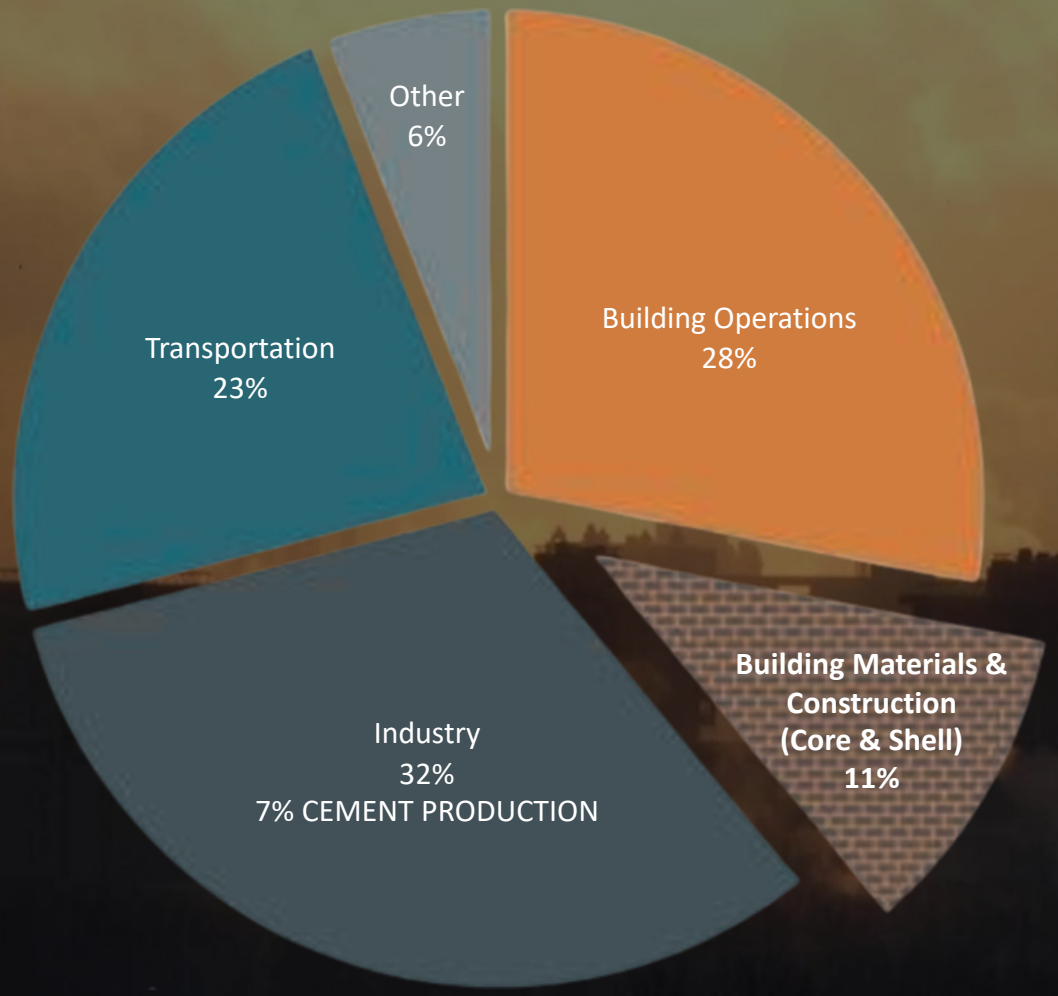
MAKE IN INDIA

India’s Domestic Timber Bamboo

\+ BamCore’s IP & Technology

= **India’s 1st Generation of Climate Positive Bio-Based Building**

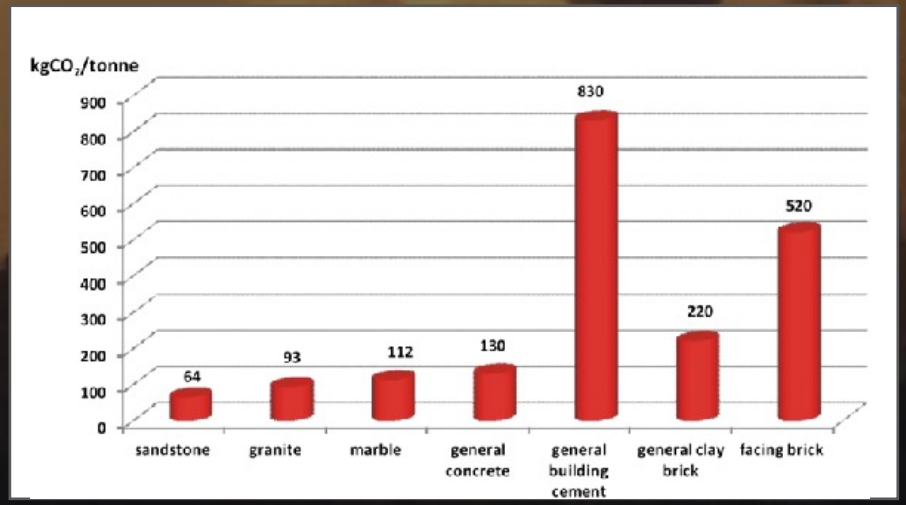
GLOBAL CO_2 EMISSIONS BY SECTOR



Source: Global Alliance for Buildings and Construction 2018 Global Status Report

A TON OF CEMENT = ABOUT A TON OF GREENHOUSE GAS EMISSIONS

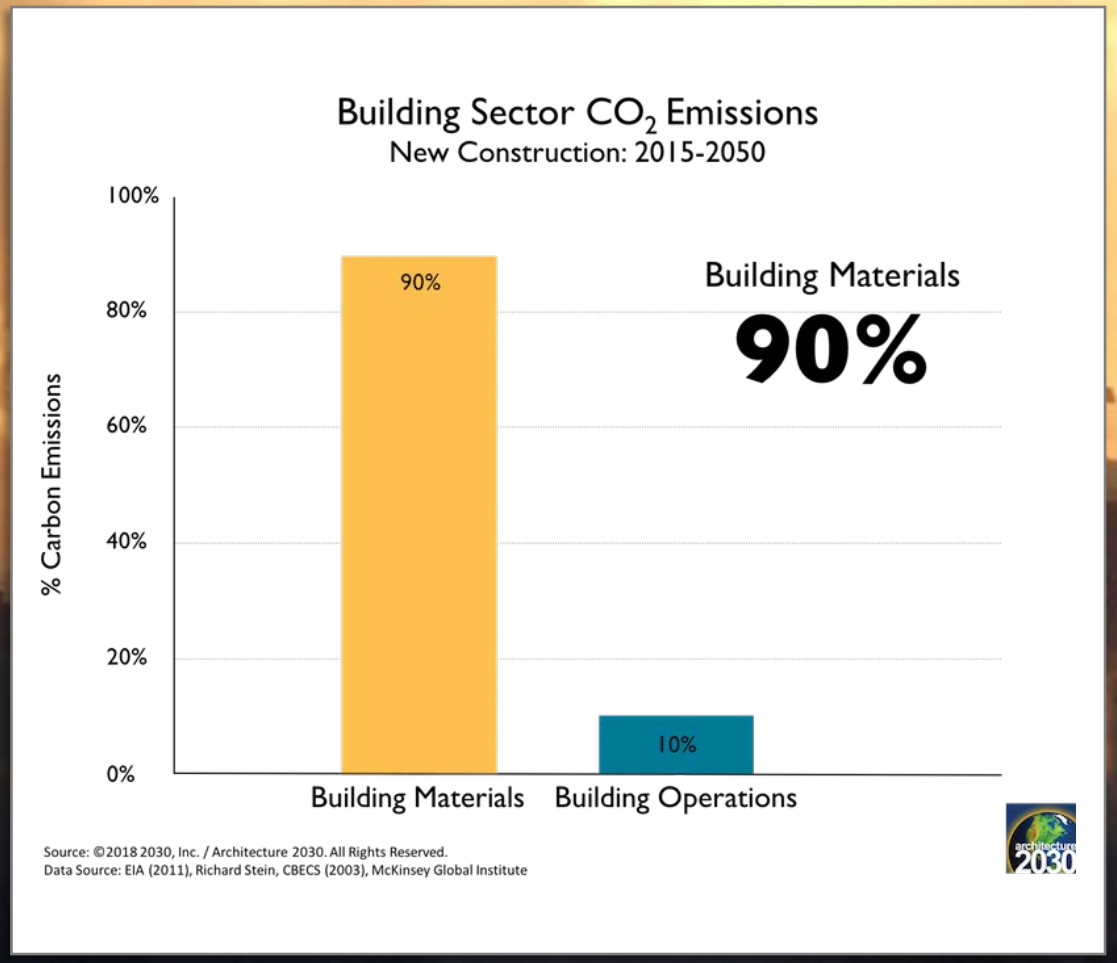
General building cement is the greatest carbon emitter followed by facing brick and general clay brick.

