



## BALI WOODEN PREFAB HOUSES,..... (or are they ????)

*Dear visitor,*

*You should take some time to read these pages. In particular paragraph G: "Ordering Guidelines" is an eye opener, protecting you from buying a pig in a poke when following these guidelines. The narrative posted here is a recapitulation based on own experiences, reports from customers, articles in the local media, internet articles and regulations implemented by the Indonesian Government. Before you start reading we need to make sure that you do not mistake our company for another Balinese company with a company name similar to our company name. We are BALI PREFABWORLD. The other company is Bali Prefab. There are no connections and/or commercial interests whatsoever between the 2 companies. Both companies are stand-alone and fully independent.*

### A. PREFACE

It is said that imitation is the sincerest form of flattery. In the world of **BALI PREFABWORLD** © which is in the center of wooden Prefab Housing fabrication in Indonesia (read Bali) where it all happens, there are a number of knock-off companies that feel that our designs and innovative ideas are the ones to imitate and copy. Of course, buyers should be aware that copying the external appearance of a design does not mean that someone who lacks formal engineering training would properly copy the important details such as the structural connections, beam sizing, truss design (in particular for hurricane prone areas), the foundations and the important connections to the superstructure.

In this light **BALI PREFABWORLD** © would like to clarify a few major differences with its structures, design approach, work methodology, detailing and the licensing compared to the so-called "Bali Wooden Prefab Bali Houses" knock-off companies which are advertised in abundance on the internet.

### B. BALI PREFABWORLD OPERATION

**BALI PREFABWORLD** © is a fully independent and legitimate wooden prefab house designer and builder since 1998, having all required papers in place to guarantee that all of our timbers are legal and that we are legally accredited to design, build and export our houses. Our staff comprises expert expatriate engineers, architects and local draftsmen, a senior field supervisor and senior field staff. We have ensured ourselves from backstopping services by 2 renowned USA based Professors (structural and architectural) to review our designs in detail prior to submission to the building authorities. We produce our houses in full compliance with internationally recognized codes and standards (i.e. the International Building Code, adapted for use in most countries), whether the unit will be built in a cyclone zone and/or earthquake zone or both. Our senior University level management with 50 years of international experience in wood prefabrication will ensure that the proper technique is applied for the structural and non-structural elements. Doors and windows are designed and built to international standards and come with fully integrated weather sealing systems, a rainwater runoff system, tempered glass or safety glass where required, along with high quality imported stainless steel hardware. We only use the highest quality finishing products which include either a water based Acrylic, an environmental friendly polyurethane coating (Sikkens Cetol), an Acrylic coating or French polishing (interior only). All finishes are applied as per the manufacturer's specifications.

We have a full customer support system in place and will issue a written and notary signed warranty for all of our materials and workmanship.

To ensure that our homes can be re-assembled with minimum effort and with only some basic DIY



experience we have developed a unique re-assembly system eliminating all nails and instead using cut to length threaded steel rods with nuts and washers, screws fitting in the pre-drilled holes and lag bolts. Comprehensive and detailed 3-D assembly drawings are submitted referring to all timber components (similar to an IKEA © kit). No need to engage a contractor. On request we outsource crew to help and advise you with the re-assembly.

### C. DESIGN PARTICULARS

Most building authorities in the world, in particular counties in the USA, now require that drawings and structural calculations be submitted for a building license for a dwelling of any size which has been prefabricated in foreign countries. While some counties and/or authorities may be lenient as to the requirement of structural calculations, based on the size of the house, all Hawaiian counties and some USA main land counties strictly adhere to this regulation. Our company is able to produce the calculations in compliance with the latest USA codes including the amendments which may differ from county to county.

Our structural calculations are prepared with STAAD PRO v8i, a state-of-the-art finite element computer program, fully recognized and accepted by all counties in the USA and most, if not all, other countries in the world. The structural reports that we submit are based on the results of the computer calculation and include the analyses for maximum allowable deflections, displacements, forces and stresses in accordance with ASCE, ACI, AASHTO, AITC or any other USA codes. Our reports are very detailed and are normally approved by the building authorities without a hitch. Many wooden prefab house manufacturers in Indonesia are unable to submit such documentation due to lack of background and or formal engineering knowledge and training.

