



3b Competition elective/ research essay

ASCA Student Steel Design competition: Assembly housing
-The Community Building-

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The Conceptual motivation behind this project stems from an ongoing dialog between Lindsey and Myself. A dialog which bounces between a few very complex issues facing not only Vancouver city, but urban centers around the world. Issues about housing shortage, the post suburban metropolis, growing food shortages, as well as mass environmental, economic, and social change. Vancouver's existing initiatives and unique situation served as a fertile hotbed for these ideas to flourish and the requirements of the ASCA competition provided an exciting proving ground to experiment with some of these design ideas. The Assembly Housing competition put emphasis not only on steel construction and urban context; but also on major design initiatives such as affordability, efficiency, prefabrication, adaptability, and even kit of parts design strategies. This long list of objectives allowed Lindsey and I to aggregate a number of ideas and goals into the community building.

Previously in our respective academic careers we had both experimented with the ideas of designing a system instead of a finished product. Developing a kit of parts as opposed to a building in order to propose a project that was adaptable and could continually change. Lindsey brought experience of her 2b final project community gardens (1) which proposed a community center as a kit of parts which was to be built over time by the community itself enabling continuous future growth and an undetermined final product.. I drew off of a project I did with David Henderson as our 3B final term project. *The infrastructural transect* (2), a team design and research project that proposed a new way of doing infrastructure, particularly the highway. The project used a new raised highway and new border-crossing sited in industry heavy Sarnia; utilizing a complex kit of parts we developed an industrial ecosystem that could potentially purify the toxic skies of Sarnia, as well as provide renewable energy for the city. Both of these previous projects served as a proving ground and learning experience where we both experimented with mapping, sustainable design, the concept of phases, and architecture that could change and adapt over time. Both projects tampered with the traditional role of the architect as not only designer, but as researcher, and inventor.

The Proposal draws of a number of somewhat disconnected precedents, and the project was approached with the desire to experiment with all aspects of the building.

As we began the project we recognized it as this is a learning process, we right away began looking at compact housing options, with the desire not just to achieve density on the site but also to create a livable vertical community. Looking at smaller spaces, camper design, boat design, temporary structures, tree houses and small in-fill projects we began to acquire an understanding of what i meant to be compact. In the process we discovered the C1 house by milligram studio (3). This particular project influenced the unit design greatly as the millwork in the kitchen was particularly inspiring its function was hidden so much so it took quite some time to discover that the sleek counter we were looking at was actually the kitchen. Blown away we began us to push this idea analyzing the necessities of living and hiding them in plane sight we were trying to create a contemplative clean space for someone to live without clutter. Along side the C1 house we also looked at custom kitchens by Valcucine (4) allowing us to branch away from traditional kitchen appliances as we were trying to pack a house's worth of function into a rooms worth space.

In order to create an flexible project we knew we wanted to design a kit of parts and to learn how this might be applied to our homes we looked at other existing kit of parts products in our society today . as well as the concept of mass customization production . We looked at how we buy our cars: a basic form (chasis) various engine types, colour, interior finish, and features. But we also looked at how we buy our computers, namely the Apple G5 Power mac (5) in its current form. The power mac is unique in that unlike a car Power mac offers a continued ability to upgrade. The computer starts as a base model and at the time of purchase you have the ability to "pimp out" the computer or just select what it is you can currently afford. The designers however understand that the computer industry changes very rapidly and that most consumers will need to upgrade eventually and with the power mac instead of replacing the entire thing you can buy more capable parts (bigger hard-disk, more RAM..etc). this concept for the computer extends life of the product and also to the longevity of the design enabling it to become a classic in only a few years. This kit of parts mentality was used primarily in the design of the units where the entire home would be would be pre-ordered (maybe even online), pre-fabricated and delivered to site in nice clean package.



1- Lindseys Community garden project showing infrastructure



2 - The infrastructural transect - rendering



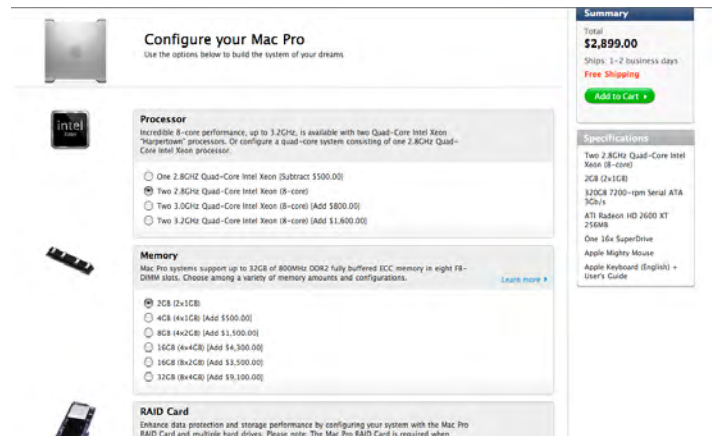
3 - Kitchen from C-1 house by Milligram studio



