RESET

REQUIREMENTS FOR SUSTAINABLE BUILDINGS IN THE TROPICS

ENGLISH TRANSLATION:
COURTESY OF UIA

UNION INTERNATIONALE DES ARCHITECTES

INTRODUCTION

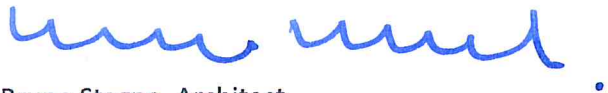
The translation of RESET (Requirements for Sustainable Buildings in the Tropics) into French and English by the Union Internationale des Architectes (UIA), marks the fulfillment of one of the most cherished hopes that we here at the Institute of Tropical Architecture – Costa Rica – nourish, namely, that the largest number of countries will have access to this tool in order to design sustainable and tropical architecture.

RESET has been designed for use in the Tropics taking into account the socioeconomic, environmental and climatic characteristics of the region. The objective is to include the majority of construction types, from housing to public buildings, in order to obtain the greatest possible number of certified sustainable constructions.

The generosity is a fundamental human attribute which leads us to share the results obtained by the efforts of a few to the benefit of many.

We hope that this exceptional opportunity to distribute RESET free of charge and in three languages will contribute to reduce the negative impact from the construction sector on the tropical ecosystem.

Thanks to Costa Rica's generous offer, RESET will be publicized by the UIA through its Member Sections, in order to contribute to a better world. To give this tool for sustainability to architects from the planet's tropical zones will lend them a professional force and will help them to design sustainable constructions adapted to their environments.



Bruno Stagno, Architect
Director
Institute of Tropical Architecture
Costa Rica

INSTITUTO DE NORMAS TECNICAS DE COSTA RICA

CTN INTE 06

Date: 2012-03-19 REV 16

PN INTE 06-12-01:2012

First Edition

Secretariat: INTECO

RESET. Requirements for Sustainable Building in the Tropics.

CORRELATION: RESET is a standard developed in Costa Rica by the Institute for Tropical Architecture (IAT), with the goal of expanding sustainability requirements to cover a broad range of structures. It gives priority to design capacity and architecture's innate potential for ensuring sustainability.

The Tropical Architecture Institute donated these norms to Costa Rica, so that they could be established as the national standard through the competent authorities

.

ICS 79.060.10

Edited and printed by INTECO 2012

COMMENTS ON THIS DOCUMENT SHOULD BE SENT TO:

INSTITUTO DE NORMAS TECNICAS DE COSTA RICA

Telephone: (506) 283 4522 Fax: (506) 283 4831 PO Box: 10004-1000
Email: info@inteco.or.cr Web: www.inteco.or.cr

CONTENTS **PAGES**

National Prolog

The Costa Rican Institute for Technical Norms, INTECO, is the national standardization organism according to Law 8279 from 2002.

INTECO is a private, not-for-profit entity, with a vital mission: offering support and development options to producers and protection to consumers. INTECO collaborates with the governmental sector and supports the country's private sector to gain competitive advantages in internal and external markets.

Representation of all sectors involved in the technical standardization process is guaranteed through technical committees and a public consultation period, the latter characterized by participation from the general public.

This standard: INTE 06-12-01:2012 was approved by the INTECO National Standardization Commission on 2012-05-04.

This standard will be subject to frequent updating in order to respond at any given moment to current needs and requirements.

Below is a list of the organizations and professionals that collaborated in the development of these standards through their participation in the sustainable construction technical subcommittee INTE CTN 06 SC 11:

Name	Organization
Bruno Stagno **PRESIDENT**	Instituto de Arquitectura Tropical
Manuel Salas **VICE-PRESIDENT** Rodrigo Díaz	Asociacion para el Fomento del Desarrollo Sostenible
Pietro Stagno/Luz Letelier	Luz de Piedra S.A.
Ileana Granados	Colegio Federado Ingenieros y de Arquitectos
Rodrigo Carazo/Aaron Morales	Camara de la Construccion
Alejandro Ugarte	Universidad de Costa Rica
Huberth Mendez	Fundacion para el Desarrollo Urbano
Abel Vargas	Instituto Fomento y Asesoria Municipal
Erick Ulate	Consumidores de Costa Rica

PRESENTATION

When the trend to certify built structures began, we immediately felt the need to protect architecture. Our most urgent concern was to establish norms developed by the architectural community itself and showing architecture's potential for creating feasible and low-cost solutions that allow buildings to be certified based on their use of bioclimatic solutions more than on technologies.

"Sustainability with more architecture and less technology" is the motto that guided development of the RESET standards. This means exhausting the design potential before turning to the use of technologies, and using technology in moderation when it's essential. This is how we see technology, as a complement to design, not a substitute for it. Favoring architectural and engineering design as the means to attaining sustainability will bring cost efficiency, independence, and adaptation to surroundings.

RESET is also about adaptation to climate, recovering natural elements and utilizing renewable resources, reinforcing local economies by favoring local manpower and materials, and strengthening culture, which is refreshed and enriched by contemporary architecture built on tradition.

We believe that the building sector's impact can be reduced only when a majority of structures can attain sustainability certification. Thus, RESET was created as a realistic standard that the majority can feasible attain, including mass construction, which without a doubt represents the highest percentage of built areas on the planet.

The tropical latitudes include territorial extensions in 108 countries, are home to over 35% of the population and 70% of existing forests, and account for 40% of the Earth's surface. This is a large and vital region that merits a specific set of standards highlighting its characteristics.

With RESET, Costa Rica gains an original set of standards in accord with its environmental vocation, that can be used to create policies and strategies for the building and planning sectors in which the city is seen as a built complex that should be both convenient and oriented toward reducing environmental impact.

The RESET standards (Requirements for Sustainable Building in the Tropics) were created by the Institute for Tropical Architecture and given to the College of Architects of Costa Rica and INTECO (Costa Rican Institute of Technical Norms) so that they could be adopted as a national standard through collaboration with other organizations.

College of Architects, CR Institute of Technical Norms, Institute for Tropical Architecture

INTRODUCTION

These standards are a guideline focused on design, construction, and operational decisions relating to buildings in the tropical zone. They are a tool intended to facilitate and review project decisions, and serve as an indicator and model for incorporating responsible environmental criteria into the decision-making process.

These standards are formulated to be a useful evaluation tool for projects at any stage: design, construction and/or operational phases. RESET assessments must be carried out by professionals in the design and/or construction fields who are qualified to evaluate the RESET criteria.

These standards were developed to evaluate projects in each specific stage of their lifecycle (design, construction and/or operation), and require access to data on the socio-economic aspects of project management as well as pertinent records related to each building phase in order to obtain the most precise results possible in the evaluation.

Results are expressed as a percentage of success. RESET does not quantify emissions or energy savings in numbers; instead, it reflects the efforts made in the structure's design and construction processes to attain specific objectives, stated later in the text.

RESET presents 21 objectives for attaining sustainable development in building. To reach these objectives, it defines concepts and relates them to specific criteria for judging their implementation.

RESET. Requirements for Sustainable Building in the Tropics.

1 OBJECTIVES AND FIELDS OF APPLICATION

The present set of standards aims to set the requirements that must be met by buildings in the tropical zone to be recognized as sustainable.

These standards are applicable to buildings and other construction works, either individual or collective, and to the processes related to the lifecycle of buildings and other construction works.

