# The Dialogue of Craft and Architecture

# THE DIALOGUE OF CRAFT AND ARCHITECTURE

A Thesis Presented
by

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## DEDICATION

This thesis is dedicated to my parents, for their love and support.

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I would like to thank my professors Kathleen Lugosch and Ray Mann. They have been forthright with their knowledge, understanding, and dedicated in their endeavor to work with the students in the department and in the pursuit of a masters of architecture degree with spirit and meaning.

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**ABSTRACT**

THE DIALOGUE OF CRAFT AND ARCHITECTURE

MAY 2015

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To master any type of process, it is estimated ten thousand hours is needed to finely tune your craft. Whether it is wood joinery, music, culinary arts or glass-blowing, it is about making something that can be seen, heard, touched and/or used. Society seems to be losing an appreciation for craft as an idea. Especially in the US, materialism has reduced quality and craftsmanship to merely a luxury to those who can afford it. It seems that while mainstream society continues to "progress", the craftsmen see their client's loss of comprehension and appreciation of the true quality in their workmanship. While many schools and guilds around the country aim to keep "the crafts", i.e. material based mediums alive, each craft brings potential processes and applications to the architectural realm. The art of glassblowing and others hold something unique to be implemented into architecture. The primary goal of the project is to study of craftsmanship within the art of glassblowing vs. how it can be translated into an architect's design process as well as his or her product. I also wanted to look at how specific craft schools pedagogies use the process of glassblowing to exemplify craft as a "making" process.

Structuring my Thesis around craft and its survival in today's contemporary world, I want to address three sub-topics: First, to create a cohesive ‘genus loci’, second,

to propose program additions to help redefine the artisan agenda, and lastly how to accomplish this with a low impact/ biophilic architectural tool, that functions not only at an environmental level but also as an educational component. I have chosen the Pilchuck Glass School in the Pacific Northwest as the site of my investigation. Pilchuck Glass School is an international center for glass art education, nestled into the foothills of the Cascade Mountains on a former tree farm in Stanwood, Washington. Pilchuck offers a series of courses and residencies for established artists in all media. Combining a deep focus on glass, access to a variety of resources, and an ever-expanding international community of artists, Pilchuck is the most comprehensive educational center in the world for glass artists.

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# CHAPTER 1
# INTRODUCTION

## Craft: Purpose, Use, and Function

> "All craftsmanship is founded on skill developed to a high degree. At a higher degree, technique is no longer a mechanical activity; people can feel fully and think deeply about what they are doing once they do it well."
>
> (Richard Sennett, The Craftsman, pg. 20)

In trying to identify, know, and eventually understand craft objects, it is helpful to first begin by examining man-made things generally. One can approach them from any number of categories, including their usefulness and their desirableness. George Kubler, in the *The Shape of Time*, argues against use, saying that "if we depart from use alone, all useless things are overlooked, but if we take the desirableness of things as our point of departure, then useful objects are properly seen as things we value more or less dearly."[1] His approach has advantages as long as we don't combine use and usefulness with desire and as long as we are careful to distinguish between desire and actual need.

Specifically, the meaning of craft in *architecture* lies in the nature of the *connections* a building or space creates—both internally, between its constituent parts, and externally, through its relationship to its place. These connections can be physical, temporal, or even spiritual. Ideally, all three are integrated into one effort.

Shinto shrines, Gothic cathedrals, and Shaker meetinghouses are touchstone works for so many architects because of the way, in each building type; these three realms of intent harmonize. Each structure combines a masterful command of the

[1] Kubler, Shape of Time, 1

materials from which it is assembled, a profound understanding of its relationship to both time and space, and a transparent embrace of its role in connecting the worshipers it shelters with the ineffable worlds it evokes.

Due to the lack of historical perspective, there are fewer consensuses among architects and urbanists regarding contemporary examples of buildings, especially secular ones that successfully establish similar connections. Two admirable recent examples, though, are *Renzo Piano Building Workshop's- Modern Wing at the Art Institute of Chicago*, and *Amateur Architecture Studio's - Ningbo History Museum*. Both buildings, which share similar functions but are located in vastly differing urban settings, transcend their contextual and programmatic imperatives through their exquisite control of the corporeal, historical, and metaphysical connections they embody.

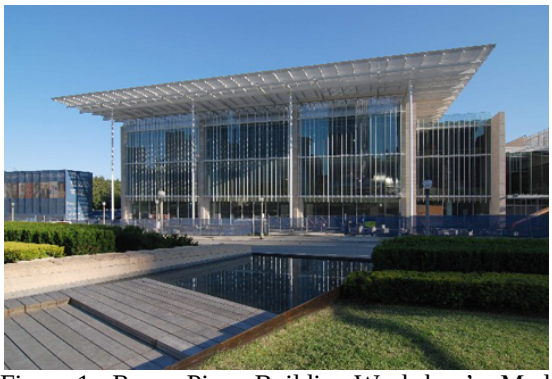



Figure 1 - Renzo Piano Building Workshop's- Modern Wing at the Art Institute of Chicago.
Figure 2 - Amateur Architecture Studio's - Ningbo History Museum.

The *Modern Wing* gently but definitively asserts its connection to place through its link to Millennium Park across the Monroe Street bridge, and by means of its skyline views to the larger city. Its temporal link to Chicago's built history is achieved through material and constructional choices: limestone cladding to match the existing Art Institute buildings and a glass and steel curtain wall echoing the seminal skyscrapers of the Loop, which are visible through that very window wall. "The luminous association of the

Wing's contents—the Museum's European Modernism collection displayed in the north light in which the art was originally produced, accomplished by means of its "flying carpet" day-lighting roof—reinforces the transcendent power of the art."[2]

In the absence of a meaningful urban context, and as an implicit critique of China's infatuation with First World development, the Ningbo History Museum's hulking, patchwork massing evokes a connection to the mountainous landforms so central to Chinese cosmology. The sedimentary arrangement of recycled bricks in its facades, some of which date back 1,200 years to the Tang Dynasty, register geologic; as well as human time. Those walls, which enclose a modern building, are assembled using pre-modern, indigenous methods for reconstruction after the region's frequent typhoons. While its rough appearance presents a stark contrast to the Modern Wing's exquisitely refined detailing, here again is a building whose constructional techniques, temporal references, and spiritual associations function in concert to imbue the structure with connective strengths that elevate it to the status of true craft.[3]

Both buildings also display another attribute common to works of great craftsmanship, which is certain self-awareness, knowingness about their effect on their users. The ability of a well-crafted building to project the thought and effort of its architects and the craftsmen who constructed it is what lifts it above the commonplace. The elevation of spirit we all feel in the presence of true craft is a natural consequence of the quality of effort that created the work.

This phenomenon is as often the result of an accumulation of small decisions or acts as it is the result of a single insight. There is a point of inflection at which we all

[2] Sofield, Craft and Context
[3] Sofield, Craft and Context

recognize about an object, building, or place is proportionally so much greater than what might still be lacking, that we concede to it the status of 'craft.' That tipping point—at which the prosaic becomes poetic—exists for work across many scales in the built environment.

There are, naturally, differing technical and logistical concerns between those scales. A construction detailer and a city planner‘s workdays are entirely dissimilar. However, each faces the same basic problem regarding craft: how to extract the maximum utility and meaning from the least amount of material, be it physical or sociological or both. Each is also remarkably dependent on the other for the success of their efforts, and both are utterly dependent on the trades that will execute their plans.

That interdependence (another form of connection) is one of the most compelling aspects of the building arts. A well-ordered collaborative design process involving all of a project’s stakeholders will invariably result in a product that provides the maximum meaning and utility for its end users. The quality of the architect’s documentation is so critical to this process that it is best approached as a form of craft in itself, and should seek to establish the same sorts of connections that the architect hopes to instill in the final, constructed product.

The objective of craft in place-making, then, is to deepen the purpose of constructed environments through the type and quality of the connections those environments embody and enable. These connections can be either intrinsic or extrinsic to the place or its elements. Intrinsic connections might be literal, as in the way components are assembled; or symbolic, as when a contextual association is registered in the space. While intrinsic connections internalize those associations, extrinsic

connections are characterized instead by their projection of an object, building, or place's intent and meaning into the larger physical or cultural landscape beyond its physical boundaries. Great buildings and places, like the Art Institute of Chicago Modern Wing and Ningbo History Museum, manage to weave together most or all of these types of connections into a multivalent assembly of constructional, relational, and analogical references and functions. It is no coincidence that the Greene brothers and Aalto were—and Piano and Shu are—as intimately familiar with the process of construction, and the physical and climatic forces acting upon their buildings, as with the societal effects of their work.[4]

## Literature Review

True craft is something that I am deeply passionate about. Looking specifically at architects and craftspeople, I've narrowed the selection down to a few quality reviews that emphasize and embody 'true craft.'

### *Rural Studio by Samuel Mockbee*

In Hale County, Alabama, you see ghost buildings: abandoned barns, tumbledown shanties, and rusted trailers—fragile remnants of a more prosperous agrarian past. You see old people sitting quietly on sagging porches and chickens noisily pecking and wandering on hard dirt yards. Hale is a left-behind place. But it is also a land of dense piney woods, fragrant crop furrows, and hypnotic rolling hills. In Hale County the architect Samuel Mockbee found "an almost supernatural beauty," and mainly for that reason he decided to locate his Rural Studio there.

[4] Sofield, Craft and Context

When Mockbee founded the Rural Studio in the early 1990s, American architecture had retreated from social and civic engagement to a preoccupation with matters of style. The architectural stars, swept up in the new global economy and entranced by new technologies, were designing increasingly audacious buildings for affluent clients worldwide. Mockbee instead was digging in at home in the Deep South, focusing on the design and construction of modest, innovative houses for poor people.

My interest in Samuel Mockbee's Rural Studio peaked when I was an undergrad in landscape architecture. His engagement with community and design was unparalleled. Naive as it may sound, Mockbee, a MacArthur “genius grant” recipient in 2000, was battling for convictions. One is that the architectural profession has an ethical responsibility to help improve living conditions for the poor. Another is that the profession should “challenge the status quo into making responsible environmental and social changes.” Hence his belief that architectural education should expand its curriculum from “paper architecture” to the creation of real buildings and to sowing “a moral sense of service to the community.” You would find Mockbee there bucking his profession's prevailing emphasis on fashion, frantic speed, and superstardom to devote himself to the patient work of getting inexpensive but striking structures shaped and built by students while teaching them the fundamentals, not only of design and construction, but also of decency and fairness.

Slowly, the Rural Studio has inscribed its mark on Hale County. Into the community of Mason's Bend and the towns of Newbern, Sawyerville, Greensboro, Thomaston, and Akron, the studio has inserted simple but inventive structures made of inexpensive, mostly salvaged or donated, often curious materials—beat-up railroad ties,

old bricks, donated lumber, hay bales, baled corrugated cardboard, rubber tires worn thin, license plates, and road signs. The studio's aesthetic vocabulary is modern, but its buildings, with their protective roofs and roomy porches, shed-like forms and quirky improvisations, look right at home here. In Mockbee's view, “The best way to make real architecture is by letting a building evolve out of the culture and place. These small projects designed by students at the studio remind us what it means to have an American architecture without pretense.” Using reclaimed and recycled materials would be a great way to save cost on a project; but also can engage the community.

Shepard and Alberta Bryant were the Rural Studio's first new-house clients. In 1993, when the studio began work for them, the Bryant's', both in their 70s, were rearing three grandchildren in a shanty without plumbing or heating. As the students worked on the Bryant's new house, they developed the studio's lasting methodology. Each house takes about a year to finish. Fifteen second-year students interview the clients to determine their needs. They work up several designs, have the clients select the best one, and begin construction.

