The FuturArc Interview

JAMES SHEN

Principal and Founding Partner of People's Architecture Office

by **Candice Lim**

Part of our basic job is to project better possibilities, or things that people never understood.

The Plugin House concept from People's Architecture Office (PAO) started years ago as a pilot programme in Beijing, and has since expanded to other cities in China and now in the US. Several permutations and versions have developed over the years as an answer to communities' call for solutions in the cities. Their expanding Plugin urban intervention and regeneration projects, extended to other typologies such as schools and workspaces, are not just a delight to the senses, but importantly, they work. Candice Lim from *FuturArc* talks to **James Shen**, one of the founders, who says ultimately the resolutions come from understanding the people on the ground and what their issues are; as well as having strong support by policy; and cross-disciplinary collaboration with others outside of architecture.

PAO is an international practice with offices based in Beijing, China and Boston, USA. Founded in 2010 by James Shen, He Zhe and Zang Feng, the firm is a multidisciplinary studio focused on social impact through design, particularly in the areas of housing, urban regeneration and education. PAO is the first architecture firm certified as a B-Corporation in Asia and serves as a model social enterprise. Fast Company listed PAO as one of the world's 10 most innovative architecture companies in 2018.

CL: We have seen similar types of urban interventions in China, but the Plugin concept that you and your office have done is definitely refreshing. How did that come about? Realistically, how can ordinary folks take up that process with you guys to create this Plugin concept for themselves? Whether for residential or maybe even business?
JS: It really started in this neighbourhood that our office is in called Dashilan, in the centre of Beijing. We're right across the street from Tiananmen Square, so, it's a very historic area. An old neighbourhood, mostly residential, with these courtyard houses. Because it's old, the infrastructure hasn't been renewed; the buildings have not been renovated for a century or more. So, the conditions are poor. And people who live there are mostly of low income and elderly. So, there's no sewage system, no insulation in the buildings and so on.

The city's local government had an open call for ideas, and we were invited to submit. What was really important was that they brought us into this neighbourhood and they gave us great access to really understand all the issues involved, which are extremely complicated. It is the sort of historic district in a large city, with lots of complexity. Because we were given that opportunity to really investigate deeply and talk to residents, we were able to better understand the issues involved and therefore, proposed something that was useful for them. Now, what's also interesting is just next to the district that I'm talking about, on the other side, was a whole other district that was redeveloped in a way that we have heard about in China. Similar area, similar kind of situation, but the whole area was torn down; people were relocated; it was all rebuilt; and it's all commercial now. You have these international brands like Starbucks, Zara, and so on. But that project hasn't really been successful, even from a financial point of view; it hasn't been able to generate the income that would justify this project, or even this approach. That was around the Olympics. I think that indicated a change in approach or a certain phase of Chinese development where they started realising that this is not working. And it takes a lot of effort to do all that as well, aside from all the kind of social unrest and disgruntled people. So, they were left without any

1 & 2 Boston City Hall Plugin House
3 Inside Harvard Yard Plugin House

Photo by Christopher Andrew

Plugin House plugs into Harvard and Boston City Hall

The Plugin House is an easily assembled house made from prefabricated parts. It is a design proposition, suggesting new building technology that considers financial, social and environmental concerns. The Plugin House demonstrates the possibilities of smaller, more sustainable living for contemporary urban landscapes.

There is a movement among local and municipal governments to introduce policy to encourage the construction of small homes in in-fill areas or even backyards, efforts meant to address the housing crisis faced by many cities. Accessory Dwelling Units (ADUs) provide an alternative to the outward expansion of cities. Through in-fill, new housing in existing communities take advantage of infrastructure, public services and community networks that are already in place. While these policies are gaining momentum, the cost of building ADUs remains beyond the reach of most people. The Plugin House can cut costs in half, making ADUs an affordable housing option.

The Plugin House was brought to Harvard University to showcase its innovative features. Sponsored by Harvard's Office of the Arts and the Harvard Loeb Fellowship at the Graduate School of Design, students—new to design and construction—built the Plugin House in the heart of Harvard Yard in six hours using a single tool.

