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"The works of the past always influence us, whether or not we care to admit it, or to structure an understanding of how that influence occurs. The past is not just that which we know, it is that which we use, in a variety of ways, in the making of new work.... The typology argument today asserts that despite the diversity of our culture there are still roots of this kind, which allow us to speak of the idea of a library, a museum, a city hall or a house. The continuity of these ideas of type, such as they are, and the esteemed examples which have established their identity and assured their continued cultural resonance, constitute an established line of inquiry in which new work may be effectively grounded."

The term 'architecture' changes its definition and reference accordingly with time and the state of our society. The last decade understood the beauty in the act of expressing a sense of superior world in their religious buildings. It involved artisanship or craftsmanship to bring heavenly inspiration to humanity. After the World War 2, the architecture that we see today developed with false ideals and promises: the American dream that we could achieve a "better, richer, and happier life altogether."<sup>1</sup> But this American dream only brought us the tract housing design, which was initiated by President Roosevelt's Emergency Housing Program<sup>2</sup> to build 2.7 million houses and apartments. This led America and the rest of the busily industrializing world to construct a paradigm of endless growth, all of which was predicted on the everlasting supply of oil. The suburban town planning is holistically dependent on automobile that consummated too much of our natural resources: Most activities, such as shopping and commuting to work, require the use of a car as a result of both the area's isolation from the city and the isolation the area's residential zones have from its industrial and commercial zones. Walking and other methods of transit are not practical; therefore, many of these areas have few or no sidewalks. In many suburban communities, stores and activities that are physically close by can be much further in practice, because fences, walls, and draining ditches separate different areas.<sup>3</sup> But little did they know, these natural energy sources are inevitably subject to depletion and we are facing the era of the 'end of gas and oil.' The

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<sup>1</sup> "American Dream." Wikimedia Foundation, Inc., 21 Aug. 2009. Web. 21 Aug. 2009.  
<[http://en.wikipedia.org/wiki/American\\_Dream](http://en.wikipedia.org/wiki/American_Dream)>.

<sup>2</sup> Wilson, Derek J. "The end of suburbia." Google. 24 Aug. 2004. Web. 22 Aug. 2009.  
<[http://docs.google.com/gview?a=v&q=cache:-](http://docs.google.com/gview?a=v&q=cache:-JWDuOrdPEoJ:www.derekjwilson.co.nz/The%2520End%2520of%2520Suburbia.pdf+gas+depletion+suburbia&hl=en)

[JWDuOrdPEoJ:www.derekjwilson.co.nz/The%2520End%2520of%2520Suburbia.pdf+gas+depletion+suburbia&hl=en](http://docs.google.com/gview?a=v&q=cache:-JWDuOrdPEoJ:www.derekjwilson.co.nz/The%2520End%2520of%2520Suburbia.pdf+gas+depletion+suburbia&hl=en)>

<sup>3</sup> "Urban Sprawl" Wikimedia Foundation, Inc., 20 Aug. 2009. Web. 21 Aug. 2009.  
<[http://en.wikipedia.org/wiki/Urban\\_sprawl](http://en.wikipedia.org/wiki/Urban_sprawl)>.

architecture world must now recognize the need to change our perspectives and adapt to a new condition. The suburban cities will not survive past this era and we must build smart and provide mixed-use development where buildings are in close proximity to one another to cut down on automobile use, save energy, and promote walkable, healthy, well-designed neighbourhoods. Therefore the main concept of this house design competition derives from effort to provide a more green and efficient house with smaller footprint in an imaginary urban setting, cost-effectively. The design of the house will neither strive to be of meaninglessly fashionable form or to be minimalist. In its honest form made of easily obtainable and recyclable materials, it will defy the limit of budget and space: 'In the real sense of the world, the ethical sense, architecture is the art of moulding and combining natural materials for the purposes of human society and its needs in such a way that the manner in which the laws of preservation, consistency and function are observed will ensure the highest possible degree of solidity and durability with the least possible outlay of materials and forces.'<sup>4</sup>[KLENZE] The new era of compact city planning will require the general middle class to participate in transforming suburban disaster and collaborate more personally with architects. Assuming that most of these suburban house owners are working middle class, a small and humble residential house design such as this shall hope to inspire active engagement in the era.

