The Natural Circumstances of Place
design to awaken sensibilities

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THE NATURAL CIRCUMSTANCES OF PLACE:

DESIGN TO AWAKEN SENSIBILITIES

by

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Marit Lee Lueth

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This thesis suggests redirecting our attention to our immediate, palpable natural environment in an effort to re-establish an attachment to place through a better understanding of the unique qualities of our natural surroundings. It acknowledges that a better understanding of the natural environment, the one outside one’s backdoor, is gained through first-hand experience and discovery and when provided with the opportunity to engage in primary experience of our natural places there exists the potential for improved understanding and emotional involvement in place.
The phenomenon of universalization, while being an advancement of mankind, at the same time constitutes a sort of subtle destruction, not only of traditional cultures, which might not be an irreparable wrong, but also of what I shall call for the time being the creative nucleus of great cultures, that nucleus on the basis of which we interpret life, what I shall call in advance the ethical and mythical nucleus of mankind. It is a fact: every culture cannot sustain and absorb the shock of modern civilization. There is the paradox, how to become modern and to return to sources; how to revive the old, dormant civilization and take part in universal civilization.

Paul Ricoeur  *History and Truth*  1965
Invasive plants are introduced species that can thrive in areas beyond their natural range of dispersal. These plants are characteristically adaptable, aggressive, and have a high reproductive capacity. Their vigor combined with a lack of natural enemies often leads to outbreak populations.\(^1\)

Kudzu was introduced from Japan. The once-promoted plant was named a pest weed by the United States Department of Agriculture in 1953. Kudzu has naturalized into about 20,000 to 30,000 square kilometers of land in the United States and costs around $500 million annually in lost cropland and control costs.\(^2\)

Mass media has our attention. It begs for our gaze and interest when within earshot. Contemporary American culture is more electronically connected with the rest of Earth than ever before and as long as we are within reach of an outlet, internet portal, or equipped with a cell phone most of us are able to conduct business as usual, regardless of where we are. This is the reality of our daily lives: ipods, images and megabytes per second.

What Paul Ricoeur refers to as “the phenomenon of universalization” has made possible the vast dissemination of goods, technologies, and information so much so that we need not rely on that which is immediately around us to provide resources, services or even social interaction. This is simultaneously invaluable and grim: invaluable in the notions of universal health care and education, in a Universal Declaration of Human Rights. We’ve gained the conveniences of fast cars, cheap clothes and tropical fruit in a snowy December. But when we find ourselves smothered by universalization, when technologies aren’t critically and locally applied things quickly become bleak; when the mango farmer’s community can no longer compete with Dole. This is the phenomenon enabling the subtle erosion of creative nucleus, the nucleus as the mythic of life that bears rituals and flourishing arts, that is unique with resilient community values and distinctive cuisines. The creative nucleus is realized in and a result of a deep collective engagement of culture and place. The creative nucleus emerges in an inimitable identity.
As a student I’ve moved from house to house 10 times in the past five years. I have lived in two states and on two continents. Currently, I rent a room in a house I didn’t build and from which I know I must move in a matter of months. I attend a university campus, on which I don’t live, and at which I change classrooms several times per day and occupy a different workspace each semester. I work a job wherein no longer than two hours is spent in each of four or five homes moving about in a whirlwind from room to room. These places, the physical settings in which I am living the majority of my daily life. I am not bound to my places, physically or emotionally, but these are the places that define my life.

Herein lies a problem: we as communities are experiencing an emotional disconnect from our places as we are able to function without the roots that bind us to place, to a specific land. The lack of attachment to the physicality, encourages a weakened feeling of involvement in and commitment to the physical places around us, our built and natural environments. The fact that emotional attachment to physical places is more often lamented than lived is a threat to the creative nucleus of our culture, of our communities, even our individual selves. The unique identities of our places fade as we become emotionally detached and less invested in specific place.

German filmmaker Wim Wenders observes what’s happening in America as we struggle to grasp our place within a familiar but distant global environment and that of our daily lives, streets and towns, “Loss of place. Loss of quality. Loss of reality. Loss of identity. Maybe it’s a European distinction to have more of a sense of place.” Maybe it is a European distinction to have more of a sense of place; as an exchange student in Sweden the life I lived was steeped in an incredible affection for the dairy farm and house I was living in. My Swedish family took great pride in maintaining their house and grounds, built in 1640, and found satisfaction in introducing me, the visitor, to every inch and knoll of their fields and streams and each corner of the nearby town. They held a deep notion of the character of their place, a trait they seem to share with their countrymen. “Americans evince a striking complacency when it comes to their everyday environment and the growing calamity it represents.” The calamity of the everyday environment is the sense of indifference pervading our culture, indifference that threatens the quality and future of our places.

“We see today’s landscape not as it is but as a degenerate version of the traditional landscape, see the abandonment of old values, old techniques, old institutions with nothing developing in its place.” We lament an idyllic notion of a golden age of the past, one in which people gallantly explored frontiers, pioneered pastoral homesteads and worked in fields as a labor of love. The human interpretation of the world was limited to the local: the people and places within walking distance. People were, indeed, constrained to locale by means of transportation and agrarian societies in which peoples’ livelihood depended on the harvest and the hunt. We no longer experience the physical attachment to place as necessitated by agrarian life. Coleman Coker observes: “Our current cultural milieu no longer requires attachment to the physicality of the world.” The reality of not needing to depend on our local means we don’t pause to consider what is beneath our fingers: the spaces, places and elements that have sustained us.

As a student I’ve moved from house to house 10 times in the past five years. I have lived in two states and on two continents. Currently, I rent a room in a house I didn’t build and from which I know I must move in a matter of months. I attend a university campus, on which I don’t live, and at which I change classrooms several times per day and occupy a different workspace each semester. I work a job wherein no longer than two hours is spent in each of four or five homes moving about in a whirlwind from room to room. These places, the physical settings in which I am living the majority of my daily life. I am not bound to my places, physically or emotionally, but these are the places that define my life.
theory

If you don’t know where you are, you don’t know who you are.
_Wendell Berry_

i·den·ti·ty
(i-den’ti-ty)
n. pl. i·den·ti·ties

1. The collective aspect of the set of characteristics by which a thing is definitively recognizable or known.

There is a reciprocity in people and place that forms the identity of both. The physical environment in which we live is more than props on a stage, it gives us context; it locates us, sustains us. Our built environments enveloped within the greater natural environment form our landscapes: the physical context of community identity. Our sense of identity is weakened when we are at odds with our places, when we as a community don’t feel a collective attachment to the landscape common to a group. If community doesn’t relate to its landscape, doesn’t find value in the content of its place or pride in its place, the character of both is threatened by indifference. Indifference can destroy the creative nucleus and erode identities and, when shared, ultimately threatens the potential to sustain our communities. If we feel no concern for a place there is no motivation to care for that place in the present or for its future.

In evaluating the physical context in which we are living, the places our identities as individuals and communities of individuals are forming, it becomes apparent that there is a disconnect between the places of Contemporary American Culture and the natural environment. We tend to view the natural world as a separate, self contained environment rather than the all-encompassing world that it is. Our towns, born of natural resources of the landscape, settled by trappers, miners, loggers, and farmers each dependent on verdant land, are quickly giving up a unique sense of place to the universal. So how do we begin to reconnect with the natural world that has, until recently, been a primary piece of our mythic, of our identities? “As a community we have before us, for the first time, the distinct privilege of asking ourselves the fundamental question of how we are in the world. We have the never-before potential of reflecting on how we want to respond to our relationship as physical beings in a sensate world,” Architect Coleman Coker reflects. Since modern life for the majority of us does not necessitate intimate contact with the natural world we must choose to re-establish that contact within the realities of today. Herein lies a paradox of contemporary culture: how to progress as modern technological communities and reconnect with the natural world that our social milieu no longer requires.

At the basis of a human reconnection with the natural environment is a greater understanding of our fundamental yet unique physical contexts. A more intimate knowing of the immediate, palpable natural environment is a step toward feeling a part of it, and it a part of one’s self; of identifying with the natural that we leave outside the back door; it is improving one’s understanding of the physical world and how we are in it. This knowing is gained through direct experience and personal discovery. When provided the opportunity to engage in primary experience of our natural places, even encouraged, the potential for an emotional attachment to place arises.