As a central feature of the Harvard Arts First Festival, the Plugin House combined design with arts and culture as an animating force, bringing activity, vibrancy and audience to the centre of Harvard Yard. Working in collaboration with Harvard Loeb Fellow Eric Williams and Chicago's Silver Room, the Plugin House hosted site-specific installations and events, including video installations, DJ sets, art exhibitions and dance performances. Afterwards the Plugin House was disassembled and rebuilt at Boston City Hall. The entire relocation process took a couple days and required no replacement parts.

Partnering with the Mayor of Boston's Housing Innovation Lab (iLab), volunteers erected the Plugin House in front of Boston City Hall. Artists for Humanity, a local non-profit, made drawings on the walls and floor to help visitors imagine how the Plugin House interior could be fitted out and organised. The Housing iLab organised open events with community leaders, policymakers and housing advocates to discuss how solutions like the Plugin House can help alleviate the city's housing crisis. A public exhibition presented PAO's work, information on ADUs and the city's current ADU policy pilot. The Plugin House hosted over 1,000 visitors and collected a wealth of feedback for policymakers during the two-week period.

PROJECT DATA
Clients
Harvard University; Boston's Housing Innovation Lab
Locations
Cambridge; Boston
Completion Date
May 2018
Principals
He Zhe; James Shen; Zang Feng
Project Team
Feng Ziqing; Xu xi; Li Zhenghua; Liang Xiaomei; Xiang Weixing; Kong ming; Zhao Yuemeng
Photography
People's Architecture Office; Housing Innovation Lab; Christopher Andrew; Maggie Janik
Sponsors
Mayor of Boston's Housing Innovation Lab; Harvard Office of the Arts; Harvard Loeb Fellowship; Leping Foundation

4 Harvard Yard Plugin House

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kind of alternative—how do you regenerate an area that needs to be upgraded, but do it a different way? And so, they had this open call. That's why we were able to try some ideas out. They liked the concept, and the next stage was to actually do one. There wasn't really anything available—there's not like a building product that we'd say, hey, this is something great that we can just put here. We actually looked for the building system, the materials, the factories, and developed this approach on our own—working very closely with factories and builders. So, it's not something you can just find somewhere—not just the approach, it was also the building itself that is unique.

And I think people really embraced it. You asked how do regular people get involved with these projects. We didn't really have a good way of reaching out. These communities are very tight; everybody knows everything that's going on. And so, people just contacted us. Neighbours saw this, they witnessed these projects going up, and people using them. Also, local newspapers. We had a lot of press from large media outlets, but actually what was really useful was the neighbourhood newspapers. We had old grandpas coming over and looking at this project, and they're looking around and said "I really need this too", and telling us about their place and their houses. And that was the beginning of the project.

Since this was a government pilot project, it was just for a period of maybe around four years or so. And there was really incredible support. The mayor came to visit, and a lot of officials came, even from a national level. This whole area was actually a pilot area, not just for our project, but also for policy, and that was then applied for the country. So, I think that's something to bring up. Because you need to have this sort of openness for trying things differently in order to have something like this even happen. So, our context was unique, with a lot of support. Unfortunately, as time went on, officials changed and things changed. Attitudes actually changed quite drastically. And it wasn't just our project; it was the city as a whole. There was major shift in policy decisions to stop any kind of this sort of upgrading for these types of areas. So, we were affected by that. And then our project basically paused.

And until now, I think attitudes might be shifting a little bit. But that's Beijing. So, at that point, we know we have to continue this work, and a lot of people were interested. So, we started moving further out. Originally, we were working with the government, together with local residents. Eventually, we just did this without any kind of government support with local residents. So, we were trying really hard to find ways of funding that. And then we also went to other cities; we did a bunch of Plugins in Shenzhen and Guangzhou. We were doing this in Hutong areas in Beijing, and also in urban villages and some other rural areas. So, this was also to see where it could really fit well. And we've also done some that are multistoried, with multi-units. On the ground, in terms of how many we've done, in the Dashilan area, we have done close to two dozen of these. We have one project in Jingdezhen. That is almost done, and it has about 30 Plugins. So, we've been continuing our exploration of how best to use these. But it's still a work-in-progress. After so many years, we're still trying to figure out how best to deploy these Plugins.

5 Boston City Hall Plugin House   6 Interview outside Boston City Hall Plugin House   7 Inside Boston City Hall Plugin House

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Students new to design and construction built the Plugin House in six hours using a single tool.

