

02: From SUB.urbia to SUPER.urbia

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It is a pleasure for me in Elemental and the Chilean architects and engineers partnering the Católica University and the Chilean Oil Company (COPEC) to be here. The raising of the standard of Chilean education and practice is connected to the RIBA requirements for accreditation, so it is a great honour to be here.

Today I am going to present three things. First, a lens through which we look at reality and through which we organise our practice and which can be applied to any type of architecture we deal with. The second thing I am going to show is not that we are social housing experts; we are just architects. We are trained in the strategic use of form and we apply it with a great deal of thought to social housing, but not exclusively. Finally, I am going to tell you about some Elemental experiences where we are working in parallel with the city as a powerful vehicle towards development, but also as a short-cut to equality. We are trying to design at both ends of the spectrum in Elemental and it can be defined as a “do tank”: we ‘do’ housing.

This approach to design, which can be applied to social housing, can be explained by the following example: Imagine that we are asked to design a chair; the chair in illustration 1 might be the most basic chair we can think of. But then we saw something else that changed the way we thought – the chair in illustration 2.

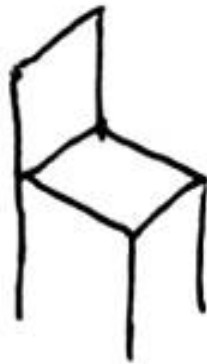


Illustration 1: a basic chair

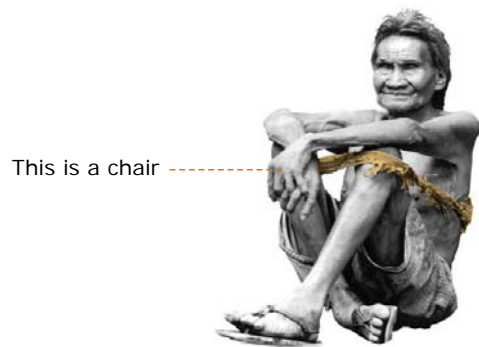


Illustration 2: a cloth chair

Three things can be said about this chair wrapping around this Indian from Paraguay (illustration 2). The first one is that this man cannot afford anything but this modest piece of cloth as a chair, so to know how to design with scarcity of means is **relevant**. Second, this man is a nomad so even if he had more money any other design as a chair would make no sense, so design has to be **precise**. Finally, this design represents a kind of limit beyond which you cannot keep on taking things out because the noun “chair” disappears and there remains only the verb “to sit”. So design has to become **irreducible**.

Our approach to design can be explained by the following equation. The piece of cloth is to the chair as X is to architecture. Our aim is to try to find the most relevant, precise and irreducible value for X. With that approach we have been using form strategically to design buildings for the university (illustration 3) and then applying the

same approach outside Chile (illustration 4) and in recent projects in Europe that we are about to start.



Illustration 3: Torres Siamesas UC



Illustration 4: St Edwards University, Texas

Elemental started in the year 2000 at the University of Harvard where I met my partner, Andres Iacobelli, a transport engineer. We started to work in social housing and what I am going to present today is mainly a social housing project that started back in 2003. My partner is a transport engineer so infrastructure, public transportation and public spaces are a natural development of what started as a housing project. Illustration 5 shows the way Elemental works with the many elements in the city.

