Arch 684 - Competition Elective

DAtE

DesignAgainsttheElements

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Part A: Competition Overview

The Design Against the Elements competition addresses global issues of climate change, sustainability, and poverty alleviation. Spurred by the destruction caused by Typhoon Ketsana in the Philippines, the competition mandates the development of specific housing and master planning community strategies for low-income citizens known as the Urban Poor in tropical disaster prone areas. These are the people that are most affected when typhoons hit as they are the least prepared and have the fewest resources. By designing a prototype for a community system that addresses the destruction-rebuild-destruction cycle in a sustainable way, other tropical communities can use the designs generated by this international competition to study and replicate[1].

The competition simultaneously addresses issues of climate change, while combatting the very serious and immediate concerns of the displaced victims and slum settlements. As of 2005, 44% of the population of the Philippines lived in slums[2]. While efforts are made to rectify this situation, the government does not have the necessary funds to implement widespread solutions. The current program of upgrading slums is a slow process, but it provides the community the chance to live in the same place that they have been accustomed to. This sense of community is important to the culture and architecture that fosters this is helping the country move in a positive direction.

By developing and amassing designs that tackle the issues of climate change while at the same time providing self-sustaining enterprises, will allow for a body of work that can be referenced to improve other similar disaster-prone areas. The volatility of living in these areas stems largely from the inability of the urban poor to affect change for themselves. The situation is a slowly degrading one as each disaster can set a family further and further behind as they never have the opportunity to protect themselves from the upheaval of the storms. Self-sufficient and sustainable design that does not rely on mechanical services have the greatest long term possibility and immediate feasibility.

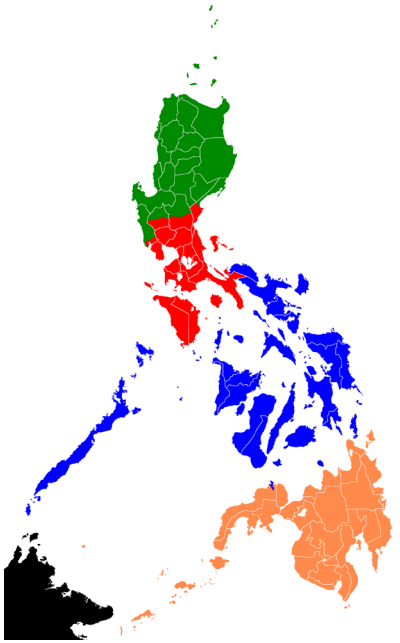

Fig. 1 - Super Regions of the Philippines.

Fig. 2 - Living conditions of the urban poor post-disaster contrasted with the current North-Americanized ‘dream home’ in Manilla.

1 Date competition brief, available online.
2 *Ibid.*

Part B: Design Proposal

The design has a straightforward prerogative; to create a livable community that meshes modern living with indigenous design. Taking cues from traditional practices, the layout of the site and the design of the buildings provide alleviation from the hot, humid climate in a passive way, foster a sense of community, and protect against floods and typhoons. In the spirit of the tradition of Bayanihan[3] the communal aspect of life in the Philippines is celebrated. Shared community garden spaces, large informal gathering areas, and an open community centre increase the possibility for reliance on and connection with neighbours.

The proposed building design maximizes the potential for cross ventilation, and creates a stack effect with openings in the floor slabs. These shafts also serve as light wells to give the entire building an airy, light quality. The hallways then become more than just means of accessing an apartment. They become communal spaces in which people can gather and act as an extension of the house. Each housing block is oriented with the long sides facing the North and South. By limiting the exposure on the East and West sides, and by also making use of reflective, light materials and a bio-wall, much of the heat-gain in the building is reduced. The same principles are employed in the community centre, day-care facility, and waste-management centre. The community centre acts as a beacon for the neighbourhood, intertwining the new development with the existing fabric of the university and the surrounding dense neighbourhoods.

As Helene Frichot states in her essay on Gilles Deleuze's Baroque House, 'the site is not simply made up of geographical, climatic, and other material conditions, but is inflected by minor histories, sentimental attachments, and the like'. The first design pass attempts to address the 'simple' conditions that she describes. The second pass looks deeply into the history of the culture and the people and extends the boundaries of the site beyond the literal into the realm of the intangible.

Fig. 3 - Bayanihan, *Sasutona.*

Fig. 4 - Perspective of a typical housing block.

