTAINABLE
Decarbonizing cities



MEGA TRENDS DRIVING CONSTRUCTION & INNOVATIVE SOLUTIONS

SIX MEGA TRENDS DRIVING CONSTRUCTION

BUILDING BETTER FOR A CHANGING WORLD

POPULATION GROWTH

From ~8 billion today to
~10 billion by 2050



URBANIZATION

~ 2.5 billion more
people are expected to
live in cities by 2050



SUSTAINABLE CONSTRUCTION

Higher demand due to
resource scarcity



BETTER LIVING STANDARDS

and more efficient
infrastructure
demand growing



INNOVATION DRIVEN BUILDINGS

Accelerated by light and
Modular construction
solutions



REPAIR & REFURBISHMENT

Driven by urban
demand



THE GLOBAL OPPORTUNITY

LOW-CARBON & CIRCULAR CONSTRUCTION IS THE SOLUTION

Climate adaptation will require more resilient cities ¹

Global building floor area will double by 2060 ²

The built environment generates nearly >40% of global emissions ²

80% of the worlds buildings in 2050 already exist ³

SMART DESIGN & LOW CARBON CONSTRUCTION

- **Building better with less** using low carbon materials + efficient design
- **Climate adaptation** means upgrades to cities and infrastructure
- Building strong durable buildings and infrastructure to **extend the operational life of assets**

RETROFIT & REUSE & RECYCLE

- **Retrofitting** buildings to be more energy & space efficient
- **Reusing** material in the next life
- **Circular construction** using recycled materials

¹ United Nations - Climate Action, 2022: Climate Adaptation

² Architecture 2030, 2022: Why the built environment

³ Mckinsey & Co, 2021: Call for action: Seizing the decarbonization opportunity in construction

BUILDING BETTER WITH LESS

COMBINING SMART DESIGN WITH LOW CARBON SOLUTIONS

Smart Design



Right Materials

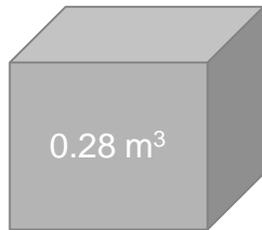
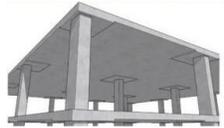


Right Location



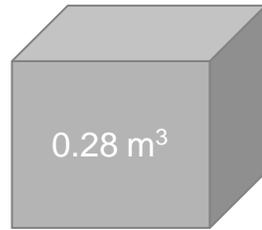
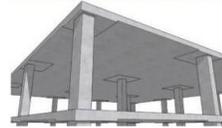
Lower Carbon Footprint