To care for something one must know it. And to know it one must engage with it. This thesis is focused on the human engagement in the natural world.
Nature is “the universe and all its phenomena,” to be exact. At once intangible in scope and complexity, the intent of this thesis is not to dissect nature but to come to know more of the natural environment in and around our communities. The natural world is the sleet on my windshield, topography, watersheds, flora and fauna. It is the carbon cycle and the dew on the grass, the food chain and a robin’s nest perched in my chokecherry tree. The natural environment is weather and weathering, continually changing, growing and eroding, precipitating and reproducing. And we live in it.

The natural environment of the focus of this thesis is all of the abovementioned that is occurring within the environs of where we live and work; that which is actually beneath our fingertips. My front yard which leads into the backyard and the neighbors’ yards and their fields which altogether form the countryside of our region. The focus is on the stream up the road I saw again the other day, the one that happens to be the source of our drinking water. The nature that is here and now is not at the forefront of our modern life but is fundamentally at the forefront of life. It is what Wallace Stegner writes of fellow poet Wendell Berry’s notion of the familiar and at-hand, “the nature you love is not wild but humanized, disciplined to the support of families but not overused, not exploited. Your province is not in the wilderness where the individual makes contact with the universe, but the farm, the neighborhood, the community, the town...”

J.B. Jackson writes: “Men first undertook to impose order and design on their surroundings not merely for survival but to produce a kind of beauty, glorifying and making visible a particular relationship between men and between men and nature.” Jackson writes of Western Culture, “The landscapes of our ancestors were rooted in land, centuries old attachment” but European people in the early ages valued landscape as a cultural heritage that was at all costs to be preserved intact, the value of landscapes wasn’t an amorous feeling for nature and its beauty it was of the human history in the place. Western Culture first began to deliberately separate itself from nature in the 17th Century as science during The Enlightenment began to dissect nature, to objectify and decode the mystery of natural phenomena by rationalizing the physical world. The Romantic movement’s reaction to the Enlightenment emphasized emotional connections with the beauty of nature becoming a time when picturesque parks and gardens began to blossom.

The contemporary American relationship with nature struggles to define itself. 19th Century ideologies viewing land as commodity: to be owned, lived on and exploited flourish alongside various “Dark, Light and Bright” shades of environmentalism. We value nature for its resources: coal and petroleum, lumber, gems, fertile soils;
The human experience of the Earth and its complexity emphasized in this thesis is, as Coleman Coker discusses the matter, "decidedly unscientific." I am not trained in science, nor do I intend to be but I can't help but to be infatuated with the natural world around me, with its beauty, its simplicity and complexity. I am curious about my drinking water and enjoy taking a dip at the beach in town. Noticing a certain flower near the path and then learning that the wildflower is the only one in the area a certain butterfly will pollinate is mundanely exciting. And people make tea of its leaves! Learning that forest fires used to rip through my woods was appalling until I imagined the re-growth on my next run through the forest. Complimenting direct experience with learned knowledge encourages an even deeper familiarity with the natural environment of place, sparking curiosity and reinforcing comprehension.

David Orr

“It in modern life physical contact with one’s natural environment is increasingly indirect and limited to special occasions." When viewed as a recreational resource, as a destination, as a special occasion the natural environment has been removed from the realm of the daily. When nature is designated as a weekend vacation apart from the real world of our living and working, the disconnect between daily life and nature is amplified. “We see the most significant forms of nature as occurring somewhere else—often hundreds of miles away from where people live—in our National Parks, Seashores and Wilderness Areas,” writer Rebecca Solnit observes. “And traditional American environmentalism still largely imagines nature as vacationland and as wilderness, ignoring the working landscapes and agricultural land” We marvel at the beauty of the foreign. If one confines his definition of nature to wilderness, that of untrammeled raw and pristine natural environment it easily becomes extraordinary, out of our ordinary, no longer everyday. It is now a separate place, revered, yet distant; not the woods behind my house or the field in which I’m planning to build my house. This is not to diminish the value of wilderness for it is immeasurable: the experience of awe; humbling and invigorating. The natural environment must be integrated into our everyday. We must make an effort to take note of the natural that is around us: the sedges and rodents native to your place and the knapweed that isn't native but is thriving in your ditch. As a culture we must refamiliarize ourselves with the natural, redevelop our sensibilities of where we are and emerge with a stronger sense of who we are. This thesis is about the dirt we’ve pushed around into playing fields and built up under concrete slabs; the crisp quality of Montana light in the huge sky and sweeping views after having climbed atop foothills; the big bluestem native to the Midwestern prairies and still at the edge of town and the Kentucky bluegrass that decorates the majority of lawns in the U.S.
When we look more closely at our backyards the big, enveloping natural environment that is the earth becomes personal. The things unique to one’s own place become indistinguishable from the neighbors’ but unique to the neighborhood. It becomes part of the aggregate of identity. Awakening the sensibilities to the qualities that are unique to one’s place and building a greater sensitivity to how we are within the natural world is part of realizing our identity. In realizing the nature that is here and now we realize the interconnection of our places, our environments within regional, continental and global environments. We better know our specific place within the larger context of the Earth. We may hear of deteriorating coral reefs at a location across the world but experience first-hand the erosion of the trail we walk our dogs on. The television tells us there is arsenic in drinking water in Bangladesh and know the drinking water of my community comes from Hyalite Creek and Sourdough Creek just south of town. We begin to combat indifference of universalization by wanting to save the rainforest we hear about on the radio and not wanting to pollute the stream that has the biggest trout and happens to be our tap water.

At the heart of feeling a greater understanding of and connection to the natural environment in our places is feeling oneself a part of that natural environment. “An inclusive outlook that sees the interconnection of things links us to the characteristics of a particular place and the whole world simultaneously.” We acknowledge the interconnectedness of the natural world in itself: the food chain, carbon cycle, photosynthesis. Fritjof Capra discusses the theory of deep ecology as a web of life: “Fundamental interdependence of all phenomena and fact that as individuals and societies we are all embedded in and ultimately dependent on the cyclical process of nature. All living things as one strand in the web of life.”

Now realizing the human entwinement in the natural world- the woods uphill from the wetland were clear cut after which: the wetland flooded and the cattails died and the red-winged blackbirds didn’t come back to my neighborhood. We realize the intertwinment in our social systems, our economies, and our politics and we now add to these ecosystems, watersheds, and the carbon cycle. Economies rise and fall with fluctuations of natural phenomena, civil war breaks out during drought, political aggression weighs on possession of natural resources, and I still get burned by the nettles every time I ride my bike too close to the bush by the road.

“When interconnections are realized the relationships we set up when distinguishing things are irrevocably called into question; separation of solids and void, enclosed/exposed, inside/outside, humans/nature. We find the richest diversity possible in every single thing we encounter without the need to separate parts from the whole. The integrity and resonance of the whole unfolds.” We develop what Coker calls an inclusive outlook. An inclusive outlook that is borne of the characteristics of our

Ecology operates on the basis that no organism is an autonomous entity isolated from its surroundings.

If all mankind were to disappear, the world would regenerate back to the rich state of equilibrium that existed ten thousand years ago. If insects were to vanish, the environment would collapse into chaos. Edward O. Wilson

‘Burn grass’ takes place after the wet season when the grass starts drying off. This takes place every year. The country [land] tells you when and where to burn. To carry out this task you must know your country. You wouldn’t, you just would not attempt to burn someone else’s country. One of the reasons for burning is saving country. If we don’t burn our country every year, we are not looking after our country.

April Bright
One of the fundamental elements of the traditional Aboriginal view of the world is that individuals are not separate from the environment, they are part of it. This is quite different to the way western society views the land, wherein the environment is “out there” beyond the individual, and therefore can be objectified and controlled through human understanding and intervention. Western society sees the environment as something that can be acted upon by humans as independent agents. This view is manifested in the way we attempt to know the environment, as an “objective” reality, using science as a tool to uncover “reality” and to discover universal truths.

The notion of caring for country is quintessentially Aboriginal. Nowhere in the world is there a body of knowledge built up so consistently over so many millennia. Nowhere are there so many living people who continue to sustain that knowledge and engage in associated land management practices.

place, an amalgam of realizations felt at the scale of the local and the character of the locale. We acquire an understanding of human context within the soils, groundwater, and animal habitat of that place; we then understand ourselves as within the natural. Acknowledging the intertwinement of ourselves within our natural environment establishes roots in a specific physical context and a strong physical aspect of identity. A deep ecological awareness creates a connection that is more than logical, it is psychological. This means people will, rather than should be inclined to care for the place.

