Reclaiming material literacy at the XS scale: earthen architecture and design-build learning in Türkiye

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Thirty years after Bigness normalized architectural thinking around industrial scalability, architectural education continues to reproduce a material hierarchy shaped by large, standardized systems. Concrete, steel, and prefabricated assemblies remain the dominant technological languages through which building production is taught, while low-carbon local materials such as earth, straw, or stone occupy only a marginal place within architectural training in Türkiye. This reflects a deeper mismatch between industrial modes of material instruction and the small-scale forms of judgment required for context-responsive construction.
Unlike standardized industrial products, unprocessed natural building materials operate through a radically different epistemology of construction. They demand small-scale judgment, iterative assembly, and continuous recalibration between material behaviour, craft knowledge, and local site conditions. The competence required by such practices cannot be acquired solely through abstract technical instruction. Yet despite Anatolia's extensive earthen-building heritage and a growing field of contemporary small-scale earthen experimentation, this material intelligence remains weakly integrated into formal teaching and is sustained largely through informal learning networks.
Drawing on selected contemporary earthen-building examples in Türkiye, this paper examines the discrepancy between the adaptive knowledge mobilized in practice—soil testing, hybrid detailing, non-standard assembly, and situated decision-making—and the codified industrial knowledge privileged in architectural education. It argues that the current legitimation crisis of earthen construction is inseparable from this pedagogical gap. In response, the paper positions 1:1 design-build studios, practitioner-led workshops, and hands-on earthen building initiatives as critical counter-pedagogies through which unprocessed natural materials are learned through making, testing, and direct construction at the scale of fitting. Reclaiming material literacy at the XS scale is thus framed as a necessary pedagogical shift if architecture is to produce fitting responses within resource-constrained futures.