8 & 9 Activities outside and inside of Harvard Yard Plugin House
10 Harvard Yard Plugin House

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Jingdezhen Plugin House

Jingdezhen, known as China's Porcelain Capital, has been producing ceramics for at least 1,000 years, starting from the Han Dynasty up until the present. The Jingdezhen Plugin House is a series of Plugins created for a historic greenware room, which is a ceramic greenware drying workshop, equivalent to today's raw material preparation and moulding workshop. The building structure is a perforated wooden frame structure specially designed for the ancient ceramic greenware drying process. There are many wooden frames of different heights that can be used to place partitions for greenware drying.

The greenware room is located in the only part of the old town that has been preserved, though it laid vacant for a long period of time. In order to preserve the historic structure while also upgrading it for contemporary use, People's Architecture Office utilised their proprietary Plugin House system to transform the empty spaces into a living and working studio for young artists. The irregular shape and structure of the frames for the drying partitions pose a challenge to any renovation, yet the flexible Plugin system can easily adapt to these variations, demonstrating its advantage.

The Plugin units are freely placed within the wooden frame structure, creating a space within a space, providing a comfortable living environment that incorporates structure, insulation, wiring, plumbing, windows, doors, interior and exterior finishes into one moulded part. The remaining semi-outdoor space between the Plugins is transformed into a variety of working spaces. With the principle of not destroying the original structure, the heritage building has been revitalised and activated for contemporary use, becoming a flexible, future-proof and sustainable crafts centre.

11 The Plugin units are freely placed within the wooden frame structure, creating a space within a space   **12 & 13** The remaining semi-outdoor space between the Plugins is transformed into a variety of working spaces
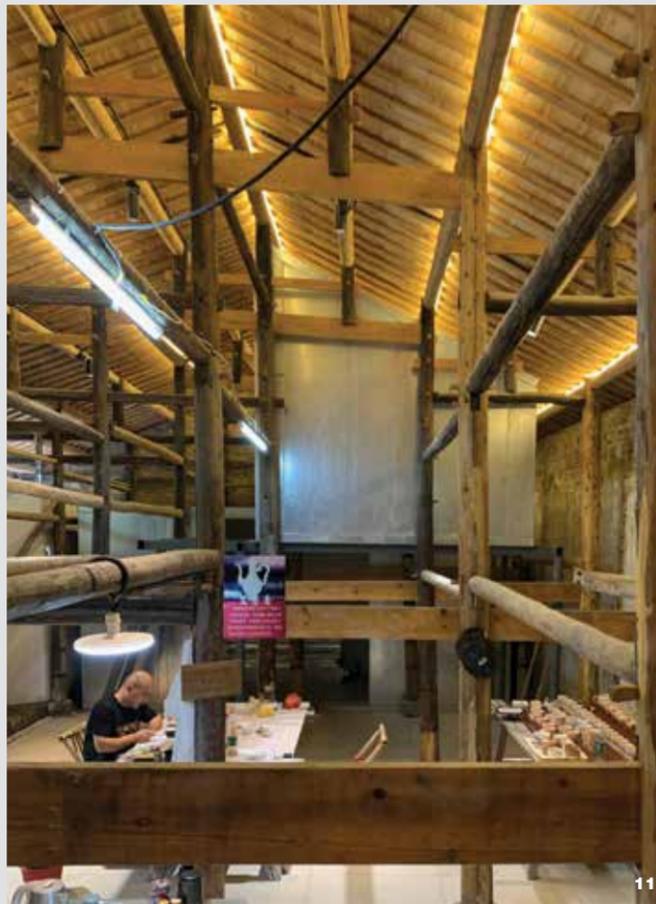
We were trying to understand the situation, and then we came up with something. So that's the way the project developed. And it continues to be that way.

And then more recently, we've been doing these in the US. There is also policy that's really supportive of this type of housing. And by this point, we're not just doing houses inside houses; we're doing standalone homes. So that's also transformed because of demand; that's what people were asking for. To develop the technology to the point where it could also be standalone, that was a lot of work. Now here we've spun off a company that is separate, its sole purpose is to develop this as a product and to sell it. And we're starting in Austin, Texas. We have our units permitted; we have investment and so on; and we're in the process of manufacturing our first few units.