Architecture tells a place. It is born of the town, of the field in which it is formed. To be rooted is to know a place. To truly feel a place, to have rolled it around in one’s senses and come upon its personality and felt oneself a part of that personality. To have roots is to have a secure point from which to look out onto the world, a firm grasp of one’s own position in the order of things. It is a valuable part of the human need to belong, of feeling part of a place and developing an attachment for that place through emotional participation. To feel rooted in the natural environment means it is part of our identity. There’s a feeling one gets from the everyday experience in a place that he is pleased to return to day after day, as each day the place offers the individual something slightly different than the day before, an intimacy that is changed by the changing seasons, by an overcast day, humid air, the occasional scent of the pig farm up wind. Yi-Fu Tuan writes about “topophilia” or the love of place; “Farmer’s topophilia compounded of physical intimacy, material dependence, and fact that land is a repository of memory and sustains hope.” Dutch architect Herman Hertzberger writes in his “Lessons for Students in Architecture” “You can only develop an affection for things that you can identify with – things on which you can project so much of your own identity and in which you can invest so much care and dedication that they become part of you, absorbed into your own personal world.”

In this time of universalization and remarkable mobility Yi-Fu Tuan notes that modern man has conquered distance but not time. “In a life span, a man now– as in the past– can establish profound roots only in a small corner of the world.” Understanding the natural in one’s physical locale is understanding a bit more of the world, of one’s relation with the world, there develops a psychological investment in place which begins to cultivate a “civitas futuras- a caring citizenry.”
Marking a moment in time, Coleman Coker writes “building is one physical way of testing reality and our being in the world.” It is a fundamental way of mediating the natural environment, our second skin, a more rigid sweater shaped around the activities of our days. “[It] is the ground and conduit that connects us with the world. Through building we realize who we are, how we are in the world.” It is realized of and reciprocally realizes how we as human cultures are in the world; it both stems from and becomes part of our identity. “Through our capacity in the world as makers, it is what we make that defines us as humans;” where we build, the ways we use materials and technologies, and the forms we favor. Architecture is the medium between people and physical environment and as such is fundamentally a mediator: protecting, allowing, gesturing, guiding. It is the relationship of a culture and place realized in physical form that is currently expressing a reluctance to acknowledge the natural environment as an inherent part of the systems of our culture, as a part of who we are.

We go to great lengths to keep nature at bay, to stave it off to an arm’s length in keeping us warm and dry. Fewer windows is cheaper, means less heat loss, less glare on computer screens and fixed windows mean no uncomfortable drafts. We’ve gone from mediating the natural elements to a complete control over our places. Interiors have become sterile and homogenized. But outside hermetic buildings and under asphalt veils is fresh air and wet dirt. A natural world still surrounds our buildings and parking lots.

Is there a way to encourage a different view, a new understanding of the same place that builds on a person’s experience of that place? To offer an experience in the landscape broader than what currently exists in the built environment? Can architecture encourage a greater sensitivity to how we are as a part of the natural world by altering our paths to the conditions of the natural environment? Point toward something in an everyday place that isn’t currently in-focus? Can architecture prompt these experiences- or at least offer the potential to engage with one’s natural environment on a different level? Can design awaken sensibilities to one’s place that have slipped from sight, been pushed aside or paved over?

Again, we reflect on our relationship as physical beings in a sensate world. It is time to re-evaluate the way we intend to be in our physical environments: the paths we take through the terra firma, the activities we choose to engage in at a given location. Through design we can begin to bridge the disconnect between communities and the natural world of their place, enliven spaces to the uniqueness and qualities of the natural, and design to re-awaken our sensibilities to the natural in our landscapes.
“Take off your shoes and walk along a beach through the ocean’s last thin sheet of water gliding landwards and seawards.

You feel reconciled in a way you wouldn’t feel if there were a forced dialogue between you and either one or the other of these great phenomena.

For here, in between land and ocean-in this in-between realm, something happens to you that is quite different from the sailors’ reciprocal nostalgia. No landward yearning from the sea, no seaward yearning from the land. No yearning for the alternative-no escape from one into the other. Architecture must extend ‘the narrow borderline’, persuade it to loop into realm-an articulated in-between realm. Its job is to provide this in-between realm by means of construction, i.e. to provide from house to city scale, a bunch of real places for real people and real things (places that sustain instead of counteract the identity of their specific meaning.”

Aldo Van Eyck

Architecture cannot control emotions or create the attachment to place; as designers we can only provide opportunities in richly intentional environments for activities to occur, environments that intend to impart specific experiences within the built environment. “Architectural space- although founded on and contributing to unselfconscious spatial experiences, involves a deliberated attempt to create spaces.” As designers we can make a deliberated attempt to create spaces that reveal the natural environment of the locale. Through design we can aim to enhance a community’s sensibilities of the natural environment in which it is rooted by responding specifically to the native and sculpted natural features of the surroundings: the forests, the fields, the ditches that are around or beneath what we build. Design should provide the opportunity to engage oneself in the landscape: to open a window, to eat lunch outside, to have a discussion in fresh air, to walk between trees and over natural streams on the way to workplaces. The design of physical spaces then begins to change the current cultural relationship with the natural environment.
Through architecture we can begin to mend the disconnect between the modern ways of living in the world and the natural world in which we live. In architecture that is sensitive to and expressive of the circumstances of the natural environment current norms of design and building that disregard natural elements are challenged. Rich sensory experiences unique to the specific ecology of a place contrast architecture that is indifferent to place as hills are flattened, interiors are identical and paths guide only from automobile to interior environment, hardscape to hardscape. An architecture that revives the senses to that which is natural in the landscape is needed to realize the true circumstances of a place, the entirety of place. This thesis proposes a design process aimed to awaken sensibilities that have been dormant in our human experience of common contemporary architecture.

The architecture borne of this process distinguishes itself from the norm in its siting, its form and materiality; in the active role a person plays in adjusting and fine tuning the building envelope depending on the time of day, the season or the direction the wind is blowing. The human becomes vulnerable and aware in unfamiliar terrain, skin is exposed to the rain seeks shelter- makes shelter. In architecture that begins with the bare minimum of being shelter and layers itself according to conditions to the design process and methodology deliberate. To emphasize the potential for rich sensate experiences in the natural there must be the non-natural - the built - with which we compare, juxtapose, and realize difference. With these two types of experiences a greater sensibility of the natural in the landscapes of our communities is triggered.

A realization of the natural versus the non-natural, of the norm versus the potential must be articulated in order to come to a realization, an awakening. Moments of sensory experience within the natural environment of the site must be articulated in order to translate them and form experiential equivalencies and rich sensory environments. With these in mind, the process of design of the built environment continues, borne of the circumstances of the specific environment and built of the character of the natural, the feel of the natural is intertwined in the built.

The design of a built environment that intends to provoke human awareness of the natural environment is born of the designer’s own intimate understanding of the site’s natural elements and conditions. The design process must be based on a very personal sensitivity to the natural environment which begins with the experiences of the designer; the designer’s breadth of understanding of the natural context of a potential built project must consist of specific elements, conditions, and moments of sensory awareness gathered through first-hand experience then translated into conditions of the built environment through design.
“All my knowledge of the world, even my scientific knowledge, is gained from my own particular point of view, or from some experience of the world without which the symbols of science would be meaningless. The whole universe of science is built upon the world as directly experienced, and if we want to subject science itself to rigorous scrutiny, and arrive at a precise assessment of its meaning and scope, we must begin by reawakening the basic experience of the world…”

Maurice Merleau-Ponty

The population on this continent will become grounded, will find their place, by a slight change of mind that says I’m here.

Gary Snyder
In moments of rich sensuous engagement in the natural, both physical and nonphysical, designed experiential equivalencies and deliberately articulated experiences and paths through our landscapes the natural is highlighted, even prioritized. The current conditions of universalization of design and building are contrasted with a greater sensibility of what is natural in a local environment. Through sensate experiences and design strategies discussed in the following text, architecture begins to provide a greater sense of its specific locale.

In pursuing an architecture borne of the specific circumstances of the natural environment of place intimate experiences of the designer on the site are of the utmost importance. A realization of the natural versus the non-natural, of the norm versus the potential must be articulated in order to come to a realization, an awakening. Then the moments of the natural environment of the site articulated in order to translate them and form experiential equivalencies and rich sensory experiences. With these in mind, the process of design of the built environment continues, borne of the circumstances of the specific environment with the intention of highlighting the character of the natural, the textures and qualities of the natural intertwined in the built.

