Culture as Keystone:

Robust Public Housing Communities through Culturally Appropriate Design

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May 2012

Submitted towards the fulfillment of the requirements for the Doctor of Architecture degree.

School of Architecture
University of Hawaiʻi at Manoa

Doctorate Project Committee:
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Culture as Keystone:
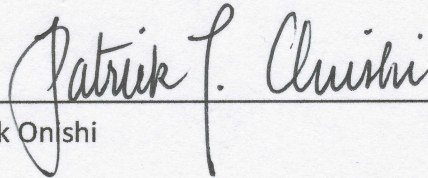# Robust Public Housing Communities through Culturally Appropriate Design

Joanna C.C. Griffith
May 2012

"We certify that we have read this Doctorate Project and that, in our opinion, it is satisfactory in scope and quality in partial fulfillment for the degree of Doctor of Architecture in the School of Architecture, University of Hawaiʻi at Mānoa."
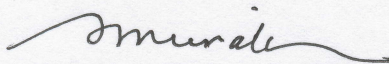
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Acknowledgements

Thank you to my chairperson and committee members for your patience and faith in me; the biggest lesson I take from your guidance is to always dream bigger. Thanks also to my friends and family for providing comic relief and reminders of "the big picture" when I needed it most.

This is for Nick. Here's to the next step.

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Chapter 1. Abstract

This Doctorate Project proposes a new approach towards the creation of robust subsidized housing communities through the use of culturally appropriate design. An overview of the state of the nation's housing and its impact on public housing communities in Hawaii provide context and is supported by an analysis of challenges faced both by creators and residents of two public housing complexes on Oahu. Utilizing tools developed for this project, this paper concludes with a design project for the rehabilitation of a public housing site in Honolulu, Hawaii. The design embodies a new vision of public housing where culture becomes the keystone of robust communities.

This research was executed in three stages; data collection and analysis, internship, and interviews. First, by assessing two case study communities through site visits and conducting a comparative analysis of the two predominant cultural groups; second, a semester of research and internship at an architecture firm resulting in the production of an architectural checklist for culturally appropriate design; and third, conducting interviews with members of case study communities, including experts from the UH Department of Anthropology as well as the Center for Pacific Island Studies.

The collected data revealed opportunities for integrating shared cultural elements into housing design; it also informed the program and concept for the Doctorate Design Project while supporting the viability of culturally appropriate public housing design in the United States. The project illustrates that the process of understanding specific cultures can ultimately reveal universal strategies for improving the quality of life for residents from any culture.

Chapter 2. Doctorate Project Statement

Public housing in the United States has become a host for many recent immigrant communities, frequently becoming the first site for assimilation and introduction to American culture. Here is where the American Dream is defined by its newest citizens. Although assimilation is a natural part of joining a new culture, these residents bring a wealth of traditions, practices and knowledge. As the world continues to embrace globalization, the diversity of this knowledge will become an increasingly valuable asset to the United States and the communities they join. With careful planning and creative thinking, opportunities can be found for integrating culturally appropriate design elements into public housing, ultimately promoting more robust communities.

The primary objective of this paper is to develop a strategy to bring the cultures of public housing residents into the design of their homes while articulating its broader value to society. A correlational research methodology was used with a complementary case study to support a qualitative data set. Through three stages of data collection, the original research question regarding how to improve quality of life for residents of public housing evolved to embody a study of the complex relationship between culture and architecture. Translating the intangible qualities of culture into a tangible design is challenging; however, this paper illustrates that these efforts can benefit communities socially and economically while also being architecturally viable.

By looking to culture for an innovative approach to the conventional subsidized housing model, this paper contributes a new voice to the national dialogue on public housing. Critical to this discourse is an assessment of the value of culturally appropriate

housing to the health of our communities. Additionally, an overview of the nation's housing provides insight into the issues affecting public housing residents throughout the US, while a look at Hawaii's housing renders context for the design project. The diverse cultural landscape of Hawaii makes it ideal for investigating the impact of culturally appropriate housing.

To determine the viability of integrating culturally appropriate design into typical design and development work-flow, a strategy was established and then tested with the design project. For the second stage of research, a semester at architecture firm, KYA Design Group illuminated how architecture firms translate cultural needs into design. Lastly, through a cultural analysis of the two predominant cultures residing at case study site in Hawaii, shared cultural characteristics were translated into a design for culturally appropriate public housing prototypes.

Research conducted for this project concludes that providing long term subsidized housing which meets a community's cultural needs is a powerful way to support residents while promoting healthier communities. Additionally, involving residents in the design process provides a critical step towards sustaining the housing's success while ensuring its execution in the spirit of authenticity. The cultural knowledge held by these groups is a valuable resource with the potential to provide ground-breaking solutions for the creation of affordable, socially and economically sustainable public housing.

This paper ultimately illustrates that public housing can both meet the cultural needs of a specific group while also improving quality of life for all of its residents,

regardless of their culture. With 1.2 million U.S. households currently living in public housing,[1] the need for innovative strategies to meet our nation's housing needs has never been greater. Architectural practitioners have the tools to make meaningful change in the world, it is up to each of us to utilize them to their fullest extent.

Chapter 3. Gateway to the American Dream: Immigrants and Public Housing

(i) Overview and history of public housing in the United States

Public housing, commonly known as subsidized housing, refers to housing funded in whole or in part by state or federal government programs. These housing projects provide housing for 2.3 million Americans[2] and are funded by government sponsored programs such as the Federal and State Low Income Public Housing Program, the Section 8 Housing Voucher program, Veterans Affairs Supportive Housing (VASH) vouchers, HOPE VI, Capital Fund, or Major Reconstruction of Obsolete Project (MROP)[*] funds. The federal public housing program was established by the U.S. Department of

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[1] U.S. Department of Housing and Urban Development, "Public Housing," http://www.hud.gov/offices/pih/programs/ph/index.cfm, (accessed March 12, 2011).
[2] Center on Budget and Policy Priorities, "Policy Basics: Introduction to Public Housing," http://www.cbpp.org/cms/index.cfm?fa=view&id=2528.
[*] Acronyms and terms frequently used in this paper are further defined in the glossary.

Housing and Urban Development (HUD) in order to: "provide decent, safe rental

housing for eligible low-income families, the elderly, and persons with disabilities."[3]

The Low-Income Housing Tax Credits (LIHTC) is another federal program used to

encourage investment into affordable housing by providing tax credits to developers of

these units. The US has traditionally considered public housing and its supplementary

programs to be temporary in nature, and intended to carry families and individuals

through difficult times until long term housing can be secured. The expectation is that

financial improvement will propel residents out of government subsidized housing and

into home ownership. The current state of the nation's housing suggests that residents

are not moving on to home ownership as intended; rather, these housing projects

become home to successive generations.

The National Center for Children in Poverty states that the federal poverty level

for a family of four with two children was $22,050 in 2010; the organization states that a

family of four needs twice this income to meet their basic needs[4]. Families which make

less than this, ($44,100) are considered to be "low income." Nationally, 42% of children

live in low income families, while in Hawaii the number is a slightly lower 31% (85,723).[5]

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[3]Hawaii Public Housing Authority, "HPHA Annual Report FY 2011," Honolulu, HI, 2011, http://www.hcdch.hawaii.gov, (accessed February 2, 2012).
[4] National Center for Children in Poverty, "50 State Data," http://www.nccp.org/, (accessed February 2, 2012).
[5] Ibid.

The Urban Institute claims that "on average, poor individuals have a one in three chance of escaping poverty in any given year."[6] The Community Planning Department of HUD describes some of the challenges faced by those burdened by poverty in the US:

> The generally accepted definition of affordability is for a household to pay no more than 30 percent of its annual income on housing. Families who pay more than 30 percent of their income for housing are considered cost burdened and may have difficulty affording necessities such as food, clothing, transportation and medical care. An estimated 12 million renter and homeowner households now pay more than 50 percent of their annual incomes for housing, and a family with one full-time worker earning the minimum wage cannot afford the local fair-market rent for a two-bedroom apartment anywhere in the United States. [7]

Access to affordable housing can significantly increase a person's chances of escaping poverty by easing the financial burden of affording the above listed basic necessities.

In Hawaii 17,020 families who met federal poverty levels were on waiting lists to receive Section 8 housing as of 2009, with 80% of those applicants listed as Asian or Pacific Islander.[8] Although Section 8 housing lists are utilized as an indication of need for affordable housing in an area,[9] they do not tell the whole picture. In Hawaii, the waiting list has not been accepting new applications since May, 2005 due to a lack of federal funding.[10]

To qualify for a federal housing program, an applicant must meet occupancy as well as income requirements (see Appendix 1: Income requirements). Once accepted

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[6] Signe-Mary McKernan, Caroline Ratcliffe, and Stephanie R. Cellini, "Transitioning In and Out of Poverty," *The Urban Institute no. 1* (September 2009), www.urban.org (accessed April 2, 2010).

[7] Community Planning Department of HUD, "Affordable Housing," March, 2010, http://www.hud.gov/offices/cpd/affordablehousing/index.cfm, (accessed April 24, 2010).

[8] Hawaii Housing Finance and Development Corporation, "State of Hawaii Con Plan 2010 – 2014 Final," Honolulu, HI, 2010, 19.

[9] Ibid.

[10] Honolulu.gov, "Department of Community Services Rental Assistance," Honolulu, HI, http://www1.honolulu.gov/dcs/rentalassistance.htm, (accessed February 2, 2012).

into public housing, residents may stay until it is determined through reexamination that they earn enough to rent at market rate, pending affordable housing availability.[11] Current strategies passively encourage public housing residents to limit the duration of their stay through a policy of providing little beyond the basic provisions needed for shelter and safety. Federal public housing's dependency upon government funding subsequently perpetuates these policies in their efforts to maintain facilities and respond to the needs of residents. In the face of these challenges, programs such as HOPE VI, (discussed in greater depth in Chapter 6), were created to provide additional funding for housing rehabilitation and modernization. Community centers offering job help, child care, and other services are also common features of public housing and provide valuable support to residents.

Public housing today is the product of almost a century of government policy. The United States Housing Act of 1937 established the public housing program in response to the economic devastation of the Great Depression in the 1930's. The Act, administered by the United States Public Housing Authority, authorized loans to local public housing agencies for lower-rent public housing construction expenses.[12] It would mark the beginning of the government's continuing struggle to secure adequate shelter for low-income and homeless demographics. With each newly elected government administration, a renewed attempt to create long term solutions to chronic poverty and sub-standard housing would be enacted. One of the measures born from the 1937 Act

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[11]U.S. Department of Housing and Urban Development, "HUD's Public Housing Program," http://portal.hud.gov/hudportal/HUD?src=/topics/rental_assistance/phprog, (accessed March 26, 2011).
[12] U.S. Department of Housing and Urban Development, "HUD Historical Background," (May 2007), http://www.hud.gov/offices/adm/about/admguide/history.cfm, (accessed April 5, 2010).

was the urban renewal program to address the tendency for large slums to develop

within urban areas. This measure paved the way for the Housing Act of 1949 which

allocated funding for slum clearance and urban redevelopment.[13] Unfortunately, the

issue remains as pervasive today as at any other time in history since the Great

Depression.

The 1960's and 70's saw the implementation of social advocacy programs both

for the economically disadvantaged and ethnic minorities with passing of the Civil Rights

Act of 1964; in 1965 the US Department of Housing and Urban Development was

created under the Johnson administration as part of the War on Poverty. The Housing

and Community Development Act of 1974 included provisions for the Section 8 Leased

Housing Assistance Payment Program.[14]

The Low Income Housing Tax Credit (LIHTC) was created in 1986 as a way to

incentivize the production of more affordable housing units by offering tax credits in

exchange for the cost of the project.[15] The tax credits have been used to benefit many

communities as they are issued with the requirement that they be invested back into

the community via non-profit organizations. The Section 8 housing and voucher

program in conjunction with the LIHTC remain primary players in the government's

efforts to house people in need; however, the programs do not specifically address the

cultural needs of residents that may significantly impact quality of life.

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[13] U.S. Department of Housing and Urban Development, "HUD Historical Background," May 2007,
http://www.hud.gov/offices/adm/about/admguide/history.cfm, (accessed April 5, 2010).
[14] Ibid.
[15] Ibid.

Programs such as HOPE VI, the Capital Fund, and Community Development Block

Grant (CDBG) funds have been more recently developed to aid in the rehabilitation and

modernization of the nation's aging housing stock. Individual public housing

developments complete a rigorous application process to be considered for HOPE VI

funding including extensive interviews with residents. This component of the application

process was to address the fact that there is not a one-size-fits-all solution for public

housing, and that resident needs vary from region and change with time.

The Joint Center for Housing Studies at Harvard is the leading authority on

housing issues, trends, and statistics, released in the annual report: "The State of the

Nation's Housing." The Joint Center offers a wealth of relevant and up to date data and

papers pertaining to subsidized housing. James Stockard is an authority on subsidized

housing and also comes from the Harvard School of Design. As co-author of "Managing

Affordable Housing: A Practical Guide to Creating Stable Communities" with Bennett L.

Hecht, he approaches the topic from the perspective of community building through a

prescribed management strategy. The Joint Center for Housing Studies and its Harvard

affiliates advocate instituting change in the subsidized housing arena via the channels of

government policy.[16] Government approval and support will be an essential component

of realizing meaningful change in subsidized housing design.

At the time of printing, the text *Building Without Borders* states it is estimated

that "over one billion people worldwide do not have access to safe shelter and a healthy

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[16] Bennett L. Hecht, and James Stockard, *Managing Affordable Housing: A Practical Guide to Creating Stable Communities* (Somerset, NJ: John Wiley and Sons, Inc., 1996), 2.

living environment."[17] An inclusive definition of what "adequate" housing entails should include the element of "home" in the sacred sense. Designing "homes" rather than houses goes beyond meeting basic survival needs; it means creating space where the inhabitants are able to thrive physically, emotionally, and spiritually. The author states that "shelter is a human right,"[18] but it should also be argued that *home* is a human right.

(ii) The state of Hawaii's housing

Hawaii is a state that is relatively stable economically and politically with a total population just over 1.2 million people; currently, thousands of families in Hawaii are waiting to receive some form of subsidized housing.[19] Neglecting this issue will only contribute to its perpetuation; the Urban Institute released a report on transitioning into and out of poverty that states "roughly 50 percent of those who become poor get out of poverty a year later; 75 percent experience poverty spells of less than four years." [20] Not surprisingly, the longer a person has been poor, the less likely he or she is to escape poverty.

There are numerous housing agencies within Hawaii dedicated to advocating for low-income and homeless residents of the state. The Hawaii Public Housing Agency (HPHA) owns many of Hawaii's subsidized housing complexes, and also oversees many

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[17] Susan Klinker, "Shelter and Sustainable Development," *Building Without Borders,* ed. Joseph F. Kennedy (Gabriola Island, BC Canada: New Society Publishers, 2004), 5.
[18] Kennedy, 2004, 1.
[19] Hawaii Housing Finance and Development Corporation, "State of Hawaii Con Plan 2010 – 2014 Final," Honolulu, HI, 2010, 19.
[20] Signe-Mary McKernan, Caroline Ratcliffe, and Stephanie R. Cellini, "Transitioning In and Out of Poverty," *The Urban Institute* no. 1 (September 2009), www.urban.org (accessed April 2, 2010).

federal programs for housing including Section 8 housing vouchers and homeless outreach programs.[21] The Department of Housing and Urban Development (HUD) has a Hawaii branch that oversees federal policy as it applies to the state.[22] The Hawaii Housing Alliance is an advocacy group that works to increase the availability and quality of affordable housing in Hawaii, placing great emphasis on the critical role of the home in creating healthy communities.[23] The Housing and Community Development Corporation of Hawaii (HCDCH) facilitates and oversees the development of much of the state's subsidized housing. Together, these organizations provide a multitude of options and organizations to provide housing options for all of Hawaii's residents.

Public housing in Hawaii has become a host for many recent immigrant communities, often becoming the first site for assimilation and introduction to American culture. Many of the recent arrivals are due to the Compact of Free Association (COFA), which states that residents of the Federated States of Micronesia (FSM), the Republic of the Marshall Islands (RMI) and the Republic of Palau are to receive benefits from the United States including financial and military support.[24] COFA also enables residents of these nations plus American Samoa, Guam, and the Northern Mariana Islands to visit and reside in the US more easily. Consequently, Hawaii's public housing complexes have become home to many established Micronesian and Samoan communities.

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[21]Hawaii Public Housing Authority, www.hcdch.hawaii.gov.
[22] U.S. Department of Housing and Urban Development, "HUD in Hawaii," http://portal.hud.gov/hudportal/HUD?src=/states/hawaii (accessed February 12, 2011).
[23] Hawaii Housing Alliance, "About Hawaii Housing Alliance," http://community.hawaiihousingalliance.com.
[24] Legal Information System of the Federated States of Micronesia, "Compact of Free Association," (included in U.S. Pub. Law 99-239, Compact of Free Assoc. Act of 1985, 48 USC 1681 note. 59 Stat. 1031 and amended Dec. 17, 2003 by House Jt. Res. 63; U.S. Pub. Law 108 188), http://www.fsmlaw.org/compact/index.htm.

Robert Franco, Kapiolani Community College's director of planning, grants and civic engagement states in the article, "Renovating Lives" that "public housing communities in Honolulu often are the places where immigrants first arrive in Hawaii from the Pacific Islands and Asia."[25] The HCDCH collects data on the state of Hawaii's housing and recently reported that not only are indigenous and immigrant families disproportionately represented in Hawaii's subsidized housing communities, they often face higher rates of poverty sustained over generations.[26] Although Hawaii's population is composed of numerous cultural groups, typical subsidized housing developments found within the state are based on models from the U.S. mainland and are not intended to support the practice of any of these cultures' traditions.

Immigrant groups represent only a portion of the state's population faced with housing-related problems. In Hawaii, 37% of the homeless population is Hawaiian or part-Hawaiian even though they only compose approximately 9% of Hawaii's total population.[27] The UN-Habitat organization responded to this trend in their report on Housing Rights: "the particular concerns of indigenous peoples – their generally poor housing situation, their vulnerability as groups affected by displacement, the insecurity of tenure they often have over their traditional homelands, and the culturally inappropriate housing alternatives offered by the authorities – have emerged

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[25]Kristen Bonilla, "Renovating Lives," Malamalama, published in "Features," March 2009, http://www.hawaii.edu/malamalama/2009/03/renovating-lives-in-palolo/.
[26] Housing and Community Development Corporation of Hawaii, "State of Hawaii Consolidated Plan," FINAL CP 2005-2009.doc, Honolulu, 2004.
[27] Hawaii Policy Academy on Chronic Homelessness, "Plan to End Chronic Homelessness in Hawaii," Honolulu, September, 2005.

repeatedly as important issues."[28] Organizations such as DHHL and the Office of Native

American Programs (ONAP) advocate for Native Hawaiian housing issues on both the

local and national levels.

As one group concerned with providing affordable housing that is also culturally

appropriate for native Hawaiians, the Department of Hawaiian Homelands (DHHL)

represents a growing awareness of the necessity for housing that meets cultural needs.

DHHL has recently developed a prototype housing development called Kaupuni,

featuring kalo fields, a shared communal area for gatherings, and a hula mound (see fig.

1).[29] This project is a well-received example of a culturally appropriate housing

prototype for Native Hawaiian communities and was featured on the HUD- Hawaii

website for being influenced by traditional Hawaiian practices to support sustainable

living. [30]

[28] UN-HABITAT, "Indigenous peoples' right to adequate housing: A global overview," United Nations Housing Rights Programme no.7 (2005): iii.

[29] The site plan illustrates location of Native Hawaiian traditional design elements. "Native Hawaiian Home Goes Green," Kaupuni, Ke Kaiaulu Ho'owaiwai, (Hawaii: Department of Hawaiian Home Lands, 2010,) http://portal.hud.gov/hudportal/HUD?src=/states/hawaii/stories/2010-07-14.

[30] U.S. Department of Housing and Urban Development, "Native Hawaiian Home Goes Green," http://portal.hud.gov/hudportal/HUD?src=/states/hawaii/stories/2010-07-14.

Figure 1. Department of Hawaiian Home Lands (DHHL), "Kaupuni, Ke Kaiaulu Ho'owaiwai (the Prospering Community)," 2010.

Another issue attributed to subsidized housing projects is a general lack of accountability for residents and occasionally for project management as well. Lack of on-site authority can give residents the general impression of absenteeism, neglect, and indifference. However, in cases where there is on-site management composed of resident managers and care-takers, the housing complexes tend to be more successful. One such public housing community, Palolo Homes, will be discussed in greater detail in Chapter 5. It must also be stated that in Hawaii there are many people who have dedicated their lives to improving the quality of life for the state's public housing residents. Despite the many challenges imposed by government funding and the current state of public housing, these people ardently pursue the best possible solutions for residents.

Public housing in Hawaii has recently been brought to the public's attention due to publicized incidents of violence occurring on housing grounds. In spring of 2010 a four month curfew was imposed on the residents at Kalihi Valley Homes housing project in Honolulu[31] due to a series of incidents involving rival public housing groups. The violence stemmed from confrontation between "gangs" that were composed of people belonging to either Kalihi Valley Homes or Kuhio Park Terrace. This suggests that the connection between the built environment and the identity of its residents may be strong enough to incite heightened feelings of inclusion and protection.

In 2003, the Hawaii Housing Policy Study (HHPS) was conducted for the third and most recent time by SMS, Inc. The resulting report documented Hawaii's housing trends as based on a housing inventory, rental survey, and housing demand survey. The surveys asked residents about unit condition, intent to move, household composition, and tenancy preferences.[32] The study included a survey specifically for people who identified as Native Hawaiian; this was included as part of the study's Department of Hawaiian Home Lands Focus. The survey describes a complex set of relationships that translate into a long term downward trend in affordable housing options, placing an added burden on Hawaii's subsidized housing infrastructure.

Hawaii faces a different set of economic, cultural and climatic variables from the rest of the nation, but the larger trends remain similar. Subsidized housing across the nation is facing decades' worth of back-logged repair needs, and often carries a social

[31] Travis Kaya, "Curfew time's up at public housing," July 31, 2010, http://www.staradvertiser.com/news/20100731_curfew_times_up_at_public_housing.html.
[32] SMS Research and Marketing Services, Inc, "Hawaii Housing Policy Study, 2003," SMS: Honolulu, Dec 2003, from the HPHA website: http://www.hpha.hawaii.gov/documents/03policystudy.pdf, 4.

stigma of poverty, crime, and apathy. The nation has endured significant challenges due to the recent financial recession; however, with these challenges come an opportunity to reexamine our current public housing system and envision a different path towards a better future.

(iii) Social issues within public housing projects and the surrounding community

In any neighborhood, the prevalence of crime can have a significant impact on its residents' quality of life. In a public housing project, the combination of social and economic factors can make crime a serious and ongoing issue while also acting as a roadblock towards improvement of living conditions. Contributing to the occurrence of crime, the current public housing model lends itself to anonymity of residents and isolation from neighbors. When residents take pride in their homes and have a stake in its future through long term rental or ownership, crime will likely decrease. Bringing residents into the design process so that their voices can be heard contributes to creating an environment where residents feel a sense of ownership and pride. This would create an incentive to keep their community safe while improving quality of life.

In 1996, Oscar Newman wrote a report entitled "Creating Defensible Spaces," for the US Department of Housing and Urban Development as a follow up to his 1972 text, *Defensible Spaces*. In it he outlines his experience implementing his design theory, "Crime Prevention Through Environmental Design" (CPTED), and includes commentary

on the many challenges and small victories he has encountered as a consulting architect for several public housing case studies.

The empowerment of residents is central to Newman's design philosophy for the creation of defensible spaces. He outlines methods for facilitating the participatory process as well as strategies for home-ownership in his 1996 report. Both of these elements are critical not only to integrate the cultural needs of a community into design, but to ensure that these efforts are part of a long term plan for improvement.

At the Five Oaks housing community in Dayton, Ohio, Newman worked with residents to encourage home ownership as part of his role in the rehabilitation of this run-down and predominantly African American community. He emphasizes the importance of educating residents about the various Federal, State and local programs that are currently available to many first-time and low-income home buyers.[33] Newman goes on to state that to maximize the effectiveness of these programs, down-payment assistance should be coupled with funding for renovation and unit maintenance.

Newman would also come to develop a theory of the relationship between crime and heights of buildings (see fig. 2). In general Newman greatly disapproved of high rise apartments for subsidized housing or otherwise. He stated that the height of a building and its rate of crime were directly linked. He also linked this statistic to an increase of crime occurring in interior public spaces such as elevators and hallways as building

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[33] Oscar Newman, "Creating Defensible Spaces," Institute for Community Design Analysis, U.S. Department of Housing and Urban Development Office of Policy Development and Research, Center for Urban Policy Research Rutgers University, 1996, 55.

heights grew. High-rise housing refers to structures with 9 or more floors per building

(see Appendix 2: Characteristics of apartment type by size).[34]

Location of Crime in Walkups and Highrises

	Walkups (3 floors)	Midrises (6–7 floors)	Highrises (13–30 floors)
Total	30.0	41.0	68.0
In interior public spaces	5.3	16.5	37.3
On outside grounds	12.7	10.0	16.2
Inside apartments	12.0	14.5	14.5
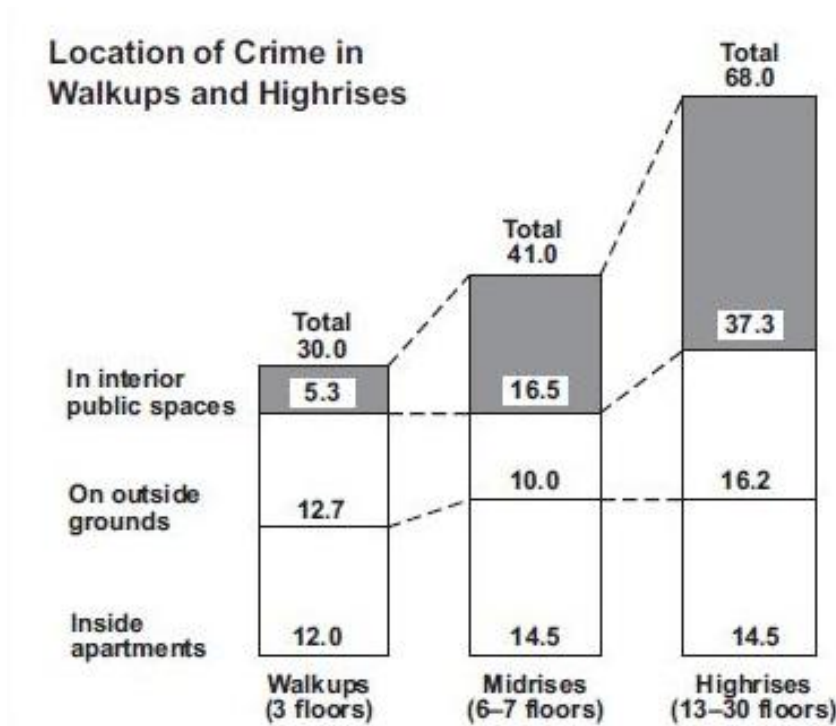
Figure 2. Oscar Newman "Creating Defensible Spaces" Figure I-7 describing the relationship between building height and crime as well as the location for crime to most likely occur.

There are applications where high rise towers are appropriate for public housing

and will not necessarily translate to an increase in crime. For recent immigrants to

Hawaii that have come from highly urbanized environments, high rise towers may

provide an appropriate housing solution. However, the high rise towers present a living

environment that is significantly different from the agrarian landscape and villages

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[34] University of Minnesota College of Architecture and Landscape Architecture, "Mid-rise apartment," (Minneapolis, MN: Metropolitan Design Center, 2005), www.designcenter.umn.edu.

where many of the Pacific Islander immigrants lived prior to moving into Hawaii's public housing.

In Hawaii, the two towers at Kuhio Park Terrace are the last remaining public housing high rises west of the Rockies[35] and the source of much contention. They are notorious for their unsafe and unsanitary conditions, and residents have recently petitioned to have them demolished. [36] Recently the two tower lanais were fenced in to protect the safety of pedestrians and workers as the tower was undergoing extensive renovation to repair broken elevators and laundry chutes that were damaged from vandalism.

Under Kuhio Park Terrace's HOPE VI application in 2001, the complex was determined to be an "indefensible space."[37] Its design was listed as a cause for its high levels of crime and neglect. Long hallways and dark stairwells provide unsupervised spaces that become prime locations for crimes. The housing complex is also isolated from the surrounding community due to the need to close access to the area except for two entrance/egress gates (see fig. 3).

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[35] HCDCH, "HOPE VI Application Kuhio Park Terrace Honolulu, HI," State of Hawaii, June, 2001, 1.
[36] S.B No. 604, "Relating to Kuhio Park Terrace," The Senate 26th Legislature, 2011, State of Hawaii.
[37] HCDCH, "HOPE VI Application Kuhio Park Terrace Honolulu, HI," State of Hawaii, June 2001, 20.

Figure 3. Entrance gate to Kuhio Park Terrace with one of the two residential towers shown in background. Kanu Hawaii, 2009, http://www.flickr.com/photos/kanuhawaii/3615802710/in/ photostream/#/photos/kanuhawaii/3615802710/in/set-72157619574878294/.

The downtown and Kalihi areas have the highest concentration of subsidized housing and were also the source of 12,000 of the 40,000 crimes committed island-wide in 2007 (see fig. 4).[38] As stated in the article supporting this figure, there is not a clear connection between the rise in crime rates and the location of the public housing facilities; however these locations are also urban population centers where a proportional rise in crime is expected. The article also states that the general public continues to associate these housing sites with increased crime.

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[38] The number of crimes per police beat within the downtown and Kalihi districts from 2007 is shown in the figure; this is also where the majority of the island's public housing communities are located. Honolulu Advertiser, August 18, 2008.

There are multiple programs in place to address issues associated with crime and delinquency in public housing. One of the requirements for living in public housing is to complete at least 8 hours of community service a month if you are unemployed or "under-employed," (working less than 30 hours per week).[39] This is a legislative mandate issued as part of the Public Housing Reform Act of 1998[40]. These requirements are in place to encourage residents to become personally invested in their own housing complex by offering opportunities for on-site community service. The programmatic infrastructure is in place to encourage residents to have a personal stake in their place of residence; on the other hand, by functioning as a temporary shelter, the housing system actually works against the programs' support of sustained positive change.

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[39] HPHA, "HPHA, AMP 50, Palolo Valley Homes Residents, Community Meeting," September 17, 2008, http://www.hcdch.hawaii.gov/infoforcommunities/documents/Minutes/amp50/.
[40] HCDCH, "Housing and Community Development Corporation of Hawaii HCDCH Newsletter," 3, no. 4 (April 2006), http://www.docstoc.com/docs/5747590/April-Volume-Issue-Inside-this-Issue-Page-HCAP-Oahu.

IT'S NOT JUST ABOUT THE PROJECTS

O'ahu is home to 44 developments that are part of the state's public housing system. They're home to thousands of poor. But some contend that the effects from public housing developments, especially those in distress, go far beyond the people who live there, with social and financial implications for neighborhoods and entire communities. Here's a look at poverty levels and other Census data for the Kalihi and Downtown areas, which have a heavy concentration of public housing.

The extent to which public housing projects affect neighborhoods is a matter of some debate, particularly where crime is concerned. The number of crimes in Honolulu police districts 1 and 5, which include the Kalihi and Downtown areas, totaled more than 12,000 in 2007 of an estimated 40,000 crimes Islandwide.

