

“Living Smart: Big Ideas for Small Lots “ was a competition put forth by the city of Portland. With an increasing growth of population Portland has experienced an increase in the need for affordable housing, in the proximity to the downtown area in order to avoid suburban sprawl.<sup>1</sup> In the recent years the city has started to encourage home developers to clean and re-use old industrial sites and build affordable homes on these narrow in-fill lots in the downtown area. Hence the competition brief, which was put forth by the city of Portland, had called for a design of affordable single-detached housing type on 25-foot wide lots. The design was intended to minimize separation (at least visual) between living quarters and the streetscape encouraging pedestrian friendly streets by minimizing the impact and barrier that a garage creates in a typical suburban home. It was also required that the design should

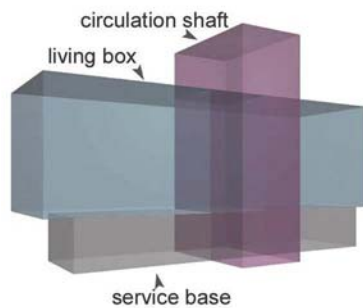


**Figure 1: Exterior Perspective**

meet the budget of first-time home buyers while proving compatible with variety of neighbourhoods through implementation of contemporary technologies as well as sustainable practices.

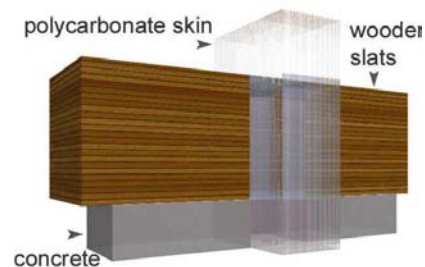
The design of our "flexi house" [Figure 1] was fuelled by the requirements of the competition brief. We were determined to

provide comfortable, luxurious living in a small, single-family affordable home. To achieve this, the building volumes were pulled apart in order to create double height spaces, which were delineated by the choice of materials used for both interior and exterior finishes such as wood siding and parquet flooring [Figure 2 and 3].



**Figure 2: Building Volumes**

The interior spaces are very flexible, separated only by the circulation core, which contains pocket doors that can be closed for privacy, and are otherwise open-concept.



**Figure 3: Material Concerns**

The volumes of our flexi-home are divided into: “living box” supported by a “service box” below



**Figure 4: Side Elevation – Illustrates the materiality of the Building**

it, while the “circulation box” connects the three together [Figure 2]. The “living box” is finished in local recycled wood inspired by diverse and economical use of wood by Dutch architect John Godsell. The horizontal siding adds dynamic to the building [Figure 4]. We have also borrowed the idea of louvered windows from John Godsell’s “Carter Tucker House” [Figure 5] in order to maintain visual continuity while providing cross ventilation. The service box is made of concrete and acts as a base for the living box [Figure 4, Figure 1]. The living box in turn becomes the focal point of the design; it protrudes out to meet the street tucking the garage underneath. This provides a meeting space in front of the house that maximizes semi-public space, an extensions of the public sidewalk [Figure 1].

Similar condition reappears at the back of the house, where the protrusion creates a small private garden as an extension to the kitchen/dinning room. The other private garden is located on green rooftop. This provides a sustainable feature, it creates insulation for the roof as well as providing the family with a space to keep planters for a small garden or just use it as a green patio. The green rooftop is easily accessible from the circulation core.

The circulation core thus becomes the unifying element, and the vertical focal point. It marks the entrance point to the house acting as an anchor. It also acts as a light shaft to the inner most part of the house. It was inspired by The Finish Embassy in Australia by Vesa Huttunen and Nikolas Davies where the architects used the elements of semi-transparent circulation core that ties the entire house

North/South axis of the

axis of the



**Figure 5: John Godsell -Carter**



**Figure 6: Finish Embassy in Australia**

together. ( *Figure 6* )

