Architecture in Context
Architecture In Context
by
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APPROVAL

OF A THESIS SUBMITTED BY

Nathan Neergaard

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the Division of Graduate Education.

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Nathan Neergaard
April 23, 2007
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Today, technology and science have elevated us as humans to incredible heights; we have gone places that centuries ago would have been undreamed of. We have landed a man on the moon, an unmanned rover on Mars, and now have begun to explore the outer reaches of the galaxy looking for the origin of the known universe. When you think of the universe in general, architecture seems pretty insignificant, but it is an important element that keeps our society interconnected. “Design manifests culture, and culture rests firmly on the foundations of what we believe to be true about the world.” (Van Der Ryn, Cowan, pg 9)

Today architecture appears to be diverting in two directions: one is aiming towards an external image focused on aesthetics, with the space it creates internally and its resource consumption being secondary. While the other is focused on a more sustainable design, based on reducing resource consumption, but lacking attention to aesthetics and spacial quality. “Even the most advanced advocates of ecological design are still struggling with ways to integrate environmental technology, resource conservation, and aesthetic content. Without all three components in place, there is little chance for
A truly enduring architecture. A major factor contributing to the longevity of buildings that have survived from the past is their fusion of nature and art.” (Wines, pg.9)

In society today it is evident the pressure humans put on nature to provide and protect. Considering this problem, I began to wonder how we, as human beings, could do this to the environment. Because, “after all, whatever we do to nature comes back to us in the end.”(David Orr, Seminar 2003) This led me to consider the practice of sustainable architecture. Sustainable Design has been used in rural areas of undeveloped countries for decades, but has never become mainstream; in part, due to price increases and inconvenience. My thesis seeks to explore this balance, a balance between the built environment and the natural environment. To apply modern design and sustainable design to create a beautiful and environmentally friendly building. The resulting architecture will be enduring and serve to better the way of life for humans and the environment.

My goal is to design architecture that is sustainable, spatial, experiential, and has an aesthetic quality, architecture that creates a statement as the only viable solution for a particular region. “The best way to make real architecture is by letting a building evolve out of
the culture and place.” (Samuel Mockbee, 107). I will be designing a structure in Telluride about 2 blocks from the town gondola. I feel this area will have impact on the surrounding community as far as public use and pedestrian interaction. I will design a sustainable education center on the site. It will use an abandoned building on the site to reinforce the reuse of materials and recycling of space. This exploration will concentrate on the compatibility of sustainable architecture and aesthetics in design, as well as a hands on educational tool.
The understanding of environment is extremely important today, not only for our emotional and spiritual well-being, but for the future of our children and, in fact for the survival of Humanity. The Human race is confronted with a series of global environmental problems which are harming the biosphere and human life at an alarming rate. The great challenge of the new millennium is to create sustainable communities; that is, social and cultural environments in which we can satisfy our needs without diminishing resources for future generations. In attempts to build and nurture sustainable communities valuable lessons can be learned from studying ecosystems, which are sustainable communities of plants, animals, and microorganisms. An example is Biomimicry, which is the study of how nature naturally designs for its environment.

How non-human animals use what is given in its surroundings to not only survive but create a life unique to that particular species. If we look around we can see the secrets to sustainability. The failures of nature have become extinct, and the successes thrive in the environment. We as humans, and a part of this earth, need to look
TO NATURE FOR DESIGN IDEAS AND THIS IS OUR PATH FOR SURVIVAL AND TOWARD A SUSTAINABLE FUTURE. AN EXAMPLE OF BIOMIMETRY AT WORK IS GIVEN FROM JANINE BENYUS, SHE STATES “LET’S TAKE A LOOK AT ONE OF THESE CATEGORIES: MATERIALS. RIGHT NOW, WE USE WHAT’S CALLED “HEAT, BEAT, AND TREAT” TO MAKE MATERIALS. KEVLAR, FOR INSTANCE, THE STUFF IN FLAK JACKETS, IS OUR PREMIER, HIGH-TECH MATERIAL. NOTHING STRONGER OR TOUGHER. BUT HOW DO WE MAKE IT? WE POUR PETROLEUM- DERIVED MOLECULES INTO A PRESSURIZED VAT OF CONCENTRATED SULFURIC ACID, AND BOIL IT AT SEVERAL HUNDRED DEGREES FAHRENHEIT. WE THEN SUBJECT IT TO HIGH PRESSURES TO FORCE THE FIBERS INTO ALIGNMENT AS WE DRAW THEM OUT. THE ENERGY INPUT IS EXTREME AND THE TOXIC BYPRODUCTS ARE ODIOUS. NATURE TAKES A DIFFERENT APPROACH. BECAUSE AN ORGANISM MAKES MATERIALS LIKE BONE OR COLLAGEN OR SILK RIGHT IN ITS OWN BODY, IT DOESN’T MAKE SENSE TO “HEAT, BEAT, AND TREAT.” A SPIDER, FOR INSTANCE, PRODUCES A WATERPROOF SILK THAT BEATS THE PANTS OFF KEVLAR FOR TOUGHNESS AND ELASTICITY.OUNCE FOR OUNCE, IT’S FIVE TIMES STRONGER THAN STEEL! BUT THE SPIDER MANUFACTURES IT IN WATER, AT ROOM TEMPERATURE, USING NO HIGH HEATS, CHEMICALS, OR PRESSURES. BEST OF ALL, IT DOESN’T NEED TO DRILL OFFSHORE FOR PETROLEUM; IT TAKES FLIES AND CRICKETS AT ONE END AND PRODUCES THIS MIRACLE
material at the other. In a pinch, the spider can even eat part of its old web to make a new one.” Spider silk is in the process of becoming the next Kevlar material, it is now in the early developmental stages of production.