CL: Is there an opportunity where more agencies could experiment with these, especially in terms of mitigating slums? Do you think there is an opportunity for more countries or agencies, especially those with a lot of shanty towns, to look at this as a viable option for their population?
JS: Absolutely, it's possible. Since we started this work, I've also had a chance to visit a lot of places where you have areas of the city that are in need of a lot of help, such as slums and shanty towns, whether or not it's Cape Town, Mumbai or the Philippines. A lot of these cities really have similar issues, and the needs are similar: the mechanics of how the value of property and how people try to retain that value, etc., are similar. When it comes to what we can do, having a building system or product or something like that is only a part of it; how you design is part of it. Residents are usually pretty keen on working with people if we're serious about really understanding what their needs are. So, for the Plugin House, we weren't concerned about that. Because it wasn't like we had an idea that we wanted to try; we were trying to understand the situation, and then we came up with something. So that's the way the project developed. And it continues to be that way.

I realised a lot of the barriers to doing this kind of work is policy. It's not just planning, but there's also building code. If you're doing things out of unique materials, there are a lot of rules and regulations that prevent you from doing that, because there are a lot of safety issues. There's a whole industry, a whole system set up for that. And for this reason, that's why it's been very difficult to really expand this in China. And most of the housing is actually high-rise in China. So, that's why we've been doing this in the US where the regulatory system has some space for material innovations. Cities are built in a way where a lot of the housing is of lower density and is low-rise. That's why our product probably matches this context better. Another part of it is just discriminatory—communities not wanting to have lower-income families near them. I think the pandemic has really made this much more obvious. There are disparities between communities, and it's very much geographic. I'm sure all of us can think of those areas in the cities where the schools are not as great and it has to do with who lives there and therefore, the property value is not the same. And probably these are also areas where COVID-19 is greater because they have less access to public services, and so on. This is extremely serious in the US; the cities are very segregated. And housing is part of that. So, the more we can do to provide more housing for people in those locations, in these places where people want to live, that are not far away, and ensure that it's more affordable, we can positively impact this situation.

CL: How do you think cities can be better designed to alleviate social inequities? Be it access to nature, or natural infrastructures, or even just common facilities? How do you think cities could do better? And how can architects and developers play a more substantial role in this?
JS: You know, there's no secret as to how cities can be better. We don't need more ideas on how we need to be better. In general, all of us, any kind of architect or urban planner—you don't even have to be trained in design—understand what makes a city better. All the approaches of mixed use, mass transit and higher density, all of that we do well, and we can all find small examples of how that worked out well. I think what we can do as designers is to find more ways of realising this. As designers, we're not policymakers. We can do our part and vote if we can to make certain changes, in a certain political system that allows you to do that. Even if you can't, you're still able to envision possibilities that other

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14 to 15 Jingdezhen Plugin House

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The Yubei campus of Cuibei Experimental Primary School

The Yubei campus of Cuibei Experimental Primary School is a Teng-Nor School project under the charge of Luohu Preliminary Office.

The project is led by China State Construction Technology, and People's Architecture Office is responsible for the architectural design. It took two months to complete the flash construction from design to construction. The modular box construction system was adopted, and the permanent building standards were upgraded and integrated according to the school building requirements. Various units such as interior decoration, exterior green wall modules, multifunctional interior corridor modules, etc., were quickly assembled on-site after high-precision processing in the factory.

The campus site is small with no full venue for events. Thus, the building adopted an enclosed plan layout to maximise the use of the site. Hence, the inner corridor, roof and courtyard are fully utilised to form a 'three-dimensional' activity space. Since the school is close to the surrounding buildings, the metal mesh green wall increases the privacy of the line of sight while isolating noise to a certain extent.

On 14 September 2020, the Yubei campus of Cuibei Experimental Primary School was successfully put into use. The simple yet child-friendly and well-designed building has received much praise from the school.

