CONSTRUCTION GUIDE

A guide to best practices for building your dream home in Nosara

Do your part to minimize your impact by following this guide!

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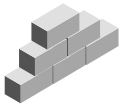
1. **PROPERTY**
   The environmental limitations of your land

2. **DESIGN**
   The characteristics of your building project

3. **MATERIALS**
   The type of materials you use to build



4. **BUILD**
   The steps of the construction process

5. **FURNISHING**
   The final touches inside your building

6. **MAINTENANCE**
   The upkeep required for long-term sustainability

WELCOME TO NOSARA!

Dear Changemaker,

If you've purchased property in the area, congratulations! You are joining a community that strives to live in balance with nature. **The first 200 m of coastline here is protected by the Ostional National Wildlife Refuge, a world-renowned nesting site for the olive ridley sea turtle.** The surrounding 5 km of buffer zone, including Guiones and Nosara, is essential to protecting the native ecosystem and wildlife.

Building sustainably in Nosara means you should consider the environment as well as the local culture and economy when making decisions about the design of your home. While some regulations exist to protect this special place, there is currently little enforcement or oversight due to limited funding and resources. Which means **it's ultimately up to you to self-regulate and be a responsible homeowner or developer.**

There are many things to be mindful of throughout the process of purchasing a property, designing and building your home. Here at the WCA, **we've considered existing and proposed regulations, scientific studies and sustainability goals to determine best practices that will protect sea turtles and other wildlife from the impacts of development**. The following guidelines are meant to provide a roadmap to mitigating the potentially harmful implications of your project.

We hope this guide will help you to make environmentally-minded decisions and allow you to have a more positive impact on the local community.

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Inspiring sustainable communities through research, community outreach, and immersive educational experiences.

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PROPERTY

DOCUMENTATION AND UTILITIES

First, make sure you have the following in order:

- [x] Clear property title
- [x] Property limits checked with a surveyor
- [x] Access to water and electricity

TOPOGRAPHIC SURVEY

Determines elevation and other natural features of your property

- [x] Build on elevated areas
- [x] Consider the flow of rainwater in your design
- [x] Get a license if you are moving 200+ sq m of soil

SOIL STUDY

Determines soil percolation rates and space required for wastewater treatment

- [x] Conduct in the rainy season (or assume slower percolation rates)
- [x] Make sure you leave enough space for the required septic drainfield

TREE SURVEY

Determines tree species living on your property

- [x] Check here for protected tree species that are illegal to cut
- [x] Minimize tree cutting, especially where trees connect to other forested areas

BUILDING TIP

Avoid filling or building in flood zones, plan for drainage and grade your lot in a way that allows water to flow naturally during heavy rainfall

LOT SEGREGATION & DEVELOPMENT

- Segregate into large plots (1,000+ sq m) to leave room for efficient septic systems
- Plan parklands to connect habitat with neighboring properties
- Register your property with an environmental easement (Servidumbre Ecológica)

