

A HEALTHY BUILDING CULTURE

Indigo symbolises a new, healthy and elegant building culture; it is a modular building system made of biobased materials with a large degree of design freedom. Each Indigo belongs to the same family yet is different, tailored to its location and resident(s).

In 2018, Indigo saw the light of day on the drawing board of Woonpioniers. Since then, a lot has happened and we would like to take you on a tour of a few wonderful projects. In addition, we will explain our (refined) design process to you.

At the cutting edge, between efficient production methods and personal architecture, with Indigo we wanted to put an affordable, extremely healthy housing concept into the world. This is an ongoing adventure in which we look forward to meeting you!

Daniël Venneman

founder Woonpioniers



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This here is the first Indigo. It's in the north-east of Groningen: earthquake area! With care and attention, Dunja has made radical choices in personalising the exterior and interior.





DESIGNING TOGETHER

Every Indigo begins with the creation of a sketch design, in which we try to get the most out of you. That is where the fun is for us, in refining and personalising each design. Together with Dunja, we decided to place her house a little higher above ground level and to surround it with a deck. This provides a beautiful view over the adjacent canal and a spacious feeling, despite the compact size of the house. We also paid extra attention to the façade; it is finished with Xyhlo Biofinish, a harmless mould that protects the wood against rot in a natural way and has a beautiful matt black appearance.



SPECS

Usable area Volume Indicative total costs

Facade cladding Roof cladding Window frames Interior wall cladding

Design & supervision Foundation Superstructure Building installations Interior 46,8 m² 182 m³ €240 000,-

Wood with Xyhlo Biofinish Steelsheet cladding Plato Fraké Birch plywood

Woonpioniers Woodteq Woodteq Stegeman Management by Dunja herself!





LEEN EXPLAINS

Indigo is a modular building system designed by Woonpioniers, our architectural firm. From compact shell to turnkey family home: you can do anything with Indigo.

As a smart building system, Indigo has some major advantages over traditional house building; for example, the various 'modules' are prefabricated under controlled conditions and are often assembled on site within a day. With Indigo, we also do not have to keep reinventing the wheel of sustainable applications. Together with our selected contractors, we save on time, risks and costs, thus keeping personalised, bio-based architecture affordable.

Finally, Indigo is completely free of constraints, an important asset! Walls and roof are selfsupporting; there is no need to take load-bearing columns or fixed interior walls into account. This results in personal and creative floor plans and interiors!

Leen Bogerd

partner architect Woonpioniers

FROM SMART MODULES

Walls and roof are connected through a firm, rounded corner which enables you to freely design the floorplans

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The modules are clad with formaldehyde-free and vapourpermeable eco-board for a healthy indoor climate



The space between the rafters is injected with bio-based cellulose fibres for insulation.



The construction of the panels is made of laminated trusses (FSC).



For the façade and roof cladding, there is a wide choice of mateirals available.



INTO AN UNIQUE HOME

The various elements are lifted one by one into place. Often, the the shell is in place within a day!



PREFABRICATION

Here you can see the factory hall where the elements are made. When they are all ready, they are lifted onto a truck and transported to the building site. This approach is (cost) efficient, accurate and cleaner than building on site. The wood needed is also delivered to size.

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INSTALLATION

The elements are usually put in place on location in a day. This remains a beautiful spectacle! Then the interior and exterior finishing begins. Depending on the level of finishing, this will take several months.



Discover the creative and smart choices our architects made for this stylish family home.





VERANDA LIFE!

Many of our customers like to go outside, love nature and throw open the door as soon as they can. A good veranda stimulates this, protects against rain and bright sunshine, and makes the terrace a real part of the living room. Indigo and verandas go beautifully together, as this example shows. Moreover, such a veranda has great climatological advantages, which saves you energy.

Marcel and Monique's living room feels extra lofty thanks to a spiral staircase. It leads to a cosy loft where you can withdraw quietly.



SPECS

Usable area Volume Indicative total costs

Facade cladding Roof cladding Window frames Interior wall cladding

Design & supervision Foundation Superstructure Building installations Interior 76 m² 360 m³ €380 000,-

Platowood Poplar Ruukki steel roofing Oregon Pine Spruce 3-layer panels

Woonpioniers Woodteq Woodteq Studio ECO Blind werkt & WELcreaties



THE SKETECH DESIGN

Every Indigo always starts with a personal sketch plan (SO). This phase consists of a number of structured and inspiring sketch sessions in which we compare different design scenarios. We do all this on the basis of your 'programme of demands' (PoR), in which your functional and qualitative requirements and wishes are listed. If desired, we can inspire and assist you in drawing up such a programme.

During the SO, we always go a step deeper into the layout, the use of materials (of the exterior and interior) and the energy management of the house. Within a short time, we arrive at a well-founded final result that we summarise in a PDF booklet with 3D images and a provisional but fairly accurate price indication.