PROJECT DATA
EPC General Contractor
China Construction Science & Technology Group Co Ltd
Architectural Design
People's Architecture Office
Principals
He Zhe; James Shen; Zang Feng
Project Team
Sha Jinghai; Wen Hao; Kim Dahyun; Zhang Shengyuan
Interior Design
China Construction Integrated Building Co Ltd
Design Consultation
Zhu Yimin and Tu'an Studio; He Chuan Architecture Studio; Shenzhen University the Institute of Architecture Design; Research Hechuan Studio

16 Various units were quickly assembled on-site after high-precision processing in the factory
17 The building adopted an enclosed plan layout to maximise the use of the site **18** The inner corridor

people are not able to envision. That is part of our basic job, which is to project better possibilities, or things that people never understood. Like when we proposed that you build a house in a house, that kind of sounds ridiculous when I say it or doesn't make sense. But once you do it, and someone walks in there and sees it, that makes a big difference. So, that's part of our work.

For example, we built a Plugin House with the city of Boston, and installed it in front of Boston City Hall. This was the mayor's Housing Innovation Lab, where their job is to innovate with policy. So, they're working with us, and together, we're covering policy, building technology, design, and with this demonstration, we're also inviting people into the space to have discussion and collect feedback. It's really surprising when people walk in, and they say they can imagine this in their backyard, and why don't we have more of this, so on and so forth. So, we really need to build support for our ideas, in ways that only designers know how to do.

A lot of the work that we see these days, especially from younger offices where you're not going to start off usually designing enormous museums and things like that, there's a lot of exciting energy around doing urban interventions. Or things that are more event-based that might be temporary, but allows you to try things out in full scale within a lively part of the city and then expose people to possibilities. That's one way that we can push our work forward. And I think the other thing is to try hard to be serious about working across disciplines; working and reaching over to people who are doing things that are important yet different from what we do. None of the projects that we've talked about could have become a reality without extremely strong support from policymakers, community leaders, producers, factories. I think that's really important. I don't think I see that very often, especially in academia. The way that we're trained as architects tends to be more of a closed environment; sort of a closed discussion. And if we just reach out and talk to residents, then we can understand the needs of architecture so much better, and ensure that we're really able to make a positive impact.

CL: Absolutely. More people need to talk to one another, not just at the policymaking level, but also grassroots and so on. A lot of examples that we see here in Asia, like Indonesia, it sometimes depends on who the mayor is. Some ideas that were carried out have been regenerative in nature, such as community gardens, naturalising waterways; while others were about redeveloping abandoned spaces, to make good use of them again, rather than leaving them empty.
JS: You know, the political environment is important; you're visually paired with those who are in power or who have influence. But we're not tied to where we are. We can work in different places. And hopefully, if we're lucky, we can find the right situation to do something that is effective. I can understand the difficulties of doing the work that we want to do. But I also feel like there's a lot that we have within our control to push things further.

CL: We did a story previously about architects who became mayors, and how they would understand at a different level the things that they see could impact their communities. And I remember one of them saying that he has to make sure his ideas get fulfilled during his tenure. Because after that, it could end up being just a plan on paper.
JS: The mayor I was mentioning was trained as an architect. People who really understand the impact of the environment and urban issues can often be extremely helpful. But of course, it doesn't have to be that.

CL: What's your vision for Plugin 2.0 or 3.0?
JS: It's continually changing. And for the reasons that we were just talking about—a situation changed and what can we do? I mean, we can dump it and try to do something else. But I think we had enough momentum, and there're some really deep, interesting aspects of this work that were well worth exploring further. Right now, we're putting on another hat as entrepreneurs and trying to see how that could work. We're still primarily architects and focused on our design work, but what architect doesn't want to try turning their work into a product that can then be scaled? So, that's something that we'll try. And we're also trying to expand the system to something that is multi-storey. Cities really need that type of housing. And we've been using different kinds of prefab modular systems.

A lot of people heard of that hospital in Wuhan that was built in a week. So, during the same time, we're building schools using the same exact system; we've been working with that manufacturer to build schools that would be erected very quickly. So, we are exploring as many kinds of opportunities as possible that are in a similar direction.

James Shen is Principal and Founding Partner of People's Architecture Office (PAO)/PIDO. He received his Master of Architecture from the Massachusetts Institute of Technology and a Bachelor of Science in Product Design from California State University, Long Beach. Shen has been a Loeb Fellow at Harvard, a Senior Research Fellow at the Harvard Joint Center for Housing Studies and an Innovation Fellow at MIT's China Future City Lab. He has taught at MIT's School of Architecture and Planning and Harvard's Graduate School of Design.