


Indicators

- 
- 1.1 CONCEPTS**
 - 1.2 LOCAL ECOSYSTEM CRITERIA**
 - 1.3 ARCHITECTURE QUALITY CRITERIA**

Scale of Analysis

In this survey, Ecosystem Integration is expressed by positive interactions between Architecture decisions and solutions with Local Ecology, creating opportunities to increase at the same time the quality of design and the environment.

THE ANALYSIS OF POSITIVE INTERACTIONS BETWEEN ECOSYSTEM AND ARCHITECTURE INDICATORS, **FOCUS AT:**

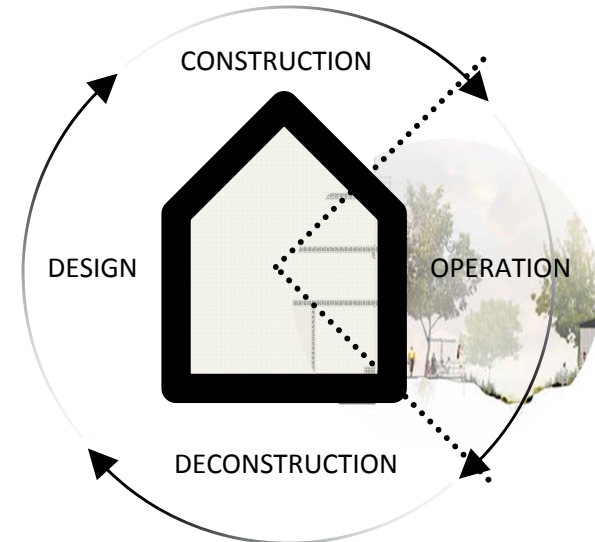
ECOSYSTEM CRITERIA:



LOCAL SCALE:

within project site limits and immediate environs

ARCHITECTURE QUALITY CRITERIA:



WHOLE LIFE CYCLE:

within the most relevant stage(s) to each parameter

COLLABORATIVE INTERACTIONS FORM THE STRUCTURE OF THE PROPOSED **DESIGN ASSISTANCE RESOURCES:**

Assessment and communication of Ecosystem Integration in a single project

+

Catalogue of multiple project references for Ecosystem Integration

	MACRO-LOCAL	ENVIRONMENTAL BALANCE	SOCIO-ECONOMY	CONCEPT AND PERCEPTION	COMFORT & FUNCTIONALITY	BUILDING CONSTRUCTION
Adaption to eco-physical values and restraints						
Sense of place and cultural identity						
Transports and functional articulation with the context						
Biodegradability and ecocompatibility						
Energy [endotatmospheric, exotatmospheric]						
Water [endatmospheric, exotatmospheric]						
Materials [end solid waste, exotatmospheric]						
Other sources of local pollution						
Sustainable life-style support systems						
Customisation possibilities and operation						
Community participation and user's satisfaction						
Social responsible construction practices						
Economic dynamics and life-cycle costs						
Human health and well-being						
Concept originality, innovation and creativity						
Visual						
Acoustic						
Conformation with context						
Tactility and motion						
Odorous						
Acoustic						
Lighting						
Indoor air quality						
Humidity and temperature of exterior air						
Exterior aspect						
Ergonomics, accessibility and universal design						
Allegory to function, occupancy and circulation						
Details and finishes						
Execution quality and process management						
Structure quality and stability						
Durability and maintenance of systems and materials						

[illegible]

Local Ecosystem

In this research, Local Ecosystem Criteria is based on ECOSYSTEM FUNCTIONS AND SERVICES [the essential ecological processes and tangible and intangible benefits derived to human well-being].

ECOSYSTEM SERVICES AND FUNCTIONS ARE ORGANIZED INTO 4 AREAS:



SUPPORTING



REGULATING



PROVISIONING



CULTURAL

Local Ecosystem: Services and Functions

SUPPORTING

E1 SOIL FORMATION AND FERTILITY Weathering of rock and accumulation of organic matter for productive soils

E2 PHOTOSYNTHESIS AND PRIMARY PRODUCTION Oxygen production and accumulation of energy by plants

E3 NUTRIENT CYCLING AND POLLUTION TREATMENT Storage, cycling and balance of chemical elements in air, soil, and water by organisms

E4 WATER CYCLING AND REGULATION Concentration and cycle of water through the ecosystem, runoff regulation and aquifer recharge

E5 BIODIVERSITY AND HABITATS Provision of food, water, shelter and reproduction conditions to endangered and native species

REGULATING

E6 CLIMATIC REGULATION Land cover and vegetation influence on local temperature, humidity, precipitation and wind

E7 EROSION CONTROL AND HAZARD PROTECTION Mitigation of extreme wind, flood, landslide and soil dispersion by vegetation and topography

E8 BIOLOGICAL CONTROL & POLLINATION Biota role to control pests and diseases and assure plants pollination and reproduction