3 Bayanihan in the traditional use of the word is where a group of members from the community would assemble to literally lift and move a house to a new location. Today the term implies a collective effort and reliance on others.

Part C: Typologies and precedents

While the project contained a variety of programmatic elements, the foremost was that of the dwellings. At its most basic, the central focus of alleviating the impoverished is providing inexpensive, well constructed dwellings that allow the people to live better lives. There are hundreds of possible solutions that can be developed to address this need, but there are elements of site, juxtaposition, sustainability, and culture that architects can bring to the table above other building facilitators. In Henk Engel's essay on The Collective in Housing, he quotes Hitchcock and Johnson to reaffirm the value of mass housing stating:

> *Even housing at a minimal cost is potentially architecture. The individual minimum dwellings provide for a function so simple and so little specialized that they are well within the realm of building [that is not architecture] and quite capable of standardization. But a project developed as a whole constitutes a complex problem offering so many opportunities for arbitrary choice that it may become architecture'* [4]

Simple though the function may be, there is an opportunity to design something that is directly addressing some very specific needs. The notion of specialization comes into play when considering the devastating effects that typhoons can have and the flooding that is a likelihood of each year. The design then becomes an issue of site strategy, drainage, elevation, and community culture.

In Steven Holl's project for New Haiti villages, he addressed very similar climatic concerns to those of the Philippines with the added issue of earthquakes. Locating the project in the rural areas outside Port-Au-Prince, the project created a 'dense-pack housing' solution that addresses issues of community gardening, energy efficiency, desalination of water, and use of natural and sustainable resources. He, along with his team, propose a realistically

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4 Cornelissen, 41.

achievable solution to the problem of housing and with forward thinking in an attempt to earthquake and hurricane proof the buildings. Technical considerations aside, the team address the very real and pragmatic concerns of culture in an up front and direct way, seeking influence from the people and the way of life in Haiti. They give life to the dense-pack village saying 'the structure of a home relates not only to functional and economic considerations, but also to the history and culture of its users. A house can illustrate the identity of a people'[5]. They pull directly from specific past works and ways of life in Haiti to give the project true validity and longevity. The cultural richness and vibrancy come into play in a strong way in these types of developing countries. While they may be behind in many ways, what they have developed is an individual culture and a sense of place that is unique and worth preserving.

The layout of the site in both the competition submission and Steven Holl's village demonstrate an important principle of the use of land. The separation of the houses and building units allows for fruit trees and vegetation to grow in the uninhabited landscape. Additionally, the layout allows for air to throw through the site and remove some of the heat and humidity. The topology of the site is used to a great advantage in order to provide proper drainage and increase the sense of space in both cases.

In the New Haiti Village, there is a central axis that runs through the site and leads to public spaces at both ends. These communal spaces help to ground the village and give it an identity. The housing type is based on a regular design for economy of building. It provides each dwelling unit with the required spaces for living, a private exterior garden, and commits the inhabitants to working on community garden plots adjacent to their properties in addition to their own[6]. In developing areas, this ability to produce food and have a potential source of income is important. As Richard Margolis states in his writings on self-help housing, "...only self-help opens the way to community organization and social action; and only self-help can renew a man's confidence in himself and sharpen his sense of achievement"[7]. By centering the design of community housing projects around

Fig. 5 - DATE site plan.

Fig. 6 - New Haiti Village plan, *Steve Holl Architects.*

5 Holl, 10.
6 *Ibid.*
7 Margolis, 27.

the relationship between inhabitants, the goal becomes providing a framework in which life can continue to grow and flourish. Similar to the idea of self-help housing, involving the actual inhabitants of the dwellings in the process of creating their community and home give a much greater likelihood that the project will be successful in the long-term.