2 STANDARDS FOR REFERENCE

The following reference documents are essential to the application of this document. For dated references, only the edition bearing that date is applicable. For non-dated references, apply the most recent edition of the reference document (including any modifications).

INTE/ISO 15392. Sustainability in building construction - General principles

INTE/ISO 21929-1. Sustainability in building construction. Sustainability indicators. Part 1: Framework for the development of indicators and a core set of indicators for buildings

INTE/ISO 21930 Sustainability in building construction. Environmental declarations of building products.

ISO/TR 21932. Buildings and constructed assets. Sustainability in building construction - Terminology

INTE 31-08-06. Illumination levels and conditions required for workspaces.

IEC 61000-3-2. IEC 61000-3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase) (tables 1, 2 ,3)

3 TERMS AND DEFINITIONS

For the purpose of this document, in addition to the terms and definitions offered in the ISO 6707-1 standards, the following apply:

3.1 biotic environment:
belonging or related to the entire set of living beings in a determined region

3.2 biodigester:
a system to decompose organic waste in the form of a hermetically sealed or impermeable container into which the organic material is deposited to ferment in a set dilution of water so that, through anaerobic fermentation, methane gas and organic fertilizers rich in nitrogen, phosphor and potassium are produced, and in addition, potential risks of contamination from excrements are reduced.

3.3 biodiversity:
the variety and variability of life forms, considered as a progressive production or genetic variations from an original, through a dynamic process of relations among species.

3.4 water collection:
recuperating and storing water from one or more sources (springs, rainwater, rivers, etc)

3.5 lifecycle:
consecutive and interrelated stages of the considered object

NOTE 1. To consider environmental impact and aspects the lifecycle includes all stages, from the acquisition of raw materials or production of natural resources until their final disposal.

NOTE 2. To examine environmental impact and aspects in terms of costs, the lifecycle includes all stages from construction until finished building. A period other than the lifecycle may be selected for analysis, see ISO standard 15686-5.

NOTA 3. Adapted from INTE/ISO 14040:2006.

3.6 passive climatic adjustment:
controlling the temperature and relative humidity of air to ensure the comfort of the structure's users without using resources that require energy consumption,

3.7 building components:
elements or parts of the building that can include anything from a material to a complete building system

3.8 composting:
aerobic decomposition cycle of organic material for re-use (using high levels of oxygen)

3.9 comfort:
state of air in which its temperature, humidity, and movement is favorable to the activity taking place in a determined space

3.10 passive consumption:
energy used by an electrical device that continues to consume energy when it is turned off but still connected to a source of energy.

3.11 control:

any action intended to monitor, inspect, verify, or intervene in any stage of a building's lifecycle

3.12 biological corridor:
area connecting ~~two~~ zones with significant levels of biodiversity, meant to ensure that the habitats are not fragmented.

3.13 organic farming:
farming that uses no chemical additives or synthetic substances. Uses non-polluting fertilizers and pesticides

3.14 dismantling:
stripping down a building's components to avoid destruction or deterioration

3.15 harmonic distortion:
occurs when an electrical system's voltage or current suffer deformations in relation to the form of the sine wave

3.16 building:
construction work that offers refuge to its occupants or contents as one of its main objectives, in general either partially or entirely closed and designed to remain permanently in one place.

[Taken from ISO standard 6707-1:2004, 3.1.3]

3.17 efficiency:
capacity of a product, element or process that in comparison with other commonly used products, elements, or processes optimizes or saves resources

3.18 energy efficiency:
a reduction in energy consumption while maintaining the same energy services and comfort or quality of life, protecting the environment, guaranteeing supply and encouraging sustainable behavior.

3.19 renewable energies:
energy obtained from virtually inexhaustible natural sources, based on the immense quantity of energy they contain or because they can regenerate through natural means.

3.20 visual scene:
unit of natural or built landscape that has visual value from or toward a determined place

3.21 adapted species:
individuals from exotic species that are able to survive in natural conditions without causing imbalances to the ecosystem in which they are placed

3.22 endemic or native species:
species that belong to and are specific to a particular geographic area

3.23 introduced or exotic species:

species introduced into a new ecosystem or habitat from a distant geographic area

3.24 invasive species:
species that colonize the new ecosystem when introduced in sites outside their natural geographic distribution; their population becomes abundant and as a competitor, predator, or parasite to endemic species they degrade biodiversity

3.25 passive strategies:
incorporating design elements that reduce or eliminate the use of active energies to ensure the comfort of a building's internal spaces

3.26 constructed wetlands (phytodepuration):
process characterized by the synergy between micro-organisms and macrophytic surface or aquatic plants that filter water through their roots

3.27 geotextiles:
permeable fabrics with a planar structure integrated directly in soils or foundations as part of engineering projects.

3.28 habitat:
place with appropriate living conditions for an organism, species, or animal or plant community

3.29 historical value:
important cultural or historical significance of a public or private building or property

3.30 heat island (UHI):
increase in temperature produced by the accumulation of heat in a city's tectonic mass (streets and buildings)

3.31 alternative means of transportation:
any form of transport other than an internal combustion engine vehicle, and which seeks to reduce harmful emissions into the atmosphere

3.32 optimization:
improving the manner or process by which an activity is accomplished

3.33 landscape:
geographic area having a structural, functional, or perceived differentiation, with a unique and singular quality and characteristics acquired through natural and human historical processes. Identified by its internal coherence and distinction from other zones.

3.34 landscaping:
discipline that studies both natural and built landscapes. Includes planning and design for parks, gardens, and the controlled surroundings of a construction project (site planning)

3.35 construction products:

goods or services used during the lifecycle of a building or other construction work
[Adapted from ISO standard 6707-1 and the norm INTE/ISO 14021]

3.36 recycling:
series of partial or complete treatment phases a used product undergoes in order to obtain a raw material or new product

3.37 reflectance:
the fraction of radiant flux incident upon a surface that is reflected. In general considered a directional attribute according to the direction of reflection, and the direction and wavelength of the incident radiation

3.38 reuse:
to use goods or products again. The new usage can appear through a process of improvement or restoration, or without changing the product if it becomes useful to a new user

3.39 reflectance techniques:
techniques used to reflect light using a smooth surface in order to avoid direct incident of light rays from the source. Also referred to as indirect light

3.40 architectural typology:
architectural or urban elements or components that repeat fixed or similar features in terms of form, size, proportion or distribution, that may correspond to a historical, cultural, or geographic repertory. If such an element is used regularly it may be perceived as a symbol by certain cultures.

3.41 landscape unit:
area of the Earth's surface produced by the interaction of various factors present and having a visual reflection in space. Characterized by the interrelation between abiotic elements (non-living components), biotic elements (created through the activity of living beings) and anthropogenic elements (resulting from human activity).

3.42 user:
person who regularly carries out their work activities or maintains residence in a building

3.43 appreciation:
recognition of a resource's value, usefulness, appropriateness or merit as relates to its capacity to fulfill a need or procure well-being

3.44 service life:
period of time after installation during which a building or its parts meet or exceed the performance requirements
Note. Derived from the definition of service life in ISO standard 6707-1.

3.45 contaminated soil:
Terrain with development potential that presents a risk to human health or the ecosystem, depending on the desired use, due to the dumping of human waste that makes its use impossible, difficult or dangerous.

