



All about the Carbon Impact Model

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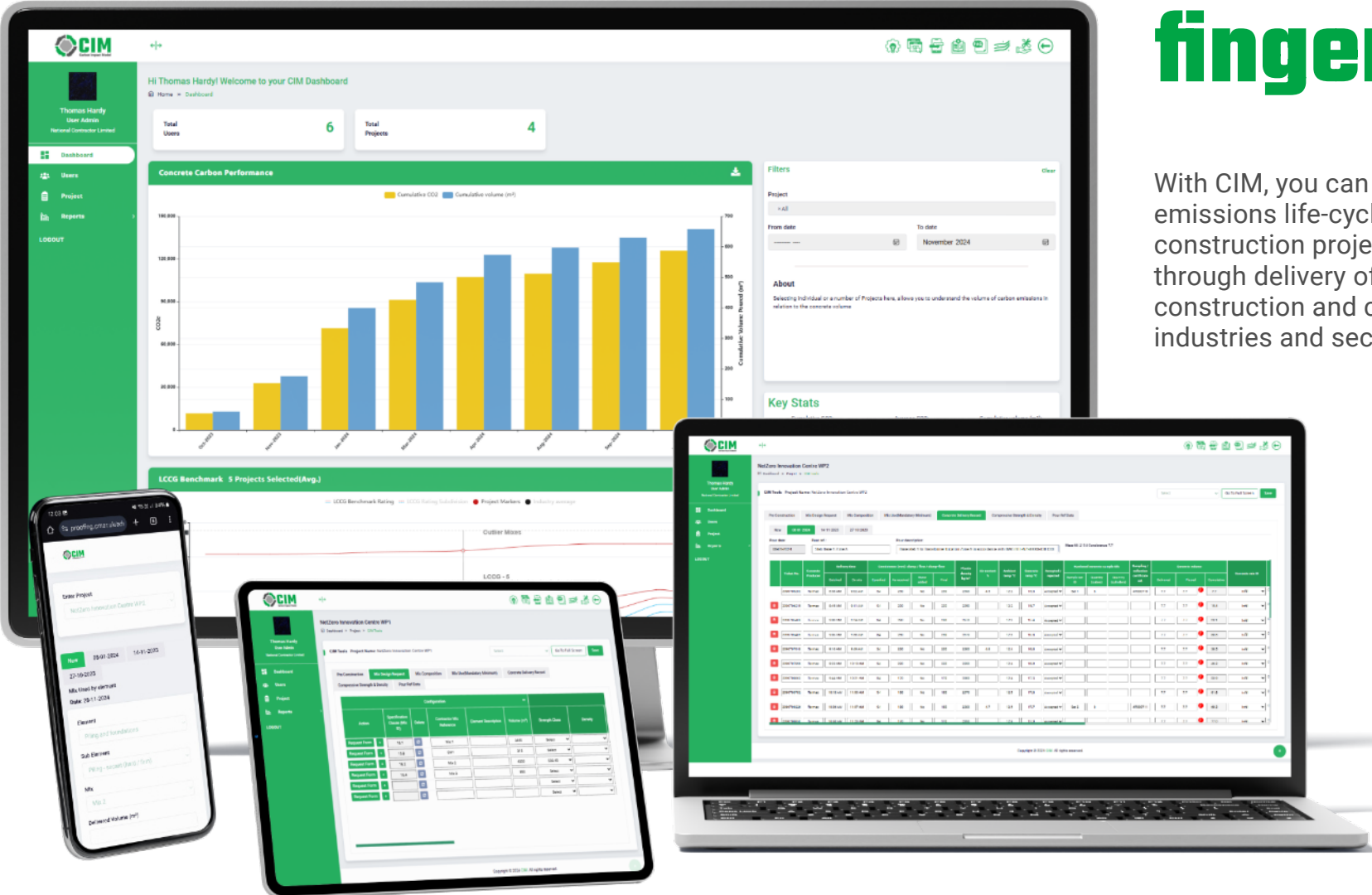


Decarbonisation strategies require intelligent data

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Real-time data at your fingertips



With CIM, you can perform a carbon emissions life-cycle assessment of any construction project from the design phase, through delivery of materials to construction and collaborate with other industries and sectors.



Predict

Easily predict the carbon intensity of a construction project at design stage.



Calculate

Auto-calculate the actual carbon intensity of specific concrete compositions.

