VISUAL AND SUSTAINABLE CONCRETE

Dr. James Branch
Technical services manager
Hanson UK
OVERVIEW

- Colourcrete – the core colours
- Examples of colourcrete and non-coloured concretes
- Concretes used for sustainable applications
- Example of visual concretes using Regen (GGBS)
- Varying shade by use of microsilica
- Impact of Regen (GGBS) on CO₂ content

Our core colour range

- HANSON DESERT TAN
- HANSON STRAW
- HANSON TAUPE
- HANSON TERRACOTTA
- HANSON ONYX
Colourcrete examples - 168 Upper Street, Islington

168 Upper Street
Concrete pour
168 Upper Street
Concrete pour

Colourcrete examples – The Zig Zag building

- Both Colourcrete and Regen used to create the required finishes
- Abraded/exposed finish external concrete columns
- Internal concrete columns left exposed, high quality finish
- High strength aesthetic white concrete column, focal point of the reception area
The Zig Zag building – external columns

- Consistent unifying element to the two buildings
- Construction options
- Sample columns
- Precast concrete fascia panels above
The double height slender feature column in the reception area posed very specific challenges. The cross section was less than half the size of neighbouring columns and the cross section changing from circular at the bottom to square at the top ending in a metal bearing plate. The architectural vision was for a white visual grade concrete with some “sparkle”.

Structural requirements called for:
- C80/90 concrete with the ability to flow around a dense reinforcement cage
- Not to segregate during a single cast operation of a 9m tall visual column
- Achieve early strength to deal with temporary construction loads
Feature column

Avon barriers, South Lanarkshire
Avon barriers, South Lanarkshire

Self compacting Onyx concrete
Regen (GGBS) in SCC used in RAA redevelopment

Concrete shade variation achieved by microsilica addition
North wharf road

CO₂ declarations

Carbon Data Sheet
In accordance with PAS2050:2018

Hanson Concrete

Product
This data sheet is valid for 1m³ of ready mix concrete supplied by Hanson derived from the mix supplied. Where the base materials are supplied by Hanson, site specific data is used. If the base materials are sourced from a third party then either industry reported data or data from the ICE database is used.
C32/40 CEMI 20mm S3

- **Client**: AR Contractor
- **Site Name**: Big Project
- **SE/IR Number**: 0
- **Supplying Plant**: Kings Cross 3 - Concrete
- **Contact**: Jamie Branch
- **Job Title**: Technical Services Manager
- **Mix Designation**: C32/40
- **Cement Type**: CEM I
- **Minimum Cement Content**: 0
- **Cement Content per m3**: 333.44 Kg CuM
- **Project Cement Content**: 8.304 Tonnes CuM
- **Delivery (per trip)**: 2,000 litres (rounded trip)
- **Return Inside**: No

![Diagram of Big Project](image)

C32/40 CIIIA 20mm S3

- **Client**: AR Contractor
- **Site Name**: Big Project
- **SE/IR Number**: 0
- **Supplying Plant**: Kings Cross 3 - Concrete
- **Contact**: Jamie Branch
- **Job Title**: Technical Services Manager
- **Mix Designation**: C32/40
- **Cement Type**: CIIA
- **Minimum Cement Content**: 0
- **Cement Content per m3**: 313.56 Kg CuM
- **Project Cement Content**: 6.974 Tonnes CuM
- **Delivery (per trip)**: 2,000 litres (rounded trip)
- **Return Inside**: Yes

![Diagram of Big Project](image)
### Question and Answer Session

#### C32/40 CIIIB 20mm S3

<table>
<thead>
<tr>
<th><strong>Client</strong></th>
<th><strong>All Contractor</strong></th>
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<tr>
<td><strong>Site Name</strong></td>
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<td><strong>SCUB Number</strong></td>
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<td><strong>Supplying Plant</strong></td>
<td><strong>Kings Cross 2 - Concrete</strong></td>
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<td><strong>Contact</strong></td>
<td><strong>James Breath</strong></td>
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<td><strong>Job Title</strong></td>
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<td><strong>Mix Designation</strong></td>
<td><strong>C32/40</strong></td>
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<tr>
<td><strong>Cement Type</strong></td>
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<tr>
<td><strong>Minimum Cement Content</strong></td>
<td><strong>0</strong></td>
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<tr>
<td><strong>Carbon Content per m3 (CCE, Delivery)</strong></td>
<td><strong>172.84 Kg CO(_2)</strong></td>
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<td><strong>Project Carbon Content</strong></td>
<td><strong>4.975 Tonne CO(_2)</strong></td>
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<td><strong>Delivery (per Trip)</strong></td>
<td><strong>2</strong> tons (round trip)</td>
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<td><strong>Regenerate</strong></td>
<td><strong>Yes</strong></td>
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<td><strong>78%</strong></td>
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![Carbonファクター](Big Project)

**Carbon Content**: 172.84 Kg CO\(_2\)**
THANK YOU

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