The Bryant House shows the Rural Studio's hallmark use of ingenious building techniques and donated, salvaged, and recycled materials, the inevitable result of meager budgets. Recovered materials give the buildings “a feeling they've been rained on; they look durable,” says D.K. Ruth, chair of Auburn's architecture department. Students examined several low-tech solutions for creating a well-insulated, inexpensive dwelling before deciding to use 80-pound hay bales for the core of the exterior walls of the Bryant's 850-square-foot house and covering the bales with wire and stucco.

The studio's characteristic modern esthetic was from the start nudged and reshaped by typically southern rural forms and idioms: sheds, barns, and trailers. The Bryant House, for example, is all porch and roof, a steeply raked acrylic structure supported by slender yellow columns. In explaining the aesthetic, Mockbee says, “I pay attention to my region; I keep my eyes open. Then I see how I can take that and reinterpret it, using modern technology. We don't try to be southern; we just end up that way because we try to be authentic. When you start to use historic references in a theatrical way, that's when I'm out of here.” I feel Mockbee had an incredible understanding of what architecture means. I agree with his perception of how architecture can be a down-to-earth/ holistic approach rather than over-intellectualizing an historical building or designing a space with little to no interaction with the clients or their needs.

Like Mockbee's buildings for private clients, the Rural Studio's work is usually asymmetric and idiosyncratic, qualities that reinforce the quirkiness that attends Mockbee's and the Rural Studio's jumbo roofs. The exterior materials, too, can be as unconventional as the shapes of the buildings. But even the most futuristic constructions look anchored in their neighborhood, because their scale fits and their shapes spring from the local vernacular.

More than 350 second-year students and 80 thesis students have now participated in the Rural Studio. So why have other architecture schools not spawned similar programs? Mockbee, who has lectured at architecture schools nationwide, says almost all have similar curricula and risk-averse faculty. “Most of them dress all in black; they all seem to say the same things. It's become very stale, very unimaginative.”[5]

[5] Mockbee, Rural Studio (p.21)

If architecture is going to “nudge, cajole, and inspire a community or challenge the status quo into making responsible environmental and social structural changes,” he says, “it will take the subversive leadership of academics and practitioners who keep reminding students of the profession's responsibilities.” No one, says Mockbee, loves to draw and make models more than he, but model-making and drawings are not architecture. The Rural Studio, he says, takes education out of the theoretical realm, makes it real, and shows students the power of architecture to change lives. “Through their own efforts and imagination,” Mockbee says, “students create something wonderful—architecturally, socially, politically, environmentally, and esthetically. That's the mission of the Rural Studio. And once they've tasted that, it's forever there. It may go dormant for a while, but at least they've experienced and created something that they're not going to forget.”[6]

Talking about the legacy he hopes to leave, Mockbee singles out “something that's going to have power and live long after my living personality is gone. I'm getting close but I'm not there. I've got to keep cultivating and pushing so that what I leave is as significant as I can make it.”[7] That is what makes the Rural Studio transcendent.

*Biophilia and its implications in design of the built environment*

Another aspect of craft that I researched was the topic of biophilia. Craft is very much in tune with nature, while Biophilia is the act of designing with nature. Kellert and McDonough and Braungart really drive home the point of building with nature and observing how the architecture practices are moving in that direction.

[6] Mockbee, Rural Studio (p. 22)
[7] Mockbee, Rural Studio (p. 22)

In present day society, the majority of modern building practices have separated people from the natural world, in turn cutting off access to the positive benefits contact with nature can provide. The human need for nature is not a new idea, but one that has been ignored and pushed aside in modern times. Causes of this separation from nature are a result of modern day industry and growth. Constant development that has occurred over the last 100 years, specifically the results of the Industrial Revolution, has significantly damaged and degraded the natural environment (McDonough and Braungart, 2002), and has served to disconnect humans from the natural world (Kellert, 2005). As a result, many of the current environments we have built around us are often devoid of natural features, green spaces, natural light, and ventilation (Kellert, 2005). Lack of daylight, fresh air, and exposure to natural processes has begun to take its toll on our physical health and well-being. Until recently most research on the built environment has concentrated on the negative aspects of building design such as poor lighting, inadequate ventilation and climate control as well as chemical "off- gassing" which has resulted in the "sick-building syndrome". Sick building syndrome usually occurs when the ventilation system is inadequate and materials and finishes such as paint, plastics, and wall coverings emit harmful fumes. Buildings with these problems have been known to cause "building related illness," physical ailments that include respiratory and skin disorders and chronic fatigue (Kellert, 2005).

In the modern day world humans live and depend on the built environment. Americans spend approximately 87% of their lives within the confines of walls and in many cases blocking out contact with the natural world (Klepeis et. al, 2001). An essential role in interior design and architecture is to provide environments that sustain

occupants' safety, health, physiological comfort, psychological well-being, and productivity (Kim and Rigdon, 1998).

Fortunately, in the last fifteen years the design community has slowly begun to address these issues by designing their environments with human health and well-being moved to the forefront of their design process. It is now the responsibility of designers, architects, and urban planners to start fostering a relationship between people and nature by harmonizing the built environment with the natural environment. The human connection with nature and can be traced back to the beginning of our species and how our ancestors survived and deeply depended on the natural environment for survival. Biophilia is the theory that humans have an innate or evolutionary-based affinity for nature. It is the belief that we have a connection and a reliance on nature that has been passed along throughout evolution (Wilson, 1984). According to Wilson (1984, 1993) contact with nature is essential to human health and well-being. Based on this theory, a framework has been developed that will reconnect humans and nature within the built environment. This framework is Biophilic design, which incorporates organic design and vernacular design principles to interior and exterior architecture. Biophilic design seeks to create a positive connection between people and the environment as well as promoting health and well-being (Kellert, 2005). It is important to note that Biophilic design is not a design fad or trend but a design philosophy based on biological theory and supported by data from both psychological and health research. It is imperative to understand that the concept of Biophilia coupled with harnessing the connection to nature covers a range of benefits relating to psychological well-being, stress reduction, cognitive functioning, productivity, human development and social behavior (Heerwagen, 2001).

The culmination of this research will lead to the development and design of a nature oriented glass-making facility. The goal for the design is to create a connection between people and the natural environment and by unifying the built environment with the natural environment. Also, learning and exploring energy savings potentials that can provide longevity to the campus and its artists. The Pilchuck Glass School will encompass will also be designed to encourage socializing, creativity and collaboration among peers, colleagues and Washington's surrounding artisan communities.

Stephan Kieran of Kieran Timberlake and Grant Hildebrand also co-wrote a book called Biophilic design. It explains in detail about how biophilic design is in-tune with not only nature but also human systems such as mental and physical connections.

*Stephan Kieran and Grant Hildebrand - Biophilic Design*

Paradigms are shifting, with a greater focus on the value of health and environmental capital as opposed to financial wealth, calling into question current design and investment decisions, at both a micro and macro level.

Biophilic design is not a mainstream phrase associated with the response and intuitive affiliation of human systems with nature. And some architects of certain generations raised on Erskine, Aalto, Asmussen, Cullinan, Christopher Alexander and other iconic European theorists and urban practitioners, might find themselves scratching their heads.

They would recognize the case being made for fundamental design qualities where nature is included in the built environment, not the separateness of evidence and

theory meshed together by technology – raising their eyes out of a ‘room with a view’ to rest on where the argument had been buried in the garden.

The "separation of man from nature" is ever-present today, with our large skyscrapers and congested city streets, we seek out small parks and the presence of nature to feel fulfilled.[8] Creating parks in cities is a great way to inject pockets of the natural environment, but is it enough for humanity? Having lived in different cities in the past, I personally need the "real" environment to feel fulfilled. Birds chirping, leaves rustling, a sound of stillness brings comfort to those in stressful, busy environments. Educated in landscape architecture and a background/ interest in art and graphics, natural landscapes for me, resides in the role of inspiration. The arts and architecture/ landscape architecture have given me an opportunity to explore different approaches to solving complex problems in and out of design. The arts and the skills to produce traditional artisan crafts have been passed down from generation to generation, providing people not only a means to support themselves, but also a venue to express themselves and their creativity. Preserving those ideals with painting, bead making, glass blowing, stained glass, sculpting, ceramics, pottery, and blacksmithing are just some of the traditional crafts that merge traditions of all nations with a common creative yet functional and necessary thread. Today, however, hand arts struggle to remain relevant in an ever-evolving digital world. People, through the of a click of a button or a swipe of a card obtain things that are made in mass production, and are losing sight of these trades that provide skills that promote tradition and a better way of living. Perhaps with the changing of culture, the traditional artisan crafts community is beginning to evolve too. While celebrating tradition, they are beginning to embrace and promote new “traditional” hand works

[8] Stephan Kellert, Building for Life (p. 244)

within their culture. They are finding a kinship with others who too are looking to the past to find and provide inspiration for the future. A merging of tradition with modern sustainability to create a new vision of the creative arts is the future, bringing hand-crafting into the 21st century.

I am seeking a project that deals with complex issues facing an artisan community and its survival in the contemporary digital world. Establishing the central issue: how to take a struggling artisan community and make it relevant to today will be primarily how I my thesis topic will be formed. To address this issue, I came up with three areas in order to preserve these communities: by creating a cohesive 'genus loci', program additions that would help redefine the artisan agenda, and how I could accomplish this with low impact/ Biophilic design tool that not only functions at an environmental level but also as an educational component.

By incorporating the six principles of Biophilic design **(**environmental features, natural shapes and forms**,** natural, patterns and processes, light and space**,** place-based relationships**,** and evolved human-nature relationship, it help to solve most design problems. By establishing these principles early-on, I can then hope to achieve a process in which can then be translated into the subject manner (arts communities) and solidifying the existence of the handmade artisanal craft world.

Biophilic design principles can be applied in a variety of contexts allowing growth of both people and environment. Human psychology clearly benefits from contact with nature, an inviting nature into our buildings is the ideal way to insure the both the continuation of our modern lifestyle and assuagement our more primitive needs. The built environment should not interfere with biological human needs to commune with nature

nor with existing ecological systems. Ancient architects built for their cultures, which were almost always more in touch with the earth than western society of the present. They mimicked nature's forms, producing magnificent structures with which we are still awed. Together we can add another layer to this tradition and ensure maximal benefit for our planet and ourselves.

# CHAPTER 2
# PRECEDENTS

## Touchstone Center for the Crafts

The focus of the project was to develop a low impact management plan for Touchstone Center for Crafts that provides for future expansion and rejuvenated the spirit of place while honoring the history of the community. The solution provided sustainable energy sources, improved facilities with state-of-the-art features, increased circulation, and improves connectivity while delineating space for future expansion. The solution also addressed housing issues, open space, and created and enhanced the visual uniqueness of the site.


Figure 3 - Touchstone Center for the Arts: Campus housing.
Figure 4 - Touchstone Center for the Arts: Campus housing (original rendering).

The first goal of the design was to promote a spirit of place within the grounds of Touchstone Center for the Crafts that was inspirational to the artisan as well as to the visitor and, at the same time, unifies the entire campus experience. To achieve this, they needed to do several things. The first was to integrate a more cohesive circulation plan that focuses on pedestrian movement while accommodating vehicular traffic. Next, they needed to create a unified architectural style that references the history of the camp and

looks to the future. Broad splashes of color using natural plant material as well as sculpture was introduced across the site which that added visual interest. The entrance to the site was enhanced, giving a sense of arrival and place to visitors. Finally, new signage, both at the entrance and along US 40, was suggested.