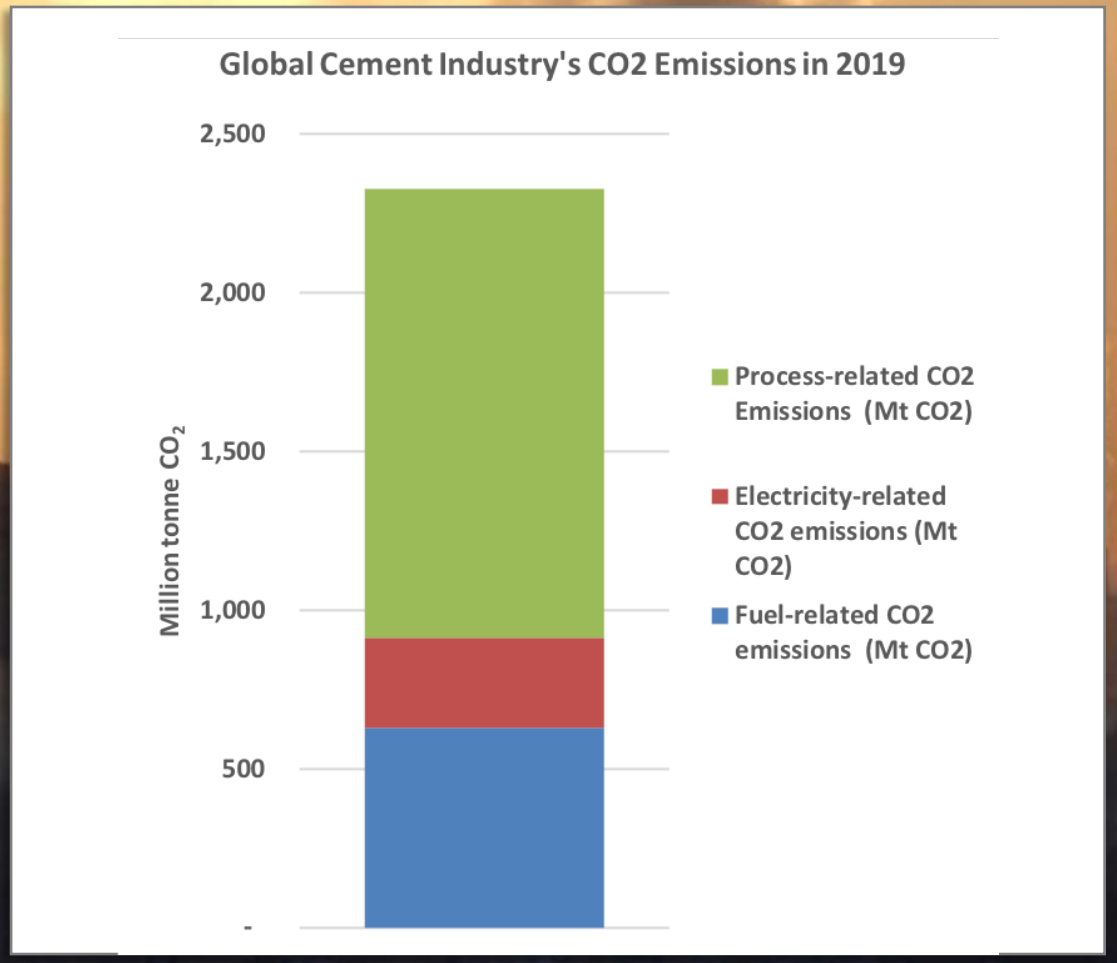


Embodied carbon associated with stone, cement, concrete and brick (data from Hammond & Jones 2008b; Crishna et al. 2011).