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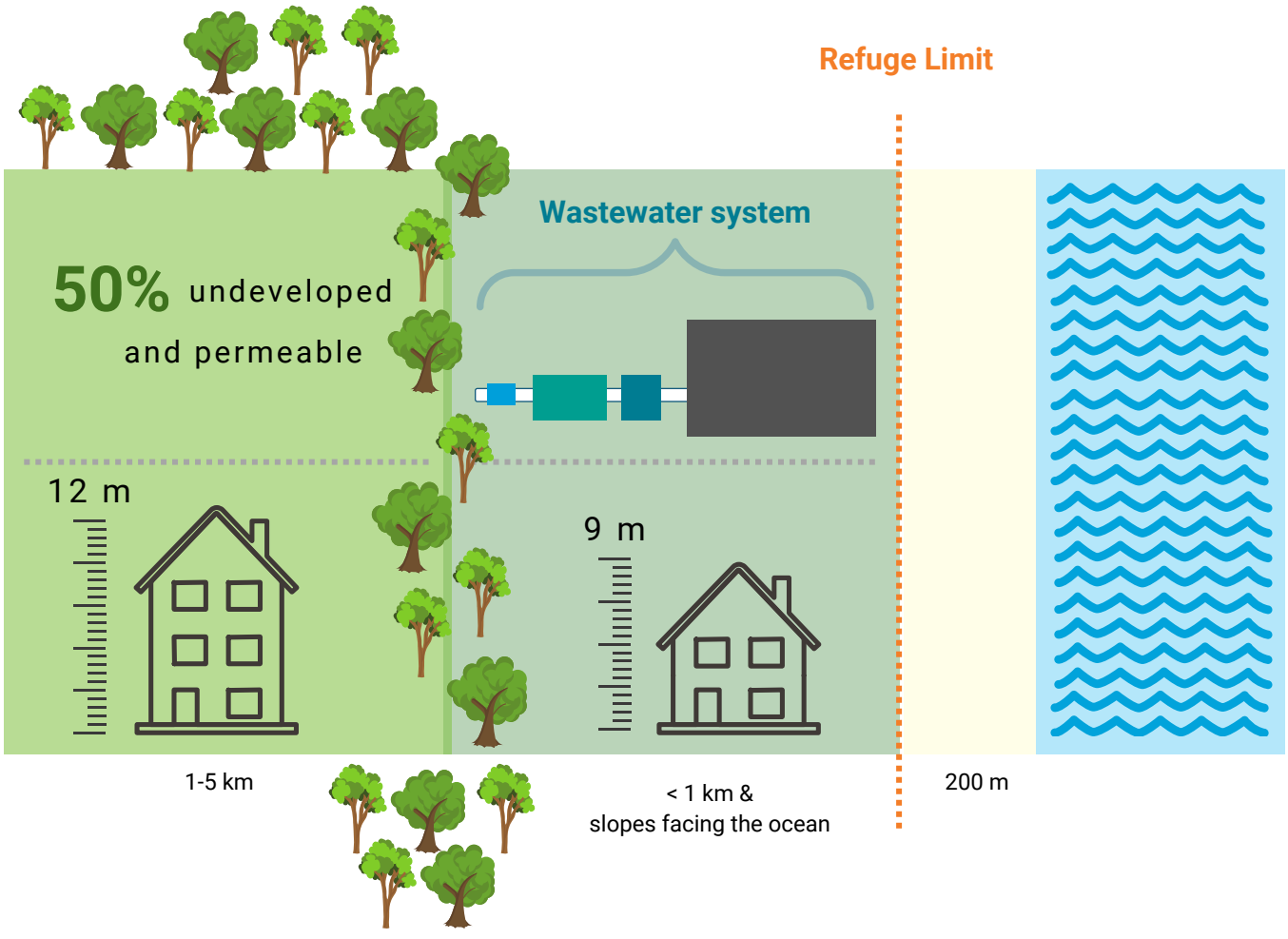
DESIGN

FOOTPRINT & BUILDING HEIGHT

- Leave 50% + of your property undeveloped and permeable to rainwater to ensure enough space for future maintenance and water management
- Elevate off the ground to reduce the impact of moving earth, reduce moisture, and improve ventilation
- Leave green areas that connect to neighboring habitat
- Designate space for a septic drainfield, where there are no trees or driveway and 30+ m from nearby wells or streams
- Limit building height to stay below the tree line and reduce light pollution



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DESIGN

ARCHITECTURE

- [x] Build on an east-west axis with windows that allow cross-ventilation by northeast winds
- [x] Use double-pane windows and avoid windows on the west-facing side to keep the heat out
- [x] Include large roof overhangs (60+ cm) to keep the sun off windows and protect from rain
- [x] Limit exterior lighting features, use motion sensors, low-mounted or covered fixtures to reflect light downward and reduce light pollution
- [x] Include overhead fans in all spaces and limit enclosed spaces with AC units to save energy
- [x] Include tall vaulted ceilings that are vented near the top of the wall to allow heat to escape
- [x] Plan for grey or rainwater collection, solar energy or a solar hot water heater

BUILDING TIP

Consult with local companies specialized in LEED, EDGE, or Bandera Azul certifications to ensure you minimize the impact of your build.

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MATERIALS

As a general rule of thumb, always choose materials that are:

- low-maintenance
- durable
- non-toxic
- locally-sourced
- humidity-resistant
- anti-corrosive
- pest-resistant

DID YOU KNOW?

These choices will save you money and decrease your carbon footprint, but are also more easily sourced and workers are familiar with them.

LOCAL OPTIONS

Teak is pest resistant, durable, and locally available.

Bamboo is pest resistant and durable, but sourced from farther away.

Recycled materials or **reclaimed wood** are a great option, especially for details such as countertops, decking, fencing or roofing.

Natural stone is a great, locally-sourced option for aesthetic accents.

Cellulose or recycled insulation is a more sustainable alternative to fiberglass or styrofoam.

Shipping containers or other **pre-fabricated** homes greatly reduce waste, construction time, and the overall impact of your build but you'll need to insulate and ventilate to reduce long-term energy requirements.

Clay or earth blocks are a sustainable alternative to concrete, if you can find a builder with experience using these materials.

Concrete, although not the most sustainable option (it requires a lot of water), cement is produced here in Costa Rica, requires less maintenance and is a great insulator from the heat.