“As sensate human beings we immediately and spontaneously perceive things, phenomena, through textures, colors, scents. It is an innate way of making sense of the physical world around us.” 41 We come to understand the world through physiological methods of perception: how we see, taste, touch, hear, smell, and balance.42 These perceptions evoke memories, stir curiosities, and identify likes, dislikes and familiarities; through them we orient and navigate. “A thing- all things – manifest themselves through our presence and experience.”43 We thrive when using our senses, are awakened to a connection with other humans and the surrounding phenomena, stimulated by sunlight, fresh air, a horizon line. It is personal and immediate, understood by the individual and shared by a group. J.B. Jackson observes, “The search for sensory experiences of the world as the most reliable source of self-knowledge is more insistent than ever.”44 We can see it, touch it, here and now; there isn’t a lingo to decipher or device to employ. Our current modes of living, our current modes of building are lacking. The focus on designing direct, sensory rich experiences within the natural world encourages an intimate understanding of the natural; nature becomes tangible, significant and personal.

A thorough awareness of the natural in and around a potential building site must involve the designer’s selfconscious efforts and own experience in the place. Designers must realize for themselves the natural features: the dips and divots, the
presence of animals, puddles and blooming trees, for how could one design for a special vantage point of a distant mountain peak or for the sweet scent of the sage if he/she hasn’t found that spot or smelled the scent. They must find inspiration and see opportunity to translate experiences into moments of design. Site analysis of the natural must come to a deeper understanding than topography lines and sun charts toward knowing the loose gravel one slips on when walking up the slope we mark with topo lines and the quality of the stark midday sun in a desert sky not revealed by a sun chart. Through direct experience the qualities of the natural of the site become personal to the designer.

“It is important not to do the analysis “at long range” but to actually go to the site and feel it. See the views, listen to the sounds, look at the activity. Walk or drive the site to get a sense of time-distance factor between boundaries and to feel how the contours change. It is important to judge first hand the value of on site amenities such as trees.” Edward White

The analysis of natural features goes beyond Edward White’s basic knowledge of natural amenities and into a sensibility of- an emotional capacity for the natural. This process thrives on the qualitative aspects, the deeply experiential aspects of site analysis. The research of hard data and realizing first hand what that data feels like, what it looks like, how a person perceives the condition. The sun rises at 6:03 am in June; does it come up over a mountain top or through the trees, is there dew on the grass? The designer’s sensibilities must be heightened, be keen to subtleties perceived as well as rigorously collected hard data. There must be a curiosity to investigate where the standing water is coming from.

The knowledge and feeling of natural features and phenomena must include the interaction of people in the landscapes, the relationship for which we are designing. Identifying past and existing built conditions, paths, and activities are standard elements of site analysis but a keen awareness of the ways people currently interact with natural elements on the site identifies the limits of the current human-nature relationship. Whether people walk, bike or drive, how and where they recreate, whether people make their own paths or follow the paved, prefer to sit out in the sun or shade, do they linger in certain places, next to certain features. Now consider: are there certain features or conditions that are avoided or forgotten? What things in the natural environment would the people in this place be more inclined to be familiar with, to be interested or uninterested in? Differentiate the specific qualities of the place and the qualities specific to the place. “Consider the qualities of places that people will respond to and will grow to care about deeply.” Edward White
For example, identifying familiarities allows the designer to draw on those in design. Dutch architect Herman Hertzberger writes that visual stimuli “must elicit association, so that he can compare them mentally with propositions of which he was already conscious or which can be raised from his subconscious experience. By comparison of the image evoked by the new stimulus with the images already collected in previous experience, its potential can be assessed and can consequently become an extension of his familiar world, and thus of his personality.” He goes on, “The more associations that can be evoked the more individuals will be able to respond to them. These ‘stimuli’ must be designed as to evoke images in everyone’s mind.” Identifying the ways in which people are currently interacting in the local natural environment and the aspects of the environment they may already be familiar with, one can design to both appeal to familiarity and broaden the existing realm of contact with the natural.

Translating newfound sensibilities into design of the built environment.
gather
Observe, look, glance then search. Stare then visualize. Remember. Photograph. Videorecord. Sketch. Describe how shiny, bright, foggy, flickering...
Find out how the tree you saw reseeds.

translate
Make nature visible in the built.
“Instead of maintaining the opposition of interior-exterior as a fundamental contrast, we know, in the 20th century that interior and exterior are relative concepts, and therefore depend on where you stand, in which direction you look.”

Direct views through openings, windows, gesture, point.
“There is also and especially a deliberate allusion to the sense of freedom evoked by a view embracing endless space, and at the same time to the inevitable awareness of vulnerability.”
Expand range of vision: opening up corners where walls and ceilings meet by virtue of shift in focus of attention, drawing the eye upwards or downwards or to the street outside…
The quality of light entering through the windows changes, too: where it enters, unreflected, from above, it brings with it the quality of the outside, which is especially important in areas where you want to relate more directly to the world outside…”

Direct views toward the details: window at base of wall looks out to prairie grass.
Intimate views of landscape elements vs. the overall….
See the woods you just came from… See the river you were just in… See rainwater draining from the roof, the pavement into catchment basin, cistern or wetland.
See a photovoltaic tracker physically responding to the path of the sun in the sky.

“We must always look for the right balance between view and seclusion, in other words for a spatial organization that will enable everyone in every situation to take in the position of his choice vis a vis the others.”

Private views: room for one person to stand and look. Shared views: platform for many.
gather
Describe how prickly, slivery, granular, sticky, coarse, frosty, squishy, sinks down when I step on it.
Look up the growing height of the flower with the fuzzy stem.

translate
Particular attention to the surfaces we normally come into physical contact with:
ground materials, doors, walls, seating.
Design for proximity: plants next to bench, wood wall around a lightswitch.
“The almost palpable presence of masonry as the body senses its own confinement.”
How do materials touch one another?
“The application indoors of the kind of spatial organization and material that refer to the outdoor world make the inside seem less intimate, so spatial references to the indoor world make the outside seem more intimate; it is therefore the bringing into perspective of inside and outside and the ambiguity that this gives rise to that intensifies both the sense of spatial accessibility and the sense of intimacy.
A step by step sequence of indications by architectonic means ensures a gradual entrance and exit…
Changing conditions, interface of itself…new materials, new conditions, contrast, grade.
How does the scale feel in relation to your body?
gather

Listen. Yell and hear an echo. Sketch the sound. Sketch the sound source. Audiorecord. Describe the chirps, whistling, roaring, stillness. Look up the migratory range of the bird you heard. Echo in bottom of slot canyon is different from the echo in a larger canyon. A soft, mossy black spruce forest swallows sounds. Rocky Mountain forest filters. How wind sweeps across a lawn, combs through a prairie and rustles the crown of an oak: each a different experience.

translate


gather

Inhale. Breathe. Take a piece with you. Describe how fragrant, sweet, lingering, overwhelmingly strong, whiffs, wafts, aromas. Look up the grass you smelled.

translate

gather

Inhale, look, touch, draw, photograph, color, describe the feeling you get from the combination of conditions: solitude? Tension? Raucus?

translate

Potential for rich sensation, multidimensional sensory experience... sound of material, scent of material, scent of chemicals, visual phenomenon of light as heat energy heats certain materials. It isn’t only about the material, it is about how a person interacts with the material, the feel, textural or visual sensations. Familiarity. Light interacting with material, breeze, temperature all affecting material.

Finnish architect Juhani Pallasmaa writes of Alvar Aalto’s sensitivity to multisensory experience:

“[he] was consciously concerned with all the senses in his architecture. His comment on the sensory intentions in his furniture design clearly reveals this concern:

‘A piece of furniture that forms a part of a person’s daily habit should not cause excessive glare from light reflection: ditto it should not be disadvantageous in terms of sound, sound absorption, etc. A piece that comes into the most intimate contact with man, as a chair does, shouldn’t be constructed of materials that are excessively good conductors of heat.’

Aalto was clearly more interested in the encounter of the object and the body of the user than in mere visual aesthetics.”57

“A similar tactile sensitivity is evident in the finishing of the public circulation in Alvar Aalto’s Saynatsalo Town Hall of 1952. The main route leading to the second-floor council chamber is ultimately orchestrated in terms which are as much tactile as they are visual. Not only is the principal access stair lined in raked brickwork, but the treads and risers are also finished in brick. The kinetic impetus of the body in climbing the stair is thus checked by the friction of the steps, which are “read” soon after in contrast to the timber floor of the council chamber itself. This chamber asserts its honorific status through sound, smell and texture, not to mention the springy deflection of the floor underfoot.”58
The way in which we make the move, in which we build, is telling of our awareness of that particular site, and the impact of the move telling of the value we feel for the site. Allowing the natural environment to flourish in and around the built environments we create is a step toward a better understanding of our places. As the surroundings might be impressed upon by the building, so too should the building be impressed upon by its surroundings. Flattening and clearing a site without deliberate boundary or consideration renders the site placeless, without regard to its context, this would be the universal approach building. Slope, vegetation, boulders, wetlands should be dealt with very deliberately; carefully altered to enhance design or programmatic requirements not simply because it’s the standard size of an irrigated lawn. It shows a much greater sensitivity when the designer innovates incorporating the existing natural features, a site specific design. Design around natural features, letting them be nearer to the actual built environment, even within the built environment. To offer opportunities for contact with the natural environment we must allow it to be within arm’s reach.