In over four billion years of evolution, ecosystems have developed complex and delicate ways of organizing themselves as to maximize sustainability. There are laws of sustainability which are natural laws, just as the law of gravity is a natural law. In the past century, much has been learned about the law of gravity and similar laws of physics, but very little has been learned about the laws of sustainability. For example, if a person goes up to a high cliff and steps off it, ignoring the laws of gravity, he/she will surely die. If, in the short-term we ignore the laws of sustainability, then in the long run communities will just as surely die. The laws of sustainability are just as strict as the laws of physics, but until recently they have not been studied. The law of gravity was formalized by Galileo and Newton, but people knew about stepping off cliffs long before Galileo and Newton. Similarly, people knew about the laws of sustainability long before ecologists in the twentieth century began to discover them.
The gap between the technology in the beginning of the 20th century and the beginning of the 21st century is practically immeasurable. Today industry has brought technology that was unknown just 100 years ago and has become an integral part of our daily lives. Unfortunately at the same time we fail to acknowledge the devastation we have caused to our environment for our own enjoyment, health and interests. A recent article from Reuters explains this dilemma best, “humans are damaging the planet at an unprecedented rate and raising risks of abrupt collapses in nature that could spur disease, deforestation or “dead zones” in the seas.” (Reuters)

Consider this, “the building of shelter consumes one-sixth of the world’s fresh water supply, one-quarter of its wood harvest, and two-fifths of its fossil fuels and manufactured materials.” (Wines, 15)

These stats, indicative of the environmental crisis of the 21st century, have made architecture a point for ecological reform; i.e., the environmental crisis of the 21st century has also become design crisis.

Ecology and design need to re-establish a symbiotic relationship between nature and culture. Just as ancient man designed shelters based on location and materials available, today’s architecture needs to have the same honesty. Architecture will always be indebted to Architects such as Le Corbusier whose analogy of a house as “a machine
for living in” brought about significant strides in design and technology; but with the increase in human population and the strain on the ecosystem to sustain life, design needs to take a step back and learn from pre-industrial architecture. To design along with regional qualities and available materials, and to conserve resources as best we can. “We should not copy the old but determine the identity of a place and interpret it in new ways. Only then we may talk about a living tradition which makes change meaningful by relating it to a set of locally founded parameters.”(pg 182)

