

# Drive & Control profile

## Architect Has Aluminum Frame of Mind When Building Houses



A conceptual rendering of the iT house, complete with a colorful 3D graphic "outfit."

When the Wicked Witch of the East had a house fall on her, could anyone recall the color of the house or what it looked like? If you're still thinking, then you have your answer. Obviously not central to the story, the house was not a memorable one. But for those residing outside of the movies, color and design are everything. Especially for people seeking a unique living experience.

Alan Koch of Taalman Koch Architecture has found a way to create that living experience

with prefabricated "iT" homes, whose structural frame is built with extruded aluminum framing from Bosch Rexroth. The iT house and iT Kit are certainly TK Architecture's signature pieces—creating a completely unique approach to modular housing: A prefab kit with the opportunity for extreme personalization. According to Kevin Gingerich, Marketing Director at Bosch Rexroth Corporation's Linear Motion and Assembly Technologies Group, "The house is modern,

### Challenge

Construct a prefabricated house out of extruded aluminum framing and glass structure that is cost-friendly and sleek in design, without sacrificing quality

### Bosch Rexroth Solution

- Use Bosch Rexroth's lightweight structural framing and easy-to-assemble components to create clean lines and a sleek exterior design
- Provide alternative shapes of aluminum profiles for more flexibility
- Bolt-together construction and factory pre-cut and pre-drilled parts for easy assembly

### Benefits

- Significant reduction of assembly time when compared to steel (or wood) structures
- No special tools or skills needed
- Lightweight components and attractive high-tech look that is rust-free

cool, and easily customizable because of its framework.”

Taalman Koch Architecture was founded in 2003 by Alan Koch and Linda Taalman in Los Angeles, California, but the duo’s collaborations originated in New York City in 1997. Since moving west they have completed a range of architectural projects, including several residences, a contemporary art gallery in Los Angeles, and a master plan in collaboration with Tom Leader Studio for an archeological park in Castelmarre, Italy. The development of the iT house is just another ground-breaking innovation for their firm.

Made entirely with glass and an aluminum structure, the house is for clientele interested in seeking unique lifestyle experiences. The structural frame’s lightweight and easy-to-assemble components create clean lines and a sleek exterior design.



This view from the living room leaves the unfinished kitchen to one’s imagination, while the bathroom is just a few short steps away (right).

Currently, two models are offered: a 1,100 or 1,600 square foot house. Other sizes can be customized, but require a whole new series of designs. The iT houses under construction now are being built with Rexroth extruded aluminum profiles with two main shapes: A 90 x 90 mm profile cross section and a 90 x 180 mm profile. When a house is ordered and the aluminum is needed, a cut list is sent to the nearest Bosch Rexroth

distributor, who then cuts the 90 x 90 columns and 90 x 180 beams to the proper length.

“The challenge was to produce a new kind of prefab house that would provide an exceptional product at a relatively average price through smart erection strategies, reduction of on-site waste, and the elimination of heavy equipment and/or specialized trades,” explains Koch.

One of the main exceptional features of the house is the use of Bosch Rexroth’s structural extrusions, since they are not typically used to build houses. Rather, until now the components have been used most frequently in manufacturing operations to build machine bases, factory workstations, and machine and perimeter guarding. Initial architectural projects have been mostly partitioned office and factory spaces (including cleanrooms) using Rexroth’s special wall and ceiling

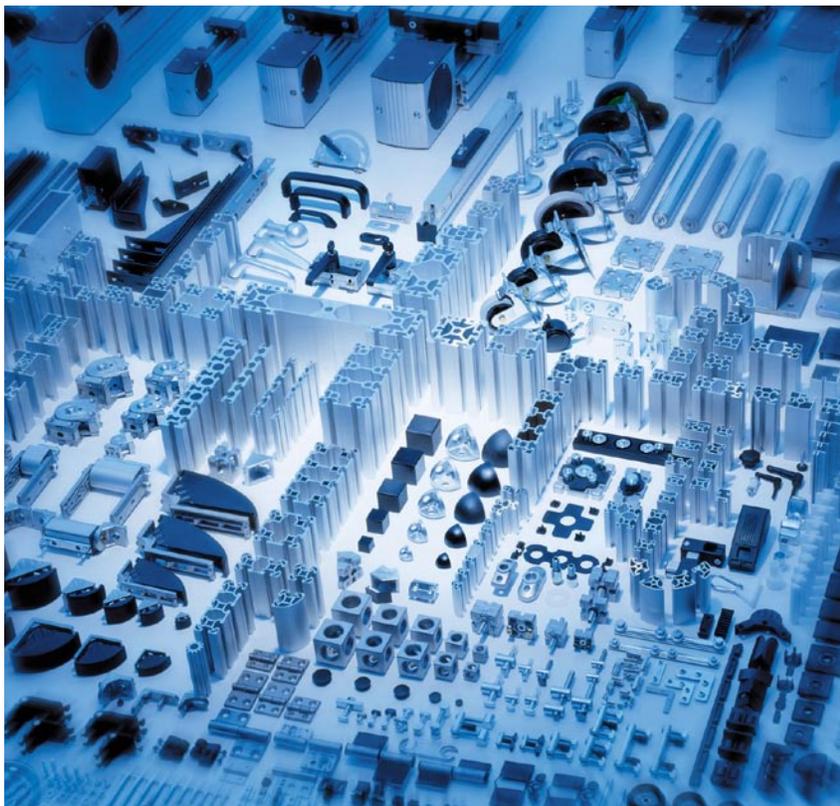


The exterior of this iT house sits near the future home of a new pool and spa and boasts a fire court in the center of the house. The master bedroom looks onto the pool and the kitchen is located on the right side of the house.