A building that encourages a better understanding of its environment is not resisting its surroundings, not a barricade for the space within. It purposefully screens and reveals the elements and textures, views, sounds, breezes, reflections inherent in the scene around it. Its views and moods are ever changing to the tune of time and weather, seasons and the presence of ever-changing lives, be them human, plant or animal. “Rather than impose on the already-there conditions of the region, a thoughtfully built work exposes them, showing them for what they are.”

59
“Experiential equivalency” is an idea Lawrence Halprin explores in his sketchbook as “designing environments to provide experiences which go beyond visual design and search for basic human needs.” As noted in his sketches, the experiential quality of being inside a fountain he designed evokes many of the same qualities of being in a cave. It is a design process that translates feelings and textures, sounds, spatial scale and proximities, tectonics and movement observed and inspired in the natural environment into the built environment. The idea of ‘experiential equivalency’ in human settlements in towns and cities is to develop within them the qualities of movement: pathways and levels, ups and downs, trees and pavings which activate these qualities of experience which we relate to and feel when we are in nature with all its sensory richness.

Finnish architect Lauri Louekari explores spatial structures of the Nordic forests as sources for modern architecture. “For someone used to moving about in natural surroundings, the idea comes to mind that in building, we transfer and metamorphose the familiar spatial structures of nature and thus express in our work, knowing or unknowingly, the spatial morphology of our environment.” She continues, “the features that identify the fabric of the forest are the incompleteness of the delineation of space, the flowing nature of the space, the layering in depth of the view and the rhythm of the landscape, and the quality of light, which is so typical of the forest.” Drawing on the designer’s sensibilities of a site gleaned through his/her senses, experiential equivalencies aim to translate multi-sensory experiences of nature into the built conditions.
"The definitive design must be attuned to all the intellectual and emotional data that the architect can imagine, and it must relate to all the sensory perceptions of the space. The perceptions of space consist not only of what you see, but also of what you hear, feel, and even smell – as well as the associations thereby evoked."
From the moment we step out of our cars or off our bikes the path toward a building is defined for us. Within the building the path is defined by the way we are able and encouraged to navigate through the space in arrangement of spaces: the floor plan. “Environmental design is a form of movement choreography – we influence participants movements by the way we design for them—this can be very simple—as in the placement of stepping pads in a garden which controls the way people walk down the garden path. It extends to more complex issues like walking paths in towns and cities. How they move up stairs or through corners, or open up vistas or pass under archways is a sequential process of experiential movement.” Designing with movement in mind is a way to steer people intentionally through the natural landscape and the built: directing views, introducing materials, setting a pace. Alvar Aalto was keenly aware of the potential to translate the haptic experience of walking through the Finnish forests in the Syntaloso Town Hall. Floor levels and halls are varied throughout the building by a few steps, its ups and downs like the rolling floor of the forest.

In a deliberately paced path and plan the designer has the opportunity to engage a person in the place, to reveal qualities of a site that might be rushed by in the name of hurry. “More celebration less hurry,” is how architect David Orr feels about engaging in one’s environment which can begin with something as simple as a seat. The most elementary provision to enable people to take possession of their direct environment is probably the provision of seating. Offering a place to sit, lean, or pause creates the opportunity to engage an occupant in a richly sensuous condition of place. An opportunity to engage the senses, to soak in the qualities of the surroundings.
To find a satisfaction and delight in wearing paths in one’s landscape.

Wallace Stegner

A path is a sort of ritual of familiarity. As a form, it is a form of contact with a known landscape. It is not destructive. It is the perfect adaptation, through experience and familiarity, of movement through a place.

Wendell Berry
precedent studies

Lovejoy Fountain
Nordic Pavilion
Walden Project
Virginia B. Fairbanks Art and Nature Park
Cedar River Watershed Center
Prairie Ridge Pavilion
Site-based Land Art
“Our relation to nature as a primary design force…the forces that are operating and the natural forms, shapes and processes surrounding us.”

Lawrence Halprin

precedent : method
Multisensory experiences in nature that inspire built environment
Gathered through observation, physical exploration, listening, investigating.
Recorded the visual, sounds, movement, cause and effect.
Translated natural conditions into built environment: path of water, path of person, sounds of water, tectonic forms.

Lawrence Halprin’s sketchbook reveals intimate studies of natural environment in the Sierra Nevadas. He notes erosion forms and patterns, tectonic relationships of stone and the flow of water, how the water eddies, falls, he notes side streams as secondary events and writes of the sounds of the water in various conditions.

Of his experiences came inspiration for the Lovejoy Fountain.

“bubble, surge, guide, leap, eddy...”

“The stream issues from glacial rock high in the mountain range and starts a long journey through successive form changes in the environment which have evolved from its own previous actions. Plunging through precipitous V-shaped canyons, it flows on to softer U-shaped valleys and meanders through lush upland meadows. Growing in size and force as it is joined by tributaries, it proceeds majestically through flood plains and deltas eventually to pour into the primordial soup of the ocean. The water has formed and is formed by its environment. The forces of nature in continual process of action on one another produce an ever-changing, ever the same kaleido-scope of forms and qualities that embody the natural environment which acts as such a powerful magnet to our senses.”
The Nordic Pavilion

Biennale Campus: Venice, Italy : 1962 : Sverre Fehn

Nordic condition of light translated into built environment.
This consists of concrete beams one metre high in two directions, Each beam is 6 cm thick, and together they form a 2-metre-high brise-soleil. Transparent roof elements are suspended between the uppermost beams. To preserve the intensity of the light, the entire building was casted in a mixture of white cement, white sand and crushed marble. It is a nordic shadeless light."

Nordic condition of light prioritized in design
"The existing trees, the remains of an old avenue, were allowed to remain standing and to go straight through the roof. “Another of the more characteristic features is the cantilevering of the double primary beam, which divides in deference to the big tree. On the entrance side in the competition entry, Sverre Fehn placed the beam in a position where it bypassed the tree. So the beam has been moved in order to both collide with the tree and avoid it."

The Designer: Sverre Fehn
"He is aware not only of how light enters a building, but what light means in a country that comes stunningly alive after long months of cold and dark. He designs in human terms, rather than from a theoretical base. He possesses an almost magical ability to emphasize and enhance the natural setting. Although his architecture is rooted deeply in Norways forests, mountains and fjords, it owes as much to European modernism as to his intimate understanding of his native land.

“The concept is bringing the Nordic Light to Italy. It is a Nordic shadeless light.”
The Walden Project

The woods near Vergennes, Vermont: daily since 2000: Matt Schlein

High School level non-traditional education program based on shared experiences in an outdoor setting.
Intended to cultivate positive relationship with physical environment

The Walden Project is an alternative program focused on environmental studies and on the teachings of Henry David Thoreau. The high school program uses 260 acres as their classroom, arriving by bus and walking nearly a mile into the woods for class.

The Walden Project wants to teach students about this place — rather than giving them the same lessons they could get anywhere in the country. Students explore their relationship to self, their relationship to culture and their relationship to the natural world. (npr.org)

This kind of education engages students, says Walden founder Matt Schlein, because the real, local connection helps answer the students’ perennial question “Why are we learning this?” Walden Project Americorps volunteer Emily Watson Blagden regarding place-based education says, “It’s a scale, starting with the small and immediate and close,” she says, “like starting with the temperate forest that’s right near your school as a way to understand a tropical rain forest,” or using a shop down the street to comprehend the larger forces of commerce.”


“Goals, Mission” http://www.vuhs.org/walden/

"The natural world has a way of grabbing you by the lapels out here. The week prior, it was several feet of snow and sub-zero temperatures; now it’s a sudden downpour. The students take shelter in the only escape they have from the elements: a rough-hewn tent that features donated sail material. It’s just big enough to accommodate the class and a few visitors. Students continue their discussion of politics while rain patters against the sails. The next class is ecology, and there’s lots to study on the Walden Project plot. The group tramps through melting snow and arrives at a clump of hemlock trees..."
Virginia B. Fairbanks Art and Nature Park

Indianapolis Museum of Art : 2009 : Marlon Blackwell, Landscape Studio, Mary Miss

precedent : experiential equivalency

Experiential equivalency of local landscape translated into built
Architecture outside traditional practice
Designer

The 100-acre Park site is bordered by the White River and runs contiguous to the IMA’s current 52-acre campus, more than half of which is comprised of historic landscapes and gardens. Art projects, exhibitions and discussions designed to strengthen the public’s understanding of society’s multi-faceted relationship with the natural world.