Are you happy with the design and are the lights on green as far as plot and financing are concerned? Then we work out the SO in detail and submit the permit application. (See page 39 for an overview of the entire process)

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1. SPATIAL LAYOUT

We always go for an optimal layout! That means puzzling together with cross-sections, floor plans, wall openings and optional extras such as decks, a veranda or greenhouse. What is possible on the intended plot and within the set budget? Which views are important and what is the influence of sun and wind? What we are good at is guiding you through many (sometimes complicated) choices in a structured and fun way.



TINY

roof.

This is a somewhat narrower but taller Indigo, with the possibility of realising a full floor. Ideal for singles or couples and small plots. The high side wall also lends itself well to a spacious veranda or wall greenhouse.



CROSS-SECTIONS

With Indigo, you can choose from four different cross-sections. This allows you to design just about any type of house. Do you want A completely customised? That is also possible, but then you pay a bit more for the entire design and construction process.



This cross-section is ideally suited to a Tiny House, a recreational building or multifunctional garden house. The width is so clever that it exactly fits two bedrooms next to each other. There is also room for a comfortable bedroom under the pointed

MEDIUM

LARGE

Designed for families, this cross-section offers a wider living space downstairs and a pleasant upper floor for bedrooms or, for example, a work room. And extra large skylights make this Indigo even more spacious!

EXTRA LARGE

For (larger) families with more bedrooms, this section is very suitable. The generous storey height of 2.6 metres makes it possible to create extra storage space or lofty sleeping lofts in the ridge.

Indigo can be lengthened or shortened in 60 centimetre steps.







FLOORPLANS

In a dynamic design game between cross-section, length, façade openings and optional 'add-ons', we work out various floor plans based on the Programme of Requirements (PoR). Together, we constantly weigh the pros and cons in order to slowly but surely arrive at a well-founded layout. Here you can see three very different example floor plans based on one equal cross-section of 4.2 metres.

3D-MODEL

From cross-section and floor plans, we work towards a 3D model. In this model, we optimise the facade openings (fronts, doors, (roof) windows), among other things. Optional extras such as a greenhouse, decking or veranda are also further defined in this phase. The design really comes to life, you can walk through it as it were! At the end of the design process, we will use images from this 3D model to create a clear pdf booklet for you.









2. MATERIAL

Gradually, during the sketching process, we delve into the world of materials. Over the years, we have built up a library of samples, good in-depth knowledge of bio-based and circular use of materials. This is how we know how to give each Indigo its own look in an ecologically responsible way.



- Ruukki red steel sheets clads facade and roof В Oregon Pine window frames
- Douglas fir untreated wall boards С Oregon Pine window frames
- Thermally preserved poplar façade D Oregon Pine window frames
- Black stained douglas façade and black steel roof Ε Oregon Pine window frames, finger-jointed
- Ruukki Fels steel profile in light grey, F Larch cover boards, Oregon Pine window frames









D

E

A Interior and furniture made entirely of pinewood with varnished spruce floor
B Wall and floor made of pinewood, steel staircase, flooring in primed concrete

С

- Pinewood floor, clay plaster on walls, clay stove in red colour
- Walls made of pinewood, marmoleum floor, kitchen made of black MDF
- Pinewood wall cladding, floor finish concrete plaster on wood

SHOWCASE INTERIORS



3. ENERGY

A good design integrates energy management. Not only through the smart application of high-end installation technology, but primarily by putting passive design principles first. Together, we tailor Indigo to your comfort wishes and energy

LOW + HIGH TECH

Since the beginning of Woonpioniers and Indigo, I have been involved as an independent 'energy architect'. In recent decades, I have helped hundreds of homeowners, housing corporations and municipalities to become more sustainable.

I also developed my own calculation model, called 'Aard', which can be used to make guick and accurate energy calculations. I have now combined all my knowledge in my platform The Energetic Club, in which we learn even more about the behaviour of people over longer periods of time.

What makes me happy and what I am good at is combining low-tech and high-tech to create cost-efficient, balanced energy systems.

EXAMPLE ENERGY DESIGN

The starting points for this design were a zeroto-the-meter house with energy label A++++ and a lot of attention for summer comfort. This was achieved by using as many passive measures as possible, combined with the latest technology and a roof full of solar cells: a real solar house!





SUMMER

South-facing sunlight is limited in summer by a generous veranda. The skylight is opened in the evening to let heat out of the house. During very hot periods, the heat pump is used for cooling with solar power.

RON STET

energy advisor Woonpioniers



WINTER

In winter, the low-lying sun shines in for free warmth. In addition, the house is heated in winter by an efficient heat pump. On both sides of the house are solar panels that produce as much as the consumption of the residents: zero on the meter!

At this special location in the forest only a house that does not leave any traces could be built. As a bio-based and modular building system, Indigo was ideally suited for this purpose.





THE PERFECT FOREST HOME

This family home is divided into a "living house" at the front and a "sleeping house" at the back, separated by a spacious hall where the residents can organise cosy events: lectures and chamber concerts, for example. This zoning also results in smart climate zones that are separated from each other. The foundation of this house consists of prefab concrete piles that are placed loose on the underlying sandy soil. In this way, the house leaves no traces behind, should it ever be removed. In addition, the floor below is insulated only on all sides, which makes use of the thermal mass of the soil under the house.



