

OPEN BUILDING INSTITUTE

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How can I get one these houses/greenhouses?

Although we've built a number of prototypes over the past two years, we're currently in the very early stages of the second phase of the rollout plan: to make this accessible to others. Please bear with us as we prepare documentation and various access channels. At the moment, we're envisioning a couple different options for obtaining one of these houses/greenhouses:

Built It Yourself

All of our designs and accompanying documents are open source. This means that you are free to use and modify them without asking us for permission or paying us a cent. You're also free to sell any structures resulting from OBI designs. If you have experience in house design and

building, you'll probably have no difficulty following and adapting the designs and instructions to your needs. If you don't have sufficient experience, we're offering a couple resources:

1. **Detailed plans and instructions.** At the moment, our [library of modules](#) and instructionals is barebones—the minimum required to design and build a small, simple house. However, following a successful kickstarter campaign, we are building the next iteration of our modular eco-house in November 2016. This means that between now and then, a much larger number of designs and instructionals will be published on this website. This documentation process will culminate with the publication of various e-books, at the end of 2016, containing all the details necessary to understand, design and build a simple eco-house or greenhouse.
2. **Workshops.** If you're a novice builder or if you're an experienced builder who wants to learn more about this system before attempting to use it, the best place to start is to participate in one of our [build workshops](#). During these workshops we execute every step of a house build. The only exception is the foundation, which must be done in advance so the concrete can cure, but we will go over the process during the workshop. Participating in a workshop gives you an opportunity to experience a build first hand—so you can get a better grasp of the scope of work, skills needs, and if this is right for you. Whether or not this is sufficient to allow you to build on your own depends on a number of factors: your level of skill, experience and confidence, how much time and effort you dedicate to studying the documentation, the complexity of your house design, etc. Every case is different. If you're a novice builder interested in self-building, we recommend that you start with a very simple structure (such as small shed) built with friends over a weekend—to give you an appreciation for what it's like to run a build.

Contract Us to Assist You

We understand that not everyone can or wants to design a house and organize a build on their own. For this reason, we're preparing a (paid) assistance service—in which we guide you through the design process and help you organize and run a build. We are still working out the exact details of this service with our advisors and plan to publish detailed information about it before the end of the year.

However, the ability of our core team to offer this service is extremely limited. To address that, we're developing a program for builders—to train entrepreneurial builders who can then offer assistance and builds to others and thus increase our overall capacity to expand. A pilot version of this program is scheduled for 2017.

To test this model, we will offer 4 builds in late 2017. If you're interested in participating in this pilot phase, please use this [build assessment form](#) to provide your contact information and more details about your location and needs. It'll be a few months until we can assess each

situation/location, so please be patient. We're working around the clock to make this available to everyone, but there is an enormous amount of work to do.

As Nelson Mandela has poetically said: it's a [long walk to freedom](#).

If you'd like to stay up to date on developments and upcoming events, please sign-up for our newsletter or follow one of our social media channels:

<http://openbuildinginstitute.org/stay-in-touch>

Are these houses compatible with my climate/zone/needs?

This system can be used in and adapted to various climates and needs. That's the beauty of modularity. Think of our [library of modules](#) as a menu from which you can choose the modules and configuration of modules that best suits your needs. If you live in a cold climate, you may want the super-insulated wall modules (which we'll be adding in the next couple weeks). If you live in an area prone to hurricanes, you'll want to use more wall brace modules and/or shear wall modules. If you live in a hot climate, you can skip the heating system and other cold-climate features. And so on so forth.

You can also select and configure modules to adapt to various other needs and requirements—such as to conform to zoning restrictions or be wheelchair accessible. In fact, the houses we have built ourselves are all single story (no stairs) with 36" wide doors and wide turning spaces.

The module designs we're currently working with are based on imperial units and US standard materials. The reason for this is simple: we're located in the US and these are the materials we have available here. As soon as the library reaches a more stable form, we hope to work with volunteers around the world to translate these designs into other measuring units and materials.

Are these designs compatible with building regulations?

Our structural modules (walls, roof, etc.) meet or exceed the requirements of the [International Residential Code](#). Although our approach to building may be somewhat unusual, the resulting structures are of the same quality as standard buildings. We use a combination of prescriptive methods and engineered modules. Prescriptive methods are standard designs—something everyone in the construction industry recognizes as a common and accepted practice. Engineered modules are not standard but were designed to offer the same level of safety and code-compliance as prescriptive methods.