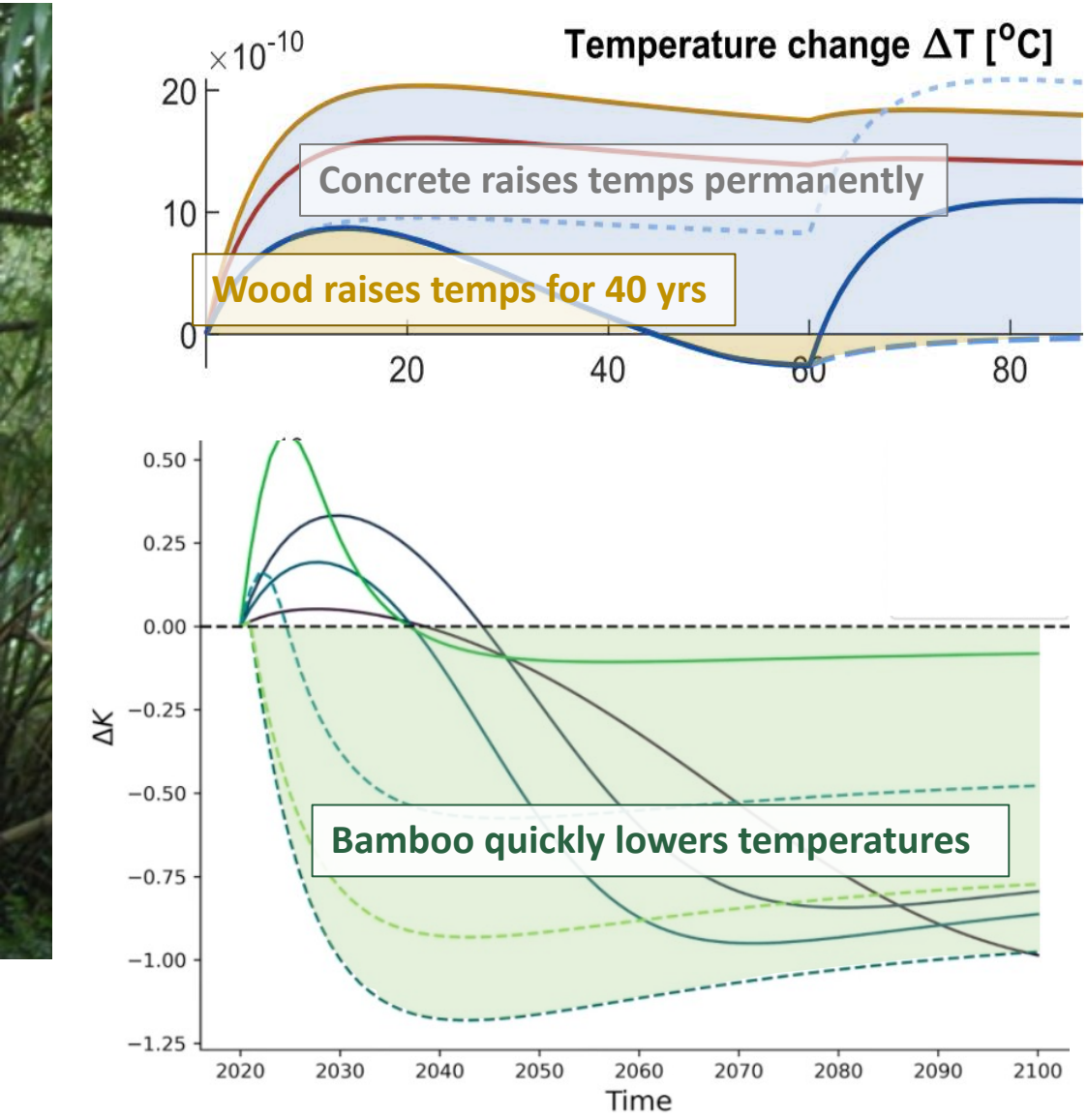
GLOBAL CEMENT INDUSTRY 2019

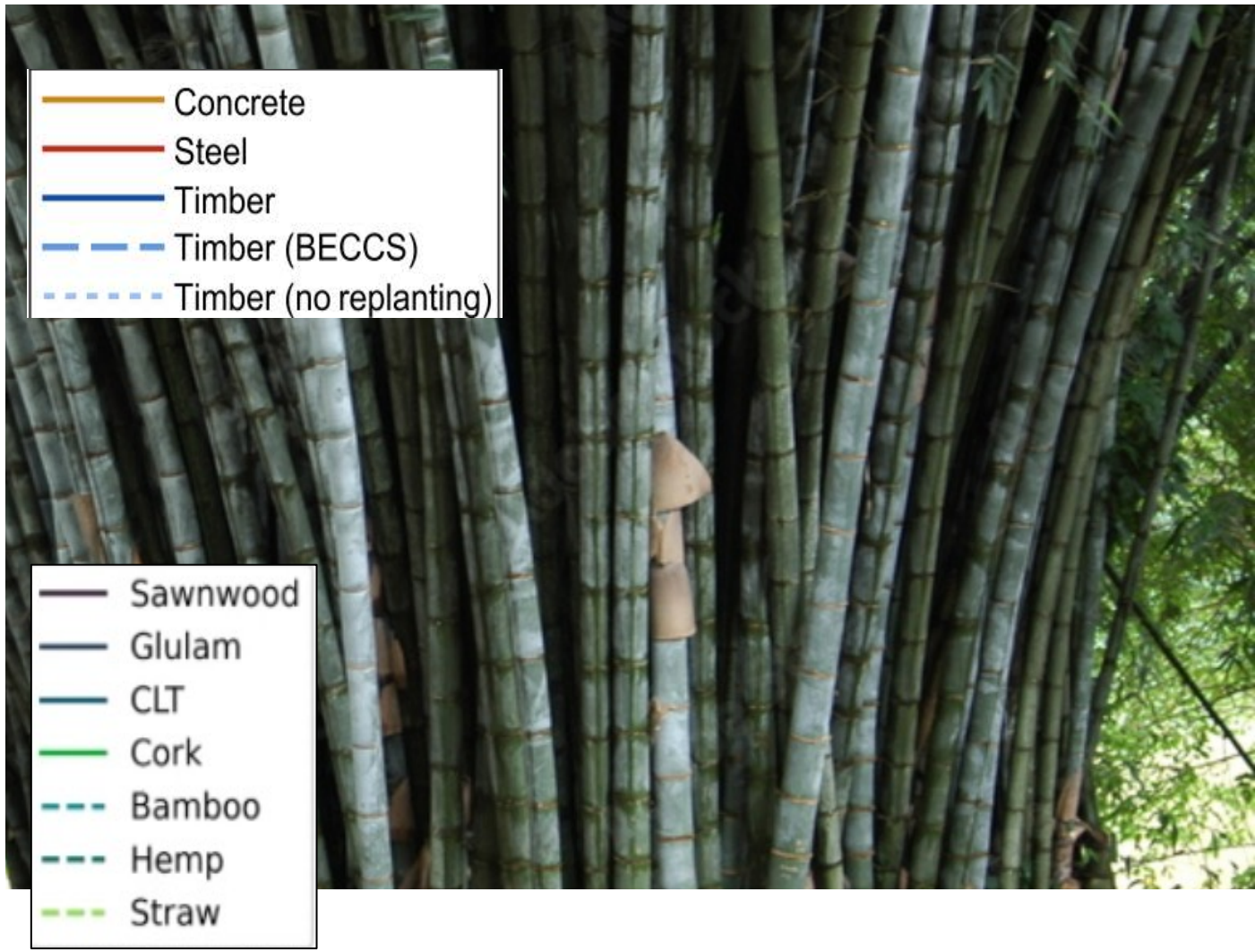
emitted around 2.3 gigaton of CO2 (Gt CO2)





GLOBAL TEMP CHANGES FROM 1 KG OF CONCRETE & STEEL compared to bio-based materials





Top Graph Borrowed From Hawkins's, "Embodied carbon assessment using a dynamic climate model: Case-study comparison of a concrete, steel and timber building structure" 2020
Bottom Graph Borrowed From Jay H. Arehart CLF Rocky Mountain Meeting 28 April 2022

TIMBER BAMBOO SEQUESTERS MORE CO_2

5x to10x more than wood

because 20% of each stand can be **harvested every year**
compared to woods' 25yr+ rotation cycles

TIMBER BAMBOO GROWS FASTER THAN WOOD
and uses far less space (1/5 the land)

