

Architecture as Ecological Device: Fitting Climate and Context

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Excessively high comfort standard, rigid building regulations, and the widespread outsourcing of ecological performance to technological systems—often hidden within walls—result in a generic architectural language, strict spatial categorizations, and increasing construction costs. Addressing the themes of remind, renounce, and reduce, the paper examines how architecture can be conceived as a site-specific ecological device, defined through a process of fitting to climate and context. This approach informs architectural language, material choices, and spatial qualities, enabling low-tech, adaptive, and cost-effective solutions. The exhibition $\pm 1^\circ\text{C}$ | In Search of Well-Tempered Architecture at the Venice Architecture Biennale 2023 highlighted how low-tech vernacular architecture responds to climatic conditions with limited means, achieving high ecological responsiveness and spatial quality. From a broader set of strategies, five key principles emerged: room within a room, hotspot, intermediate zone, seasonal use, and spatial compression. Recent projects extend this research by exploring new spatial hierarchies and adaptive modes of use. The Wintergartenhaus by Supertype Group develops intermediate climatic zones through a lightweight timber structure and polycarbonate envelope, creating a buffer between interior and exterior. Enclosed heated volumes allow for differentiated thermal conditions, flexible composition and seasonal use. A student housing conversion by EMI Architekt*innen applies the hotspot principle, introducing compact heated volumes for essential functions such as bathrooms and kitchen. Heat is concentrated and retained through thermal curtains, producing gradients of space and enabling different occupation scenarios.

At the Bauhaus-Universität Weimar, a design studio explored the retrofit of a 1970s office building into student workspaces. A winter garden wraps the upper floors, creating a buffer zone and a bright workspace usable for most of the year. This robust and economical intervention expands usable area while requiring only minimal insulation and low costs. Calculations indicate a significant reduction in energy demand.