THE BEAUTY OF BLOCK

FACT OR FICTION

CMU EMBODIED CARBON EDITION

When it comes to sustainable building materials, it's tough to beat concrete masonry (CMU). But unfortunately, there's a lot of misinformation about it, too. **Let's debunk some common myths.**



FICTION

"CONCRETE MASONRY IS A HIGH-CARBON MATERIAL."

Concrete masonry isn't as carbon intensive as you might think due to 3 reasons: CMU has less cement, less volume due to its shape, and faster rates of carbon sequestration.



FICTION

"CONCRETE BLOCK PRODUCTION WASTES WATER AND ENERGY."

In reality, many CMU production plants are highly efficient. Many CMU production plants source aggregates regionally, which minimizes transportation-related emissions by 15–30% compared to materials shipped long distances[1]. Local sourcing also supports resilient supply chains by reducing reliance on long-haul freight[2].

FACT

"CMU SEQUESTERS CARBON OVER TIME THROUGH CARBONATION."

CMU's carbon footprint is often lower than assumed. During and after production, CMU begins to reabsorb CO2 from the atmosphere — a process known as carbonation. Their dry-cast structure, with interconnected voids and thinner face shell walls enable it to absorb carbon at a relatively fast rate[3]. Studies show concrete structures can naturally take back 15–30% of the CO_2 emitted during cement production[4]. Combined with a projected service life of 100 years or more[5] and the ability to use supplementary materials that reduce embodied carbon by up to 40%[6], CMU remains a strong choice for lower-carbon construction.



FACT OR FICTION

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FICTION

"CONCRETE MASONRY IS OUTDATED AND LACKS INNOVATION."

Concrete masonry has evolved significantly in recent years. Today's CMU benefits from advanced mix designs and the use of supplementary cementitious materials (SCMs), which can reduce embodied carbon by up to 40% compared to traditional mixes[7]. Additionally, thermal mass properties of CMU can reduce HVAC energy demand by up to 50%, contributing to net-zero goals[8]. Studies also show high-mass wall systems can lower peak heating and cooling loads by as much as 15%.[9,10]

FACT

"CMU HAVE A LOWER CARBON FOOTPRINT OVER THEIR FULL LIFE CYCLE COMPARED TO MANY OTHER BUILDING MATERIALS."

Concrete masonry units are built to last. With minimal maintenance and a projected life that exceeds 100 years, using CMU significantly reduces the need for replacement materials over time[11]. Unlike materials with shorter life cycles, CMUs retain their strength and durability for decades. They're also recyclable, as CMU can be crushed for use in road base or new concrete, cutting the demand for newly sourced materials by up to 50%[12].



FACT

"LOCALLY SOURCED CMU HELPS REDUCE CARBON EMISSIONS AND SUPPORTS SUSTAINABILITY."

Concrete masonry units are typically produced within 50–100 miles of the jobsite, cutting transportation-related emissions by 15%–30%[1]. Local sourcing not only reduces emissions but also strengthens supply chain resilience and supports regional economies compared to other materials[13].

FICTION

"CMU GENERATE EXCESSIVE CONSTRUCTION WASTE."

In reality, CMUs produce less than 5% of total material volume waste. CMU are highly recyclable and reusable; they can be crushed into recycled concrete aggregate (RCA) for road base or reused in new construction, landscaping and temporary structures[12,14]. CMU reuse and recycling reduces demand for virgin materials by 50% in road base and secondary applications[15].



Sources:

[1] Concrete Masonry & Hardscapes Association (CMHA) TEK 06-9C
[2] ARUP Buildings & Infrastructure Priority Actions for Sustainability Embodied Carbon, 2023
[3] ASTM Masonry 2022: Advancing Masonry Technology
[4] IPCC (2022) Climate Change Mitigation: Industry Chapter
[5] U.S. Department of Energy
[6] Financial Times, 2025
[7] Financial Times, 2025
[8] Southeast Concrete Masonry Association
[9] ResearchGate, 2019
[10] ASHRAE 2013
[11] U.S. Department of Energy
[12] EPA Sustainable Materials Management Report
[13] U.S. DOT, "Local Procurement as a Resilience Strategy," 2020
[14] EPA Construction Waste Report
[15] Frontiersin.org, 2023

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