

## Boxabl, the Las Vegas Manufacturer Whose ADUs Unfold, Ramps Up Production

Manufactured housing started before most of us were born, if you include mobile homes. Modular housing, in which components of a building are put together in a factory and then assembled onsite, is also a part of early housing history. I remember attending Expo 67 in Montreal, where one of the exhibits (but not an attraction to be toured) was "Habitat 67," a funny looking 148-unit apartment complex adjacent to the 1967 World's Fair site in which concrete apartment modules were held together by cables.

Then, in 1997, I purchased a home in Golden's Mesa Meadows subdivision which I learned later from a neighbor was built in a Ft. Morgan factory and assembled in one day on the foundation in Golden. Knowing that, I noticed the tell-tale beam in the ceiling which was where the two halves of the one-story home were attached to each other.

It was explained to me that man-

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ufactured homes are often of higher quality and better insulated, because they are done on a factory floor where there is better supervision, resulting, for example, in better insulation. The exterior walls were all made from 2x6 lumber instead of 2x4 lumber to better withstand the stresses of being loaded, unloaded and moved on the building site. Indeed, my Mesa Meadows house was a good one, although I expect the current owners (the third since I sold it) don't even know that it was not stick-built on site over several months, like its neighboring homes.

Next came the "tiny home" movement in which complete homes were often built on a factory floor, wheeled on a trailer to someone's lot, and then put onto a foundation. Some tiny homes were put into service as temporary homes for our unhoused population, formerly referred to as "homeless," on vacant land or in church parking lots — a good idea, but without a con-



ventional connection to a sewer line.

About that time the ADU movement took off, with many if not most cities and counties changing their single-family zoning laws to allow the creation of "accessory dwelling units." These could be walk-out basements converted to an apartment, but often they were apartments created above detached garages or stand-alone buildings in backyards. The typical ADU ordinance requires three things: 1) the ADU cannot exceed a certain size, 2) it has to have its own off-street parking space, and 3) the property owner has to live in either the main house or the ADU and not rent out both units. Some jurisdictions are considering loosening these rules.

Several local businesses were created to cater to this new construction opportunity, including **Verdant Living**, 303-717-1962, owned by **John Phillips**. His ADUs are manufactured in Nebraska and meet local code requirements. You can visit [www.VerdantLiving.us](http://www.VerdantLiving.us) for more information.

A company called Villa started building ADUs in a factory southeast of Los Angeles, after California legalized ADUs in 2020. This company delivers and installs its units across the state, with prices starting at \$105,000 plus as much as \$200,000 for delivery, infrastructure

costs, foundation, and installation.

There's a Las Vegas startup called **Boxabl**, whose competitive advantage is that its ADUs fit on a standard flatbed trailer and then unfold into the simple unit shown at left or to larger homes, such as the 3-bedroom, 2½-bath, 2-story home (assembled from three units) shown at the bottom of this column.

It's a father-son company which has not yet gone public. It was clearly inspired by the factory concept of Tesla, not surprising since the son drives a Tesla. Notice the Tesla wall charger and the Tesla battery unit above it on the exterior of the 2-story building. That picture is from the International Builders Show last month in Las Vegas. It drew a lot of attention, and the company now has a waiting list over 100,000, even though it can't deliver more units until regulators approve its construction.

The company did deliver 156 of its 400-square-foot "casitas" to the Federal government for use in Guantanamo Bay, which helped it build its factory and develop its technology. The company received that multi-million-dollar contract based on its proposal, even though the government knew they hadn't built anything yet.

After completing that contract, Boxabl got a contract from an Arizona company to build workforce housing. Currently the firm is only building and, presumably, stockpiling its 400-square-foot casitas as it perfects its current factory and equips a second factory next door.

Learn more at [www.Boxabl.com](http://www.Boxabl.com).



## 'Everything you need to know about the wild world of heat pumps'

That's the title of an article in a February 14th post from MIT — <https://www.technologyreview.com/2023/02/14/1068582/>

I have written about and provided my own explanations regarding how heat pumps differ from forced air furnaces and traditional A/C systems, but the article cited above goes the extra mile.

If you've spent the night in a hotel or motel, you have probably slept in a room that was heated or cooled by a heat pump, because invariably that's what those units are which you saw and controlled under each window.

In the above article, heat pumps provide the heating and cooling for every Boxabl home. They are also what heats and cools many electric vehicles, since they require less battery power than conventional electric car heaters.

I was surprised to hear that heat pumps were invented in the 1850s but only started being used to heat and cool homes in the 1960s. It took the global climate crisis and the need to reduce our dependence on fossil fuels to make them the hottest appliances in new homes.

Speaking of new homes, however, I lamented as recently as last fall that I haven't found a single new

home builder which has abandoned gas-based home heating or even offers an upgrade to heat pumps. If you know of one, please tell me, because I'd be happy to promote that home builder in a future column.

The MIT article provides some useful information, including about the rebates being offered for heat pump installations. It also debunks the myth promoted by fossil fuel interests that heat pumps don't work in colder climates. They are actually in use from Alaska to Maine, where, for example, my sister in Kingfield, Maine, installed a heat pump in her home to save on her fuel oil bill. Her fuel oil vendor verified that the adoption of heat pumps has noticeably reduced his sale of fuel oil in that rural community near the Canadian border.

According to the article, 60% of the homes in Norway are heated by heat pumps, as are 40% of the homes in Finland and Sweden (where another of my sisters lives).

"Wherever you look," the MIT article concludes, "the era of the heat pump has officially begun."



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