DOWNTOWN

POPULATION: **14,575**

MEDIAN HOUSE-HOLD INCOME: **$29,946** (compared to $52,280 statewide)

PERCENT OF FAMILIES BELOW POVERTY LEVEL: **16.1%** (compared to 7 percent statewide)

PERCENT OF HOUSEHOLDS THAT RENT: **46.7%**

KALIHI

POPULATION: **37,987**

MEDIAN HOUSE-HOLD INCOME: **$31,627**

PERCENT OF FAMILIES BELOW POVERTY LEVEL: **19.2%**

PERCENT OF HOUSEHOLDS THAT RENT: **50.7%**

TOTAL CRIME REPORTED IN 2007

HONOLULU POLICE DISTRICT 5

POLICE BEAT	TOTAL OFFENSES	POLICE BEAT	TOTAL OFFENSES	POLICE BEAT	TOTAL OFFENSES
550	251	558	152	566	369
551	454	559	165	567	132
552	419	560	167	568	165
553	134	562	345	569	154
554	183	563	301	570	257
556	133	564	362	571	396
557	117	565	178	572	171
				573	231

HONOLULU POLICE DISTRICT 1

POLICE BEAT	TOTAL OFFENSES	POLICE BEAT	TOTAL OFFENSES	POLICE BEAT	TOTAL OFFENSES
150	129	161	126	171	678
151	214	163	241	172	133
152	329	164	372	174	182
154	369	165	169	175	134
156	113	167	201	176	591
157	144	168	252	178	412
158	113	169	224	179	235
160	226	170	257	180	1,110

Sources: 2000 Census, Honolulu Police Department 2007 annual report
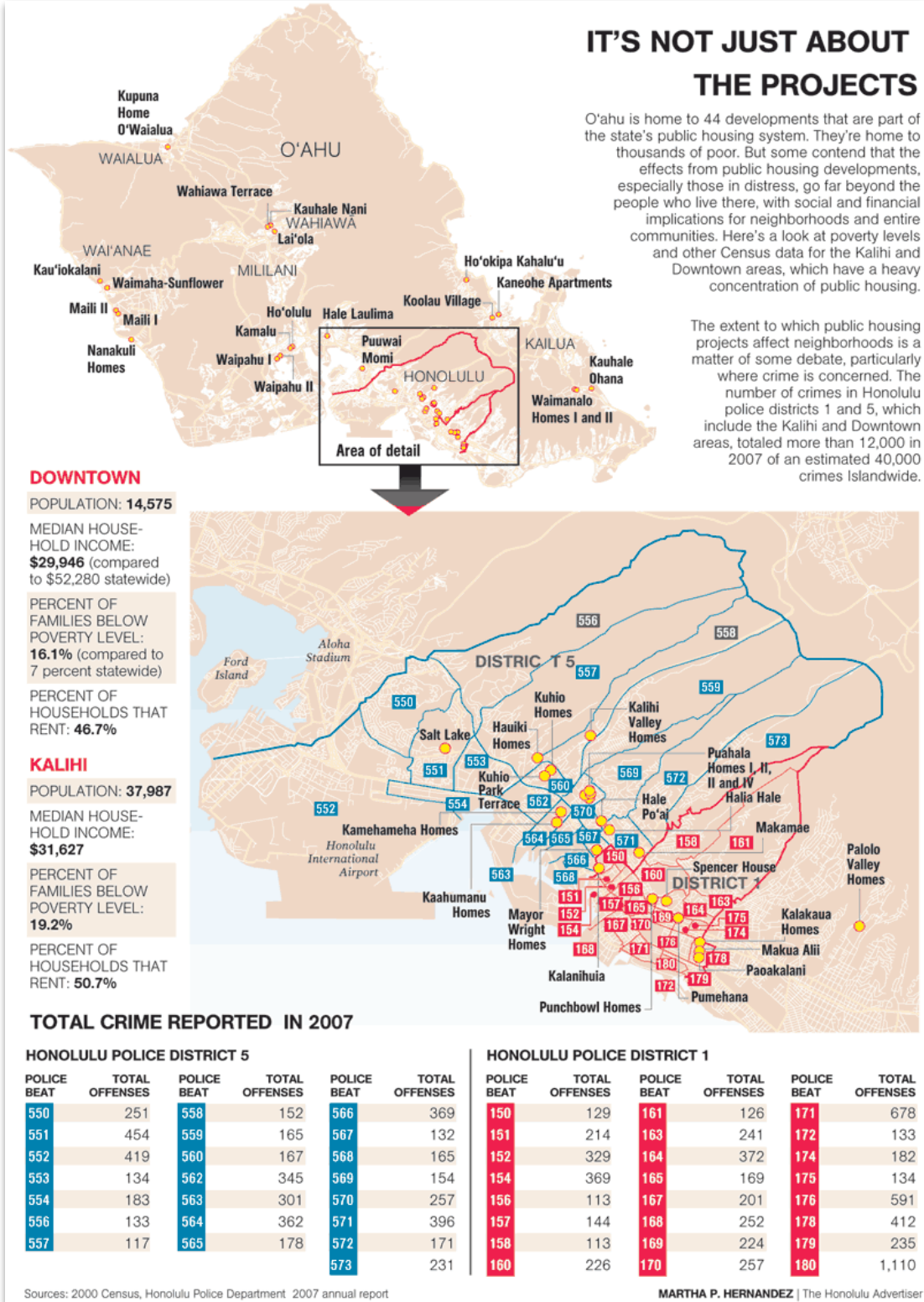
MARTHA P. HERNANDEZ | The Honolulu Advertiser

Figure 4. Mary Vorsino, "High hopes and dashed dreams in Kalihi public housing areas," Honolulu Advertiser, August 18, 2008.

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Chapter 4. The Value of Culture

(i) An overview of culture and its role within communities

Cultural loss is spreading steadily across the globe in the guise of assimilation and progress. The true value of this loss is only just beginning to be realized by nations after the languages, traditions, beliefs and practices have disappeared. This is the belief of Wade Davis, the National Geographic author and anthropologist who spoke about the importance of preserving the world's ethno-diversity during a speech he gave for a TED (Technology Entertainment Design) conference in February, 2003. "Genocide, the physical extinction of a people is universally condemned… where ethnocide, the destruction of a people's way of life, is celebrated as a part of a development strategy."[41] He goes on to ask, "Do we want a monochromatic world of monotony or to embrace a polychromic world of diversity?" The answer to this question is of course a matter of cultural values, but within the architectural profession this must be seriously considered due to the long-lasting consequences of our design decisions.

Davis later refers to the words of famed anthropologist, Margaret Mead by saying, "my greatest fear was as we drift towards a… generic world view, not only will we see the range of the human imagination reduced to a more narrow modality of thought, but we would wake from a dream one day having forgotten that there are even other possibilities." As an anthropologist, Mead's life was dedicated to the documentation and appreciation of the world's cultural diversity. This diversity can prove to be challenging, prompting many to choose the known and simpler path. We

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[41] Wade Davis, "Wade Davis on endangered cultures," February 2003, posted on TED.com January 2007, http://www.ted.com/talks/lang/eng/wade_davis_on_endangered_cultures.html.

avoid this challenge at our own risk and at the loss of the opportunity to encourage cultural identity and growth. Davis summarizes his talk by saying, "This world deserves to exist in a diverse way... where all of the wisdom of all peoples can contribute to our collective well-being."

Culture is not a static entity; rather, it is in a constant state of change in response to contextual factors and evolves with each successive generation. Culture can refer to the practices and beliefs of a single ethnic group, or it can refer to the combined values of a community composed of several backgrounds. Webster's dictionary defines culture as: "the sum total of ways of living built up by a group of human beings and transmitted from one generation to another."[42] For this paper, there are several levels of culture to be considered. The first and most comprehensive level refers to the culture shared by residents of the same public housing complex. The second level refers to the cultures of individual groups within the complex that share a common ethnic or ancestral history.

It is important to note that for this project, culture is a composite not only of the traditions, values and beliefs from the home culture, but includes cultural elements from the host country as well. For these communities to be thriving, robust places to live they cannot be monuments to the past nor should they try to recreate the home country in minutiae. Both of these scenarios require the place to exist as roped-off exhibits in order to fend off the inevitable influence of the outside world. The term 'culture' must strike a balance between past and present, embodying both tradition and its modern context so that it may be hearty enough to resist full assimilation.

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[42] Random House Dictionary, www.dictionary.com, (accessed Jan 13, 2011).

A recently published article about the rise in suicides among Native American children and young adults states that suicide is the second-leading cause of death for their age group. When asked what could be the cause of this trend, the article states: "spiritual leaders say the suicides are rooted in an identity crisis that goes to a cultural and spiritual bankruptcy among Indian youth."[43] This statement suggests that the value of cultural identity is high enough to provoke the desire to take one's own life at its loss. In light of the high number of Native American and Native Hawaiians residing in public housing, this statement illuminates the critical nature of identity loss and the need to address this issue at the housing level.

The American Dream may evolve with time, but the fundamental principles of the nation's founders remain and continue to draw people across its borders for the freedom to choose and to have their voices heard. When housing options for the newest citizens are reduced to environments that enforce assimilation over cultural expression, we do all of its citizens a disservice. By discouraging the expression of diverse cultures, we lose centuries of irreplaceable knowledge. It must also be acknowledged that some may choose assimilation into the American mainstream over their cultural traditions, but that is their choice to make and should be honored. Through this basic exercise of choice, residents can be treated with the dignity they deserve.

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[43]Associated Press, "Indian youth suicide crisis baffles families, community," March 20, 2011, http://www.cbsnews.com/stories/2011/03/20/ap/national/main20045195.shtml, (accessed March 20, 2011).

Chapter 5. Hawaii Public Housing Case Studies

The state of Hawaii will be the primary site for case studies conducted for this doctorate project paper. Hawaii's last census states that 41.6% of its residents identify as Asian, 24.3% indicated they were white, 21.4% identify as 2 races or more, and 9.4% stated they were Native Hawaiian or other Pacific Islander.[44] Hawaii's history includes a long monarchical rule followed by the rise of plantation life and a period of intense immigration from countries such as China, Japan, Korea, Portugal, and the Philippines.[45] Many of the families in these communities have been in Hawaii for over 5 generations, yet have not financially progressed beyond the poverty threshold and continue to reside within subsidized housing projects. Native Hawaiians have endured massive disruptions to their cultural traditions and remain disproportionately represented in subsidized housing developments and homeless camps.

Public and affordable housing options for those living on Oahu are primarily facilitated through the Hawaii Public Housing Authority (HPHA). This government-funded organization oversees the state's Section 8 Housing Voucher Program, as well as the State Rent Supplement Program. The general requirement for these programs is for residents to pay 30% of the gross adjusted income towards monthly rent. The Section 8 Housing Voucher Program on Oahu is currently closed due to the large amount of families presently waiting,[46] with an existing wait of approximately 2 years for those

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[44] US Census Bureau, "American Fact Finder: Hawaii," http.census.gov, (accessed May 9, 2010).
[45] Hawaii's Plantation Village, "Plantation Workers Timeline," http://hawaiisplantationvillage-info.com, (accessed February 12, 2012).
[46] Hawaii Public Housing Authority, "FAQs: Section 8 Housing Choice Voucher Program," http://www.hcdch.state.hi.us/faqs/section8.html, (accessed January 15, 2011).

already on the list. According to the Center on Budget and Policy Priorities and the

Economic Policy Institute, the gap between Hawaii's richest and poorest families is 45th

largest in the nation.[47]

The selected case study sites for the Doctorate Project research and design

project are Kuhio Park Terraces (KPT) as well as Palolo Valley Homes (see fig. 5). They

represent two differing public housing realities: KPT is the largest and only high-rise

public housing tower in the state, and Palolo Valley Homes is a low-rise complex. Both

complexes host a majority of Micronesian and Samoan residents with smaller

populations from other Pacific and Asian nations (see fig. 6).

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[47] Center on Budget and Policy Priorities and the Economic Policy Institute, "Pulling Apart: A State by State Analysis of Income Trends," 2008, http://www.cbpp.org/files/4-9-08sfp-fact-hi.pdf, (accessed January 20, 2011).

Figure 5. Map of Honolulu, HI with case study site locations indicated.

Figure 6. Map illustrating home countries of major cultural groups residing in Hawaii public housing. Vicki Viotti, Honolulu Advertiser, March 9, 2005, http://the.honoluluadvertiser.com/article/2005/Mar/09/ln/ln05p.html.

(i) Kuhio Park Terrace (KPT)

Located in the Kalihi neighborhood, KPT and the adjoining Kuhio Homes comprise the state's largest public housing complex with 748 units of low and high-rise housing, and "first home to many of Hawaii's immigrant population."[48] The complex is divided into the high-rise KPT with two 16-story towers and 614-units as well as 14 low-rise buildings and was built in 1965 (see fig. 7).   The adjacent Kuhio Homes has 134 units housed in 21 two-story buildings built in 1953.[49]

Figure 7. Site plan for Kuhio Park Terrace and Kuhio Homes illustrating location of complex and context.

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[48] "Kuhio Park Terrace," Kokua Kalihi Valley**:** *Comprehensive Family Services,* http://www.kkv.net/kpt.htm, (accessed February 27, 2011).
[49] "Hawai'i Public Housing Authority selects partner to Redevelop Kuhio Park Terrace, Kuhio Homes," News release: Hawaii Public Housing Authority, September 1, 2009.

In KPT's application for HOPE VI funding in 2002, the authors state that, "Despite HCDCH's continued efforts to address the physical deterioration of the buildings, the high incidence of crime, and the socio-economic challenges faced by the residents, the physical design of KPT… severely impedes meaningful progress."[50] The high incidence of crime at the site as well as the highly visible nature of the large towers (see fig. 8) has contributed to an unhealthy public image of the complex.[51] These factors combine to create a challenging environment for instituting positive change.

Figure 8. KPT towers and surrounding community. Photo by Governor Neil Abercrombie's office, October 7, 2011. http://www.hawaiireporter.com/over-a-hundred-residents-return-to-renovated-homes-at-state%E2%80%99s-largest-public-housing-project/123.

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[50] "HOPE VI Application," Housing and Community Development Corporation of Hawaii, Honolulu, HI, June 2001, 19.
[51] Ibid., 22.

According to census data from the American Community Survey, almost half of

the residents of KPT were born outside of the US, and over half of the residents speak a

language other than English (see table 1).

Demographics for Kuhio Park Terrace: 2009[52]	
Median household income:	$16210
Median monthly rent:	$364
Average household size:	3.2
Total population at KPT:	2032
Population born outside of the U.S.:	903
Residents who speak language other than English:	1014

Table 1. "Census Data: American Community Survey 2005-2009 Census Tract 62.02", Honolulu County, HI: Kuhio Park Terrace.

The primary cultural groups residing at KPT are Samoan and Micronesian.

Cultural issues have been documented by a report titled: "A Needs Assessment Study

for Residents of KPT," and was conducted in 2001 as part of the Housing and

Community Development Corporation of Hawaii's (HCDCH) application for HOPE VI

funds for facility modernization. The report states that, "cultural isolation was the major

underlying issue resulting in more apparent social problems."[53] Regarding the Samoan

community that comprised the largest ethnic group, "KPT has replaced the traditional

village as Samoan families attribute some measure of pride and to living in the same

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[52] "Census Data: American Community Survey 2005-2009 Census Tract 62.02", Honolulu County, HI: Kuhio Park Terrace,
http://hawaii.gov/dbedt/info/census/acs/ACS2009/ACS2009_5_Year/acs_hi_2009_profiles_CT.
[53] "A Needs Assessment Study for Residents of KPT," prepared and conducted by Market Trends Pacific, Inc. for Housing and Community Development Corporation of Hawaii, May 2001, 1.

place, raising their children and sending them to school in the same place that they themselves attended."[54]

Kuhio Park Terrace's applications for HOPE VI funding were not accepted, therefore recently the Hawaii Public Housing Authority (HPHA) sold these properties to Michaels Development Corporation as a "public-private partnership" for rehabilitation. In an effort to stall the start of construction, proposed Senate bill (SB604) was introduced in January, 2011 asking HPHA to review the redevelopment plan for KPT and present its findings in September 2011.[55] The bill raised concerns about retaining the existing high rise towers due to the claim that they promote conditions unsuitable for residents. The bill cites Chicago's infamous Cabrini Green project as an example of failed high-rise public housing, and references maintenance problems in KPT's high-rise towers that led to a 2008 class action lawsuit for hazardous living conditions. The bill was deferred until the 2012 legislative session, and construction commenced in summer of 2011.

Although the bill did not pass, it started an important public dialogue about the rehabilitation of what has come to represent to many people in Hawaii, a symbol of how the public housing system has failed its residents and the community at large. In his testimony in favor of Senate Bill (SB) 604, president of the Tax Foundation of Hawaii, Lowell L. Lalapa wrote: "the bottom line is that it [KPT's renovation] is severely under-funded, lacks creativity, fails to address the underlying issues and in the end KPT will

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[54] "A Needs Assessment Study for Residents of KPT," prepared and conducted by Market Trends Pacific, Inc. for Housing and Community Development Corporation of Hawaii, May 2001, 2.
[55] The Senate State Of Hawaii Twenty-Sixth Legislature, 201 1 "Kuhio Park Terrace; Redevelopment Plan," S.B. No. 604., January 21, 2011, http://www.capitol.hawaii.gov/session2011/bills/SB604_.PDF.

return to its dilapidated and deteriorated state."[56] In her testimony opposing the bill,

Monika Mordasini, a Michaels Development Corporation Vice President, provided

several reasons why the renovation of the existing towers was a sound decision. She

stated that delaying the construction to accommodate the timeline for new

construction could delay the project's completion for decades.[57] The cost of demolition

and building new low-rise towers would cost an additional $180 million and require the

relocation of all the residents at once, as opposed to the current set-up where residents

rotate out of apartments on-site as their units are renovated.[58]

The Michaels Development Corporation plans to complete the $316 million

redevelopment over the course of 11 phases and 12 years. The renovations include

essential modernization to the elevators, trash chutes, and roof, as well as extensive

improvements to the towers and low-rise buildings (see fig. 9). The first phase of the

redevelopment will be to modernize 572 units in the two high rise towers at a cost of

approximately $82,000 per unit. Over the next decade, Michaels Development plans to

add senior citizen and affordable housing as well as market-rate housing to the complex;

the developer's long range vision is to ultimately create a mixed income neighborhood.

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[56] Lowell L. Lalapa, Testimony for SB604, Honolulu, HI, February 3, 2011.
[57] Monika Mordasini, Testimony for SB604, Honolulu, HI, February 3, 2011.
[58] Ibid.

Figure 9. Proposed rendering of renovated towers at Kuhio Park Terrace by Michaels Development.

(ii) Palolo Valley Homes and Palolo Homes

Built in the 1950's, Palolo Valley Homes and Palolo Homes comprise a large public housing complex located in the Palolo Valley of East Honolulu. The complex is owned and managed by two groups, essentially dividing it in half. One half is comprised of Palolo Valley Homes, a 118 unit federal housing complex that will be undergoing renovation in 2012 (see fig. 10). Adjacent to these buildings is Palolo Homes; it is owned and managed by the non-profit organization, Mutual Housing Association of Hawaii, Inc. (MHAH).
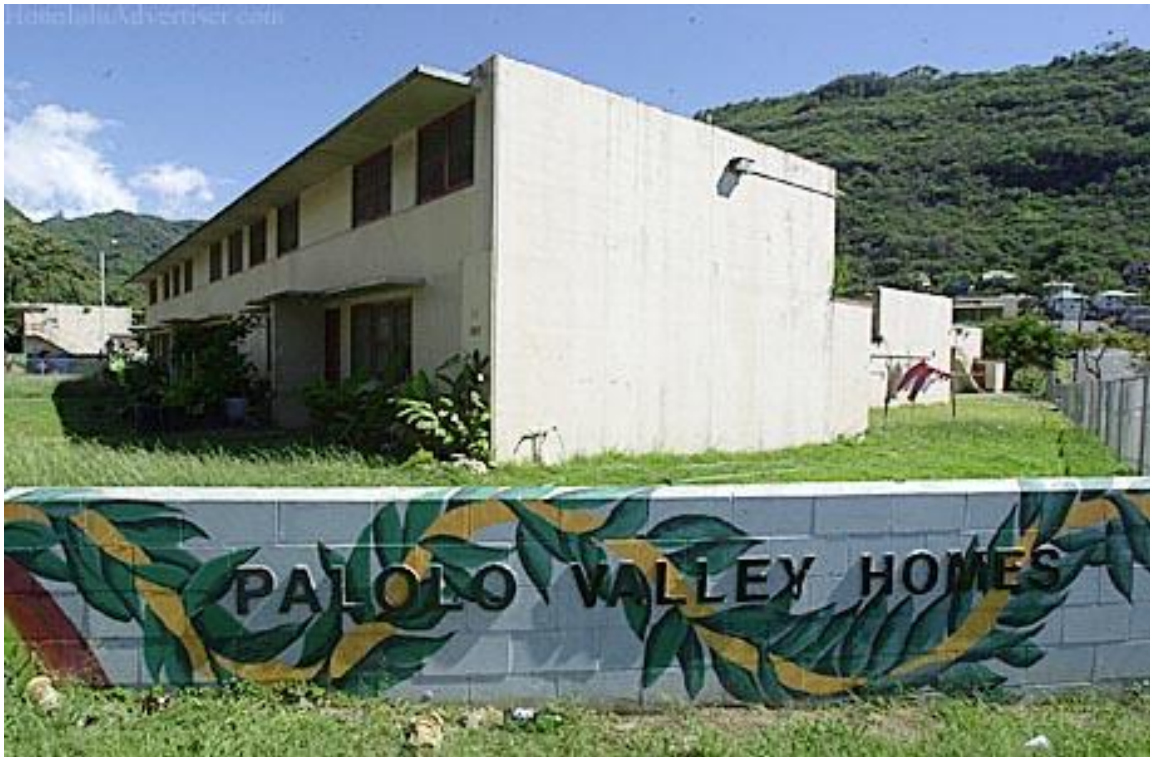
Figure 10. Palolo Valley Homes housing unit and sign. Photo by Jeff Widener,
http://the.honoluluadvertiser.com/article/2001/Nov/18/ln/ln14a.html, accessed February 11, 2012.

Palolo Homes consists of 306 units in 62 buildings and is distributed over 32

acres into two parcels with one parcel adjacent to Palolo Valley Homes (see fig.11).

Palolo Homes underwent an extensive renovation in 2003 that was designed by Clifford

Projects. The project was later awarded the Kukulu Hale award of excellence from the

National Association of Industrial and Office Properties as Hawaii's best non-profit

renovation project.[59]

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[59] NeighborWorks, "Factsheet: Mutual Housing Association of Hawaii, Inc.,"
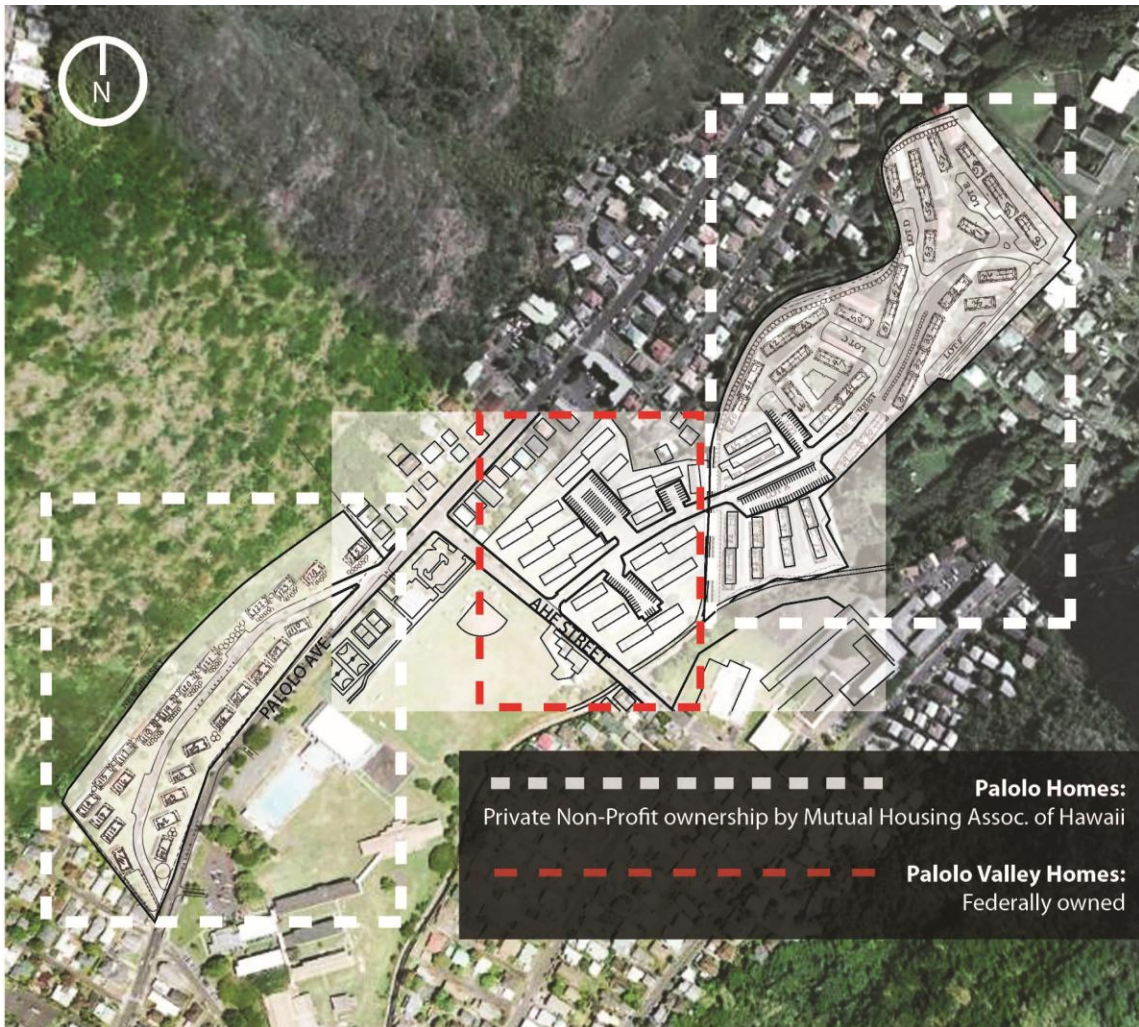http://nfs.nw.org/report/nworeport_print.aspx?orgid=3070.

Figure 11. Site plan for Palolo Valley Homes and Palolo Homes.

In 2008, a Learning Center was opened at Palolo Homes to provide supportive services to residents such as computers, classrooms, a kitchen, and office space. These new facilities and buildings pose a significant improvement from prior conditions that led MHAH to describe Palolo Valley Homes as "one of the State of Hawaii's most troubled public housing projects"[60] in its Final Environmental Assessment for its renovation application to the State of Hawaii in 2001.

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[60] Mutual Housing Association of Hawaii and Palolo Valley Homes Limited Partnership, "Final Environmental Assessment: Palolo Valley Homes Renovation," Honolulu: HCDCH, 2001.

The following census data reflects the demographics of the area including Palolo Valley Homes and Palolo Homes, in addition to the area directly surrounding the complex. This data includes the subsidized housing units as well as the surrounding market-rate rental and owner-occupied properties (see table 2). The table illustrates that just over a third of the residents were born outside of the US, as well as the fact that 46% reported that they speak a language other than English. This suggests that similar to Kuhio Park Terrace, there are significant numbers of recent immigrants living in these public housing complexes.

Demographics for Palolo Census Tract 11: 2009[61]	
Median household income:	$ 40,602
Median monthly rent:	$590
Average household size:	3.27
Total population:	3719
Population born outside of the U.S.:	1401
Residents who speak language other than English:	1,742

Table 2. "Census Data: American Community Survey 2005-2009 Census Tract 11", Honolulu County, HI: Palolo.

Visit to Palolo Homes and Palolo Valley Homes, April 15, 2011.

The author was invited to participate in a community walk at the public housing community of Palolo Homes and Palolo Valley Homes. This community walk happens weekly on Friday and Saturday nights by residents in order to supervise the grounds,

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[61] "Census Data: American Community Survey 2005-2009 Census Tract 11," Honolulu County, HI: Palolo, http://hawaii.gov/dbedt/info/census/acs/ACS2009/ACS2009_5_Year/acs_hi_2009_profiles_CT.

foster community spirit, and keep the area safe. Organized by resident and manager, Dahlia Asuega, and facilitated by several community leaders, around 30 people joined including community leaders, elders, mothers and their young children, teenagers and anyone else who wished to. Over the course of several hours the group walked through the entire complex, stopping to talk story with residents, take note of items needing maintenance, and occasionally enforce the rules of the complex.

   After the evening came to a close, one was left with an overwhelming feeling of appreciation for the strength of this community and all they had achieved. Welcomed without reservations, I felt honored to have been able to participate.

   Palolo Homes achieved sustained success through its privatization with the non-profit organization, Mutual Housing Association of Hawaii, Inc. Through this process, residents are empowered to participate in the management of their residential complex and are not only involved in major decision making concerning the complex, but trained for management positions if desired. Dahlia Asuega, president of the Palolo Tenant Association at the time, was instrumental in bringing the issues concerning Palolo Homes to the attention of the state legislature. Ms. Asuega is now manager of resident services for MHAH and continues to have a strong leadership role in the community. She was instrumental in motivating residents to take action, cleaning the stream running through the property, starting a learning center, foodbank, and citizenship classes. These efforts went far to energize residents. However, the residences themselves continued to decay and remained in their dilapidated state due to the lack of state funding for renovation.

Bob Hall, Acting Executive Director for HCDCH, spoke about the scale of the

Palolo Homes community effort in the short film *Palolo Pride* when he said, "It brought

together all the different resources, government, private, and non-profit to achieve a

common goal and even more importantly, tied in the actual beneficiaries, brought

residents to be part of the process."[62] My meeting with residents on the community

walk echoed his statements, with residents saying that they were very involved in the

re-design of Palolo Homes and took great pride in calling the renovated buildings

"home."

In a Honolulu Advertiser article concerning ethnic tensions in public housing, it

quotes Rev. To'o'olefua Paogofie, pastor of the Samoan congregation at United Church

of Christ in Nu'uanu: "The village council plays a role. You don't put shame on your

family's name… You cannot get away from the eyes of the elders. But in Hawai'i, far

from those all-seeing eyes, something has to provide a substitute 'village.'"[63] Several

residents mentioned that they felt as though Palolo Homes functioned as a 'village.' The

village is a concept that has universal significance but is an especially strong part of

many Pacific island cultures. The village atmosphere encourages residents to clean up

after themselves, watch out for the children of other residents, and to feel a sense of

belonging and pride.

Palolo Homes represents a positive example of how good design paired with

community participation can have a significant impact on its residents. Community

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[62] NeighborWorks, "Pride of Palolo," DVD, Honolulu, HI: Mutual Housing Association of Hawaii, Inc., 2006.
[63] Vicki Votti, "It takes a village to ease ethnic tensions," Honolulu Advertiser, March 9, 2005, http://the.honoluluadvertiser.com/article/2005/Mar/09/ln/ln05p.html.

leaders stated that they were consistently involved in the housing rehabilitation, and were able to communicate desires and concerns with architects and project managers. It is this kind of sincerely inclusive dialogue that is essential for the creation of culturally appropriate housing.

(iii) Cultural analysis

This section contains an analysis of traditional and current housing for the two predominant cultural groups, Micronesian and Samoan, residing at the two case study communities, Kuhio Park Terrace and Palolo Homes/Palolo Valley Homes. The cultural characteristics found in this section have been compiled in a comparative matrix (see chapter 6), and used to determine the program for the design project (see chapter 7). The intention of this study is to reveal cultural elements shared by the case study communities that can be translated into culturally appropriate public housing design.

Micronesia:

Micronesia is composed of several different nations. The independent island nation of the Federated States of Micronesia (FSM) are spread across 2500 km and composed of four main states (Chuuk, Kosrae, Pohnpei and Yap) and their 607 islands. Along with the Republic of the Marshall Islands and Palau, the nation of 106,836 residents (July 2011 est.) entered a Compact of Free Association (COFA) with the U.S. in

1986 and continues to receive U.S. Aid.[64] Although English is the official language, there are 8 indigenous languages still spoken: Yapese, Ulithian, Woleaian, Chuukese, Pohnpeian, Kosraean, Nukuoro, and Kapingamarangi with Chuukese comprising the dominant ethnic group.[65]

The recent influx of Micronesian migration to the U.S. mainland and Hawaii is due in large part to the terms of the COFA. Under COFA, "the U.S. provides financial assistance, defends the FSM's territorial integrity, and provides uninhibited travel for FSM citizens to the U.S. In return, the FSM provides the U.S. with unlimited and exclusive access to its land and waterways for strategic purposes."[66]

Micronesia has played a major part of the US military strategy in the Pacific since WWII by providing bases and nuclear testing sites. According to Dr. Beverly Ann Deepe Keever from the University of Hawaii School of Communications, over the course of 12 years (1946-1958) the US government conducted 67 atomic and hydrogen atmospheric bomb tests in these islands, with the total yield of the tests in these islands equivalent to 7,200 Hiroshima bombs.[67] This occurred while Micronesia was under a trusteeship with the US prior to the establishment of COFA called the Trust Territory of the Pacific Islands. The Healthy Pacific organization, an advocacy group for issues pertaining to the health of Pacific island people, claims that: "Because of nuclear fallout and

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[64] CIA World Factbook, "Federated States of Micronesia," https://www.cia.gov/library/publications/the-world-factbook/geos/fm.html, (accessed March 10, 2011).
[65] Ibid.
[66] U.S. Department of the Interior, "Insular Area Summary for the Federated States of Micronesia," http://www.doi.gov/oia/Islandpages/fsmpage.htm, (accessed January 31, 2012).
[67] Beverly Ann Deepe Keever, "Federal Government Responsible for Hawaii's Costs Of Micronesians," October 6, 2011, http://www.hawaiireporter.com/federal-government-responsible-for-hawaii%E2%80%99s-costs-of-micronesians/123, (accessed January 31, 2012).

militarization, residents were forced to relocate. Diets changed, as traditional agriculture could no longer be supported on lands rendered unusable from nuclear fallout or military operations."[68]

In her article, "The Special Case for COFA Migrants," Melanie Legdesog, a University of Hawaii student who was raised in Yap reports "It is well accepted that the federal government has a unique responsibility for COFA migrants stemming from its history under trusteeship."[69] However, this US supplied healthcare and financial support for Micronesians has led to negative stereotyping and has been compounded by cultural differences and misunderstandings.

The US provides millions of dollars in aid a year to the nation under the amended COFA revised to continue until 2023.[70] The economy is primarily subsistence-based agriculture and fishing, and the Gross Domestic Product (GDP) for FSM was $2,200 (2008 est.).[71] The family is the primary social unit and clans follow matrilineal lineage. Society is still ruled by traditional political systems: "Traditional political systems, such as the Nahmwarki Political System on Pohnpei and the Council of Pilung on Yap, continue to play an important role in the lives of the people of the FSM today."[72] The dominant religion of the nation is Christianity and attending weekly church service is an important part of the culture for many.

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[68] Healthy Pacific, http://www.healthypacific.org/faqs.html, (accessed January 31, 2012).
[69] Melanie Legdesog, "The Special Case for COFA Migrants," Honolulu Civil Beat, June 2011, http://www.civilbeat.com/posts/2011/06/27/11889-the-special-case-for-cofa-migrants/, (accessed January 31, 2012).
[70] U.S. Department of the Interior, "Insular Area Summary for the Federated States of Micronesia," http://www.doi.gov/oia/Islandpages/fsmpage.htm, (accessed January 31, 2012).
[71] CIA World Factbook, "Federated States of Micronesia," https://www.cia.gov/library/publications/the-world-factbook/geos/fm.html, (accessed March 10, 2011).
[72] FSM Visitors Board, http://www.visit-fsm.org/visitors/culture.html, (accessed March 10, 2011).