Planted area for 1 house per year

BAMCORE Produces the World's Most Powerful

Carbon Negative Building Solutions

BAMCORE MULTIFAMILY DEVELOPMENT

fast installation ready for roof trusses

BAMCORE HAS A UNIQUE AND POWERFUL SOLUTION

bio-based building systems that lower carbon, cost, time & labor

Reduces thermal mass and thermal bridges

PRIME WALL – EXTREME ENERGY EFFICIENCY

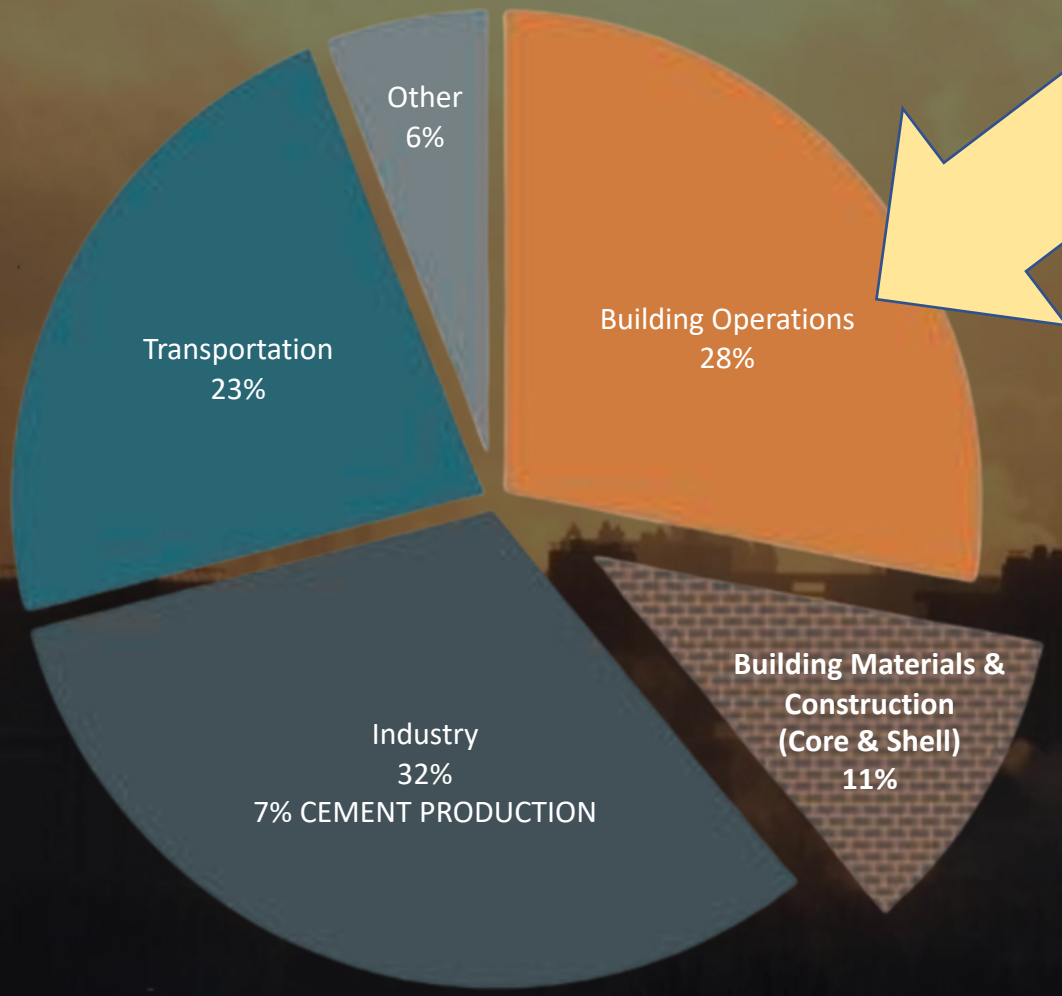
studied in four LCAs and Biogenic Analyses

Independently verified:

223Mt CO_2 operating emissions savings per house equivalent (*Quantis LCA 2020)* **= the emissions of driving 500,000 miles**

9.6 Gt CO_2 potential GHG savings at scale
(2020 CEA Emissions Reduction Potential Report. Includes US and European markets penetration until 2050.)

GLOBAL CO_2 EMISSIONS BY SECTOR



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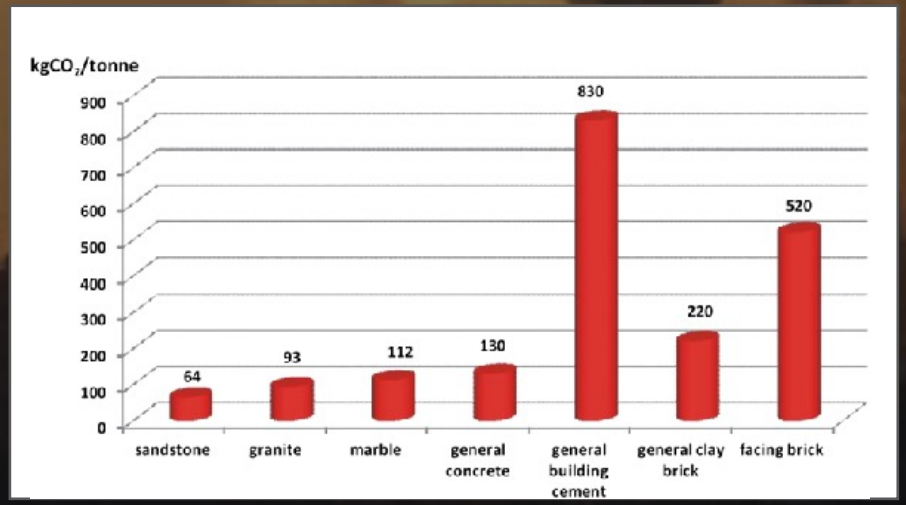