The modular and open source nature of the project also means that modules can be adapted/redesigned to conform to additional regulations. The same applies to house designs

created with these modules. If, for example, your zoning laws don't allow tiny houses, you can design and build a bigger house that conforms to those regulatory requirements.

The permitting process is the same as for any other construction project. You will have to follow the procedures dictated by regulations in your area. To facilitate this, we will publish construction details, calculations, plans, design rationales, etc.—most of the supporting documents you'll need to apply for permits. We are also working with our advisors to prepare a series of guiding documents to help you understand and navigate the process. While we cannot apply for permits on your behalf, we will do our best to provide all the supporting documentation in order to make the process as easy and cost-efficient as possible.

Some off-grid utility modules (such as the biodigester) may be challenging in terms of regulations, as many jurisdictions mandate connection to the city sewer system and prohibit private sanitation systems. But few jurisdictions would actually prevent you from using passive solar + thermal mass, solar panels, water catchment (though they may not allow you to drink it), pellet stove, in-floor hydronic heating, and so on so forth. Those are all relatively standard and code compliant. Even in situations in which you are compelled to connect to the electrical and water grids—and therefore pay for the hook-up and monthly fees—you are not forced to use them, you can still draw most or all of your power from the solar panels and use the water catchment system for irrigation and non-drinking water (and save in the monthly utility bills).

We understand that this compromise is not ideal, but we also know that this is a battle worth fighting, even if it takes a long time. The plan is to include as many off-grid, eco features as local codes allow and, in the process, demonstrate to regulators the advantages of alternative systems. For example, water catchment makes a lot of sense in regions where drought is an issue so perhaps city officials in those areas will be more receptive to such systems. The current housing (and energy) crisis is also making regulators more amenable to alternatives—see, for example, [this article](#).

How much do these houses cost?

The cost of materials may vary from location to location. We have built several prototypes here in the Midwest (US) and the average cost of building materials (standard, code-compliant construction materials) has been approximately \$5,000 for each 250 sq ft section. The cost of all the off-grid utilities is estimated to be around \$10,000. So, a 750 sq ft structure with all the utilities would cost approximately \$25,000. We're in the process of preparing a detailed sample budget to illustrate the cost breakdown.

We do not skimp on materials or safety features. In fact, if you consider only the cost of materials, our houses cost about the same as most other light-frame houses. The reasons homes end up being so expensive often have little to do with the real of cost materials or even labor. See Alastair Parvin's article ["Housing without Debt"](#).

Our houses end up being more affordable for a few reasons:

- **Open source R&D and designs.** When you want to build a house, you typically contract an architect and civil engineer to design it for you. We love architects and engineers and it's great if you can contract them for a custom design. But the reality is that most of us cannot afford their services. Architects and engineers know this and that's why several have volunteered to work with OBI and help us provide the public with free designs and instructionals. A pool of designs everyone can contribute to and draw from means that there is no waste or redundancy—each one of us doesn't have to start from scratch when we want to design a house. The fact that our fantastic advisors and collaborators volunteer their time to help create open source designs and procedures, means that OBI has very low R&D costs, which in turn means that you have access to these designs for free.
- **Smaller houses and incremental building.** Even at \$5,000 per 250 sq ft section + \$10,000 for the utilities, the materials for a 2500 sq ft house would still cost approximately \$60,000. That amount may be extremely difficult to come by, especially if you don't want to get into debt. However, if you can save/raise \$15,000, you can build a 250 sq ft seed home—a tiny home with all the utilities—and then expand it as your needs and savings increase. A system designed to allow incremental additions to a core means that you don't have to build and pay for your entire house in one go.
- **Streamlined, simple designs.** It's no secret that some house configurations are cheaper than others. For example, a [cross-gable](#) roof is more complex, and therefore more expensive to build, than a [shed](#) or [clerestory](#) roof; a square structure uses less wall materials, for the same interior area, than a rectangular one; locating the bathroom and kitchen near each other reduces plumbing costs; and so on so forth. By focusing on simpler shapes, as well as streamlining and simplifying designs—within the bounds of safety and code-compliance—we're able to reduce the quantity of materials used and the time it takes to build a structure. This naturally translates into lower costs.
- **Rapid-builds with trainees.** By combining builder training with actual house building we're able to greatly reduce the cost of labor (more about this below). Even if you prefer to contract a professional crew to build one of these houses, our 5-day rapid-build approach (enabled by the simplicity of the designs and modular, parallel construction) means that your labor costs would still be significantly lower than hiring that same crew for several weeks/months worth of work.
- **Local materials.** Our current budget estimates are based on the cost of off-the-shelf materials. As we develop additional open source machinery and production processes for local materials, we hope to further lower the overall costs—and make building much more sustainable.