Quality Assurance



Record

Record and report accurate concrete consumption and carbon intensity.



Report

Report concrete mix application against each type of element on a project, business, regional or industry level.

What is CIM?

Purpose-Built for Construction: Designed by industry professionals to forecast, calculate, record, and report carbon intensity in construction projects.

Performance Tracking: Enables insights into concrete usage across regions and measuring progress on carbon reduction targets.

Sophisticated Web Application: Features an intuitive, multi-level content management system.

Real-Time Data Analysis: Allows organisations to instantly collate and analyse concrete supply chain data for their projects.

Quality Assurance: CIM records the fresh and hardened properties of the concrete that is being used on the project to allow analysis on minimum cement contents and carbon vs strength.



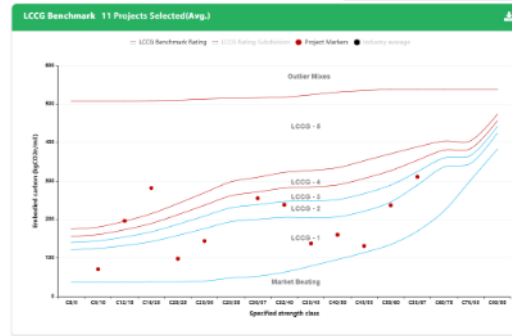
How it works

The Carbon Impact Model (CIM) is designed to help the supply chain, involved in construction projects and regardless of sector, to collaborate towards its decarbonisation targets using information that is already being recorded, but not necessarily shared or in one place.

CIM calculates, tracks, and reports concrete design consumption and carbon intensity for projects regardless of size and duration.

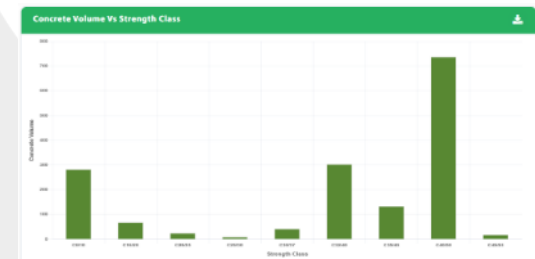
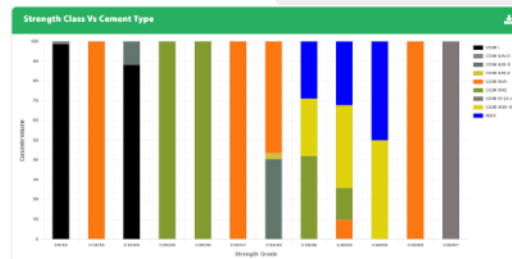
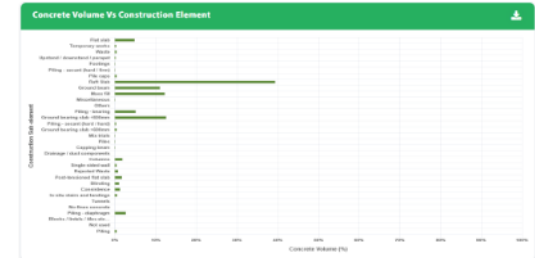
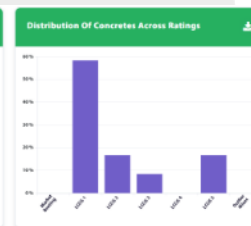
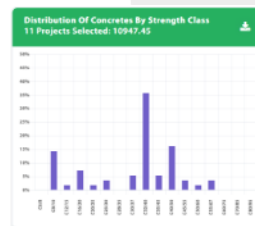
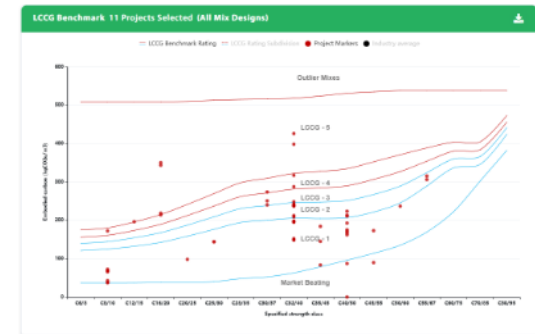
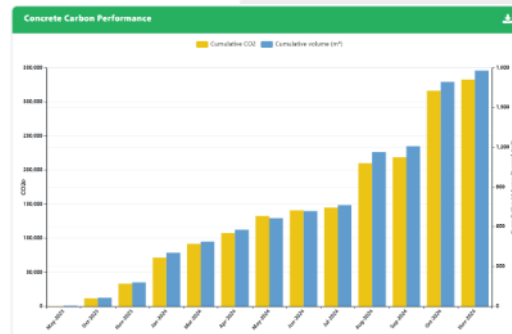
No additional resources are required as the data captured by CIM is already recorded by projects, albeit in multiple locations.

