

ecological design: general systems model for design

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1. human-made ecosystem (constructed ecosystem)

We just cannot continue anymore to design, build and operate our built environment in the same way as we are currently doing. Our designing and building must be ecologically to care for the health of the planet's natural environment. Designing the built environment architecture has to be very different from traditional architectural practice. Ecological design is design grounded on the science of ecology as a nature-based approach for designing humanity's built environment. The benefits of ecological design is the addressing of the current negative consequences of human society's activities, of its technological and production systems and its built environment on the natural environment, it seeks to achieve positive ecological outcomes in the natural environment. Our built environment being our cities, architecture, become nature-based and human-made (constructed) hybrid systems. Achieving this will enable all our human-made systems to biointegrate synergistically with natural environment on a 'nature-with-nature' basis (and not as "synthetic artefact-with-nature").

Our approach to architecture and masterplanning must be driven by the science of ecology. Ecology is the branch of biology that deals with relations of organisms to one another and to their physical surroundings. Ecology is the underlying context and environmental baseline upon which all human acts and activities impact, and upon which the planet's health is determined. The context is the biosphere that surrounds the planet within which are the ecosystems with all species and their environments interacting with the planet's biogeochemical cycles. The rationale is that the ecology of the planet is the ultimate baseline and the originating context upon which all human action and activities take place, and where ultimately, the state of health of the planet is determined by the stable state of its ecology upon which depends the future viability of life on the planet earth. This approach to designing differs from the current conventional. Design driven by ecological principles must be the only way to ensure a resilient future for humanity. Ecological design provides a comprehensive environmental basis for addressing the current worldwide environmental crisis, including reversing climate change. Polluting emissions, resource conservation, biodiversity enhancement. Addressing these is the most compelling issue that all architects and those whose daily work impinges on the natural environment. Designing is now no longer just mitigating negative impacts but a race and rescue mission. We need to ensure that ecology-based design becomes the primary and singularly most important goal for the making of the built environment. We need to not just change our design approach, but also change the current mindset and world-view of all of our society, particularly those daily work impinges on the natural environment. Human society needs to be re-educated in the science of environmental biology.

Implementing ecological design is by designing to biointegrate synergistically the key ecoinfrastructures, being nature and its systems, humanity's socio-economic-political-institutional-cultural systems, built environment with its technological and production systems, energy use and production systems, hydrology of the natural environment and water management systems, where all of which must be integrated seamlessly into a whole as 'constructed ecosystems'.