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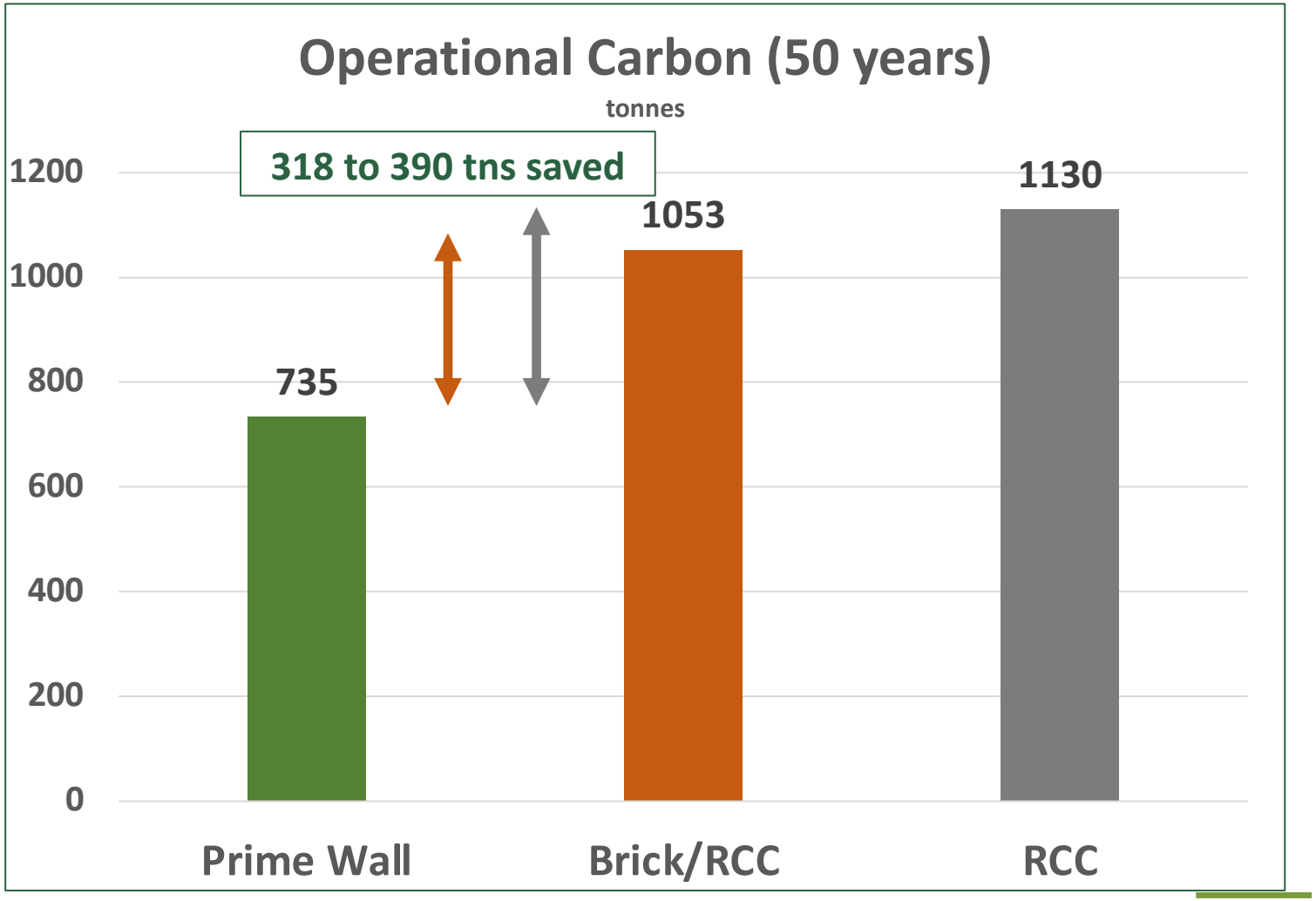
OPERATIONAL CARBON FROM BIO-BASED BUILDING

318 to 390 tns not emitted over 50 year service life

- BamCore bio-based building saves 6.4 tonnes per year compared to Brick/RCC
- 318 tonnes saved over 50 year service life



PEAK LOAD GRID DEMAND

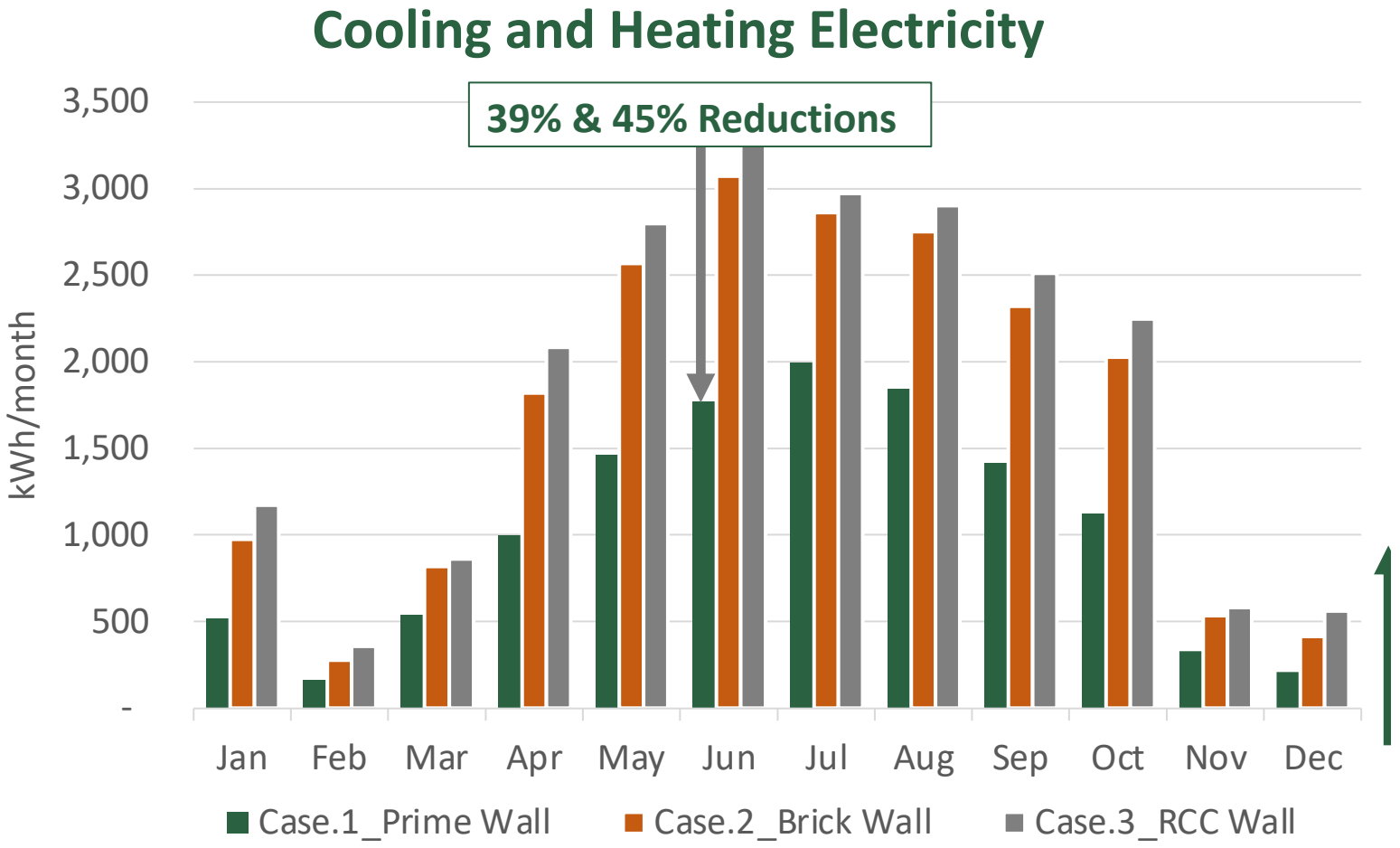
reductions: 39% to Brick/RCC & 45% to RCC

