Overview
Natural materials such as stone, earth, wood, and reeds were some of the first building materials intentionally used by humans for shelter, and were used for millennia in simple systems in creating that shelter. As humans and their civilization and technology evolved, building systems and materials became increasingly complex, and energy and resource intensive. But in areas of local resource lack, where there was little else to build with, or times of emergent situations such as energy shortages or natural calamities, those simpler systems have seen revivals, however brief, though they often then fade back in use, until the next crisis. In recent decades, however, with the increasing awareness of the long-term environmental impacts of many highly-technical contemporary building materials, especially in terms of embodied energy and embodied carbon, there has been a resurgence of interest in more naturally-based and simple building systems. Now modern engineering, testing and manufacturing principles and methods are being brought to bear in creating significant innovations in these “natural” materials and systems, thought to be “low-tech” even a decade ago. This has allowed such materials and systems to get a foothold in a wider range of larger buildings, and more architecturally adventurous forms and spaces. Together, we will explore the possibilities...

Focus
The course will start with discussion of the general benefits and challenges of natural and low-tech systems and materials. Then we will move on to exploring a full range of specific types, from the all inorganic of stone, rammed-and poured-earth, and adobe, to the all organic of mycelium, straw-bale, bamboo, and timber, and hybrids between such as hemp-crete, fidobe, cob, and leichtlehmbau. We will also delve into natural exterior and interior finishes, and roofing. Through it all, we will not only learn about the “traditional” and “revivalist” ways these have been used, but will also explore the latest technical and process innovations among them, like flax-fiber composite panels, and discuss how each might be incorporated in more mainstream design and construction.

Format
The course will be conducted in a seminar/lecture format, and will include readings, discussions, projects, guest speakers, and possible field trips and materials-interactive, hands-on activities. The course content and interaction will be delivered in-person, supported by Canvas, Miro and MSTeams, with some portions, as needed, available live by Zoom, with some content recorded and available for later asynchronous viewing.