3.46 unstable soils and landfills:

building terrain where soil composition or density does not meet applicable regulations and codes

4 METHODOLOGY

4.1 Determining a project's impact

RESET assessments must be carried out by qualified specialists in sustainable construction and require access to all necessary documents and attestations prior to realization of the design review and construction of the building.

If the assessment includes the structure's construction process, it requires access to socio-economic management data, as well as the operations register.

To begin evaluation of conformity with the RESET norms, first complete the context assessment worksheet found in section 5.1. The points obtained in this assessment will classify the structure as high, medium, or low impact.

Once the structure's impact category has been established, the assessor should refer to the guide found in chapter 6, which lists the preliminary studies that should be carried out for each project according to its impact category.

4.2 Assessing requirements

4.2.1 RESET compliance

The RESET standard contains 7 chapters for evaluation, each containing requirements related to a specific aspect of the building's design and construction.

Each chapter contains a certain number of objectives, concepts and criteria as follows:

Chapter		Number of objectives	Number of concepts	Design criteria	Implementation criteria
7	Socioeconomic aspects	4	6	0	11
8	Environment-and transportation	3	10	19	6
9	Spatial quality and well-being	3	10	18	8
10	Soil and landscape	4	6	11	8
11	Materials and resources	2	7	7	8
12	Water efficient management	3	5	11	4
13	Energy Optimization	2	3	2	7
		21	**47**	**69**	52
	Total			**120**	

Nota: Some of the assessment criteria require the use of calibrated instruments to measure wind velocity, temperature, humidity, luminosity, and decibels.

For each assessment criteria a **reference value to match** has been set in order to rate compliance with the criteria in relation to measurable parameters, percentage attained, or qualitative evaluation based on expert appraisal. By definition, the expert appraisals require that evaluations be carried out by qualified specialists in design/construction.

The assessment criteria include indicators to determine whether the point is obtained or not. The total number of required points must be obtained in order to receive the **RESET** label, which represents a sun as seen in the image below

1 sun 

In order to receive the **RESET Plus** label, projects must obtain additional points, that will be rewarded with one or two additional suns in recognition of the extra efforts made toward sustainability (see section 4.2.2).

Also, each criterion offers a space for comments. This space should detail any considerations related to the criterion, or any anomaly or obstacle to compiling exact data to rate the criteria.

When an assessment criterion is not applicable, write N/A in the report and justify it in the space for comments.

At the end of each chapter there is a table in which to enter the points obtained according to the criteria in question.

Criteria	Total Criteria	Criteria fulfilled
Total criteria		
Design criteria		
Implementation criteria		
Plus criteria		

4.2.2 RESET Plus compliance

To obtain the **RESET Plus** label a project has to earn plus points. There are three ways to get plus points:

4.2.2.1 When the points exceed the reference value by at least 50% for quantitative criteria or based on justification by the assessor in the case of qualitative criteria.

4.2.2.2 When the project satisfies the reference value set for a criteria not in its own impact category, but in a higher category.

4.2.2.3 When the project meets the requirements established in section 5.2. For this, the project must obtain the following score:

- 30 plus points = a RESET Sun +1 RESET Plus sun

- 60 plus points = a RESET Sun +2 RESET Plus suns

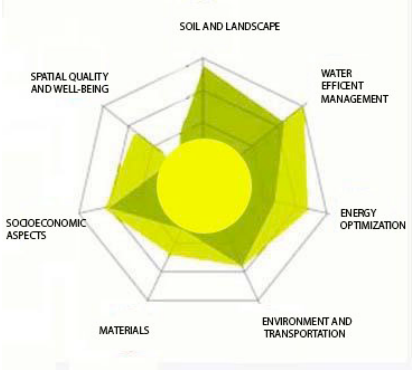
4.2.2.4 When a project earns the required points for **RESET Plus** it should receive one of the following labels, according to its score:

RESET Sun +1 RESET Plus sun

RESET Sun +2 RESET Plus suns

4.2.3 RESET Plus results graphic

Once the **RESET** evaluation is complete, the results can be shown in a spider chart that illustrates in which areas the project was awarded plus points and if they were given for design or implementation.



5 CONTEXT ASSESSMENT WORKSHEET

5.1 Impact category

The context assessment worksheet must be completed in order to determine the project's impact category, in relation to its size and the nature of its surroundings. This will place the project into one of three categories based on its magnitude in relation to its social and environmental impact, according to the points received, as detailed in the table below:

	Color	Category	Required points
	Yellow	low impact	1-15
	Orange	medium impact	16-30

	Red	high impact	31-45

The assessor must complete the following context assessment worksheet to determine the project's impact category. The results of this worksheet will determine the values to match for the criteria in chapters 7 - 13, which assess each project according to its impact category.

Context assessment worksheet

			Criteria	Parameters	Points	Score
IMPACT CLASSIFICATION [1)]	According to its size, significance, impact and radius of social, economic, and environmental influence	1	Level of economic development in the area (according the UNDP Human Development Index)	< 0,500	1	
				0,500 to <0,625	2	
				0,625 to <0,750	3	
				0,750 to 0,875	4	
				More than 0,875	5	
		2	Type of urban area	Rural	1	
				Community 1 000 to >10 000 persons	2	
				Town 10.000 to >50.000 persons	3	
				City 50.000 to >250.000 persons	4	
				City 250.000 or more persons	5	
		3	Relation of the terrain with areas of special natural interest: forests, bodies of water, exceptional landscape elements	100% of the terrain is of special natural interest	5	
				75% of the terrain is of special natural interest	4	
				50% of the terrain is of special natural interest	3	
				25% of the terrain is of special natural interest	2	
				No part of the terrain is of special natural interest	1	
		4	Population density in the zone	0 to <50 pop/ha	1	
				50 to <100 pop/ha	2	
				100 to <150 pop/ha	3	
				150 to <250 pop/ha	4	
				250 or more pop/ha	5	
		5	Building coverage in relation to the site (impermeable areas).	0 to <10% of the area	1	
				10 to <35% of the area	2	
				35 to <50% of the area	3	
				50 to <75% of the area	4	
				75 to 100% of the area	5	
		6	Size of the structure, expressed in square meters (m^2)	very small: 0 to 50 m2	1	
				small: 50 to 300 m2	2	
				medium: 300 to 1.000 m2	3	
				large: 1.000 to 5.000 m2	4	
				very large: over 5.000 m2	5	
		7	Height of the structure,	very low: up to 3 floors	1	

Context assessment worksheet

			Criteria	Parameters	Points	Score
			expressed in the number of floors	low: 4 to 8 floors	2	
				medium: 9 to 24 floors	3	
				tall: 25 to 49 floors	4	
				very tall: 50 or more floors	5	
		8	Service life of the structure, expressed in years	0 to 15 years	1	
				15 to 30 years	2	
				30 to 50 years	3	
				50 to 75 years	4	
				over 75 years	5	
		9	Usage type	Residential	1	
				Small motel/lodge/hostel Exterior public space (park, meeting place) Single story parking lot	2	
				Theater, cinema, temple/ commerce /restaurant/academic Parking complex Mixed usage (excluding uses 4 & 5)	3	
				Hotel development Public institution Commercial center Hotel development > 50 rooms	4	
				Industrial Hospital/clinic	5	
TOTAL POINTS					**45**	

[1] 1 point is considered the lowest score and 5 the highest score

5.2 Infrastructure factors

The following context assessment worksheet applies to projects seeking the **RESET Plus** label as it allows them to earn design strategy plus points for selecting a building site where the existing infrastructure and services allow for better integration into surroundings by favoring the 'compact city' concept that takes advantage of existing infrastructure.