	Cooling+ Heating (kWh/y)
Prime Wall	12,383
Brick Wall	20,433
RCC Wall	22,382

SAVINGS IN AIR-CONDITIONING ELECTRICITY

From RCC Wall to Prime Wall = 44.7%

From Brick Wall to Prime Wall = 39.4%



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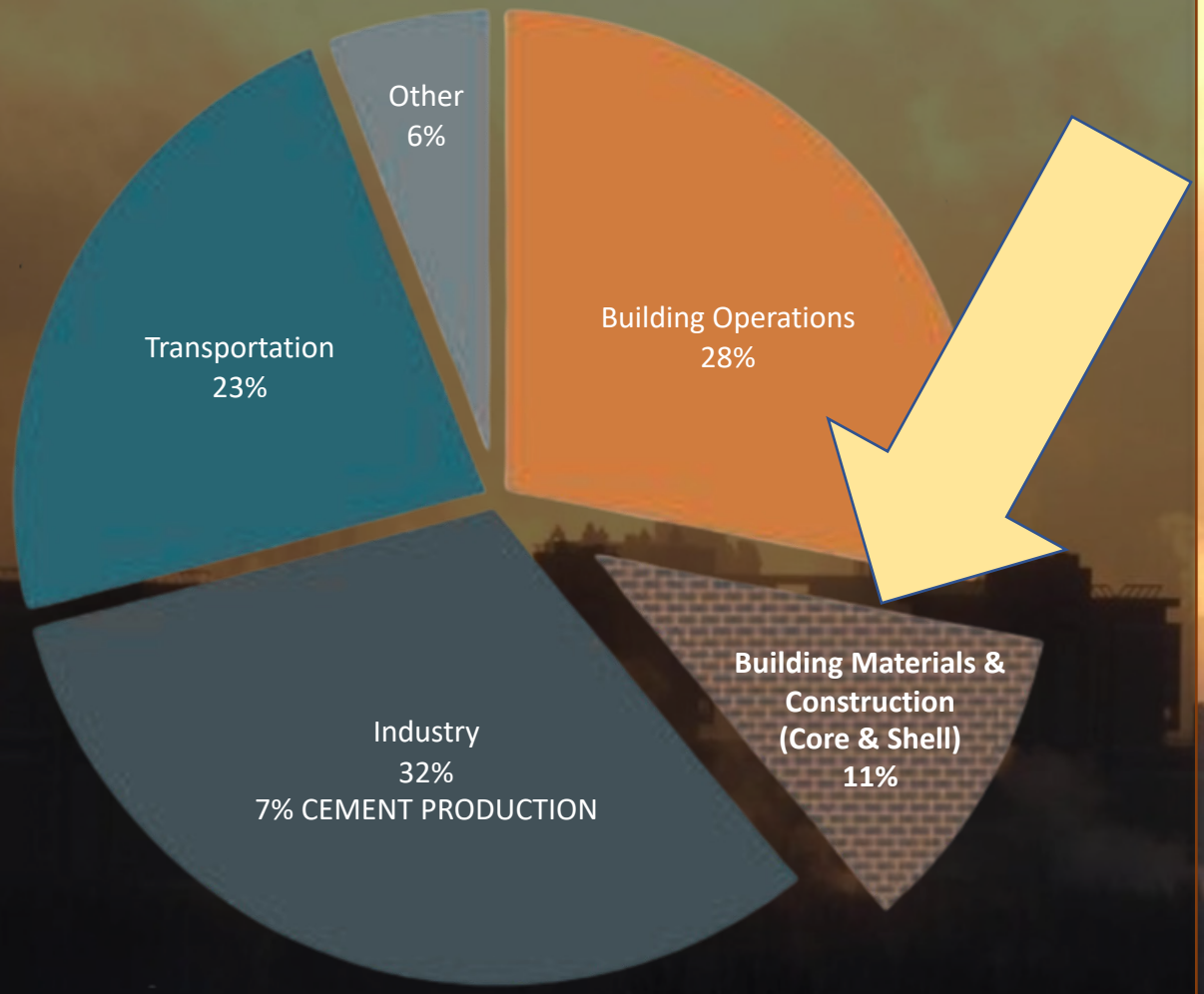

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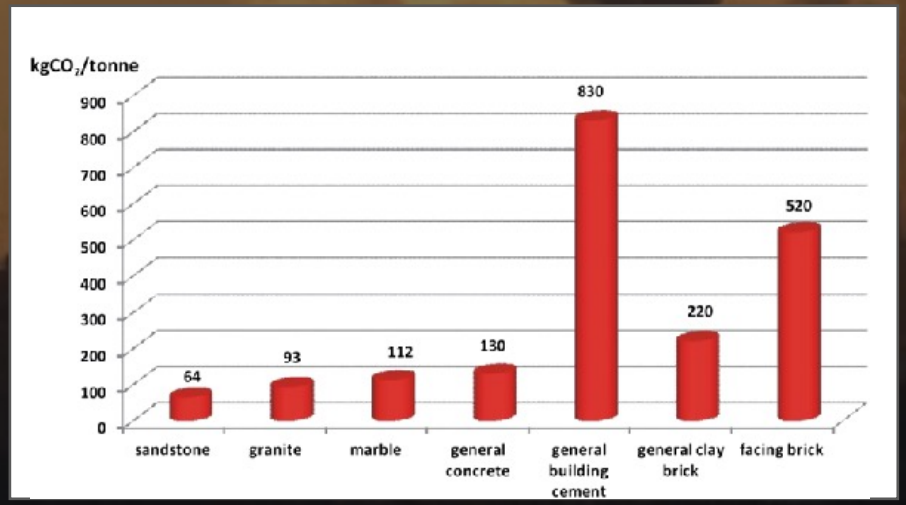

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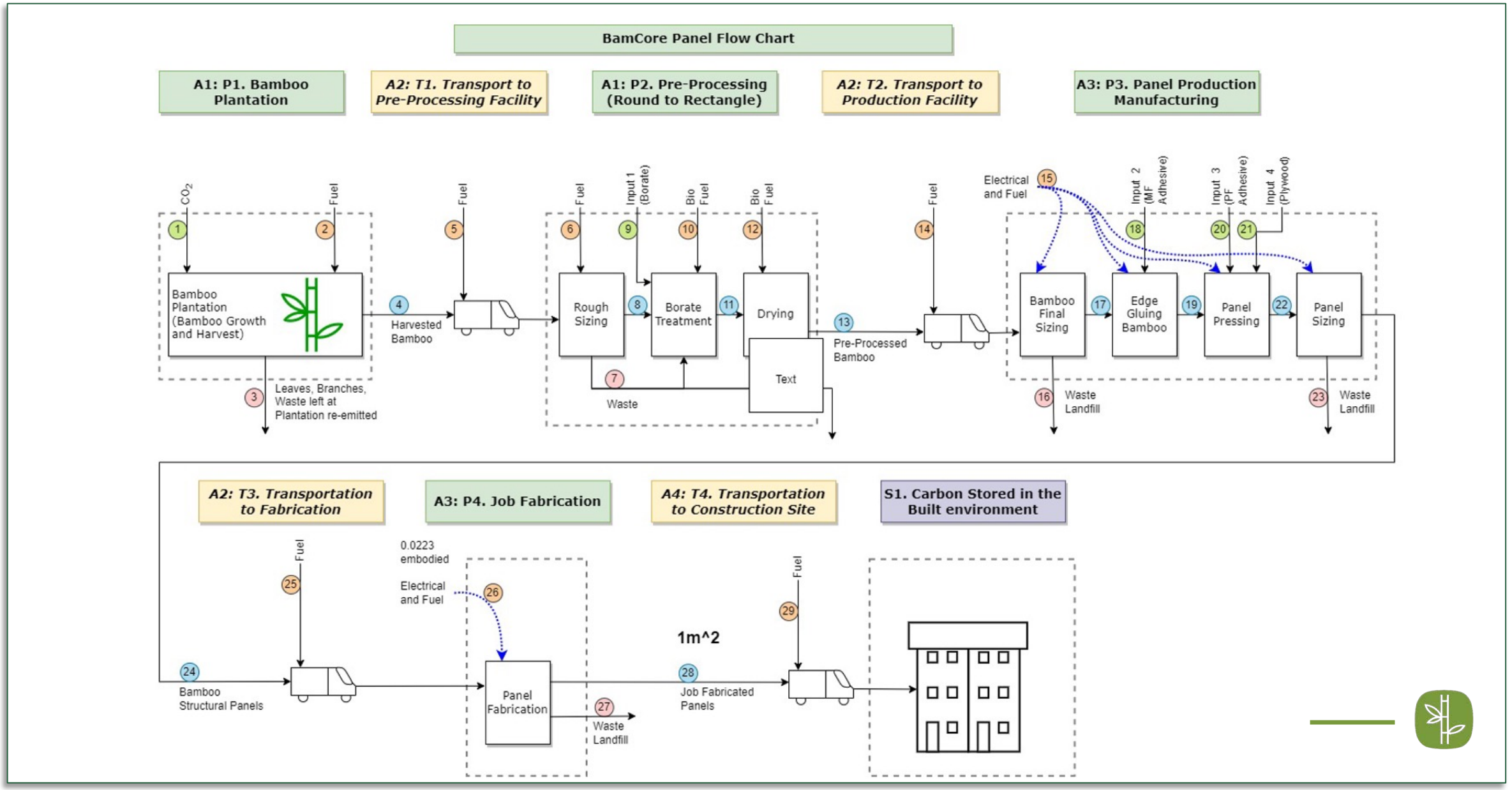
BIOGENIC AND EMBODIED CARBON FLOWS - PRIME WALL