Housing in Micronesia has become increasingly influenced by Western

construction methods and materials (see fig. 12). Traditional housing was made of

thatch and wood, while housing constructed after World War II commonly utilizes

concrete, dimensional lumber and sheet metal. Sheet metal and dimensional lumber

have become preferred materials for housing construction across the Pacific due to their

durability and flexibility in use, despite the fact that concrete and sheet metal are not

suited for Micronesia's tropical climate.

Figure 12. Traditional village housing in Micronesia on the left, and current housing showing Western influence on the right. "Men gather for a meeting outside the men's house," (left), and "A man with a small child in front of his house in Kolonia, Po Pohnpei, Caroline Islands," (right), http://www.everyculture.com/Ma-Ni/Federated-States-of-Micronesia.html.

Traditionally, the household was centered on the cookhouse where meals were

prepared and eaten. Several additional buildings would provide sleeping areas, and an

auxiliary structure for storage of copra and other food items. Daily activity would be

primarily conducted outdoors, contributing to a communal lifestyle of child-rearing,

leisure, and food raising and preparation. In Owen Kugel's, "Housing for Micronesia," he

states that the house is more of a shelter from the rain, a place to store belongings, and

a haven at night than it is a place to carry on daily activities."[73] Sleeping units tend to be clustered together, yet they maintain a small distance from each other for privacy. As more Micronesians move to urban areas, they are forced to live in closer proximity to others than in the rural community that was left behind.

In the 1971 "Report on the First Trust Territory Low-Cost Housing Conference" from the Congress of Micronesia, it was recommended that communities engage the services of a small architectural- urban design team to consult for the creation of low-cost housing. Their stated focus should be to take into account climatic conditions, modular plans, and "design concepts suitable to the needs of the people of Micronesia."[74] This approach could also be implemented in the US to aid in the development of culturally appropriate, low-cost housing for Micronesian or other immigrant populations living in public housing.

In order to better understand the challenges faced by Micronesian people living in urban areas such as Honolulu, Leonard Leon was interviewed for this paper as a University of Hawaii Micronesian language instructor and anthropology graduate student. When asked to describe what he perceived to be some of the greatest challenges facing Micronesians when they move to Hawaii, Mr. Leon said that it's difficult for Micronesian people to get used to living in boxes, separated from each other. In Micronesia, he continued, family is extremely important and they tend to live together and take care of each other. He also believes Micronesians have become the

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[73] Owen Kugel, *Housing for Micronesia,* Ponape, 1968, 8.
[74] Congress of Micronesia, "A Low Cost Housing Program for the Marshall Islands," in Report on the First Trust Territory Low-Cost Housing Conference, Saipan: Congress of Micronesia, 1971, 29.

"scapegoat" for many of Hawaii's problems and are often subject to stereotyping and discrimination.[75]

When asked to describe how he would change the typical US home or public housing unit to be more culturally appropriate for Micronesians, Mr. Leon stated that conventional housing in Hawaii, especially public housing- does not allow Micronesian families to live and interact in a way that is in line with their culture.[76] For example, the living room of an American home is used for daytime activities, however in Micronesian homes, the living room is used for sleeping at night by some family members and living and eating during the day. Families typically sleep on mattresses on the floor that are rolled up and stored during daylight hour.

In Micronesian culture, gender roles are strictly enforced. Once a girl has passed the age of 13 or 14 and had their "coming of age," they are no longer allowed to sleep in the same room as older males even if they are family members.[77] The girls will typically be given one of the bedrooms where the oldest will have the bed, and the younger girls will sleep on a mattress on the floor.

Mr. Leon went on to describe that cooking was traditionally done outdoors in a communal kitchen. Now Micronesians have adapted to cooking in the kitchen but prefer the kitchen to be part of the living area.[78] He asserted that it is important the family eats meals together.

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[75] Leonard Leon, interviewed by the author, Honolulu, HI, January 20, 2012.
[76] Ibid.
[77] Ibid.
[78] Ibid.

Addressing the negative stereotype that Mr. Leon described as Micronesians'

tendency to become "hoarders," he stated that they do tend to keep and accumulate

many things over time. Speaking as someone who was born and raised in Micronesia,

he explained that they attach sentimental value to things, making them disinclined to

throw them away. When asked about the appearance of a typical Micronesian home,

he said that when you walk inside you will see boxes filled with miscellaneous items that

the residents want to keep and closets that may be filled with belongings other than

clothes.

Micronesian Connections Forum

On February 16, 2012, I attended the first of its kind, Micronesian Connections

Forum hosted by the Ethnic Studies Department and the Center for Pacific Island Studies

at the East West Center on the University of Hawaii Manoa campus. The forum was

initiated in response to the growing issues related to racism and prejudice against

Hawaii's Micronesian population. Prior to the forum, I was invited to attend each of the

planning meetings and was honored to have had the opportunity to participate in what

became a moving and powerful event.

The forum was composed of a series of panels and presenters who spoke of their

firsthand experience with discrimination as a Micronesian in Hawaii. The extent of

discrimination was surprising to many in attendance that evening; from the tearful

testimony of a Marshallese father describing the significance of asking his children to

fearlessly assert their cultural heritage to bullies at school, to the lawyer explaining how

the prejudice has been institutionalized into certain state laws, the stories lent a human face to a larger problem.

A recurring theme of the night was that of education and outreach, a goal that was supported by a diverse crowd of close to 100 attendees (most staying for the entirety of an almost 5 hour-long forum). Oftentimes in public housing communities, social services stress the importance of educating immigrants in the ways of American culture; the forum illustrated the value of having immigrants educating the host culture as well.

American Samoa and Western Samoa

In 1960 American Samoa became a territory of the United States by ratifying its territorial constitution. American Samoa has a presidential representative democratic dependency that elects a governor as head of state and though they do not vote in presidential elections, the nation is represented by the US Chief of State. The Senate is composed of 18 matai (chief) selected by local chiefs whereas the House of Representatives contains 21 seats elected by residents 18 and older. The country is an unincorporated and unorganized territory of the United States and is represented by the US Department of the Interior.[79]

It is estimated that there has been human civilization on the Samoan islands for 3,000 years. The Samoan islands have been under the fa'amatai system of chiefdom authority for centuries and continue to be today. Fa'asamoa translates as "the Samoan

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[79] Central Intelligence Agency, "World Fact Book," (updated April 3, 2012), https://www.cia.gov/library/publications/the-world-factbook/geos/aq.html, (accessed April 7, 2012).

Way" and defines the essence of what it means to be Samoan. The fa'amatai is the

chiefly system that establishes village hierarchy and authority. This system remains an

integral part of Samoan culture and has been adapted into modern village life. Samoan

culture is collective and community based.

Life in Samoan villages has been rapidly modernized in recent decades; however,

many villages have retained a fale afolau ceremonial meeting house where important

gatherings continue to be held. The village is traditionally arranged around a central fale

afolau (long house) where village chiefs meet. The significance of the fale is expressed

through its form: "especially the large meeting houses, create both physical and invisible

spatial areas which are clearly understood in Samoan custom and dictate areas of social

interaction."[80] Radiating outward from the fale afolau are smaller fale tele (round

house) whose assigned use ranges from the central and public gathering spaces (i tai) to

the back private spaces (i uta) used for sleeping and cooking (see fig. 13).

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[80] American Public University, "Samoan Architecture," http://www.spiritus-temporis.com/architecture-of-samoa/cultural-space.html.
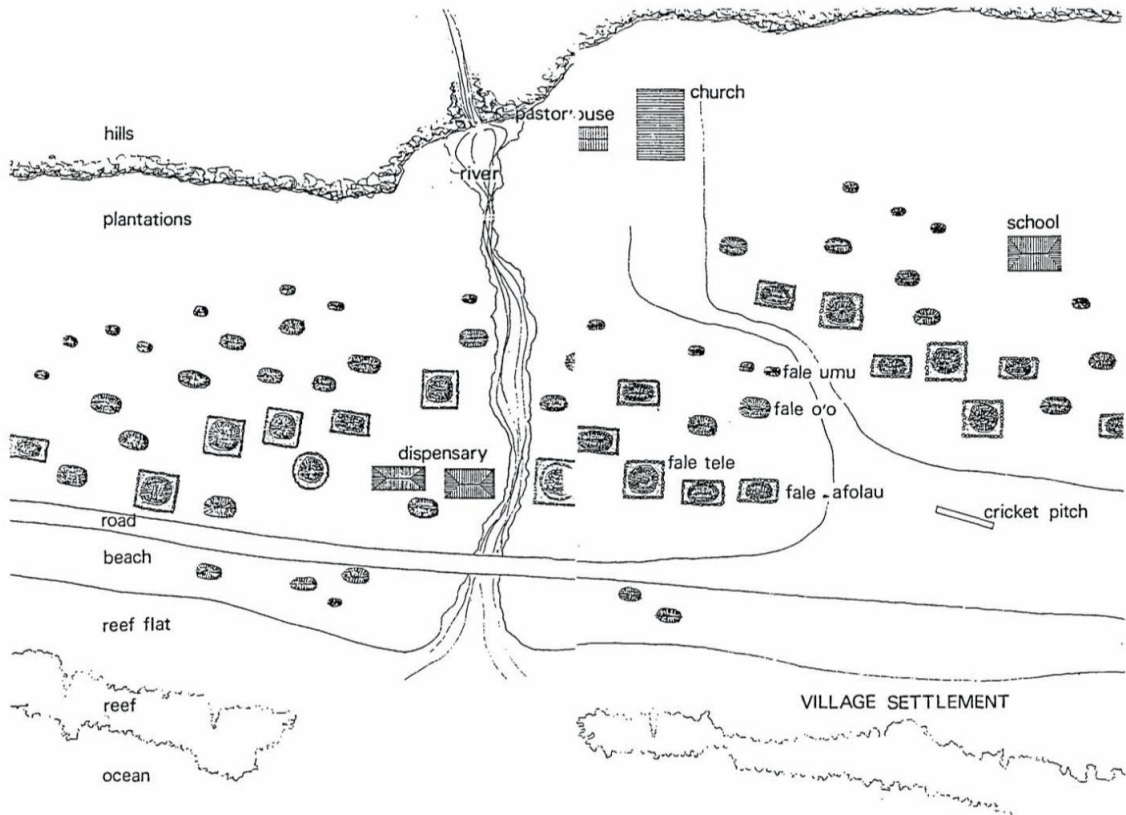
Figure 13. UNESCO, Site plan for traditional Samoan village. UNESCO Office for the Pacific States, *The Samoan Fale*, (Bangkok: UNESCO,1992).

Both American and Western Samoa are undergoing cultural change due to foreign influence; however the change has been more rapid in American Samoa due to its relationship with the US. In the report, "Housing in American Samoa," it is stated that Samoan "characteristics are being diluted by the influence of foreign culture… producing the most change are the growth outward along the road and the predominance of western-style housing."[81] The author also states that the Samoan tradition of building

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[81] Marshall Kaplan, Gans Kahn, and Yamamoto, "Housing in American Samoa," Development Planning Office, 1972, 31.

one's own home is a potential resource that could be utilized to not only reduce

construction costs, but increase residents' sense of ownership and pride.[82]

To provide a firsthand account of Samoan culture as well as an anthropological

perspective, Dr. John Mayer, associate professor and chair of the Department of Indo-

Pacific Languages and Literatures at the University of Hawaii at Manoa was interviewed.

When asked what he perceived as some of the challenges facing Samoans when they

first move to Hawaii, he stated that there are two different groups of Samoans that

move to Hawaii, those from Western Samoa, and those from American Samoa. Those

from American Samoa have already been indoctrinated in American culture and

language, making the transition easier. For Western Samoans however, the change is

dramatic. They have difficulties with the language, finding services, finding healthcare,

and transportation. Cultural differences can make it difficult for them to find

employment and even to stay employed as an employer may have conflicting

expectations.[83]

According to Dr. Mayer, the change from village life to urban living has had a

generally negative impact on the health of many Samoan people. The change in diet

and lifestyle has led to an increase in hypertension and diabetes and is documented in

the study, "Changing Samoans: Health and Behavior in Transition," by Baker, Hanna, and

Baker in 1987. Samoans in Hawaii also tend to postpone going for medical attention,

oftentimes leading to conditions made more serious due to delay in treatment. Dr.

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[82] Marshall Kaplan, Gans Kahn, and Yamamoto, "Housing in American Samoa," Development Planning Office, 1972, 143.
[83] John Mayer, interviewed by the author, Honolulu, HI, January 19, 2012.

Mayer suggests that it is because culturally, the Samoans tend to underplay individual problems in order to maintain peace within their community. In the village, houses tend to not have walls; therefore there is a higher level of awareness of other community members' health. If one person is not feeling well and hanging off to the side, someone will notice and the person within the village who specializes in massage, herbal medicine or other skill will go and attend to the sick person.[84]

The lack of walls and visual barriers within traditional Samoan villages has translated into a culture of community-mindedness with a social value system that supports this transparency. The dissertation, *Houses Without Walls*, reports that in a traditional village, "Samoans accumulate social credit rather than goods…In a society in which all belongings are biodegradable, only one's reputation, with all its accretions, is permanent."[85] It is summarized in the proverb: '*e pala le upu*,' (stones rot but words last forever).[86]

As Samoans move to more urban areas such as Honolulu, they are removed from the support of a social structure enforced by a common culture. In the book, *The Changing Samoans: Behavior and Health in Transition*, the authors describe how living outside the village impacts health: "Cultural transmission and… the socialization process can serve as a societal mechanism for stress control by providing individuals with behavioral guidelines that facilitate the ability to respond predictably to a variety of

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[84] John Mayer, interviewed by the author, Honolulu, HI, January 19, 2012.
[85] Dennis T.P. Keene, *Houses Without Walls: Samoan Social Control* (Honolulu: University of Hawaii, 1978), 150.
[86] Ibid.

situations in a known environment."[87] In essence, the authors state that the lack of

cultural transmission can cause stress as well as other ailments.

When describing the education challenges Samoan children face, Dr. Mayer goes

on to say that Samoan children living in the US end up living in two worlds: the English-

speaking world from school and time with friends, and the Samoan-speaking world they

inhabit at home. In Samoan culture, the parents are not particularly involved in the

schooling of their children. When the children return home after school, they are

expected to do their chores, and help with the family. When you go into a typical

Samoan home, you may find that it is very crowded as it is common for multiple

generations to live within one residence; this means that oftentimes there is no room

for a child's desk or study space, making it more difficult for the child to complete

homework or study outside of school.[88]

The authors of *The Changing Samoans* address the role of children within the

village when they state, "Young children learn…they are at the bottom of the status

hierarchy in the household as well as the village."[89] Although this varies greatly from

Western cultural values, for Samoans this hierarchy is part of a culture that is strongly

focused on community. Dr. Mayer concurs, replying that in general, it is part of Samoan

culture to value the community over the individual. Within families, children are viewed

as a component of the larger community and are expected to behave and perform

chores for the good of the group. This is in contrast to the way children are raised in the

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[87] Baker, P.T., J.M. Hanna, and T.S. Baker, "Changing socialization patterns of contemporary Samoans," in *The Changing Samoans: Behavior and Health in Transition* (New York: Oxford University Press, 1987), 146.
[88] John Mayer, interviewed by the author, Honolulu, HI, January 19, 2012.
[89] Baker, P.T., J.M. Hanna, and T.S. Baker, "Changing socialization patterns of contemporary Samoans," in *The Changing Samoans: Behavior and Health in Transition* (New York: Oxford University Press, 1987), 152.

US where the children become the center of the family's focus.   For example, within the Samoan village, there is typically a committee of women who are in charge of making sure that the needs of the community are taken care of. If there is a birth, the women attend to the new mother and bring her what she needs; if there are visiting guests in the village, the committee will make sure there are enough sheets to sleep on.[90]

Dr. Mayer and I discussed the issue of families residing long term in housing intended to be temporary shelter. He stated that the Samoan housing units in Hawaii are often considered "magnet families," that draw family and friends from Samoa and other US cities. This can mean that there could be up to a dozen people living in a unit intended for 2 to 3. Within a few months, there may be a different number of people staying in the unit as family members move into and out of the residence.[91]

In a study conducted by one of the authors of *The Changing Samoans,* Samoan participants were asked to identify items from a list of options based on the perceived degree of difficulty in attaining them. The item selected as "most difficult" to attain by urban respondents was "having a good house," reported by 87% of respondents from California, and 80.7% respondents from Hawaii.[92] In comparison, respondents from both a village in American Samoa and Pago Pago saw "education" and "having a good job" as most difficult.[93] For these respondents, a good house did not make the "most difficult" list. It is unclear why those from Hawaii and California felt most concerned about having a good house; however, since both of these groups listed "education" and "good job" as

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[90] John Mayer, interviewed by the author, Honolulu, HI, January 19, 2012.
[91] Ibid.
[92] Baker, P.T., J.M. Hanna, and T.S. Baker, "Changing socialization patterns of contemporary Samoans," in *The Changing Samoans: Behavior and Health in Transition* (New York: Oxford University Press, 1987), 171.
[93] Ibid.

the two things they considered to be "not difficult," it suggests that a "good house" is less a result of its cost and more related to location or possibly its cultural context.

Although both Micronesian and Samoan cultures are richly distinctive from each other, they share a canvas of commonalities that could be translated into housing for both. These qualities are presented in greater detail in chapter 6: "Cultural comparison matrix." The interviews and literature revealed that the two cultures share concern for the lack of culturally appropriate housing, particularly in urban areas. An aversion to living in "a box" was a sentiment shared by members of both cultures living in Hawaii's public housing and is an expression related to many of the architectural differences between American culture and their own.

Chapter 6. Translating Culture into Architecture

(i) Social and economic benefits

In the Department of Housing and Urban Development's (HUD) FY 2010-2015 HUD Strategic Plan, the authors state that "housing is a place to anchor services and improve outcomes—ultimately saving money for the taxpayer."[94] When housing is developed with the needs of the residents in mind, taxpayers will save money in a multitude of ways over time. Stable public housing communities may have a reduced need for security forces, and maintenance for both vandalism and long term neglect.

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[94]U.S. Department of Housing and Urban Development, "FY 2010-2015 HUD Strategic Plan," 6.

They may also produce healthier residents that are better able to find employment, patronize local businesses, and invest in the local community.

Secretary of the US Department of Housing and Urban Development (HUD), Shaun Donovan has proposed a piece of legislation outlining a program called The Preservation, Enhancement, and Transformation of Rental Assistance Act of 2010 (PETRA). The act is intended to "authorize the conversion of public and assisted housing properties to long-term property based rental assistance under Section 8 of the US Housing Act." Participation is voluntary with the decision left to each public housing agency (PHA) or assisted owner.

Donovan references the economic value of investing in the refurbishment of public housing when he states, "we find that the rehabilitation of rental housing leads to significant increases in the value of surrounding properties, whether that rehabilitation is undertaken by nonprofit or for-profit organizations. This finding in itself is significant, given the widespread skepticism about the impact of subsidized housing on neighborhoods."[95] The true value of a stable public housing community is difficult to calculate, but it's long term pay-offs will be seen in the form of increased property values and stronger business in surrounding neighborhoods, as well as decreased maintenance costs on site.

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[95] Ingrid Gould Ellen and Ioan Voicu, "Nonprofit Housing and Neighborhood Spillovers," *Journal of Policy Analysis and Management* 25, no. 1 (Winter, 2006): 31-52.

With The Public Housing Program currently experiencing a backlog of unmet capital needs that may be in excess of $20 billion,[96] the necessity for creating economically sustainable public housing communities is urgent. The proposed redevelopment of Kuhio Park Terrace (KPT) by Michaels Development will cost approximately $82,000 per unit and is only the latest in a series of renovations to the complex over the past several decades. The acquisition of KPT by Michaels Development is indicative of a shift in national public housing policy that is easing the way for public-private partnerships. This shift is instrumental in providing long term housing solutions for the nation's public housing residents.

The long term housing approach is not only appropriate for Hawaii's residents economically, but also socially. A report summarizing a survey of Kuhio Park Terrace residents in 2001 revealed that many Samoan families felt the housing complex had become a new type of village for them, acting as a stand-in for the village community structure left behind. Several residents expressed a sense of pride in their place of residence. The report goes on to say that "the housing complex has come to represent their family heritage rather than a temporary dwelling place."[97] These communities have become well-ingrained in Kuhio Park Terrace's social fabric, offering stability, a sense of safety, and a tangible connection to their home culture.

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[96] Shaun Donovan, "Written Testimony of Shaun Donovan Secretary of the U.S. Department of Housing and Urban DevelopmentTransforming Rental Assistance Hearing before the House Financial Services Committee," May 25, 2010, www.hud.gov.

[97] "A Needs Assessment Study for Residents of KPT," prepared and conducted by Market Trends Pacific, Inc. for Housing and Community Development Corporation of Hawaii, May 2001, 2.

(ii) Changing the design paradigm

Secretary of HUD, Shaun Donovan stated in his May 2010 speech at the Congress for New Urbanism: "the urban renewal movement that began in the 1930's and the one-size-fits-all approach that typified federal policy in the decades to come didn't end poverty… in many ways, urban renewal entrenched poverty, isolating many families from opportunity -- not simply for years, but for generations."[98]   There is a significant rift between our expectations for subsidized housing and how it functions in reality; this leaves a gap where entire generations of residents are vulnerable to living in sustained cycles of poverty.

Subsidized housing projects oftentimes exist as islands within their urban contexts, resulting in the isolation and stigmatization of residents. Replacing the traditional public housing typology with culturally appropriate design elements will help to break down the negative associations of public housing while empowering the residents within. As the financial situation of residents stabilize and improve, financing options such as lease-to-own will embed permanent residents as anchors within the community. The units that are taken out of the rental pool for federal subsidies are required to be replaced.[99] These units may utilize the proposed strategy for cultural inclusion in the refurbishment of replacement units and may lie beyond the development boundaries. These new units will act as seeds sowed within the greater

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[98] "Prepared Remarks for Secretary of Housing and Urban Development Shaun Donovan at the Congress for the New Urbanism," delivered in Atlanta, GA, May 10, 2010, http://portal.hud.gov/hudportal/ HUD?src=/press/speeches_remarks_statements/2010/Speech_05212010.

[99] Shaun Donovan, "Written Testimony of Shaun Donovan Secretary of the U.S. Department of Housing and Urban Development: Transforming Rental Assistance Hearing before the House Financial Services Committee," May 25, 2010, http://portal.hud.gov/hudportal/documents/huddoc?id=hud_testimony_5-25-10.pdf.

community, breaking down the social and physical boundaries between subsidized housing residents and the public at large.

These long term communities offer the support families experiencing economic instability, cultural displacement, or other hardship need in order to weather challenging times. The current policy for developing public housing as transitional in nature, rather than long term, is contrary to the conventional wisdom that stability and consistency are key to the healthy development of children. Public housing and its subsidies, incentives and social programs play an important role in improving the quality of life of its residents. For some families and individuals, these strategies work well. For many, however, they won't succeed in making the leap out of public housing and will remain for generations to come.

This strategy outline is intended to illustrate the viability of culturally appropriate housing in a real-world application. It is based on experience gained from all stages of research including an internship at Honolulu Architecture firm, KYA Design Group; it also includes the tools for creating culturally appropriate design developed for this paper and utilized for the design project. The strategy can be easily integrated into a typical work-flow for design and development; therefore many of the steps outlined are not explained in detail. For the intent of this project, only the steps that are primarily concerned with the integration of culture into design are elaborated upon in detail.

Step by step explanation of housing strategy:

1. Secure site for new public housing project; new construction or refurbishment.

    Oftentimes sites available are the locations of existing public housing that are either facing demolition or awaiting refurbishment. Each scenario carries its own challenges and opportunities for implementing the housing strategy. Demolition scenarios provide greater flexibility for accommodating cultural needs that would either expand beyond the existing building envelope, or where the structure would interfere with the desired spatial arrangement. The refurbishment scenario provides a structural platform that can significantly save costs for excavation, Environmental Impact Studies (EIS) materials and labor.

2. Identify public housing community for participation in housing strategy.

    - Participants should qualify for any of HUD's homeownership funding programs.

    - Participants should identify that they are willing to participate in community meetings concerning the design and execution of the residence.

    - Selection of tenants will comply with fair housing, civil rights, and other requirements to prevent discrimination.

    A critical component of the proposed housing strategy is to develop this housing with ownership or long term residency in mind. Designing rental housing with a cultural bias could be interpreted as discrimination against future renters with a different

background; therefore, it is critical that the housing strategy be implemented as part of a homeownership track. Homeownership is also fundamental to strategy because it passes the ultimate responsibility and care of the unit to the residents. Although home ownership is a financial challenge in Hawaii for even those in the middle class, subsidies and programs do exist to help those who qualify for public housing to purchase a home.

If a family meets the requirements for low-income family limitations and have their HOPE VI Homeownership Proposal approved by HUD, they can qualify to receive any of several forms of financial assistance. The options provided under HOPE VI include: down payment or closing cost assistance; provision of second mortgages; or construction or permanent financing for new construction, acquisition, or rehabilitation costs related to homeownership replacement units.[100] There is also long term Section 8 housing available which may qualify as part of the housing strategy.

HUD additionally provides three different models for public housing homeownership:

1. Affordable Fee Simple Homeownership: A property interest in which an owner has an absolute right to the property. The units must be sold to low-income persons. HOPE VI funds may be used for construction, with or without permanent financing.

2. Second Mortgage Only: Units existing or constructed with non-public housing funds that are bought by families that receive second mortgage assistance with HOPE VI or other public housing funds.

3. Affordable Lease Purchase Homeownership: A homeownership model whereby a household may move into a unit as a renter and attain ownership over a period of time, usually by applying a portion of its rent towards the down payment on the unit. If the rental unit receives operating subsidy, then the unit is considered a public housing unit and must be built in compliance with the

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[100] U.S. Department of Housing and Urban Development, "Glossary of Hope VI Terms," Hope VI Guidance, 2001, 7.

public housing development program (24 CFR Part 941). The units must be rented to low-income persons.[101]

3. Secure project financing through public or public/private partnerships.

HUD has recently proposed several legislative bills concerning public housing financing that clears many of the hurdles regarding public/private partnerships for subsidized housing funding. HUD Secretary, Shaun Donovan, gave recent testimony to the House Financial Services Committee for the Transforming Rental Assistance (TRA) initiative; in it he states that the department will be shifting subsidy structure to bring market investment into public housing projects.[102] These programs and initiatives illustrate that the value of home ownership has become apparent to national policy-makers.

4. Initiate first community meeting.

    - The objective of this meeting is to determine the demographic qualities of the residents, and their general needs and desires as clients.

    - Feedback can be documented via interview, survey, or transcript of community meetings. The appropriate method is to be determined and approved by community leaders.

For the first meeting with future residents, design professionals should give a concise presentation or explanation of the intent of the proposed housing project.

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[101]U.S. Department of Housing and Urban Development, "Glossary of Hope VI Terms," Hope VI Guidance, 2001, 7.
[102] Shaun Donovan, "Written Testimony of Shaun Donovan Secretary of the U.S. Department of Housing and Urban Development: Transforming Rental Assistance Hearing," House Financial Services Committee, May 2010.

Interpreters should be provided if there is a language barrier. The composition of the group should be determined based on suggestions from community leaders or other professionals who have worked closely with the community in the past. In some cases all of the future stake holders can be invited to attend, in other more sensitive cases, only the community leaders would be asked to the first meeting.

The dialogue at the meeting should be appropriately documented. Transcribing, video recording or other digital media may make some residents uncomfortable and discourage their participation. Methods that may provide better results include surveys, group charrette notes taken on paper, or interviews with community leaders comfortable with having their responses recorded.

Great care should be taken to respect existing social hierarchies within the participant community. However, it is also important to consider the ideas and responses of all participants equally.

5. Design professionals create a library of cultural elements appropriate for residents.

   - This is done through ethnographic and cultural research based on the demographics and stated desires of the residents.
   - The "cultural comparison matrix," created for this purpose in Chapter 6, section iv, illustrates a method for translating cultural qualities.
   - Affordability and sustainability of materials and building systems must also be considered from the onset of design and factored into creation of design library.

The language of architectural design can be confusing for those not in the profession, therefore it is important to find visual or other ways to communicate ideas and intentions. Finding a method to create a cultural library of design elements will help give participants a way of referencing specific building elements or ideas. This library is not intended to suggest that the new housing should imitate the traditional housing. Rather, it should act as an instigator of dialogue. In this way, the elements can be transformed into a design response that is not only receptive to cultural traditions from the past, but to the culture as it is in the present.

6. Conduct follow up community meeting to present findings and receive feedback towards creating a more culturally appropriate design.

   - Use a tool such as the "architectural checklist," developed for this project in Chapter 6, section v, to work with the client through the program in order to find opportunities to integrate culture in the design.

These meetings will provide critical feedback utilizing the cultural library that was developed by the design professionals. It is in these exchanges that the cultural elements most highly valued by the community can be integrated into a design that is still affordable and appropriate for its site and climate. These exchanges may provide insight into traditional methods of construction, materials, and spatial arrangements.

The facilitator should be open to ideas from participants that may provide alternative ways to make the project more affordable and energy efficient. This is an opportunity to learn from each other. Participants that are unaccustomed to the conventional building methods used in the US may have an innovative perspective on

building materials or methods. In these cases, enlisting help from engineers, the

Department of Planning and Permitting, or even University students can help provide

the documentation needed to ensure that all building and planning codes are met.

7. Revise design proposal and continue to meet with community as many times as

needed.

Meetings should occur regularly and without disruption to encourage a

relationship of trust between participants and designers. Care should be taken to

illustrate that all relevant ideas were considered when presenting design proposals.

Establish firm expectations and limits to how and when feedback can be utilized.

8. Upon final approval of design by community and design team, submit proposals

for bid.

- Community feedback may have produced a design that utilizes

unconventional materials or construction methods. Investigate

alternative methods for meeting building and zoning code if necessary.

9. Permitting, construction documents, and building construction.

- In the case of unconventional construction methods or materials, allow

for extra time in permitting.

10. Develop plan for continuation of community meetings.

- Include oversight for facilities management and maintenance.

- Include plan for sustaining social services.

- Include provision for a system of financial accountability.

Creating a contingency plan for communication and leadership will be critical to the long term success of the project. It is also important to collect feedback from the community after the completion of construction to identify areas for future improvement and adjustment of the housing strategy.

Establishing a system for financial accountability for residents will also help to ensure that those who participated in the design of the project are able to remain for as long as they would like. This can take the form of financial counselors or other positions deemed appropriate for the task. Including a strong system for social services and support is an essential part of any public housing project including job training, educational classes, and health support. Establishing an effective system for resident involvement from the beginning of the design process will familiarize residents with the systems available to them as well as with the community leaders that will continue to support them after construction is complete.

(iii) Community participation integrated into the design process

When residents are invited to participate in the creation of their housing, they are given the opportunity to play a vital role in the preservation of their cultural traditions and identity. The dynamic nature of culture means that its characterization must come from the community itself. This can be done by documenting the voices, actions, and histories of the people who identify with the culture under consideration. Giving communities a voice in the design process will both empower residents and instill

a sense of ownership and pride in the resulting residence. This additionally honors the distinct needs and desires required to ensure that the culture of the community can thrive.

Community participation in public housing has been conducted for decades and recently became a requirement for application to certain government funded programs such as HOPE VI. These programs have established the importance of garnering community support through the design process and construction phases. However, due to the assumed temporary nature of subsidized housing, only feedback concerning universal community needs is gathered. In conventional scenarios for public housing design, the input of residents is not given the same regard as private clients because they are not considered to be long term stake holders. This means that a wealth of wisdom concerning cultural practices, materials, construction methods and design are frequently neglected.

Traditional building methods and their possible utilization in the design is an example of the type of knowledge to be gained through the community participation process. The text, *Building Without Borders* looks at examples of low-cost housing throughout the world that focus on combining local materials with vernacular design and wisdom. The author advocates the use of locally available resources such as earth or renewable grasses for construction materials, involving the community in the design, construction and maintenance of these structures, therefore advocating unique design responses per site and culture.

These strategies are all tools that can be brought to the table for participatory design. Within any established community resides a wealth of wisdom pertaining to construction methods, materials, climatic conditions, and cultural norms. Engaging those who hold this knowledge throughout the process of designing and building a housing project is an invaluable resource that should be consulted and respected.

The above notwithstanding, due to the sensitive nature of communities residing in many public housing complexes, it is important to consult with community leaders before approaching residents regarding participation in the design process. They will help inform the most appropriate methods for involving residents and gathering their input.

In 2009, Somin Shin evaluated the value of participatory design as part of her PhD dissertation. She analyzed the public housing complex, Matthew Henson project in Phoenix, Arizona, that had recently undergone extensive rehabilitation funded by HOPE VI.[103] As part of the application for these funds, the community was required to participate in the design process. The HUD website outlines suggestions for involving residents through the revitalization effort that include: "physical design of buildings and units including accessibility for persons with disabilities, demolition, unit mix, relocation, procurement, homeownership plans, lease agreements and community and supportive

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[103] Somin Shin, "Participatory Design in the Development of Public Housing," Arizona State University, 2009.

services."[104] It should be noted that none of these suggestions specifically address the cultural needs of residents.

Shin approached her dissertation from the perspective that community participation was not valued by design professionals and even oftentimes avoided due to the perceived challenges. Her analysis argued that the value of the participation process was supported by official documents that showed extensive collaboration and shared knowledge between the design professionals and residents.