4 - Example kitchen from Valucine



5 - Apple's G5 power mac

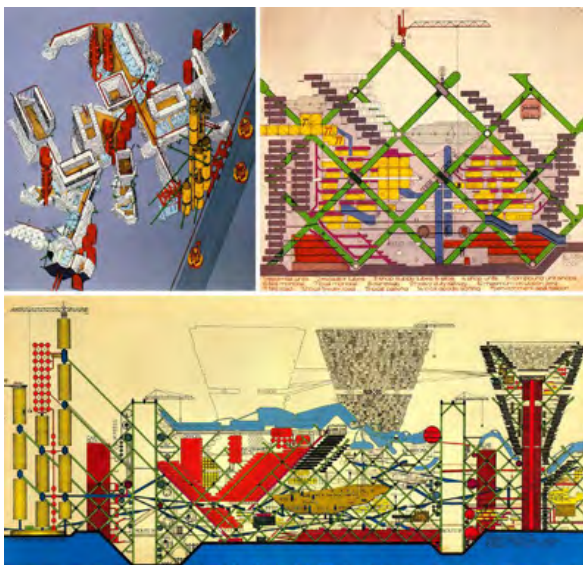


The dual facades of the project came directly from the site, there was a desire to make fast smooth clean face. That would address the more public facade of the Granville st bridge. This smooth monolithic side would contrast with a more intimate facade on the east face which would be broken up to reflect a vertical stacking of individual homes. After deciding this relationship we discovered a number of projects with a similar facade treatments. We discovered the Manchester civil justice center by Denton Corker Marshall (6) as well as a local building the Telus House Atrium by Busby Perkins Will (7), located on seymour st here in vancouver which i walk by on my way to work every day. Both of these projects helped inform the treatment of the curtain wall along the Granville st face. The other more intimate side of the project was developed to extrude the units in a flexible almost random way to show the individual inside of the collective, this meant cantilevering the units or making them seem independent of the rest of the building. Archigrams “plug in city” (8) was hard at work as a concept here with the desire to make each of the units pre-fabricated. these



6 -Two images from the Manchester city Hall by Denton Corker Marshal

Busby Perkins Will Telus Building



Archigrams Plug in city



Doctors Office by Akira Yoneda

units would be craned into position with all the millwork, plumbing and finishes inside. Initially we had planned to cantilever the units and after seeing a publication in a recent MARK magazine were put onto the doctors office by Akira Yoneda (9). The office feature a doctors study on the 2nd level which is a 16 m long cantilever posed like an out stretched arm complete with a shoulder joint. We adapted a similar construction method for our individual units. Then after the concept for the crane was developed we thinned the structure to suit a simply supported beam.

In desire to address the global and local issue of rising food prices and food shortages we wanted to fully integrate urban agriculture into the design, learning from work such as: Atelier SOA's "The living tower"(10), various ideas from Ken Yeang(11), Knafo Klimor Architects winning entry for the Living Steel competition "agro Housing" (12) most of these allowed us to generate ideas for garden plots in an urban context. We also drew off the ancient agricultural practice of growing rice (13). we used the existing south facing slope of the bridge off-ramp and adapted the rice patty to fit.



10 - SOA's "the living tower"



11 - An Example of Ken yeangs work



12 - Knafo Klimor Architects "agro housing"



13 - rice patty

We experimented thoroughly with the form of the building at decided a longer and thinner building was not only the most attractive. One precedent we found very inspirational in that regard is the Gifu Kitagata apartment building in japan (14). Designed by Kazuyo Sejima & associates we were attracted to the project because of its apparent lightness, transparency, thin floor plate, thru units, connected levels, and shared amenities. also a thinner building would potentially function exceedingly well from a sustainability viewpoint. Allowing for easier ventilation, better two sided sun exposure and a thinner shadow cast on adjacent lots.

The Design of the structure itself was influence greatly by the surrounding context. the adjacent bridge inspired us to try for something quite industrial. we also looked to other buildings that used steel in a unique way we came across the Biblioteca José Vasconcelos in mexico. The project uses large concrete spanning beams which span over the library, and from these the book shelves are suspended, the result is not a column filled ground floor but instead a large unobstructed open space with the the multitude of book shelves hanging but a few meters from the ground. creating a space that seemed to defy gravity. The building also used steel in tension which we found bold and breath taking. The question that remained in our minds what how to incorporate a similar idea and achieve the same effect in a residential building within such a restricted site. The last peice of the puzzle came from observing the crane filled skies of Vancouver's down town. The idea of a balanced crane system was developed and the form of the cranes was inspired by emulating the human form with out stretched arms holding a chord weighted at both ends, with the compression moving down the arms and focussing into the shoulders, and ribcage then transfered through the legs



14 - Gifu Kitaga apartment building



Biblioteca Jose Vansconcelos - library, mexico

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Lindsey Nette and David Schellingerhoudt, University of Waterloo student work, terms 2B and 3B