The term “Critical Regionalism” was coined by architects and theorists Alexander Tzonis and Liane Lefaivre. It is a term used to critique modern architecture in its cultural environment. Culture (regionalism) and environment (ecology) have roles today that don’t seem to be equally important in society. Culture is the driving force to our economy which in turn decides what is important and what is trivial. For example the car is becoming the dominant feature in society. Because of this people are able to live further from where they work and shop. This in turn causes a loss of connection between man and community; the car is a enclosed source of transportation that isolates one from nature and the community. “The universal Megalopolis is patently antithetic to a dense differentiation of culture. It intends, in fact, the reduction of the environment to
nothing but commodity.” (Kenneth Frampton, 482) Ecology and Critical Regionalism go hand in hand, they both stand on the concept of sustainability and creating spaces derived from “place”. Architecture of place is rooted in *genius loci* Latin for the spirit of place. As stewards of the places humans inhabit communities must be aware of conserving the natural resource available to that area. Conservation is the sustainable use and protection of renewable and non-renewable resources. Humans are currently in the conservation stage whereas we are starting to recognize the overuse of natural resources and are beginning to find ways of reducing and reusing them. By restoring and revitalizing depleted natural resources such as forests, agricultural soils, and others we are attempting to regenerate parts of a depleted ecosystem. Architects are responsible to design with stewardship in mind, to take into consideration the elements, people, culture, and environment. Stewardship is a part we all are involved in to some degree. It “is a particular quality of care in our relations with other living creatures and with the landscape. It is a process of steady commitment informed by constant feedback. Stewardship maintains natural capital by spending frugally and investing wisely.” (Van Der Ryn, Cowan pg. 22)
What draws people toward a specific location? Why do certain surroundings make us feel at ease and inspired? The environments that we desire, have an element of “place”, whether we refer to location (longitude or latitude, within a country of state, place in the universe, at home, etc.), social place, or place in time. A sense of place defines our identity by the natural features of the place we live. Furthermore we have a responsibility to “place,” to care for and respect the environments that we inhabit. There is a difference between living on the land and dwelling in it—understanding its rhythms, potential and its limits. Those of us who develop an intimacy with a place over time tend to accept responsibility for it. “...overly dense urban and suburban populations made it impossible to preserve a feature that was formerly most characteristic of Japanese residential architecture; intimate connection with nature and openness to the natural world. What I refer to as an enclosed modern architecture is a restoration of the unity between house and nature that Japanese houses have lost in the process of modernization.” (pg 479) Tado Ando
ENVIRONMENT

We enjoy the outdoors for recreation, leisure, and a place away from home. In order to preserve this for the future, the environment we live in needs to come first. Our architecture has to embrace the environment it resides in and to educate people about sustainability.

Here are some facts about our environment:

- In South America 1.3% of the remaining forest is lost every year.
- 12% of earth’s plant species could be lost over the next 20 years.
- Africa has had 65% of its wildlife habitat converted to other uses.
- 90% of New Zealand’s wetland habitats have been lost.
- Earth’s natural resources will only be able to sustain 2 billion humans by 2100 (there are 5.9 billion people on earth right now).
- The U.S. makes up less than 5% of the total population on earth, yet we currently consume over 30% of all the resources.
- North American households use twice as much water as European households, but pay half as much for it.
- For the $25 it might cost to insulate the average 12 window, two door house, you could save 10 percent or more of a yearly heating bill.
- If every gas-heated home were properly insulated (caulking and weather-stripping) enough natural gas would be saved each year to heat another 4 million homes.

(www.green-networld.com)
Catalina House

Tucson, Arizona
Rick Joy Architects
1997
Built in the Arizona desert, the Catalina House is a pure example of how to build in a desert environment. It is oriented to face the Catalina Mountain Range to the Northeast, and shows delicate texturing as well as special attention to light and shadow. The use of rammed earth, wood, and steel are a combination of rough and smooth textures that are as animated as the colors. The interior walls hide nothing and are accented by light wells that allow shadows to dance during the hot desert days.

The house is comprised of private and public/semi-private areas. The east wing is the public/semi-private area consisting of the living area and entertaining areas which are open to a covered patio creating indoor-outdoors spaces. This outdoor patio is oriented to catch only early morning sun and keep shade during much of the scorching days. The west wing accommodates the private area where the bedrooms reside, it is skewed slightly to the west but only to catch early morning sun and “generally assumes the posture of a cave.” (Joy pg. 65) The Butterfly roof invokes visions of a Glenn Murcutt building waiting to capture rain in an arid climate. The roof keeps the bulkiness of the house down and creates a look of a multiple buildings instead of a single house. The garage was built after the main house and during construction it was the area where the rammed earth walls were constructed. This resulted in the preservation of all the existing vegetation on the site.
Minerals and Mining Museum

Broken Hill New S. Wales
Glenn Murcutt & Associates
1987-1989 (unbuilt)
Despite the fact that the Minerals and Mining Museum is an unbuilt project, it is a brilliant illustration of regional architecture. It was designed with one area in mind and the functions of the building are symbiotic with the environment that surrounds the building.

The Museum was intended to be located in Broken Hill; it was aimed at attracting tourism to the area when the local mining industry gave out. People were already being attracted to the area because the movie Mad Max was filmed nearby. “Yet the mining museum is more than a strategic tourist drawcard, Perhaps more important is its potential to show Broken Hill to itself, to pull together and codify the reasons for the city’s existence and to celebrate the very mining operations that seem so ordinary in the minds of local people. The mining museum might forge a sense of identity and pride at the point where the city’s single raison d’être, mining, has become tenuous.” (Beck & Cooper, pg. 30)