Points are to be awarded according to the following table and added to the points earned in the RESET assessment.

Points earned	Plus points
≤17	0

18 a 34	3
35 a 51	6

Context assessment worksheet

			Criteria	Parameters[3)]	Points	Score
INFRASTRUCTURE FACTORS	According to available public services	1	Distance to urban amenities (medical attention, basic education, commerce, etc.).	Over 1 200 m	1	
				900 m to 1 200 m semi-urban	2	
				600 m to < 900m	3	
				300 m to <600 m urban	4	
				Less than 300 m	5	
		2	Accessible by bicycle (safe route, exclusive or controlled, existing or to be built)	Under construction	1	
				A marked bicycle route exists within a 500m radius of the building	2	
		3	Pedestrian access within a 600 m radius of the building (sidewalks present or to be built)	An existing space is reserved for pedestrians	1	
				Existing safety signage for pedestrian traffic	2	
				Existing, partially completed sidewalks	3	
				Existing finished sidewalks	4	
				Existing sidewalks that satisfy Law 7600	5	
		4	Access to methods of public transportation	Over 1 200 m	1	
				900 m to 1 200 m semi-urban	2	
				600 m to < 900m	3	
				300 m to <600 m urban	4	
				Less than 300 m	5	
		5	Drinking water supply system's capacity to meet the demand	No distribution system is available	1	
				Water production through wells	2	
				Limited capacity distribution system	3	
				Distribution system is able to meet the demand	4	
				Distribution system is able to meet added demand and is complemented by a wastewater collection system	5	
		6	Local infrastructure's capacity to receive black water discharge	No wastewater collection system is available	1	
				Requires installation of a treatment plant	2	
				Existing public wastewater collection	3	
				Feasible to treat wastewater using a septic tank and individual drainage	4	
				Existing public wastewater collection and treatment	5	
		7	Local infrastructure's capacity to receive rainwater discharge	No collection system available	1	
				Collection system available but requires on-site retention	2	
				Collection system available but requires connection over 50 m away	3	
				Collection system available but requires	4	

Context assessment worksheet						
			Criteria	Parameters[3)]	Points	Score
				connection less than 50 m away		
				Collection system available adjacent to the building	5	
		8	Local infrastructure's capacity to meet electrical demand	No available electrical distribution system	1	
				Distribution system available, requires connection over 50 m away	2	
				Distribution system available, requires connection less than 50 m away	3	
				Existing electrical distribution system with insufficient capacity	4	
				Existing electrical distribution system adjacent to the building	5	
		9	Availability of locally recovered materials	Possible over 300 km away	1	
				Possible in a radius of 300 km to <150km	2	
				Possible in a radius of 150 km to <50 km	3	
				Possible in a radius of 50 km to >15km	4	
				Possible in a radius of < 15km	5	
		10	Availability of locally produced, eco-labeled materials	Possible over 300 km away	1	
				Possible in a radius of 300 km to <150km	2	
				Possible in a radius of 150 km to <50 km	3	
				Possible in a radius of 50 km to >15km	4	
				Possible in a radius of < 15km	5	
		11	Availability of recycling centers, pollutant and/or hazardous waste treatment centers, earth and rubble reception sites	Available over 300 km away	1	
				Available in a radius of 300 km to <150km	2	
				Available in a radius of 150 km to <50 km	3	
				Available in a radius of 50 km to >15km	4	
				Available in a radius of < 15km	5	
TOTAL POINTS					51	
[1)] 1 point is considered the lowest score and 5 the highest score						

6 PRELIMINARY STUDIES

Preliminary studies are technical reports the assessor needs in order to evaluate certain criteria that require specific information on areas of risk, characteristics of the terrain, or biotic and cultural resources in the area surrounding the project.

Selection of technical studies needed for the project correspond to its impact category (low, medium or high). The type, quantity, and extent of these reports are the responsibility of the project professional. It is the assessor's responsibility to determine the level of compliance.

Below is a guide to identifying the appropriate preliminary studies for an accurate evaluation, according to the project's impact category.

Preliminary site studies	**Habitat conservation and recovery of and natural components**				
Objectives	**Criteria**	**Impact category**			**Compliance**
		Low	**Medium**	**High**	
1) Preliminary site and soil studies. Obtain site studies according to the phase being analyzed.	1. Type of existing geological material			X	
	2. Geotechnical soil properties	X	X	X	
	3. Geotechnical properties of bedrock	X	X	X	
	4. Slopes	X	X	X	
	5. Topography	X	X	X	
	6. Infiltration capacity and soil permeability	X	X	X	
	7. Identification of erosion or active sedimentation zones (landslides, terracing)		X	X	
	8. Hydrogeological context (aquifers, wells, water resources)		X	X	
	9. Criteria for seismic design (local seismicity)	X	X	X	
	10. Volcanic risk	X	X	X	
	11. Flood risk (river valley, tsunamis)	X	X	X	
	12. Biotope study			X	
	13. Existing protected areas	X	X	X	
	14. Areas with ecological potential for conservation or nature reserves		X	X	
	15. Identification of fragile ecosystems			X	
	16. Existing infrastructure of services	X	X	X	
	17. Culturally or archeologically significant sites		X	X	
	19. Study of landscape units			X	
2) Survey and documentation of site conditions	1. Photographs - video	X	X	X	
	2. Multidisciplinary, project team meetings on site			X	
	3. Consultation meetings with interested parties		X	X	
3) Survey of climatic and geophysical resources	1. Exposure to sunlight and orientation	X	X	X	
	2. Rainfall patterns	X	X	X	
	3. Predominant winds	X	X	X	

Preliminary site studies	Habitat conservation and recovery of and natural components				
Objectives	Criteria	Impact category			Compliance
		Low	Medium	High	
	4. Visual scenes	X	X	X	
	5. Unique elements to be highlighted (bodies of water, trees, hillsides, etc.)	X	X	X	
	6. Identification of the bioclimatic zone	X	X	X	

7 SOCIOECONOMIC ASPECTS

The evaluations in this chapter will provide an understanding of project administration as regards financial management, social welfare and inclusion, just treatment and security of the building's workers and occupants.

Socioeconomic aspects		Requirements		Evaluation					Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points		
1. Ensure transparent and sustainable project management	Establish fair financial mechanisms and manage the project in a transparent and equitable manner. Direct long-term investments toward natural capital.	1. Establish guidelines for equitable participation and adjudication for various competitors/bidders in the case of competition.	Set up guidelines for participation and consultation for all stakeholders.							
		2. Present clear and transparent budgets, expenditure logs, loans, extras, and any other pay outs throughout the entire process of project consultation and construction.	Ensure availability of all documents required to verify the project's economic flow in a timely manner if requested.							
		3. Calculate profit margins and return on investment taking into account environmental benefits gained through initial investments.	Use profitability and capital costs spreadsheets that show the level of investment, operational costs, projected savings, and redemption value							

Socioeconomic aspects		Requirements		Evaluation					Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points		
		4. Calculate profit margins and return on investment incorporating equal treatment of the various actors in the project.	The profits earned by each actor in the project are proportional to his/her investment and duly completed work on the project.							
	Boost local development	5. Give preference to local workers within project realization whenever competent individuals are available.	The project workforce includes at least 70% competent local individuals.							
		6. Include training courses in the project's design and construction process.	The project includes planned training sessions including discussion groups, classes, forums, or any other teaching method capable of training project workers in the areas related to its design and operation.							