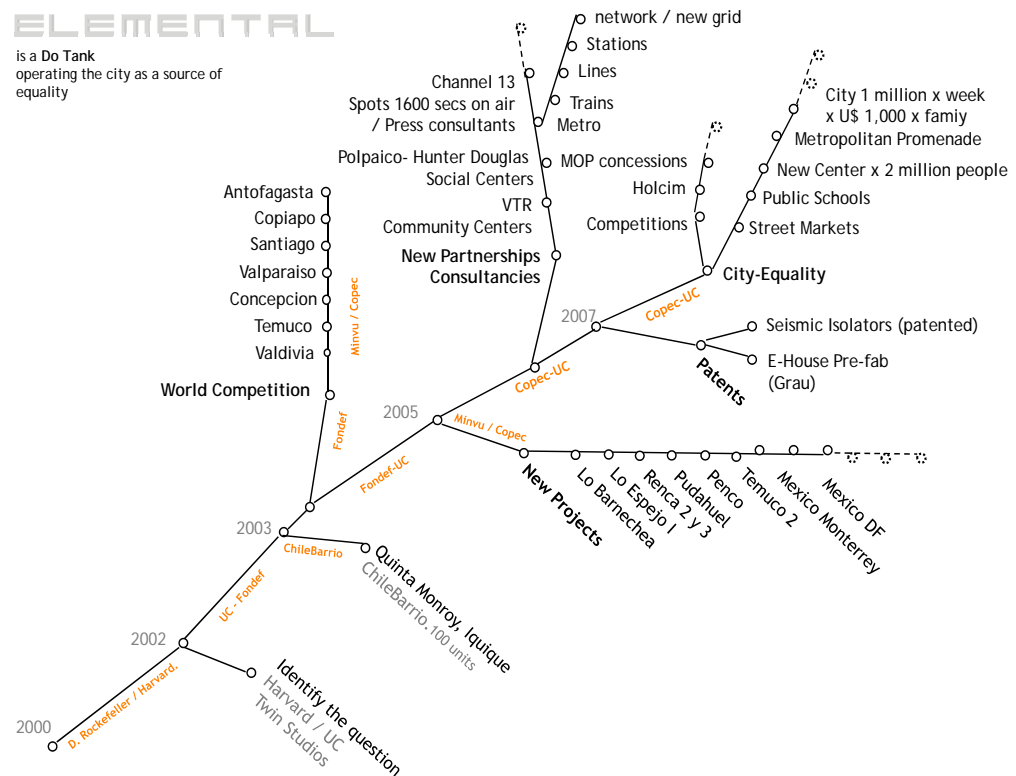


Illustration 5: The city as a source of equality

If I had to summarize what we have done in Elemental I would say we have two points. In the world, whether it is from public funds or corporations or from any other means you only have enough money to pay for half a house. If you go to Mexico it is \$8,000 for around 20 square metres; in Chile it is around \$12,000 for around 40 square metres. If you go to Africa it is pretty much the same situation as Mexico, so in the end you only have enough for half of a house. When you only have

enough money for half of a house the key question is which half do we do? We thought that to be strategic we had to do the half of the house that a family will never be able to achieve on its own. We identified five design conditions that a typical family needs to develop efficiently, safely and economically and we took care of that first difficult half. That is one point.

The second point relates to the on-going debate about quantity versus quality. We do know how to generate coverage; how to generate quantity of units per year but it is not clear that we are able to combine this with quality. I do not know what the case is in the UK in terms of quality, but certainly in Latin America and many other Third World countries, the criticism tends to be that housing units are like matchboxes – they are small and they are poorly built, they are fragile. So if you want to produce better quality units the immediate tendency would be to make them bigger, better built and with better finishes. That would be the right answer, but to the wrong question. We thought that to address the problem of social housing we had to redefine the notion of quality. Back in 2002, while simultaneously doing the project in Iquique, we said that quality in social housing meant to design a unit capable of gaining value over time. That is not the case in social housing in Latin America. In Latin America it is closer to buying cars than to buying houses. Every day that goes by its value goes down. That is a tragedy for public funds but also for poor families. Housing subsidy is by far the biggest aid they are going to receive in their entire life from the government so if they cannot make the value of the subsidy improve, we are going to be wasting the opportunity to help those families overcome poverty. Therefore, we identified a set of design conditions which could guarantee housing units gained value over time. If we can do this, we will be treating housing as an investment and not as a social expense. Again this is not something that we knew before, it is something that, while doing, we became aware of.