The community participation process utilized at Matthew Henson project consisted of an initial presentation to the public followed by a series of public review sessions that allowed for revision and ultimately the production of the final plan (see fig. 14). For each meeting, a consensus was reached before decisions were made official. This can be challenging in communities that are composed of groups with differing beliefs or cultural values.
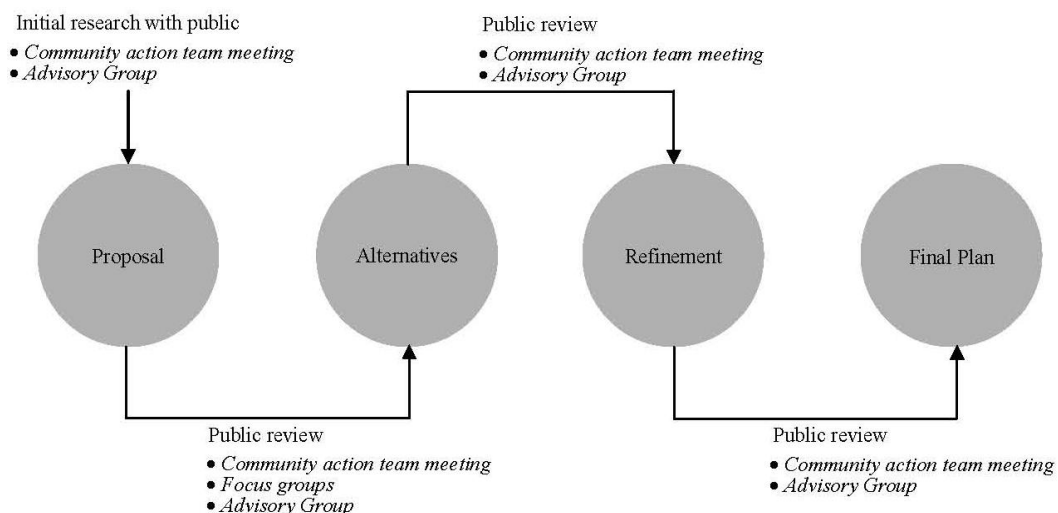

Figure 14. Somin Shin, "Participation in the Development of Matthew Henson HOPE VI Project," Participatory Design in the Development of Public Housing.

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[104] U.S. Department of Housing and Urban Development, "General Guidance on Community and Resident Involvement," http://www.hud.gov/offices/pih/programs/ph/hope6/css/guidance.cfm.

Though in the case of Matthew Henson community meetings were the form chosen for participation, it is possible to utilize other methods for gaining resident feedback. Surveys, given to all residents or only community leaders can be a good option for particularly sensitive populations where anonymity may need to be ensured for participation. Another option is to include a design charrette as part of a community meeting in order to produce feedback with a spatial translation in the form of sketches or crude models.

The goal of all of these methods is to not only empower residents by giving them a voice that is heard, but to also produce a better final product. This feedback is critical to providing a building that residents will take pride in caring for and making it their own. This cannot be adequately achieved unless the cultural needs of the community are specifically addressed through this exchange. Cultural needs are often dismissed as being secondary to basic needs of safety and shelter, but without consideration of this element the resulting structure may never become "home" for residents.

In order for there to be sustained positive change for public housing residents, design professionals need to translate the cultural elements that impact quality of life and find creative ways to implement them. Despite the obvious and very real challenges of budget and time, these efforts may be rewarded with communities that will begin to give back to the larger public by producing happier, healthier residents, lower crime rates, lower maintenance costs, and improved surrounding property values.

Utilizing a survey as a means of community participation can be a useful tool for working with public housing residents when the goal is to substantiate need for

culturally responsive design and determine an appropriate design response. A survey

was created for this paper to explore the type of questions that would meet these

objectives (for full list of questions see Appendix 3: Survey). The survey informed the

cultural comparison matrix in the following section that was developed for the cultures

from the case study communities.

The two goals of the survey were to characterize the value that public housing

residents place on having their built environment reflect their cultural practices, and to

gather data illustrating the cultural needs of residents. Subsidized housing design is

typically regulated by a limited budget, therefore advocating for a process that differs

from convention can face regulatory challenges; but if the voice of the community is

clearly represented and documented, the likelihood of implementing the novel strategy

may be improved. The collected data is then synthesized into a proposal for an

alternative approach to conventional public housing design that comprises innovative

strategies for integrating culturally appropriate design elements.

Survey responses provide an additional level of information illustrating how

cultural needs have evolved since residents have left their home country. This survey

contains both general and specific questions regarding housing. The general questions

are intended to reveal insight that was not anticipated by the researcher, and the

specific questions are tailored in response to research conducted on the predominant

cultures represented at the case study community.

There are several steps to be taken before initiating any form of community

participation. The first is to assess the openness of the community to the idea of

participation by speaking with community leaders or professionals previously involved

with the identified community. First impressions are critical for conveying the intentions

of the survey, and should always be conducted with a high level of respect and

sensitivity to residents.

In order to protect participants in surveys or interviews that will be published,

documents and methods of contact must be approved by the relevant authority, (see

Appendix 4: Survey application and 5: Approval letter). In the case of academic work

that will be published, the approving authority is the University of Hawaii Committee on

Human Studies. Once all necessary approvals have been gained and the survey is ready

for implementation through contact with residents, it is essential to be aware of cultural

customs such as respecting existing hierarchies within the community.

When presenting the purpose of the survey, it should be made clear that

participation is of low-risk and that anonymity is assured. Residents of many public

housing communities are accustomed to developers, architects, and project managers

surveying and interviewing them. Kuhio Park Terrace was recently interviewed for the

project's HOPE VI application, as well as for the more recent planned refurbishment by

Michaels Development. They are also unfortunately accustomed to giving their opinion

and seeing few results due to the failure of their application to HOPE VI, and the

subsequent bidding for future renovations.

After consulting with community leaders of Kuhio Park Terrace and Palolo Valley

Homes, it was decided that it would not be appropriate to conduct a survey of these

residents at this time. As previously stated, in order to learn more about housing needs

for these cultural groups, representatives of the Samoan and Micronesian communities were interviewed from within the University of Hawaii's Departments of Anthropology and Indo-Pacific Languages and Literatures.

When I interviewed Dr. John Mayer, associate professor and chair of the Department of Indo-Pacific Languages and Literatures at the University of Hawaii at Manoa, we discussed the survey I prepared as part of this project. Dr. Mayer agreed with me that giving the survey to public housing residents would not provide the type of data required. He also agreed with the idea of involving students from the University instead and suggested I contact the Fealofani O Samoa, the University of Hawaii student organization for Samoan students. He recommended that I propose a *talanoaga*, the Samoan version of the Hawaiian talk-story session with the members of the organization. In Samoan culture there is a strong hierarchy that dictates who has the authority to speak before anyone else in the group does. Dr. Mayer stated that if I were to try to host a *talanoaga* with the community leaders at the public housing complex, hierarchy may restrict their responses to me as an outsider.[105] By working with other students as a student myself, hierarchy would not be an issue.

The ultimate objectives of the survey is to use its data to prepare a document that will represent the voices of this community and ultimately produce housing design that authentically responds to their cultural needs. With the initiation of this dialogue, residents are given the resources to nurture cultural identity, improve quality of life, and stabilize communities.

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[105] John Mayer, interviewed by the author, Honolulu, HI, January 19, 2012.

(iv) Cross-cultural housing comparison

Culture itself is expressed in a myriad of intangible and tangible ways. Oftentimes, it is the intangible qualities of a culture that contain the deepest meaning; however, these can also be the most difficult to translate into the literal world of architecture. In order to capture these elements and reveal commonalities between the two primary cultural groups living at the case study sites, a cultural comparison matrix was created (see fig. 15). The results of the matrix reveal opportunities for the expression of shared cultural elements through design which were then translated into the design project (see chapter 7).

The cultural comparison matrix examines six different areas of culture: raising children, leadership (village/communal vs. individualistic), agrarian vs. urban, food preparation/dining, rest/sleep practices, and spiritual/religious practices. The matrix was developed from a combination of first hand immersion in the cultural community, literature-based research, and interviews. A design recommendation was then proposed for each area based on the common qualities of the two cultures.

The matrix illustrates that not only do the Micronesian and Samoan cultures share many cultural characteristics, but these qualities can also be translated into housing design. It also served as a starting point for developing the architectural checklist discussed in the following section, and ultimately the design project itself (see chapter 7). The intent of these exercises is to arrive at a design with a higher level of authenticity than what is typically achieved through standard design protocol.

Cultural comparison matrix part 01

Cultural practices and their spatial equivalent:	Samoan	Micronesian	Commonalities: opportunities for integration into housing design
Raising children	A grandmother cares for a child while weaving one of the traditional fine mats. F. Koehler Sutter 1984. The responsibility of child-rearing is shared by the village.	A group of children in Kosrae. http://libweb.hawaii.edu/digicoll/ttp/ttp_jpg/185911.jpg. Discipline and supervision of children were traditionally shared by the community.	Create units that have a clear views to public spaces where children play. Units can be arranged to embrace children's play areas.
Leadership: Village/communal vs. individualistic	Site planning meeting with matai (chief) leadership at ASPA in American Samoa. J. Griffith 2010. Village/communal leadership by the matai (chiefs.) The chief is expected to act in the best interest of his or her village.	Meeting of local matua (chiefs) in front of the local bai (meeting house or men's house.) www.everyculture.com/Ma-Ni/Federated-States-of-Micronesia.html. Communal leadership by the matua (chiefs) that is also individualistic as achieving rank and status are a common cultural value.	Provide common meeting area that respects existing hierarchy of leadership. Meeting space becomes prominent feature of housing complex by design.
Agrarian vs. urban	Farmers market in American Samoa. J. Griffith 2010. Agrarian/ rural with some subsistance farming. Taro, bananas, coconuts and seafood are commonly harvested.	Fe'i banana bunches. Lois Englberger, http://www.new-ag.info/en/country/profile.php?a=1566. Agrarian subsistence farming primarily; some immigrate from urban areas. Taro, breadfruit, bananas, yam and coconut are common crops.	Provide an open vegetated area for planting crops in an area dedicated to one family/clan/village. Smaller plots for individual units would also be useful. Low rise or mid-rise structure with adjacent green space is most appropriate.

Cultural comparison matrix part 02

opportunities for integration into housing design

Cultural practices and their spatial equivalent:	Samoan	Micronesian	
Food preparation and dining	The meal in the umu (traditional oven) is covered with banana leaves. www.malua.edu.ws On Sundays and special events food is prepared in a communal space and eaten as a community.	The uhm (traditional oven) on left awaits the pig that has been prepared for a feast. http://www.comfsm.fm/~dleeling/pohnpei/p07/11/bridge.html Similar to Samoan food culture, the preparation and eating of traditional foods is an important part of Micronesian culture.	Provide a sheltered space for communal food preparation and eating. Space can be open-air, and minimal in structure. Include a place for an umu/uhn.
Rest /sleep patterns	Large fale where guests may stay. F. Koehler Sutter 1984. Traditional sleeping fales had open walls with woven mats that could be dropped down for privacy and protection from the rain.	Houses in Micronesia, complete on the left, and under construction on right. Housing and Community Development for Micronesia, "Newsletter from the Territorial Housing Commission Vol.1 no.1, 1978. Housing commonly has multiple generations sleeping under the same roof.	Provide multi-generational units that share common cooking, dining, and living areas. Provide sheltered areas that are shared by an extended family unit for rest during the day. Must be semi-private to ensure supervision and safety.
Spiritual/religious practices	Children sit on the floor of the fale for Sunday school church lessons. F. Koehler Sutter 1984. Samoans are predominantly Christian with Sunday's dedicated to church and family.	Traditional dancer from Yap. www.janesoceania.com/micronesia_yap. The majority of Micronesians are Christian and attend church regularly. Traditional dances have been part of Micronesian cultures for centuries.	The design of the housing complex can include a dedicated area for traditional dance, singing, and celebrating. This can be in the form of a platform or stage under an open shelter.

Figure 15. Cultural comparison matrix 01 and 02.

It is commonly stated that "culture costs money," and that it is considered to be a luxury that cannot be justified with public housing's often limited funding. Looking to the cultural knowledge of recent immigrant residents may provide opportunities to not only lower costs, but to also develop a building that residents are proud to maintain and to call home. The cultural comparison and resulting program illustrate that there are many opportunities to integrate cultural considerations in public housing design.

(v) Architectural checklist for culturally appropriate design

The primary challenge of this paper has been translating the intangible qualities of culture into architectural language. Secondly is the challenge of establishing a strategy for the execution and integration of these qualities in a way that is streamlined into the typical architectural design workflow. The second stage of data collection for this project entailed a semester of research and internship referred to as Practicum at the Honolulu architecture firm, KYA Design Group. During this time, a research project was completed to supplement the Doctorate project that also informed the final design project (see chapter 7).

This research project enhanced previously completed investigations by examining the innovative strategies used by the Practicum firm to meet cultural requirements for projects. The project consisted of a "checklist" that the firm is now able to use when commissioned to complete any culturally sensitive assignment; this provides a strategy to document and substantiate the firm's efforts to respond to culture. Not only can this assist the firm in creating design that is more culturally

appropriate, it may also become a tool to illustrate the firm's commitment to culturally

appropriate design.

KYA's Sustainability Studio has taken the first steps towards translating these

intangible elements into design by creating a document entitled "Cultural

Appropriateness Guidelines: Honoring Place and Culture in Hawaii" (see Appendix 6:

KYA Sustainability Studio Cultural Appropriateness Checklist), for the Department of

Transportation-Airports (DOT-A). Developed in collaboration with local cultural advisors,

the document provides a set of parameters for developing culturally responsive design.

According to the Sustainability Studio's Sustainable DOT-A program profile,

'cultural appropriateness' refers to the "awareness, sensitivity, and proper

acknowledgement of the cultural (ethnic and linguistic) diversity that varies from place

to place… conveyed through the proper representation of language, history, rituals and

traditions, environment, and social dynamics in relation to a culture's present, past, and

future heritage."[106] I define culture similarly to this definition and am especially

interested in exploring the idea of a culture's future heritage: not only where it has

been, but where it's going and how it will change in relation to the influence of factors

from the present.

Although the original checklist is an important step in the initial exploration of

the identified culture, translating these terms into architectural vernacular helps guide

both designer and client towards the materialization of these elements into a built form.

To develop a strategy for creating culturally appropriate architecture, I first translated

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[106] "Sustainable DOT-A: Program Profile," Department of Transportation-Airports Division and KYA
Sustainability Studio, Hawaii, 2011, 9.

the Sustainability Studio's Cultural Appropriateness Checklist into categories that can be

interpreted in architectural terms (see fig. 16).

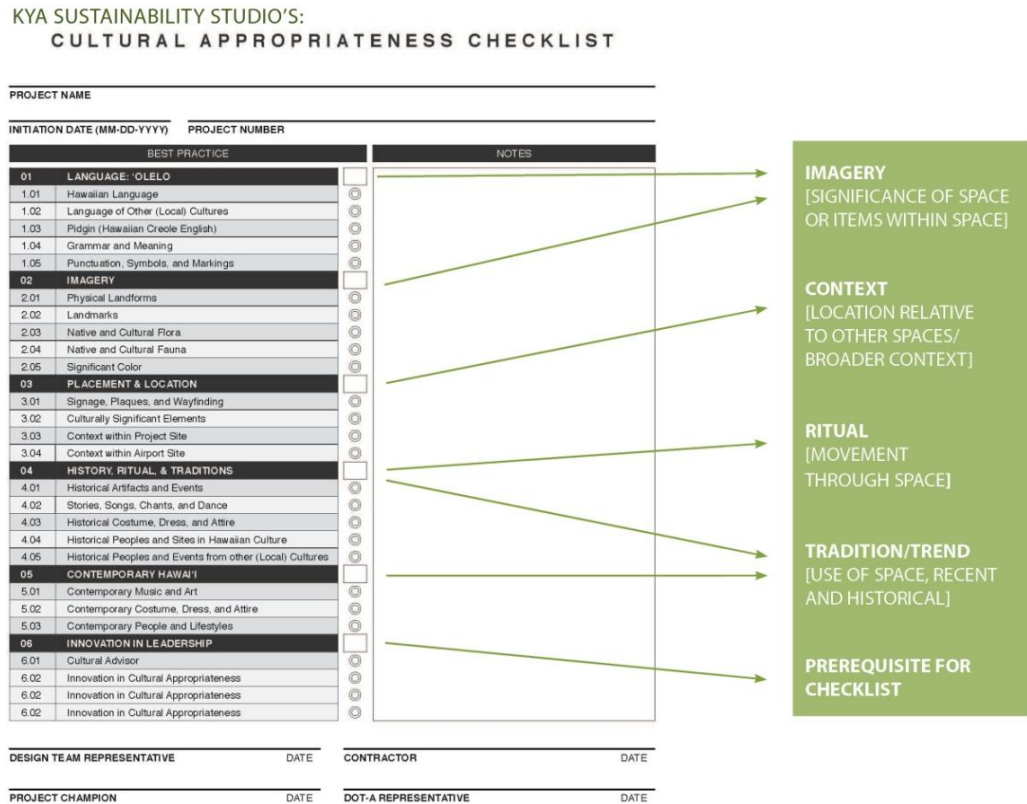CULTURAL APPROPRIATENESS CHECKLIST: translated into architectural categories

Figure 16. Diagram illustrating my translation of the Sustainability Studio's checklist into architectural categories.

The next step was to correlate the architectural categories with 3 fundamental

design components: spatial types, programmatic activities, and architectural elements.

This formed the basis of a checklist that both architect and client can work through

when looking for opportunities to bring culture into any design (see fig. 17). When

working with a client where cultural authenticity is the primary design parameter, the

checklist may be used to guide both client and designer towards an appropriate design

solution.

PRELIMINARY QUESTIONS:

1. Has a consultation with a cultural advisor occurred?

2. Are cultural considerations going to be integrated into the design in an authentic way?

3. Does the design appropriately represent the introduced culture in context of the host culture?

CULTURAL CATEGORIES QUESTIONS:

IMAGERY // RITUAL // TRADITION+TREND // CONTEXT
SPACES // ACTIVITIES // ARCHITECTURAL ELEMENTS

1. Can the design utilize imagery to represent significant qualities of the culture in the public, private or in-between spaces?

IMAGERY // RITUAL // TRADITION+TREND // CONTEXT
SPACES // **ACTIVITIES** // ARCHITECTURAL ELEMENTS

2. Can the design utilize imagery to represent significant qualities of the culture through the activities programmed for any of the spaces?

IMAGERY // RITUAL // TRADITION+TREND // CONTEXT
SPACES // ACTIVITIES // **ARCHITECTURAL ELEMENTS**

3. Can the design utilize imagery to represent significant qualities of the culture through the use of architectural elements such as materiality, systems, or structure?

IMAGERY // **RITUAL** // TRADITION+TREND // CONTEXT
SPACES // ACTIVITIES // ARCHITECTURAL ELEMENTS

4. Can the design utilize the act of ritual, or movement through space, to represent significant qualities of the culture in the public, private or in-between spaces?

IMAGERY // **RITUAL** // TRADITION+TREND // CONTEXT
SPACES // **ACTIVITIES** // ARCHITECTURAL ELEMENTS

5. Can the design utilize the act of ritual, or movement through space, to represent significant qualities of the culture through the activities programmed for any of the spaces?

IMAGERY // **RITUAL** // TRADITION+TREND // CONTEXT
SPACES // ACTIVITIES // **ARCHITECTURAL ELEMENTS**

6. Can the design utilize the act of ritual, or movement through space, to represent significant qualities of the culture through the use of architectural elements such as materiality, systems, or structure?

IMAGERY // **RITUAL** // **TRADITION+TREND** // CONTEXT

SPACES // ACTIVITIES // ARCHITECTURAL ELEMENTS

7. Can the design utilize tradition, both historical or recent trends to represent significant qualities of the culture in the public, private or in-between spaces?

IMAGERY // RITUAL // **TRADITION+TREND** // CONTEXT

SPACES // **ACTIVITIES** // ARCHITECTURAL ELEMENTS

8. Can the design utilize tradition, both historical or recent trends to represent significant qualities of the culture through the activities programmed for any of the spaces?

IMAGERY // RITUAL // **TRADITION+TREND** // CONTEXT

SPACES // ACTIVITIES // **ARCHITECTURAL ELEMENTS**

9. Can the design utilize tradition, both historical or recent trends to represent significant qualities of the culture through the use of architectural elements such as materiality, systems, or structure?

IMAGERY // RITUAL // TRADITION+TREND // **CONTEXT**

SPACES // ACTIVITIES // ARCHITECTURAL ELEMENTS

10. Can the design utilize its contextual relationships to represent significant qualities of the culture in the public, private or in-between spaces?

IMAGERY // RITUAL // TRADITION+TREND // **CONTEXT**

SPACES // **ACTIVITIES** // ARCHITECTURAL ELEMENTS

11. Can the design utilize its contextual relationships to represent significant qualities of the culture through the activities programmed for any of the spaces?

IMAGERY // RITUAL // TRADITION+TREND // **CONTEXT**

SPACES // ACTIVITIES // **ARCHITECTURAL ELEMENTS**

12. Can the design utilize its contextual relationships to represent significant qualities of the culture through the use of architectural elements such as materiality, systems, or structure?

Figure 17. Architectural checklist for cultural fitness developed for this research project.

By considering each of the spatial, activity, or architectural element types in terms of the 4 stated cultural categories with the client, the designer is able to discover opportunities for integrating cultural elements into the design. An additional critical step for any project that responds to a specific culture is to enlist the assistance of a respected cultural advisor. In Hawaii, the State Office of Environmental Quality Control Cultural Assessment Provider List provides a large database of cultural advisors on Oahu.[107] This checklist is intended to be a universal form that stipulates seeking out the appropriate consultants for the specified cultural group(s) as a prerequisite for its use.

Once the architect and client have worked through the checklist, the architect may compile further documentation of the elements selected for the design scheme. These documents can be used for reference throughout the project delivery to justify decisions made to execute the culturally appropriate design. When courting future clients, the documents can also be used to substantiate the firm's efforts to support cultural authenticity in their design work.

It is common for both designer and stakeholders to collect and share relevant resources for projects requiring cultural considerations; however, this initial exercise is often the extent of even the best-intentioned designers' investigations, resulting in only superficially integrated cultural considerations. By utilizing the revised cultural fitness architectural checklist, designers can ensure that cultural considerations are properly integrated into the design workflow.

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[107] Office of Environmental Quality Control, "Cultural assessment provider list," http://oeqc.doh.hawaii.gov/Shared%20Documents/Environmental_Assessment_PrepKit/Cultural_Impact_Assessments/Cultural-Assessment-Provider-List-2011-November.pdf.

Chapter 7. Design Project: A Culturally Responsive Public Housing Community

Despite the differing contexts for the case study sites utilized for this paper, both

public housing communities face comparable challenges and share corresponding goals.

The low-rise, sub-urban Palolo Valley Homes provides the site and program for the

design of a culturally appropriate public housing prototype in this chapter. Kuhio Park

Terrace embodies a high-rise response to an urban environment through renovation of

an existing building, and is addressed in the appendix. The design project represents the

culmination of the research conducted as well as the implementation of the strategies

developed for this paper to illustrate the viability and importance of culturally

appropriate public housing.

Successful design that is also culturally appropriate results from a marriage of

host and immigrant cultures. The context of the proposed site is a critical component of

the host culture to consider when determining program and concept. This includes the

environmental, social, and economic forces that interact with the site and will continue

to exert influence into the future.

Palolo Valley Homes lies in a valley surrounded by lush green mountains several

miles from the urban core of Honolulu, embedded in a low-key residential area that is

demographically diverse. The drainage channel forming the South and East boundaries

of the site was originally a streambed and part of the Waikiki *ahupuaa*[108] (traditional

Hawaiian system of land division and management), that continues to direct the rains

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[108] Marion Kelley, "Ahupuaa: A Kanaka Maoli System of Natural Resource Enhancement, Utilization and Preservation," Honolulu: University of Hawaii at Manoa, 1997, 7.

from the valley directly to the ocean. Placed on 7 acres, the design provides a slight increase in the housing density currently found on site by providing housing that can accommodate up 31 dwelling units per acre. As part of the proposed design paradigm, dwelling units will be considered in terms of families (or individuals living on their own).

This chapter is composed of three sections; the following section features two different sets of design precedents: the first provides examples of innovative ways that architects have translated a culturally-driven program, while the second set is composed of three exemplary urban housing projects from across the globe. The second section of the chapter provides an assessment of universally shared qualities of successful public housing design. Lastly, the third section presents a culturally appropriate public housing design for the Palolo Valley Homes site.

The design prototypes developed for this project were inspired by the aggregate of the research conducted for this paper. The precedent studies illustrate examples of internationally recognized design for both cultural and public housing; the cultural comparison matrix provides an introductory overview of the cultures residing at the case study locations while the application of the architectural checklist gives greater insight into the specific cultural needs within the context of the site.

(i) Precedent studies

Cultural models

The examples presented here establish important precedents for the advancement of culturally appropriate design. Each of the 3 projects exemplifies innovation in a way that not only honors a culture's traditions, but its vision for a thriving future. Varying in scale and program, each project shares cultural authenticity as its primary design parameter.

Centre Culturel Jean-Marie Tjibaou, New Caledonia

The Centre Culturel Jean-Marie Tjibaou was designed by Renzo Piano to reflect the cultural traditions of the indigenous Kanak people of New Caledonia. It was built and completed in 1998 to honor the traditional culture of the French colony and provide a "village" from which to host conferences, exhibitions and cultural activities.[109] The ten individual structures are arranged in a pattern influenced by traditional village organization and to allow air flow to circulate through the buildings. The shells of the structures utilize a combination of traditional form, symbolism and modern technology to provide naturally ventilated and day-lit interior spaces (see fig. 18).

The cultural center provides a striking example of an innovative use of traditional form and symbolism, and merging it with modern technology and building systems. The building design was fundamentally influenced by the local culture and integrated into the complex holistically. This is clearly expressed in the buildings' appearance, structure, and placement on the site.

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[109] Every Culture, "New Caledonia," http://www.everyculture.com/Ma-Ni/New-Caledonia.html.

Precedent study

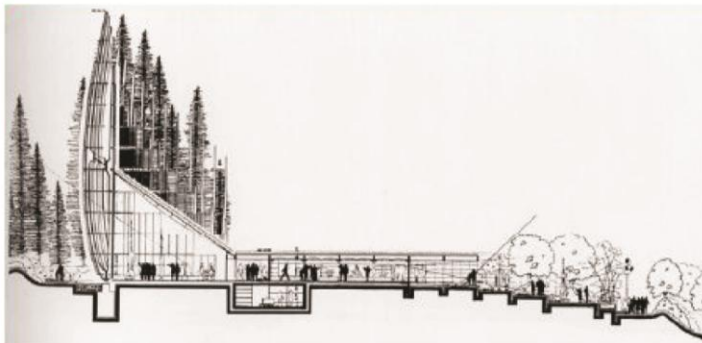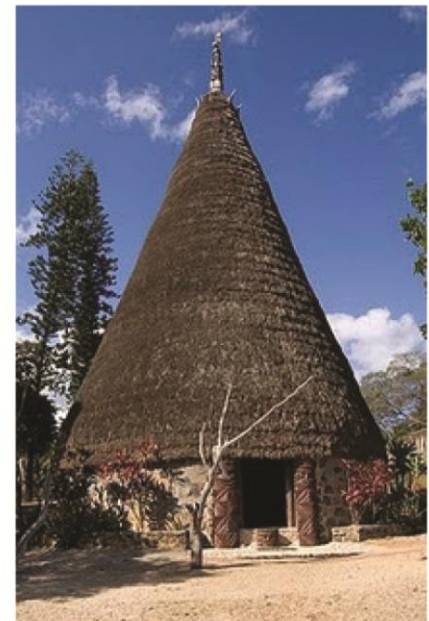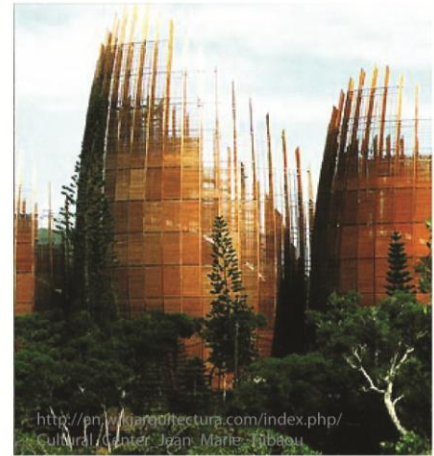## Centre Culturel Jean-Marie Tjibaou
Renzo Piano
New Caledonia

The cultural center is a product of the symbolism and forms of the indigenous Kanak traditional village.

Organization of the complex is inspired by traditional village layout with the most important dwelling (the chief's) placed along the central axis (indicated top right.)

The shell of the structure utilizes the air flow allowed by the woven nature of the traditional housing to bring ventilation into interior spaces (center right.)

The traditional Kanak dwelling has a large, steeply sloping roof made of thatch that allows warm air to flow out of the structure, keeping the interior cool. Elements of this system were used as inspiration for the cultural center (bottom left.)

http://en.wikiarquitectura.com/index.php/
Cultural_Center_Jean_Marie_Tjibaou

Building section
http://www.architecture.uwaterloo.ca/faculty_projects/terri/366essaysW03/corciega_tjibaou.pdf

Traditional Kanak housing
http://p07274242.blogspot.com/

Figure 18. Precedent study diagram: Centre Culturel Jean-Marie Tjibaou, New Caledonia.

Fale Pasifika, Aukland, New Zealand

The Samoan fale completed for the University of Aukland's Center for Pacific

Studies in 2004 is a modern interpretation of the traditional Polynesian meeting house

(see fig. 19). It is used as a space for cultural events and for sharing Polynesian culture.

The structure utilizes the traditional oblong form with large over-hanging roof, and

incorporates a stone garden that serves as the ceremonial *malae.* Traditionally, the

malae acts as a transitional space from the profane to the sacred and can also provide

additional seating for guests unable to enter the fale due to *tapu* (taboo) cultural

restrictions or lack of space.

The fale is more than a space to honor Polynesian culture; it also shares the

symbol of the meeting house that is common across many Pacific cultures including the

Maori in New Zealand and native Hawaiians. For this design, the traditional form of the

fale was largely retained with its concessions to modern amenities discreetly integrated.

Precedent study

Fale Pasifika
**Centre for Pasific Studies
University of Aukland, NZ**

The site represents a balance of modern programmatic needs with traditional form and symbolism.

The ceremonial malae, (the outdoor gathering space,) is offset from the main entrance (left).

The entrance is marked by a modern sculpture that imitates the form and openness of the fale (above left).

The open floor plan is similar to the traditional fale, but the structure is adapted to meet modern building standards and code (above right.)

The Fale Pasifika is a modern interpretation of the traditional Samoan fale but is intended to represent a symbol common across Pacific cultures.
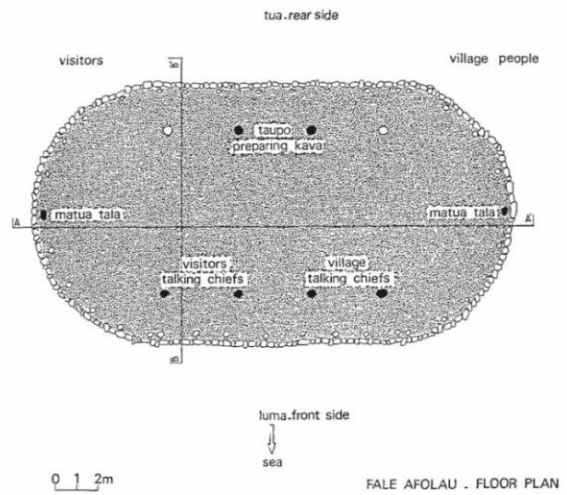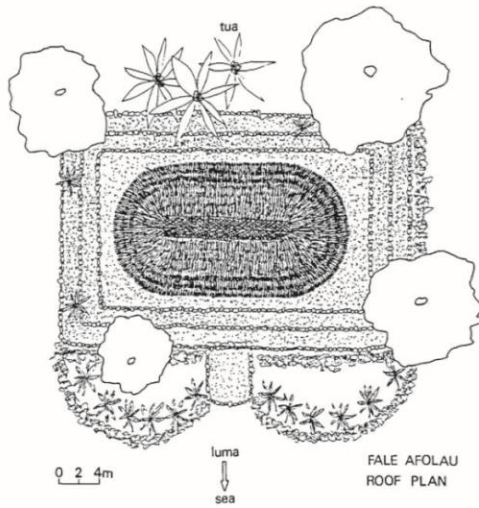
Traditional Samoan fale plan
UNESCO Office for the Pacific States. The Samoan Fale. Bangkok: UNESCO,1992.

Figure 19. Precedent study diagram: Fale Pasifika, Aukland, NZ.

Navajo Elder Housing, Arizona, United States

The Navajo Elder Straw Bale Housing project is the result of a participatory design process between the Navajo tribe and the Indigenous Community Enterprises (ICE) organization in 2006. The project was sponsored by Architecture for Humanity, the Rose Architectural Fellowship, and the Navajo Housing Authority. Using materials that were native to the site such as straw bale and timber from tribal forestry restoration with the guidance of tribal elders, the goal was to create several culturally appropriate home designs.[110]

The Navajo people of North America traditionally lived in a structure called a hogan, which translates roughly to "home place." The structure is circular and represents the center of the cosmos for Navaho people. The conventional rectangular homes currently provided by federal HUD programs on the Navajo reservations do not reflect these cultural traditions. Other cultural considerations included in the design were doors that faced to the East, landscaping with native species for medicinal and cooking uses, and placement of the fireplace in the center of the living room where important gatherings occur.

The prototypes developed for this project reintroduce the traditional circular form while relying on locally available resources to heat, cool and power the home (see fig. 20). The result is a home that not only embraces the traditional practices of the Navajo culture, but also looks to the future by incorporating modern energy-saving and energy-producing features.

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[110] Open Architecture Network: Architecture for Humanity, "Navajo Elder Straw Bale Housing," http://openarchitecturenetwork.org/projects/navajo.