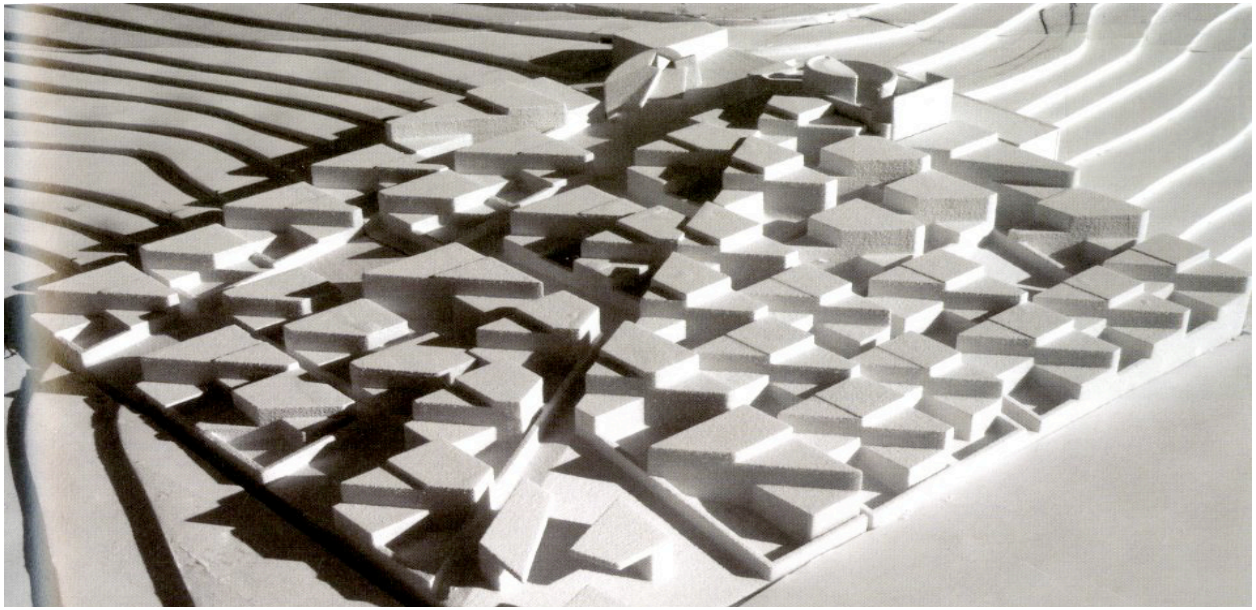

Fig. 7 - New Haiti Village model photo, *Steven Holl Architects.*

The site juxtaposes itself against it's surroundings and compresses the life of the village into a tight area. It gives the whole project a feeling of interiority and can be conceptualized as one large dwelling in which the actions of all of the inhabitants add up together to create a functioning being, autonomous of the city and surrounding villages[8]. The site design for the Philippines takes a similar concept but works differently in its interaction with its surroundings. Instead of becoming an autonomous space, it connects directly into the fabric of the existing city and becomes a place of openness and breath against the dense shanty villages adjacent to the site. It accommodates easily the equivalent number of people in the surrounding area, but frees up the ground plane to allow for similar self-sustaining gardens as in the New Haiti Village. It bridges the gap (both literal and figurative) between the University and the slums.

8 Holl, 15.

In both cases, there is the desire to create an entirely new sense of place than where the victims of these disasters are relocating from. It becomes a chance to erase the negatives of their history and provide a new starting point based on the collective mind of the people and their culture. John Gilderbloom explores this concept of place in relation to the housing crisis in America:

> *Place matters. But place is not just about location in a city or a neighbourhood but also about the kind of housing in which we live and how it shapes us as people.*[9]

Steven Holl animates the housing project with bright, vibrant colours that the new homeowners select and apply themselves[10]. This involvement in the process of creating one's own environment solidifies this development as a particular place, unique to any other because of the people that inhabit it. While the project systematically addresses issues of site, earthquake resilience, power generation, fresh water, and local industry, it also accounts for the small scale relationships that truly shape the way people live in the relation to the buildings. The intimate scale on which the streets, gardens, and pathways operate allows informal gathering spaces to develop and interconnects the life in the community.

In a similar fashion, the design for the Date competition attempts to develop these types of informal gathering spaces and self-help principles both within the dwellings and the landscape. The community practices get initiative from the community centre at the entrance to the development where starter garden plots help to educate and inform the community. The land provides the opportunity for micro-enterprises to begin to develop and the free ground floor allows space in which to conduct informal markets.