The next goal of their design was to develop a low-impact solution which enhanced and preserved the existing environment in which Touchstone was nestled. Once again, several solutions come into play here. They aimed to use sustainable materials as well as apply net zero principles to the design where applicable. Another way to lower the impact was to utilize existing structural footprints as much as possible and to minimize proposed footprints. Raised pathways for pedestrians and permeable surfaces for vehicles was also less of an impact. Finally, they hoped to minimize electrical grid use by capturing the natural energy of the sun.

Throughout the design, they aimed to enhance and expand the educational and recreational components of the campus. They updated current facilities and suggest a unified architectural style throughout Touchstone. New programs in the fields of music, culinary arts, and sustainability will be introduced through new facilities. Existing cabins will be replaced with updated units that function better in form and place. Finally, spatial relationships between all facilities will be improved with a combination of new structures and a comprehensive path system that ties the campus together and gives it a structured and sensible flow.

Consideration for alternative energy sources was given too. The use of photovoltaic cells on windows and the installation of solar panels utilized natural systems

to collect and convert energy into a useable form thus reducing impact on the environment as well as reduced operational costs in the long term.

The intrinsic goal of this design was to provide a plan for future growth and development. The master plan delineated which areas are most suitable for development. The design laid out the phased implementation of solutions. Most components of the design were able to function independently but will ultimately function best when combined. Throughout the design, sustainable practices are employed to promote a more sensitive approach to growth.

## Penland School of Crafts

It is located in the Blue Ridge Mountains 50 miles outside of Ashville, NC. Penland has been the center of craft education since the 1920's. Originally founded as an association to teach the craft of weaving to local women as a way to give them a source of income, Penland has moved on to teach both men and women the crafts of glass, clay, metal, wood, textiles, print photography, and drawing. Over the years, may well known artists and designers have come to Penland as visiting professors and resident artists, including Sam Maloof.

*Penland's School of Craft Mission Statement:*

> *"Penland's programs engage the human spirit which is expressed throughout the world in craft. Penland enriches lives by teaching skills, ideas, and the value of the handmade. Penland welcomes everyone--from vocational and a vocational craft practitioners to interested visitors. Penland is a stimulating, transformative, egalitarian place where people love to work, feel free to experiment, and often*

*exceed their own expectations. Penland's beautiful location and historic campus inform every aspect of its work." (Penland School of Crafts, 2014)*


Figure 5 - Penland School of Craft: Campus (aerial).
Figure 6 - Penland School of Craft: Glassblowing instruction.

## Haystack Mountain School of Crafts

Haystack Mountain School of Crafts is an international craft school located on the Atlantic Ocean in Deer Isle, Maine. The school offers intensive studio-based workshops in a variety of craft media including clay, glass-blowing, metals, paper, blacksmithing, weaving, woodworking and more. Programs range from short workshops to two-week sessions and anyone may participate, from beginners to advanced professionals.

The unique experience to be found at Haystack is owed to the combination of internationally-renowned instructors, intensive and focused studio time, the exploration of other art forms including music, poetry and dance, a diverse student body, and an award-winning campus. Students live, eat, and work at the school, and studios remain open 24 hours a day, seven days a week. For more than fifty years, the school has created international workshops, conferences, and symposia, innovative sessions for high school students and local residents, a visiting artist program, scholarship opportunities, and more. Haystack continues to evolve with the interests and ideas of those who visit there.

Figure 7 - Haystack Mountain School of Crafts: Glassblowing studio.
Figure 8 - Haystack Mountain School of Crafts: Student work.

## NW School of Boat Building

Located in the small town of Port Hadlock, Washington, the school helps to preserve the rich maritime heritage of the area. Since 1981, students have come to learn the methods and practices of quality wooden boat building, including drafting and design, lofting, lapstrake construction, sail making, rigging and many others. The school offers both short term summer classes and 6,9, and 12 month degree programs, (similar to Pilchuck). Instructors have years of experience in the craft and provide an intense hands-on learning environment.

*NW School of Wooden Boat Building Mission Statement:*

*"Our mission is to teach and preserve traditional and contemporary wooden boatbuilding skills while developing the individual as a craftsman." (NW Boat School)*

Figure 9 - NW School of Wooden Boat Building – Classroom and Studio.

## Center for Wooden Boats

Established in 1981 on the south shore of Lake Union in Seattle, the Center for Wooden Boats aims to preserve small craft heritage to future generations. The center acts as a museum but also provides a venue for sailing lessons and a place to restore wooden boats, mostly small sailing and rowing vessels. In 2008, the CWB opened a second campus at Cama Beach State Park located about 90 minutes north of Seattle. They operate year-round providing boat rentals, classes, and events.

*Center for Wooden Boats Mission Statement:*

*"To provide a gathering place where maritime history comes alive through direct experience and our small craft heritage is enjoyed, preserved, and passed along to future generations."*

Figure 10 - NW School of Wooden Boat Building
Figure 11 - NW School of Wooden Boat Building – Boat building process.

I chose these three precedents based on having similar mission statements. I am fully aware that boatbuilding isn't exactly related to glassblowing/ making, but they share similar characteristics such as "preservation of craft, heritage and individual skills and techniques." So much of our traditional crafts are flushed due to the rise of technology, efficiency, and modern times. We need to preserve them in a similar fashion in order for our culture to identify with our countries once rich history of craft based lifestyles.

## Individual Craftsman

Recently, I've been looking at architects and craftspeople for inspiration and informational research regarding the topic of 'craft.' Kieran Timberlake mentioned, that "the goal of the architect is the product, not the process. Understandably, architects cannot do the job by ourselves. We are obligated to our consultants and collaborators to accomplish the task at hand simple because an architect cannot possibly master all the processes and means necessary to realize the job.

### *Tom Kundig*

I've been following Tom Kundig in Seattle, Washington for the past 5-6 years very closely. Kundig has been practicing successfully with collaborators and engineers since he started. Contrast and tension between inventiveness and refinement, elemental and exquisite, intuitive and super-crafted, can be found most clearly in his houses. He is well-known for what he calls "gizmos", which are the mechanical devices in his various projects that turn static architectural elements into those with dynamic movement, often with direct participation of users. Two of his most well know "gizmos" are in projects such as *Chicken Point Cabin* and the *Delta Shelter*, where hand-cranked mechanisms that

transform the spaces by opening massive windows or walls. He understands he cannot accomplish the task without the knowledge of his collaborators. Phil Turner, whose background is science exhibitions and kinetic architecture, made him the ideal collaborator in these projects. Kundig knows both he and his collaborators must be willing to learn from each other. He sketches out his idea of what he wants, draws an arrow leading to words like "Frankenstein bolts" or "bag o' sand" and gives it to the collaborator to get his input. Kundig's approach, being somewhat comedic, relies on his colleague's knowledge to complete the job. He does not attempt to design objects he knows he cannot design well by himself.

What more can be taken from the design process of these architectural practices and these crafts in general? Whether contemporary or not, studying these crafts is the starting point to bringing new processes to the table. Limiting research to only the architectural realm would obviously be narrow-minded, for there are masses of information, techniques, and processes what this thesis will turn out to be, but a significant amount of thought and effort must be put into research on the topic of craft. The final product will be the result of the process. Everything studied thus far should be re-examined, such as the medium-based disciplines like woodworking as well as the current culture of craft and societies view of it. School such as the Penland School of Craft as well as modern guilds like the Southern Highland Craft Guild will be examined in an effort to have a different perspective on these topics. The interest and drive of this thesis dwells in the pursuit and preservation of things well-made, well-crafted, and well-thought out.

Figure 12 - Tom Kundig - Chicken Point Cabin - Northern Idaho.

Figure 13 - Tom Kundig - Delta Shelter - Mazama, WA.

*Richard Sennett*

Behind every piece of glass blown or every well-crafted joint there is a craftsman who made it. It is estimated ten thousand hours of experience are required to make a master carpenter (Sennett 20). The same goes to musicians and chefs and others. There is much to be learned from craft itself and crafts throughout history, from glassblowing, joinery, boat building and furniture making to the culinary arts, music and dancing. This is a study of craft, the craftsman, and his or her workshop. In architecture, it is a study of craft in an architect's design process and craft is his or her product. Architecture is a discipline where thought should be put into every detail.

Sadly, appreciation for craft seems to have dwindled in society in past years. More and more people simply cannot comprehend true quality or craftsmanship nor do they care to. The connection between maker and user has been severed due mostly to the consumer-driven culture we live in today (Sennett 14). Quantity over quantity is now a way of life. This is tremendously apparent in the architectural realm. The idea of having a well crafted, well construction building has become somewhat forgotten or deemed somehow unnecessary. Obviously, developers are notorious for building low quality structures; putting no care into detail or materials as a means of additional profit, but they may not be the only culprit. The view of what a well crafted building is has changed in the eyes of the typical consumer. Before craft in architecture, an understanding of craft as an idea as well as "the crafts" i.e., medium-based disciplines must be established. The dictionary definition for Craft is; an occupation, trade or pursuit requiring manual dexterity or the application of artistic skill. This is somewhat organic, and obviously there is more to it than that. Craft is far broader than skilled manual labor, it is an attitude towards what you are doing. It is putting care, in any discipline, into what you do. Whether it is making a chair, a photograph, or a software program, it is basic human instinct to have the desire to do the job well for its own sake. In *The Craftsman*, by Richard Sennett, he describes different situations in culture where society is affected by craftsmanship and vice versa. However, the modern era indeed offers tremendous possibilities with promotions and financial success. Yet so many people seem to be stuck in careers that are mind-numbing, unrewarding work, whether dead-end or not. These workers see little or no positive or incentive in the work they do. Unmotivated workers receive no pride in what they accomplish and, in turn, impair both understanding and

expression of craftsmanship. An example of this is low end jobs in the corporate sector, where no true skill is needed to accomplish what the worker is tasked with. The worker never sees the fruit of his labor the way a "craftsman', such as a furniture maker or even a glassblower, see the final product. These craftsman deal with "the crafts", being medium-based disciplines, such as woodworking, ceramics, metalworking, glassblowing, etc. It is what people have come to envision when thinking of a craftsman. The skill and expertise these workers boast allows for more thought while they labor and are in turn more problem-attuned. At a high level of skill, the craftsman's technique is no longer simply a mechanical activity. The craftsman can think fully and deeply about what he is doing (Sennett 20). So, after further research of what craft truly is, I wanted to look more into specific precedents.

*Steven Holl*

Phenomenological intensity and a preoccupation with tactile experiences have both been salient characteristics of Holl's work over the past decade. He is the only american architect that is influenced by the main lines of thought of modern philosophy from Husserel to Heidegger and music of Bartok and Schönberg.

Two fundamental principles underlie his architecture. The first of these is the anchoring of the building in site, although like Siza he believes that the architect has as much responsibility to challenge the site as to harmonize passively with its form.

The second is Holl's need to integrate the conceptual level of his work with a phenomenological experience of its presence. While he strives for a more open architectural language, he also searches for a close typological relationship, their conjunction is posited as an analogue for our experience of nature.

Holl constantly attempts to establish a non-reductive ground for our late modern architecture, wherein the "limited concept" may be allowed to unfold not only in accord with its own internal rules but also with regard to its intrinsic sensuality. (Frampton, iv)

Architecture is a wordless silence which is mainly composed of space, light and matter. He also feels architecture is bound to situation, the site of a building is more than a mere ingredient in its conception. It is its physical and metaphysical foundation.

> "Building transcends physical and functional requirements by fusing with a place, by gathering the meaning of a situation. A building has one site and in this one situation its intentions are collected." (Holl, 34-46)

My ideas for Pilchuck Glass School stem from Holl's explanations and philosophies and the general idea of what biophilia means. The school is situated in a dense, rural landscape, from which the architecture will mimic its surroundings. The building and physical features will have to be harmoniously fit into its natural context. The philosophy of the school is to embrace its natural surroundings and gain inspiration from the environment and climate of the Pacific Northwest region. The Pacific Northwest region are home to some of the most interesting and unique plant and animal species in the United States. The rainy climate of the Pacific Northwest is in fact one of Pilchucks' inspirations for making glass. All these factors combined with Pilchucks' mission provides an environment that can change how we look at designing with nature.