Socioeconomic aspects		Requirements		Evaluation			Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category	Results	Plus points		
2. Ensure just and equitable treatment for all actors in the project.	Ensure fair treatment for employees and sub-contractors within project management and development	7. Adhere to fair treatment guidelines, respecting employment regulations and local social guarantees.	Respect human rights, social guarantees, workplace associated risk insurance, lawful salaries and remunerations. Refuse child labor and racial or sex discrimination.					
3. Ensure accessibility and security for all users of the building	Implement systems that ensure individuals with limited capacity are included in the building's life	8. The building provides assistance programs and information for individuals with "handicaps".	Provide signalization (visual and tactile) and qualified personnel to attend and assist these users.					
	Ensure the building user's safety	9. Incorporate safety measures for emergencies such as fire, floods, earthquakes, hurricanes, or any other natural phenomena that could threaten users	- Have an emergency plan approved by the relevant authority. - Have an emergency response / management training plan					

Socioeconomic aspects		Requirements		Evaluation					
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points	Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
		10. Provide the necessary workplace safety measures to ensure the safety of construction workers and anyone installing materials or equipment as part of the project.	Possess the necessary safety equipment and policies for safe working conditions							
4. Adapt architectural solutions and project plans to the socio-cultural context	Incorporate and highlight local socio-cultural ideas on behavior and local habits	11. Carry out a pre-project sociological study on the concerned social area, including variables on coexistence, spatiality, and adequate uses and materials.	Apply the results of sociological study in the context of the building project.							

Criteria	Points
Total criteria	11
Matched criteria	
Plus criteria	

8 ENVIRONMENT AND TRANSPORTATION

The main objective in this chapter is to outline the project in a way that highlights issues of sustainability, showing how it will integrate into its cultural, physical and natural surroundings.

Following are criteria that address minimizing risks, making the most of the existing infrastructure, and considering existing interventions before looking to new sites. The concepts examine how to preserve cultural heritage and natural ecosystems around the project site, and how to ensure clean and efficient transportation to, from, and within the project.

Situation and transportation		Requirements		Evaluation			Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category	Results	Plus points		
5. Respect natural and/or cultural heritage zones and avoid sensitive areas	Respect natural or cultural heritage zones	1. Possess documents that prove the project is not being built in a park, nature reserve, or conservation area.	Information showing the situation and reasoning used to ensure that the project respects sensitive areas					
		2. Build in previously developed areas	Have a photographic, historic registry of the project site					
		3. Respect buildings and structures with historical significance	Possess justification of the cultural or historical significance of the structure and a historical, photographic register of conservation or restoration works realized.					
	Avoid areas of risk	4.Avoid building on unstable soils or landfills	Use preliminary studies to identify unstable or landfill zones.					

		5. Take precautions to avoid building in zones near geological fault lines, volcanic activity, risk of landslides or along the banks of bodies of water.	Possess a map of natural risks and proof of measures taken in consequence.							
		6. Take precautions to avoid building in high flood-risk areas.	Possess a map of risks and/or flood patterns and proof of measures taken in consequence							
		7. Recover or arrange for final disposal of contaminated soil.	Possess third party reports on the final disposal of contaminated soil.							
6. Integrate the project into its surroundings through design	Integrate the building into its spatial, physical, and geographic context.	8. Ensure harmony between the architectural elements and surroundings, give priority to interesting visual scenes/staging.	Possess documented proof of a landscape analysis of the project's integration into is surroundings							
		9. Respect the scale of the project's urban, rural, or natural surroundings.	Possess a morphological study showing respect for building heights and frontage zones in harmony with existing structures							
	Encourage cultural identity social cohesion; integration of the project in the community and harmony with the cultural and natural	10. Create public spaces for community use	Reserve 5% of the ground floor surface area to public space							
		11. Design for security and to dissuade vandalism, allowing visibility and	Ensure that enclosures and facades provide 35% visibility toward the							

	environment.	monitoring between the street and building.	exterior.							
		12. Keep reflectance and excessive emission of artificial light to acceptable levels using materials and solutions that don't disturb existing habitats or normal life in urban contexts	Use low reflectant materials and/or solutions that show how facades and roofing can eliminate or reduce direct incident of sunlight							
		13. Avoid visual contamination in the controllable area around the project	Utilize solutions that don't invade the interesting visual fields around the building							
	The building educates, communicates, and demonstrates environmental solutions	14. The sustainable solutions used stand out for their architectural design	Possess documentation from the designer stating the technical reasons why the project is considered sustainable							
		15. Incorporate design elements that explicitly educate the population about sustainability	The building uses design elements that demonstrate sustainable practices Possess graphic or written explanations of these elements							
		16. The project is replicable because it succeeds in keeping costs low through the use of materials that require little onsite transformation, local labor and local know-how	The building presents at least three transferable, innovative elements, that reduce costs in comparison with the usual solution							
	Control the building coverage and	17. The project is below established minimums for coverage set out in zoning	Reduce coverage by 5% in comparison with the legal requirements							

	promote high project density	plans and/or building regulations								
		18. The project attains the maximum density set by zoning plans	Attains at least 80% of the density set for the zone							
	Avoid or minimize environmental contamination to the project's surroundings during construction	19. Use building practices that eliminate or minimize noise and air pollution during the construction process	Meet requirements established by the competent local authority regarding noise and air pollution							
7. Encourage users coming to and leaving the building to use the most efficient and least polluting forms of energy	The project facilitates the use of low-environmental impact means of transport	20. Users have access to collective transport systems	At least 20% of the building's users have access to public transportation within 600 m of the building							
		21. Make it easy for users to park alternative means of transportation or use public transportation	At least 20% of parking is reserved and equipped as preferential parking for alternative transportation							
		22. Offer easy access to washrooms for users of alternative transportation	At least 5% of users have access to personal hygiene facilities (showers and lockers)							
	Promote use of low-emission and energy efficient means of transport	23. Favor the use of low-emission and energy efficient cars	At least 2% of parking space is reserved for low-emission vehicles							
	Reduce energy consumption by automated	24. Prefer ramps and stairs to automated transport devices	Use ramps and stairs to access lower floors of the building in addition							

	transport equipment within the building.		to mechanized transport							
		25. Use low-consumption or energy-generating automated equipment	Automated equipment has low-consumption or energy generating labels or information							

Criteria	Total Criteria	Matched criteria
Total	25	
Design	19	
Implementation	06	
Plus		

9 SPATIAL QUALITY AND WELL-BEING

This chapter aims to evaluate how the project design incorporates spatial concepts which encourage sustainable behavioral habits that respect natural surroundings.

It also offers criteria to assess the passive air-conditioning design for tropical climates, to ensure comfortable temperatures, air circulation, and natural light for the benefit of the building's users.

This chapter also includes some considerations regarding potentially hazardous emissions from certain materials.

Nota. Before assessing criteria in this chapter see appendix A.