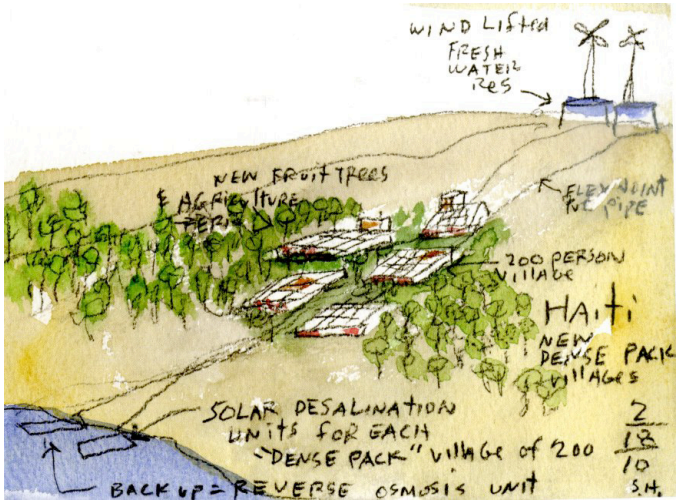

Fig. 8 - Functional site diagram, *Steven Holl Architects.*

Fig. 9 - Community streetscape, *Steven Holl Architects.*

9 Gilderbloom, 1.
10 Holl, 31.

Part D: Building Community

One of the most significant aspects to the history of life in the Philippines is the concept of Bayanihan, a spirit of communal unity or effort to achieve a particular objective[11]. Community is central to the culture, and the development of it is really key to the way of life. Part of what makes communities strong is the interaction between the individuals that make up the community and the place in which they find themselves. The modern notion of commons - shared community garden spaces - becomes ‘a place that belongs to everyone. A place where life is beautiful and strong. A place where you claim your right

Fig. 10 - Peralta and Northside Community Art garden, *Linn.*

to nourish and be nourished”[12]. The Peralta and Northside Community Art garden is one of these places.

The Peralta Community garden is a space that was nothing more than an empty parking lot strewn with debris and waste. The people that headed up this community project came from a huge variety of backgrounds. Most were landless apartment dwellers[13]. Through the combined effort of the people in the community and with leadership from people that were experienced in the process, the space eventually became both a productive

11 Hart, 17.
12 Linn, 35.
13 Linn, 37.

landscape and a place of gathering. It's boundaries extended much farther beyond the decorative fence that ran around the project - the community connections and interactions formed here extended out into the larger community as well. It became a place of learning where the older generation could share their knowledge and experience with the younger generation. Different ethnicities could bring gardening practices from there homelands to enrich the knowledge base. Karl Linn was a proponent of the community commons and strived to demonstrate the positive impact that they could have on a community:

> *Drab surroundings... leave us feeling depressed. In impersonal, institutional settings, we feel alienated and isolated. Such regimented settings foster passivity. An environment that lacks the imprint of personal or communal art or craftsmanship does not encourage participation and creative expression.*[14]

For these types of projects in North America, the focus is more on relief from drab living conditions where there is no access to outdoor space or garden areas. In the case of the Philippines, these types of garden plots actually help feed the families that live in the apartments and can act as a secondary source of income, and even the primary source for many people. They still can have the same affect of bringing much needed expression to the community. The types of conditions that many of the urban poor live in are deplorable and so tightly packed that there is no opportunity for even a small garden plot. By restructuring the system of living and making the most of low-rise apartment blocks, the ground then becomes free for these vibrant spaces.

The design for the commons in both cases has the capacity to extend its reach father afield. When discussing the congestion that faces many metropolitan areas where these types of commons can be found, Hans Cornelissen proposes 'a radical rejection of the dividing line between private and public space, or between building and infrastructure' with the result that 'interiors turn into urban landscapes, so that the interior comes to dominate the city'[15]. By providing even slightly increased open ground space, these exterior commons

Fig. 11 - Communal plots, DATE entry.

Fig. 12 - Planting boxes in the Peralta Commons, *Linn.*

14 Linn, 12.
15 Cornelissen, 20.

have the opportunity to function as would the interior. In the case of the DATE competition, this type of open ground plan provides opportunities for not only the residents living in the development, but also for those in the surrounding areas. It even opens up the possibility for social and economic interaction with the adjacent university.

The creation of these green urban spaces also have a practical application. Especially in the case of wet tropical regions, planted areas help significantly with the drainage of water on site which can be an extremely important issue in the case of the Philippines.

In community commons projects, the skill and knowledge of the people in the local neighbourhood is tantamount to creating a successful project. In the case of the Peralta Gardens, an experienced metal worker created the ceremonial gates. An old Chinese grandfather taught traditional gardening practices. Experienced woodworkers created the frame. And so on, and so on. In order for developing countries to be able to increase their number of successful housing projects, the labor, natural materials, and resources of the country need to be taken into serious consideration. Also, the discussion of sustainability comes directly into play when selecting materials.