We had to follow two conditions. We had to build, but we also had to follow exactly the same rules that everybody else was following - accept the policy framework, accept the market conditions, the time-frame, scale, cost, everything – this is the only way you can prove your point, dissolve scepticism and replicate the experience to make it become mainstream and not just an interesting exception.

The rules for our social housing projects were these: Until 2001, when we started working in social housing, the Chilean housing policy consisted of a \$10,000 voucher composed of a government subsidy of \$3,700, family savings of \$300 and then a bank loan. The government realised that this had two problems. Firstly, families were not paying back the loan because the quality of the houses was so bad they felt it was unfair to pay back for something that was of such bad quality, so in effect there was an invisible subsidy. The second reason is that the government thought they were not focusing correctly on the poorest. It is not that the poorest do not have an income, but they do not have a regular income; that is why it is very difficult for them to pay back a monthly loan. They came up with a new policy that consisted of an entire subsidy, more or less double what it was before. This came mainly from the savings that would be made through not having to go through the administrative work of collecting money from loan arrears. The families kept their savings and had no debt. Even though the subsidy in itself was bigger, the total amount was less. \$7,500 was the set of rules within which we had to operate. With \$7,500 we had to buy the land, provide the infrastructure and build the house.

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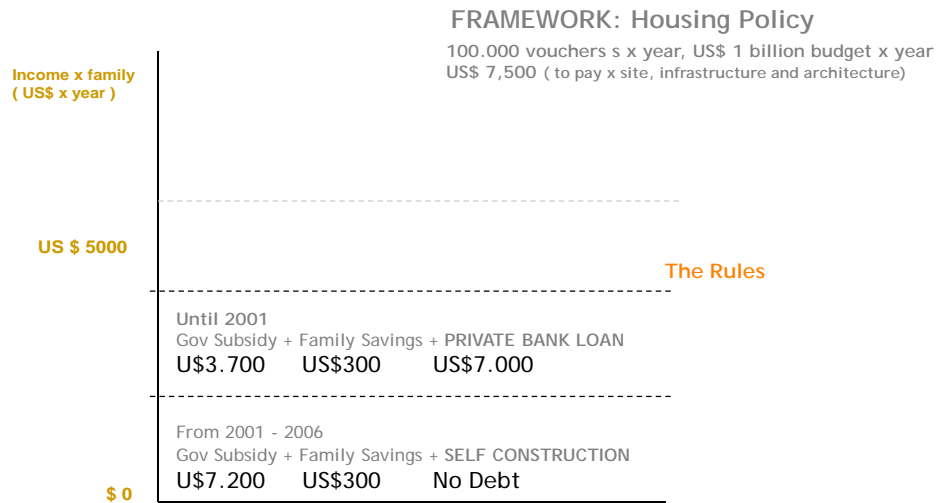


Illustration 6: the housing policy

Since this was a new policy the market had no idea how to cope; the assumption was that less money meant smaller houses, farther away where land tends to cost less. So we invested some time and professional capacity in trying to re-frame the question. The government asked us to solve this equation in a city in the north of Chile called Iquique. In the city centre 30 years ago, 100 families illegally occupied a lot of 5,000 square metres, half a hectare. They asked us to settle those families in the same lot. We had to buy that piece of land using the \$7,500 subsidy which, in the best of the cases, allowed us to build 30 square metres. That was the equation we had to solve.

In Chile this is called campamento and in Brazil it is called favela. Illustration 7 shows how it looked. It was very well located, but then due to the labyrinthine configuration there were environmental problems, drug dealing and so on and therefore the quality of life wasn't good. Even though the quality of life inside here was very bad, the city around was highly desirable - this is where these families had their networks of jobs, schools, health, transportation etc. That network of opportunities that the city offered to these poor families was reflected in the price of the land which was three times more than social housing can normally afford.