*Peter Zumthor*

The idea of multiplicity is innate in Peter Zumthor’s projects since his very first works: works of art surrounding us put on various meanings, which do not always remain

on parallel levels combining well with dialectical relationships. The vague is planned strictly, holding by the rules of the architectural language. Beauty is in the undetermined, the multiple, but it is obtainable only through precision. "Multiplicity of object in his craft is shown only when who is living within them can distinguish their singlular parts and, at the same time, can see the work in its wholeness." This throw back to the “unitary” character of architecture, in which every part is in relation with the others and together they give a sense to the project. Zumthor’s planning is pure: nothing is pointless. (Saieh)

In this society, as the architect says, "architecture has to oppose resistance," and react to the naughtiness of shapes and meanings, and return to talk its own language. "Original shape invention or particular composition doesn’t take to the truth. Between multiplicity and silence there’s a tense and vibrational relationship, and the concrete idea is in their equilibrium." (Saieh)

Things determine the spatial dimension of the world, and therefore its knowledge and usability to us. "The project triggers a linking mechanism between things, so they can assume a meaning to the user, becoming an efficient tool to know of the world." Things, objects, the world of references, transform our sensations in remembrance. "Beauty doesn’t come out of the shape alone, but of the multiplicity of impressions, sensations and emotions that the shape has us to discover." (Saieh)

For Zumthor there is a strong connection between reality and living. This brings him to be oriented towards the concrete, imagining “things” and not “theories”. Emotion reveals the “authentic core” of things.

From emotion he passes on to remembrance and memory, which are the central threads in Zumthor's research.

"The world is overloaded of signs and information, representative of things" – Zumthor wrote – that nobody completely understands, because they are in turn nothing but signs representative of other signs. The real thing remains hidden. Nobody can ever see it. Zumthor's architecture has nothing to hide from us: It is a direct sign that doesn't throw back to other meanings. His architectural gestures remain dipped into the surroundings and don't subjugate them to disputable "formalisms." It's no accident that his work is frequently categorized as minimal. Minimalist work always depends on a spectator, therefore it isn't autonomous and furthermore it gives the impression to contain something, to be empty inside. "At the center of architecture, there seems to be an empty space. You can't plan emptiness, but you can draw its boundaries, and so empty comes to life». So architecture is emptiness, and if the architect wants to produce beauty, he has to work on light and vibrations (sonorous, tactile…) that spread in this absence." Zumthor gives particular importance to the "metaphysical silence" and its peculiar and precise characteristics, akin to poetry. (Saieh)

The process used by Zumthor to reach the memory is the "architectonic dramatization:" maybe it's the only possible way to remember; because it's only through emotions that mankind can remember. The monument, as a symbol, is not conceived by Zumthor, who imagines the building as a real place, not a falsification. (Saieh)

In the shelters for the Roman archaeological site in Chur, Zumthor decides to establish an architectural link between the ruins and the city. The building is a filter between internal space and the city, that can penetrate, in the form of air, light and sound,

through the thin plates in wood. The impression is to enter a non-temporal field: the space of the memory. "Temporality is realized when the work considers the space in its totality, without distinctions between in and out. It is perceived only to (and in presence of) a spectator of the work that lives its volumes, contributing to strengthen the relations between architecture and the spectator himself." (Saieh)

In his works, "light writes silently on objects the poetry, that is the only way to reach the truth" – as he wrote in *Thinking Architecture*. (Zumthor, p.46) Originality and oddness have no connection with poetry. Air, light, sounds, and materials are the alphabet of his architecture, which speaks of itself, without however stunning us. A case in which finally the content returns to be the subject. This is the center of Zumthor's architecture: they aren't built to amaze us, as a performance, but they are here for man, who doesn't have to be "stunned with chatter." (Saieh)

Zumthor always prefers knowledge, thought, craft and order, in a century when man is looking for simple pleasures, immediate and ephemeral.

*Dale Chihuly*

One can only wonder what kind of genius thought of blowing human breath down a metal tube, forming a bubble inside a molten blob of glass. And to think that this molten blob of glass is made only of silica or sand, the most common material in the world, that can be transformed from a solid to a liquid to a solid just from fire. "For me it's the most mysterious and magical of all the inventions or materials that mankind has invented or discovered. Since I was a little boy I always loved glass. And 34 years ago I put a pipe into some stained glass that melted in my basement, and blew a bubble. Since that moment I have spent my life as an explorer searching for new ways to use glass and

glassblowing to make forms and colors and installations that no one has ever created before—that's what I love to do" - Dale Chihuly, 2000

Dale Chihuly is perhaps the best-known artist associated with the post–World War II studio crafts movement. He is widely credited by both advocates and detractors with transforming or transcending the traditional forms and functions of glass, playing a major role in dissolving the barriers that separated craft from art, introducing contemporary craft into fine art galleries and museums, raising the price structure for all craft objects, pioneering new modes of marketing art, cultivating a broad collector base for contemporary craft objects, reviving the European model of the large-scale studio master and apprentice system, and making the Pacific Northwest a modern Mecca for glass. (Burgard)

It has been more than four decades since Dale Chihuly first blew glass, yet the critical interpretation of his work has evolved little beyond the original and increasingly unproductive debate over the definitions and significance of art and craft. Similarly, the critical reception of Chihuly's work during this period has focused almost exclusively on the means by which the artist's glass objects are created rather than on their meaning. "However, Chihuly's contributions cannot be evaluated properly without expanding the context for his work from the postwar American studio glass movement to larger art historical and cultural contexts. In the process, common critical and popular assumptions regarding Chihuly's art and career are challenged, and the necessity for a reevaluation of his proper place in art history is revealed." (Burgard)

Chihuly's glass sculptures typically are discussed primarily in technical and aesthetic terms, as if they are largely lacking in significant cultural content. As early as

1975, Chihuly encouraged this perception of his collaborative work with James Carpenter, stating, “We are less concerned with being narrative or figurative, but we are involved in the glass and the light that passes through it—the phenomenon of light being transmitted through colored glass. The designs are to bring out the light and the quality of the glass—if the piece gets too complex or narrative, you begin to compete with this." (Seaver)

However, Chihuly also said of his work during this early period, “I don’t care what people call them—containers, sculpture, craft, fine art—as long as they’re given as much consideration as other objects that represent the maker’s feelings and ideas.”

Reflecting the current political and economical times, one group of artists lobbied to transform Pilchuck from a glass school into a multimedia art commune, while others lobbied for the production of commercially viable glass. However, both groups perceived handmade objects as providing a humanist alternative to the mass-produced objects that pervaded postwar life. As technology and modernism increasingly were critiqued during the 1960s, handcrafted objects were perceived as signifying alternative lifestyle choices with populist, communal, and even counterculture associations. These larger trends dovetailed with Chihuly’s own aspirations and experiences, and distinguish him as both an innovator and a man of his time. (Seaver)

For example, Chihuly’s first Chandelier, created for a retrospective exhibition at the Seattle Art Museum in 1992, reflected his longstanding interest in the integration of architecture and glass. His revival of the form originated in his observation that the chandelier, which historically had played a major role in defining interior architectural space, had been deemed obsolete by International Style architects. In a gesture that

embraced both continuity and change, Chihuly installed his contemporary Palazzo Ducale Chandelier directly beneath a traditional eighteenth-century Venetian chandelier in one of Venice's most historic buildings.

Beginning with his childhood discovery of beach glass by the waters of Puget Sound, Chihuly has been fascinated with the transformative powers of nature, as epitomized by glass and water. Chihuly's favorite element—water—can assume the form of ice, snow, rain, fog, and mist, or can evaporate entirely. The duality of water, which can appear solid and permanent, liquid and changeable, and vaporous and ephemeral, exemplifies the concept of transience. Chihuly's instinctual pull to water is reflected in his comment, "Water is the one thing that I can assure you is a major influence on my work and my life and everything I do." (Seaver)

Chihuly's preferred medium—glass—is a super-cooled liquid, and thus is ideally suited to give some semblance of permanence to many of water's defining but ephemeral qualities: light transmission, transparency and translucency, and refraction and reflection. More important, the artist perceives glass, along with water, ice, and plastic, as a physical material that serves as a transformative medium for immaterial light, which in turn can reveal the metaphysical:

"And so when you're working with transparent materials, when you're looking at glass, plastic, ice, or water, you're looking at light itself. The light is coming through, and you see that cobalt blue, that ruby red, whatever the color might be—you're looking at the light and the color mix together. Something magical and mystical, something we don't understand, nor should we care to understand. Sort of like trying to understand the moon."- Dale Chihuly 1981 (Seaver)

# CHAPTER 3
# SITE AND PROGRAM

## Background and Historical Aspects

### *History of Site*

Figure 14 – Pilchuck Glass School (looking west at Puget Sound).

Approximately one hour north of downtown Seattle and two hours south of Vancouver, British Columbia, via U.S. Interstate 5, the Pilchuck Glass School sits on 54 acres of forested land in the foothills of  a rugged coastal range known as the Cascade Mountains. At an elevation of 1,000 feet, the school commands a majestic western view of the Stillaguamish and Skagit river deltas as well as the San Juan Islands and Puget Sound. The Cascades rise abruptly to the east, blanketed by their thick green pelt of big timber. Dark forests and clear rivers appear ancient, mythic. There is no question that this is an enchanted place.

Pilchuck means "red water" in Chinook jargon, "pil" for red," and "chuck" for "water." A regional, intertribal trade language composed of French, English, and Native American words, Chinook jargon was used extensively among traders, settlers, and native communities. The "red water" refers to the rust-tinted, iron-rich waters of the Pilchuck

River which have their headwaters at Mount Pilchuck, a 5,334 foot peak in central Snohomish County.

The cluster of homes that constitutes the present-day community of Pilchuck lies near the center of a 15,500 acre managed forest owned by Pilchuck Tree Farm. Perhaps the most famous of all, however, is not the community, mountain, or river but a child of the Pilchuck Tree Farm that has become a potent spot for growing talent: the Pilchuck Glass School.

Pilchuck Glass School is located on Victoria Hill, in the Victoria community of the town of Stanwood, Washington. The community of Victoria, situated 10 miles east and slightly north of Stanwood, was first surveyed in 1875. By 1900 the Victoria Shingle Mill was in full operation at its millpond site near the base of Victoria Hill. In 1909 English Lumber Company established its Tye Unit Camp 3 at the Victoria mill, and by 1910-12, "there was some 35 houses strung out in one little area around the pond."

During this same period, from 1909 to 1911, English Lumber Company operated its Camp 3 on Victoria Hill, near the present-day site of Pilchuck Glass School. The only structure on the site when the Pilchuck Glass School began in 1971 was a decrepit cottage that might date back to the days of English Lumber's Camp 3. Certainly English Grade Road leading to the school today and many of the logging roads on the school property are old railroad grades that were first cut by English Lumber Company at the turn of this century.


Figure 15 – Early days of Pilchuck Glass School (~1970's).

*Coming Northwest*

When Dale Chihuly first thought of starting a summer workshop for glass in an isolated, pastoral setting, he turned to his homeland, the Pacific Northwest. During the mid and the late 1960's, the West held a special attraction for youth all across the country. The West, historically receptive to new ideas, was a good place for Americans who expected to change their world. It was a good place for artists to explore the possibilities of a newly rediscovered art medium: glass.