Precedent study

Navajo Elder Straw Bale Housing
**Indigenous Community Enterprises &
Architecture for Humanity
Arizona, U.S.**

The participation of Navajo elders in the
design process resulted in a house that
responds to cultural traditions.

The circular form is sacred and was traditionally used
for the home. This design incorporates the form in an
octagonal room for gathering and performing sacred
practices (center right.)

Straw-bale was used for the walls in response to
request from elders for a structure that utilized locally
available materials such as those used in traditional
houses (bottom right.)

The resulting home is ADA accessible and even with
its use of unconventional building materials, meets
building codes (bottom left.)

Navajo Elder Housing with straw-bale construction exterior.
http://openarchitecturenetwork.org/projects/navajo

Navajo Elder Housing axonometric section.
http://openarchitecturenetwork.org/projects/navajo

WEST ELEVATION

SOUTH ELEVATION
http://openarchitecturenetwork.org/projects/navajo
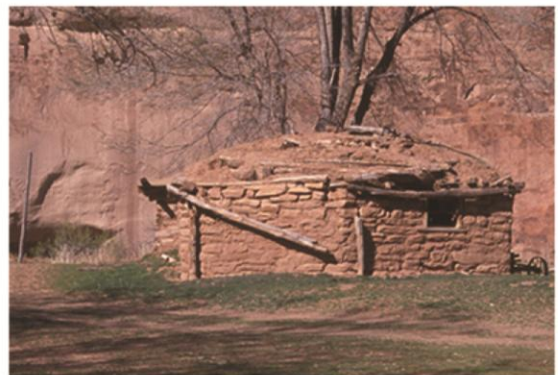

Navajo *hogan*, the traditional home.
www.azhikers.org

Figure 20. Precedent study diagram: Navajo Elder Housing, Arizona, U.S.

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Urban Housing Precedents

These precedents provide important context for understanding the advancements and issues faced by those pursuing urban and humane public housing. Although each building is the direct product of its specific time and place, all three also exemplify several different concepts that can be translated universally to improve quality of life for residents. The following examples highlight the design concepts that inspire and fortify the design project for this paper.

The following precedents were selected based on their relevance and contribution to the urban housing arena. The Harumi Apartments in Tokyo, built in 1958, were the first high-rise apartment buildings to be funded by the Japan Housing Corporation (Japan's post-war version of public housing).[111] Habitat 67 in Montreal represented architect, Moshe Safdie's attempt to reconcile architecture with social and humanitarian goals.[112] Lastly, House 8 by Bjarke Ingels Group (BIG) in Copenhagen, Denmark, is a contemporary example of cutting-edge urban housing design.

By contemplating these universal housing concepts in terms of the cultural models examined previously, the design scheme for Palolo Valley Homes and KPT were developed. The resulting housing schemes illustrate that by looking to a specific culture for design inspiration, solutions to universal issues can be found; therefore, while the design may ultimately meet the cultural needs of a specific group, it also provides an innovative response to the universal needs of humankind.

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[111] Hilary French, *Key Urban Housing of the Twentieth Century: Plans, Sections, and Elevation (*New York: W. W. Norton and Company, 2008), 108.
[112] Sam Davis, *The Architecture of Affordable Housing* (Berkeley: University of California Press, 1995), 30.

Harumi Apartments

Designed by Kunio Maekawa and built in 1958, the Harumi Apartments in Tokyo were funded by the Japan Housing Corporation as part of the rebuilding efforts post World War II. It was one of the first high-rise apartment buildings in Tokyo and represented a changing paradigm in Japanese design that was to follow its construction. As part of the nascent Metabolist movement in Japan, Maekawa and the other members saw the city as part of an "organic process rather than a static entity,"[113] where the components of the urban landscape were always in flux and part of a larger system.

The Harumi Apartments were the result of the architect's attempt to provide efficient high-density housing with modern structural technology while also integrating traditional Japanese cultural elements. The units have two rooms based on the tatami mat module and are partitioned by translucent shoji screens that allow air and light to flow through the space. By relying on the tatami mat module, the architect increased the number of units within the building while still meeting residents' cultural needs.

In addition to utilizing Japanese cultural elements, Maekawa looked to recent structural and material innovations by his former employer, Le Corbusier.[114] Using a concrete slab system with access corridors on every 3rd floor, he was able to minimize the amount of structural members required, reducing the building's height and overall cost.

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[113] Zhongjie Lin, *Kenzo Tange and the Metabolist Movement: Urban Utopias of Modern Japan* (New York: Routledge, 2010), 24.
[114] Jonathan McKean Reynolds, *Maekawa Kunio and the Emergence of Japanese Modernist Architecture* (London: University of California Press, 2001), 58.

Precedent study: urban housing

Harumi Apartments
Kunio Maekawa
Tokyo, Japan; 1958

One of the earliest high-rise apartment buildings in Japan, the concrete building represents the meeting of East and West cultures.

As a former student of Le Corbusier, the architect employed a concrete structural frame similar to the Unite d'Habitacion in Marseilles, France (see below, left).

By placing wide circulation landings on alternating floors, the building creates an impression of stacked rowhomes, encouraging resident interaction and feeling of ownership (see right).

The interiors feature movable shoji screens to partition rooms based on the Japanese tatami module (see below, right).
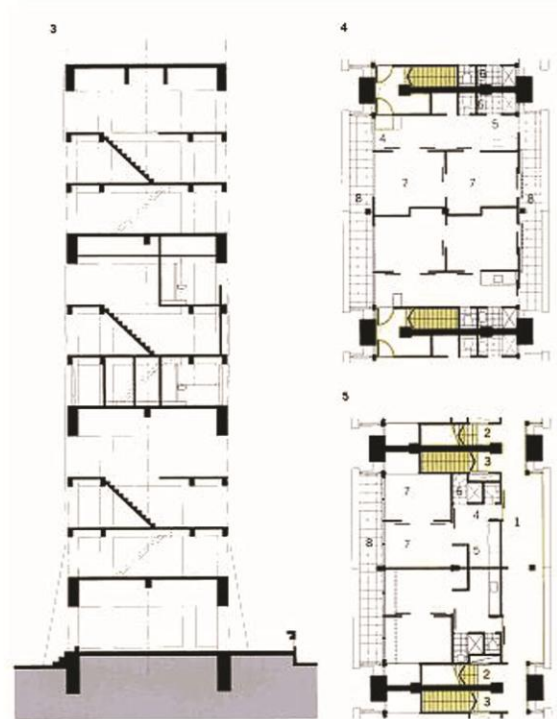
Harumi Apartments section (left,) and unit plans (right).
Hilary French, *Key Urban Housing of the Twentieth Century: Plans, Sections, and Elevations,* (2008), 108.

Harumi Apartments exterior (left,) and interior (right).
Hilary French, *Key Urban Housing of the Twentieth Century: Plans, Sections, and Elevations,* (2008), 108.

Figure 21. Urban housing precedent diagram: Harumi Apartment.

Habitat 67

As the populations of the world's cities continued to swell, Habitat 67 architect, Moshe Safdie envisioned a high-rise building where residents from all walks of life could live with beautiful views, fresh air, as well as their own garden. Habitat 67 represented the growing sense of social responsibility amongst many architects and illustrated the power of innovative solutions to global issues. As testament to the architect's vision, Habitat 67 not only still stands today 45 years after it was built, but remains a thriving and desirable place to live.

Evoking vernacular architecture in hillside towns and villages,[115] the complex resembles the unplanned and organic form of these informal cities. The specific arrangement and relation of each unit is relatively unique, relying on the structural rules for connecting the spaces rather than on the grand vision of the architect. Safdie viewed technology as a tool to provide more than just increased production or decreased costs; it would also bring essential amenities to residents.[116]

Habitat 67 represents a departure from typical high-rise design in that it considers each unit as an individual entity. Although not always economically feasible, the architect utilized alternative structural assemblies to attain these unique configurations.

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[115] Sam Davis, *The Architecture of Affordable Housing* (Berkeley: University of California Press, 1995), 33.
[116] Ibid., 31.
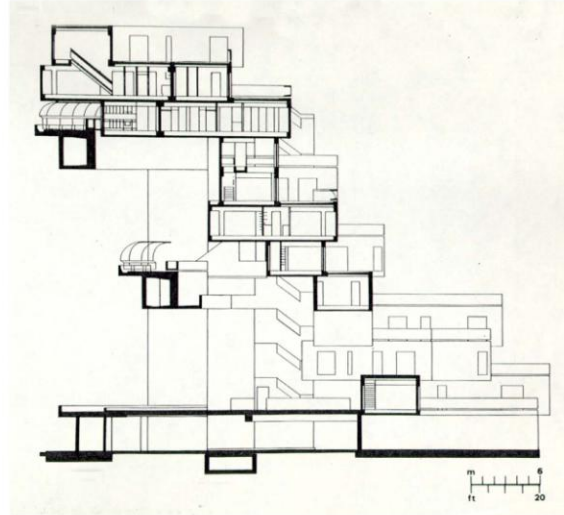
Precedent study: urban housing

Habitat 67
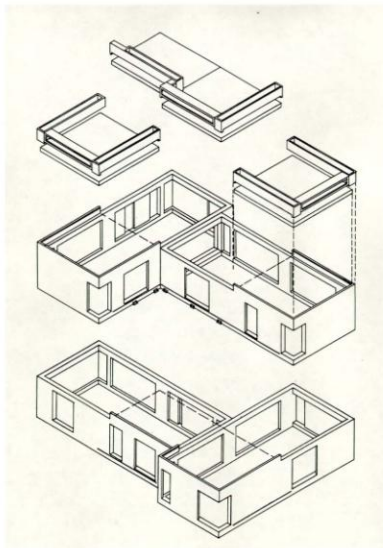**Moshe Safdie**
Montreal, Canada; 1967

Designed and built for the 1967 World Fair in Montreal, Safdie intended to create a model of urban prefabricated, affordable housing that offered the privacy and amenities of suburbia.

Safdie belonged to a school of architects who viewed architecture as a tool to pursue humanitarian design, particularly through housing. By stacking the units, residents were given access to light, views, and wind (images right, and bottom right); elements that are often considered luxuries to those living in affordable housing.

Using a prefab system of assembly, 15 different unit types were offered, providing a variety of housing choices (image bottom left).

Building section for Habitat 67
http://arch1101-2010kjb.blogspot.com/2010/04/
moshe-safdie-habitat-67-montreal-canada.html

Building assembly diagram for Habitat 67
http://arch1101-2010kjb.blogspot.com/2010/04/moshe
-safdie-habitat-67-montreal-canada.html

Street view of Habitat 67 Housing
http://proofmathisbeautiful.tumblr.com/post/228
235428/macmankev-spatula-habitat-67-moshe-safdie

Figure 22. Urban housing precedent diagram: Habitat 67.

8 House

Bjarke Ingels Group (BIG) from Denmark is internationally recognized as a leader in innovative high-density housing design. The 8 House in Copenhagen is one of the firm's latest efforts to provide high-rise mixed-use housing that retains a physical connection between each of the floors and the ground plane itself. For many cultures such as the Polynesian and Micronesians, connection to the earth is an important cultural value that is typically ignored in high-rise housing. The 8 House reintroduces the high rise to the landscape in a dramatic way.

The long ramp that runs from the ground all the way up to the 11th floor provides opportunities for frequent encounters between residents, as well as built-in exercise options for walking and biking. Interviews with Micronesian and Samoans for this project revealed that these cultures shared concerns over the loss of the ritual of walking around their villages, both for the social and physical benefits. The 8 House ramp becomes a promenade that connects all of its residents.

Manipulating the form of the structure to accommodate the ramp also provided units with access to light, views and breezes. The limited daylight through winter months fostered the cultural tradition of *hyyge,* the Danish term that translates roughly into coziness and gathering with friends and family. 8 House takes this cultural practice of *hyyge* and translates it into spaces that promote its practice, through socially connected and day-lit units.

Precedent study: urban housing

8 House
Bjarke Ingels Group (BIG)
Copenhagen, Denmark; 2010

8 House is a mixed-use development whose eponymous form responds to the natural conditions of the site as well as the need for accessibility: residents are able to walk or bike easily all the way up to the 11th floor.

The long ramp creates a tangible connection from the earth to each of the floors. This encourages walking, interaction between residents, as well as increased accessibility options for disabled residents (see image top, right).

Manipulating the form to take full advantage of the the light, winds, and view improves quality of life for residents (see diagram right, center).

Creating two central courtyards increases visibility, encouraging security and a sense of identity (see image below).

8 House view from harbor
http://www.archdaily.com/83307/8-house-big/
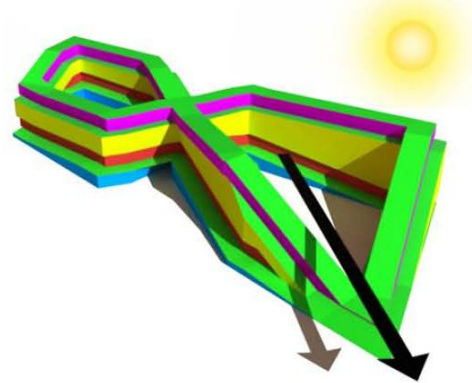
8 House climatic diagram
http://www.big.dk/projects/8/

8 House courtyard view
http://www.dezeen.com/2010/10/22/8-house-by-big-2/

Figure 23. Urban housing precedent diagram: 8 House.

(ii) Finding common ground: universal qualities of successful public housing

In analyzing the cultural and urban housing precedents, several qualities of successful housing design emerged that transcend individual cultures. Integrating these qualities into a design program will instill the foundation to support successful public housing. Social connection to a larger community is a common theme that connects many of these qualities; typical public housing in the US has a tendency to create anti-social spaces, contributing to the perpetuation of unhealthy living conditions. The qualities expressed in this section represent only a sample of the potential characteristics that may be discovered by looking more closely at residents' cultures.

One of the most common qualities found in successful urban housing complexes was a design that facilitated frequent interaction and cooperation between residents. The intended consequence is increased awareness and accountability, encouraging stronger bonds between neighbors and ultimately, healthier communities. Architects often try to achieve this by creating circulation paths with spaces to linger and socialize, or by activating public gathering space through the use of appropriate programmatic elements. Creating shared or communal facilities is another method of bringing residents out of the confines of their homes and into the public realm.

Another universal quality frequently found in successful public housing projects is a programmatic element that requires selection of or attending to by the residents. Building in opportunities for residents to participate in the creation or continued maintenance of their homes instills a sense of accountability and belonging. In some

cases, this is done by having high-rise residents select the color of the balcony panel so

that they may discern which unit belongs to them from the exterior. In other projects,

landscapes or gardens provide the opportunity for people to add to an environment

that they otherwise have little to no power of altering. This empowers residents to feel

as though they have a stake in the welfare of their residence, and possibly in their

community.

Having a space or spaces where children can safely play while supervised is

critical to successful housing design. When children feel compelled to play outdoors in

the public realm, their high-energy helps activate the area. This can not only positively

influence how the space is perceived by others, but also provide opportunities for

interaction between the older and younger generations as elders and aunties or uncles

watch over the children.

Facilitating a connection to the landscape is another important element found in

successful design across the world, in both rural and urban locales. Whether for quiet

contemplation or vigorous physical exercise, the significance of the land may vary from

culture to culture but its necessity does not. This can be achieved in a multitude of

ways, from framed vistas of the horizon in urban high-rises to lush gardens for walking

through the site. Creating connections to the earth, sky, winds, and waters plays an

important part in the health of the human psyche.

The need for strong social services to be readily available to residents of public

housing cannot be overestimated. Providing facilities for these services gives residents

the tools to not only create but to sustain positive change within their community. It is

also important that these facilities are easily maintained yet able to adapt to changing technology and social needs. These facilities should be active, pleasant, safe spaces where residents feel comfortable coming in to ask for assistance.

The two design schemes for this paper are each guided by the universal concept of the *village*. Throughout the research process, the village term surfaced repeatedly in the precedent studies, texts, and interviews. The context of its usage was consistently positive and frequently nostalgic in that those speaking of their village associated it with feelings of belonging, security, empathy, and even affection.

For this project, the term *village* is to be generally defined as the place and the people who identify and reside within a designated area. The implications and associations of its usage for the design projects are not as austere as the definition suggests. Applied here, the village is a place where a community grows and takes care of its members.

The village concept may have surfaced as an integral element of Polynesian and Micronesian cultures through this research, but it is universal in its spread, and numerous in its adaptations. Even the individualistic Western cultures have adapted variations of the village to meet their needs. Whether by joining a co-op, spiritual group, or even a neighborhood watch group, Americans have recreated the village for a sense of belonging to something bigger, stronger, and possibly even more ancient than ourselves.

(iii) Palolo Valley Homes: Concept, program, and design documentation

The design concept and program for Palolo Valley Homes is based on the data accumulated from the previous chapters, as well as the precedent studies, the cultural comparison matrix and the architectural checklist. The case study sites and cultural group research provided the data necessary to complete and utilize the cultural matrix and checklist tools. The results were then synthesized to create design prototypes to accommodate the specific cultural needs of the residents in terms of the parameters of the site. Overlaying the concept of the village and creating a hierarchy of housing types resulted in a design that meets the specific cultural needs of the predominant cultural groups at the site while also fostering an environment that can improve the quality of life for residents from any culture.

The design for the Palolo Valley Homes case study site provides an example of culturally appropriate public housing and is applied to a low-rise, sub-urban context for new construction. With a majority of Samoan and Micronesian residents, this design responds to the dynamic nature of culture by offering housing types that vary. On one end of the spectrum are housing types that become a stepping stone into the host culture while on the other is housing closer to an authentic expression of the home culture. This design forges a new narrative for its residents; one that tells a story of inclusion rather than exclusion.

The program for Palolo Valley Homes reflects the need to retain housing and services for the existing residents while also ensuring that their cultural practices may

still be expressed in the new scheme. In response to the low-rise and single family home context of the surrounding neighborhoods, the design consists primarily of clusters of 1 to 2-story buildings housing 3 to 6 families in each clustered around shared open spaces for play and gathering. To facilitate higher density in an environment that provides on-site resident support for those interested in transitioning out of the complex, a mid-rise apartment is provided.

Also included in the site is a large central gathering area called a *Piko*, Hawaiian for center; it is a sheltered area for community gathering and food preparation with an earth oven for cooking traditional meals. The Piko is placed centrally within the site, becoming the 'heart' of the community. The shelter and surrounding area is large enough to accommodate all of the residents so that it can host meetings, faith-based gatherings, performances, or smaller community events.

A sheltered staging area for regular farmer's markets is located adjacent to the main street that connects the complex to the surrounding community. The markets are a place where residents and neighboring community members can sell and buy their locally produced food and crafts. These market days provide an opportunity to break down the perceived barrier that often exists between public and private housing. It also is a way for residents from within and outside the complex to continue practicing the crafts and growing the plants that are vital components of their cultural traditions while sharing them with others.

Integrated into the apartment building are spaces for resident services including computer labs, study classrooms, and job training and health services. These amenities

are available to assist residents from the entire site but their proximity to the apartment units provides additional support. A short-term childcare center with play area allows parents to take classes or receive healthcare services at the building.

The concept for the Palolo Valley Homes culturally appropriate design prototype is developed from the idea of finding and celebrating the shared cultural values of its residents. Titled, "Common Grounds," the design accommodates the cultural needs of its residents in a way that also supports the dynamics of a healthy community. This is accomplished by creating distinct "micro-villages" within the larger village while emulating the openness and shared amenities common to Polynesian and Micronesian housing units. Micro-villages are placed along an axis that leads towards a central gathering area (the Piko) that becomes the "heart" of the site. The axes also provide visual and physical connection between all parts of the complex, providing a clear and safe means for navigating the site. Units each have views in 4 directions, further encouraging accountability and visibility of residents while also supporting the cultural practices considered most valuable to Samoans and Micronesians.

Locating each micro-village along an axis promotes visual and social connections between residents as they share the circulation paths through the site. Unit orientation allows residents to see and be seen while the scale of the micro-village allows residents to know and recognize each other. The openings allow residents to foster awareness of their neighbors and surrounding community in keeping with the values of the Samoan and Micronesian cultures. A micro-village consists of 2 to 3 buildings with 2 to 4 families

residing within each structure. Each residence features shared living space, providing an environment where residents interact and cooperate through the act of daily living.

A common theme emerged in each of the interviews and texts concerning Samoan and Micronesian cultural practices: the "openness" of village life that allowed the community to observe and support each other. The communal facilities and activated gathering spaces inspired by the Samoan and Micronesian cultural groups provide a contrasting version of the isolating housing type that has become the norm in the US. Within current public housing models and Western housing in general, housing units are frequently oriented towards streets or parking and away from neighbors for privacy. However in Samoan and Micronesian cultures, the welfare of the community is valued over that of the individual; therefore, by isolating home units from each other, the ingrained social support net is broken down. With this design, housing units are arranged to foster village dynamics, strengthening the intrinsic system of support necessary for sustaining robust communities.

There are 4 different unit types that residents may choose from when joining the community. The units represent a continuum relating to the cultural dynamics found within immigrant communities as they encounter assimilation and adapt to their host culture. On one end of the spectrum is the housing unit that is most authentic to the resident's home culture, in this case, Polynesian and Micronesian. On the other end are the units that accommodate varying stages of assimilation to the host culture. This spectrum works in both directions, not only providing unit types that help residents transition into the host culture, but also allowing units for those who wish to live more

closely with their home culture's practices. A resident may choose to move from a more assimilated housing unit into a more culturally authentic home if they are interested in learning traditional ways.

The unit type placed on axis with the Piko is housing A: the most authentic to residents' home culture. These residents live there by choice and are considered the keepers of the culture. It is likely that the older members of the community may live in these units where they can better practice the traditions of their culture. As the older members are often considered chiefs and highly respected, placing them in the center of the site allows them to have influence and oversight of what happens within the community.

As the basis for each of the other units, housing type A is composed of 3 distinct areas: sleeping/bathing, cooking, and living. These areas relate to the Polynesian fales (Samoan,) or hale (Hawaiian) that accommodated these different functions on a communal level. The spaces are placed adjacent to each other and left open with sliding screen doors forming the separation between indoors and out. The sliding screens are also used in the sleeping area, not to divide families from each other, but to separate residents by age and gender according to cultural practice. In Samoan and Micronesian cultures, young children sleep with their mothers and aunties until they have "come of age," when they are then separated from the children. Single males and other adults also have their own space.

Housing type B represents the bridge between the host and home cultures. This home retains the shared living, bathing and cooking areas but offers sliding screens to

separate the sleeping area by family. The form of the house begins to adapt to the host culture and introduces a few walls for greater privacy. Here, as in housing type A, because the buildings are defined by number of families rather than strictly by occupant number, building codes and regulations would have to be reexamined to address the difference in living space. Due to the fact that this shared-facility type of housing, it can accommodate higher numbers of people residing within the space. For fire and safety reasons, care should be taken to ensure that there are multiple methods of egress and that structure and finishes are fire-resistant.

The most assimilated low-rise housing type on site, housing C, represents the stepping stones into the host culture. As two story structures, a higher level of density is introduced as well as a greater degree of spatial individuation. Here, individual families have designated sleeping as well as living areas that are carved from the shared living space.

The mid-rise apartment building complex, housing type D, contains the units that most closely resemble urban housing from the host culture. These units are integrated into a facility that features services that assist in the transition with job training, classroom space, child care and support staff. The units continue to share cooking and gathering facilities with 3 other families, however, the sleeping, bathing, and living spaces are separate as they would likely be in private housing in the host culture.
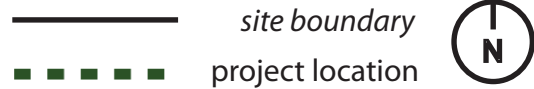
The A units are located in a wooded area of the site where residents may care for and place gardens and small animal pens at their discretion. Each of the unit types have space for small gardens that also function as gray water treatment from the

home's showers and sinks. To further support the continued sustainability of the site both environmentally and economically, each building catches and utilizes its own rain water while solar panels store electricity. Reducing the impact on the land is an important way to honor the Hawaiian host culture. A Hawaiian loi patch placed near the storm water channel honors the host culture by creating a relationship between the patch and the water channel, part of the traditional Hawaiian ahupuaa (land division system based on watersheds).

All of the unit types have shared cooking and gathering spaces, regardless of the degree of assimilation. This is to create community-centric environments where individual residents become part of a small "village" in which they share some resources and amenities. Looking to the Samoan and Micronesian cultural groups inspired the creation of communal spaces that strengthen communities at a micro-village level.

While this arrangement accommodates Polynesian and Micronesian cultural needs, it also provides a critical element of community support that can benefit any public housing community, regardless of residents' culture. By choosing to focus on what a community shares, rather than on what can divide it, the foundation is laid for an environment of inclusion and support for all of its residents. It is these commonalities that are sustained over time and that will weather the inevitable evolution of both the host and the immigrant cultures.
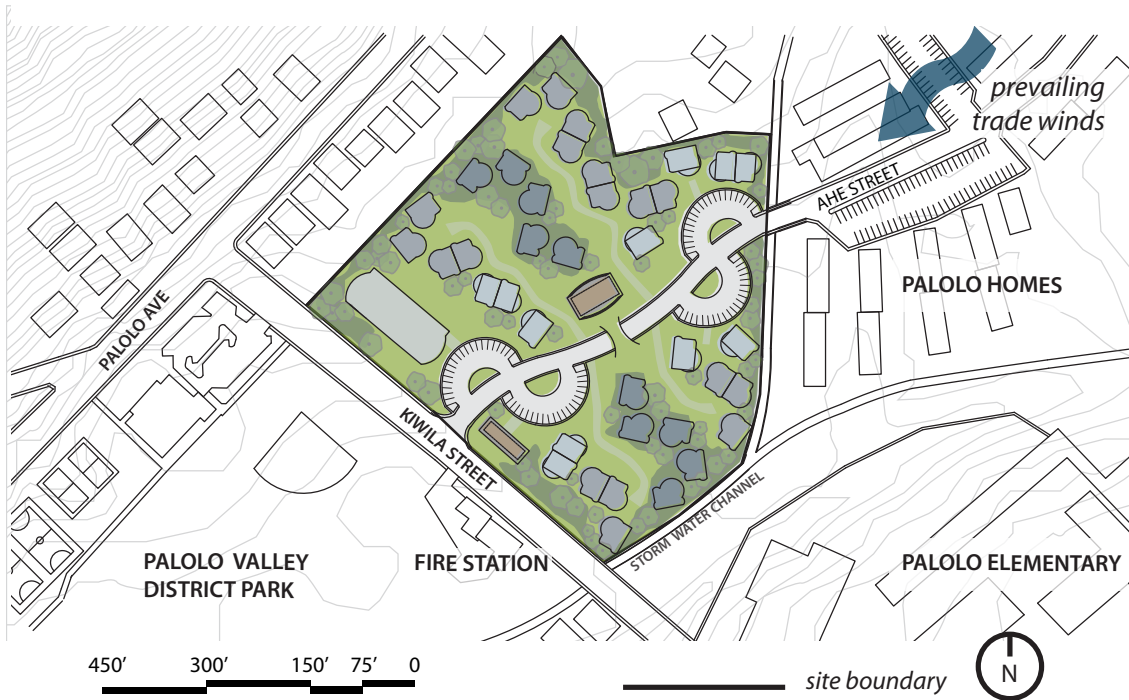
Existing site

site boundary
project location

N

PALOLO VALLEY HOMES

DOWNTOWN HONOLULU
H1 FWY
WAIKIKI
DIAMOND HEAD

The design project site is located in south east Oahu, 2-3 miles from central Honolulu within the Palolo Valley.

The original federally owned public housing buildings on site were built in the late 1950's.

Site plan + program

Site description: _____Palolo Valley Homes, Palolo Valley, Oahu, HI

Primary users: _____ Existing residents

Total area: _____ 7 acres

Number of units: _____ 220 families (units) max

Parking: _____ Approx 80 stalls

Objective: _____ **Culturally appropriate low-rise public housing:** *new construction*

Housing quantities by type
(3-4 familes/home structure):
  A: 10 (30 to 40 families)
  B: 18 (54 to 72 families)
  C: 11 (33 to 44 families)
  D: 1   (48 to 64 families in mid-rise)

Designated gathering spaces:
  40 x small: 4 families
  10 x medium: 8-16 families
  1 x large for all residents

Public amenities: Resident Services
  Computer lab/ classroom: 3
  Health and family center: 1
  Office and management: 1
  Child care: 1

Public gathering spaces: Piko
  Food preparation/cooking:
  Food growing: 1
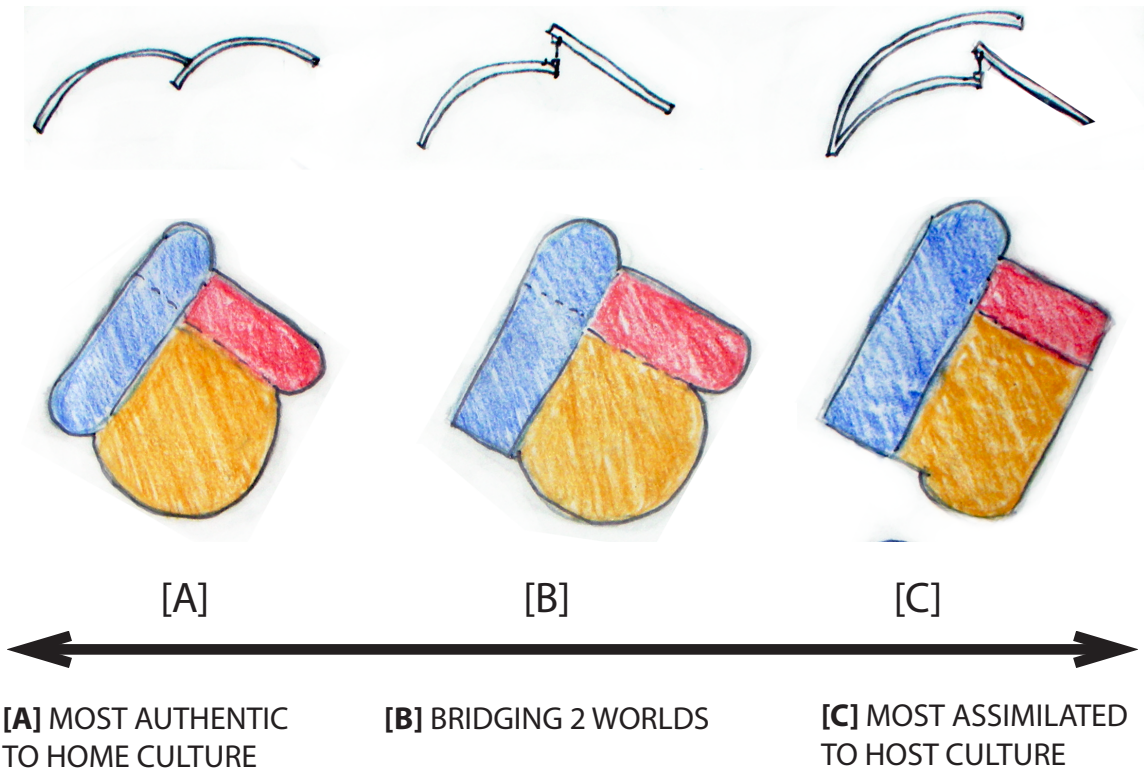 Eating/gathering: 1
  Child care/play: 2
  Worship/leisure: 1

Design Project : **Palolo Valley Homes**

Finding *common ground*

The concept for a culturally appropriate design prototype in Palolo Valley Homes is inspired by the idea of finding and celebrating the shared cultural values of its residents.

Common Grounds accommodates the cultural needs of its residents by creating distinct "micro-villages" within the larger village while emulating the openness and shared amenities of Polynesian and Micronesian housing.

Design Project : **Palolo Valley Homes**

Design concept

[A]   [B]   [C]

[A] MOST AUTHENTIC TO HOME CULTURE   **[B]** BRIDGING 2 WORLDS   **[C]** MOST ASSIMILATED TO HOST CULTURE

Responding to the dynamic nature of culture, the different housing types evolve along a spectrum with residents able to select the type that best suits their own values. On one end of the spectrum is housing that become a stepping stone into the host culture while on the other side is housing closer to an authentic expression of the home culture.