The traditional dwelling of the Philippines, the Nipa hut, is made out almost entirely of bamboo[16]. This is a natural resource that is abundant throughout the Philippines. What is not abundant is any hardwoods, and concrete materials. By making use of the traditional practices of weaving bamboo in the creation of the garden plots, no hard to come by materials go to waste and the very act of the creation of the garden plots again create a strong sense of place and community ties. The idea is to use indigenous materials and practices to create a modern and livable place.

In the book On Adam's House in Paradise, Joseph Rykwert delves directly into the territory of the implications of indigenous and primitive building on the architecture of today. It can be a difficult and sometimes touchy issue to try to incorporate these practices into a modern way of life. For some it can be seen as kitsch, but when the essence of a primitive

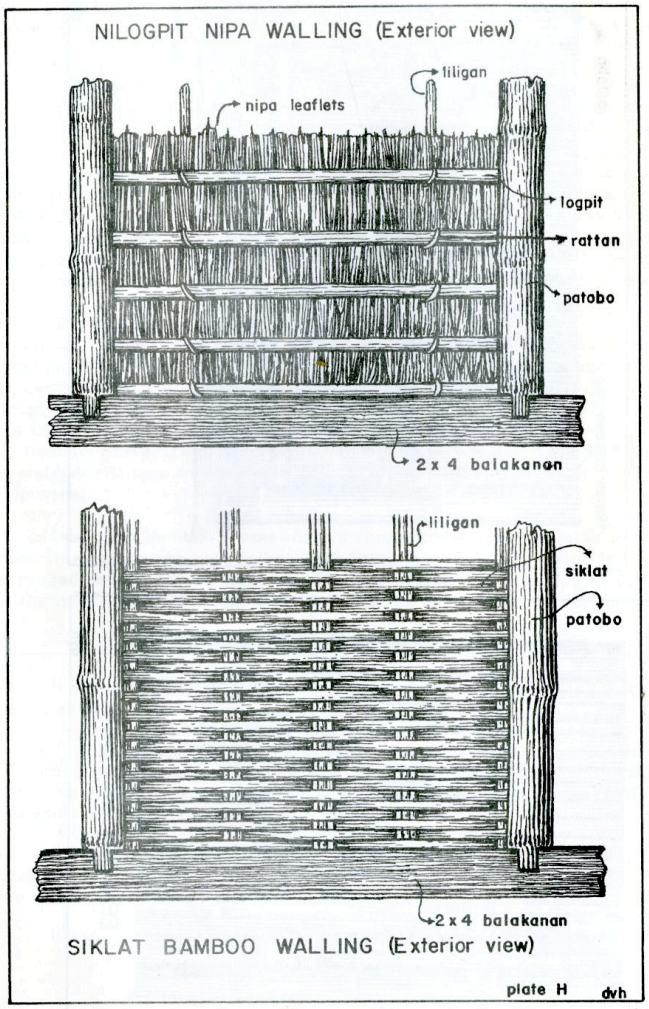

Fig. 13 -Typical Nipa hut wall construction, *Hart*.

16 Hart, 3.

way of life is distilled into a modern building, it can imbue the architecture with a greater sense of place and a true connection to the place in which it occupies. Rykwert describes the relevance of the primitive hut stating:

> *[the primitive hut] seems to have been displayed by practically all peoples at all times, and the meaning given to this elaborate figure does not appear to have shifted much from place to place, from time to time. I should like to suggest that this meaning will persist into the future ant that it will have permanent and unavoidable implications for the relationship between any building and its user.*[17]

In much of the work by Kengo Kuma Associates, native materials are used to create vibrant and modern spaces. The integration of bamboo into much of their designs demonstrates its versatility and amazing quality of light. Bamboo as a building material is not stable enough to build the structure of mid-rise buildings out of, but it can be of extremely practical use in the manufacturing of window shading devices, interior partitions, railings, and the construction of planting boxes. By fusing this particular material into functioning, modern building, the development is given a sense of permanence and warmth that many modern low-income housing developments are lacking.

Part of the momentum to bring developing countries forward is the notion of North American culture. The response to the DATE competition takes a critical look at the approach of painting an unrealistic picture of life in a part of the world that has so much to offer in terms of their own architecture. The sheer beauty of the country and the vibrancy of the people must be able to produce their own identity through their response to the development of their architecture, starting first with their dwelling.