For the Hawaiian islands special and particular regulations are in place. To read click:

<https://www.baliprefabworld.com/special-hawaii-applications>

### D. SPECIFICATIONS

Many knock-off companies in Bali or in other places in Indonesia offer cheap wooden prefab houses. Due to lack of sufficient technical background (or no background at all !!!) these houses are built with inferior timber species, such as the lower class Keruing, Bayur and Coconut for main structural elements, and Meranti, Albisia, Cempaka and/or Balinese mahogany (Suar) for other structures. The timber sizes used are far from international recognized standards and as such structural integrity will be heavily compromised. Building such houses in - say - the hurricane belt will guarantee that you will end up in a search and rescue operation of your house in the Caribbean Sea. We use Bangkirai for structural components and Bangkirai or Merbau for the outer skin (exterior sidings and flooring) of the house and either Bangkirai, Merbau or Camphor, or a combination thereof for the inner skin (interior sidings). We properly kiln dry our boards to 10% moisture content, something totally ignored by these knock-off companies leaving your sidings and flooring in a state of war after a few months (warped, cracked and distorted). In addition, the inferior wood species used by these knock-off companies are largely susceptible to termite attacks, fungus and bugs. The untrained customer eye tends to look at appearance only and a first impression is most likely the catalyst to buy. However, by not exercising a little study and homework the customer may well overlook the banana peels and will shoot himself in his own foot. *"The bitterness of poor quality remains long after the sweetness of a low price is long forgotten"* [Benjamin Franklin]. The customer shall at least verify whether the house he or she intends to buy conforms to his country's standards, codes and requirements. There are examples of wooden prefab houses bought in Indonesia that did not pass the test in the country of destination and were rejected, re-loaded into the container and shipped back at the owner's cost.

The flooring of houses built by such inexperienced companies will most probably show large deflections caused by the use of undersized elements. Walls (most likely only single skin walls) may not be thicker than 8 mm (0.3") without tongue and groove, hence one will be able to peep through the wall after time. whereas in some countries wall insulation may become an issue for such thin sidings. Fasteners and fixtures will most probably be cheap zinc coated carbon steel which will corrode in 2 years and fall off whereas nails will be used in abundance. Coating will be 1 or 2 layers of heavily diluted cheap local paint applied onto a non-sanded surface, as such creating a peeling-off after a few months. Finally, the customer may be deceived by the information from the builder that the house is built from Bangkirai or Merbau, in reality it is mostly cheap substituted wood resembling Bangkirai or Merbau. To the average customer the difference is not visible to the naked eye, in particular when these companies have coated the parts prior to assembly (very much to disguise that not Bangkirai or Merbau is used). **BALI PREFABWORLD** © does not coat the parts and elements prior to assembly as to allow the customer to check and verify that the proper wood is used. **BALI PREFABWORLD** © does not compromise on the timbers used and no compromise is given on the size of timber elements required in accordance with sound engineering practices. Our homes are built to international timber framing codes and are built for cyclonic/hurricane and/or earthquake conditions (if so required). You may read a compelling example of our commitment here: <https://www.baliprefabworld.com/compelling-example> Prior to a customer's order we will provide a number of wood samples of the type of wood species the house will be built from which will provide the owner a tool to verify after delivery that he gets what he has paid for and that no parts were substituted with another type of wood after dismantling at our yard. And yes, in average our prices will be higher than those offered by the knock-off companies, but after having read the above and what follows it would be obvious why.

#### E. LICENSING

In an Indonesian effort to crack down on inferior wooden house exports, to significantly improve the quality standards and to assure the legality of timber and its use, the Indonesian Government has finally made the decision to step up the system of legal licensing of timber from Indonesia and licensing genuine timber manufacturing companies under the SLVK act. The details can be read here: <https://www.baliprefabworld.com/cargo-shipment-and-export-regulations/v-legal-system> With this implementation only genuine wooden prefab house fabrication companies can own such certification. Poor knock-off companies, companies without at least one fully qualified engineer or architect in its management team and agents cannot obtain the license, though they may well try to convince the buyer that they are fully licensed. All legitimate production companies must follow stringent guidelines in adhering to the new regulations. Regular inspections and audits will be executed to verify that the company complies with the regulations. Therefore it is most likely that buying from agents and/or inferior knock-off companies will lead to a non-compliance and as such the product will not be eligible for export or being banned from import at the port of destination, leaving the customer with a blind bargain.