Spatial quality and well-being		Requirements		Evaluation			Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category	Results	Plus points		
8. Provide an atmosphere that encourages personal well-being and productivity and brings users closer to nature	Design pro-environment spaces	1. Develop a spatial design that encourages interaction between people and the environment	The building incorporates elements such as patios, terraces, balconies, corridors, gardens, plant nurseries,					
		2. Develop a spatial design that creates intermediary spaces between interior and exterior that attenuate harsh weather conditions	The building incorporates intermediary spaces such as entryways, vestibules, corridors, patios, galleries, and elements providing vertical and horizontal circulation					
		3. Develop a spatial design that takes into consideration the traditional architectural typology of the region	The building incorporates architectural elements from vernacular building that have traditionally functioned in various regions.					
		4. The design incorporates spaces that encourage integral waste treatment	The building has spaces to separate, treat, and recover waste					

Spatial quality and well-being		Requirements		Evaluation					Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points		
	Favors user's comfort through passive means	5. The design utilizes passive strategies	The design incorporates climatic analyses such as diagrams, matrix, schemas, tables, simulations,							
		6. Position the building in a way that optimizes existing resources of sunlight and predominant winds for passive space conditioning	Possess an emplacement analysis showing the balance between the sun's path and wind directions							
		7. Use shade as an air conditioning element to realize a comfortable interior half-light	Use elements such as roofs, eaves, screens, awnings, parasols, lattice works, or any other efficient method. Avoid reflective surfaces in areas with high solar incidence.							
		8. Use elements that mitigate the effects of sunlight, heat, wind, noise, and humidity for the façade, roof coverings and eaves	Use compound facades or screens to achieve passive air conditioning in the building and/or determine the orientation, composition, inclination, and length of coverings according to climatic conditions							
		9. Where glass surfaces are exposed to direct sunlight, use materials that minimize their impact.	Use double panes, insulated glass or heat absorbing films, ~~etc.~~							

Spatial quality and well-being		Requirements		Evaluation			Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category	Results	Plus points		
		10. Use vegetation to mitigate the effects of temperature, humidity, and contamination.	Incorporate patios, gardens, living roofs or walls and any other plant element with characteristics such as the ability to remove chemical vapors, easy growth, low maintenance, resistance to pests and transpiration					
		11. Determine the comfort zone based on the user's activity and dress	Apply the tolerance limit to temperature and relative humidity for people in the tropics (28°C and 80% RH)					
		12. Reduce the heat island effect	Use roofing and ground coverings with low heat absorption levels					
		13. Isolate the floor from the ground to control humidity and heat transfer, and allow for the free passage of ~~runoff~~ rainwater and biodiversity	Elevate the building in proportion to its environment					
		14. Use water to regulate temperature and comfort, without generating humidity for zones with high humidity	Incorporate water in air conditioning systems (temperature)					
		15. Within the design, use the concept of thermal mass when daily differences in temperature make it advantageous	Use walls and volumes to cool and/or heat the building through heat absorption and release, using the sun and climatic sources to control temperature					
		16. Where the climate makes passive comfort impossible, prefer the use of fans to help generate ventilation in the building's spaces.	Use energy efficient and low maintenance fans.					

Spatial quality and well-being		Requirements		Evaluation				Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points		
	Reasonable use of mechanical systems for thermal comfort	17. Use energy efficient equipment that minimizes emissions of pollutants into the atmosphere	Use equipment that meets national standards for energy efficiency and contains no halogenated refrigerants.							
	Provide natural light in the building	18. The design provides for natural light within the building while avoiding the direct penetration of sunlight	The building can operate normally without artificial light during daylight hours when climatic conditions permits it							
	Provide natural ventilation in enclosed spaces	19. Ensure comfort through natural ventilation	Generate cross ventilation using non-contaminated vents, ensuring that wind velocity does not alter correct execution of the foreseen activity for each space.							
	Provide users with a visual connection to the outside environment	20. The design offers users a visual connection with the external environment through windows and other openings	Regularly occupied, internal spaces possess a direct line of vision to the exterior, ensuring that the depth/height proportion offers external visibility from the critical point							

Spatial quality and well-being		Requirements		Evaluation					Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points		
	Control noise pollution between various spaces in the building	21. The building utilizes soundproofing elements	Incorporate solutions that insulate users from noise from the environment, neighbors, or other spaces so that it does no interfere with the projected activities.							
9. Increase the building's range of adaptability to the user's advantage, enabling them to control light, ventilation, external noise and privacy, and encouraging responsible consumption habits	Allow users to control comfort in the spaces they occupy and increase awareness about consumption habits	22. Provide accessories, mechanisms and controls that allow users to control and visualize their energy consumption and avoid excessive centralization technologies	Provide thermostats, sensors, graphics, meters, switches, dimmers, and other means of control in easy access to users							
		23. Give users a high level of control over the temperature and ventilation in the various spaces (control of vents, openings, shade)	The ventilation and lighting systems include conveniently placed controls allowing users to control comfort							

Spatial quality and well-being		Requirements		Evaluation			Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category	Results	Plus points		
10. Create pollutant-free spaces	Use finishes and materials with low-emission of toxic pollutants and VOC (volatile organic compounds) that can have harmful effects on user's health or cause irritating odors	24. Use paints, coatings, mats, adhesives, sealants and agglomerates with low VOC levels and that do not emit harmful chemicals that can cause health problems for users	The materials used do not emit toxic or poisonous substances, using the list below as a guide: CFC`s, neoprene, formaldehyde, halogenated flame-retardants, HCFC`s, lead, mercury, petrochemical fertilizers and pesticides					
		25. Use construction methods that ensure mitigation, control, or elimination of material emissions	Possess procedures that identify building materials and processes that can result in breathable particle emissions and respective avoidance measures					
	Eliminate tobacco smoke from the environment	26. Possess anti-smoking policies and programs	Smoking is allowed only in spaces with external air that is not re-circulated or in separated, pressurized spaces					

Criteria	Total Criteria	Matched criteria
Total	28	
Design	18	
Implementation	08	
Plus points		

10 SOIL AND LANDSCAPE

This chapter assesses the project's propositions regarding biotic elements in its environment such as genetic information and existing biodiversity as well as proposed means of environmental conservation and development.

Soil and landscape		Requirements		Evaluation				Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points		
11. Conserve and recover soils and habitats	Avoid soil substitution	1. The design uses a system of foundations that minimizes the need for soil substitution	Documented evidence showing use of alternative methods for building foundations							
	Project zoning takes into consideration soil conservation and habitat recuperation	2. Reduce or avoid moving dirt, leveling and other interventions to the natural terrain	The project design maintains 70% of green areas and 40% of construction zones without modification, including access areas							
		3. Conserve visual scenes in the existing landscape. Adapt the building to existing vegetation.	Conserve at least 80% of trees measuring over 25 cm in diameter and 3 m in height							
		4. Reserve an area for reforestation and habitat recovery in case of deforestation or interventions to natural habitats	Compensate with an equal surface of reforestation with equivalent native species							
	Reduce/avoid soil loss, erosion, and contamination	5. Control soil erosion and sedimentation.	In cases of erosion or sedimentation use plant-based systems to stabilize embankments.							