Sometime during the fall of 1970 or winter of 1971, Chihuly approached Ruth Tamura, who was running the glass department at the California College of Arts and Crafts (CCAC) in Oakland, with his idea for a summer glass school in the Northwest. He had heard that the Union of Independent Colleges of Art was inviting faculty to apply for a $2000 research grant. Marshall Borris, a student of Ruth Tamura's, remembers that he first met Chihuly when he was a student at CCAC in the winter of 1971.

Chihuly and Tamara were awarded the grant and by the spring of 1971 had the $2,000 in hand. Part of their stated purpose was "to experience with methods other than

used in conventional college art classes and conduct an outdoor workshop so students would receive inspiration from nature.

Dale Chihuly then called upon John Hauberg. Hauberg, an old friend to Chihuly, mentioned that he had some land available. Hauberg dissuaded Chihuly from pursuing an island location, because of the inconvenience of ferry travel, and offered him the use of a site on his own property.

In May 29, 1971, their journey began by driving out furnace materials and glassblowing equipment cross-country in Chihuly's van from Providence (RISD) to their final destination. During the first summer workshop in 1971 Chihuly, accompanied by two other teachers and 16 students, built glass furnaces and began blowing glass just sixteen days after arriving at the Hauberg's tree farm. Buoyed by the success of that first summer, the Hauberg's agreed to provide the location and financial support for a second summer workshop, and then a third. A few years later, realizing that Pilchuck glass workshops had become a summer mainstay rather than an occasional happening, the Haubergs established the school as a non-profit, solidifying the framework for today's Pilchuck Glass School.

Figure 16 – Present day Pilchuck Glass School.

## Location and Campus Buildings

### *Location*

Pilchuck Glass School began as a creative experiment by artists who wanted to work with glass while living as a community in a wilderness environment. This concept attracted more artists as it allowed freedom of expression, the place, and the time to experiment with glass. Today Pilchuck and its environs are an ideal setting for shared creative experiences, experimentation, reflection, inspiration, and learning.

Buildings such as the lodge, studio buildings, and housing are all made of native materials in the Pacific Northwest architectural style known for responding to the environment. Studios are well-equipped for glassblowing, hot-glass sculpting, hot casting, kiln casting, cold-working, flame-working, neon, fusing, glass painting, stained glass, printmaking, woodworking, metalworking, and more.

A small student gallery, school store, library, dining hall, artist's studios, and offices are located near the studios surrounding the center of campus. Artist's cabins, cottages, and dormitory are located a brief walk away from the studios along foot paths through woods and clearings. Residents can hike and be inspired on well established paths through the 15,000 acre Pilchuck Tree Farm surrounding the school, which also includes an occasional view of Puget Sound, its islands, and waterways.

### *Campus buildings*

In the first years, facilities were primitive, but over time a campus was developed with a series of rustic structures, designed by Thomas Bosworth, including the Hot Shop for the kiln area (1973), Flat Shop for smaller scaled glass crafts (1976), the Lodge (1977), faculty cottages, bathhouse and other buildings. By 1986 there were fifteen

structures on the site. The lodge "looks like rustic summer cottage built in gigantic proportions." Bosworth explained that his concept for lodge and its proportions was the idea of trees as primitive symbols of shelter is a recurring theme in architecture and is appropriate to the early buildings at Pilchuck. (Oldknow)

Figure 17 - Pilchuck Glass School - Hot Shop Annex.

Since then a number of structures have been built increasing the size of Pilchuck dramatically. A 2200sf hot-shop annex is located adjacent to the school's iconic glass blowing hot-shop at the center of the campus. It is a simple, open shed, reflecting both the programmatic requirement for unobstructed teaching space as well as maximum ventilation. The interior focus is the furnace and its large exhaust hood where glass is heated to over 2000 degrees Fahrenheit and ladled into sand molds. A retaining wall and embankment to the east provide an informal viewing gallery for students. (Oldknow)

Figure 18 – Pilchuck Glass School - Studio Annex.

The 2100ft$^2$ studio annex is a simple L-shaped shed structure that surrounds the existing studio building, creating a sunny work area between the two buildings. A large covered porch that

orients to the center of campus provides exterior work and socializing space. These "core buildings" are what defines the campus and gives the site its character. (Oldknow)

Bosworth is an unusual combination of architect and art historian, no doubt much influenced by one of his professors at Yale University, the well-known architectural historian Vincent Scully. As a result, his interest in building appeared to some to be more about visual than spatial concerns, more about form than function. His point of departure was the landscape. "I visited Haystack and Penland to look at [their campuses]," remembers Bosworth. "Penland looked disorganized....The campus was not coherent and there were buildings in different styles...and then we saw Haystack, which has very beautiful buildings...but everything was on a grid and it spoiled the landscape...so we decided to make Pilchuck somewhere in between." They wanted the buildings to fit into the environment and reflected the function of the school. John Hauberg told the Seattle Times in 1978. "If you're going to produce something of beauty and quality, you want your environment to reflect that, to inspire you." (Oldknow)

In David Miller's *Towards A New Regionalism*, Pilchucks' structures "resemble the rustic pole and shake barns built by Northwest settlers, the open-walled structure nevertheless capably accommodates glassblowers; it shelters them from rain and sun while allowing hot air from furnaces to be circulated laterally out or up through the overlap in the tiered pitches of the roof. Pilchuck also incorporated small houses, built by the glassblowing instructors, as well as communal toilets and bathhouses set neatly in the woods. The highly collective living and creating environment for artists was an early model of cohousing. (Miller)

These buildings among others are the most important buildings on site. Other buildings such as the offices and print-shop are completely updated as far as technology and vernacular.

However, the housing situation is currently lacking. Housing for students, visiting professors and artists do not have what is considered basic amenities. The shacks or cabins are located northeast of the site in the woods. Many of the cabins share or use outhouses located outside and are centrally located between artist and student residences. Showers and running water are also located there as well. With the amount of technology available today, these structures should have at least the bare essentials in order for the glass-blowing community to grow. In order for Pilchuck to grow, larger cabins need to be built with sustainable technology to help foster the idea of living with the land.


Figure 19 – Present day Pilchuck Glass School campus.

## Zoning, Codes, and Site Access

Zoning and codes are a very important aspect to the proposed design of Pilchuck. Accessibility (ADA) needs to be built in to each building to accommodate disabled students and staff. Currently buildings are on different levels of topography and steps are needed to enter some buildings. This section looks at those particular issues plus construction standards, and the role of locations of facilities to accommodate specific needs

**1106.6 Location.** Accessible parking spaces shall be located on the shortest accessible route of travel from adjacent parking to an accessible building entrance. In parking facilities that do not serve a particular building, accessible parking spaces shall be located on the shortest route to an accessible pedestrian entrance to the parking facility. Where buildings have multiple accessible entrances with adjacent parking, accessible parking spaces shall be dispersed and located near the accessible entrances. Wherever practical, the accessible route shall not cross lanes of vehicular traffic. Where crossing traffic lanes is necessary, the route shall be designated and marked as a crosswalk.

**Exceptions:**

1. In multilevel parking structures, van accessible parking spaces are permitted on one level.

2. Accessible parking spaces shall be permitted to be located in different parking facilities if substantially equivalent or greater accessibility is provided in terms of distance from an accessible entrance or entrances, parking fee and user convenience

**1203.4 Natural ventilation.** For other than Group R occupancies, natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the

outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants. Group R occupancies shall comply with the International Mechanical Code.

**1204.1 Equipment and systems.** Interior spaces intended for human occupancy shall be provided with active or passive space-heating systems capable of maintaining a minimum indoor temperature of 68ºF (20ºC) at a point 3 feet (914 mm) above the floor on the design heating day.

**Exceptions:**

1. Interior spaces where the primary purpose is not associated with human comfort.

**2.** Group R-1 occupancies not more than 500 square feet.

**1204.2 Heating.**

**1204.2.1 Definitions.** For the purposes of this section only, the following definitions apply.

**DESIGNATED AREAS** are those areas designated by a county to be an urban growth area in Chapter 36.70A RCW and those areas designated by the US Environmental Protection Agency as being in nonattainment for particulate matter.

**SUBSTANTIALLY REMODELED** means any alteration or restoration of a building exceeding 60 percent of the appraised value of such building within a 12 month period. For the purpose of this section, the appraised value is the estimated cost to replace the building and structure in kind, based on current replacement costs.

**1204.2.2 Primary Heating Source.** Primary heating sources in all new and substantially remodeled buildings in designated areas shall not be dependent upon wood stoves.

**1204.2.3 Solid Fuel Burning Devices.** No new or used solid fuel burning device shall be installed in new or existing buildings unless such device is United States Environmental Protection Agency certified or exempt from certification by the United States Environmental Protection Agency and conforms with RCW 70.94.011, 70.94.450, 70.94.453 and 70.94.457.

**Exceptions:**

1. Wood cook stoves.

2. Antique wood heaters manufactured prior to 1940.

**1203.6.3.2 Floors in contact with the earth.**

**1203.6.3.2.1 General.** Concrete slabs that are in direct contact with the building envelope shall comply with the requirements of this section.

**Exception**: Concrete slabs located under garages or other than Group R Occupancies need not comply with this chapter.

**1203.6.3.2.2 Aggregate.** A layer of aggregate of 4-inch minimum thickness shall be placed beneath concrete slabs. The aggregate shall be continuous to the extent practical.

**1203.6.3.2.3 Gradation.** Aggregate shall:

1. Comply with ASTM Standard C-33 Standard Specification for Concrete Aggregate and shall be size No. 8 or larger size aggregate as listed in Table 2, Grading Requirements for Course Aggregate; or

2. Meet the 1988 Washington State Department of Transportation Specification 9-03.1 (3) "Coarse Aggregate for Portland Cement Concrete," or any equivalent successor standards. Aggregate size shall be of Grade 8 or larger as listed in Section 9-03.1 (3) C, "Grading"; or

3. Be screened, washed pea gravel free of deleterious substances in a manner consistent with ASTM Standard C-33 with 100 percent passing a 1/2-inch sieve and less than 5 percent passing a No. 16 sieve. Sieve characteristics shall conform to those acceptable under ASTM Standard C-33.

**Exception:** Aggregate shall not be required if a substitute material or system, with sufficient load bearing characteristics, and having approved capability to provide equal or superior air flow, is installed.

**1208.2 Minimum ceiling heights.** Occupiable spaces and habitable spaces shall have a ceiling height of not less than 7 feet 6 inches (2286 mm). Bathrooms, toilet rooms, kitchen, storage rooms and laundry rooms shall be permitted to have a ceiling height of not less than 7 feet (2134 mm).

**Exceptions:**

1. In one- and two-family dwellings, beams or girders spaced not less than 4 feet (1219 mm) on center shall be permitted to project not more than 6 inches (152 mm) below the required ceiling he height.

2. If any room in a building has a sloped ceiling, the prescribed ceiling height for the room is required in one-half the area thereof. Any portion of the room measuring less than 5 feet (1524 mm) from the finished floor to the ceiling shall not be included in any computation of the minimum area thereof.

3. The height of mezzanines and spaces below mezzanines shall be in accordance with Section 505.1.

**1208.3 Room area.** Every dwelling unit shall have at least one room that shall have not less than 120 square feet (13.9 m2) of net floor area. Other habitable rooms shall have a net floor area of not less than 70 square feet (6.5 m2).

**Exception:** Kitchens in one- and two-family dwellings.

Portions of a room with a sloped ceiling measuring less than 5 feet (1524 mm) or a flat ceiling measuring less than 7 feet (2134 mm) from the finished floor to the finished ceiling shall not be considered as contributing to the minimum habitable area for that room.