The process is streamlined into three main stages: **Input**, **Calculation**, and **Reporting**.



LCCG Benchmark Assessment - Summary

Strength Class	Market Beating	LCCG 1	LCCG 2	LCCG 3	LCCG 4	LCCG 5	Outlier Miss
C8/10		7			1		
C16/20					1	3	
C20/25	1						
C25/30	2						
C30/37				2	1		
C35/45			2				
C40/50	1	5	3				
C45/55							1



The Input Stage

The structural engineer starts the process by entering concrete specification information.

The contractor then reviews and provides more information to pass to the concrete producer, which is the Mix Design Request.

Concrete producer either enters the mix composition information into the tool or issues a mix design certificate for the contractor to enter the material information.

Input concrete mix data, including material proportions (cement, aggregates, admixtures).

Concrete Delivery Record auto-populates mix references, carbon values, total concrete consumption for each application.

Structural Specification | Mix Design Request | Mix Composition | Mix Use(Mandatory Minimum) | Concrete Delivery Record | Compressive Strength & Density | Pour Ref Data

Specification configuration									
Specification document reference	Specification revision	Specification title	Specification clause (mix ID)	Specification mix description	BS 8500-1 design life	Strength Class	Density	Exposure Classes	
BNKXX-XX-TS-X-00001	P02	Concrete Mix Designs Early Works	Raft	Basement Raft Slab, Pour 1	Table A4: 50 years	C40/50	2400	XC1	
BNKXX-XX-TS-X-00001	P02	Concrete Mix Designs - Early Works	Raft	Basement Raft, top 300mm, Pour 1	Table A4: 50 years	C40/50	2400	XC1	
BNKXX-XX-TS-X-00001	P02	Concrete Mix Designs - Early Works	Wall	Liner Wall	Table A4: 50 years	C32/40	2400	XC1	
BNKXX-XX-TS-X-00001	P02	Concrete Mix Designs - Early Works	Columns	Basement	Table A4: 50 years	C40/50	2400	XC1	
BNKXX-XX-TS-X-00001	P02	Concrete Mix Designs - Early Works	Columns	Liner Wall	Table A4: 50 years	C40/50	2400	XC1	
BNKXX-XX-TS-X-00001	P02	Concrete Mix Designs - Early Works	Roof	Slab	Table A4: 50 years	C32/40	2400	XC1	

Structural Specification | Mix Design Request | Mix Composition | Mix Use(Mandatory Minimum) | Concrete Delivery Record | Compressive Strength & Density | Pour Ref Data

Configuration			Performance Requirements									
Action	Specification Clause (Mix ID)	Delete	Contractor Mix Reference	Element Description	Volume (m³)	Strength Class	Density	Assessment Age (Days)	Consistence	Chloride Class	DC Class	
Request Form +	Raft		Mix 1	Raft Slab	100.0m³	C40/50	Normal	28	F5	CL 0.30	DC-2	
Request Form +	Raft		Mix 1 ADP	Raft Slab, top 300mm	50.0m³	C40/50	Normal	28	F5	CL 0.30	DC-2	
Request Form +	Wall		Mix 2 ADP	Linerwall	120.0m³	C32/40	Normal	28	S4	CL 0.30	DC-2	
			Mix 2 ADP 10	Linerwall	60.0m³	C32/40	Normal	28	S4	CL 0.30	DC-2	
Request Form +	Columns		Mix 3	Columns	80.0m³	C40/50	Normal	28	S4	CL 0.30	DC-2	
Request Form +	Columns		Mix 4 ADP	Columns in Liner Wall	50.0m³	C40/50	Normal	28	S4	CL 0.40	DC-1	
Request Form +	Roof		Mix 586	Slab, Walls, Vents	75.0m³	C32/40	Normal	28	S4	CL 0.40	N/A	
			Mix 586 ADP	Slab, Walls, Vents	100.0m³	C32/40	Normal	28	S4	CL 0.40	N/A	
			Mix 586 10	Slab, Walls, Vents	40.0m³	C32/40	Normal	28	S4	CL 0.40	N/A	