Spectrum of assimilation: site diagram

The spectrum of assimilation relates to the dynamic nature of culture. Over time, the housing allows residents to adapt to the host culture, grow closer to their home culture, or straddle both worlds.
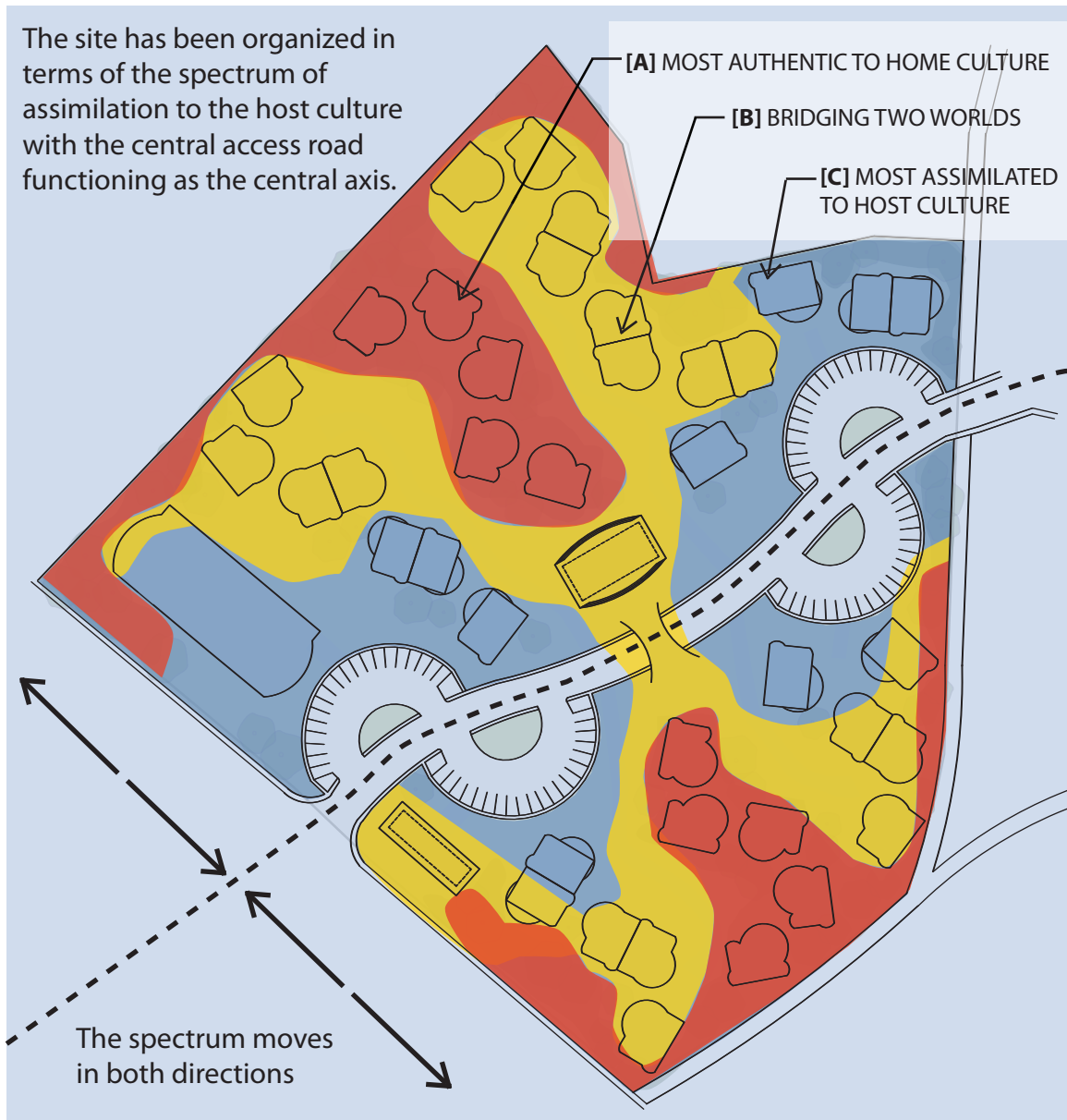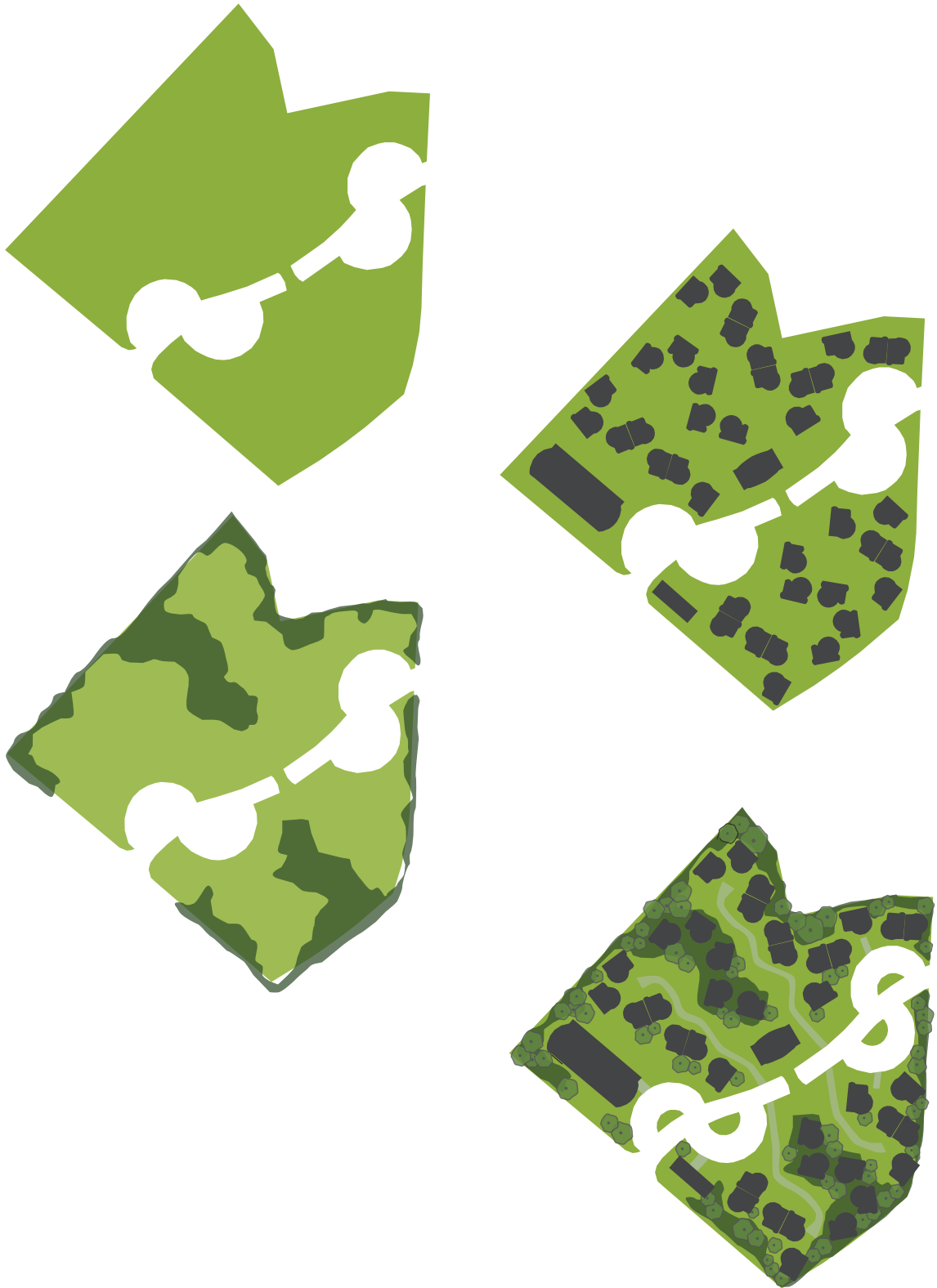
The site has been organized in terms of the spectrum of assimilation to the host culture with the central access road functioning as the central axis.

[A] MOST AUTHENTIC TO HOME CULTURE

[B] BRIDGING TWO WORLDS

[C] MOST ASSIMILATED TO HOST CULTURE

The spectrum moves in both directions

Figure ground study

Design Project : **Palolo Valley Homes**

Gathering spaces hierarchy

- Piko gathering area and shelter
- Farmer's market shelter:
large events/meetings/parties for
residents and surrounding community

Micro-village shared green space:
3 units with 10 - 12 families

Micro-village shared green space:
2 units with 6- 9 families

Design Project : **Palolo Valley Homes**

Site plan concept

Common Grounds: a design scheme forged from the shared cultural values of its residents instills the foundation for a thriving community. Here, common ground is found and celebrated through the ritual of living daily life.

[C]

[B]

[A]

[D]

PIKO

RESIDENT
SERVICES

AHE STREET

FARMERS
MARKET

STORM WATER CHANNEL

[A] Most authentic housing type: **keepers of the culture** (and care-takers of the Piko)

[B] Transitional housing type: **bridging two worlds**

[C] Most assimilated housing type: **stepping stone into host culture**

[D] Mid-rise housing: **higher density housing option from host culture with on-site support services**

Design Project : **Palolo Valley Homes**

Site plan concept

Common Grounds

The **Piko** is a sheltered area with cooking facilities including earth oven, and can be used for gathering, cooking, resting, and play. Placing it at the center allows it to become the **heart** of the complex.

Community garden plots and small livestock pens allow residents to grow/raise food native to their culture.

PIKO

RESIDENT SERVICES

AHE STREET

LOI PATCH

FARMERS MARKET

MICRO-VILLAGE

STORM WATER CHANNEL
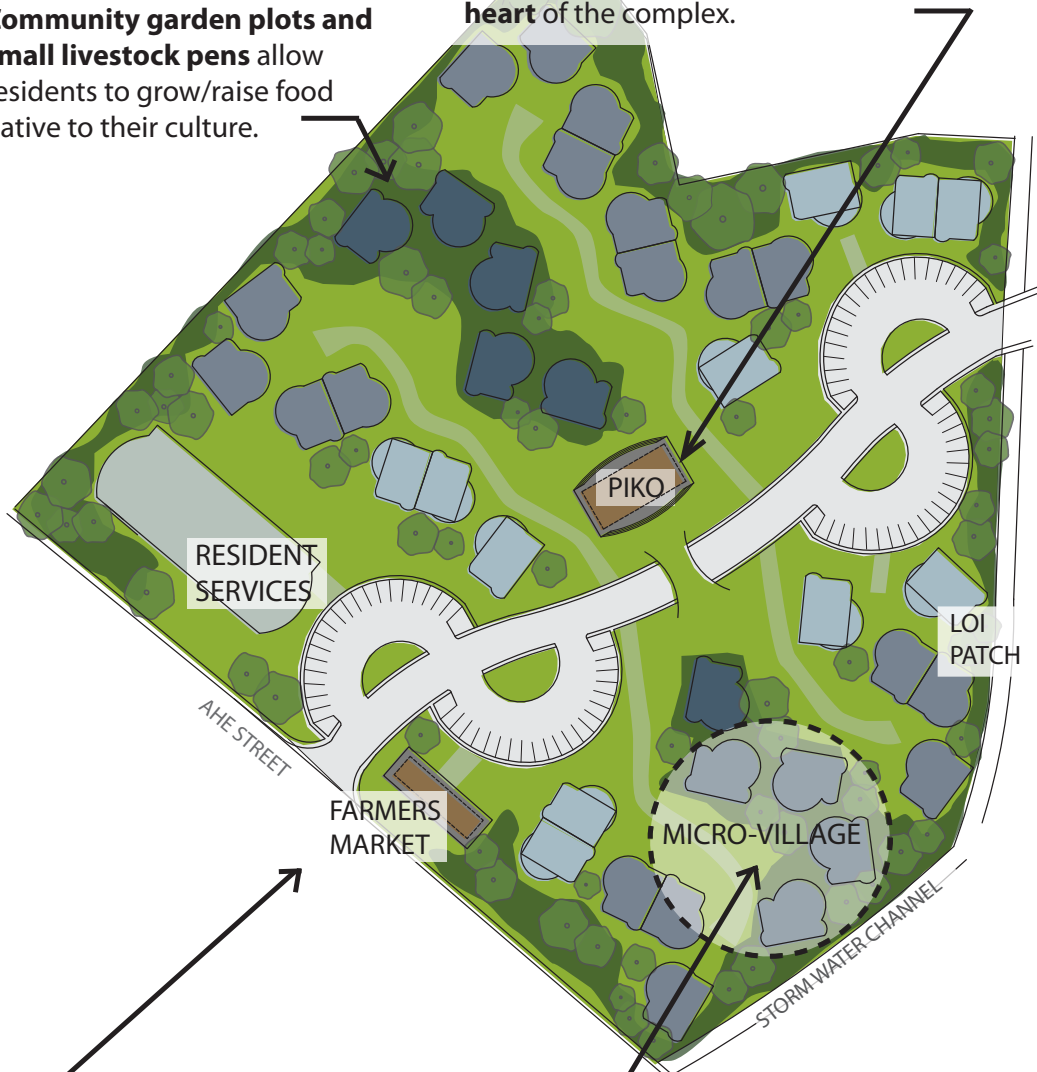
Farmer's market shelter invites residents and neighbors from surrounding community to share locally grown food and crafts
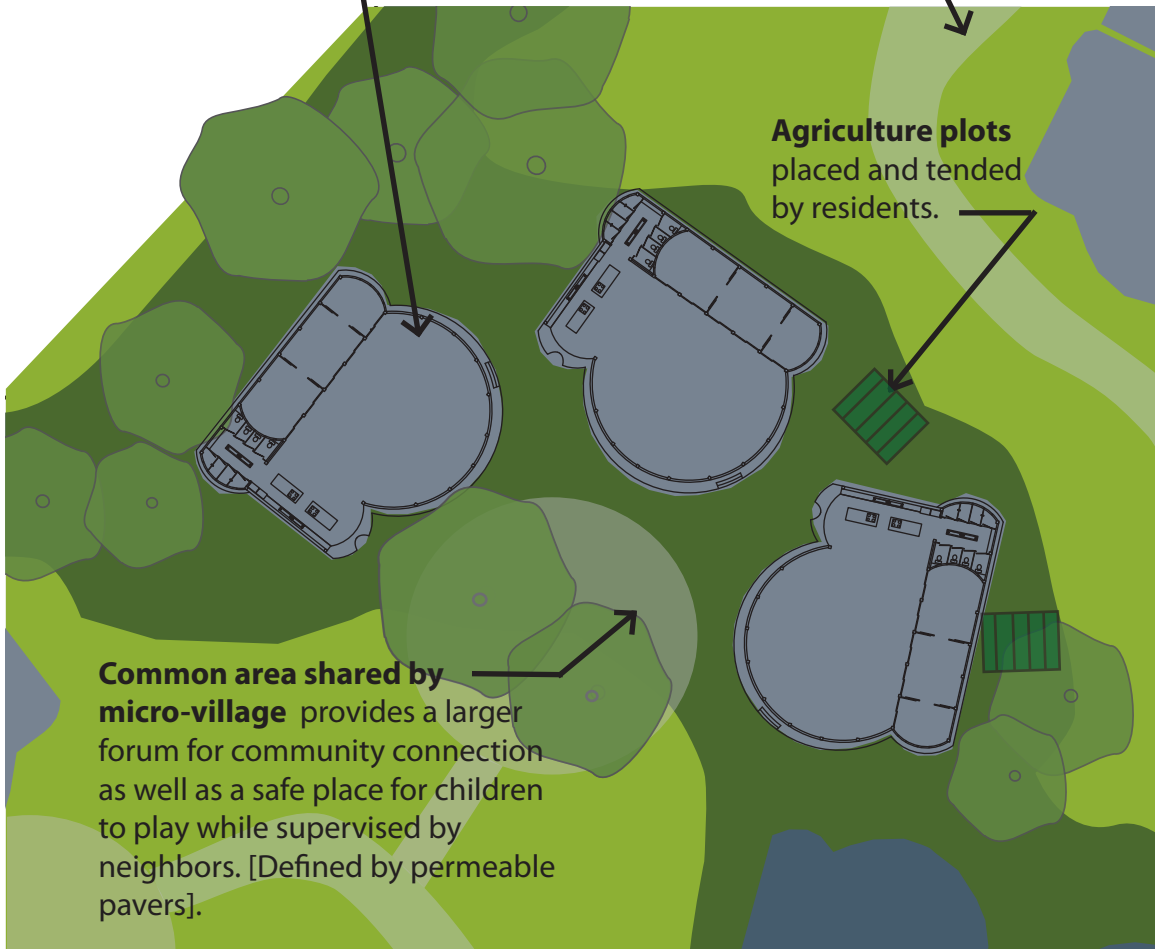
Unit clusters placed around a common area on axis with the Piko (Hawaiian for center), create "micro-village" dynamics within the larger community.

Design Project : **Palolo Valley Homes**

Micro-village housing cluster

A micro-village consists of 2 to 3 buildings with 2 to 4 families residing within each structure. Each residence features shared living space, providing an environment where residents interact and cooperate through the act of daily living.
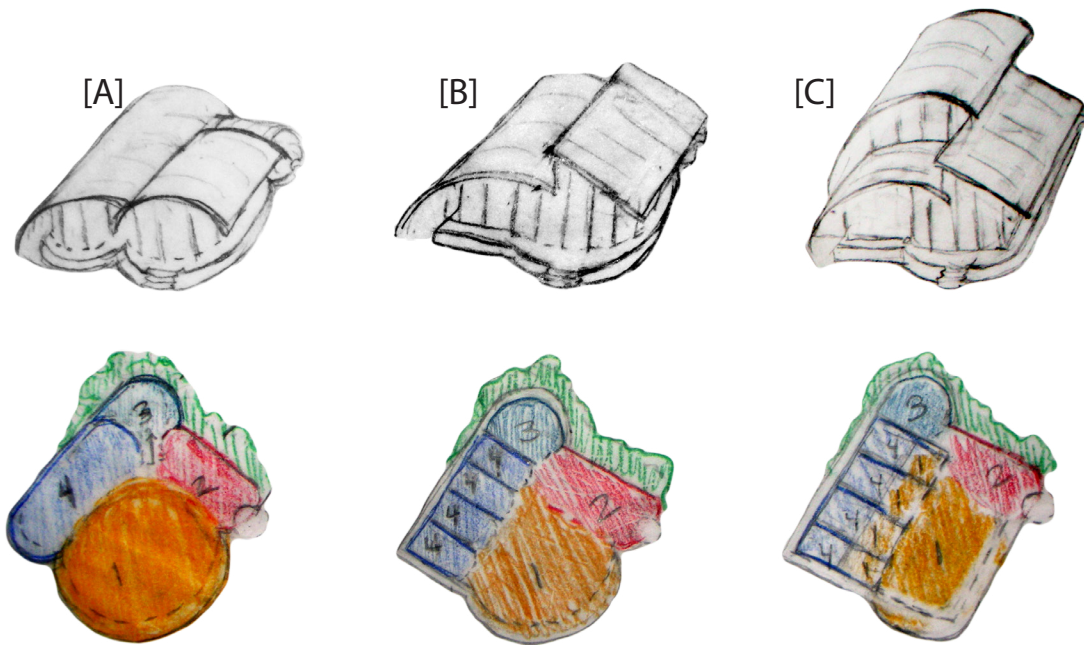
Lanais are communal in all residence types and provide space for living, studying, resting, and eating.

Micro-villages are placed along **paths that encourage walking** and interaction between residents.

Agriculture plots placed and tended by residents.

Common area shared by micro-village provides a larger forum for community connection as well as a safe place for children to play while supervised by neighbors. [Defined by permeable pavers].

Micro-village floor plan for units A [authentic to home culture]

Design concept development

[A] [B] [C]

DESIGN DEVELOPMENT DIAGRAMS

BATHING

COOKING

SLEEPING

LANAI
[LIVING, EATING, STUDYING, PLAYING, RESTING]
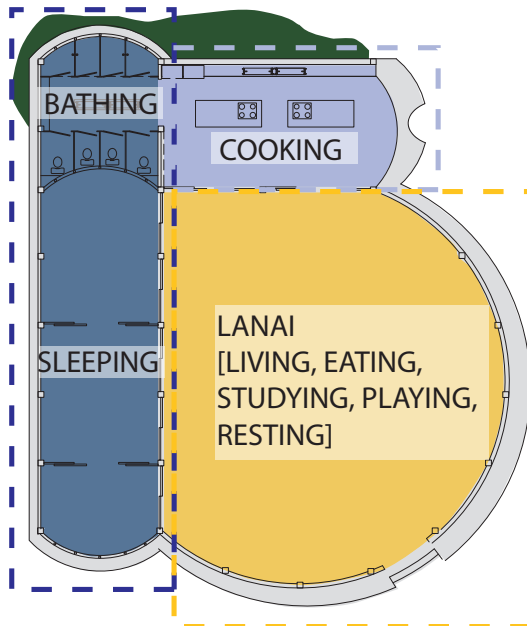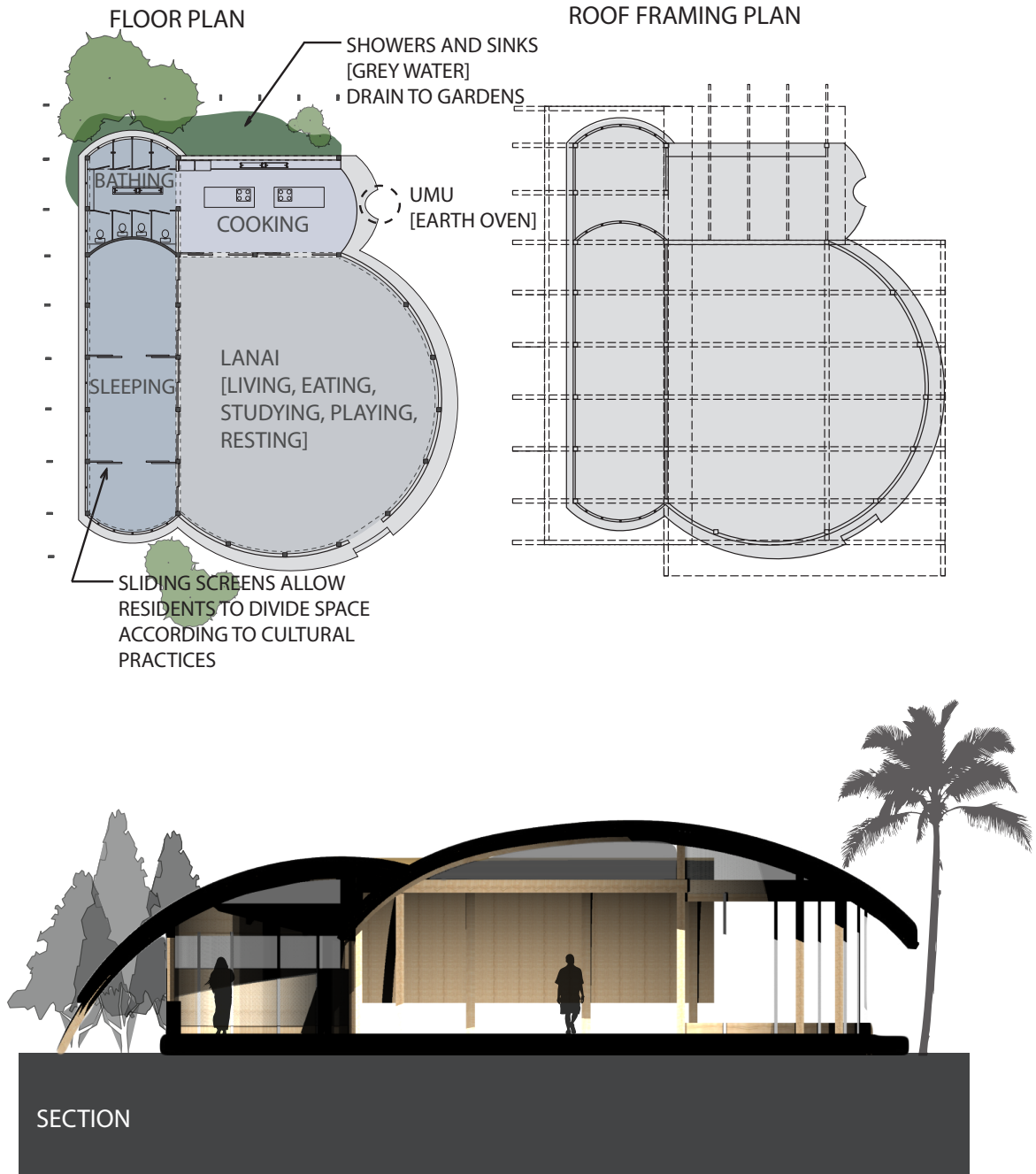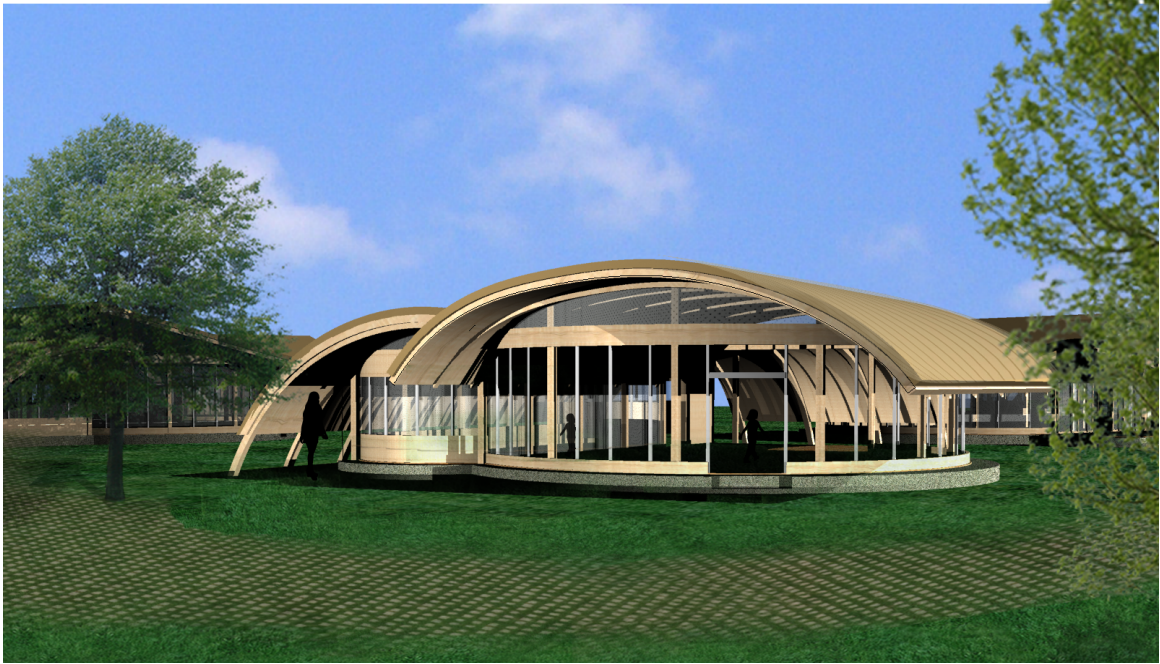
The 'authentic' unit type [A] is the base for the design of each of the units. As the unit type moves towards the assimilated end of the spectrum, the design moves from community-centered shared facilities to individual spaces that reflect the western values of the host culture.

Unit [A] features three primary types of spaces based on the spatial divisions found in Samoan and Micronesian cultures: sleeping/bathing, cooking, and living/gathering.
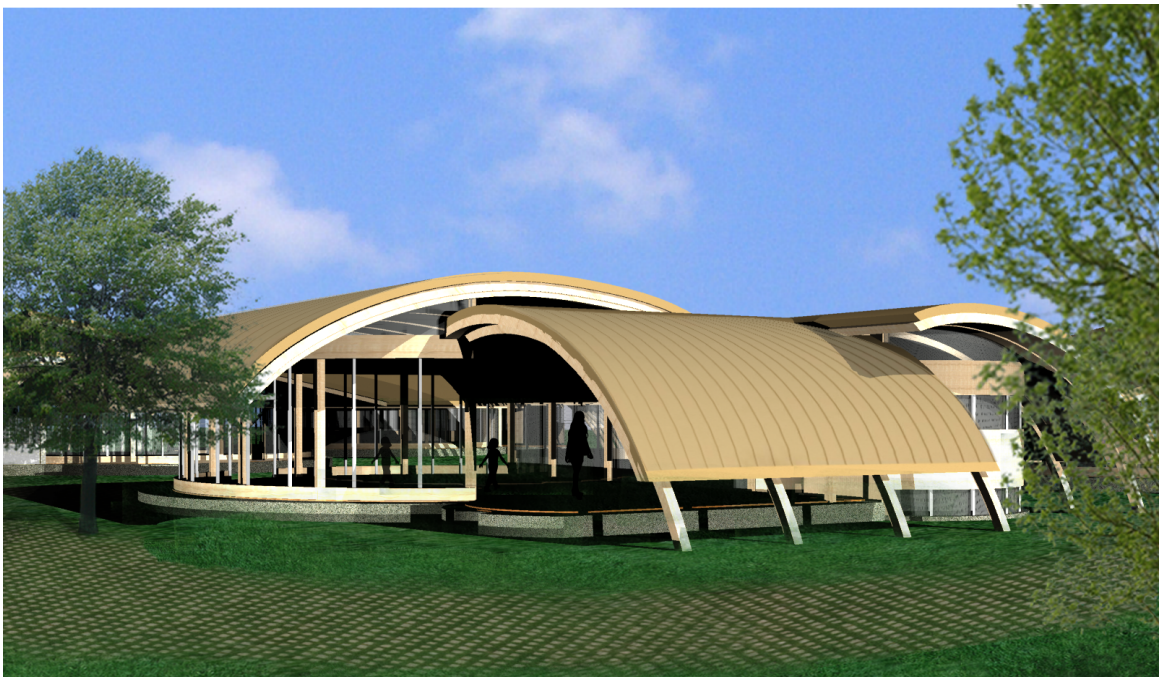
Design Project : **Palolo Valley Homes**

121

Building type [A]: most authentic to home culture

FLOOR PLAN

SHOWERS AND SINKS
[GREY WATER]
DRAIN TO GARDENS

BATHING

COOKING

UMU
[EARTH OVEN]

SLEEPING

LANAI
[LIVING, EATING,
STUDYING, PLAYING,
RESTING]

SLIDING SCREENS ALLOW
RESIDENTS TO DIVIDE SPACE
ACCORDING TO CULTURAL
PRACTICES

ROOF FRAMING PLAN

SECTION

Design Project : **Palolo Valley Homes**

Building type [A]: most authentic to home culture

Front entrance and living area/lanai

Cooking area and kitchen garden space

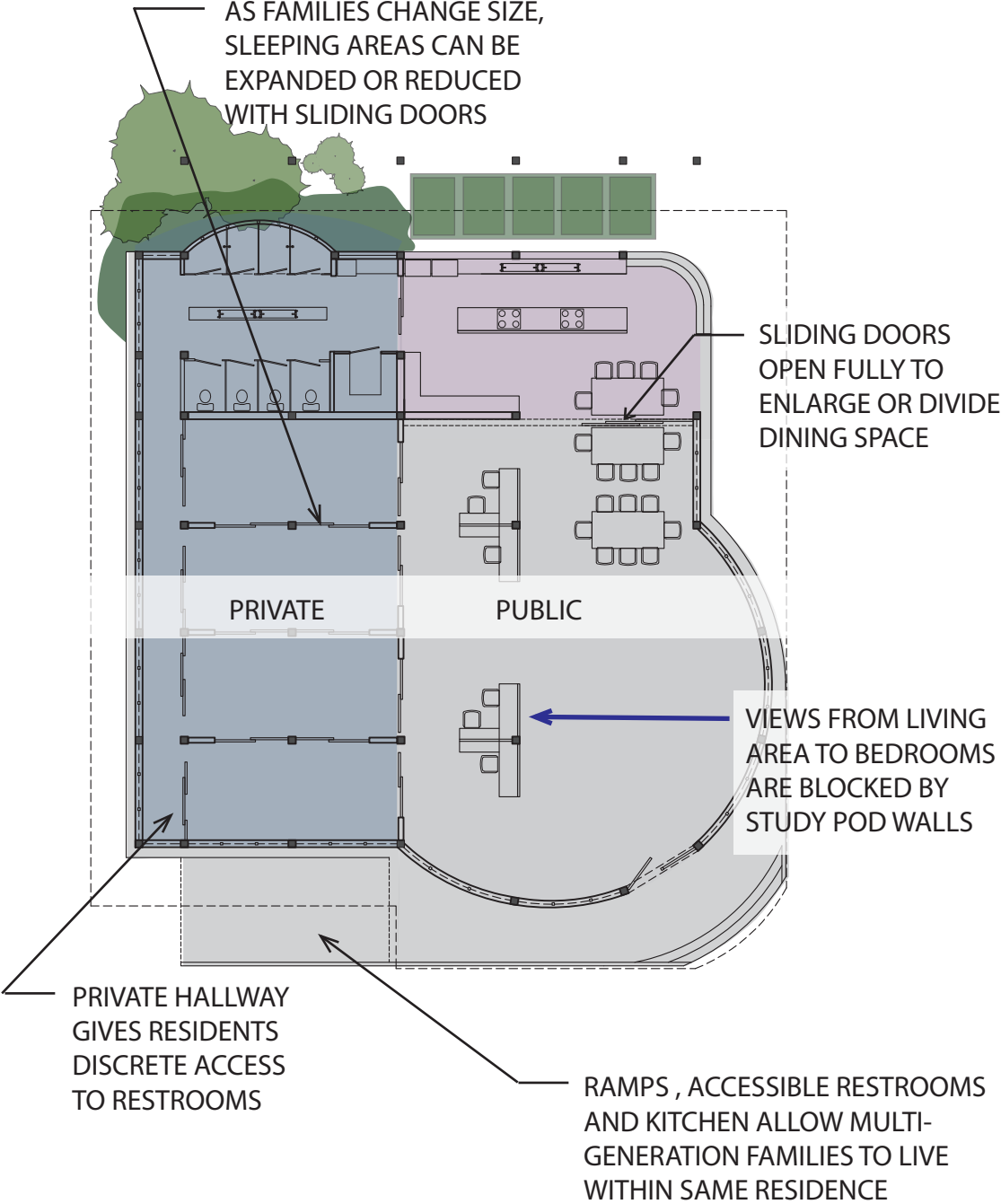Design Project : **Palolo Valley Homes**

Building type [B]: bridging two worlds

BUILDING [B] RETAINS THE COMMUNAL
LIVING, KITCHEN AND BATHING SPACES
WHILE ALLOWING RESIDENTS TO ADAPT
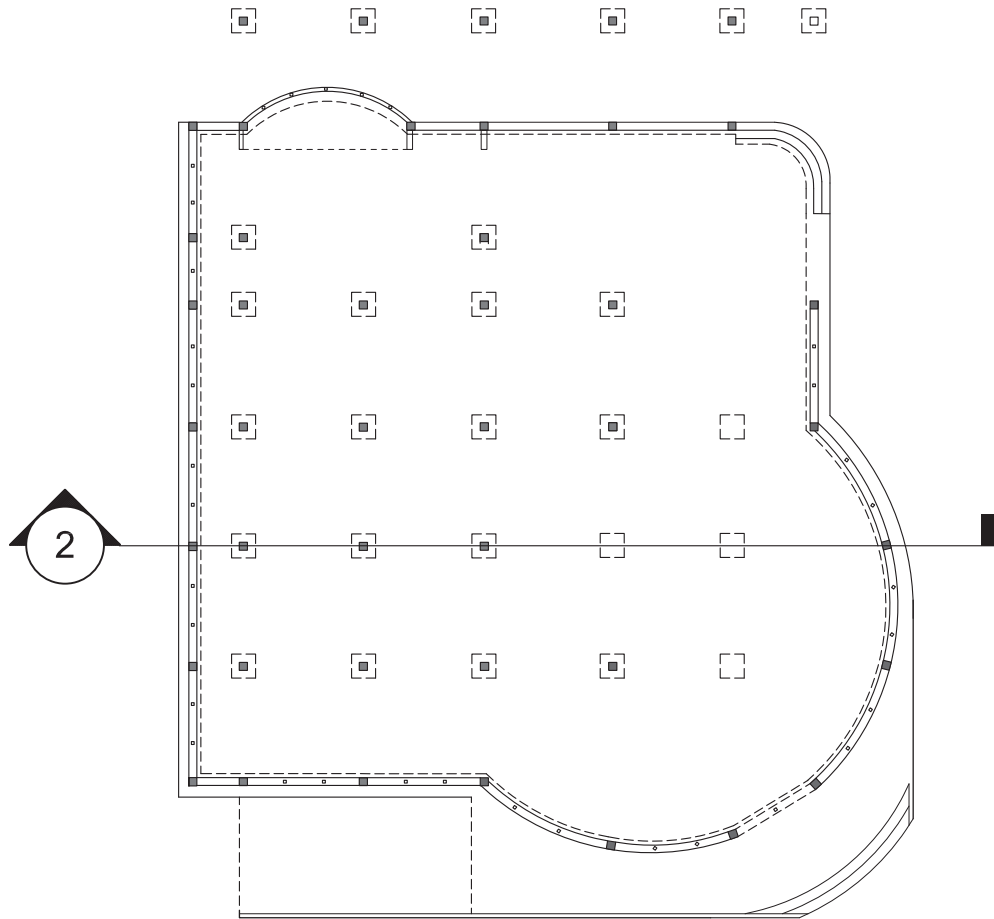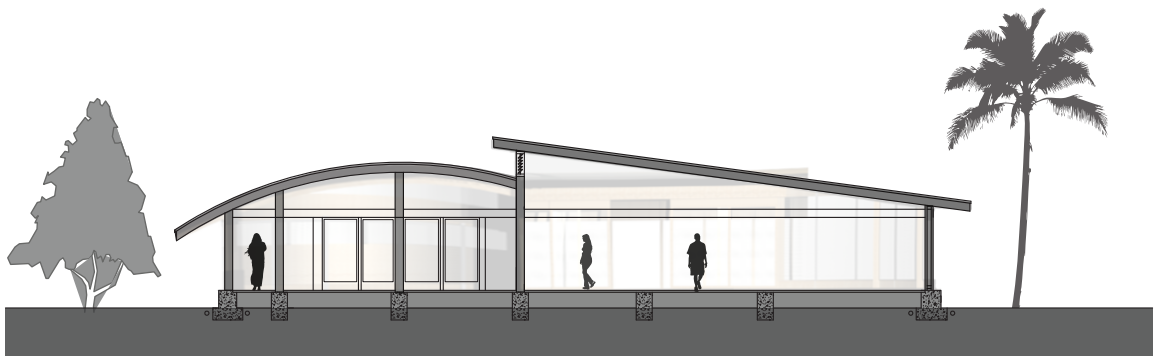SLEEPING AREAS FOR GREATER PRIVACY
[3300 SQFT]

SHOWERS AND SINKS
[GRAY WATER]
DRAIN TO GARDENS

GRAY WATER
GARDEN

HERITAGE GARDEN

UMU
[EARTH OVEN]

W/D

BATHING

COOKING

OPEN

STOR.