The Museum is oriented longitudinally southwest to northeast. Along the northeastern side an “oasis” is situated to allow for evaporative cooling along the zigzagging rammed earth walls. Built into these walls are malqafs which are a chimney type construction that helps with evaporative cooling. The roof is set at precise angle to allow for winter sun directly and summer sun indirectly reflected from the pool. The single loaded corridor allows for air circulation without the use of air-conditioning. The sectional shape of the museum was design after an airplane wing to allow for increased wind velocity from the “constant north-west summer wind.” With these components of the building working together the museum becomes a living, breathing entity that can only manage to endure in its particular environment.
Taliesin West

Scottsdale, Arizona
Frank Lloyd Wright
1937-1938
Taliesin West is one of the great buildings of the West. It is situated in the desert outside Scottsdale, Arizona, at the foot of the McDowell Mountains. Wright began to design and build this complex in 1937, and it soon developed into an interconnected series of buildings and garden courts, bounded by walls and terraces.

Wright initially planned Taliesin West as a winter camp for his Fellowship, using local wood, desert masonry, and canvas. As air conditioning became available, Wright and his students were able to spend longer periods in the desert. Over the years, students extended the group of buildings and replaced most of the temporary materials with steel, plastic, and glass.

In design and concept, Taliesin West is extraordinary: “...a free architectural composition over a 16-foot square unit system, rotating at 45 degrees on itself and gently cascading down the slope of the site. The interplay between the disciplined geometric layout in plane with the 15 degree sloping walls and roofs produces a naturally free 3D perspective that echoes the rugged, natural geometry of the mountainous backdrop.” (Smith pg. 82)

The buildings are constructed out of native stone and concrete, covered by translucent canvas roofs with wood and steel beams. The buildings are famous for their striking forms, rough and earthy surfaces, and juxtapositions of plastic, textiles, and steel. “Our new desert camp belonged to the Arizona desert as though it had stood there during creation,” Wright said.

Today, Taliesin West is the international headquarters for the Frank Lloyd Wright Foundation, and up to 70 students continue to live and work there, many in experimental desert residences scattered through the surrounding landscape.
Mason’s Bend Community Center

Hale County, Alabama
Samuel Mockbee and the Rural Studio
2000
Samuel Mockbee’s rural studio in Hale County, Alabama designs homes and buildings for the local community that can’t afford much more than paying rent. Mason’s Bend Community Center is one of these projects; it was built in 2000 by graduate students Forrest Fulton, Adam Gerndt, Dale Rush, and Jon Schumann. The site was donated by a family that had recently received a re-built house, compliments of the rural studio and outside sponsors. The Buildings foundation is built of rammed earth, a mixture of thirty percent clay and seventy percent sand with portland cement added. The trusses were made from local Cypress trees cut down by the students and sent off to be cured and laminated. The roof is made of aluminum and eight recycled Chevy Caprice windshields. The community center exemplifies the use of local material and recycling as Mockbee explains it as “a windshield chapel with mud walls that picks up on the community’s vernacular forms and shapes,....and as cutting edge as any piece of architecture that you can find in the United States.”
The Ethel M chocolate© factory in Las Vegas, Nevada has taken the next step toward a more sustainable future. When expanding their current facilities they decided to make an improvement toward the environment, and installed a wastewater filtration system that was 100% biological. It is known as a living machine, and consists of plants and organisms that help breakdown waste water by mimicking nature’s natural purification process. The system provides an advanced chemical free waste treatment facility and the sludge that is left behind is treated by a composting reed bed that is also onsite. This makes the factory a zero discharge facility. The filtered water is then used for irrigation is an area where water is a precious commodity. “Not only does the Living Machine clean the wastewater without using chemicals, it is also cheaper to build and cheaper to operate than conventional treatment plants.” Mike Seago, Ethel M

Waste

The living machine can treat up to 32,000 gallons of wastewater a day. The output of Ethel Chocolates is a high-strength confectionary production wastewater. The process then purifies the water through the living machine and the final product is near drinking quality which can be used for a variety of purposes.

Process

The wastewater is pumped into what is called aerobic reactors that contain microbes that begin the breaking down process. A biofilter is used to deodorize the exhaust during this process. Next it flows into open aerobic tanks that house plants it continues to be broke down, therefore minimizing sludge buildup. In the final process the water is circulated through polishing filters that remove larger floating particles. Then it is put into a pond holding tank that is host to a variety of fish species until further use. The remaining sludge is then put into reed beds that can be harvested every five to ten years for compost,
We provide the system, nature does the work.

Ethel M Chocolates TM dates back less than two decades, but the story began in 1911 when Frank and Ethel Mars started making and selling chocolates from their kitchen in Tacoma, Washington. They began a family tradition of producing quality confections which has been passed down through several generations and is still closely followed today in every product made by Mars, Inc.

