

Ancient Building Techniques Could Combat Climate Crisis Better Than Modern Green Architecture

NEW YORK, NY, UNITED STATES, October 1, 2025 /EINPresswire.com/ -- Modern sustainable architecture is failing to slow climate change and builders should look to ancient construction methods for better solutions, according to a new analysis by two architectural historians. Research has shown the building sector accounts for 37% of global climate-changing emissions, yet environmental impact continues rising despite decades of green building efforts.



Photo by Suzanne Rushton on Unsplash

Professor Florian Urban and Dr. Barnabas Calder analyzed energy consumption across 4,500 years of architectural history for their book [Form Follows Fuel: 14 Buildings from Antiquity to the Oil Age](#). Their research marks the first comprehensive calculation of energy inputs for historical buildings spanning from the Great Pyramid of Giza to modern airports.

This study reveals that energy availability has driven architectural design throughout human history more than any other factor. The shift to fossil fuels beginning in the 17th century transformed building practices more dramatically than any previous development, the authors found.

"Today's architecture is the outcome of four centuries of effort directed at maximizing fossil fuel use in construction and operation," Urban said.

Their book also exposes surprising energy costs in celebrated modern buildings. New York's Seagram Building, praised for minimalist design, scored just 3 out of 100 on EPA energy efficiency ratings. Construction required more energy than quarrying, transporting and placing 5.5 million tons of stone for Egypt's largest pyramid.

Research calculated the Seagram used four times more energy per square meter than the average American office building in 2012.

By contrast, pre-modern structures like Scottish blackhouses achieved superior thermal efficiency using only local materials and passive design strategies while remaining fully sustainable and recyclable.

"With regard to energy consumption, the world has never had so many pharaohs," Urban said. "Even mundane buildings today use more energy than the most extraordinary ancient structures."

The study provides quantifiable metrics showing structural stone buildings consume significantly less energy over their lifecycle than similar brick construction, offering practical guidance for contemporary architects. The authors argue that while ancient living conditions may appear impoverished by modern standards, historical buildings collectively used resources "within the bounds of what the planetary ecosystem could sustain." Their book challenges assumptions that sustainability requires technological advancement, suggesting architects should revisit traditional techniques as climate concerns intensify.

Further Information:

Form Follows Fuel: 14 Buildings from Antiquity to the Oil Age, by Florian Urban, Barnabas Calder (Routledge, 2025)

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Barnabas Calder is a historian of architecture and Head of the History of Architecture Research Cluster at the University of Liverpool. He specialises in the relationship between architecture and energy throughout human history. He also works on British architecture since 1945, and on the intersections between energy systems and human culture. He is the author of Raw Concrete: The Beauty of Brutalism (2016) and Architecture: From Pre-history to Climate Emergency (2021). @barnabascalder.bsky.social, Instagram and LinkedIn: @BarnabasCalder, #ArchitectureAndEnergy

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