THE DEMAND FOR MORE ENERGY-EFFICIENT, SUSTAINABLE HOUSING IS ON THE UPSWING, AND PREFABRICATION IS A RISING SOLUTION.

Here are examples and inspiration for low-maintenance, smaller houses in myriad stylesfrom farmhouse to contemporary and multi-level urban builds. Ideal for vacation homes, full-time living, or accessory dwelling units-customized for homeowners' dreams.









Sheri Koones is an awardwinning author and a recognized authority on home construction. She is the author of ten books on sustainable building-including Bigger Than Tiny, Smaller Than Average—and a freelance writer and speaker.

> Jacketless Hardcover 8 ½ x 11 in, 224 Pages 250 Color Photographs Pub Date: April 2023





J J Π η \triangleright Π C 0 С ທ η 0 フ П < Π フ ~ 0 Ζ

KOONES





V, Gibbs Smith



CONTENTS

Introduction	4
Acknowledgments	9
The Maynard House	10
Thimbleberry House	18
Olive Passive House	28
The Passive Narrowtive	38
Cowboy Modern Desert Eco-Retreat	48
Harrison Lane House	58
Good Vibes House	66
Ashford WeeHouse	74
The Malibu House	84
Portage Bay Floating Home	94
SPARC House	104
Boxabl Casita	112

Vineyard Vista	120
Tropical Panorama	130
Conexus House	138
The Pink House	146
Hillman City Solar Farmhouse	158
The Raleigh Simple Home and ADU Cottage	166
Lipan Road House	174
Hill House	182
Hive House	192
Maris ADU	202
Lowry House	212
Suppliers	220

THIMBLEBERRY

HOUSE

KIT HOUSE

PHOTOGRAPHER Lacy Landre (www.landre.com)

ARCHITECT/MANUFACTURER Lindal Cedar Homes (https://lindal.com)

BUILDER Shaw Builders (www.shawbuilders.com) INTERIOR DESIGN Angela Westmore, LLC (www.westmoredesignbuild.com)

SIZE 1,934 square feet

LOCATION Door County, Wisconsin



he homeowner, Dr. Judi Tilghman, lives in Chicago, and makes the four-hour drive to this home almost every weekend. She previously owned a log cabin in the area built in 1980 with a Northwoods feel, but she was ready for a new house and a new style. She was planning to purchase another house in the area, but when the pandemic hit she decided to build her own home instead.



Below: The exterior is board and batten composite siding with a metal roof. The garage has carriage house-style swing-out doors in metal with a composite overlay.



GREEN FEATURES

- Dual-drawer dishwasher
- Low-flow plumbing fixtures
- Quartz countertops

ENERGY FEATURES

- Passive cooling from cross-ventilation
- Passive daylighting
- Highly insulated exterior walls
- High efficiency windows
- No air-conditioning
- Radiant floor heating On-demand hot water heater

DESIGNING AND CONSTRUCTION A HOUSEBOAT

Joan was clear about the design she wanted for her new houseboat. She knew she wanted an environmentally friendly concrete mooring rather than the large log ones that were commonly used. She wanted the house to be filled with light, have lots of windows, and be strategically placed so there would still be privacy. The staircase to the roof also had to be well placed so it would be a natural extension of the second floor living area.

Joan met one of the architects at PBW Architects when she was casually looking for advice on a porch she was building onto her current home. She was so impressed with their advice she decided to hire the firm to design the two houseboats she was about to build. After doing some research, she found the International Marine Floatation Systems in Vancouver, BC, and hired them to build her two houseboats.





Opposite: The glass wall in the living area opens to a spacious porch on the first floor.

Left: To save energy, the house is equipped with a dual-fuel stove and dishwasher drawers, so that with a smaller load only one drawer needs to be used.

Below: The second floor of the floating home has an open concept with large windows throughout so the residents can enjoy the beautiful water views. Radiant heating is below maple flooring throughout.





Above, top: One of the two secondary bedrooms has several windows and light walls making the room look more spacious.

Above, bottom: The primary bathroom has a large rimless shower.

BUILDING CHALLENGES

Joan says the biggest challenge she had in building these homes was getting permits for them. After eighteen months and making several concessions, she was able to start building her home. Another challenge was meeting the City of Seattle Seismic Building Code for single family homes, which added an additional unnecessary cost to this construction, since floating homes with concrete floats won't torque or fall off their foundation as land houses might in a seismic zone.