components. But the key ingredient in the products' factory success also appealed to TK Architecture: Assembly is easy because of the aluminum framing system's bolt-together construction. No special tools or skills are needed and assembly time is significantly reduced when compared to steel (or wood) structures.

As a result, aluminum structural framing can now add real estate to its list of applications. Advantages include the aforementioned speed and ease of construction with factory pre-cut and pre-drilled parts; lightweight components that require as few as two people to erect a structure; an attractive, high-tech look that won't rust; and a special factory-finish so that once installed, further trades are not needed to complete the work. "All of these elements combined make building the house quicker and less expensive," says Koch. "The parts are extremely high quality, thus making the final product a high quality home."

The idea to build a prefab home from aluminum framing came when Taalman Koch Architecture built an architectural folly/sculpture for the Basel Art Fair in Switzerland. The firm invited conceptual artist Chris Burden to co-design a house with them. Burden discovered a loophole in the Los Angeles building code that would allow him to erect a "house" less than 40 feet tall and 400 square feet without a building permit. The result was a building dubbed "Small Skyscraper." Says Koch of the skyscraper's construction, "While in Basel, it



The Rexroth aluminum framing system consists of dozens of extruded aluminum profiles and hundreds of connectors and accessories. Framing systems like this one are just now finding their way outside of factory applications.

took a crew of four just two and a half days to build the four-story Small Skyscraper. We realized from this experience that it would be a perfect solution for an actual house, and it lent itself most logically to a prefab house."

In order for the team to construct the building themselves, online research led them to Bosch Rexroth's structural framing as the framing system with the best components for their project. Bosch Rexroth was a natural selection because of its global presence, an important factor for Taalman Koch, since they are interested in the distribution network as an alternative to

centralized shipping. "Customers can have quick access to the product and have assistance with the application, design, and building right on site," explains Gingerich. Also important was "the



The easy bolt-together nature of aluminum structural framing makes it ideal for building just about anything.

fact that we were building a scale model of the Small Skyscraper prior to the real one and Bosch Rexroth has a 20 mm component that we could use to make a 20:90 scale model,” adds Koch.

Once a client decides to build a structural prefab house, there are many steps in the process prior to construction. Along with purchasing land, having the site surveyed, building the foundation, installing in-ground plumbing and electric, and a radiant system, comes the iT Kit. The iT Kit is comprised of Bosch Rexroth structural framing, epic steel decking for the roof, Flat-Pak cabinets, storefront/glazing for glass walls, the graphic outfit (a vinyl decal), and appliances and equipment. Once the Kit is complete, there is the final electric and plumbing.

Another unique feature to the house is the glasswork. In the instances of privacy or sun versus shade preferences, 3M graphic film offers an array of choices, from opaque to translucent glass, to graphic designs with colors and patterns. All are laser-cut directly onto the glass from a computer-controlled pattern. “The glass changes the personality of the house, depending on what you want outfitting it,” Koch says.

Originally started in late 2003, Taalman Koch Architecture currently has three of these houses under construction, with another one underway. All houses are located throughout southern California and should be finished by the end of the year. The feedback has been very positive. “It has been very popular. Thousands have been following the construction progress and about 100 people have inquired about buying their own framed glass house. We are building a model in the desert that will act as both a laboratory for new developments and as a space for people to rent and see if the lifestyle is for them,” explains Koch.

Prefabricated housing is becoming quite the rage and according to Koch, “The consumer can buy a house much more like buying a product—what you see is what you get. Otherwise, working with an architect is entering into an open-ended design process where no one really knows what the end result will be like. Although this is a very interesting way to make buildings, it isn’t for everyone. That is where prefab comes into the picture.” He continues, “Clients will also save on the design fees, normally 15 to 20 percent the cost of construction, in buying something that is pre-designed.”

The option of a structural glass house further allows people to make more progressive design decisions in what they choose to live in. Speed of construction is also a huge perk. “The fact that a house can be set up in a matter of days is ideal. It’s amazing that a house of this caliber wasn’t thought up long ago,” adds Gingerich.

As for the direction of Taalman Koch Architecture and their new design, Europe is the next stop. Koch’s goal is to build small garden communities (around five to ten iT houses) with developer partners. A central interest is having small communities share amenities such as a solar farm for shared electrical generation. “Controlling the entire layout of a community can help us establish ideal settings for each home, which is especially important considering these are glass houses,” says Koch. “Also, since Bosch Rexroth is a global company and their main components comprise the houses’ structure, this should be a great, long-lasting partnership.”

**Rexroth**  
Bosch Group