#### F. INSURANCE

A buyer may well decide to insure his wooden house against natural disasters and/or structural integrity and/or pests. The likelihood is that you will require a specialist home insurance policy which takes into account the unconventional construction methods used for timber frame structures. Modern timber frame homes that are pre-fabricated off-site offer significant savings in both construction time and the cost of building a new home. With building regulations changing to accommodate these new types of property and their specific safety requirements, 'timber frame kits' are becoming increasingly and understandably popular. Many mainstream home insurance companies will these days investigate that newly-built timber-frame houses are of a high standard and comply with the local regulations. This is fine,

but you should not assume that this is the case in any event. If you are aware that your home has a timber frame construction, you need to inform your insurance company from the outset. The insurance company will look into the capacity and the experience of the builder and will most probably ask you to submit the drawings and structural calculations for their review. If this has passed the test they may be prepared to offer you a building insurance quote at standard terms. **BALI PREFABWORLD ©** prepares the documents to the format required by the insurance companies.

G. ORDERING GUIDELINES (or what you should verify before ordering a wooden prefab house made in Indonesia)

**Before you book your ticket to Bali you need to do some homework as to ensure yourself on the requirements of your local building authority. Some countries are very strict and do not allow Indonesian wooden houses to be imported and/or certain timbers to be used. Such pertinent information may save you the trip. Ask your local building authority the following;**

- a **What is the maximum area of a house that is allowed to be built without building license.**  
*Some countries allow small dwellings up to 25 m2 (270 sqft) to be built without license. If the answer is affirmative you may skip question 2.*
- b **Would it be acceptable if the wooden prefab house complies with the IBC (USA International Building Code), if a license is required.**  
*If the answer is affirmative we will be able to supply, however, if the answer is negative whereas the house shall fully comply with the local building codes we, and most, - if not all -, other companies will NOT be able to supply unless a local engineer or architect will be involved reviewing our or other company's drawings and/or structural calculations whether they comply with the local codes.*
- c **Are there restrictions to the use of particular hardwoods originated from Indonesia.**  
*If the answer is yes you need to find out which wood species are prohibited.*
- d **Shall the wood be FSC Certified. (FSC= Forest Stewardship Council)**  
*If the answer is yes, you will not be able to import any wooden house from Indonesia, since not one supplier in Indonesia has an FSC Certificate in place with a chain of custody to the origin (felling concession), except for Mahogany and Teak. (Mahogany is not an appropriate wood for structures and Teak is far too expensive)*

If all of the above has been sorted out and you have decided to make the trip to Bali use the following short list for each visit to a supplier. We strongly advise you to use the list since it will give you a very detailed tool to evaluate the data which will makes it easy to choose the most responsive supplier.

- 1 **What are the engineering qualifications of the design team of the company you would like to choose**  
*First and foremost a team designing prefab homes need sufficient experience in this particular field, in average 15 years is considered the minimum standard. Ask who are involved in the design team and ask for their grades. Which internationally recognized codes are used? Ask whether the company will provide foundation overview drawings showing the center positions of columns and pedestals. A wooden prefab house manufacturer is not responsible for the foundation but shall provide sufficient information on the locations of supporting structures of the house + detailed foundation drawings. Refer to paragraph 26.*

**2 Is the company able to design cyclone rated wooden houses (for those who will be building in such areas)**

*The company shall provide information on houses already built in cyclone areas, whether full scale hits have occurred and damages reported.*

**3 What timbers are being used?**

*Bangkirai, Merbau, Kempas, Nyatoh and Camphor are the main players. The lower class Keruing, Bayur, Coconut for main structural elements, Meranti, Albesia, Cempaka and/or Balinese mahogany (Suar) are a definite NO NO. In a few cases Keruing and Coconut wood is accepted, provided utmost care is taken on the use of fully dried wood.*