#### THE DESIGN

As competition did not specify a specific site location or size, it was chosen that this house would be built in an urban condition where there is limitation with space. This constraint emphasized the importance of careful spatial planning in order to achieve more with less space. The total footprint of the building including parking lot is 47.5 square meters and the footprint of the structure is 30 square meters. Due to small footprint the house was raised to four floors. Unlike usual arrangement where living room or common space is found at ground level, kitchen and dining space was placed instead for the purpose of

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<sup>4</sup> Krufft, Hanno-Walter. A History of Architectural Theory. New York: Princeton Architectural, 1997. Print. P305

keeping cooking odor away from bedroom floors and to make an eating space more accessible; residents could grab their meals and snacks to go but also convenient for social occasions. The first floor up was chosen to be either the living room or an office space if the building had multipurpose. The raising of common space above ground floor allowed for more privacy and more light. The second floor up is occupied with two bedrooms spaces and a bathroom in between. The top floor is a double bedroom with open concept bathroom that is to be curtained while at use and a little cubic balcony with nanawall opening to shed more sunlight and allow for sunbathing. The result of working with smaller footprint enforced clear division of use and function in each floors. Either used by single family, group of students, colleagues, friends or flatmates the house provides spaces of clear function serving practical needs.

#### FAÇADE

The façade also follows the same concept of 'less is more.' With a chosen goal of minimal budget as its design catalyst, a set of simple and light materials was chosen. The structure of the exterior wall is to be composed of recycled plywood studded with recycled thin metal plates. The mid layer of the façade structure contains a fine metal mesh called lash with a spray-on, fire-resistant covering on insulation. The inner most skin is plastered boards covering the metal structure on the walls and ceilings. Depending on budget and client's wish the plastered boards on ceiling can be uninstalled cut down the pricing and to expose painted corrugated steel boards. The floor is poured concrete with polished finishing with integrated radiant floor heating tubes on corrugated steel panels. Though costing of flooring could be lowered by dry method of attaching treated plywood with floor insulation directly on the steel frame, concrete was chosen for its durability and its heat receptor quality for radiant floor heating.

#### SYSTEM

The complete house is well ventilated and bright, with a lot of sunshine coming through the north and south facing openings, which is reflected across the painted white room. The south and north façade shares same dimensions of

reciprocating windows, in all except where there is balcony and entrance, to cross ventilate the apartment. The intention was to enable the house for natural cooling during summer seasons: the upper windows in each floor will vent the hot air collecting near the ceiling and allow for night flush cooling.<sup>5</sup> The windows will be paned with Kalwall glasses with nanogel for house in a colder climate for R-20 value protection from the cold. Additionally all steel connections and joints will be treated with sealant. The radiant floor heating was chosen instead of central air heating for reduction of energy usage from selectively heating the areas of the house. This kind of heating works because hot air generated from the floor will rise to the ceiling – resulting the air to be heated. There are several advantages to using radiant floor heating system, other than that you could selectively heat areas: it is more efficient than baseboard heating and usually more efficient than forced-air heating because no energy is lost through ducts. The lack of moving air can also be advantageous to people with severe allergies. Hydraulic (liquid-based) systems use little electricity, a benefit for homes off the power grid or in areas with high electricity prices.<sup>6</sup> The house as a whole attempts to achieve cooling and heating from its design, with minimal additional electrical or mechanical source that creates energy dependency.

Universally, we are dealing with ecological problems and disasters from having long neglected the importance of the nature. The post-war decades mistake of designing with assumption that earth contains finite source of oil and gas should now be reinterpreted to save ourselves from crisis that is about to take us to a new decade. The new decade shall impose change in our lifestyle of automobile dependency in suburban areas. The term architecture will change with more ecological and tightly knitted city planning where there will be more mix-use buildings and wider pedestrian boardwalks. There will be major changes to our infrastructure, as individual based transportation will decrease with the rise of oil price that would consequently enforce public transportation system. The

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<sup>5</sup> Lechner, Norbert. *Heating, cooling, lighting design methods for architects*. 2nd ed. New York: Wiley, 2001. Print. P262

<sup>6</sup> "Energy Savers: Radiant Heating." EERE: Energy Savers Home Page. U.S. Department of Energy. Web. 23 Aug. 2009. <[http://www.energysavers.gov/your\\_home/space\\_heating\\_cooling/index.cfm/mytopic=12590](http://www.energysavers.gov/your_home/space_heating_cooling/index.cfm/mytopic=12590)>.

changes to come are inevitable. The proposed housing design wishes house a middle class, living in an urban condition. Its design does not derive from trying to form a fashionable form that is meaningless and vain. It is not designed for a millionaire. The design was achieved with trying to form an honest structure to survive the new era by collaborating simple and working methods to create a smarter, better home.