Structural Specification | Mix Design Request | Mix Composition | Mix Use(Mandatory Minimum) | Concrete Delivery Record | Compressive Strength & Density | Pour Ref Data

Binder content											
SE Information	Contractor Mix Reference	Concrete Producer	Supplier Mix Reference	Cement Type	Batching plant	CEM I kg/m³	GCBS kg/m³	Fly Ash kg/m³	Silica Fume kg/m³	Pozzolana (Natural) kg/m³	Pozz (Calc) kg/m³
Specification clause (Mix ID): Raft binder class: CEM III/B-SR strength grade: C40/50	Mix 1		C40/50 Raft	Type	Kings X	135	315				
Specification clause (Mix ID): Raft binder class: CEM III/B-SR strength grade: C40/50	Mix 1 ADP		C40/50 Raft	Type	Kings X	135	315				
Specification clause (Mix ID): Wall binder class: CEM III/A strength grade: C32/40	Mix 2 ADP		C32/40 ADP	Type	Kings X	220	220				
	Mix 2 ADP 10		C32/40 ADP	Type	Kings X	225	225				

Alternative Binder kg/m³	Aggregate content									
	20mm	10mm	4/20mm	4mm	0/4	filler	Silica Fume	RCA 20mm	RCA 10mm	Water kg/m³
704	241				784	50				172
701	240				781	50				172
798	199				790					167
	979				766					180

The Calculation Stage

Once the data is entered, the CIM platform performs advanced calculations to determine the carbon intensity of your project.

Detailed Emissions Breakdown: Analyses emissions by materials, transport, and other factors for a comprehensive view.

Specification configuration										
Specification document reference	Specification revision	Specification title	Specification clause (mix ID)	Specification mix description	BS 5500-1 design life	Strength Class	Density	Exposure Classes	DC Class	
BNK-XX-XX-TS-X-00001	P02	Concrete Mix Designs Early Works	Raft	Basement Raft Slab, Pour 1	Table A4: 50 years	C40/50	2400	XC1	DC-2	
BNK-XX-XX-TS-X-00001	P02	Concrete Mix Designs - Early Works	Raft	Basement Raft, top 800mm, Pour 1	Table A4: 50 years	C40/50	2400	XC1	DC-2	
BNK-XX-XX-TS-X-00001	P02	Concrete Mix Designs - Early Works	Wall	Liner Wall	Table A4: 50 years	C32/40	2400	XC1	DC-2	
BNK-XX-XX-TS-X-00001	P02	Concrete Mix Designs - Early Works	Columns	Basement	Table A4: 50 years	C40/50	2400	XC1	DC-2	
BNK-XX-XX-TS-X-00001	P02	Concrete Mix Designs - Early Works	Columns	Liner Wall	Table A4: 50 years	C40/50	2400	XC1	DC-1	
BNK-XX-XX-TS-X-00001	P02	Concrete Mix Designs - Early Works	Roof	Slab	Table A4: 50 years	C32/40	2400	XC1	N/A	
BNK-XX-XX-TS-X-00001	P02	Concrete Mix Designs - Early Works	Blinding	Base build up	N/A	C12/15	2400	XC1	DC-2	
BNK-XX-XX-TS-X-00001	P02	Concrete Mix Designs - Early Works	Mass	Infill	N/A	C32/40	2400	XC1	DC-2	
BNK-XX-XX-TS-X-00001	P03	Concrete Mix Designs - Early Works	Columns	Liner Wall	Table A4: 50 years	C40/50	2400	XC1	DC-1	
BNK-XX-XX-TS-X-00001	P03	Concrete Mix Designs - Early Works	Roof	Slab	Table A4: 50 years	C50/60	2400	XC1	DC-1	