SLEEPING

ENCLOSED

FAMILY 1

STUDY

FAMILY 2

60'-0"

LIVING,
EATING,
PLAYING,
RESTING

FAMILY 3

FAMILY 4

SLIDING SCREENS GIVE
RESIDENTS ABILITY TO
DIVIDE OR OPEN SPACE
ACCORDING TO NEEDS

UP

LANAI

[PERMEABLE
PAVING]

58'-0"

① **FLOOR PLAN**
SCALE: 1/16"=1'-0"

Design Project : **Palolo Valley Homes**

Building type [B] BRIDGING TWO WORLDS

AS FAMILIES CHANGE SIZE, SLEEPING AREAS CAN BE EXPANDED OR REDUCED WITH SLIDING DOORS

SLIDING DOORS OPEN FULLY TO ENLARGE OR DIVIDE DINING SPACE

PRIVATE

PUBLIC

VIEWS FROM LIVING AREA TO BEDROOMS ARE BLOCKED BY STUDY POD WALLS

PRIVATE HALLWAY GIVES RESIDENTS DISCRETE ACCESS TO RESTROOMS

RAMPS , ACCESSIBLE RESTROOMS AND KITCHEN ALLOW MULTI-GENERATION FAMILIES TO LIVE WITHIN SAME RESIDENCE

Design Project : **Palolo Valley Homes**

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Building type [B]: bridging two worlds

1 FOUNDATION PLAN
SCALE: 1/16"=1'-0"

2 SECTION
SCALE: 1/16"=1'-0"

Design Project : **Palolo Valley Homes**

Building type [B]: bridging two worlds

1 REFLECTED CEILING PLAN
SCALE: 1/16"=1'-0"

Building type [B]: bridging two worlds

14'-0"
6'-8"
0'-0"
- 1'-6"
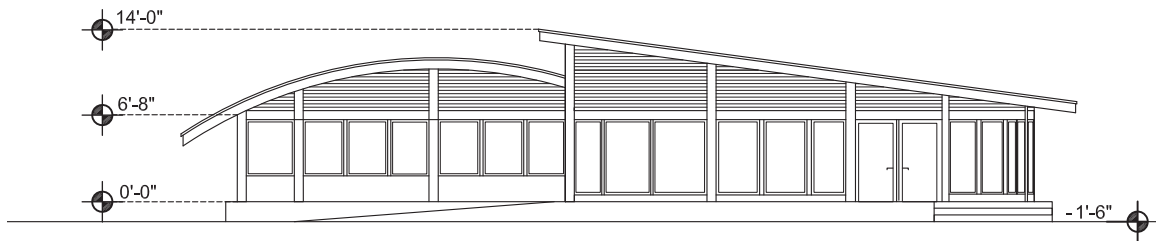
1 FRONT ELEVATION
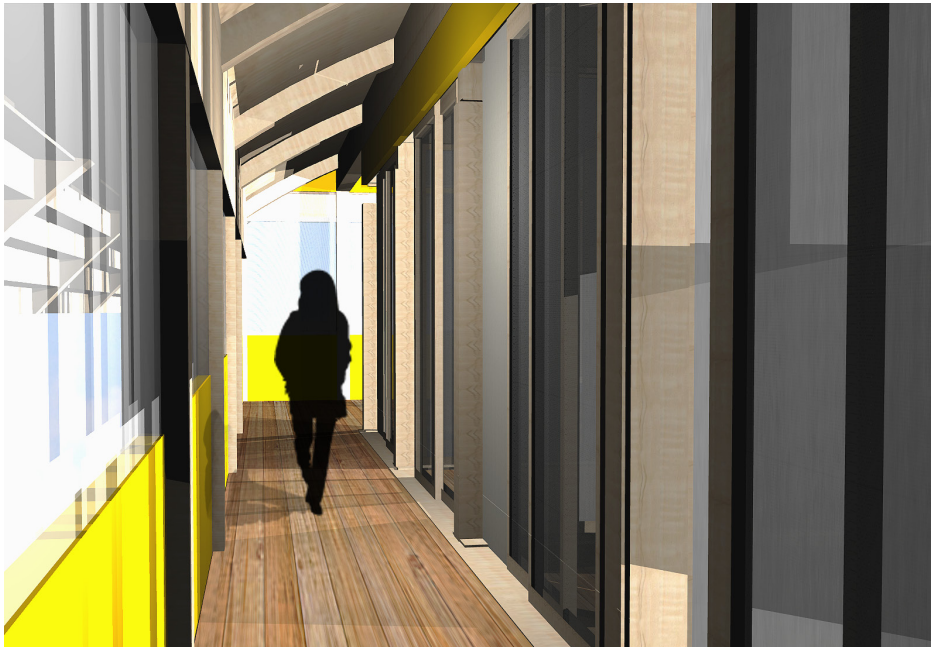SCALE: 1/16"=1'-0"
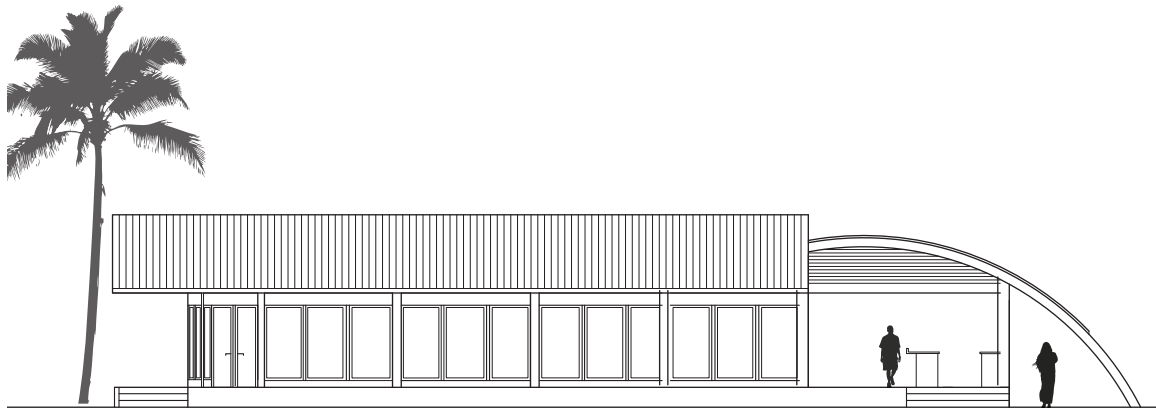
2 SIDE ELEVATION
SCALE: 1/16"=1'-0"

Building type [B]: bridging two worlds

Interior view: study pod in living area looking towards kitchen

Building type [B]: bridging two worlds

Interior view: hallway from sleeping areas to bathroom

Exterior view: open-air kitchen towards living area

Building type [B]: bridging two worlds

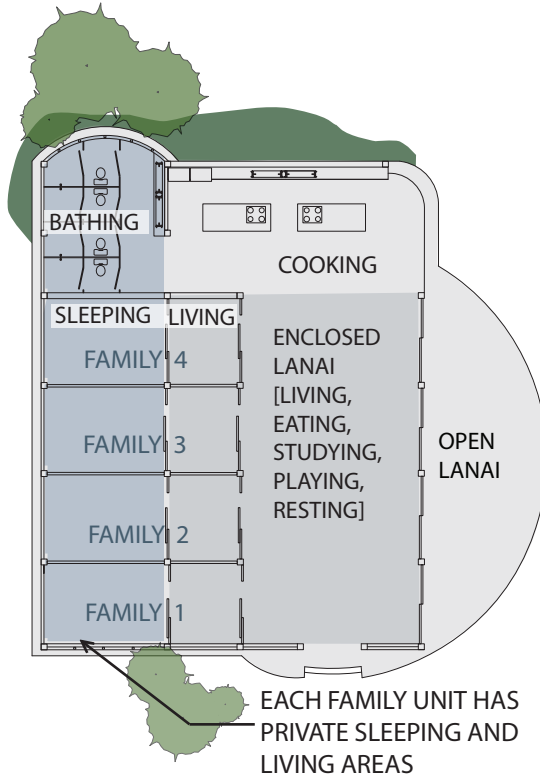
Exterior view: ramp to entrance lanai and living area

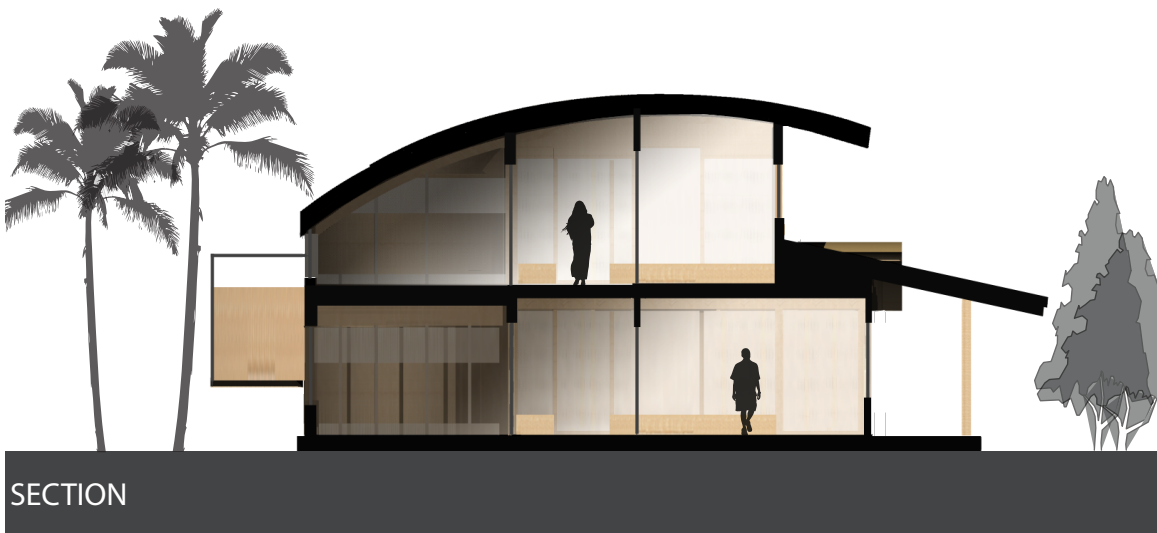**Building type [B]: bridging two worlds**

Exterior view: stairs to entrance lanai and living area

Building type [C]: stepping stone to host culture

GROUND FLOOR PLAN

SECOND FLOOR PLAN

SHOWER AND TOILET
STALLS ARE COMBINED
AND PRIVATE

BATHING

COOKING

SLEEPING   LIVING

FAMILY 4

ENCLOSED
LANAI
[LIVING,
EATING,
STUDYING,
PLAYING,
RESTING]

FAMILY 3

OPEN
LANAI

FAMILY 2

FAMILY 1

EACH FAMILY UNIT HAS
PRIVATE SLEEPING AND
LIVING AREAS

DN

BATHING

COOKING

SLEEPING   LIVING

FAMILY 6

LANAI
[EATING,
STUDYING,
RESTING]

FAMILY 5

SECTION

Design Project : **Palolo Valley Homes**

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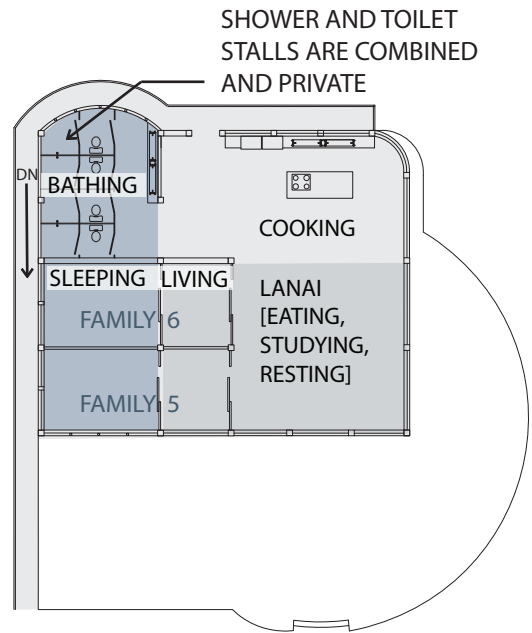
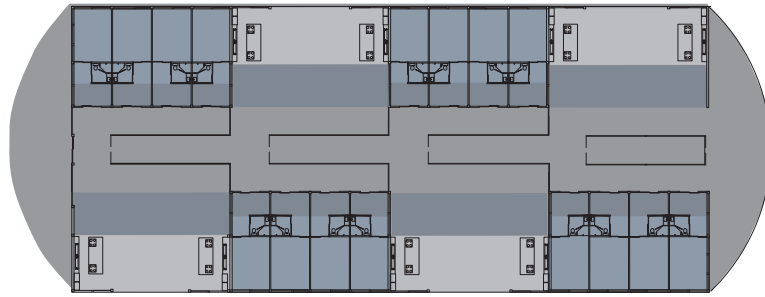**Building type [C]: stepping stone to host culture**

Front entrance and living area/lanai

Cooking area and kitchen garden space

Building type [D]: mid-rise housing with on-site support services

THIRD FLOOR PLAN
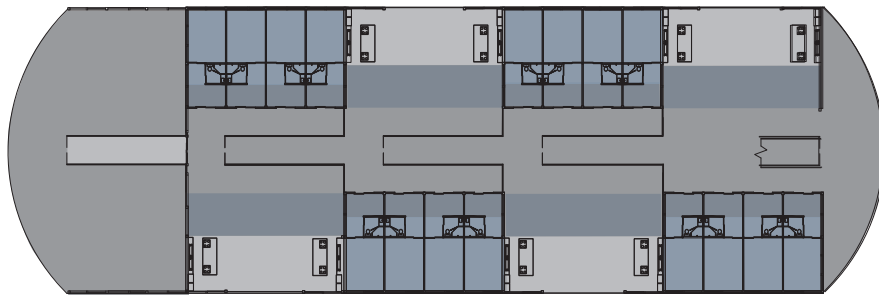
SECOND FLOOR PLAN
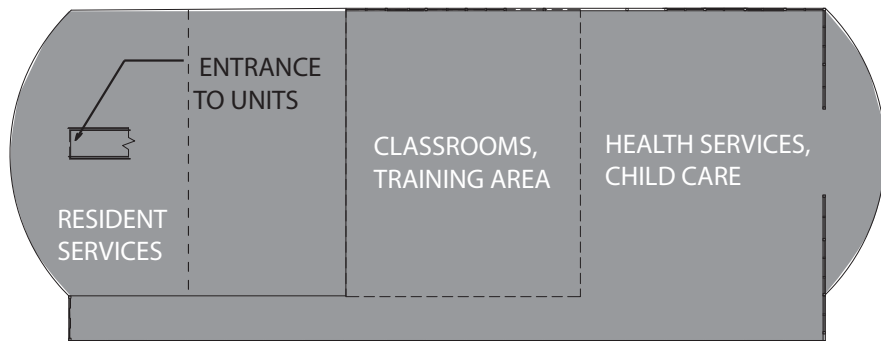
ENTRANCE
TO UNITS

CLASSROOMS,
TRAINING AREA

HEALTH SERVICES,
CHILD CARE

RESIDENT
SERVICES

GROUND FLOOR PLAN

COOKING/GATHERING
[PUBLIC]

SLEEPING/LIVING
[PRIVATE]

RESIDENT SERVICES
[FRONT DESK, OFFICES]

RESIDENT SERVICES
[CLASSROOM, CHILDCARE]

LONGITUDINAL SECTION

Design Project : **Palolo Valley Homes**

135
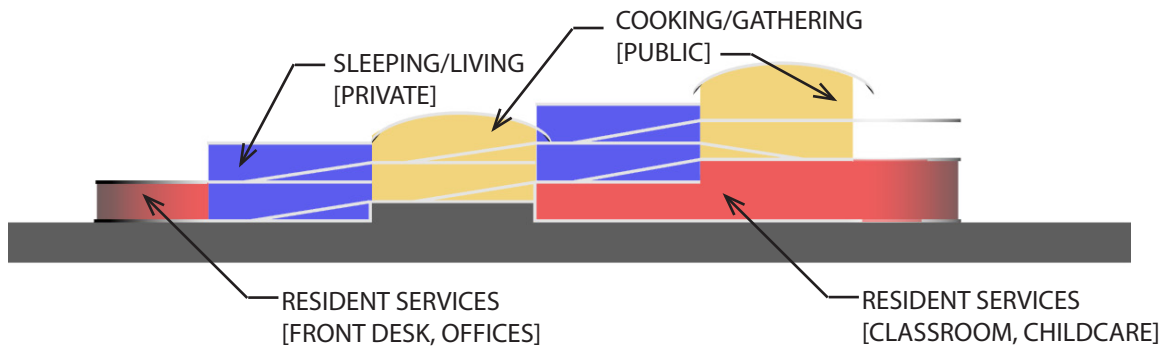
Building type [D]: mid-rise housing with on-site support services
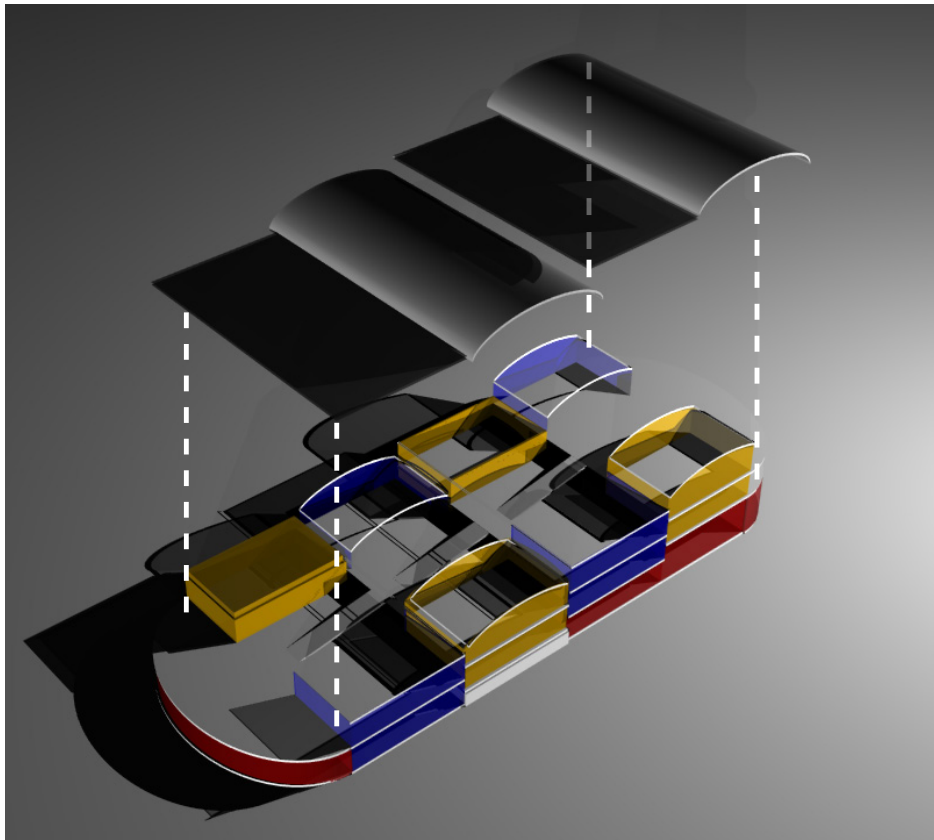
AXONOMETRIC DIAGRAM: THIRD FLOOR
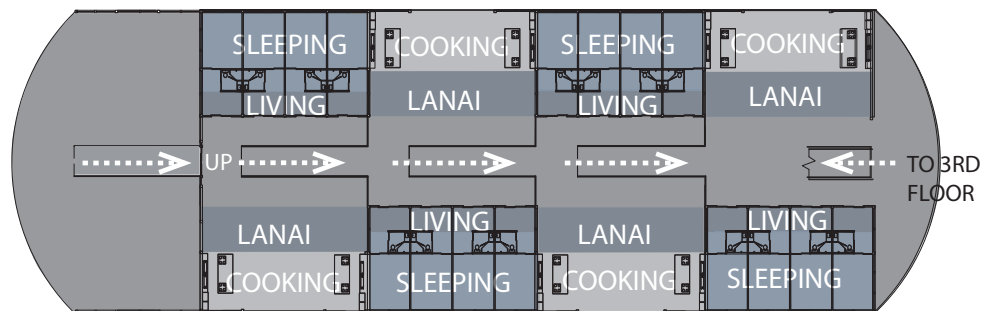
FLOOR PLAN (TYP)

Modified [B} unit as duplex

The modular form of each unit type allows it to be joined to form duplex (above) or multi-family mid-rise housing (unit type D).

Each unit type has shared cooking and gathering spaces, regardless of the degree of assimilation the housing type supports. This creates community-centric environments where individual residents become part of a small "village" in which they share some resources and amenities.

The Samoan and Micronesian cultural groups inspired the use of communal spaces, thereby creating a foundation for strengthening communities by fostering connection and belonging to all residents, regardless of individual culture.

Design Project : **Palolo Valley Homes**

Chapter 8. Conclusions

The research and design project executed for this project are both part of a journey that began with a simple question: can architecture improve quality of life for public housing residents? A closer look at the communities residing in Hawaii's public housing revealed that culture lay at the heart of the answer. Public housing in the US has become the threshold for many new immigrant groups entering the country and consequently redefining the American Dream. Generations of families across the nation remain disenfranchised within this housing type; however, this wealth of cultural knowledge has the potential to positively influence the public housing paradigm by inspiring innovation and strengthening communities.

As residents face the prospect of assimilating to a new culture, many find the existing public housing infrastructure inhibits the practices and traditions inherent to their cultural beliefs. This can leave new immigrants without the support inherent in sharing a culture with others. The research conducted for this project showed that incorporating culture into the design of their housing can not only meet the needs of the specific culture, it can improve quality of life for all residents, regardless of heritage. Designing to celebrate the common ground found between the cultural groups at the case study sites revealed that architecture does in fact play an important role in instigating sustained positive change within these communities.

The chapters describing the social, economic and cultural factors contributing to the state of public housing in the US and Hawaii provided the basis for the development of tools for the creation of culturally appropriate design. When working with a client

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group composed of multiple cultures, the *cultural comparison matrix* is tool for finding

common ground between groups that can be then be translated into a culturally

appropriate design response. The other tool developed for this paper is the *architectural

checklist for culturally appropriate design*. This checklist can be used by designers when

working with a client to discover opportunities for integrating culture into the design at

each stage of a program. Additionally, these tools create documentation of the effort to

incorporate culture into the design that can be used to support and validate design

decisions.

Synthesizing the collected data, the concluding design project illustrates the

viability of culturally-responsive public housing through a prototype that can be

translated for use by communities across the nation. Examining the Samoan and

Micronesian cultural groups revealed how their traditional housing promoted strong

community values and living dynamics that support all of its members. Creating a

design for the community-centric values of the Micronesian and Samoan cultures does

more than simply meet the needs of these groups; it provides a means for improving the

quality of life for residents from any culture. The process of designing for these specific

groups revealed the ultimate value of the practice: universal elements were found that

can benefit cultures from any place on the globe.

Through the course of this project it was found that there are several elements

essential to creating a robust public housing community. The first few elements are

found in successful urban housing projects around the world. Instilling a connection to

the land whether through views or physical integration of natural elements can elevate

quality of life as long as residents are able to obtain comfortable refuge from these elements in their extreme form such as storms, insects, etc. Providing the infrastructure for supportive services ensures that residents continue to receive any assistance needed as they transition into private housing in the host culture or remain on site and become anchors of community support.

With much of public housing in urban areas, high density and American car culture can have a highly isolating effect on public housing residents. Designing a promenade or circulation path that meanders in the course of going from front door to parking spot can have both social and physical health benefits. Another alternative is to place public amenities such as a shaded produce stand, park benches, or other destinations along the path to create opportunities for lingering and interaction with neighbors.

Physical or social isolation can negatively impact anyone's quality of life; current public housing models can exacerbate anti-social behaviors through its isolating nature, further inhibiting the development of supportive community relationships. By integrating communal amenities, residents are encouraged to interact and cooperate. Even the mundane motions of daily life can then provide opportunities to connect with neighbors. In the case of elderly, ill or individuals living on their own, this also provides a network of support to ensure their health and safety.

Working with residents to determine appropriate opportunities for resident involvement or investment can have the long term benefit of reduced need for maintenance and better cared for grounds and facilities. The most immediate impact

can be an increased perception of accountability and identity with the site once a resident has invested time and energy into its beautification or personalization.

Looking to the specific cultures of the residents on-site provides a unique opportunity to gain inspiration from a new perspective. For the Samoan and Micronesian groups residing at the case study site for this project, the shared community values and similar division of residential spatial types provided the basis for the design. By overlaying the concept of the village and creating a hierarchy of shared spaces, the resulting design not only meets the specific cultural needs of the predominant cultural groups at the site, but it provides a solution to improve the quality of life for residents from any culture.

Culture is a dynamic force and its qualities can defy simple categorization. Therefore providing several unit types that respond to a spectrum of cultural needs can accommodate residents ranging from the most traditional to the most assimilated to the host culture. For the Samoan and Micronesian residents at the case study site, the cultural values central to their identities may be expressed in different ways as they adapt to American culture, but the core values of the culture remain central to their identity. The spectrum can then function not just as a way to assist residents as they transition out of public housing, it can also move residents towards the more traditional and culturally authentic housing type.

By implementing the idea of the "micro-village" into the design, the community dynamic is translated within the site in a hierarchy of scales. At the most intimate scale, 3 to 4 families share facilities and living space within a home. By then grouping these

structures around a shared open space where children can play and residents can gather, connections to the surrounding neighbors are strengthened. Although the US is a predominantly individualistic culture, the current housing paradigm produces isolating and oftentimes alienating public housing environments; by implementing the village ideal instead, residents will be better connected to their community.

Co-housing, sharing resources and connecting lives

The concept of sharing amenities in order to foster stronger community dynamics may not be common in Western cultures such as the US, but it is also not unprecedented. Housing developments called "co-housing" have been spreading across the US as residents seek to reduce their resource use and become part of a community that supports shared values. These communities provide the social and economic support that public housing communities would also benefit from.

Looking for an alternative to existing modern housing types in the 1970's, several Danish architects pioneered a new housing type by designing the first co-housing communities. The authors of *Creating Cohousing: Building Sustainable Communities,* state that "the cohousing concept re-establishes many of the advantages of traditional villages within the context of twenty-first century life."[117] The intent of these communities was to foster strong communities through the design of communal spaces that encouraged an equivalent of village dynamics.

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[117] Kathryn McCamant and Charles Durrett, *Creating Cohousing: Building Sustainable Communities* (Gabriola Island, Canada: New Society Publishers, 2011), 2.
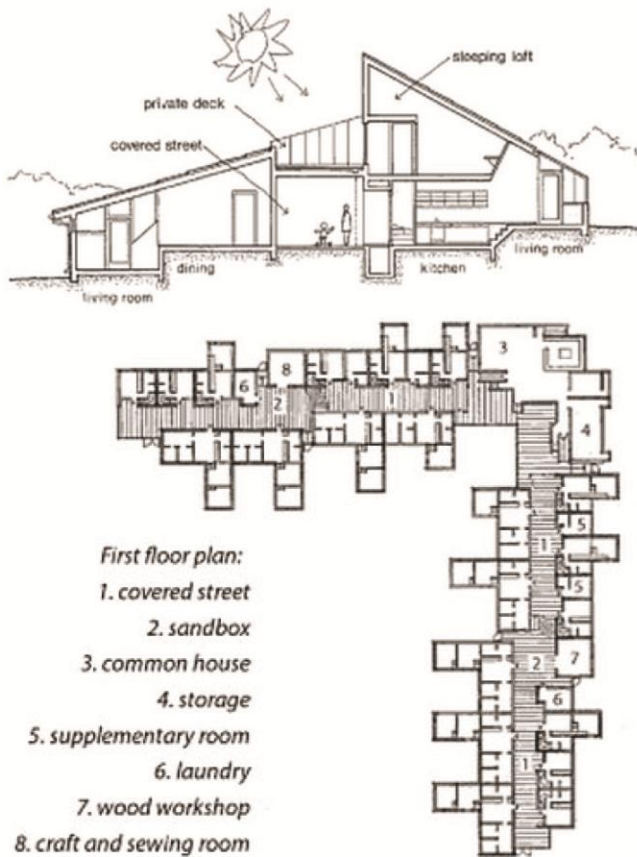
The co-housing community at Jystrup Savvaerk in Denmark exemplifies the values of the village translated into a western context. When design was initiated in 1982, the architects worked collaboratively with residents to determine how to best meet their needs. The result is an L-shaped complex comprised of wide covered walkways referred to as 'streets' with a common house placed at their intersection (see fig. 25). The intent of the design was to treat the common spaces as extensions of residents' homes, leading the authors of *Creating Cohousing: Building Sustainable Communities* to observe that the street is "essentially the community's living room."[118]

Extending private space into the public realm helped foster community interaction and collaboration amongst residents while also efficiently distributing resources, keeping housing costs affordable. 30 years after its completion, Jystrup Savvaerk continues to be a thriving example of how architectural design can support healthy communities.

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[118] Kathryn McCamant and Charles Durrett, *Creating Cohousing: Building Sustainable Communities* (Gabriola Island, Canada: New Society Publishers, 2011), 78.

Case study: co-housing

Jystrup Savvaerk
Architect: Vankunsten
Jystrup, Denmark; 1984

Jystrup housing section (top), and plan (bottom).
Kathryn McCamant and Charles Durrett, *Creating Cohousing: Building Sustainable Communities* (2011), 80.

First floor plan:
1. covered street
2. sandbox
3. common house
4. storage
5. supplementary room
6. laundry
7. wood workshop
8. craft and sewing room

Composed of 21 residences, Jystrup Savvyerk was designed to foster village dynamics by extending private space into the public realm. This was done by placing a common house at the intersection of the two covered walkways that connect each residence.

The common house provides space for preparing and enjoying shared meals that are available 7 evenings a week as well as childcare during the day. Each family residing at the co-housing community is expected to take part in cooking community meals as well as maintenance of the facilities.