“Each designer has incorporated the inescapable presence of water into the proposed designs. Water sourced at the museum flows in a channel underneath Miss’s path and bridge down to Blackwell’s first structure the Experiential Center.

Artist Mary Miss’s elevated bridge and walkway will descend through the canopy of trees serving as a pedestrian gateway to link the Museum’s principal buildings to the Park. “The idea is to confront the viewer with nature, lessening the force of architecture by making such things as handrails effectively disappear. ‘I’m trying to get people to notice what they take for granted in a landscape, to reveal multiple aspects of the site.’

I try to look at the world with a microscopic wide angle lens to generate ideas and actions from concrete experiences of the everyday.

Marlon Blackwell

Interpretive Center (gallery and classroom building) raised off the ground on pilotis, incorporates porous roofing and floor decking to preserve groundwater discharge. “In some ways, the building is like a giant leaf,” Blackwell says.

Experiential Center “acts as a transitional boundary between architecture and the natural world. Visitors descend into a pavilion defined by a forest of columns”
precedent: programmatic typology

Program intends to teach public about water in visible, palpable
Throughout site water is visible, palpable, and audible
The site and buildings create an integrated experience of discovery,
functioning as a full-scale ecological design exhibit.

"Wherever possible, falling rain is displayed, and its natural flow path demonstrated. Living roofs juxtaposed to metal roofs demonstrate the natural filtering capacity of soil and the role of plants in water retention to delay runoff. Rainwater is captured to demonstrate reuse, and is displayed in artful basins and employed to play "rain drums."

With small building volumes, simple post and beam construction, wood siding, stone foundations, and the sheltering roof overhangs, the complex is meant to evoke the previous historic settlement on which it was built, and resonate with the surrounding forest and mountain landscape. The low profile of the buildings and nestling among vegetation minimizes the visual impact from the lake below. By connecting to the site’s past, the surrounding landscape and the regional context, the integrated site and buildings teach the profound interaction between the natural world and human needs.

The exhibits, the learning labs and the site as a classroom can enhance the ecological literacy of the future caretakers of our water resources. Rhythmic arrangement of spaces invites movement and exploration.

Earth-based and plant-based materials of wood, stone, and concrete were used, and buildings were designed to use minimal finish materials in both indoor and outdoor gathering places. Historic mature maples in the cultural landscape were aggressively protected during construction. Minimal clearing was carefully executed operable windows provide natural cross-ventilation, and generous overhangs protect against summer overheating. Fly ash concrete floors are insulated and sized to minimize daily indoor temperature variations. Occupant-controlled operable windows provide ventilation and indoor comfort.

The center is connected by path system to a major regional trail hub. Staff use bicycles to commute between administrative headquarters and the facility. Predominantly wood interiors were finished with penetrating water-based finishes, including trusses, exposed interior framing and certified plywood sloped ceilings. Formaldehyde-free medium-density fiberboard ceilings. Carpet with natural fiber pad used instead of glue-down synthetic products.
precedent : programmatic typology

experiential education “outdoor classroom” field station
focused on North Carolina’s natural environment
school groups, educators, and learners of all ages to visit for a day trip or a
unique overnight field trip
site approached as a living classroom
building as a teaching tool

A field station for North Carolina teachers and their students to learn about sustainable living and.

Outdoor Classroom was built with “green” building technology, which focuses on making buildings healthy for both the environment and the people who work in them. The building’s heating/cooling design has a large south-facing overhang, which maximizes sun exposure in the winter and shade in the summer, while catching the southwesterly breeze year round.

Minimized site disturbance disturbed areas surrounding the work site were seeded to keep erosion and sediment pollution to a minimum. Recycled materials were used to make our foundation, and extra lumber was reused for other projects and for mulch at our site. Also, engineered parallel strand lumber, made from young trees compressed into larger planks, was used in place of old growth timbers for the large timbers.

Screened on 3 sides lets breezes, scents, feel of air fill the space.

Wood structure, floors and finishes contribute to warm feel.

Unfinihed (raw) wood will weather to gray coloring, making visible the age and effects of weather.

http://www.naturalsciences.org/prairieridge/index.htm
http://www.frankharmon.com/prairie_ridge.htm
Ecostation for Wildlife and Learning of the North Carolina Museum of Natural Sciences
Site-Based Land Art

Dan Corson

Rain Drums : Cedar River Watershed Education Center : Washington
Intended to create art that highlights water in our environment:
A ring of drums in the Forest Court play when it rains.
On rainless days, a computerized irrigation system releases water droplets onto the drumheads.
Rain brought into visual and audible focus.

Emerald Laser Lawn : Fort Lauderdale, Florida
Scanning laser patterns are projected onto an urban park lawn creating dynamic undulating surfaces simulating growing fiber optic displays and green fire effects.
12 different sequences and patterns lasting 5-7 minutes each.

"Lasers moving through the grass allow us to experience in a new way something that is ubiquitous in the American Landscape- Lawn. Turf or sod is the largest irrigated crop in the United States. It is everywhere. Illuminating the lawn with coherent radiation, allows us to re-see with new eyes what is normal and all around us. Moving light simulates (and stimulates) the growth of the lawn, the flooding of the fields, the sparkle of the dew on the grass. The kinetic patterns on the lawn animate the grass for people to explore and play with the light.

Trace : Clearcross, Montana : 2001
Temporary Environmental Interaction.
Fluorescent water tracing dye is added to a river to make the invisible currents visible.
Dye is safe for fish and wildlife but creates a beautiful and highly disturbing ephemeral gesture within the landscape.
Flow and path of water made visible.
Site-Based Land Art

precedent
Buildings and landscapes reflect a hidden curriculum that powerfully influences the learning process. The curriculum embedded in any building instructs as fully and as powerfully as any course taught in it.

David Orr

While speaking with a Bemidji High School graduate who had attended the school daily for four years about ideas for this thesis project, I mentioned that I was incorporating the river on the property into the program. The person questioned: “There’s a river on the property?” “Yep...The Mississippi.” “No way...”
This thesis proposes a non-traditional course of study for a group of 12 high school students and an instructor each school day, all school day for one term of the school year. The course investigates the significance and tradition of the canoe in Northern Minnesota culture and landscape through the investigation of its history and landscape, group discussion and the collaborative crafting of a wooden canoe. The classroom setting for this program is not within the existing high school building, rather, it moves about the property and beyond the property depending on the day’s activities. A meeting point for the group is located at an exit of the main high school building which becomes a portal of departure and re-entry for the group’s nontraditional studies and settings. The school’s 240 acre property becomes as much a part of the classroom as the built structures. Students walk between playing fields and into the woods to reach the workshop at the edge of a clearing or the field station and camp nestled in the trees or continue down the trail to a canoe landing on the Mississippi River.

Within the larger institution of Bemidji High School lies the opportunity to introduce students to a more intimate understanding of the jackpines and the Mississippi that define the natural surroundings of the campus. Walking the meandering path together or individually, the group departs from ground on which shoes clink and walks a subtly undulating path of clumpy grasses and sandy patches. The group might meet along the path in a clearing with seats that soak in the morning sun as they discuss an Ojibwe Indian myth that was assigned reading. Later they pass the osprey nest atop a lone dead tree in a clearing to unlatch and open up the workshop and practice using the boiler bench, softening and bending canoe ribs for the canoe they will soon begin building. The class might meet out at the field station, three quarters of a mile from the school and spend the day learning how the French Voyageur’s packed and traveled, then learn how to pack appropriately for a camping trip they will take the next week. The field station and workshop require the active involvement of the students to open, adjust, screen and batten down the hatches, to stoke the fire and pull down the bug screens as the days and weeks pass throughout each season. Someone must bring wood inside to dry and to stoke the fire as the cooler weather comes, and shovel the entry upon the snowy months. The group might meet within the High School to head off on a day-long field trip to the pine plantation west of town, or the old-growth forest north of town to look for any remaining paper birch trees large enough that they would have been made into bark canoes, years ago.
**meeting point** at main high school building

This is a space to gather the class the first morning of the term near/within the main high school building. A meeting point to depart from as a class or individually and head to the field locations on-site or depart the property on investigative field trips. Students have arrived on campus, stashed extra-curricular/after school sports gear in their lockers and are dressed to be outdoors in walkable shoes. Each student brings along a sack lunch. From this point the group may leave on snowshoes or nordic skis to make their way to the studio sites.