Rykwert discusses the intrinsic connection between the collective memory of a people and their architecture. In developing countries, much of the population still lives in traditional style dwellings. By creating a harmonious balance between modern living and

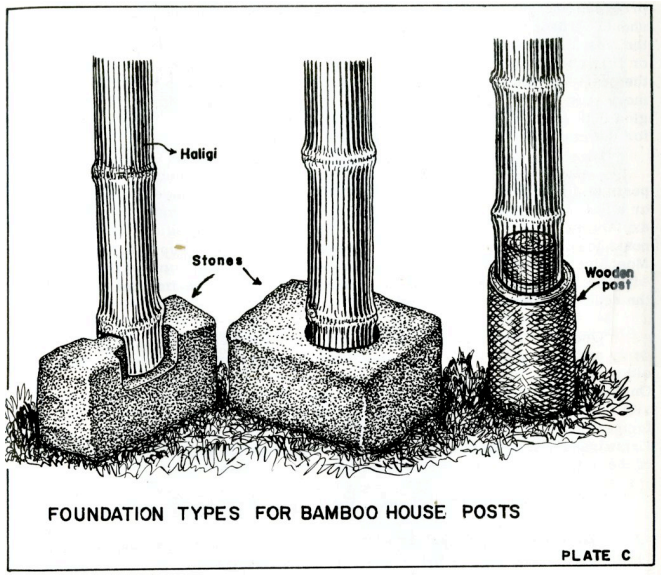

Fig. 14 -Traditional bamboo foundation, *Hart*.

Fig. 15 -The Great Bamboo Wall House, *Asakawa*.

17 Rykwert, 183.

the effectiveness of traditional responses to site and climate, designs can be propelled forward and can 'imply a rethinking of what you do customarily, an attempt to renew the validity of your everyday actions, or simply recall the nature (or even divine) sanction for your repeating them'[18].

Taping into the notion of indigenous materials and building practices with the importance of community and fostering growth in developing nations, a previous competition in the Philippines had a winner that designed an extremely successful school out of mainly bamboo. It embraced the challenge of designing with little monetary resources and managed to create a space that has practical functions of air flow, passive cooling, natural light, and resiliency. But more than this, the building is imbued with a sense of possibility and a feeling that what goes on inside really does matter. The students feel as though they have a place of permanence and structure in what can otherwise be a potentially unstable life.

The design of the building and the use of bamboo also opened up the possibility to use local labour thats skill base was in this area. As a tropical climate, the Philippines does not have an abundance of hardwood for construction, and the indigenous dwellings relied heavily on bamboo and nipa leaves for their construction. Employing bamboo in a way that celebrates modern design with the practicality of expense and ease of construction were part of what led to the selection of this particular competition entry for building and implementation. As exemplified by both of these competitions, there is a theoretical plane on which different architectural and historical or indigenous impulses exist. In *The Bureaucracy of Beauty*, Aridnam Dutta discusses this duality that is present in all design:

> *We end, or begin, with that which cannot be encompassed in the two terms of the contest, between tradition and modernity, between colonizer and native, between custom and contract, between morality and aesthetic, between truth and artifice, between memory and archive*[19]

Fig. 16 -Children infront of the Millenium school.

Fig. 17 -Constructing the Millenium school.

18 Rykwert, 192.
19 Dutta, 307.

This brings up the question of appropriateness of design, as well as the question of beauty. The balance between these different poles implies that there cannot be a heterogeneous solution to most architectural endeavours. Finding the point at which the multiplicity of factors balance out is the challenge. By finding solutions that satisfy, for example, the governmental approach to disaster relief housing, and the impulses of the people themselves, there is hope that the new development or community will thrive in a way that is beneficial to both parties. The Millennium school is an example of how this balancing act can achieve lasting success[20].

The simple and light construction of the Millennium school informs the community buildings in the competition submission for DATE. They buildings themselves - a daycare, community centre, and exterior pavilion - as located as a focal point of the community and a gateway into the housing beyond. They are a reference point in the city. Exhibiting many of the important building principles and strategies applied throughout the community, they also act as a device to inform further design efforts.

The slanted, perforated walls of the pavilion allow indirect light to illuminate the space and help to keep a steady airflow into the courtyard beyond. It becomes an extension of both the community centre itself as well as the courtyard. The transition from interior to exterior is moderated by this space. Similar to the design of the Millennium School, this space has active walls and roofing that dynamically activate the space with the changing light, while keeping the interior shaded and cool.