With small kitchenettes and dining spaces, residents utilize the large communal kitchen as well as semi-private dining tables placed outside their homes within the covered 'street.'

Jystrup housing covered street (left), and common house patio (right).
Kathryn McCamant and Charles Durrett, *Creating Cohousing: Building Sustainable Communities,* (2011), 82; photo on right: Grace H. Kim, AIA http://www.cohousing.org/docs/2008/denmark_retrospective.pdf.

Figure 24. Jystrup Savvaerk co-housing case study diagram.

To improve quality of life for residents, public housing needs to be envisioned in terms of families rather than as units, and as a village instead of individual structures. Universal qualities found in successful public housing examples across the world can also easily be integrated or utilized for inspiration. Further, by looking to the residents for cultural cues as inspiration and involving them in the design process, the resulting structures will be better suited to meet current needs; however, they must also be designed to adapt to changing cultural needs over time.

The last and most important requirement for creating successful public housing is the willingness to challenge the existing design paradigm. A mentor reminded me that it is our job as architects to dream; for others, for yourself, and for the world. In my vision, public housing will become not only an embodiment of cultural knowledge, it will be a launching pad for the next generation of leaders, thinkers, and teachers.

An aging public housing model in the US has evolved into a housing type that now embodies some of the greatest challenges facing society today. As part of a new paradigm for public housing, culturally appropriate design can inspire innovative solutions by finding and celebrating cultural common grounds.

The home is an entity that sustains cultural identity across many cultures; this presents an opportunity to envision a new public housing model that recognizes culture as the key to empowered residents and strong communities. Culturally appropriate design does more than accommodate the practices and beliefs of a specific group of people; it can also offer new solutions that transcend culture, ultimately benefitting all of society.

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Appendix

Appendix 1: Income limits to qualify for federal housing programs in Hawaii[119]:

# of Persons	Oahu	Hawaii	Kauai	Maui
1	$41,700	$34,900	$37,050	$40,100
2	$47,700	$39,900	$42,300	$45,850
3	$53,650	$44,850	$47,600	$51,550
4	$59,600	$49,850	$52,900	$57,300
5	$64,350	$53,850	$57,150	$61,900
6	$69,150	$57,850	$61,350	$66,450
7	$73,900	$61,800	$65,600	$71,050
8	$78,650	$65,800	$69,850	$75,650
9	$83,450	$69,800	$74,050	$80,200
10	$88,200	$73,800	$78,300	$84,800

Income is within the limits set forth by HUD (Yearly Gross Income)

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[119] "FAQs: Federal Public Housing ," Hawaii Public Housing Authority, http://www.hcdch.hawaii.gov/faqs/publichousing.html, accessed March 9, 2011.

Appendix 2: Characteristics of apartment type by size.

Housing Types — High-rise apartment

common names
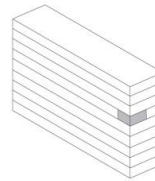Elevator apartment
Slab-block apartment
Point tower

variations
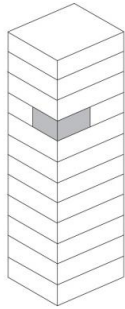
Rising at least eight stories on a small footprint, this type is characterized by interior access to units, and a limited range of unit types.
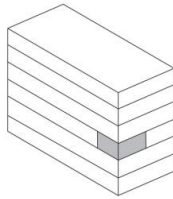
data
60-300 unit/building
8+ floors/building
interior entry
site density:
    60-300 units/acre

Housing Types — Mid-rise apartment

common names
Elevator apartment

variations

Five to eight floors of apartments. Historically rare in the Twin Cities, many examples have recently been built.

data
60-240 units/building
5-8 floors/building
interior entry
net site density:
    26-148 /units/acre
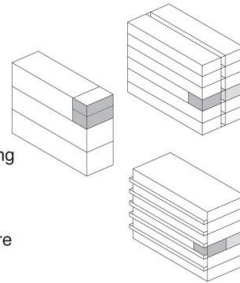
Housing Types — Low-rise apartment

common names
Garden apartment
Tuck-under apartment
Podium apartment

variations
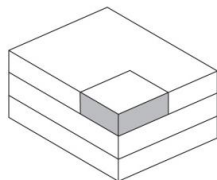
Twelve or more dwelling units per building, up to four floors. Often clustered on a large lot, but recent examples have more units per site acre and smaller sites.

data
12-40 units/building
3-4 floors/building
interior entry
net site density:
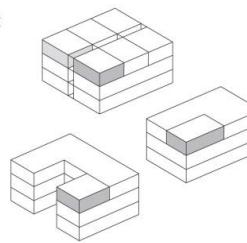   10-80 units/acre

Table is composed of images from Metropolitan Design Center, College of Architecture and Landscape Architecture, University of Minnesota. www.designcenter.umn.edu.

Appendix 3: Survey

Survey questions:

_____

1. What culture or cultures do you identify with? Circle all that apply.

    a)   Micronesian   b)   Samoan

    c)   Native Hawaiian   d)   Japanese

    e)   Filipino   f)   Vietamese

    g)   Chinese   h)   Guamanian or Chamorro

    i)   African American   j)   Alaska Native

    k)   Other (or provide greater specification of selection above)_____

2. How long have you been living at your current residence?

    a) Less than 1 year   d) 11-20 years

    b) 1-5 years   e) 21- or more years

    c) 6-10 years

3. How long do you anticipate you will stay at your current residence?

    a) Less than 1 year   d) 6-10 years

    b) 1-2 years   e) Indefinitely

    c) 3-5 years   f) I don't know

4. How many people live in your residence?

    a) 1-2   c) 5-6

    b) 3-4   d) 6 or more

5. Do you have extended family living in your residence? If so, what is their relation to you: (check all that apply)

    a) Grandparents   d) Nieces or nephews

    b) Aunties or uncles   e) Other

    c) Cousins   _____

_____

6. Circle the rating for how easy or difficult it is for you to practice your cultural traditions and values while inside your residence: (1=very easy, 5= very difficult)

1. very easy   2.easy   3.neutral   4.difficult   5. very difficult

6.b State briefly why this is easy or difficult:

_____
_____

7. Circle the rating for how easy or difficult it is for you to practice your cultural traditions and values while in the common or public areas of your complex:
(1=very easy, 5= very difficult)

1. very easy   2.easy   3.neutral   4.difficult   5. very difficult

7.b State briefly why this is easy or difficult:

_____
_____

8. List one or more qualities that you wish your residence had to better facilitate your cultural practices? (i.e.: communal kitchen, additional entrance for guests, etc.)

_____
_____

9. List one or more qualities you wish the exterior spaces, public or shared spaces had to better facilitate your cultural practices? (i.e.: traditional shelter for gatherings, stage for dance, etc.)

_____
_____

10. If your residence was to be renovated, how much would you want your residence to be inspired by the traditional house of your home culture:
(1=Very traditional, 5= Not traditional.)
1. Very traditional   2.mostly traditional   3. some tradition   4. I don't care   5.no tradition

11. Circle the rating for how much you agree or disagree with the statement: my culture is an important part of who I am.
(1=strongly agree, 5= strongly disagree)

1. strongly agree   2.agree   3. neutral   4.disagree   5.strongly disagree

12. Circle the rating for how much you agree or disagree with the statement:
Living in a home where I can practice the values and traditions of my culture will improve my quality of life.
(1=strongly agree, 5= strongly disagree)

1. strongly agree   2.agree   3. neutral   4.disagree   5.strongly disagree

13. Circle the rating for how you feel in relation to the neighborhoods and communities near your residence:
(1=very included, 5= very isolated)

   1. very included   2.included   3.neutral   4.isolated   5. very isolated

14. Circle the rating for how much you agree or disagree with the statement:
Raising children is the responsibility of the entire community, not just the parents.
(1=strongly agree, 5= strongly disagree)

   1. strongly agree   2.agree   3. neutral   4.disagree   5.strongly disagree

15. Circle the rating for how much you agree or disagree with the statement:
It is important to me that the community leaders within my place of residence are involved in decisions that affect the entire **community**.
(1=strongly agree, 5= strongly disagree)

   1. strongly agree   2.agree   3. neutral   4.disagree   5.strongly disagree

16. Circle the rating for how much you agree or disagree with the statement:
It is important to me that the community leaders within my place of residence are involved in decisions that directly affect **me or my family**.
(1=strongly agree, 5= strongly disagree)

   1. strongly agree   2.agree   3. neutral   4.disagree   5.strongly disagree

17. Circle the rating for how much you agree or disagree with the statement:
It is important to me to raise my own food (plants or animals).
(1=strongly agree, 5= strongly disagree)

   1. strongly agree   2.agree   3. neutral   4.disagree   5.strongly disagree

18. List one or more qualities of food raising and harvesting that you feel are important to the traditions or practice of your culture: (i.e.: community garden plots, importance of keeping livestock near residence, etc.)

   _____

   _____

19. How often do you eat a meal with extended family (including grandparents, aunties, uncles, cousins, etc.)
   a)   Every day   b)   2-6 times per week

c) 1 time per week
f) Never
d) 1- 3 times per month
g) I don't know
e) Few times per year

20. How many people typically help prepare a family meal?
    a) 1 person
    c) 5- 8 people
    b) 2-4 people
    d) 9 or more people

21. List one or more qualities of the kitchen or dining area that you feel are important to the traditions or practice of your culture: (i.e.: only women allowed in kitchen, only men allowed in kitchen, family sits on floor when dining, family sits outdoors when dining, etc.)

    _____
    _____

22. Circle the rating for how much you agree or disagree with the statement:
    It is important to me to rest/sleep for a period of time in the middle of the day.
    (1=strongly agree, 5= strongly disagree)

    1. strongly agree   2.agree   3. neutral   4.disagree   5.strongly disagree

23. Circle the rating for how much you agree or disagree with the statement:
    It is important to me that extended family sleep within the same residential unit.
    (1=strongly agree, 5= strongly disagree)

    1. strongly agree   2.agree   3. neutral   4.disagree   5.strongly disagree

24. List one or more qualities of the bedroom/sleeping area that you feel are important to the traditions or practice of your culture: (i.e.: location of bed within room, keeping bedrooms divided by gender, multiple generations sleeping in same room, etc.)

    _____
    _____

25. Circle the rating for how much you agree or disagree with the statement:
    It is the responsibility of each resident help keep the public spaces (i.e.: hallways, sidewalks, etc.) clean and tidy.
    (1=strongly agree, 5= strongly disagree)

    1. strongly agree   2.agree   3. neutral   4.disagree   5.strongly disagree

26. List one or more qualities of the bathroom/washing area that you feel are important to the traditions or practice of your culture: (i.e.: separate washing areas for male and female, multi-purpose washing area for tools, clothes, etc.)

_____
_____

27. Circle the rating for how much you agree or disagree with the statement:
I feel comfortable practicing my religious/spiritual beliefs within my residential unit.
(1=strongly agree, 5= strongly disagree)

1. strongly agree   2.agree   3. neutral   4.disagree   5.strongly disagree

28. Circle the rating for how much you agree or disagree with the statement:
My building has a space where I feel comfortable practicing my religious/spiritual beliefs outside of my residential unit (i.e: chapel, community center, fale, etc.)
(1=strongly agree, 5= strongly disagree)

1. strongly agree   2.agree   3. neutral   4.disagree   5.strongly disagree

29. List one or more qualities of the areas for practicing spiritual/religious beliefs that you feel are important to the traditions or practice of your culture: (i.e.: fale, private space for contemplation, gathering space for groups, etc.)

_____
_____

30. Circle the rating for how much you agree or disagree with the statement:
The building where I live has a space where I can take part in social activities that support my culture (i.e:, hula mound, meeting house, etc.)
(1=strongly agree, 5= strongly disagree)

1. strongly agree   2.agree   3. neutral   4.disagree   5.strongly disagree

31. List one or more qualities of the areas for practicing social activities that you feel are important to the traditions or practice of your culture: (i.e.: places to sing, dance, celebrate, talk story, play games, etc.)

_____
_____
_____

Appendix 4: Survey Application to Committee on Human Studies (CHS)
Description of Project

1. As a graduate student at the University of Hawaii's School of Architecture, I am writing a research-based dissertation to fulfill the requirements of the Doctorate degree program. The intent of my project is to assess how subsidized housing does or does not meet the cultural needs of its residents in order to propose an alternative approach to conventional public housing design. I will be conducting a survey of the residents of Kuhio Park Terrace and Kuhio Homes in order to assess their feelings about their current housing situation in addition to determining how their cultural needs are being met.

2. My research methodology consists of a combined correlational and case study approach. My case study consists of the resident community at Kuhio Park Terrace and Kuhio Homes as well as along Palolo Valley Homes. The survey will provide the correlational data needed to document the qualitative and quantitative elements of life at the case study site that correspond with my hypothesis. This data will be synthesized for a summary document and will also be used to inform a concluding design project where the revised hypothesis will be implemented.

3. This project is not considered to be "educational practice," in that it will be published as part of the requirements for the Doctorate degree.

4. Responses from individuals participating in the survey portion of the research will be included anonymously and will not include any identifying information.

5. The data collected for research will not be observational in nature. There will not be any videotaping or audio recording.

6. The participant population is composed of community leaders representing the residents living at Kuhio Park Terrace and Kuhio Homes located in Kalihi. The majority of participants receive government subsidies towards their monthly rents. Many of the participants speak another language in addition to English, and have recently moved to Hawaii from another nation or island.

The survey will be distributed to a small group of community leaders (5-10 people,) at each location.

The survey will be introduced to the participants by explaining that the survey is part of an academic research project and that their participation is purely voluntary. The ultimate aim of the survey is to use its data to prepare a document that will represent the voices of this community. This document will be presented and given to the community at the conclusion of the Doctorate Project.

UNIVERSITY OF HAWAI'I

Committee on Human Studies

May 2, 2011

TO: Joanna Griffith
        Principal Investigator
        School of Architecture

FROM: Nancy R. King
        Director

Re: CHS #19141- "Subsidized Housing Communities: Robust by Design"

This letter is your record of CHS approval of this study as exempt.

On May 2, 2011, the University of Hawai'i (UH) Committee on Human Studies (CHS) approved this study as exempt from federal regulations pertaining to the protection of human research participants. The authority for the exemption applicable to your study is documented in the Code of Federal Regulations at 45 CRF 46 (2).

Exempt studies are subject to the ethical principles articulated in The Belmont Report, found at http://www.hawaii.edu/irb/html/manual/appendices/A/belmont.html

Exempt studies do not require regular continuing review by the Committee on Human Studies. However, if you propose to modify your study, you must receive approval from CHS prior to implementing any changes. You can submit your proposed changes via email at uhirb@hawaii.edu. (The subject line should read: Exempt Study Modification.) CHS may review the exempt status at that time and request an application for approval as non-exempt research.

In order to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so. Signed consent forms, as applicable to your study, should be maintained for at least the duration of your project.

This approval does not expire. However, please notify CHS when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact CHS at 956-5007 or uhirb@hawaii.edu. We wish you success in carrying out your research project.

1960 East-West Road, Biomedical Building, Room B-104, Honolulu, HI 96822-2303
Telephone: (808) 956-5007, Facsimile: (808) 956-8683, Website: www.hawaii.edu/irb, E-mail: uhirb@hawaii.edu
An Equal Opportunity/Affirmative Action Institution

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CULTURAL APPROPRIATENESS CHECKLIST

PROJECT NAME

INITIATION DATE (MM-DD-YYYY)   **PROJECT NUMBER**

	BEST PRACTICE		NOTES
01	**LANGUAGE: 'OLELO**	☐	
1.01	Hawaiian Language	◎	
1.02	Language of Other (Local) Cultures	◎	
1.03	Pidgin (Hawaiian Creole English)	◎	
1.04	Grammar and Meaning	◎	
1.05	Punctuation, Symbols, and Markings	◎	
02	**IMAGERY**	☐	
2.01	Physical Landforms	◎	
2.02	Landmarks	◎	
2.03	Native and Cultural Flora	◎	
2.04	Native and Cultural Fauna	◎	
2.05	Significant Color	◎	
03	**PLACEMENT & LOCATION**	☐	
3.01	Signage, Plaques, and Wayfinding	◎	
3.02	Culturally Significant Elements	◎	
3.03	Context within Project Site	◎	
3.04	Context within Airport Site	◎	
04	**HISTORY, RITUAL, & TRADITIONS**	☐	
4.01	Historical Artifacts and Events	◎	
4.02	Stories, Songs, Chants, and Dance	◎	
4.03	Historical Costume, Dress, and Attire	◎	
4.04	Historical Peoples and Sites in Hawaiian Culture	◎	
4.05	Historical Peoples and Events from other (Local) Cultures	◎	
05	**CONTEMPORARY HAWAI'I**	☐	
5.01	Contemporary Music and Art	◎	
5.02	Contemporary Costume, Dress, and Attire	◎	
5.03	Contemporary People and Lifestyles	◎	
06	**INNOVATION IN LEADERSHIP**	☐	
6.01	Cultural Advisor	◎	
6.02	Innovation in Cultural Appropriateness	◎	
6.02	Innovation in Cultural Appropriateness	◎	
6.02	Innovation in Cultural Appropriateness	◎	

DESIGN TEAM REPRESENTATIVE   DATE   **CONTRACTOR**   DATE

PROJECT CHAMPION   DATE   **DOT-A REPRESENTATIVE**   DATE

Cultural Appropriateness Guidelines   6

Appendix 7: Kuhio Park Terrace (KPT) design concept and program

The complex known as Kuhio Park Terrace, (KPT), embodies many of the

challenges and controversy facing high-rise public housing across the nation. The social

isolation incurred by the high-rise design has led to numerous issues including those of

maintenance and safety. Located approximately 2 miles from the downtown core of

Honolulu, the site with its towers relates in form to this level of density, yet remains

physically and socially isolated from the neighboring communities. A design for this site

must marry the cultural needs of its residents with the fabric of its urban context.

As explained in earlier chapters, the residents of KPT are composed primarily of

recent immigrant groups from Samoa and Micronesia. The complex has been recently

sold to Michaels Development Corporation and the first stages of renovation to the

towers have begun. Michaels Development Corporation's decision to rehabilitate the

towers rather than demolish and build new speaks to a challenge facing public housing

organizations across the country. The design program for this project (see fig. 26), was

supplemented by information from KPT's HOPE VI application from 2001, and from

speaking informally with individuals involved in both the development and the

management of KPT.

With limited financial resources, renovation is often the only recourse to

improve the living conditions at these complexes. Additionally, an aging housing stock

may provide the infrastructure of materials required for housing, but it also often comes

with the stubborn social stigmas of neglect, crime, and poverty. While it may be difficult

to remove these sentiments from public housing, it's possible that a rehabilitation of these places can create a new story for its residents.

KPT Design Project Program
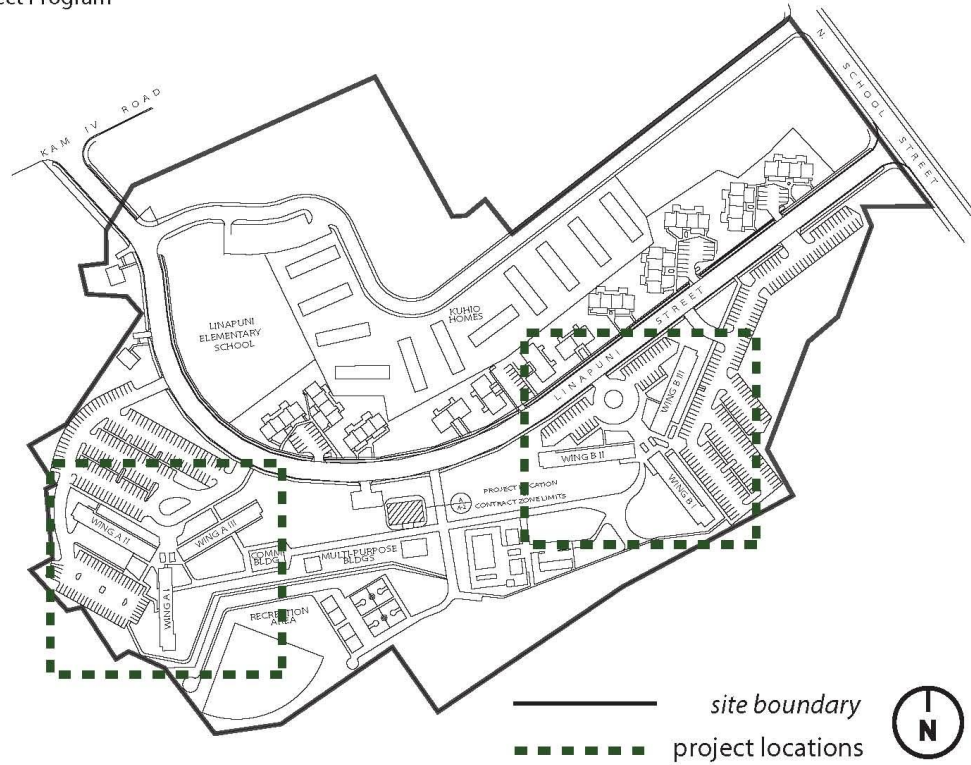
Site description: -- Kuhio Park Terrace, Kalihi, Hawaii

Primary users: -- Existing residents

Number of units: ----------------------------------- Approx 280-300 units per building x 2 buildings

Objective: -------- Culturally appropriate high-rise public housing : renovation

Room quantity per unit type:		Public amenities per building:	Public space type per building:
Single family unit:	*Multi-generational unit:*	Computer lab/ classroom: 2	Food preparation/growing: 2
Food preparation: 1	Food preparation: 1	Study rooms: 6	Eating/gathering: 2
Eating: 1	Eating: 1	Health and family center: 1	Resting: 2
Sleeping: 1-4	Sleeping: 5-7	Office and management: 1	Child care/play: 2
Living/gathering: 1	Living/gathering: 1-2	Athletic field and courts: 1	Worship/leisure: 2
Bathing/washing: 1	Bathing/washing: 2-3		

Figure 26. KPT Design project program.

Caring for the land is a value shared by many of Hawaii's cultures. By rehabilitating the existing high-rise structure at KPT, this value is honored by preserving existing open space while also reducing the demand for resources required in new construction. The Ho'oulu 'Aina in the Kalihi Valley Nature Preserve, located in the same valley as KPT and Kuhio Homes, refers to the value of open space: "Hawaiian and Pacific Island cultures recognize land as an integral part of community health. On an island of limited land and resources, building up rather than out through high-density housing is a strategy that can promote the preservation of natural land for these cultural practices.

The concept for the KPT high-rise renovation is based on the idea of the village (see fig. 27). The housing will function as a place where the home culture and the host culture can co-exist. In this design scheme, residents have space that accommodates the practice of cultural traditions; however, the space retains the ability to adapt to changing cultural needs of either culture.

By schematically facilitating the dynamics of a village, a facet of culture common to both Samoan and Micronesian people, centuries of established values are then able to provide a critical component of social support to residents. Organizing floors into smaller "villages" helps foster these dynamics while reducing resident anonymity and encouraging visibility (see fig. 28). The community area between towers features gathering space valued by both cultures, space for growing traditional foods, and a shelter inspired by traditional meeting houses.

KPT Design Project Concept

Vertical Village

Each floor of the tower becomes a village, creating and sustaining connections between residents.

The concept translates the idea of the village into a public housing design that incorporates the gathering spaces and cultural considerations that are shared by Micronesian, Samoan, and other Polynesian cultures.
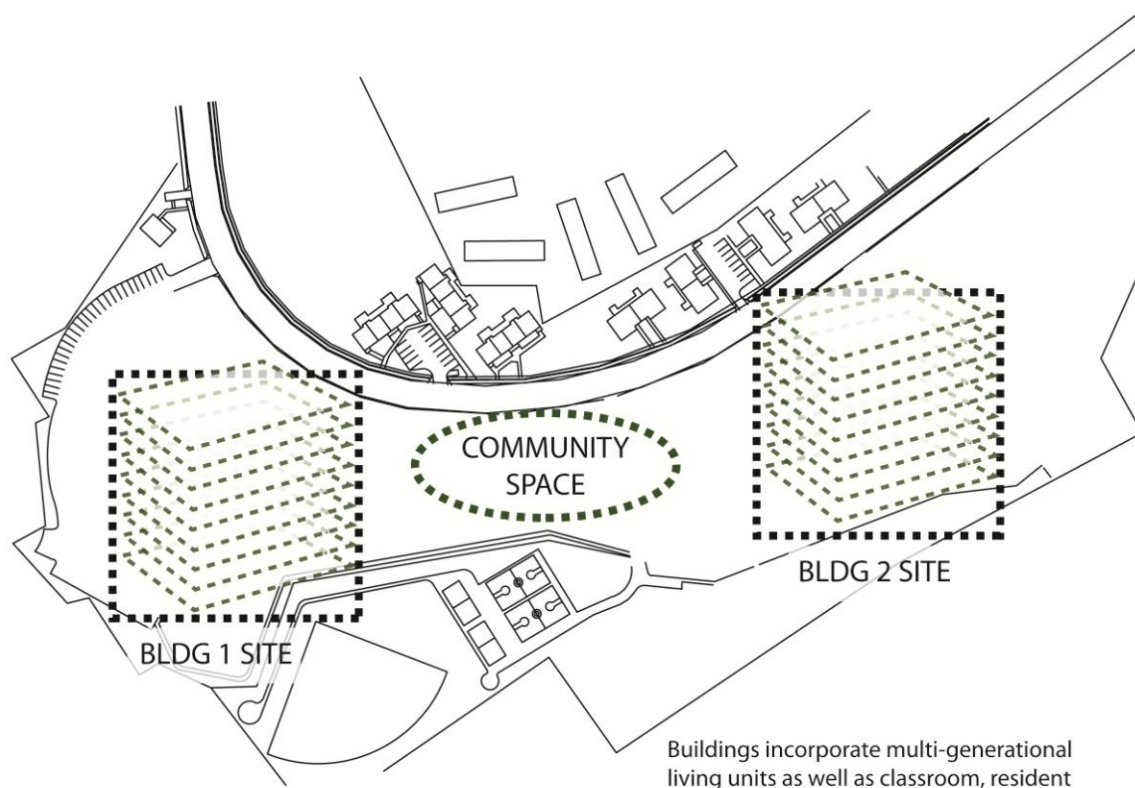
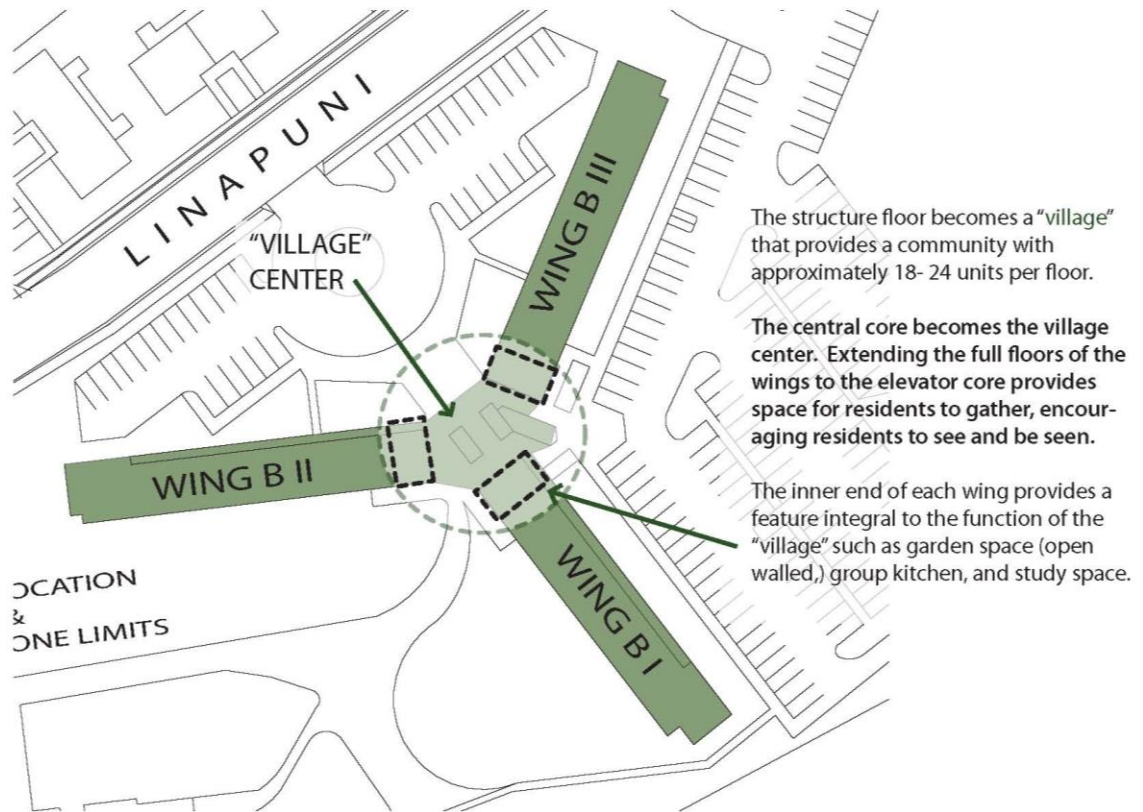Buildings incorporate multi-generational living units as well as classroom, resident manager and supporting services offices.

The grounds will provide space for large gatherings that incorporate the wider community, as well as space for community garden plots.

Ground floor central space provides space for umu/uhm for traditional food preparation.

Figure 27. Concept diagram for KPT site.

KPT Design Project Concept
Vertical Village

The structure floor becomes a "village" that provides a community with approximately 18- 24 units per floor.

The central core becomes the village center. Extending the full floors of the wings to the elevator core provides space for residents to gather, encouraging residents to see and be seen.

The inner end of each wing provides a feature integral to the function of the "village" such as garden space (open walled,) group kitchen, and study space.

LINAPUNI

"VILLAGE" CENTER

WING B III

WING B II

WING B I

OCATION
&
ONE LIMITS

Other programmatic considerations:

- Add jalousie windows to hallway-facing walls of units, evocative of open wall fales in Samoa and encouraging village dynamics.

- Integrate rain-water catchment from roof to irrigate each floors' small garden.

- To increase safety: remove solid walls enclosing fire stairs and replace with open-air enclosure for visibility from outside and inside structure.

Figure28. KPT concept examined by floor plan.

Glossary of commonly used acronyms:

CDBG: Community Development Block Grant funds. HUD awards these funds to local and state Public Housing Authority (PHA) agencies for distribution.

HCDCH: Housing and Community Development Corporation of Hawaii. Their stated objective is to increase and preserve affordable housing through the rehabilitation and reconstruction of public housing units in addition to facilitating private sector development. [120] They also administer financing programs such as the LIHTC Program, RHTF, RAP and others.

HHA: Hawaii Housing Authority: the former name of the HPHA.

HOPE VI: Housing Opportunities for People Everywhere.

HPHA: Hawaii Public Housing Authority. http://www.hcdch.hawaii.gov.

HUD: U.S. Department of Housing and Urban Development. A cabinet department of the U.S. federal government, HUD is the national authority on housing policy and programs. http://hud.gov.

LIHTC: Low-Income Housing Tax Credit Program. This program awards state and federal funding to both non-profit and for-profit developers for the construction and rehabilitation of affordable housing through tax credits.

NCSHA: National Council of State Housing Agencies. Mission Statement: "To advance through advocacy and education the nation's state Housing Finance Agencies' efforts to provide affordable housing to those who need it." Represents its members in Washington for legislative and policy issues. http://www.ncsha.org.

ONAP: Office of Native American Programs. As an office under HUD, ONAP advocates for the rights of Native Americans, Native Hawaiians, and Native Alaskans. They also work to develop partnerships that encourage home-ownership.

PETRA: The Preservation, Enhancement, and Transformation of Rental Assistance Act of 2010. Added under Section 8 of the U.S. Housing Act, this act authorizes the conversion

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[120] "HCDCH Resources to Facilitate Affordable Housing Development,"
http://www.hcdch.state.hi.us/documents/scr135devresources.pdf

of public and assisted housing properties into long-term property based rental assistance.[121] TRA is a part of the PETRA program and participation is voluntary.

PHA Plan: Public Housing Agency Plan. As a public housing agency, HPHA is required by the Quality Housing and Work Responsibility Act (QHWRA) of 1998 to submit 5 year and annual plans to HUD that outline goals, objectives and policies concerning the needs of low and very low-income families served by the agency. [122]

Public Housing: Also referred to as *subsidized housing*. Typically refers to housing that receives funding or subsidies from the federal or state government. The Department of Housing and Urban Development (HUD) states that public housing is created to provide "decent and safe rental housing for eligible low-income families, the elderly, and persons with disabilities."[123] There are currently houses 1.2 million households living in public housing.

RAP: Rental Assistance Program. This program provides owners of affordable housing projects with subsidies to assist eligible tenants. It also provides below market rate construction loans for the construction of affordable rental projects.
Subsidized Housing: See: *public housing*.

RHTF: Rental Housing Trust Fund. This program provides low-interest loans and grants for projects that provide at least 10% of total units that are affordable to families earning less than 30% of the median family income.

*For a more extensive list of acronyms relevant to housing, visit the U.S. Department of Housing and Urban Development's webpage:
http://portal.hud.gov/hudportal/HUD?src=/about/acronyms.

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[121] Jann Swanson, "HUD Chief Looks To Simplify Home Rental Assistance Program," http://www.mortgagenewsdaily.com/05262010_rental_housing_hud.asp, accessed March 10, 2011.
[122] "Public Housing," HCDCH website, http://www.hcdch.hawaii.gov/faqs/publichousing.html, accessed March 9, 2011.
[123]:Public Housing," Department of Housing and Urban Development, http://www.hud.gov/offices/pih/programs/ph/index.cfm , accessed March 12, 2011.