**path** through landscape

The path from the meeting point leads through the schoolyard and playing fields toward a “marker” which marks the way into the woods along a mowed trail. The subtle change of character of the landscape influences the course of the path, the resting spots and places to convene. A shelter along the path provides a midway space of refuge from the elements and the woods have opened up providing an ideal space for a class to gather in an outdoor setting, open to the elements. The path is twice as long through the woods as through the schoolyard.

**marker** along the trail

As the path leaves the lawns and grounds of the school and enters into the woods a wood pole stands as a visual and physical marker of the transitioning landscape. The pole extends into the earth to the ground water where a simple buoy system raises and lowers a lever and arm atop the pole. As the groundwater level changes the arm raises and lowers, thus marking the changing conditions of the natural environment. The grassy path is interrupted at this site by pervious pavement, the cushion of the ground underfoot becomes more solid marking a built element. A bench provides seating to rest along the path.

**natural classroom** clearing in the woods

Through first-hand exploration of the site, a natural clearing was identified as being an ideal gathering space. Situated just away from the trail, the clearing is wrapped in deciduous trees that softly filter light into the clearing and form the “walls” of the space.
canoe building workshop

The workshop is a place for the group to learn the craft of wooden canoe building. Situated on the south of a large clearing, the two buildings of the canoe building workshop quietly observe the osprey nest and constant movement of deer and animals in the clearing. A large, slatted wood door is slid open and closed upon arrival and departure, opening the site and visually framing the tallest evergreen on the site. In the workshop building is space to demonstrate shop safety and tool techniques, to teach and learn about canoe building. Large open workspace for up to two canoes to be worked on at once. Workbench and counter space for crafting details: gunwales, thwarts and smaller parts. Boiler bench for steam/hot water bending of wood. Storage space for materials and finishes: wood, canvas, fasteners. Storage space for tools. Able to be warm and dry. Easily ventilated with operable windows, large sliding doors on the south wall of the workshop open to a clearing in the woods. The canoes are easily pulled outdoors for sanding and sealing outdoors, weather permitting. Running water for clean up, boiler bath, drinking. Electricity for lighting and tools. Some days the group works all day in this space or it may not be used for days on end. The site is easily accessible to vehicles and vehicles towing trailers of materials and canoes.

The second building on this site is designated gathering, cooking and restroom space, able to be free of the dust of the workshop. Storage within holds students' daily personal items: a backpack, a sketchbook, a water bottle and sack lunches. A tap provides potable water for the group to drink and clean up. “Kitchen” facilities are limited to refrigeration and a stovetop to heat a meal or put on a pot of tea. A woodstove is the main source of heat for the space and electricity... keeps the pipes from freezing. The group gathers at the large table to eat, discuss canoe building techniques, lay out drawings and trace patterns of gunwales and canoe stems.

The movement between the two buildings exposes students for a few brief steps to outdoor elements and ground materials change underfoot: wood, stone, concrete. The space between the buildings becomes an outdoor room, benches and an outdoor fireplace invite pause and gathering. The space is able to be screened from bugs and the slatted wood entry door slid closed, visually screening the entry trail and converting an entry passageway into a more intimate outdoor room.
canoe shelter

Near the workshop is the gathering space for group lessons and discussions out of the dust of the canoe building space. Lessons of canoe history and tradition, natural history and physical sciences of the region may be taught here, reading assignments discussed and writing projects may be done here. Demonstrations of outdoor skills, map reading, trip planning and demonstrations of canoe safety, technique and repair might happen here. Camping and packing demonstrations happen here: how to put up the tents and distribute gear in a canoe pack. Guests may come to talk to the group in this space: teach Ojibwe traditions or talk about the Mississippi River watershed.

This place is able to screen the bugs when needed and provide shade and shelter when needed. The group can gather and eat lunch around the same big table or spend time working individually. There is space to take off snowshoes and ski boots and set snowboots and warm winter overcoats. Storage of canoe and camping gear is in this place: lifevests, canoe packs, paddles, camp stoves, tents, and tarps. Some days are spent entirely at this place, other days are spent away.

Near the covered space is outdoor gathering space and a fire ring. Gathering around the outdoor open fire may be for discussion, celebration or warmth. Outdoor seating encourages gathering the group in this location, weather permitting.

Firewood is stacked and stored nearby.

The 6 group canoes are stored near here. At the shelter the group prepares and departs for canoe trips down the river. Students portage canoes and gear to the landing on the Mississippi River.

landing access on the Mississippi River

The landing on the Mississippi River is an acceptable portage distance from the field station following a path then boardwalk through the woods and densely vegetated wetlands to the open water of the river. The group is able to put in canoes for a day trip down river, or take out canoes after a two day paddle down from the Headwaters of the Mississippi 35 miles upstream. At the landing canoes are loading and unloading with enough space to set aside packs and gear and put several canoes in the river at once. It is not a conspicuous sight from the river, it is unobtrusive to the river’s viewscape. Students might get their feet wet at the landing.
Section 1004.3 Connected spaces. When a building or portion of a building is required to be accessible, an accessible route shall be provided to each portion of the building, to accessible building entrances connecting accessible pedestrian walkways and the public way.

Section 2902
2902.1 Minimum number of fixtures.
E Occupancy: Educational Facilities:
Water Closets: 2 water closets
men: 1 per 50 occupants
women: 1 per 50 occupants
Lavatories: 2 lavatories
men: 1 per 100 occupants
women: 1 per 100 occupants
Service Sink: 1 service sink

Section 305.1:
Educational Group E.
Educational Group E occupancy includes, among others, the use of a building or structure, or a portion thereof, by six or more persons at any one time for educational purposes through the 12th grade.

Section 503: General Building height and Area limitations
E: Type V: B(non sprinkled) height in stories: 1
Maximum area: 9,500 sf

Section 602.5:
Type V. Type V construction is that type of construction in which the structural elements, exterior walls and interior walls are of any materials permitted by this code.

Section 1004.1.1: Occupant Load
Accessory storage area, mechanical equipment room
300 sf gross 1 occupant
Educational classroom area: 20sf/occupant: 1000 sf / 20sf/occ: 50 occupants

Maximum total occupancy: 51 occupants

Section 1004.8
Outdoor areas. Yards, patios, courts and similar out-door areas accessible to and usable by the building occupants shall be provided with means of egress as required by this chapter. The occupant load of such outdoor areas shall be assigned by the building official in accordance with the anticipated use. Where outdoor areas are to be used by persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, means of egress requirements for the building

Section 1104
Accessible Route
Exception: Other than in buildings or facilities containing or serving Type B units, an accessible route shall not be required between site arrival points and the building or facility entrance if the only means of access between them is a vehicular way not providing for pedestrian access.
site analysis

47.48°n  94.88°w
Bemidji High School  :  Bemidji: Minnesota
Bay-may-jí-ga-maug: Bemidji, Minnesota

Ojibwe word meaning “lake with cross waters” referring to the Mississippi River running through Lake Bemidji

Named of the natural landscape. The area is defined by its lakes and rivers, the headwaters of the Mississippi not far up the road. Bemidji falls into what Alexander Wilson describes as “the forest-lake complex of much of north central area of the United States. The two most desired features of a woodland cottage site are illusion of solitude and view out over water. In sinuous lake and river country…land is relatively flat and yet densely vegetated. There are no sweeping vistas, so the aesthetics of this landscape in its more or less wild state is built on experiencing nature in its details. Activities that make sense here are intimate, even private, like canoeing or mushrooming.” The natural environment of this area is not characterized by untrammeled land and grandeur as we think of natural environments found in the American West. It is about berry picking, walks through the woods, blooming flowers within tall grass and shrubs, ferns and the smell of the pines.

When within the landscape one orients oneself by the locations and relative proximities of water: rivers, streams, wetlands, bogs, swamps, lakes. Woods and fields, rolling but never substantially elevated to sweeping vistas. The magnificence of the region is in the smaller moments of walking through the woods, sitting on a dock, out in the middle of the lake in the boat of one’s choice: waterskiing, fishing, sailing, canoeing.
site analysis

First City on the Mississippi
Home of Paul Bunyan
Curling Capitol USA

paul bunyan statue, bemidji
logging camp, bemidji
wild rice poster, bemidji

site analysis

First City on the Mississippi
Home of Paul Bunyan
Curling Capitol USA

paul bunyan statue, bemidji
logging camp, bemidji
wild rice poster, bemidji
“Attachment to place can also emerge, paradoxically from experience of nature’s intransigence.”