Binder content												
SE Information	Contractor Mix Reference	Concrete Producer	Supplier Mix Reference	Cement Type	Batching plant	CEM I kg/m³	CEM II kg/m³	Fly Ash kg/m³	Silica Fume kg/m³	Pozzolana (Natural) kg/m³	Pozzolana (Calcined) kg/m³	Limit
Specification clause (Mix ID): Raft binder class: CEM III/B-SR strength grade: C40/50	Mix 1	Tarmac	C40/50 Raft	CEM III/B-SR	Kings X	135	315					
Specification clause (Mix ID): Raft binder class: CEM III/D-SR strength grade: C40/50	Mix 1 ADP	Tarmac	C40/50 Raft	CEM III/D-SR	Kings X	135	315					
Specification clause (Mix ID): Wall binder class: CEM III/A strength grade: C32/40	Mix 2 ADP	Tarmac	C32/40 ADP	CEM III/A	Kings X	220	220					
Specification clause (Mix ID): Wall binder class: CEM III/A strength grade: C32/40	Mix 2 ADP 10	Tarmac	C32/40 ADP	CEM III/A	Kings X	225	225					
Specification clause (Mix ID): Columns binder class: CEM III/A strength grade: C40/50	Mix 3	Tarmac	C40/50	CEM III/A	Kings X	198	198					
Specification clause (Mix ID): Columns binder class: CEM III/A strength grade: C40/50	Mix 4 ADP		C40/50 ADP	CEM III/A	Kings X	198	198					
Specification clause (Mix ID): Roof binder class: CEM III/A strength grade: C32/40	Mix 566		C32/40	CEM III/A	Kings X	183	183					
Specification clause (Mix ID): Roof binder class: CEM III/A strength grade: C32/40	Mix 566 ADP		C32/40 ADP	CEM III/A	Kings X	183	183					
Specification clause (Mix ID): Roof binder class: CEM III/A strength grade: C32/40	Mix 566 10		C32/40	CEM III/A	Kings X	197	197					
Specification clause (Mix ID): Roof binder class: CEM III/A strength grade: C32/40	Mix 566 ADP 10		C32/40 ADP	CEM III/A	Kings X	197	197					
Specification clause (Mix ID): Blinding binder class: CEM III/A strength grade: C12/15	Blinding		C16/20	CEM III/A	Kings X	166	166					

Mix Design Assesment - Summary		
Mix Design	Qty Mix Designs	eCO2 Low
C8/10	8	99.44
C12/15	1	201.58
C16/20	5	190.88
C20/25	2	12.63
C25/30	2	120.90
C30/37	2	92.81
C32/40	17	122.20
C35/45	1	165.23
C40/50	7	156.67
C50/60	1	241.92

228.54	190.44
241.92	241.92

The Reporting Stage

Once the calculations are complete, you can create detailed reports using the platform's built-in tools:

Customisable Reports: Compile data into easy-to-understand charts, graphs, and tables that summarise the carbon impact of your project.

The CIM platform provides comprehensive data collection or, as an option, the basic but mandatory minimum.

Narrative Options: Add your own narrative to the report, explaining the results and their significance to your business or stakeholders.

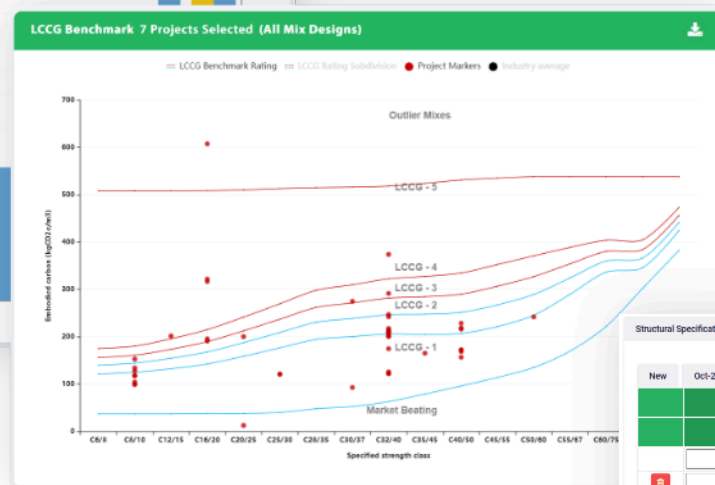
Export to PDF: Finally, the report can be exported to PDF format, providing you with a professional document ready for internal business updates or client presentations.