**1403.2 Weather protection.** Exterior walls shall provide the building with a weather-resistant exterior wall envelope. The exterior wall envelope shall include flashing as described in Section 1405.4. The exterior wall envelope shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer, as described in Section 1404.2, and a means for draining water that enters the assembly to the exterior. An air space cavity is not required under the exterior cladding for an exterior wall clad with lapped or panel siding made of plywood, engineered wood, hardboard, or fiber cement. Protection against condensation in the exterior wall assembly shall be provided in accordance with Section 1405.3

**1905.1.9 ACI 318, Section D.3.3.** Modify ACI 318 Sections D.3.3.4.2 and D.3.3.5.2 to read as follows:

D.3.3.4.2 - Where the tensile component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor tensile force associated with the same load combination, anchors and their attachments shall be designed in accordance

with D.3.3.4.3. The anchor design tensile strength shall be determined in accordance with D.3.3.4.4.

**Exceptions:**

1. Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 need not satisfy Section D.3.3.4.3.

2. Anchors in concrete designed to support nonstructural components in accordance with ASCE 7 Section 13.4.2 need not satisfy Section D.3.3.4.3.

D.3.3.5.2 - Where the shear component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor shear force associated with the same load combination, anchors and their attachments shall be designed in accordance with D.3.3.5.3. The anchor design shear strength for resisting earthquake forces shall be determined in accordance with D.6.

**Exceptions:**

1. D.3.3.5.3 need not apply and the design shear strength in accordance with D.6.2.1(c) need not be computed for anchor bolts attaching wood sill plates of bearing or nonbearing walls of light-frame wood structures to foundations or foundation stem walls provided all of the following are satisfied:

1.1. The allowable in-plane shear strength of the anchor is determined in accordance with AF&PANDS Table 11E for lateral design values parallel to grain.

1.2. The maximum anchor nominal diameter is 5/8 inches (16 mm).

1.3. Anchor bolts are embedded into concrete a minimum of 7 inches (178 mm).

1.4. Anchor bolts are located a minimum of 1 3/4 inches (45 mm) from the edge of the concrete parallel to the length of the wood sill plate.

1.5. Anchor bolts are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the wood sill plate.

1.6. The sill plate is 2-inch or 3-inch nominal thickness.

2. Section D.3.3.5.3 need not apply and the design shear strength in accordance with Section D.6.2.1(c) need not be computed for anchor bolts attaching cold-formed steel track of bearing or nonbearing walls of light-frame construction to foundations or foundation stem walls provided all of the following are satisfied:

2.1. The maximum anchor nominal diameter is 5/8 inches (16 mm).

2.2. Anchors are embedded into concrete a minimum of 7 inches (178 mm).

2.3. Anchors are located a minimum of 1 3/4 inches (45 mm) from the edge of the concrete parallel to the length of the track.

2.4. Anchors are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the track.

2.5. The track is 33 to 68 mil designation thickness.

Allowable in-plane shear strength of exempt anchors, parallel to the edge of concrete shall be permitted to be determined in accordance with AISI S100 Section E3.3.1.

3. Anchors in concrete designed to support nonstructural components in accordance with ASCE 7 Section 13.4.2 need not satisfy Section D.3.3.5.3.

4. In light-frame construction, bearing or nonbearing walls, shear strength of concrete anchors less than or equal to 1 inch (25 mm) in diameter connecting sill plate or track to

foundation or foundation stem wall need not satisfy D.3.3.5.3 when the design strength of the anchors is determined in accordance with D.6.2.1(c).

***SECTION 1909***
***ANCHORAGE TO CONCRETE—STRENGTH DESIGN***

**2111.7 Fireplaces.** Fireplaces shall be provided with each of the following:

1. Tightly fitting flue dampers, operated by a readily accessible manual or approved automatic control.

**Exception:** Fireplaces with gas logs shall be installed in accordance with the International Mechanical Code Section 901, except that the standards for liquefied petroleum gas installations shall be NFPA 58 (Liquefied Petroleum Gas Code) and NFPA 54 (National Fuel Gas Code).

2. An outside source for combustion air ducted into the firebox. The duct shall be at least 6 square inches, and shall be provided with an operable outside air duct damper.

**Exception:** Washington certified fireplaces shall be installed with the combustion air systems necessary for their safe and efficient combustion and specified by the manufacturer in accordance with the Washington State Building Standard 31-2 (WAC 51-50-31200) and IBC Section 2114 (WAC 51-50-2114).

3. Site built fireplaces shall have tight fitting glass or metal doors, or a flue draft induction fan or as approved for minimizing back-drafting. Factory built fireplaces shall use doors listed for the installed appliance.

**2111.7.1 Lintel and throat.** Masonry over a fireplace opening shall be supported by a lintel of noncombustible material. The minimum required bearing length on each end of the fireplace opening shall be 4 inches (102 mm). The fireplace throat or damper shall be located a minimum of 8 inches (203 mm) above the top of the fireplace opening.

# CHAPTER 4
# THESIS PROJECT

## Programmatic Analysis


Figure 20 – Existing Pilchuck Glass School program.

## Existing Facilities Analysis

1. Main Lodge and Library
    a. No sign of disrepair, fairly new banquet hall
    b. May need an addition for new incoming student population
2. Printshop
    a. Very old structure, leaking roof and serious repairs needed for heating and cooling systems.
    b. Lacks connectivity to rest of campus.

3. Woodshop
    a. Very old structure, but still in decent shape structurally
    b. Interior was retrofitted with a wood stove 5 years ago.
4. Cold shop
    a. Older structure but has new roof (metal), houses shaping and metal working presses
5. Artist-in-Residence Studios
    a. Very old structure does not accommodate more than 15 students at a time.
    b. Roof leaks and has heating system, no cooling system, and passive air structure.
6. Hot shop
    a. Oldest structure on the campus
    b. Redesigned in the 1970's to comply with local codes
    c. Houses wood hearth and glass blowing ovens
7. Offices
    a. Fairly new structure, houses administration and meeting rooms for staff.
8. Flat shop
    a. Second oldest structure on campus
    b. Redesigned in the 1970's to comply with local codes
    c. Houses metal work for glass, also patterning
9. School Store
    a. Underground facility, built into hillside
    b. An old structure, unknown date of construction, possibly 1990's

10. Studio Building
    a. Houses ten to twenty full-time students focusing on digital media and other mixed media projects.
    b. Largest structure on campus, recently renovated
11. Mold and kiln building
    a. Also houses ten to twenty students using the six kilns and molding shop
    b. Newer look to outside after renovations, interior is old and outdated
12. Storage shed
    a. Useless structure on campus
    b. Very old and houses old farm equipment and other maintenance tools
13. Student housing
    a. Currently holds six students with one main bathroom (located 10’ from most cabins)
    b. Extremely old and dilapidated structure, needs to re-designed and renovated accordingly
    c. More housing to accommodate future incoming students
14. Main maintenance building
    a. Houses lawn equipment and trucks for specific tasks around campus
15. Abandoned buildings
    a. No real need for the building, proximity to campus is very far away
    b. Should be demolished, or repaired for other uses
16. Reservoir
    a. Valuable resource on campus that can be used in multitude of buildings

b. Water source that can be used for cooling or drinking

17. Staff Housing

a. Very old housing, needs serious repair along with a number of amenities such as running water and bathrooms

18. Caretaker/ Maintenance Worker Residence

a. Very old home, but no plans on any type of renovation in the works

b. Could use an updated façade and landscape (it is the entrance to Pilchuck)


Figure 21 – Initial demolition plan (illustrates buildings that will remain and buildings that will be added.)

## Proposed Design

Pilchuck Glass School began as a creative experiment by artists who wanted to work with glass while living as a community in a wilderness environment. This concept attracted more artists as it allowed freedom of expression, the place, and the time to experiment with glass. Today Pilchuck and its environment are an ideal setting for shared creative experiences, experimentation, reflection, inspiration, and learning.

Buildings such as the lodge, studio buildings, and housing are all made of native materials in the Pacific Northwest architectural style known for responding to the environment. Studios are well-equipped for glassblowing, hot-glass sculpting, hot casting, kiln casting, cold-working, flame-working, neon, fusing, glass painting, stained glass, printmaking, woodworking, metalworking, and more.

A small student gallery, school store, library, dining hall, artist's studios, and offices are located near the studios surrounding the center of campus. Artist's cabins, cottages, and dormitory are located a brief walk away from the studios along foot paths through woods and clearings. Residents can hike and be inspired on well established paths through the 15,000 acre Pilchuck Tree Farm surrounding the school, which also includes an occasional view of Puget Sound, its islands, and waterways. Pilchuck is in need of large improvements that will enhance circulation, living conditions and sustainability for years to come. Housing is the largest issue that plagues Pilchuck. Student housing can only accommodate up to 50 students per term or semester. New housing and renovations will need to be designed and built to do this. The new housing will be more centrally located to campus but to remain private from main circulation. Public/ private space is best accomplished by creating an eco-tone, where the building

will be integrated on the edge of the open space/ forest to provide an intimate relationship to nature and its surroundings.

In order for Pilchuck to grow in the next ten years, the student population must increase dramatically to keep the waiting list smaller and classrooms filled. More and more people will be finding out about the innovative features of Pilchuck and will want to be part of its future.

Pilchuck Glass School campus also needs a master plan update, renovations and the construction of two dedicated teaching facilities. The challenge: assuring compatibility between the existing campus buildings and the new, while at the same time establishing a distinct identity for the new buildings.

*A site and its community*

The property of Pilchuck Glass School is a remarkable opportunity for the students and staff of Pilchuck to engage in creating a truly community-oriented place. The site's neighbors north and south are rural residential communities. The site is currently a stand-alone community and has a very rural retreat feel to the nestled away campus. The school is primarily for visiting artists or students interested in glassblowing.

- *How can Pilchuck benefit from its natural adjacencies to create a more unified place that benefits all of the local glassblowing community and utilizes all of the site's potential?*
- *How can they create a place that brings people together?*
- *What is the meaning of sustainability in the context of creating lasting experiences?*
- *How can architecture at this site create socially engaging spaces?*

- *How can the daily activities of life and living be a part of large meaningful experiences?*

This project can address these questions along with the necessary needs of the campus such as extra studio space; housing is in short supply, connections and adjacencies, permaculture and sustainability. All of these needs can be served on this site through thoughtful planning, hard questions, engaged constituents, environmental respect, and carefully designed architecture.

*Opportunity*

*Space*

- Indoor/ Outdoor Community Space
- Indoor/ Outdoor Exhibit Space
- Indoor/ Outdoor Collaborative Space
- Artist Workspaces
- Workshops
- Classrooms and Meeting Spaces

*Structure*

- ADA and low-impact pathways and ramps for site-wide accessibility
- Café
- Environmental Learning Center
- Artist in Residence Housing
- Student Housing
- Amphitheater

*Environment*

- Low impact on existing environment
- Raingardens
- Permaculture
- Space for Outdoor Art Installations
- Environmental Learning
- Interpretive Graphics

## *Engagement*

### *Overview*

Architecture is the art of building social space. Each of us enjoys unique experiences and the opportunity to enrich our lives. Pilchuck Glass School is a lively community full of people who respond to different opportunities.

The proposal for this property is dedicated to providing increased public space, learning opportunities for a wide range of interests. The project proposes an environmental center with a hearth for communal engagement, native plantings, walkways that provide ADA access, and cafe/ pavilion that overlooks the surrounding landscape.

Community spaces can include extra studio space, classrooms for workshops, and even a hot shop that represents the heart of the campus. Also, included in the proposal are small “dry-built” structures that flexibly adapt as either residential or educational use that can be easily relocated for future residential housing spaces.