The material used for the circulation box finish is a colour transparent polycarbonate panel (*Figure 7*). They are composed of a layer of glass encased in corrugated plastic. This wall composition gives effective heat-loss reductions when used instead of regular glass. It is also worth noting that Polycarbonate corrugated panels have a very good light transmission properties, profile structure, with added performance in extreme

temperatures. According to the suppliers, polycarbonate corrugated panels also have the perfect combination of strength, light transmission, flexibility, lightweight, and transparency with weather resistance.<sup>ii</sup>

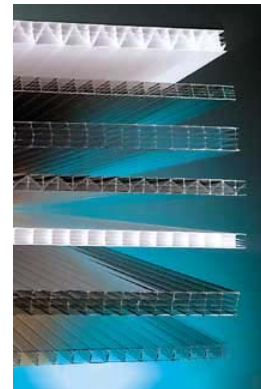
Although we have put much care into the exterior design of our 'flexi-house', we have also made a great effort to make the interior of the building as spacious, well lit and comfortable as possible. Garage, laundry room, kitchen and storage are located in the service box while the living room, study, and bedrooms are located in the living box (*Figure 8*).

In order to create a feeling of larger space we have borrowed the idea of doubling the main living quarters from Dutch Architects MVRDV's design for the Borneo-Sporenburg home in Amsterdam (*Figure 9*). This project had a great impact on our design.

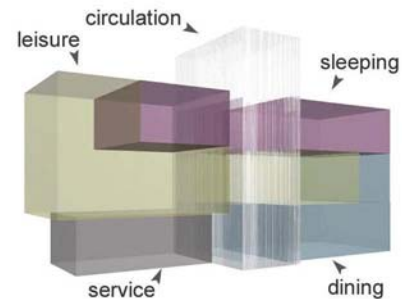


**Figure 9: MVRDV - Borneo- Sporenburg Home**

in principle only three floors are possible within the 9.5 metre high envelope allocated, one high



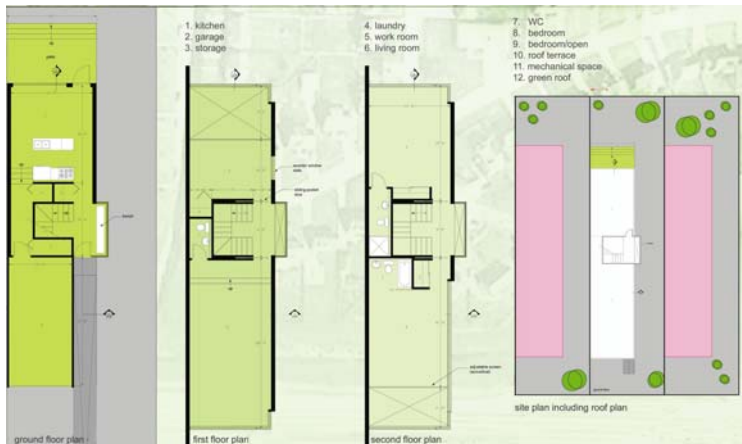
**Figure 7: Polycarbonate Panels**



**Figure 8: Spatial Organization**

Much like in our case the private house in Borneo-Sporenburg – strives to make the most out of the compact restrictions of the narrow lots of the new housing district in Amsterdam. The design strives for the greatest possible spaciousness and versatility within the limited envelope. In the urban scheme the plot was allotted 4.2 metres width and sixteen metres depth, with a 4 metre deep garden on the water. In

floor at street level and two lower floors above it<sup>iii</sup>. Despite this, MDRDV's plan achieves four

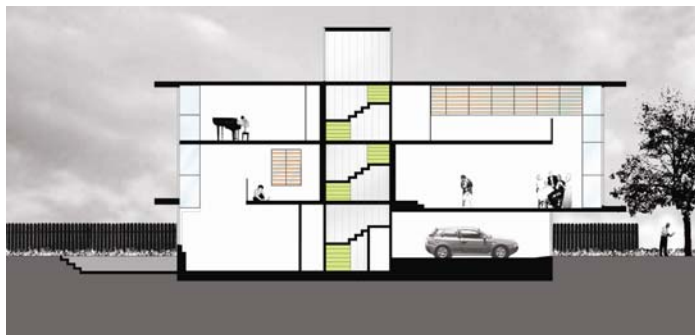


**Figure 10: Plans of our flexi-house**

floors while at the same time the ceiling height over much of the building is higher than normal. By 'sliding out' one of the four floors at the rear, facing the water, a special spacious long cross-section is created with two 'closed' elements, a garage becomes

