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, and discuss where each might be headed in the future, and their potential for use in mainstream design and construction. Depending on UO COVID-19 guidelines throughout the term, we will also endeavor to create opportunities for hands-on exploration with some of the materials, seeking to create equal opportunities for in-person activities at the Eugene campus, or activities at your location.

Format
The course will be conducted in a seminar/lecture format, and will include readings, discussions, projects, virtual field trips, and possible materials hands-on activities. The course content and interaction will be delivered primarily as synchronous, remote-learning, via Canvas and Zoom, with certain portions recorded and available for later asynchronous viewing. All course activities that have “live” aspects will be available remotely via online-streaming. And, based on UO COVID-19 health/safety guidelines at various time during the term, some activities may also allow for students to optionally attend in-person, while adhering to all UO requirements for in-person activities.