CEM I/OPC



C25 Mix
40kg Steel
112 kg CO₂/m²

Low Carbon Concrete

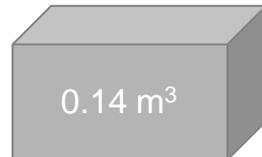


C25 Mix
40kg Steel
91 kg CO₂/m²

HOLLOWCORE



Using CEM I mix

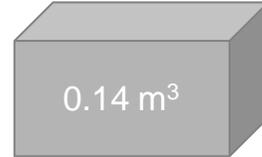


C30 Mix
20kg Steel
60 kg CO₂/m²

HOLLOWCORE

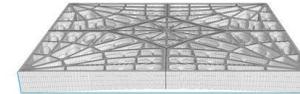


Using low carbon concrete



C30 Mix
20kg Steel
48 kg CO₂/m²

BRG¹

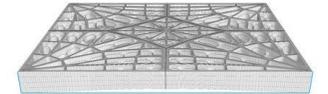


Using CEM I mix



C20 Mix
6kg Steel
28 kg CO₂/m²

BRG



Using low carbon concrete



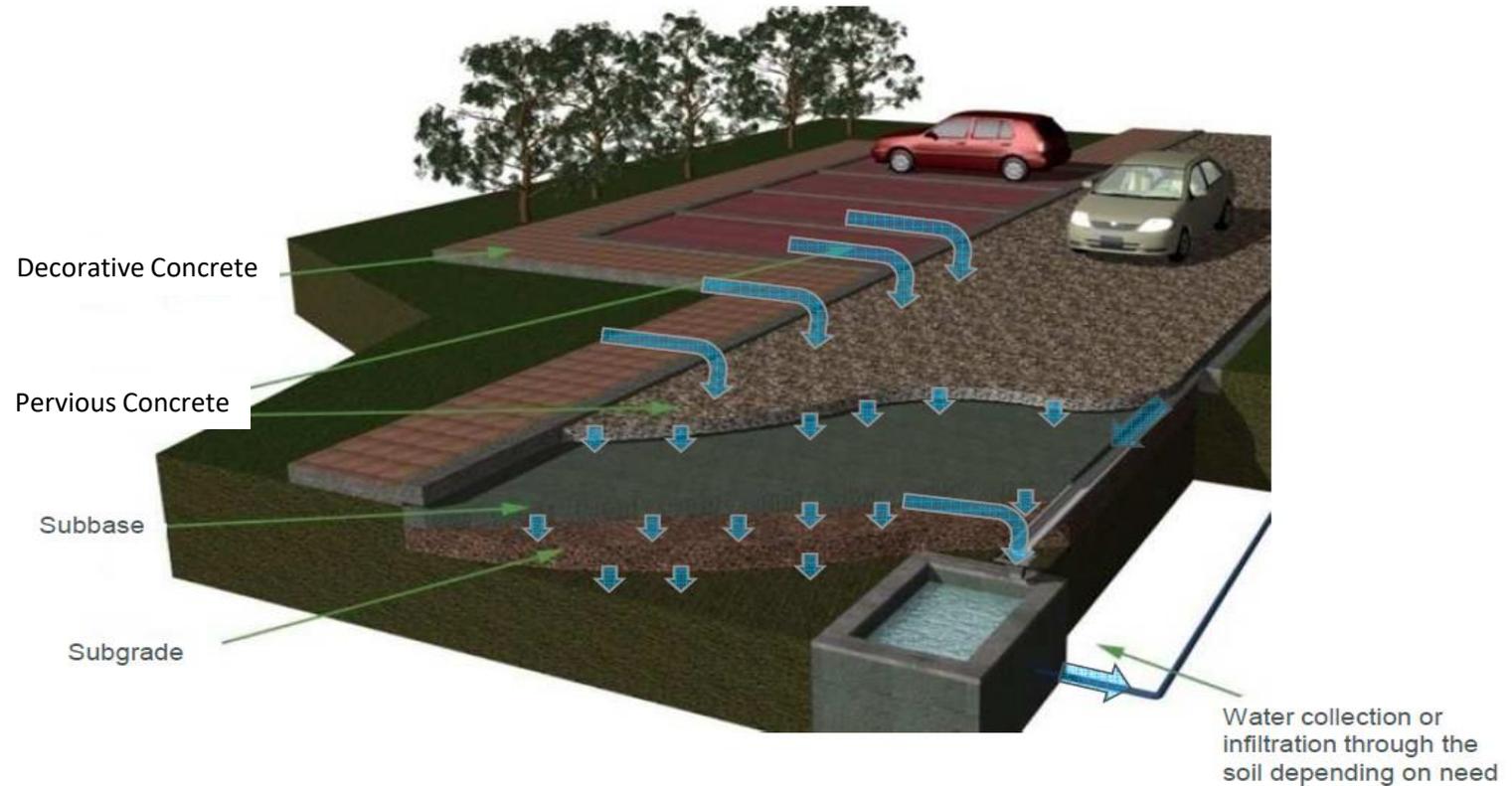
C20 Mix
6kg Steel
21 kg CO₂/m²

CLIMATE ADAPTATION UPGRADING CITIES & INFRASTRUCTURE

Example: Pervious Concrete to act against floods & heavy rains



Video Link: <https://vimeo.com/769419487>



RETROFITTING FOR PERFORMANCE

INCREASING THE ENERGY EFFICIENCY OF BUILDINGS

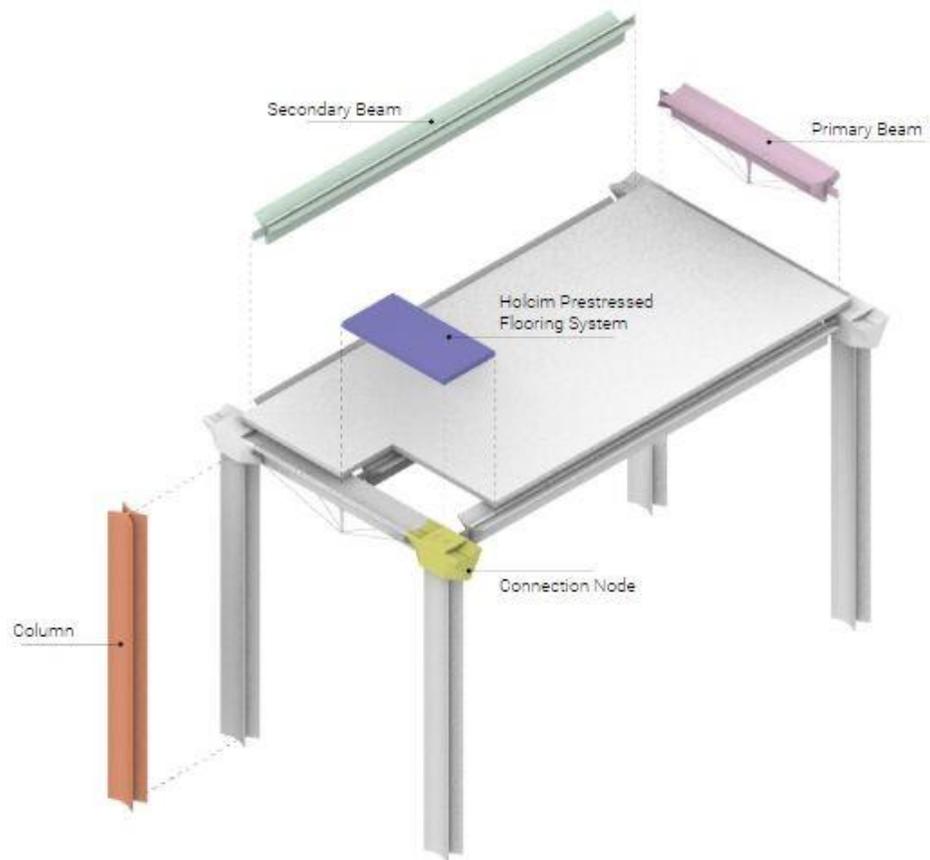
- Globally the **energy efficiency** of **old** buildings can have poor performance compared with **new** buildings
- Retrofitting the building envelope with efficient insulation or reflective and green roofs is one of the **most effective** and easy to **reduce emissions & running costs**
- Updating building codes is **key** to designing an effective retrofit of buildings capitalizing on **existing energy efficient systems**
- Incorporating **passive design** where possible and onsite renewable systems should be a focus for **designers**



©Daniel Hawelka

REUSING MATERIALS IN THE NEXT LIFE

MIT & HOLCIM PIXEL FRAME SYSTEM



Video Link: <https://video.holcim.com/mit-and-holcim-join-forces-on>



PixelFrame
Mueller, Donovan, Lee, Liu, Schnitzler