storage space on the street and protruding bathroom and bedroom

block on the second floor. The irregular space in the remaining houses the kitchen-diner, sitting room and study, all spatially connected with one another. A series of rooms were thus created differing in height and degree of privacy, each connected with the exterior in its own individual way, ranging from a two-storey veranda facing the water, to a balcony with French



**Figure 11- North-South Section**

windows to the living room, a glass bay window to the bedroom and a roof garden to the studio in the 'attic'.

We have simplified and applied this principle of 'sliding volumes' (Figure 11) in order to add height in the dining and living room, which also minimizes interior circulation (Figure 8). The design

allows interior connections with minimal circulation space through the circulation box. One enters the house either through the garage, which leads past the storage and laundry into the kitchen, or through the main entrance, which is the circulation space itself also attached to the kitchen (Plans Figure 10). Kitchen spills into the double storey dining room and could be opened to the back yard. On the upper level, south of the light shaft is the double storey living room and north is the study that opens up to the dining room below. The bedrooms each have en suite bathroom and the sliding doors in all the rooms allow the spaces to be connected into a large room that takes up an entire floor. For example the doors on two



bedrooms could be removed to make a large single bedroom depending on the needs of the owners.



**Figure 12: Interior Perspective**

Interior finishes much like the exterior ones have a very “pure” element to them (*Figure 12*). The walls are white plaster to make the spaces appear larger with very bright accents. The floors are hard wood in the living box reflecting the exterior condition. In the service box the floor is polished concrete for a heavier wear. Large

partially operable south windows provide ample natural day lighting and due to their inset, the box itself provides appropriate southern shading. The back is lit in a similar fashion while the middle of the house gets light through the stairway box on each level. Windows on the east and west sides will be operable as well and have vents incorporated into the wooden frame to provide cross-ventilation as needed. They are intended to catch natural breeze in order to maintain ideal summertime temperatures and provide fresh air as needed. By installing automatic lighting controls (heat sensors enable lighting only when people are present), light is turned on only when needed, thereby avoiding energy wastage.

In accordance to the competition brief, we have created what we believe to be a luxurious, spacious, environmentally conscious and affordable home. The materials used both on the exterior and the interior are all affordable and recyclable. Site orientation, shading and ventilation were also taken advantage of in order to reduce energy wastage. The narrowness of the lot was made up for, by extruding the volumes of main living spaces, which adds to a feeling of openness making the spaces appear much larger than they are. The conservation of space was further enforced by abolition of circulation corridors, and introduction of a single circulation shaft. We are happy with the end result of this project, it was a great experience to be able to work on a smaller project again.

Houses are building blocks, with the potential to build – or kill – a sense of community. They are economic indicators. They are expositions on culture, society, and technology. For architects, they are dream jobs, test beds, manifestos.<sup>IV</sup>

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*Living Smart Competition Homepage*

<http://www.livingsmartpdx.com/>

*MVRDV Homepage*

<http://www.mvrdv.nl/mvrdv.html>

*The Royal Australian Institute of Architects- John Godsell*

[http://www.architecture.com.au/adabd\\_search](http://www.architecture.com.au/adabd_search)

## Endnotes

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<sup>i</sup> *Living Smart Competition Homepage*  
<http://www.livingsmartpdx.com/>

<sup>ii</sup> *Ecologic Technologies*  
[http://www.cloudtops.com/polycarbonate\\_verolite\\_physical\\_properties.htm](http://www.cloudtops.com/polycarbonate_verolite_physical_properties.htm)

<sup>iii</sup> *Architectural Record*. April 2001 “New Housing Renews Dutch Docklands”. James S. Russel. P.89

iv Ho & Barreneche p.4

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