Unique paths, sculpture gardens, terraces, amphitheater in the landscape can be an integral part of the community space and a stage to interpretive graphics that reflect the environment, inspire and inform Pilchucks’ glass-blowing community.

*Approach*

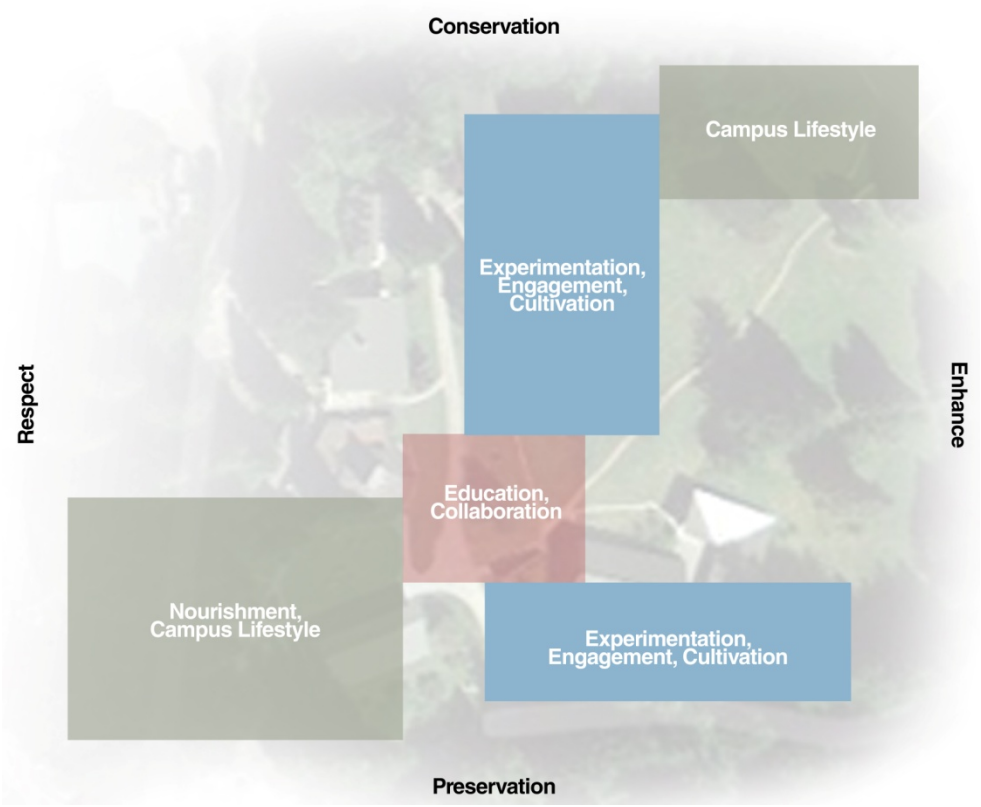



Figure 22 – Organizational concept for design.

*Initial Design*

*Proposed site description*

To address the development of spirit within the campus, I've addressed several aspects. Architecture obviously played a vital role in the way the campus looked and functioned. I determined that by unifying the look, I could establish a desired character. I also studied the circulation and used it to help determine how we could improve and define movement between facilities. The programmatic buildings are not up to ADA compliance. Ramps and elevated footpaths will need to be added for access to each building. This also led me to the conclusion that functional zones needed to be defined. To accomplish this, I would need to reorganize functions and move the location of some

programs. While this was more intrusive than initially desired, it became crucial in creating a better visitor experience. While dealing with visitor experience, it became apparent that I need to set the tone at the entrance to campus. This space needed to be articulated better so as to create a better sense of arrival and place as well as draw people in. Finally, I began thinking about how to incorporate native plants to begin to naturalize the campus as well as add color and texture. The bonus of this was that I could improve the natural processes by which water was dealt with on site with these native plantings.

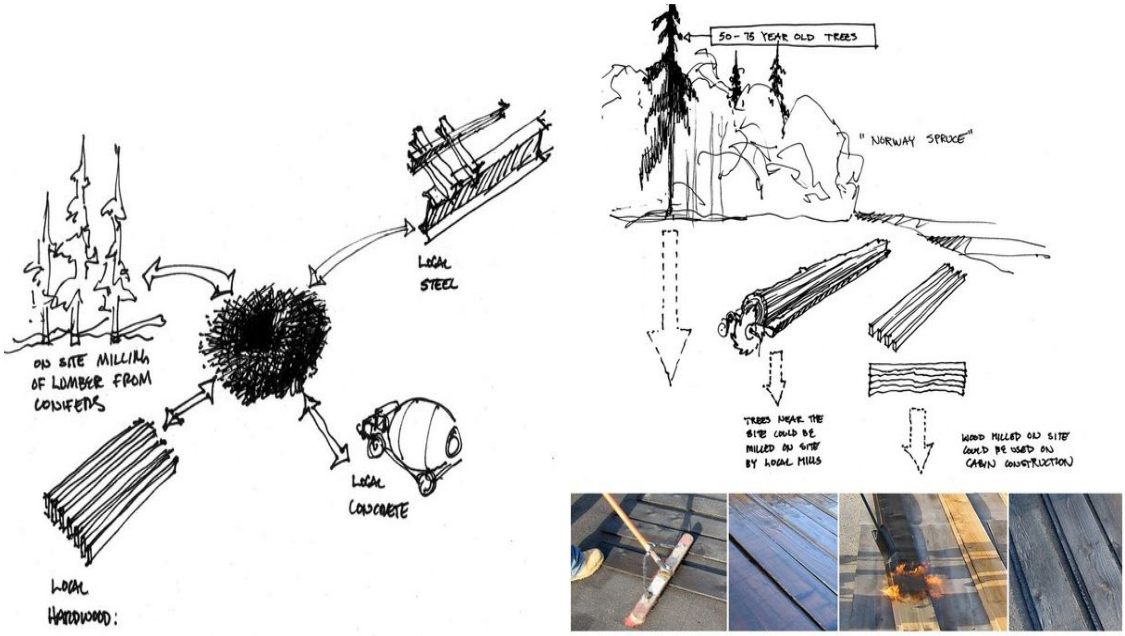



Figure 23 – Early concept sketches on a site-wide low impact sustainability study.

*Campus Needs*

- Improved circulation (ADA accessibility)

- Building size (student population)

- Student housing for increased population

- Instructor housing

- Various structural repairs

- Establish a more cohesive campus

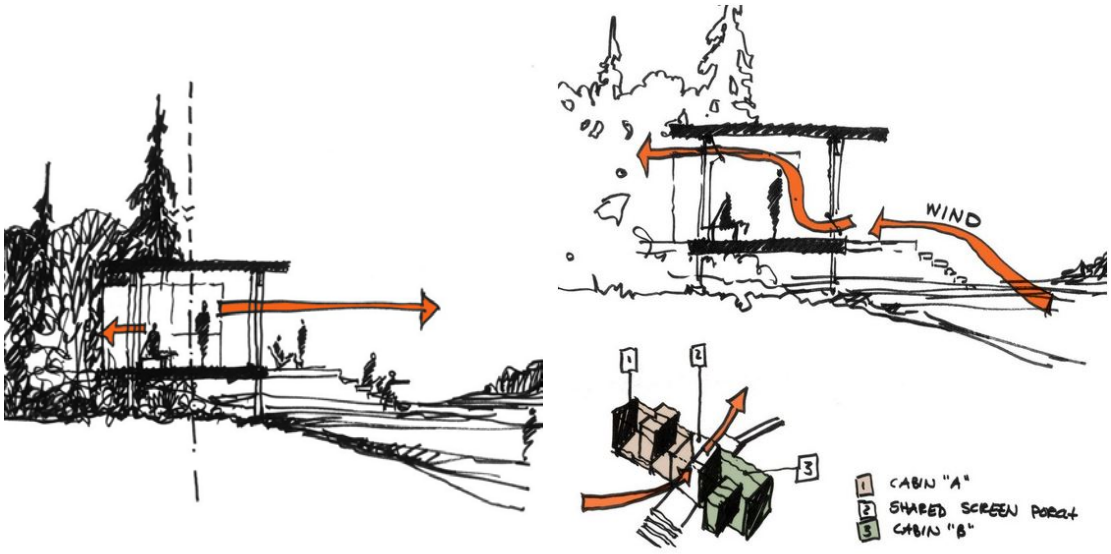
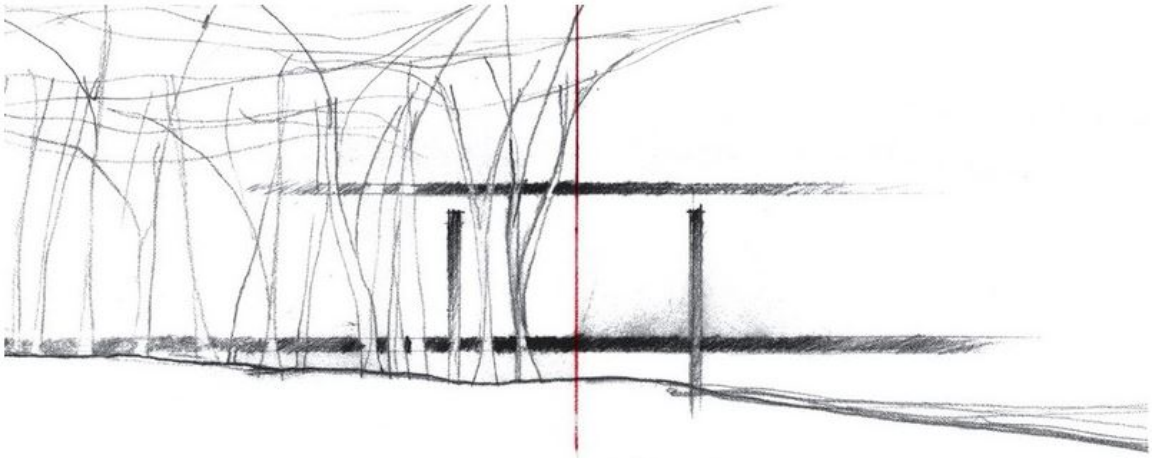



Figure 24 – Early sketches on housing.



**ec·o·tone** (ĕk′ə-tōn′, ē′kə-) *n.* A transitional zone between two communities containing the characteristic species of each. [ECO– + Greek *tonos*, tension, tone; see TONE.]

Figure 25 – Ecotone description.