Yi Fu Tuan, Topophilia
High School property is three parcels bounded by Division Street to the north and the Mississippi River to the south. To the east and west are adjacent suburban residential neighborhoods:

- R-4: moderate density residential
- C: conservation
- R-2: suburban residential
Bemidji High School property

260 total acres

Scents in breeze from west:
- Pig farm
- Bitumenous pit

Sounds from north and east:
- Trains
- Hum of bypass

field and osprey nest on the site

BHS: 394,000 square feet
This is the woods across the road from my neighborhood, the one where I grew up. My neighborhood was a country neighborhood growing up, 3 miles from town on a gravel “Dead End” road. Each house was on a several-acre lot that was covered in the woods that characterizes the immediate area and patches of the northwoods of Northern Minnesota. [see FDc24] Jack pines and hazelnut underbrush, spotted with white and red pines, an occasional oak, wild roses, and a plethora of other plants in my forested front yard. The Mississippi River meanders beyond the south end of this neighborhood, the 30 foot wide juvenile river snakes through the wetlands behind my neighbors’ back yards. This is 30 river miles downriver from the headwaters of the Mississippi River (a 2 day canoe trip from here) which flows from Lake Itasca, 20.5 miles the way the crow flies, 29 miles and 40 minutes by car away from here. To the east of this neighborhood’s now paved and widened road is the woods. These were the woods of my neighbors and mine growing up, I have no idea who owned them then but the land has since traded hands in the flurry of growth in the area.

The woods were big. You could get turned around. We went in at one of two entry points, not trails because it wasn’t tread enough, but by early summer we’d go in often enough to recognize the portal between a few of the trees and underbrush. Once a few leaps inside it was uniformly crowded with the grey bark of jack pines, several fallen, and lots of branches. We’d get scratched trying to keep up with the neighbor boys. There was a rope tied between 3 trees. We’d tightrope walk it. I think that was one of the main reasons we’d cross the road into these woods, to try to find the rope. We’d walk it until we got bored or it got dark, or we knew we had to be home. It was tricky to find, sometimes you’d find it straightaway, exactly where you knew it was. Other times you’d fall for the deceiving trail of the whitetails that picked their way through the brush and jack pines.

The trail to what we knew as “the other neighborhood,” a housing development to the east, was a long clearing: an aisle through the woods with the pines looming warmly around you, like the nave of a big old fancy church making way for the power lines. Four-wheelers had worn a double track through the grass, exposing the sandy path that was packed hard like rammed earth in places, and loose, slippery sand in other places. It was perfect for riding my banana seat bike in one track with my sister on hers next to me in the other wheel rut. When there were three out wandering, two would get the ruts and one would traipse through the middle, through the grass. I don’t remember going this far [south] toward the river alone when I was young, not until I was in junior high or high school would I run through the trail. That was also when they added a few more houses at the edge of the woods. The clearings of the new houses’ fenced-in yards and their barking dogs encroached upon the woods. But we were getting older, and our time roaming here more and more fleeting, exchanged for a jog through here to get to the roads beyond.
The silky smooth skin of the birch is peeling. The oaks still have their leaves.

The woods of the site
Laurentian Mixed Forest Zone

Public Lands

Wetland

Turf

maintained grounds

Woods

mixed jackpine

River

wet woods and wetlands

Open Water

the land

site analysis
Poison ivy. Leaves of three: let it be. Around the woods were patches of the sneaky little plant. Especially in the ditches. This made getting from the road to the woods tricky. Mid-summer when the plants were proudly developed in their beautiful glory of green leaves tinged with red and a signature red stem. Pants are the best mechanism of defense for poison ivy prevention. Even when clad in pants one must remember to wash them and the hands, just to be sure there is no ivy oil. Shoes and socks are a good idea for there are few things less pleasant than poison ivy between one’s toes in a hot humid Minnesota summer.
WATER RESOURCES
RIVERS
The Mississippi River in this area is designated an “outstanding resource value water”. The purpose of the designation is to conserve and protect the scenic, recreational, historic and cultural resources of the river, and maintain a high standard of environmental quality within the Riverway.

LAKES
The City of Bemidji was built around Lake Bemidji, a large lake with a surface area of 6,420 acres, and a maximum depth of about 76 feet. The Mississippi River crosses Lake Bemidji, draining over 396,000 acres into the lake. There has been significant development surrounding the lake. Lake Bemidji is a significant water resource for the region, with high water clarity of approximately 6 feet. The lake outlet is routed to the Mississippi River to the east.

Lake Irving has a surface area of 613 acres and a maximum depth of 19 feet. As it does with Lake Bemidji, the Mississippi River passes through Lake Irving which is upriver from Lake Bemidji. Upriver of Lake Irving is Carr Lake.

WETLANDS
There are a number of wetlands throughout the City, primarily located in the northwest corner, tributary to Lake Bemidji. There are several wetland community types found within the City include shallow and deep marsh, shallow open water, shrub wetlands, and wet meadow.

Surface Water Management Plan and Stormwater Design Guide
City of Bemidji
January 2008
Mississippi River on the site
site analysis
design project

canoe studio program
bemidji high school
bemidji: minnesota
the canoe studio

the natural circumstances of place

bemidji high school
the meeting point in bemidji high school
Bemidji High School cafeteria

shadows cast into cafeteria from the meeting point

existing south entry

scupper

rafter tips
meeting point section perspective

vestibule acts as sunspace passively heating air to be circulated in the school

filtered light
quality of light in the woods: filtered through leaves
filtered through branches
translated into built: filter through structure
seeps into school

what is the presence in the high school? felt and seen by all students in high school
the meeting point
the meeting point
the marker

- North
- 1/8" : 1'
- Bench
- Pervious pavers interrupt grassy trail
- Marker
- To school
- To woods

Water level indicators:
- Low water level
- Mid level water
- High water level
design

natural classroom

to school

to river

outdoor classroom
natural classroom design
canoe building workshop
canoe building workshop

looking south through workshop buildings
looking west through workshop buildings

rhythm: density of stems exposed to elements?
approach/entry
structural rhythm: inspired by ribs of canoe
canoe building workshop
canoe building workshop

cold-rolled corrugated metal roof
ramps with the weather

pine tongue and groove
glued at seams acts as rigid membrane

2x10 rafters

post and beam structural framing

1/2" diameter steel tension rods
any beams at intersections

2x6 stud wall infill

trombe wall
with strip footing

6" fly ash concrete slab on grade
south-facing glazing

metal roof
ramps with the weather

design

operable windows allow natural ventilation
students adjust to internal environmental conditions for personal comfort

concrete grade beam aligned with
1/2" thick strip footing below trombe wall

1/8" diameter tension rods tie roof and wall structure together

operable windows allow movement allows natural ventilation and even northern light

view overlooks large, open field with large dead-standing tree

1/8" thick concrete trombe wall 1/2" inside south-facing glazing
doors are made of local plywood and storefront

shade about sunlight from corner of shop workspace desirable in preventing glare

northern white cedar vertical siding
sanded to smooth finisher, ready to oil and paint exposure

1x6 tongue and groove
black roofing felt
white oak hardwood floor

barn board siding

2x6 stud wall with R-19 batt insulation

veneer shaker

barn board siding

barn board siding

barn board siding

barn board siding

barn board siding

barn board siding

barn board siding

barn board siding

barn board siding

convening

cut canvas to length, stretch

roll and staple to each rib

moisten canvas, fiber over deck of canoe, smooth and dry, apply second
and third coats until canvas is dry, dry

for several days, smooth

paint a coat of varnish, inside wood

paint canvas, sand, paint again, trim

canvas, attach outer gunwales, attach inner thwart and yoke.

finishing

install canvas, varnish

glue, sand, repeat

paint a coat of varnish, inside wood

paint canvas, sand, paint again, trim

canvas, attach outer gunwales, attach inner thwart and yoke.
canoe shelter
fire ring: canoe shelter
firewood wall: canoe shelter
nordic ski wall: canoe shelter
river landing

composite grating allows 60% of light through to vegetation below boardwalk

helical piers screw into ground of wetland area, a lower impact than other structural foundations on sensitive wetlands

river landing on the mississippi river
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37  Canoe:  author’s own
38-42 Lovejoy sketch:  Lawrece Halprin
43-49 Nordic Pavilion:
50  Walden Project:  Credit: Angie Beaulieu
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