Background

Senior management at Mars was familiar with Living Machine TM Systems after pilot testing at another Mars facility. When planning an expansion of their Ethel M Chocolates TM plant, they looked to a Living Machine TM System to help them meet tighter discharge requirements.

The Living Machine TM System at Ethel M provides advanced treatment of their confectionery process wastewater. The resulting purified water is reused for on-site landscape irrigation. Sludge is also treated on-site by a composting reed bed, making this a zero discharge facility.

Benefits

The chemical free waste disposal conserves water and money, due to sewer costs, and the compost waste is beneficial to external uses.
J M Tjibaou Cultural Centre

Noumea, New Caledonia
Renzo Piano
1991-1998
New Caledonia is located to the north of New Zealand, the Tjibaou Cultural Centre is located in the French territory of Oceania. Renzo Piano’s design for this centre was chosen through an international competition in 1991. The center celebrates the local culture through design fundamentals and use of materials provided locally. “No matter how much the Kanak culture changes, it need not be severed from a sense of contact with its historic roots.” (Buchanan pg 190)

The tall pavilions dominate the design, which were modeled after the Kanak’s traditional huts; as well as providing ventilation for the center through a combination of convection and the venture effect. These were made of weatherize bamboo, which are easily erected and the fastest regenerated raw material, as the vertical element. Wooden adjustable louvers were used to control wind. This creates a look as if it grew out of the landscape. The building is long in length, the design of this was to provide a look of three distinct villages from a distance. Artist studios and a ceremonial area are to the southeast. These areas were never changed from the conception to the completed project. Overall the design “encapsulated a vision of co-existing in close harmony with nature through an imaginative fusion of contemporary technology with a reinterpretation of traditional local forms.” (Buchanan pg 194) Piano’s ideas and design complemented the local tradition and customs so much so that it has been regarded as one of the most successful projects built.

“...the Tjibaou Center, Piano has achieved the seemingly impossible in contemporary architecture. He has created an inhabitable bridge to the 21st century that embodies past, present and future. Our present age of information and ecology suggests an architecture of less intrusion and more inclusion, and less Euro-centrism and more cultural diversity. Renzo
Piano is nearly alone in combining these progressive elements in one building.” (Wines, pg 126)
**Climate and Location**

**Location** - Telluride is located in the northwestern section of the San Juan Mountains. The headwaters of the San Miguel River flow from the mountains surrounding town and westward through the valley. The major transportation route into the area is State Highway 145. During the Winter months this is the only access route into town.

**Description** - Telluride was originally a mining town that managed to pass the test of time, now most of the people who come to Telluride are there to ski. Telluride Mountain Resort boasts...
world-class accommodations and demanding terrain. In addition to the ski resort the San Juan Mountain Range, which surrounds the townsite, provides spectacular scenery in every season.  

**Recreation** - The Uncompahgre National Forest surrounds Telluride and provides abundant recreation opportunities for the outdoor enthusiast. In addition to downhill skiing, cross-country skiing and backcountry skiing opportunities abound. Summer provides easier access to the high peaks in the area.  

City Area: 2,100 acres  
County Area: 1,291 square miles  
Topography: Alpine, Base of Telluride Ski Resort  
Elevation: 9,545 feet  
Resident population of Telluride: 2,200 Approx.  
Resident population of Mountain Village: 950 Approx.  
San Miguel County population: 6,594
Climate-Telluride lies at an elevation of 8,745 feet. Because it exists in a box canyon the sun sets on the town early during the winter (December days see the sun set by 3:30 p.m.). During the day the sun reflects brightly from the snow covered hills. The Summer months are beautiful when the snow has melted and the wildflowers are in bloom. Daytime temperatures may reach the mid eighties, but rarely do they climb higher. Night time brings cool temperatures to the canyon in the Summer. At 8,800 feet above sea level, Telluride regularly receives over 350 inches of snowfall each year. Wintertemperatures hover just under the freezing point on good days, with occasional snowstorms. In summer, the temperature is typically in shirtsleeve 70s.
### Telluride, Colorado

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### Sun Altitude and Azimuth

Average precipitation: 24.18 inches per year
Average snowfall: 309 inches per year

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Sun angles in the winter can be very shallow making daylight a premium, but the high altitude and tall mountains can make the summer months pleasant.
The site is located on the edge of a residential and commercial area. It is in the heart of the walking path to the mountain village gondola, this is the main source of transportation for residence of mountain village. The building has a zero lot line along San Juan Avenue and Fir Street.
Local building uses