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BUILD

GENERAL TIPS

- ☑ Don't allow construction workers to live on-site
- ☑ Include additional measures in your construction contract that establish clear rules and penalties for failure to comply
- ☑ Hire a project manager with no conflict of interest to provide proper oversight, especially if you will be absent

SOLID WASTE

- ☑ Require separation of construction waste and regular disposal
- ☑ Ensure no trash is burned on-site or sent to illegal dumps
- ☑ Require a thorough post-construction clean up of trash and cement from the site and surround area

DID YOU KNOW?

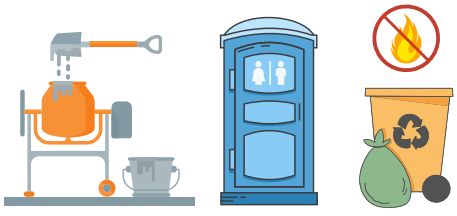
Construction in the area can create a disturbance to neighbors and local wildlife for up to 14 hours a day, 7 days a week and generates substantial solid waste and water pollution.

NOISE & LIGHT POLLUTION

- ☑ Restrict noise and lighting before 7 am and after 5 pm
- ☑ Restrict or forbid construction work during the weekend

WATER CONSUMPTION & POLLUTION

- ☑ Start building in the rainy season to save water usually used to cool concrete in the dry season
- ☑ Install a portable toilet or pre-built wastewater system for workers to use
- ☑ Bury mesh fencing around the site to contain soil and construction waste
- ☑ Fill your pool with water brought in by a truck to avoid interrupting the local water supply



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FURNISHINGS

The same rule of thumb applies here as for building materials, but here are some extra features to look for in the finishing touches:

WATER

- ☑ Pick water-saving showers, faucets, and toilets
- ☑ Install a water tank and water filtration system
- ☑ Reuse grey or treated water for drip irrigation
- ☑ Install a wastewater treatment system or other additional treatment steps after your septic tank (such as a biogarden)

ENERGY

- ☑ Install solar energy panels or a solar water heater (alternatively, use small heaters that only heat what's needed)
- ☑ Pick energy efficient appliances and light fixtures
- ☑ Install electricity supressors to protect appliances from electrical surges
- ☑ Install amber LED bulbs to save energy and reduce light pollution
- ☑ Install smart plugs, features and timers to manage energy use

FURNISHING

- ☑ Pick locally-made wood and metal furniture pieces
- ☑ Buy artwork from local artists

LANDSCAPING

- ☑ Plant shade trees to keep your house cool
- ☑ Plant a native garden, find species at www.pronativascr.org
- ☑ Substitute grass with a rock garden and succulent plants to reduce water use
- ☑ Use permeable pavers or gravel for your driveway so water can infiltrate into the ground
- ☑ Get a compost bin and trash container to properly separate waste

DID YOU KNOW?

Native plants support the basis of the ecosystem, providing food for local birds and insects, and are also better adapted to survive the dry season, requiring less water.

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MAINTENANCE

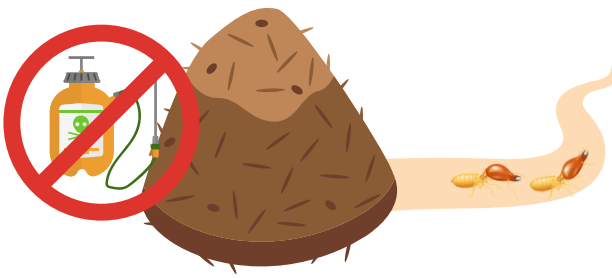
GENERAL TIPS

- Trim back tree branches touching the roof at least twice a year to avoid attracting termites and add monkey bridges where you leave gaps.
- Keep the area around your septic tank clear of large trees and impermeable surfaces.
- Ventilate your home well in the rainy season, use the "dry" feature of your AC unit or other dehumidifier to prevent mold growth.
- Clean your gutters at least twice a year to remove leaves that might clog and cause rain to leak into your home.
- Clean your grease trap every 3 months and your septic tank every 2 years.
- Check for and remove termite trails leading from the ground to your building, and use lavender oil to treat wood that is attracting termites.
- Don't use pesticides, herbicides or fungicides. Sprinkle some Diatomaceous Earth powder as an all-around natural insect deterrent.

DID YOU KNOW?

Tropical climate can be tough on your home. Proper maintenance will reduce your long-term impact by avoiding the need for renovations and the generation additional waste.

Learn about and support local non-profits here!
Many in the area do essential work due to the government's limited funding and resources.



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Want to keep your home sustainable long after it's built?
Check out our ocean-friendly home guide!

Want to learn more about wastewater management in Nosara?
Check out our extended wastewater guide!

Interested in learning more about our biodiversity program?
Visit our story map!

Concerned about the environmental impact of your home or construction? Book a consultation to identify trouble areas and find solutions that are right for you. Email us at **info@wcanosara.org**

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