E9 PERCEPTIVE ENVIRONMENT MODULATION Moderation, filter and modulation of light and sound through natural elements

PROVISIONING

E10 FOOD SUPPLY Production of edible goods (agriculture, livestock, fisheries or wild food sources)

E11 FRESH WATER SUPPLY AND PURIFICATION Filtering, retention and storage of water for consumption

E12 RAW MATERIALS, ORNAMENTAL & MEDICINAL RESOURCES Provision of raw materials, medicinal sources and ornamental elements

CULTURAL

E13 SIGNIFICANT ECOSYSTEM VALUES AND SPECIES Local significant species, historic-cultural landscapes, sacred areas and elements

E14 LANDSCAPE AESTHETIC FRUITION Landscape and scenery valuation and nature observation points

E15 LEISURE, RECREATION AND PSYCHOPHYSICAL HEALTH Sports, recreation and leisure areas, and psychophysical healing environments

Architecture Design Quality

In this research, Architecture Quality Criteria is expressed through DESIGN ASSESSMENT INDICATORS [which comprise both intrinsic and extrinsic design quality indicators and sustainability assessment factors].

DESIGN ASSESSMENT INDICATORS
ARE ORGANIZED INTO **6 AREAS:**



*MACRO-LOCAL
RELATIONS*



*ENVIRONMENTAL
BALANCE*



*SOCIO-ECONOMIC
RELEVANCE*



*CONCEPT &
PERCEPTIVE
QUALITY*



*COMFORT AND
FUNCTIONALITY*



*BUILDING
CONSTRUCTION*

Architecture Design Quality: Assessment Indicators I

MACRO-LOCAL RELATIONS

A1 ADAPTATION TO ECO-PHYSICAL VALUES & RESTRAINTS Site selection and project adequacy to hydrography and topography

A2 SENSE OF PLACE AND CULTURAL IDENTITY Local context references, landscape integration, socio-cultural adequacy and relevance

A3 FUNCTIONAL ARTICULATION W/ CONTEXT Relation with infrastructures & volumes, access to daily functions, & low impact mobility

ENVIRONMENTAL BALANCE

A4 ENERGY CYCLE [AND ATMOSPHERIC EMISSIONS] Energy consumption through life cycle, passive performance and renewable energy use

A5 WATER CYCLE [AND EFFLUENTS] Consumption of water, rain water harvest, waste water management, treatment and reuse

A6 MATERIALS CYCLE [AND WASTE] Local, renewable and low impact materials, deconstruction, recycling and biodegradability

A7 EXTERIOR AREAS AND LOCAL POLLUTION Landscape and amenities, control of light pollution, noise, heat island effect and glare

A8 SUSTAINABLE LIFE-STYLE SUPPORT Provision of kitchen gardens, compost, bicycle parking, laundry dry

SOCIO-ECONOMIC RELEVANCE

A9 CUSTOMIZATION AND OPERATION Interior space, comfort and envelope control, possibilities of extension and modification

A10 COMMUNITY PARTICIPATION AND USER SATISFACTION Participatory processes, engagement with local communities & stakeholders and user targeting

A11 ECONOMIC DYNAMICS AND LIFECYCLE COSTS Economic impact and distribution, balance of initial investment, operation and end use costs

A12 HUMAN HEALTH AND WELL BEING Human health and well-being and other psycho-sociological aspects

Architecture Design Quality: Assessment Indicators II

CONCEPT & PERCEPTIVE QUALITY

A13 CONCEPT ORIGINALITY AND INNOVATION Artistic and conceptual valuation, contemporaneity, innovation, logic and intention

A14 VISUAL Scale, rhythm and volume, colours and texture, transparency-opaqueness, light-shadow, and view framing

A15 ACOUSTICS Sound reflection, insulation and absorption, sounds from uses and materials

A16 OLFACTION, TACTILITY & MOTION PERCEPTION Surfaces texture, pavement regularity and steepness and height levels, scents from materials & uses

COMFORT AND FUNCTIONALITY

A17 LIGHTING Optimization of natural light sources, and luminance adapted to function and comfort levels

A18 INDOOR AIR QUALITY Air renovation, elimination of VOCs (volatile organic compounds), dust particles and humidity condensations

A19 HUMIDITY AND TEMPERATURE Hygrothermal comfort through daily and annual cycles

A20 ADEQUACY TO FUNCTION, OCCUPANCY & CIRCULATION Functional and program organization, and circulation flows

BUILDING CONSTRUCTION

A21 DETAILS AND FINISHES Coherence, quality and attributes of details and finishing materials

A22 EXECUTION QUALITY & PROCESS MANAGEMENT Rigor of construction methods, on-site management during life cycle and quality control

A23 STRUCTURE STABILITY AND DESIGN Resistance to use and regular loads and structure design quality

A24 DURABILITY & MAINTENANCE Long life cycles of systems and materials, ease of substitution or repair, and local maintenance