*International standard sizes: 50 x 140 mm or greater for main joists spaced at not more than 2.5 meters and 50 x 100 mm or greater for sub joists, spaced at not more than 0.5 meter.*

*Minimum fFloor thickness: 22 mm. Siding thickness: at least 16 mm and tongue and groove connected. (Refer to paragraph 27 for more information). Ask to see some connection examples. Make pictures for later reference. Remember: it is not the width of a supporting beam which is important it is the height !!! View wood samples of the wood they use for their prefab elements (beams, columns, trusses, flooring, sidings).*

**4 Does your country require a kiln drying certificate?**

*In most countries of the world the owner of a prefab wooden house must hand in a kiln drying certificate to the Ministry of Forestry or Agriculture proving that the timber has been kiln dried to a certain maximum moisture content (normally 10%). The certificate shall be supplemented to the shipping documents. Failing to submit the certificate may cause the container be left sealed whereas demurrage costs shall be paid to the local cargo forwarder. Check with your Ministry what the requirements are (sometimes a certificate is required for boards only). Ask the company whether they will submit such kiln drying certificate.*

**5 How will the hardwood home structure be assembled?**

*Nails are not appropriate fasteners for ANY hardwood structure and shall not be used. They cause instant splitting and permanent damage to hardwoods. In conclusion: do not accept a wooden prefab house using nails for connections. Best solution: Steel rods cut to length with nuts and washers for the main elements, lag bolts for joists, and Philips screws for flooring and sidings. Standard carbon steel bolts are unacceptable. Do not accept this, since carbon steel will heavily rust over time and connections will be compromised. At least stainless steel grade 304 shall be used. The optimum is stainless steel grade 316 and shall always be used if you will build close to open sea.*

**6 Which main fasteners will be used?**

*Many environments, especially those near the ocean are extremely corrosive and will cause plain carbon steel and even galvanized fasteners to corrode with dangerous consequences. Stainless steel is the optimum solution. See paragraph 5 above, however, in some cases hot dip galvanized steel may be acceptable for inland built houses at least 10 km from the sea.*

**7 Ask for current and previous customers references and ask whether they can be contacted.**

*References need to be carefully selected. Some companies use reference of family members or overseas friends and some of them even produce references by themselves and post them on their web site.*

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- 8 Once in Bali and you have the time, visit and inspect as many companies as possible dealing with wooden prefab house building, or select a few companies based on their information on their web sites.**  
*Are they the real owners? Are you talking to the right person? (architect or engineer in charge and not a secretary, inexperienced draftsman or otherwise). Ask to see the owner.*
  - 9 Are you dealing with a legitimate professional managed operation or are you talking to agents who will subcontract your order to a local knock-off company?**  
*You need to make sure that you are dealing with a legitimate company with experienced designers and builders. Be aware of misleading agents, holding office in a hotel, a small apartment or part of a building owned and operated by a company exporting furniture or Balinese souvenirs, etc., or even holding office in a cargo forwarder's building.*
  - 10 Check whether the company you are dealing with has an official registered address in Bali/Indonesia**  
*Many agents operate without address and only provide a phone number. They are used to make appointments in hired offices. Ask to see the letter of company domicile, the company's NPWP number (tax number), copy of ID/passport of director, copy of TDP (business registration) and SIUP (permanent business trade license). A genuine company should have them all in place.*
  - 11 Do they have an official legitimate Act of Association?**  
*Ask to see a copy and check the name of the director.*
  - 12 Visit their assembly yard**  
*Check whether the company has its own assembly yard, whether or not covered, but clearly not part of a sawmill owned by another company. Check the name at the front. It sounds suspicious if they claim to operate under a joint-venture. It is very rare in Indonesia that local companies closely work together in the same area of business interests. If they claim to be a joint-venture ask to see the documents.*
  - 13 What type of finishing is being used?**  
*How is the layer built up and what is the type of coat used and for which parts of the building.*
  - 14 Which countries and/or counties have the homes been approved and built in?**  
*Try to find out whether any customer of the builder has obtained a building license based on the drawings and calculations prepared by the builder and in which countries*
  - 15 Windows and Doors**  
*What thicknesses and sizes for door frames are used, door and window leafs, glass type, and hardware specifications. Remember that in your country specific glass types can be a mandatory requirement (safety glass, tempered glass). Check the sealing and weatherproof systems. Ask whether insect screens can be included.*
  - 16 Kitchen and Cabinetry**  
*What types of timbers are used? What finishing is being applied? What type of counter tops?*
  - 17 Electrical and plumbing works**