Soil and landscape		Requirements		Evaluation			Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	**Concept**	**Criteria**	**Reference value to match**	**Criteria by category**	**Results**	**Plus points**		
	during the construction process	6. Use building processes that ensure mitigation, control, and elimination of soil pollutants.	Documented evidence that soil pollutants have been identified and the respective means of control have been applied.					
		7. Conserve the existing, organic soil during the construction process through a system of recuperation, storage, and re-use	Conserve at least the equivalent to the area of building coverage					
12. Incorporate, conserve and recover the biotic environment (flora and fauna)	Incorporate landscape as a design resource that preserves the biotic environment and favors biodiversity	8. Apply landscape design concepts that favor ecosystems and biodiversity, considering the local biotic zones	Include at least two habitats that favor the development of local species.					
		9. Consider the continuity of existing species of vegetation (except species harmful to the local ecosystem) and the form, texture, variants, height and breadth of endemic species	Visually highlight in the landscape design at least two native species					
		10. Ensure maximum density of plant coverage, avoiding monocultures	Organize distinct strata of vegetation in the area to make the best possible use of available space					
		11. Design perimeter and intermediary enclosures incorporating plant cover	The entire enclosure system uses some type of plant coverage, with the exception					

Soil and landscape		Requirements		Evaluation					Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points		
			of access points							
		12. Use native species or exotic species adapted to the local biotic environment	90% of species used in project design are native or adapted exotic species							
		13. Generate biological corridors where the project permits	Detect at least one biological corridor allowing passage for at least two species important to the ecosystem							
		14. Limit and control the introduction of invasive species	Include a plan to deal with invasive species present within the project							
13. Control agrochemicals to avoid soil contamination	Avoid using fertilizers, herbicides, pesticides or other chemical additives that are harmful to the environment or human health	15. Design the project so that it favors organic farming and optimizing cultures	Specific areas within the project are reserved for activities like composting and optimizing cultures							
		16 Implement a system to produce fertilizer and pesticides on site.	Fertilizers and pesticides are made from waste generated by the project							
		17. Possess a blacklist of pesticides to avoid because they contain harmful chemicals for health and the ecosystem.	The blacklist shows that chemical components containing the following substances were not used in the project: paraquat, endosulfan, methomyl, terbufos, methamidophos, phorate,							

Soil and landscape		Requirements		Evaluation			Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category	Results	Plus points		
			organophosphate insecticides, carbofuran, ethoprophos, aldicarb, chlorpyrifos and methyl bromide					
14. Minimize watering/irrigation	Avoid using drinking water for irrigation/ watering	18. Introduce and utilize species adapted to rainfall patterns in the region	Show proof that the species used are adapted to the region's rainfall patterns					
		19. Use efficient watering/irrigation techniques and treated water	Possess efficient watering/irrigation equipment (for example drip or sprinkler systems) and demonstrate that treated water is being used.					

Criteria	Total Criteria	Matched criteria
Total	**19**	
Design	11	
Implementation	08	
Plus		

11 MATERIALS

This chapter assesses the use of environmentally friendly materials in the project.

It gives preference to local materials, optimal use of resources through efficient design, and selecting materials with a low ecological footprint, a quality that will most likely be authenticated by an eco-label in the near future.

Additional criteria recognize strategies to recover existing materials on site and manage waste produced by the construction process.

Materials		Requirements		Evaluation			Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category	Results	Plus points		
15. Consider the life cycle of the building and its components	Recover and re-use existing construction materials and components	1. Take advantage of materials and components from an existing building on or around the project site	Possess photographic proof of the source for at least 2% of materials and components.					
		2. Include materials and components from existing buildings within the country	Possess objective proof of acquisition for at least 2% of the total amount of materials and components used in the building					
		3. Design for easy dismantlement of the building components to allow for re-use and recycling	At least 20% of finishings and 10% of building components are designed to be dismantled					
	Adequate management of waste produced by the building process in	4. Separate a percentage of rubble and material left over from construction and demolition for recovery or recycling	25% of waste materials and elements are set aside for recycling or recovery (cement-based materials, wood, metal, cardboard, glass, etc.).					

Materials		Requirements		Evaluation				Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points		
	order to reinsert recyclable materials into the production process and thus reduce material sent to landfills	5. Coordinate with local recycling programs and take recyclable waste to collection centers or appropriate places for recovery, thus increasing the life cycle of materials	Possess documented evidence that 100% of recycled materials and elements were sent to collection or similar centers							
	Reduce the use of materials through efficient design	6. Use modular design strategies to reduce waste (**Note:** Consult the national standard for modular coordination)	Building dimensions were defined based on at least two of the following relevant components: roofing, enclosures, mezzanines, internal divisions							
		7. Use lightweight building materials to reduce the weight of the building	Present documented evidence that the building design gave preference to lightweight materials for at least two of the following relevant components: structure, roofing, enclosures.							
		8. Favor recycled and/or recyclable materials, reducing the demand for virgin materials	At least one of the relevant materials used for the structure, enclosures or finishings is made of recycled components							

Materials		Requirements		Evaluation			Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category	Results	Plus points		
	Extend the building's life cycle	9. Consider the building's flexibility for use in the future, so that it can be redeveloped and used for different purposes	60% of internal dividing walls are independent from the building's main structure and shell					
		10. Incorporate strategies to properly protect exposed parts of the building, using materials that don't have to be replaced frequently	Show the chosen strategy in the design and/or construction.					
		11. Choose low-maintenance finishings that are easy to clean	At least 30% of the area of components with finishings is low maintenance and easy to clean					
16. Use environmentally friendly materials	Use local resources and materials, supporting local economies and reducing the ecological footprint left by transportation	12. The construction materials and products used were extracted, harvested, or made in the country	At least 60% of the materials used are of national origin					

Materials		Requirements		Evaluation			Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category	Results	Plus points		
	Use materials with eco-labels or carbon footprint declarations	13. The materials used are certified by a third party	At least 2% of building products are certified	this criterion only applies for plus points				
	Use wood issued from responsible cultivation to avoid extracting species from natural growth forests	14. The wood used is certified by the competent authority	100% of wood used in the project is certified					
		15. Use plant-based products from renewable sources with short re-growth cycles (25 years)	Of the total volume of plant-origin materials not incorporated into the building, 100% comes from plants with short re-growth cycles					

Criteria	Total Criteria	Matched criteria
Total	**15**	
Design	07	
Implementation	08	
Plus		

12 WATER EFFICIENT MANAGEMENT

This chapter assesses the efforts made in the project's design and management to address the following three aspects of water usage: reducing drinking water consumption and increasing user's appreciation of water, proper treatment of wastewaters, and efficient management of rainwater.

Water management		Requirements		Evaluation			Climate/ infrastructure factor	Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category	Results	Plus points			
17. Reduce potable water consumption	Use combined strategies to reduce potable water consumption and the demand made on the public water supply system.	1. Reduce the provision of potable water by recycling gray waters or utilizing treated water for irrigation/watering	Present calculations showing that potable water consumption is reduced by 20% per year by recycling gray waters or utilizing treated water for irrigation/watering .						
		2. Reduce provision of potable water by collecting rainwater	Present calculations showing that drinking water consumption is reduced by 20% per year by collecting rainwater						

Water management		Requirements		Evaluation				Climate/ infrastructure factor	Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points			
		3. Choose water efficient sanitary elements and faucets	Reduce potable water consumption by at least 30% from the usual rate.								
	Take measures to inform / educate users about potable water consumption and raise awareness about how to save water	4. Incorporate in the building design elements that raise awareness about water as a resource	Place architectural elements that demonstrate the project's water efficiency strategy where user's can see them								
		5. Install equipment to monitor or control consumption by sectors	Establish water usage reports by sector that show improvements in water efficiency every semester.								
18. Proper treatment of wastewater	Reduce the discharge of waters to external rainfall drainage and sewer systems	6. If there is no available sewer system or treatment plant, use on-site waste treatment	Where necessary use improved septic tanks, biodigesters, treatment plants, and gravity operated evacuation systems or efficient pumps if not possible								