Structural Specification | Mix Design Request | Mix Composition | Mix Use(Mandatory Minimum) | **Concrete Delivery Record** | Compressive Strength & Density | Pour Ref Data

New | 07-10-2024 | 20-08-2024

Pour date: 20-08-2024 | Pour ref.: Raft Pour 1 | Pour description: Dwg No. xxxxxx | Raft Slab: 367.5 Rejected Waste: 7.5

Concrete volume			Concrete mix ID	Cement Type - Strength Class	Element			Placement method	Discharge time	
Delivered	Placed	Cumulative			Construction element	Construction sub-element	Location / level		Start	End
7.5	7.5	7.5	Mix 1	CEM III/B-SR - C40/50	In-situ slabs	Raft Slab	Skip	06:30	06:45	
7.5	7.5	15.0	Mix 1	CEM III/B-SR - C40/50	In-situ slabs	Raft Slab	Skip	--:--	--:--	
7.5	7.5	22.5	Mix 1	CEM III/B-SR - C40/50	In-situ slabs	Raft Slab	Skip	--:--	--:--	
7.5	7.5	30.0	Mix 1	CEM III/B-SR - C40/50	In-situ slabs	Raft Slab	Skip	--:--	--:--	
7.5	7.5	37.5	Mix 1	CEM III/B-SR - C40/50	In-situ slabs	Raft Slab	Skip	--:--	--:--	
7.5	7.5	45.0	Mix 1	CEM III/B-SR - C40/50	In-situ slabs	Raft Slab	Skip	--:--	--:--	
7.5	7.5	52.5	Mix 1	CEM III/B-SR - C40/50	In-situ slabs	Raft Slab	Skip	--:--	--:--	
7.5	7.5	60.0	Mix 1	CEM III/B-SR - C40/50	In-situ slabs	Raft Slab	Skip	--:--	--:--	



Structural Specification | Mix Design Request | Mix Composition | **Mix Use(Mandatory Minimum)** | Concrete Delivery Record | Compressive Strength & Density | Pour Ref Data

New | Oct-2024 | Nov-2024

Mix used by element

Element	Sub Element	Mix	Delivered Volume (m³)
In-situ walls & columns	Column	Mix 1 54 10mm	120
In situ walls & columns	Column	Mix 2 83 10mm	70
Beam	Capping beam	Mix 2 83 20mm	180
In-situ walls & columns	Column	Mix 1 54 20mm	78

Uniform Reporting from industry

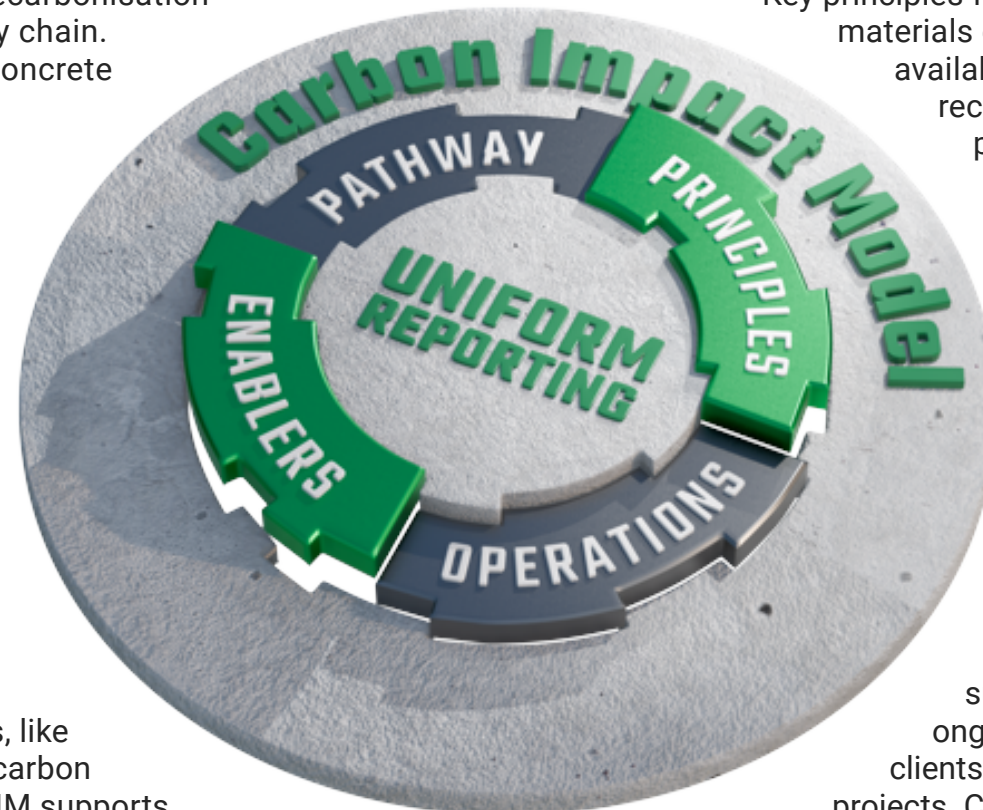
The Carbon Impact Model (CIM) is designed to drive cross-industry collaboration, providing a clear and efficient solution for reporting the carbon impact of concrete use in construction.