It then took ten months to build the house at the marina in Vancouver. Joan says she had to make the trip to the marina in Canada once or twice a week to manage the construction.

Building floating homes is not very different than building ones on land, according to the contractor working on this home. However, he says, it is important that the weight of the materials be kept to a minimum wherever possible because the houses are going to be placed on a floating device. In addition, since the houses are close to other houses, the walls must meet the fire code. The contractor pointed out the importance of excellent advance planning for the utility hook-
ups and familiarity with the docking area because
these hookups can be more complicated than on
land. Often other houseboats must be moved toinstall a new house, with hookups temporarily dis-
connected. In proceeding with one of these new
hookups, there is a short window of time when
this must be completed.





Top: The porch on the first floor is just one of the several outdoor spaces expanding the living area of the house.

Bottom: Beams in the primary bedroom add to the warmth of the room. Windows were positioned to add privacy while allowing in natural light and ventilation.





Top: The pool, now on the same level as the main living area, was relocated so the beautiful views of the ocean could be seen.

Bottom: The outdoor shower at the rear of the house is an open but private place to wash up after a day at the beach or the pool.

BUILDING A RESILIENT, EFFICIENT HOME

When building in these remote islands, sustainability is born out of necessity. Water comes almost exclusively from rain collected from rooftops and stored in giant cisterns. Landscape material and features come from the landscape itself since it is not cost-effective to ship rocks and other landscaping materials to the islands. Like the Campbells, other owners on the island are now building stronger homes due to the more aggressive storms the area is susceptible to. Because of ICF infiltrated with lots of rebar, hurricane-proof windows, and thoughtful engineering, this home should be around a long time. Window placement, louvered shutters, and large shaded roof lines keep the energy cost to a minimum and also provide nice shade for the space to be fully enjoyed.

INSULATED CONCRETE FORM (ICF) WALLS AND FOUNDATIONS

Concrete has always been a popu-"thermal bridging"). With a steel-relar building material for the Caribbean inforced concrete core, the house is region, and currently Insulating Concrete protected against hurricanes, fire, and earthquakes, and noise infiltration is Forms (ICFs) are becoming more popular because of their high level of energy effireduced. The high-mass concrete walls ciency. ICFs consist of two foam panels, are a natural barrier against heat gain usually made from high density expanded within the building as temperatures polystyrene (EPS), that are connected swing throughout the day, lessening the with plastic ties to create a variable width need for air-conditioning. concrete formwork. Concrete widths can Because the forms are light in weight, they are easy to ship and most can be set in place without the use of lifting devices.

range from four inches to twelve inches or more, depending on the engineering needs of the building design. ICF is an environmentally friendly system The forms are stacked to the specificasince the concrete often contains a high tions of the plans with reinforcing steel content of recycled fly-ash, a residue added at every level. Window and door produced during the combustion of coal openings are cut into the foam and reinat coal-fired electrical plants. The rebar is forced with temporary wooden formmade from 80 percent recycled steel. In work. Architectural features like arched some areas, houses built with ICF qualify windows are easily created with the lightfor insurance discounts. These walls can weight and easy-to-cut foam panels. be used for above-ground walls as well Concrete is then placed in the wall as foundations.

cavity and the ICF panels are left in The ICF forms used for this house place to provide a double layer of perwere produced by Quad-Lock Building manent, water-resistant insulation Systems in Atlanta, Georgia. According across the entire interior and exterior of to Quad-Lock, "High continuous insuthe building. This method of continuous lation combined with low air infiltration insulation is highly efficient because and the thermal mass of concrete proit interrupts the transmission of heat vides at least 57 percent better R-value through the building envelope (called than typical wood or steel frame walls."



Left: The kitchen sculpture, "Pick Up Sticks" by Kelly O'Brien and Patrick Renner, hovers above the kitchen island and is prominently visible from the street-private art for public viewing. It was sculpted of salvaged steel rafter framing from the 1936 duplex that originally occupied the site. This sculpture was commissioned as a 2019 birthday gift and installed during construction.

Below: Flanking the north-facing windows above the kitchen's white oak cabinetry is a custom wallpaper—the "E3 Bindu" by Graciella Socorro (artist) and Carlos Ocando (photographer). The display is also partially visible from the street.