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*In almost all countries it is prohibited that a supplier from another country installs the electrical and plumbing system. In the event that it is allowed ask whether the company is able to design and install. It will save the customer a lot of money. If it is not allowed you may ask whether the company is willing to make the recesses for switches and sockets in the walls based on customer's information. Some companies, like us, are able to make electrical and plumbing drawings, which are allowed to be used in your country.*

**18 What type of interior roof decking and/or ceiling finishes are being applied?**

*Interior roof decking and ceiling material can be bamboo matting (ask for the quality code. A or B), rattan matting, hardwood slats, cement boards and more*

**19 Roof insulation**

*A customer intending to build in Hawaii shall be aware that it is mandatory on all islands that the roof be insulated. Ask the company whether they have experience in roof insulations, which material they use and how they build up the roof. The counties of Hawaii first choice would be an insulation system with furring strips and an air gap, hence no rockwool, glass wool or polystyrene foam boards. Roof insulation may well be necessary in other tropical areas of the world or will soon become mandatory as well.*

**20 How was the company's response to your e-mails?**

*Who was the contact and are you meeting him/her during your visit?  
Were they technically able to answer all questions?*

**21 How was the company's response to previous customers?**

*If possible, try to find out how the company communicated with previous clients*

**22 If possible and have the time do some site inspections of previously built homes if there are any in Bali or in the country/location you intend to build.**

*Try to talk to the owner and find out whether the project was built in accordance with the contract.*

**23 Will a warranty be issued.**

*Only a very few companies will issue a warranty. Such warranty is useless, powerless and will not have any legal ground to be implemented if not duly and legally signed and stamped by a locally (Bali) registered notary.*

**24 A number of companies do not want to issue a contract, but rely on e-mails. It is obvious why.**

*First of all – and before ordering - you should verify that a company shall issue a Memorandum of Understanding (MOU), stating that you have understood what will be designed and/or supplied, prior to you placing an order. Check their web sites if such MOU will be issued. Once you feel confident and in accord with the MOU it shall be signed by both parties whereupon you may ask for the draft contract. When both parties have agreed on the contents of this draft contract and the document has been signed by both parties you can place the order.*

**25 Many companies (read: the knock-off companies) coat their wood prior to the prefabrication. This is mainly done to disguise the type of wood that they use. They may well use inferior wood rather than the tropical hardwood you pay for. You may inspect the project during the building process at the company's yard, however, you will not be able to see or verify the type of wood when this has been coated.**

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*Ask for proof and evidence via a written, stamped and duly signed statement from the company confirming that the wood used is genuine tropical hard wood, including a detailed description of the wood species used. Inform the supplier that if discovered at the port of destination by customs that the wood differs from what has been described in the export papers, the wood will be confiscated and destroyed, which is reason for legal action against the supplier.*

- 26 You need foundations to secure and support the structure at your end to the subsoil. Not all suppliers provide foundation drawings.**

*Make sure that you will get foundation drawings (formwork + reinforcement drawings). Without these you will not be able to obtain a building permit. The alternative would be that you engage a local engineer to do this for you, however, the setback is that such may cost a significant amount of money.*

- 27 Many knock-off companies produce single sided sidings from very thin boards without tongue and groove for the interconnections. Most probably these boards have not been kiln dried, resulting in gaping between the boards. Passers-by may easily be able to peep into your house.**

*Let alone that kiln drying is a prerequisite, you shall request that a proper tongue and groove connection be used for the board interconnections and that the boards shall be at least 12 mm thick.*

***It is obvious that It would not be a surprise, after having read the 27 particulars above, that our company and a few other reliable companies, dealing with the same product, will comply with all these rules and regulations. The reason that we have posted the above is to provide you an opportunity to separate the crap from the good. If you will not choose our company to work with, that's fine, but at least we have given you an optimum chance to make up your mind as to avoid a disaster.***