Water management		Requirements		Evaluation					Climate/ infrastructure factor	Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points			
		7. Filtration is realized with the help of phytodepurifyng plants	Use geotextiles or any phytodepurifyng species								
	Reduce wastewater contamination	8. Design systems that do not mix rainwater and wastewater	Prove through drawings that the two systems do not communicate								
		9. Avoid contamination to potable water sources	Prove through drawings that the treatment system prevents the transit of pollutants into sources of potable water								
		10. Realize analyses of the water and waste products generated by the treatment system (where a treatment plant exists)	Possess a laboratory report showing analysis results for the effluent and proving that legal requirements are satisfied								
		11. Maintain wastewater systems according to the indications provided by the manufacturer	Set up protocols for planning and realization of required maintenance tasks								

Water management		Requirements		Evaluation				Climate/ infrastructure factor	Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points			
19. Adequate rainwater management	Ensure infiltration and/or reuse rainwater	12. Do not block the natural passage of rainwater into superficial waterways or drainage systems	Design allows for the constant flow of rainwater into the public drainage system or natural bodies of water								
		13. Allows rainwater to infiltrate into the subsoil (paving, roads, open space).	At least 20% of the area in which the project intervenes.								
		14. Consider rainfall variations during extraordinary events when choosing the dimensions for the rainwater drainage conduits	Consider using over-sized diameters for the evacuation conduits for a 10-year return period								
		15. Periodically discharge rainwater using strategies to slow velocity and volume of output	Possess a flow delay mechanism in accordance with the dimensions required by the water efficiency calculations report								

Criteria	Total Criteria	Matched criteria
Total	15	
Design	11	
Implementation	04	
Plus		

13 ENERGY OPTIMIZATION

This chapter assesses the project's use of clean energy sources and the strategies used to reduce consumption through energy efficient equipment and effective management of light ~~within~~ in the building.

Energy performance		Requirements		Evaluation					Climate/ infrastructure factor	Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category			Results	Plus points			
20. Prefer renewable and clean sources of energy	Use renewable, non-combustion, and low GHG emission forms of energy	1. The renewable energies used are generated through clean sources such as the sun, wind, water, biomass, geothermia, electrolysis, and hydrogen-based molecular injection (nuclear and/or combustion-based energies (GHG) are not acceptable).	The project obtains its energy from renewable energy providers; has signed a contract with energy providers to produce energy on site (*according to a study of economic feasibility*)								

Energy performance		Requirements		Evaluation			Climate/ infrastructure factor	Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category	Results	Plus points			
		2. Hot water production relies on renewable energy sources.	Possess the appropriate equipment						
		3. Design spaces to dry clothing, ~~etc.~~ in a passive manner	Possess area with air circulation and solar radiation gain						
21. Reduce energy consumption and raise awareness about energy performance	Optimize energy performance using efficient equipment according to function	4. Use equipment that meets energy efficiency standards	The highest energy consuming functions all meet the standards for energy efficiency.						
		5. Possess mechanisms to monitor "passive consumption"	All equipment used intermittently possesses control mechanisms for "passive consumption"						
	Design the artificial lighting system to be efficient and varied according to different spaces, uses, and requirements to reduce	6. Design artificial lighting circuits in complement to natural illumination	50% of the building's surface area can function normally without artificial lighting from 7:00 to 17:00						
		7. Install exterior lighting that minimizes disturbance to the nocturnal ecosystem	Use reflectance techniques and equipment that does not send radiation into ecosystems or the night sky						

Energy performance		Requirements		Evaluation			Climate/ infrastructure factor	Assessor's observations	Documented proof and reasons for NON-APPLICABILITY
Objective	Concept	Criteria	Reference value to match	Criteria by category	Results	Plus points			
	energy consumption.	8. When artificial light is required, it is designed to ensure the projected activity can be carried out correctly	Living spaces satisfy the national standard INTE 31-08-06 for illuminance and lighting in workplaces						
		9. Use lighting technology that generates low harmonic content	The harmonic distortion values ensure that they do not interfere with functioning of other equipment and satisfy the specific national standard or the norm *IEC* 61000						

Criteria	Total Criteria	Matched criteria
Total	09	
Design	02	
Implementation	07	
Plus		

14 CORRELATION

This set of standards does not correspond to any specific international standard, as there were no existing standards at the time of its development.

The contents of RESET is based on a norm developed in Costa Rica by the Tropical Architecture Institute (IAT), which aims to extend sustainability requirements to a large range of structures and focuses on architecture's design capacity and potential for ensuring sustainability.

The Institute for Tropical Architecture donated these standards to the country so that they could be established as the national standard through the competent authorities

The multidisciplinary team from IAT responsible for developing the basic RESET document was made up of the following professionals:

Architects: Bruno Stagno, Jimena Ugarte, Pietro Stagno, Luz Letelier, Andrés Castro, and Karla Venegas.

Energy and transport: Roberto Jimenez, Saúl Kierszenson and Esteban Bermúdez (engineers).

Environmental studies: Daniel Loria (biology), Daniel Murillo (geology).

Collaborators: Juan Robles, Minor Martín, Alejandra Arguello, Adrian Bonilla, and Alberto Guillen (architects)

INSTITUTO DE
ARQUITECTURA
TROPICAL
COSTA RICA

ANNEX A (Informative)
Context assessment worksheet for climate

We recommend that assessors complete the following context worksheet before carrying out the evaluation of spatial quality and well-being in chapter 9 in order to determine if the passive air conditioning strategies are appropriate.

Context assessment worksheet				
			Criteria	**Parameters[3)]**
Climatic factors	Average conditions and resources according to climate [2)].	1	Climate zone where the project is located (According to the revised Holdridge life systems)	Tropical thorn woodland
				Tropical very dry forest
				Tropical dry forest
				Tropical moist forest
				Tropical wet forest
		2	Average precipitation in annual mm/m^2 (resource potential in mm/m^2)	0 to < 1 500 mm/m2 (L/m^2)
				1 500 to < 2 500 mm/m2 (L/m^2)
				2 500 to < 3 500 mm/m2 (L/m^2)
				3 500 to < 4.500 mm/m2 (L/m^2)
				Over 4 500 mm/m2 (L/m^2)
		3	Average hours of sunlight/year (resource potential in h/years)	0 to < 600 h/year
				600 to <1200 h/year
				1200 to <1800 h/year
				1800 to <2400 h/year
				Over 2400 h/year
		4	Average wind velocity and consistency (resource potential)	0 to < 1 m/s
				1 to < 3 m/s
				3 to < 6 m/s
				6 to 9 m/s
				Over 9 m/s
		5	Percentage of days per year when the average nighttime temperature is at least 10° C lower than the average daytime temperature	0 to <10%
				10 to <25%
				25 to <50%
				50 to <75%
				75 to 100%
		6	Relative humidity	0 to <40%
				40 to <55%
				55 to <70%
				70 to <85%
				85% to 100%
		7	Length of dry season	0 to <2 months
				2 to <4 months

Context assessment worksheet				
			Criteria	**Parameters**[3)]
				4 to <6 months
				6 to <9 months
				9 to 12 months
		8	Evapotranspiration	Over 2000 mm
				Over 1600 mm to 2000 mm
				Over 1200 mm to 1600 mm
				800 mm to 1200 mm
				Less than 800 mm