The overall design of the interiors of the community buildings are left as open and simple as possible to accommodate a variety of functions. This also allows for a safe and open, usable space if there is a typhoon that leaves people stranded or homeless. As the residents of the new development are already appropriately accommodated in the new buildings, the community centre can cater to the population living in any surrounding areas that become damaged. This embodied concept of disaster resiliency in both the

Fig. 18 -Millenium school interior.

Fig. 19 - Open air community pavillion.

20 DATE competition website.

DATE competition and the Millennium school extents far beyond the community limits. The discussion of community and its meaning are poignantly explored in the Space Block Hanoi Model in Vietnam. Similar to the Philippines, the residential density can exceed one thousand inhabitants per hectare[21]. Accommodating that number of people comfortably, with no use of air conditioning can be a challenge. As illustrated in the photograph below, the new development of the space block butts directly up against an older portion of the city. What is interesting to note is the way in which people are using the buildings, terraces, and spaces in a similar fashion. This is an example of a project in which inspiration and design direction have been successfully derived from historical conditions and innovated and improved upon to produce a functioning and cohesive design that integrates directly into the fabric of the existing city.

Fig. 20 -Space Block Hanoi Model and existing city fabric, Steinemann.

Part of what makes this project so successful in its innovation is the use of porous, semi-exterior spaces. The project lays the programs out in such a way that all of the interior

21 Steinemann, 126.

rooms abut a semi-exterior or exterior space. Function spills out into these areas and there is a porous ratio of 50%. Half of all of the spaces are not entirely enclosed. The emphasis of the building is placed on shading, and on allowing air to flow through the building. The building itself is located in an extremely elongated plot, typical of the area[22]. This poses challenges of ventilation as both of the long sides have little to no exposure.

By rethinking the concept of windows, and instead relying on a vertical response to light, the units actually become bright, open, and airy spaces in a place in the city that is characterized by dense, dark, and suffocating design. The perception of vertical space and the simple transitions between interior and exterior give the small spaces an incredible openness. Fluid dynamics were studied when deciding on the relationship of the openings to the rest of the spaces and turned out to be instrumental in figuring out exactly what configurations could lead to the best air flow and circulation. Just as in the Philippines, the climate in Vietnam is hot and humid and maintaining as much airflow as is possible allows for comfortable living spaces. In humid climates such as this, the humidity can also make temperatures on the cool side seem even colder. The design responds to this consideration as well by enclosing the less active spaces, like bedrooms, and leaving the more active and vibrant spaces, like the kitchen, more open.

In the design, the planning was done in such a way as to accommodate the traditional and current ways of living. There are specific rooms set aside for parents, grandparents, and children that each function in a slightly different fashion and therefore have different relationships to the rest of the spaces. Because the units are so small, careful consideration was given to accommodating all of the functions in a proficient way.

This project and its relationship to the city demonstrate that high densities can be accommodated in ways that make the inhabitants feel better about the place in which they live. Sustainability, while not a central focus of the project, is inherent in all of the design decisions. Passive cooling and ventilation, natural light, community density, and materials all contribute to making this way of living possible to sustain in the long term.

Fig. 21 - Airy housing unit, Steinemann.

22 Steinemann, 127.

Part D: Conclusions

Designing resilient buildings for developing countries that are prone to natural disasters is an extremely challenging task. There is a need to balance innovation with tradition, practicality with exceptionality, and comfort with passivity. More than just housing the Urban Poor, these types of developments must be sustainable solutions that can endure during the growth of the country. It's not enough to just provide shelter for displaced people - there needs to be a discussion of the fundamental ideas of dwelling and place that go past the basic functionality. In *Dwelling as a Figure of Thought*, Hans Cornelissen's writings hinge on the concept that 'a place is a recognizable spot with identity and meaning, a spot that provides insight into the relation between its inhabitants, a spot where history is laid down'[23]. Displaced victims of disaster have no place in which to call their home, and no place that holds the memory of their lives. Temporary dwellings keep these people caught in purgatory with no way to move beyond their current circumstances and the spirits of their traumatic past walking with them every step of the way.

Steven Holl develops a new kind of place in his Dense Pack Village. The design speaks to these same issues of disaster and displaced victims. The design for the village not only fosters an awareness of community and communal reliance, but it also looks to the future where other earthquakes are a definite possibility and makes steps to prevent the damage before it happens. This allows the people that would occupy this development to have a sense of security and safety. In his design he attempts to develop each unit in a way that is practical for all of the inhabitants, and becomes 'the ideal house... which one can make one's own without altering anything'. The house is not just a shell to protect the inhabitants from the outside world, but becomes an extension of their lives.