The site is surrounded by a typical small town layout, with the main street being one block to the north. This area furnishes everything from elegant restaurants to ski shops. To the east is small commercial businesses, including spas, the public library, some restaurants, and the beloved town park. To the south are more upscale condos and hotels. Due west is the town gondola which runs all day and into the late night, and some residential areas begin.
The site is in a high pedestrian traffic area, vehicular traffic is high also but this area caters mostly to the walking public. People are always in this particular area due to the free transportation of the town gondola, and bus system. The site is between the gondola station and town park, which hold the Telluride Bluegrass Festival every summer.
Since Telluride lies in a box canyon sun exposure can be minimal at certain times of the year. This is important to note due to the proposed green house in my building. The town is well protected from wind but when it is breezy it usually comes up the canyon from the warmer down valley.
Elements of the City

1) Colorado Avenue - Pg. 45,46
2) Pacific Avenue - Pg. 47,48
3) San Juan Avenue - Pg. 49,50
4) South Oak St. - Pg. 51,52
5) South Fir St. - Pg. 53,54
6) South Pine St. - Pg. 55,56
7) Site Area - Pg 57,58
Colorado Ave:

The main artery of Telluride, this street has most of the tourist shops and restaurants. Colorado Ave. defines what Telluride wants to be, a hip tourist destination with that small town feel. This avenue creates a distinct edge from North Telluride and South Telluride. Many pictures have been taken down here including a recent Chevy truck commercial filmed by the Sheridan hotel. There are several paths that run through Colorado Avenue, including one through each park on Main Street. Colorado Avenue stops at the edge of the box canyon to the east.
Colorado Avenue

1) Colorado Ave. North, From left to right: Town Hall (with the steeple), the Sheridan Opera House, and the town movie theatre. This area is the heart of the downtown.

2) Colorado Ave. South, this area has many bars, businesses, and shops that are geared toward tourism.
Pacific Ave:

This Street runs parallel to Colorado Ave., with the residential areas mostly to the west end, and commercial areas in the central and east side. Town Park is connected to the residential districts to the west via Pacific Ave. Because of this it is a highly traveled road by locals walking their dogs or just taking a stroll to the park. Landmarks on this street are the Swede Finn Hall, Valley Market, and Telluride Public Library.
Pacific Avenue

2) Pacific Ave., view North, sitting across from the site is small businesses located in houses, and Valley Market

1) Pacific Ave., view northwest, end of the residential district as you head towards town park

3) Pacific Ave., view Northeast, sheriffs offices to the left, non-tourist businesses, with apartments above

4) Pacific Ave., businesses begin to become intermixed with houses

6) Pacific Ave., to the east of the site is the town library and a small parking lot.

5) Pacific Ave., view of the north end of the site, Old Livery Building next to a mortgage company.
San Juan Avenue runs directly by the town gondola, a high traffic area, as it is the only transportation to Mountain Village that runs frequently and not too far out of the way. This is the most distinct landmark in this area. This street is the edge of town as the ski hill begins here. Along this road starting from the gondola and heading east are mostly retail stores. Farther along are massage parlors, The Ice House, and Smugglers Brewery. San Juan terminates into Pine Street.
San Juan Avenue

1) San Juan Northwest, Gondola, Local Businesses, bus stop.

2) San Juan North, Local business, residence

3) San Juan South, Mixed use building that includes apt, businesses, and ski rental shops

4) San Juan North at Site, Artist co-op building

5) San Juan Southeast, The Ice House Condo/Hotel

6) San Juan Northeast, Mixed use Building, Smugglers Brewpub

7) San Juan Northwest, Ice House Condo’s
South Oak Street:

South Oak Street runs North/South, it connects the Town Gondola with one of four small Main Street parks. Vehicular traffic only runs south through this one way street. The natural slope of the street is reinforced by the similar heights of the existing buildings and roof slopes. “Historically, a combination of one and two-story buildings were seen along the street. This is an important characteristic of the town’s mountain setting, and is especially important to the historic integrity of South Oak Street.” (Design Guidelines for Building, Residential/Commercial treatment areas)
South Oak Street

1) South Oak Street, View west, Next to a small town park with local residences and shops

2) South Oak Street, View west, Local residences next to businesses situated by the park

3) South Oak Street, View west, mix of small businesses and residences. A main path from Colorado Ave. to the town gondola

4) South Oak Street, View East, all residences on this lower side
South Fir Street:

South Fir Street runs along the east side of the site. To the north of the site is Valley Market, the local grocery store, and Baked in Telluride, a local pizza favorite. This is a one way street heading north, and is one of the few streets that vehicular traffic can leave the gondola to get to main street and beyond. The Valley Market is a definite landmark, as locals will refer to it when giving directions.
South Fir Street

1) South Fir Street, View east, A ski rental shop and the town sheriff dept. are seen here.