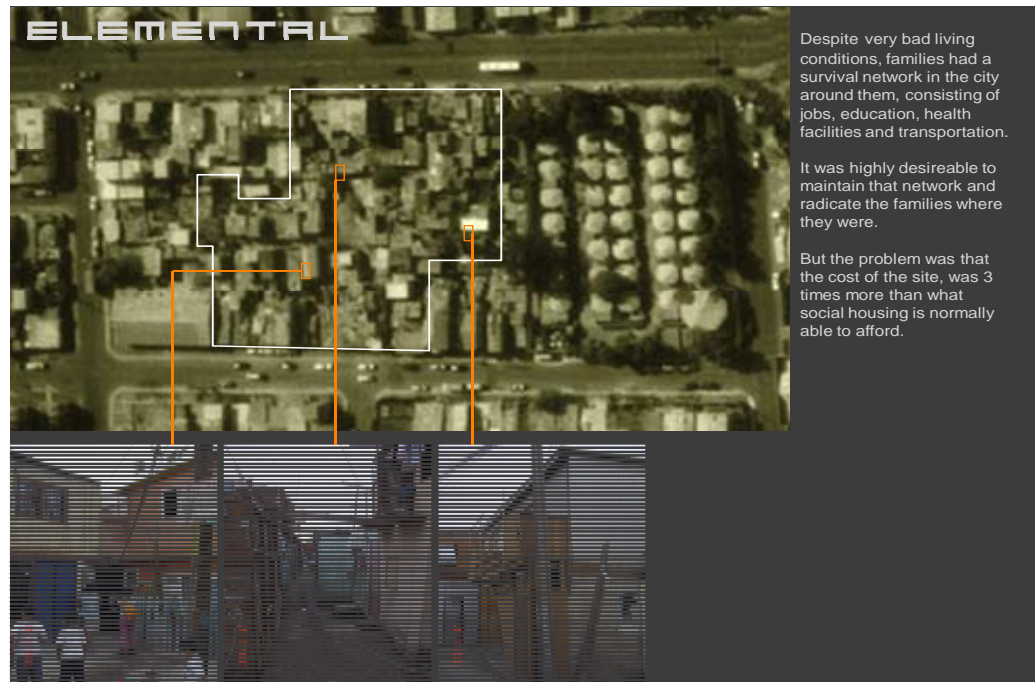


Illustration 7: the illegally occupied lot in Iquique

We began a process of consultation with the families to find out what their expectations were and to explain the constraints we were facing. The families were expecting – along with almost everybody else – to have an isolated house. Everybody told us the families will accept nothing but an isolated house. This would mean we would only be able to fit 30 families in the half an hectare site so 70 families would have to leave. If we put together all the subsidies from these 30 families we could not even buy the land, not to mention that there would be no money left for building.

Let us assume that we got the site for free, that some millionaire knows about this and buys the site for the families. If you build these isolated boxes you can't guarantee the quality of the urban environment in the future, which is one of the main reasons for the decrease in the value of the property. The initial housing unit can easily be swallowed by self-construction. We were working in a niche where 50 per cent of the urban layout would be self-built with no guarantee of the quality of the self-expansions. The conclusion therefore was that the isolated housing units were not an alternative; this had to be agreed with the families.

We looked for a second alternative available there in the market, the row houses, two storeys high. In this type, the size of the lot has been reduced, making it equivalent with the width of the house and even more with the width of the room, so we are talking about three metre wide houses. So in this case whenever you want to expand you block kitchens and bathrooms or you have to walk through a room to access the new room, so instead of efficiency in the use of the land, what we get is overcrowding. We concluded that this was not an alternative.

Finally, we looked at high rise buildings which in Chile are called blocks. The families threatened to go on hunger strike if we even dared to offer this as an alternative. This had been the previous housing policy - 40 something square metre apartments. The pressure for growth is so big that the occupiers tend to demolish walls over here and there and the next earthquake – in Chile we do have a lot of them – is going to be

quite dangerous for one-third of the city. This was not an alternative. Conclusion? We had a problem.