SPECS

Usable area Volume Indicative total costs

Facade cladding Roof cladding Window frames Interior wall cladding

Design & supervision Foundation Superstructure Building installations Interior 133 m² 520 m³ €520 000,-

Black stained Douglas Steelsheet cladding Oregon Pine Spruce 3-layer panels

Woonpioniers Klein Kranenbarg Woodteq Woestenenk Blindwerkt



FAQ

What are the costs of an Indigo?

Indigo starts at around €200,000 and costs between €3400 and €4400 per m2 of net indoor space. Per m3 this averages €1100. These prices include VAT for the entire foundation, shell, installations, interior finishing, permit application and supervision. It is an inclusive amount for a turnkey house! The only costs that are not included are the municipal fees, utility and building connections, landscaping, moving expenses, mortgage and notary fees and upholstery of your Indigo.

What does the process look like?

The whole process from start to key follows the steps as summarised here. On average, it takes 14 to 18 months before you receive the key.

What if I don't have a plot and/or budget yet?

Then you are also welcome to exchange ideas during a 'consultation hour' at our studio in Amsterdam. We do charge €90 incl. VAT for this. We will deduct this if you actually start a sketch design later.

Where can I find a building plot?

Plots with residential zoning are for sale throughout the country and are offered by estate agents, municipalities or private individuals. In most cases, online orientation can go a long way. Woonpioniers does not offer building plots itself.

Can I get a mortgage for Indigo?

Yes, this is certainly possible. During the organisation of the mortgage, we will together provide an overview of the contract sums of the executing parties involved.

together until you are completely satisfied. SO agement. (See pages 18 to 33) cost estimate. VO & DO submit the permit application! total building costs. which the orders are placed. TO



START!

• In the sketch design phase (SO), we design your Indigo • We look at the layout, exterior, interior and energy man-

• The costs for this phase amount to €5800 (incl. VAT) and result in a PDF booklet with 3D images and an indicative

• Are you satisfied with the SO? Then we will work in a preliminary design and then a final design (VO & DO) towards the right drawings for a permit application. • In addition, we check prices by requesting quotes from

building parties. Plot and financing in order? Then we can

• Our costs for this phase are approximately 5% of the

• If the permit application is approved, we work out a technical design (TO) in close cooperation with the builders. The house is digitally engineered down to the screw, after

• The costs for Woonpioniers in this phase until completion are approximately 5% of the total building costs.

Do you always need a building permit for Indigo?

Yes, but in some countries you are allowed to build in the back garden or as an extension without a permit. Check with your local municipality what is possible and allowed within the building codes.

Does Indigo comply with building regulations and quality requirements?

Indigo can be finished in many ways. Even a brick wall is one of the possibilities. Indigo can therefore be adapted to different quality requirements. Usually the party from whom you buy the plot knows which rules the house has to meet.

Does Woonpioniers build Indigo themselves?

No. We work with selected contractors who know Indigo through and through. We are the devisers and designers of Indigo and supervise the entire process. We are also involved during the construction to support you as future residents and to keep an eye on the quality.

What kind of foundation is an Indigo built on?

This depends on the composition and load-bearing capacity of the subsurface and varies from concrete piles or demountable and earthquake-proof steel screw piles to a foundation directly on a sandy soil. On the basis of online data, we can do a first check. Probing', i.e. mapping the subsurface exactly, is done during the preliminary design (VO).

Is Indigo sustainable?

Yes. Our mission is to create a healthy, biobased building culture. We do this by developing smart building systems that are made of bio-based, 'regrowable' and reusable materials: wood, natural insulation fibres (flax, hemp or cellulose) and formaldehyde-free board materials. But also by shaping a design process in which we, together with you, place quality above quantity. In this way, we save on materials and energy (and costs!) right from the start.

Are your designs energy-neutral?

Like every new-build home, Indigo also meets at least the BENG (Nearly Energy Neutral Building) requirement. But we would prefer to go a step further, by building zero to zero meters or even energy-producing buildings. During the design and realisation process, we discuss various possibilities.

Doesn't Indigo get hot with so much glass?

In cooperation with our energy advisor Ron Stet, we thoroughly calculate the heating and cooling requirements of each Indigo. This may reveal that additional passive measures such as solar control glass, overhangs, pergolas or a veranda are required. Possibly supplemented with smart installation technology. In any case, we create a well-balanced energetic set-up.

What is the lifespan of Indigo?

Indigo lasts as long as a traditionally built house. However, the finishing sometimes requires a different type of maintenance than you might be used to. We will discuss this in detail during the development and before completion.

PHOTO CREDITS

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р. 16	Nina van den Broek
р. 19	Woonpioniers
p. 27	Henny van Belkom - top left Nina van den Broek - middle left, down left Femke Teussink - top right Woonpioniers - middle right Elroy Spelbos - down right
p. 28/29	Henny van Belkom - top left, down right Woonpioniers - down left Nina van den Broek - top middle Femke Teussink - down middle
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