2) South Fir Street, View west, from left to right: Valley Market, Baked in Telluride, and O’banon’s Bar.

3) South Fir Street, View east, Residence, Apt building with businesses below.

4) South Fir Street, a view of the site toward the west. Artist co-op on the left and the old livery stables on the right.
South Pine Street:

South Pine Street is a full block away from the site, but holds a very important landmark, the city library. This building is a nice work of architecture; it combines old and new into an elegant and contemporary building. The street connects Colorado Ave. with several upper scale hotels and condominiums.

1) Smuggler’s brew pub, a local hang out for good food and good company
**South Pine Street**

1) *South Pine Street, View east, this area is the edge of the central downtown area*

1) *South Pine Street, View west, looking at the corner of the public library toward downvalley*
Currently, the site lies on Fir Street, between San Juan Ave. and Pacific Ave. On the southeastern corner of the site lies an artist co-op building with small studio spaces. To the north side the remnants of the Old Livery Stables. Across the street to the west is a small house and a building of mixed use. To the south is another small parking lot; next to this parking lot, to the west, is a larger mixed use building with businesses in the front and apartments facing the ski hill. To the west is the alley, which face some residential housing. To the north is Valley market, the sheriff station and some small houses that are both businesses and homes. Since space in town is at a premium houses are built in all conceivable areas, including alleys, on top of businesses, and houses have been turned into apartments. The master plan of Telluride is based on a grid system. Its avenues run east to west, the streets run north to south. Since the town gondola was built the southwestern corner of town has grown into its own center. Foot traffic and bicycles are the transportation of choice around this area.

The site slopes slightly at about 10-15% grade from Pacific Ave. to San Juan Ave. The site is a rectangle measuring 117.5' by 250'. This is approximately .67 acres or 29,375 square feet. The long axis runs about 10 degrees east of north. The town requires a 5-8 ft. setback for sidewalks, but the building needs no setback from the sidewalk. Open space is abundant on this site and provides good sun exposure and views of the valley and mountains. Views from ground level will be somewhat minimal; however different views from the second level will be of the gondola to the west, Town Park to the east and Colorado Avenue to the north.

After careful consideration I have concluded a building on this site should be a mix of heights and layers to keep the overall scale down. The street wall should
Site

be kept along the Pacific Ave. and Fir St. Along San Juan Ave. the building can vary in heights, but needs to relate to the walking traffic. At the alley the building needs to address the residential housing it sits next to. Open spaces should meander through the site to invite those just walking by. Overall the building needs to be inviting and strike a curiosity to the passing public.

1) The Old Livery Stables, used by miners for their horses

View from the site to the southwest

Entrance to the site

Alley next to residential houses

2) Daily Planet Newspaper

View to the northwest at the site
"THE PLACE FOR AN ARCHITECT TO STUDY CONSTRUCTION FIRST OF ALL
...IS THE STUDY OF NATURE"

FRANK LLOYD WRIGHT, JUNE 28, 1958
Telluride has short, pleasant summers and bustling winters, it is a Mecca for year-round outdoor enthusiasts alike. Tourism plays a vital role in the success of what was previously a booming mining town. Activities are always abundant from winter skiing to summer festivals every weekend. The Telluride Bluegrass Festival is the premier event and brings people from all over the world for a week of music and relaxation. Locals are proud to call Telluride home and take much pride in living in such a beautiful place. This pristine area needs to be savored and protected; this is why the city of Telluride has adopted a green strategy for building design. For this reason, I have chosen this area as a center for sustainability and ecological awareness.

The design will utilize the Old Livery building, a horse stable used by miners, and the artist co-op studios into its design. This facility will serve to promote ecological and sustainable literacy for elementary, middle, and high school students throughout San Juan County. Dormitory/lofts will be brought into the design to house visiting faculty and students. At the core of the center will be a living lab. The living lab is a learning space with curriculum designed to demonstrate the most innovative concepts in sustainable building, ecological design and environmental stewardship. As a unique “living classroom”, it will implement hands-on lessons in ecology, agriculture, aquaculture, design and environmental restoration. The Living Lab and associated curriculum will illustrate the mutually beneficial relationships existing between different organisms in natural ecosystems, and show how students can harness them to provide clean water, food, and shelter. The Living Lab is self-sustaining, generating a portion of its own power from the sun, collecting rainwater and reclaiming wastewater through a “Living Machine”® System. “Living Machine”® Systems use communities of microorganisms and plants in engineered ecosystems to digest the organic...
compounds in wastewater. The “Living Machine” ® systems can clean from 600 to 750,000 gallons of wastewater a day.(www.livingmachines.com) The design wants to slope from Pacific Street to San Juan Avenue; this would keep a sense of the slope of the site. In order to keep the sheer size of the building to a human scale it will integrate series of interconnected buildings on the entire site to create indoor and outdoor space throughout. This will also give the building a sense of separation from the living areas, businesses, visitors center and classrooms. The corridor to the south needs to be respected for sunshine and the view. The surrounding buildings are primarily one to two story buildings, so anything more than that should be done with great care. Along the alley to the west a sense of human scale needs to remain to keep from dominating the nearby residences. Along Fir Street I would like to keep an edge, a two story façade would help to define this edge. This would correspond with other buildings on this street.