Pathway

Clients play a key role in driving decarbonisation by signalling demand to the supply chain. While pathways vary by industry, concrete carbon assessments are essential across all sectors. CIM provides a consistent system for clients to integrate into projects.

Principles

Key principles for decarbonisation include using materials efficiently and understanding available technologies in each region. By recording and demonstrating material performance through CIM, organisations can promote new solutions and optimise designs.



Enablers

Since 2022, the Low Carbon Concrete Group route map has initiated workstreams aimed at NetZero strategies. These enablers, like sharing knowledge, trial data, and carbon intensity, guide decarbonisation. CIM supports these efforts within throughout the industry.

Operations

Tender documents increasingly request carbon credentials from the supply chain. Using CIM streamlines ongoing carbon assessments for both clients and suppliers involved in repeat projects. CIM also helps the supply chain track progress toward business and project goals.

Adoption of CIM

Supporting the wider industry

Uniform reporting is essential to carry out detailed but timely analysis leading to confident procurement decisions.

The uniform reporting aspect translates into immediately recognisable performance comparisons and provides instant status reports for progress on the trajectory towards Net Zero targets.

Information and data is key to measure but only if it is accurate relevant and recent.

The Carbon Impact Model, when adopted, will provide that information which will directly support analysis and measurement being carried out by the Low Carbon Concrete Group across multiple workstreams that include:

WS 3 Flex 350 – Ongoing funding contribution to future revisions.

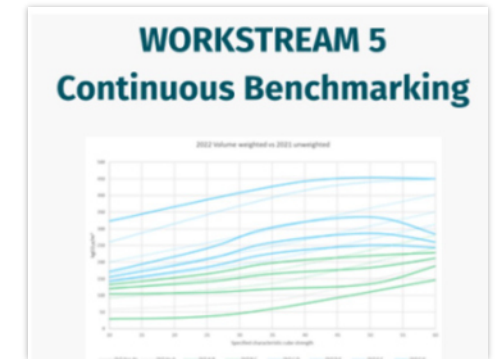
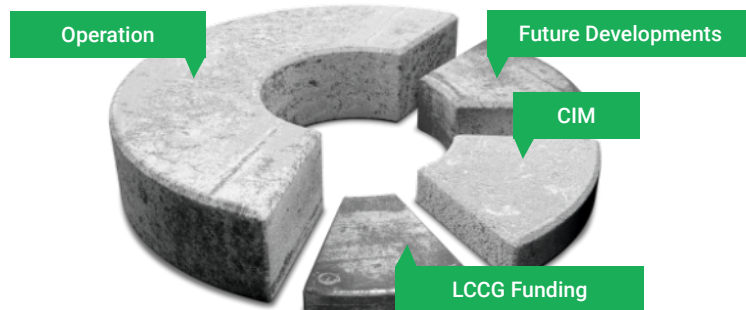
WS 5 Continuous Benchmarking – Contribution towards experts analysing benchmark data yearly.

WS 10 Pilots and Trials – Contribution towards the administration of updating case studies and publications.

WS 11 Insurance Sector - Contribution towards the publication of guidance documents as well as part remuneration for the establishment of a Technical Committee for ABS.

WS 12 Gap Analysis – An important body of work that will be part funded by CIM to enable yearly assessments of the trajectory towards Net Zero.

Distribution of licence fees:



The complex block, titled 'WORKSTREAM 11 Insurance Sector', contains several text boxes:

- Insurers' views identified at workshop**: A central heading.
- What's the definition**: A box with bullet points.
- Insurers' risk appetite**: A box with bullet points.
- Experience of using LCC**: A box with bullet points.
- Workstreams**: A box with bullet points.
- Cost of using LCC**: A box with bullet points.
- Type of insurance**: A box with bullet points.

The complex block, titled 'WORKSTREAM 12 Gap Analysis', has a blue background and contains:

- UK Concrete: closing the gap between GHG emissions and client pathways to net zero**: The main heading.
- Outline research proposal**: A sub-heading.
- Low Carbon Concrete Group (LCCG)**: The organization name.
- June 2024**: The date.



For more information, contact us at:

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Or visit

www.cimglobal.online