Opposite: The first floor's open plan concept includes the kitchen, dining area, and sitting area. At the opening to the kitchen/dining area is the art piece "All Paint Sales Final" by Patrick Renner, 2020. It consists of salvaged paint can lids from the artist's various projects, nailed to unpainted canvas over a plywood frame. Flooring throughout the house is 2 ¹/₄-inch white oak strips.





ALTERING THE PLANS growing art collection. Because the house is next When the couple met with Zamore, they told him to a fiberoptic communications facility, which it was important to work around the two beauemits continuous white noise, they needed additiful large oak trees on the property, which were tional insulation on the west side of the house to to be the living focus of their plan's design. Since block out the noise and reduce solar heat gain. An STC-rated**, staggered, double-stud wall framthey opted not to build a garage, it was necessary to have a designated storage space (the attached ing assembly, in addition to the owner's library of approximately 4,000 books, buffers the sound. shed at the south end of the main house), plus extensive storage throughout the house. They * Sound transmission class (STC) is a rating of sound isolawould also need to have bookshelves for their tion of a building wall assembly. library collection and areas to display their

MARIS ADU (ACCESSORY DWELLING UNIT)

KIT HOME

PHOTOGRAPHER Cindy Apple (www.cindyapple.com) Patrick Barta (www.bartaphoto.com)

PLANNING AND DESIGN Michael Harris Warmmodern Living (https://warmmodernliving.com) MANUFACTURER Lindal Cedar Homes (https://lindal.com)

SIZE 984 square feet

LOCATION Seattle, Washington



Opposite: The exterior siding of the ADU is fiber cement with tight knot cedar at the front and entry. The house was pushed back on the property beyond the edge, so a lower level could be built to include windows and sliding doors to the rear on that level. (Photo courtesy of Michael Harris) my and Frank Soto, owners of the primary house, built the ADU with their original intent to provide housing for either their adult daughter and her family as a starter home or for Amy's parents, but they both declined the offer. So, the Sotos decided to use it as a rental property.





GREEN FEATURES

- Low-flow faucets
- Minimal excavation
- Fiber cement siding
- No VOCs
- Quartz countertops

ENERGY FEATURES

- Charging station
- Mini-split heat pumps
- High efficiency windows and doors
- Strategic placement of windows
- ENERGY STAR appliances and light fixtures
- Super insulation in walls and roofing
- Cross ventilation

DECIDING TO BUILD A KIT HOUSE

The couple say they had no intention of using a kit house manufacturer for their new home, but when they met Michael Harris, an architectural designer and independent distributor for Lindal Cedar Homes, they were "overwhelmed by his knowledge and passion for home design." When they learned about the custom kit process of Lindal Cedar homes, it was a "bonus." They were impressed with the company because they were able to make modifications to the plan to meet their budget and they got a firm price for the house at the onset.

The ADU was built simultaneously with the main house, which saved them money and was another advantage of building their home with kit prefabrication. They initially planned to build a 500-square-foot structure but as their requirements for the ADU increased, it gradually grew larger, close to the maximum (1,000 square feet) allowed at 985 square feet. This allowed them to have one and a half bathrooms, so the primary suite had a private bathroom, a laundry area, and plenty of storage. They also opted to build a basement, which is an unfinished space.

Opposite: Ceiling beams in the living area add warmth and cohesiveness to this area. Clerestory windows bring in additional light along with the wall of windows on the south side of the room.

Right: There is a small eating area in the open floor plan. Two doors lead out adding accessibility as well as light with the porch door glass and the entrance door with glass insets.

Below: The appliances in the kitchen are ENERGY STAR rated. Clerestory windows in this area bring additional light and ventilation to the kitchen and beyond.







THE ADU DESIGN

The ADU was designed with the same interior and exterior materials as their main house—the Sotos call the ADU their "baby house." They wanted this smaller house "to feel spacious and stylish without breaking the budget."

The layout of the ADU has changed since it was initially designed. The dining room was converted into a second bedroom, and the bathroom area was redesigned to have two full baths instead of the initial half bath. Amy and Frank are delighted with this new layout, which the renters also love. The renters "don't ever want to leave," and just installed a charging port for their new Tesla!

Left: Although the floor plan is petite, the open floor plan makes it feel more spacious than it is.