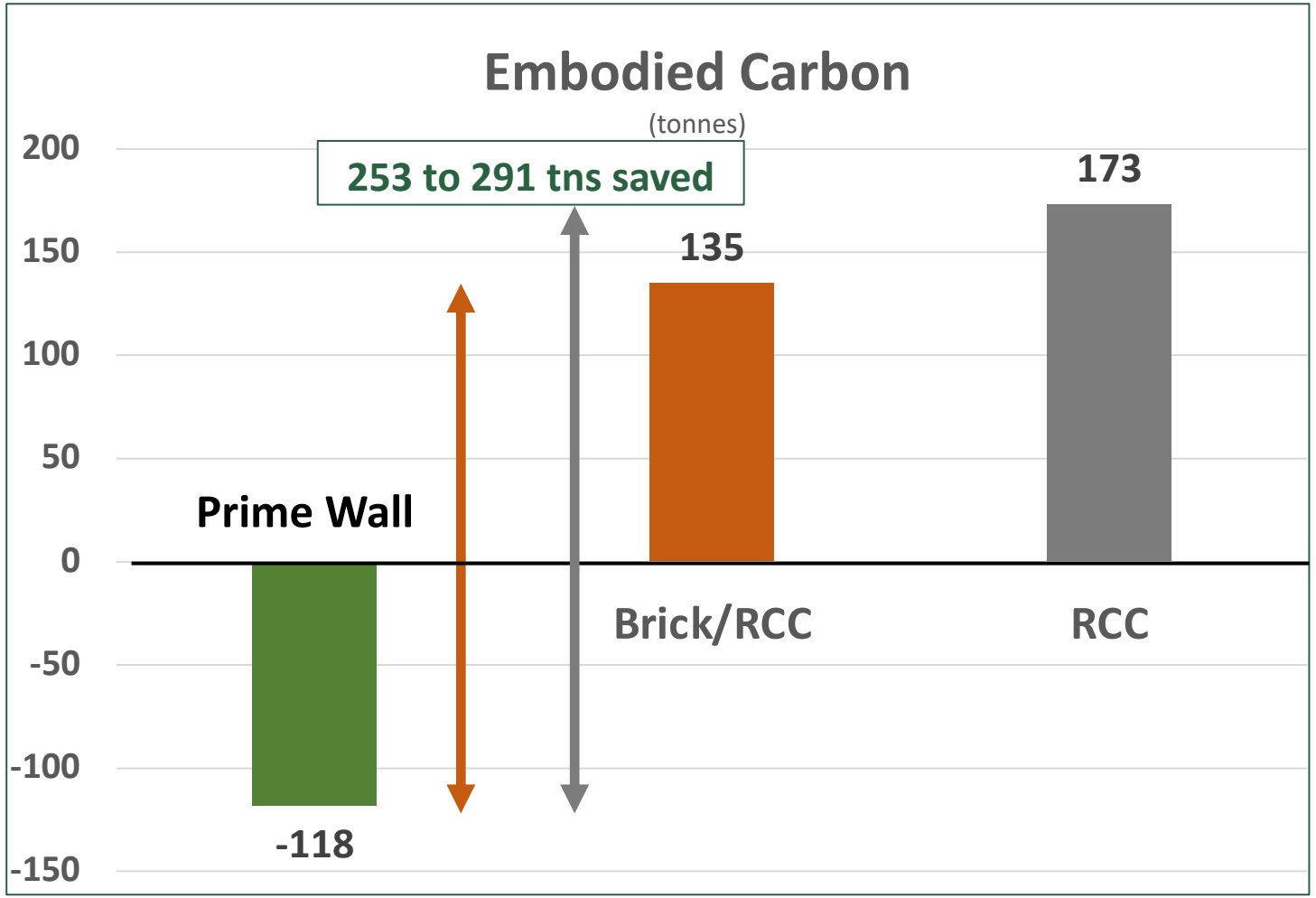
A1 through A4



NEGATIVE EMBODIED CARBON FROM BIO-BASED BUILDING

136 tns not emitted + 141 tns negative emissions (biogenic storage)