We had to innovate. The main change was done in the question; we thought we were framing the question in the wrong way. Instead of multiplying the 7,500 units 100 times over this site, which we had been doing, we asked ourselves what is the best \$750,000 building that we can build which can accommodate 100 families and their expansions to at least double the size that we can initially give - 36 to 72 square metres at least?

The problem with high rise building is that they do not allow expansion. That is true except on the ground and the upper floor. Ground floor units can expand horizontally onto the ground, upper floor units, vertically into the air. So we did a building that had only the ground floor and the upper floor. With that we tried to cover as much urban front as possible to guarantee some quality in the future after self-construction. In the voids we expected those housing units to expand. At the urban scale we organised them around a courtyard so that families could control who enters in and out as security was a great issue for them.

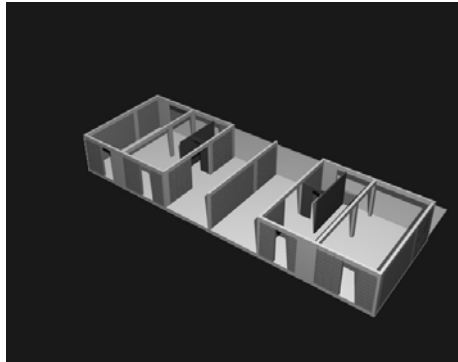


Illustration 8: 6 x 6 metre house in a 9 x 9 metre plot

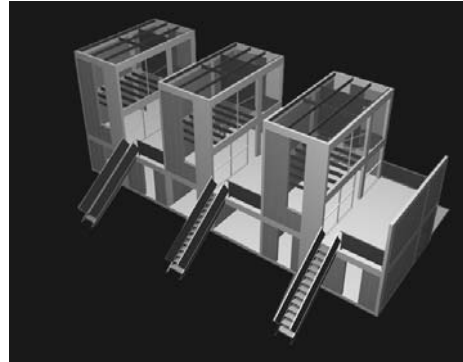


Illustration 9: 3 duplex apartments each 6 metres wide

The specific solution was a 36 square metre house on the ground floor, then a slab, a kind of horizontal partition wall, then a duplex on top six metres wide. This has direct access to the public space because there was enough evidence that common shared areas are not maintained in these social environments. This is what we could give to families on day one and we expected those expansions to happen that day in the afternoon. We had to share with them, with every available tool, what we were trying to do. We used PowerPoints, models and community workshops. Then we asked family leaders to draw and write to verify that we were on the same page regarding the project, trying to anticipate how they were going to modify it themselves (illustrations 10 & 11).



Illustrations 10 & 11: working with the families

We were competing against this box on the outskirts of the city (illustration 12) where land tends to cost nothing.



Illustration 12: the type of housing we were competing with

For the same money we were able to build homes in the same place where the families have lived for the last 30 years, paying 3 times more than social housing has ever paid for the land. Being able to maintain the families' networks in the city meant they could keep their jobs and could actually keep on adding to their initial house units.

Our point is, if the first half cost \$7,500 on average, the second half - the next 36 square metres, would cost \$750 because the occupiers do not have to do structures. That was our job as part of the first, difficult half. The value of the housing units today starts at \$20,000.



Illustration 13: the housing units in 2005



Illustration 14: the housing units in 2006

Many subsequent projects came from an international competition that we ran because we wanted to expand the experience to other conditions – geographically, economically and to different types of set-ups. Now we have been moving outside Chile as well with new projects, trying to develop an entirely new way of operating with the city as a short-cut and as a source of equality. There are different versions for a rainy climate in Santiago; different designs for different conditions, always with community participation. In this case there are spectacular views over the Pacific Ocean:



Illustration 15: Spectacular views over the Pacific Ocean

In conclusion I would say the equation we have to solve in the world is how to build half of the house for one million people per week with \$10,000 per family, which is pretty much the base cost — for the next 20 years. There is great need, not enough resources and, mainly, not enough knowledge. Everybody is welcome to try to find more answers to this very challenging question. We do need professional capacity more than professional charity to solve this problem.