Further acting as an extension of peoples lives is the concept of the commons, or community garden. As illustrated in the example of the Peralta Commons, even small developments of places that allow members of the community relief from their poor housing conditions

23 Cornelissen, 7.

and the opportunity for interaction with other members of the community can have a profound impact on their lives. By incorporating these principles in the design for the DATE competition, not only do residents of the community have a chance to interact with one another, but they also have the ability to provide sustenance for their families and have a potential source of extra income.

In community gardens, there is the notion of tested and true gardening principles that date far back. In the same way, the use of indigenous materials that have been proven to function over generations can be used to create spaces that are not reminiscent of historical buildings, but instead breathe new life into a place that has a rich cultural heritage. The Millennium School features these indigenous building materials in a way that approaches design with a current and modern outlook, and manages to create spaces that are to be celebrated.

The design for the Space Block Hanoi Model similarly celebrates it's context and makes the most out of the location. Instead of seeing it as an impossible design problem, the architects of the project set out to create the best possible spaces in an innovative and creative way. This example proves what can be done with limited resources, and even more limited space.

The design for the DATE competition tries to incorporate all of these factors. It first sets out to establish a new community that is self-reliant and resilient. These principles are developed through the use of indigenous materials, passive design strategies, and an income generated shared landscape. The project reaches into the cultural heritage of the Philippines and looks at ways of building that are still used in many rural areas today. It doesn't attempt to replicate the design, but instead looks to the practical reasons behind many of the strategies and attempts to employ them in the design of the building.

The strategy of connecting the main access of the community to the existing Daisy street to the North is a central concept to the development. Instead of creating a separate enclave of housing, the design attempts to knit itself into the existing city fabric, degenerated

though it may be, and tries to ‘act as a catalyst for other developments’[24]. The success of the project relies not only on it’s functionality in it’s own sphere of existence, but it’s impact on all of the surrounding areas and the network of the city. The development must ‘ bring sanctuary, stabilization, and hope to its dispersed population’[25]. The project centres it’s design around facilitating the creation of a new culturally rich and vibrant development that gives residents the prospect of a brighter future for themselves and their families.

24 Cornelissen, 130-131.
25 Holl, 11.

Appendix A: References

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Appendix B: Image References

Fig. 1 - Unknown. Super regions of the phillipines. 2008. Wikipedia. Accessed 23 Jan. < http://en.wikipedia.org/wiki/File:Super_regions_of_the_Philippines.PNG>

Fig. 2 - Left - Unknown. Manilla Typhoon. 2007. Disciples Today. Accessed 23 Jan. <http://www.disciplestoday.org/joomla/images/image/Asia/Asia%20Pacific%20Region/Philippines/Manila%20Typhoon.jpg>
Right - Unknown. Sta Rosa Heights. 2010. Allea Properties. Accessed 23 Jan. <http://realty.alleaworld.com/

Fig. 3 - Sasutona, Jovy. Bayanihan. 2007. Able Disabled. Accessed 25 Jan. <http://carmendulguime.wordpress.com/2007/02/>

Fig. 4 - By author.

Fig. 5 - By author

Fig. 6 - Holl, 21.

Fig. 7 - Holl, 17.

Fig. 8 - Holl, 15.

Fig. 9 - Holl, 31.

Fig. 10 - Linn, 31.

Fig. 11 - By author.

Fig. 12 - Linn, 36.

Fig. 13 - Hart, 58.

Fig. 14 - Hart, 37.

Fig. 15 - Asakawa, Satoshi. The Great Bamboo Wall House. 2002. Kengo Kuma Associates. Accessed 3 Feb. < http://www.e-architect.co.uk/architects/kengo_kuma_associates.htm>

Fig. 16 - Eleena Jamil. DATE competition. 2010. Accessed 15 Jan. < http://www.designagainsttheelements.org/whats-been-done/>

Fig. 17 - Eleena Jamil. DATE competition. 2010. Accessed 15 Jan. < http://www.designagainsttheelements.org/whats-been-done/>

Fig. 18 - Eleena Jamil. DATE competition. 2010. Accessed 15 Jan. < http://www.designagainsttheelements.org/whats-been-done/>

Fig. 19 - By author.

Fig. 20 - Steinemann, 124-125.

Fig. 21 - Steinemann, 131.