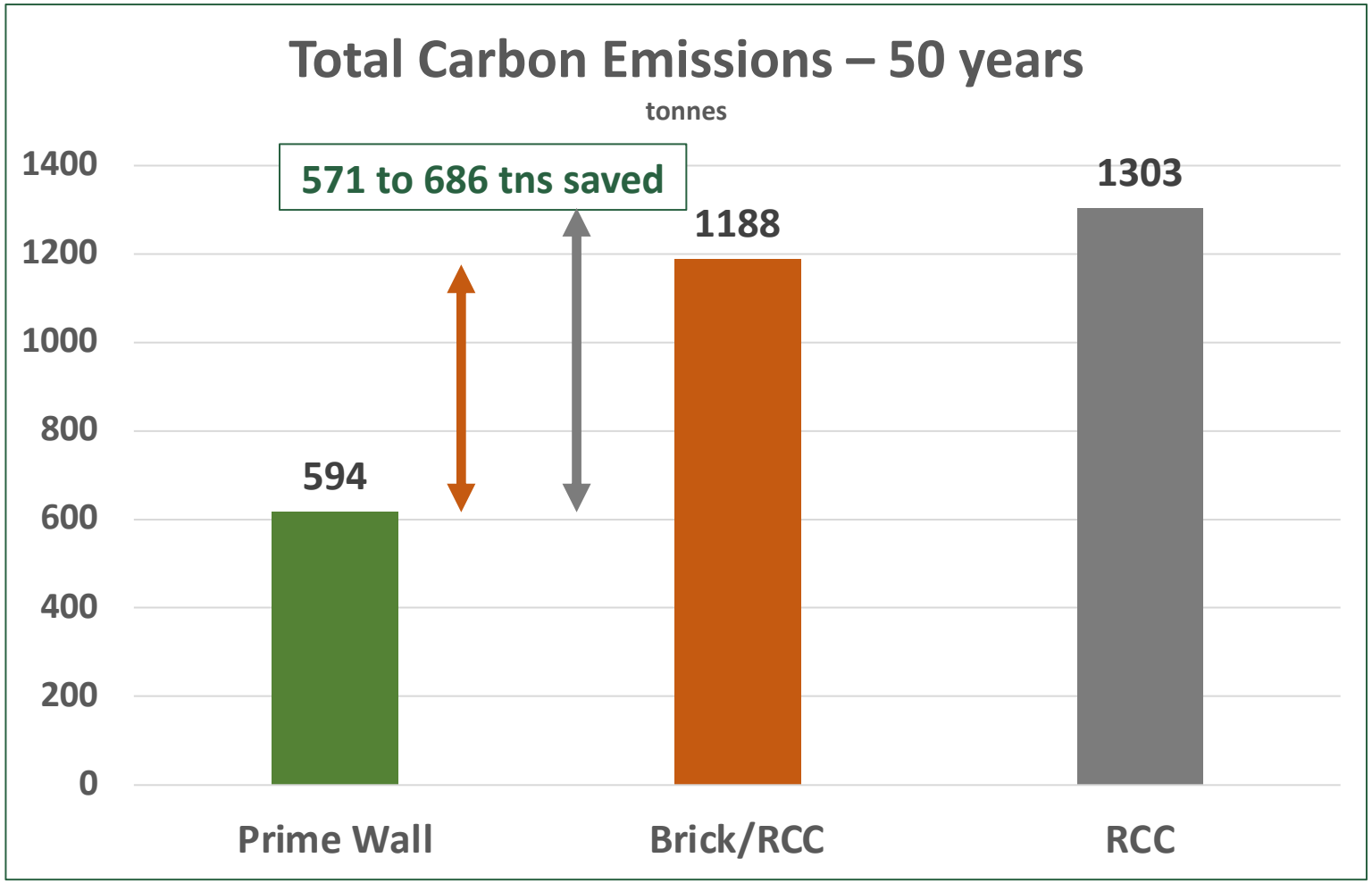
- Brick/RCC building emits 135 tns, RCC 173 tns by completion date
- BamCore bio-based building stores 118 tonnes of biogenic (net)
- BamCore bio-based building saves 253 to 291 tons of atmospheric CO_2



TOTAL CARBON EMISSIONS FROM BIO-BASED BUILDING

571 to 686 tns not emitted upfront or over 50 year service life

- BamCore biobased saves 594 tonnes over 50 yr service life compared to brick/RCC
- Even in next crucial 20 years BamCore bio-based building saves 404 tonnes of CO_2



MASS TIMBER WOOD BUILDINGS

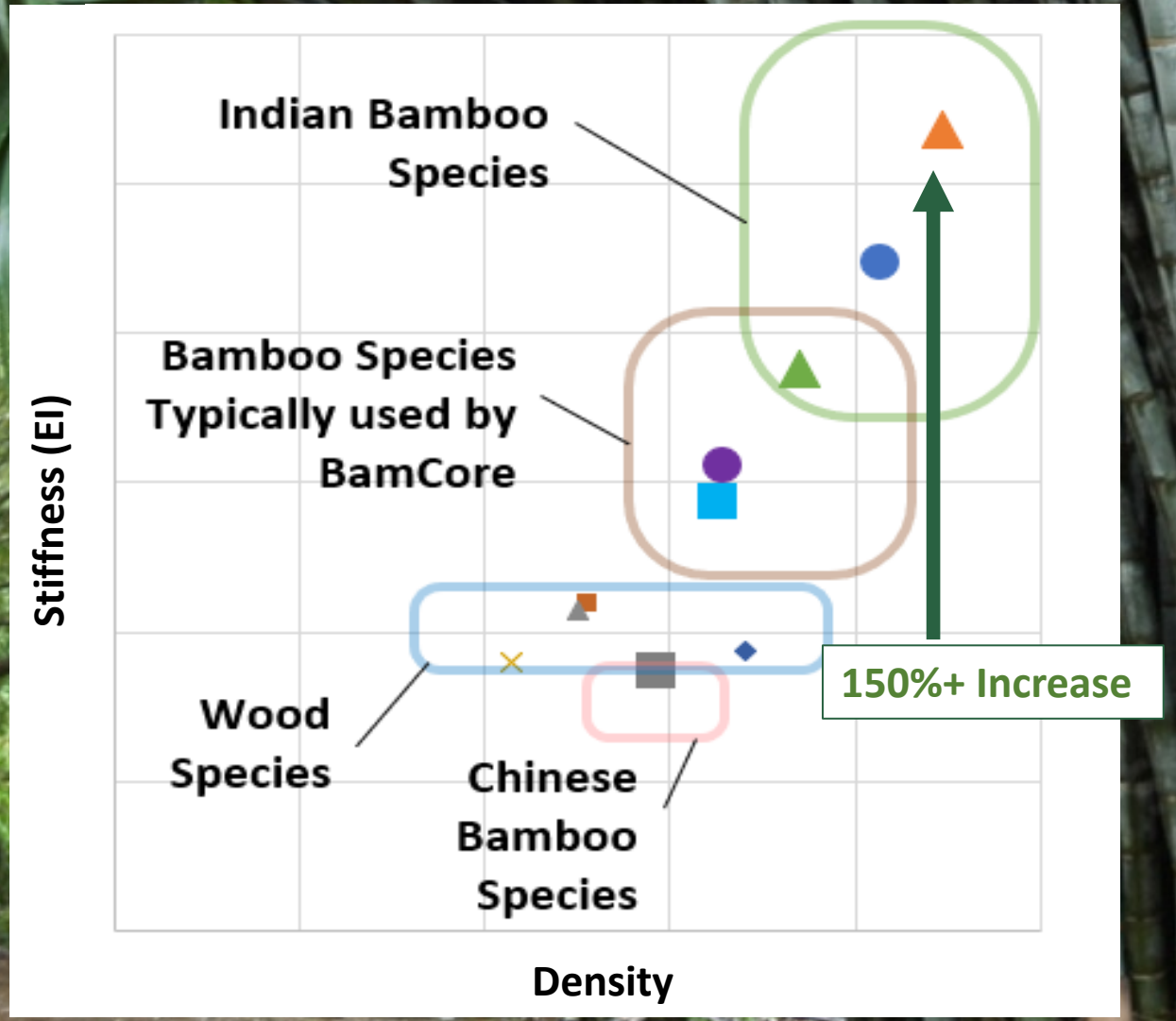
Today 25 Stories

MASS TIMBER BAMBOO

Will Be Stronger, Lighter, Greener

INDIA'S BAMBOO RESOURCES OPTIMAL UTILIZATION

commercial and mechanical values vary widely



- BamCore has 6 years optimizing fiber strength to commercial applications.
- US DOE award allows BamCore to maximize fiber yield recovery.
- Advanced building sciences and engineering will produce new superstrong yet carbon negative products.


Thank you !
Dhanyavaad !
Hal@BamCore.com