These estimates are for materials only and do not include the cost of land and building permits.

Wait, people pay to build my house? How does that work?

We know this idea takes some getting used to... So let's take it from the beginning. I think we can all agree with the following statements:

- 1) Everyone should be adequately compensated for their work—that's why builders are paid to build your house;
- 2) We all pay, in one form or another (tuition, taxes, work-exchange, etc.), for education and training—so that those teaching us are compensated for their time and effort;
- 3) Very few of us acquire sufficient practical skills in school.

What we did here was combine and rearrange these things into an alternative formula.

Practically every person in the world lives in a dwelling of some sort. Therefore, there is great demand for housing and related services (new buildings, repairs, renovations, retrofits, etc.). To address that demand, we need builders—they could be aspiring homeowners who want to build their own houses or entrepreneurial builders who want to provide services to others. But builders need training and those teaching them need to have some sort of income. Moreover, this training must include hands-on, practical experience, which means that the program must not only pay teachers but also cover additional expenses in materials and machinery. In a typical training program, trainees pay tuition that is used to support the teachers and the cost of the materials used in the program. But if these trainees are going to spend time and money building structures for practice, why not make that structure an actual house for someone to live in?

So, in the end, we have: 1) prospective builders who pay tuition to receive practical training; 2) teachers who are compensated for their services by the tuition; 2) homeowners who pay for the materials the trainees need to practice with and in return get a house.

Are these houses low quality?

Like any other house, the answer to this question depends on your choice of modules, design and materials. The houses we're currently building—budgeted at \$25,000 for 700 sq ft with numerous off-grid utilities—are of the same quality as standard houses—or higher. Special attention to energy conservation and generation mean more efficient and comfortable houses. Many standard houses do not offer this. Also, these are “regular” houses, built on a foundation and designed to resist strong winds, earthquakes, and snow loads—not to be confused with manufactured/trailer homes.

We use a combination of locally-produced materials with standard, code-compliant construction materials and techniques. Depending on your choice of materials and designs, your house may look exactly like any other standard house—once the modules are installed, a building inspector may not even be able to tell the difference. Or not. It all depends on your design, selection of materials and what is allowed in your area.

But what about having your house built by novices? Can you trust their work? Our modules are designed for simplicity of build and include tolerances to accommodate margins of error and novice builders. The teams are run by experienced builders and there are quality-control checks at every step. If a module does not appear structurally sound or exhibits any major mistakes, it is redone or replaced. We actually live and work in one of our prototype houses and would not risk our lives if we thought it was structurally unsound.

Yes, other mistakes happen: a wall module may get dented or not be perfectly straight, for example. However, this is not exclusive to teams of novices. Prior to getting involved in building, I lived in many standard houses and contracted various professional building and renovation crews. Every one of these professionally-built (and very expensive) houses had problems, some were minor (of an aesthetic nature) and others major (water infiltration, for example). Building things is hard, and very few projects are entirely mistake-free.

If you have no tolerance for minor flaws, this may not be for you. Our goal is to make housing ownership accessible to those who cannot afford high-end build crews. It is up to you to decide if this option makes sense for you.

Hasn't this been done already? Aren't you reinventing the wheel?

Yes and no. Every single thing we are doing has been done in one form or another—but never as a complete system. While, we're not "inventing" each of these things, we are taking the best bits and pieces from each and combining them into an integrated system. More importantly, we're thoroughly documenting and open sourcing all of these elements so that they are actually usable and accessible—the mere fact that something has been done before does not necessarily mean that it's available in a useful and universally accessible form.

How do I get land?

How do I get financing?

How can this change the world?

This is the worst idea I've ever heard. Are you idiots?

I love this idea. How can I help?