RECYCLING - CIRCULAR CONSTRUCTION

BUILDING NEW FROM OLD

- Recycling **construction & demolition materials** to be used inside concrete & cement can have a great impact with ***no compromise on performance***:
 - ***Close the loop*** in construction
 - ***Reduce waste*** sent to landfill
 - ***Reduce consumption*** of virgin raw material
 - Make a positive impact on ***biodiversity*** by extracting fewer natural resources



Video Link: <https://video.holcim.com/circular-construction-follow-us>

CASE STUDIES



ECO Pact

Up To 40%
Less CO2 Emissions

45%
of total volume in
2023

10 EPDs
For Top selling mixes



Al Sheraa DEWA HQ, Dubai

The tallest, largest, and smartest government Zero Energy building in the world



THERMAL INSULATING CONCRETE AIRIUM

**MAKING
BUILDINGS
SUSTAINABLE**



AIRIUM

250 to 1000

kg/m³ Mineral Insulating
Foam

Up To 0.12 w/(m.k)

Thermal Conductivity

100%

Recyclable

Al Wasl Tower, Dubai

One of the most sustainable towers in Dubai



BUILDING NEW FROM OLD ECOCYCLE - SOON IN UAE

CIRCULAR CONSTRUCTION



7 MILLION

TONS OF CDM
Recycled in 2022

10% to 100%

Recycled Construction and
Demolition Materials

“Recygénie”, Paris, France
The first fully recycled concrete building in the world



Video Link: <https://www.holcim.com/who-we-are/our-stories/fully-recycled-concrete-building>

Interactive Session

WHAT ARE THE CHALLENGES & SOLUTIONS TO DECARBONIZE UAE BUILT ENVIRONMENT?

Groups Activity:

Come up with the *top challenges and corresponding solutions* to decarbonize UAE Built Environment.





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