*Campus design*

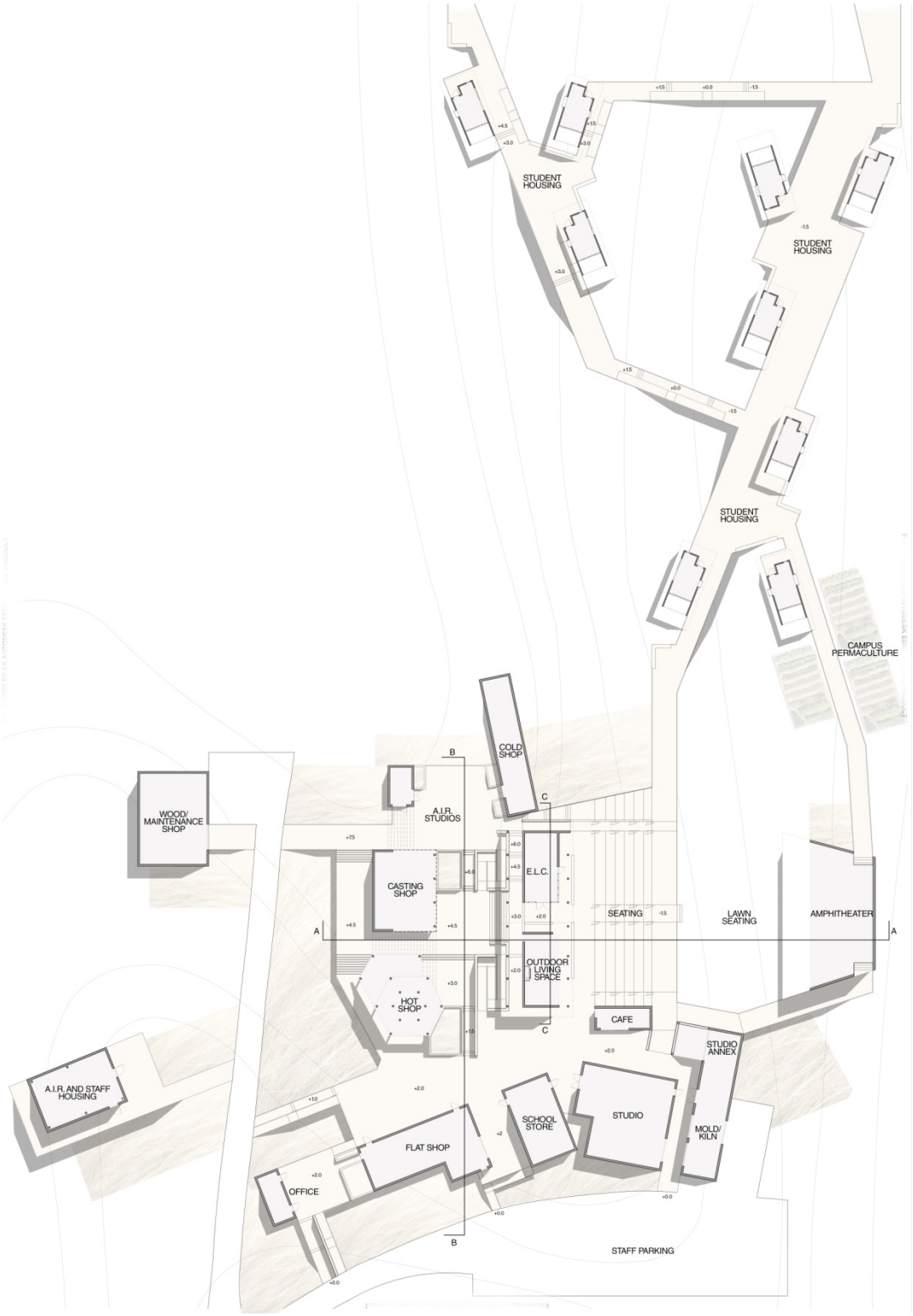



Figure 26 – Proposed campus design.


Figure 27 – Existing/ addition campus design.

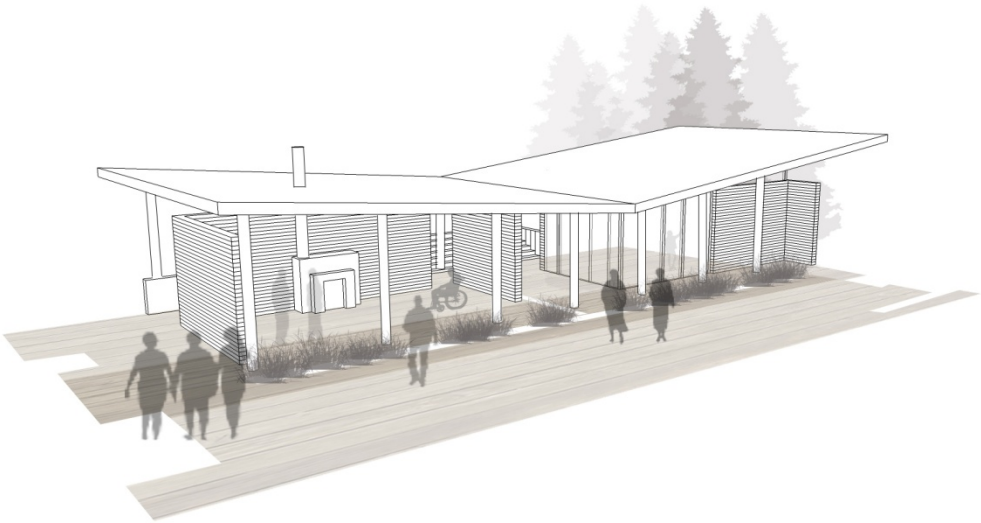


Figure 28 – Environmental learning center perspective.

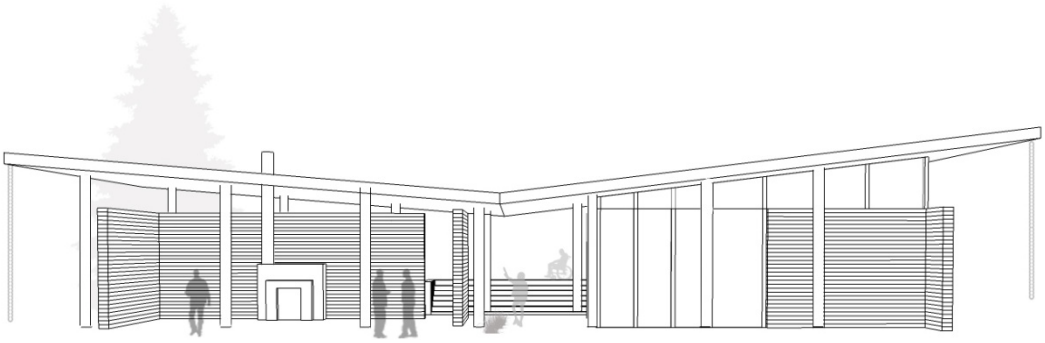


Figure 29 – Environmental learning center west elevation.

Figure 30 – Student housing perspective.

Figure 31 – Student housing south elevation.

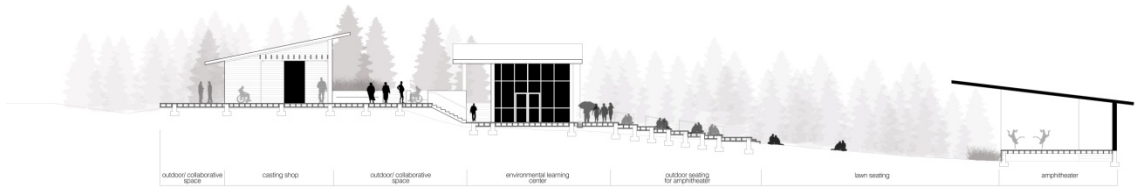



Figure 32 – Section A-A.

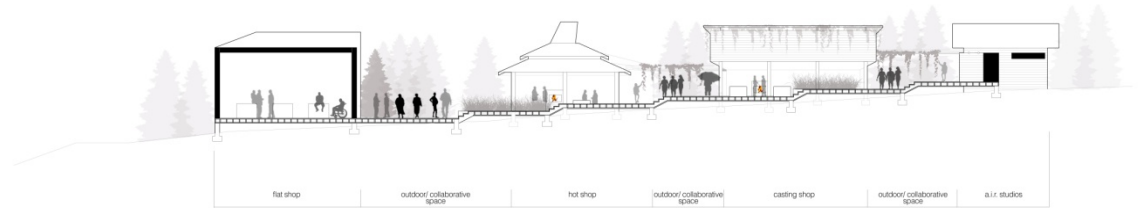



Figure 33 – Section B-B.

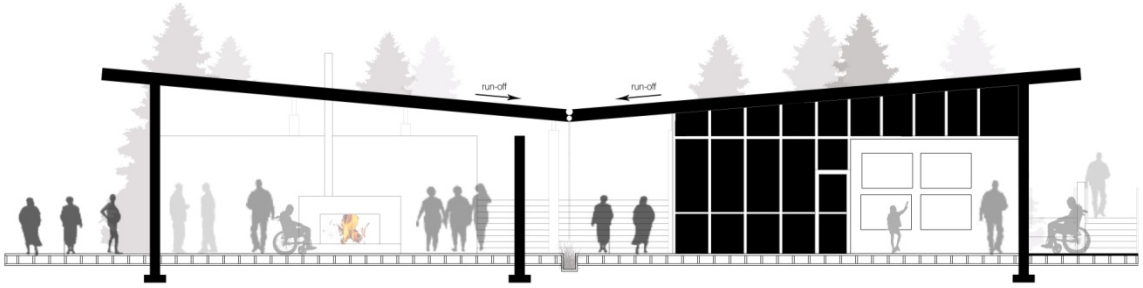



Figure 34 – Section C-C.

A major part of the design was to create pathways that were ADA accessible. Site-wide accessiblity was a must in order for the campus to comply with Washington state codes. Most buildings had little to no connection to the ground surface and could only be accessed via a few stairs. My design connects the entire campus with boardwalk type decking that extends throughout the campus. Ramps and stairs allow students and faculty to now traverse Pilchuck's very steep landscape with ease. ADA accessibility was a must and worked perfectly with Pilchuck's rustic charm of wood timbers and native

plant material that would encompass pedestrian pathways and has a low-impact on the existing environment.

Rainwater collection was a major part of the design and part of the charm of the campus. The sounds of bubbling water rushing beside you as your stroll to your next class was the feeling that I was trying to instill. In the end, hearing and seeing the actual element that will be either used later on or in buildings serves as a form of sustainability and creates another way to reinforce the principles of living with the land. The Pacific Northwest is a very rainy climate and creating opportunities to listen, watch, and even collect is almost necessary. In Figure 35 Section C-C, a simple design technique on the Environmental learning center was to create a concave roof surface that would collect water in the center; then disperse it down rain chains to the awaiting plant material and runnels that would then carry water throughout the campus.

With the addition of all these elements Pilchuck can now prosper for generations to come. The design lends itself to the legacy that Pilchuck became back in 1970 and will continue foster the growing international glass-blowing community.

## Future Sustainable Strategies

Pilchuck Glass School faces unique challenges when it comes to seeking ways to help the environment due to its use of extensive hot glass equipment required by students, including torches, glory holes, and furnaces. The school is using those challenges to inspire new ways of working with glass to reduce its carbon footprint.

Pilchuck Glass School strives to keep up with modern day glass-blowing techniques. In order for Pilchuck to survive today's future they must first update and increase living space conditions on campus. Secondly, they must find ways to reuse energy that is lost during the glass-blowing process. Heat and water are two of the most important elements when glass-blowing both of which are used extensively. Reusing heat to warm cabins or spaces in the winter or even create a way to use the kiln energy to heat water for showers and sinks. Small improvements like this can save thousands of dollars a year in energy costs. Lastly, Pilchuck needs to really possess the "craft" feel not only in its processes but in its structures and layout of the campus. Pilchuck has a very rich history in which different buildings were designed out of a specific era. This eclectic building vernacular allows Pilchuck to enter into a new age of design and technology that will continue to foster generations to come.

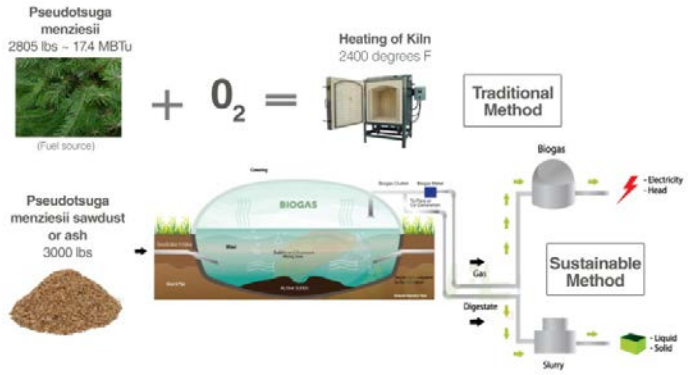



Figure 36 – Sustainability and campus energy flow-chart.

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