Total Area for design:
29,500 sq. ft.

Main Visitor Center
Common Area:
- Lobby, Circulation, and Display space 1000 sq. ft.
- Public Restrooms 850 sq. ft.
- Public Conference Area 1000 sq. ft.

Commercial:
- Businesses 6500 sq. ft.
  These can be used for anything from retail to private businesses
  - Massage/Salon studios
  - Small restaurant
  - Small retail shops
  - Bookstore
Spacial Analysis

_Education and Utility area:

Green house area  7500 sq. ft.

A Living Classroom

The Living classroom introduces students to the interrelationship of the five kingdoms of nature; how bacteria, algae, protista, plants, and animals provide “life support” on this planet. Students become active participants in the development of living systems which provide clean water, food, and some building materials. The diversity of pathways assures that wastes from one system become food for another. Harvested plant materials from the Living Machine System are mixed with waste paper to provide substrate for mushroom cultivation. Spent mushroom substrate is utilized as fish food for the aquaculture system. Nutrient enriched aquaculture water becomes fertilizer for grains, fruits and vegetables. The Living Lab makes environmental principles both transparent and exciting. They learn that natural systems can transform wastewater and solid wastes into valuable resources.

The architecture of the Living classroom is designed to immerse students in the dynamic ecosystems described above. In addition to the laboratory space on the first floor, a second floor space is enclosed in glass and provides a quiet classroom environment. The design, materials and technologies of the building reinforce the principles of sustainable design. Passive solar design provides some heating and cooling and is illustrative of solar cycles. Rainwater collection systems inform students about seasonal water availability. Natural building materials illustrate the important connections to local forests and materials. For example a coal mine, just south of Grand Junction, Colorado can provide fly ash for concrete mix.
**Learning Center**

Classrooms 2000 sq. ft.
This area is connected to the living classroom but oriented for students and faculty

Outdoor space 1500 sq. ft.
Outdoor space with views to the mountains for public interaction

**Dormitories:**
Located over the retail spaces on the north end of the site this is where visiting faculty and students have the option to live.

Overall design area 4000 sq. ft.
Dormitories:
- Student dormitories 2000 sq. ft.
- Faculty Lofts 2000 sq. ft.

**Artist Co-op:**
The old Daily Planet will be converted into an Artist Co-op space which will have an art gallery space adjacent in the next building to showcase work done.

The Artist Co-op Studios 1250 sq. ft.
Building Code Analysis

Classification

B - Business
- Includes buildings or parts of buildings used for the following: offices
- Includes the following building types:
  - Laboratories, testing and research
  - Educational purposes above 12th grade
  - Professional services

U - Utility
- Occupancy “U” includes the following types of buildings and structures:
  - Misc buildings not classified in another occupancy.
  - Building types and structures incl. the following:
    - Tanks
    - Greenhouses
    - Sheds

M - Mercantile
- Occupancy “M” includes building and structures for the display and sale of merchandise. Mercantile occupancies shall include, but not be limited to, the following:
  - Department stores
  - Drug Stores
  - Markets
  - Retail or Wholesale stores
  - Sales rooms

R - Residential
- R-2
  - Residential occupancies containing sleeping units, or more than two dwelling units where the occupants are
SPACIAL ANALYSIS

PRIMARILY PERMANENT IN NATURE, INCLUDING:
- Apartment houses
- Dormitories

<table>
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<th>Occupancy</th>
<th>Maximum occupant load</th>
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<tr>
<td>A, B, E, F, M, U</td>
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<td>10</td>
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<td>S</td>
<td>30</td>
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</tbody>
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Fire Rating w/ sprinklers:
- b-e, e-b, i-e, i-b, i-e 1hr
- b-r, b-m                2hr

Construction type:
- Type II                  2hr
- Type III                 2hr
- Type V                   3hr

Mean of Egress:
- Two separate means of egress
- Ceiling height must be > 7’ in opening
- Paths of egress min distance:
  - b, u, r, m            < 75’
Accessibility:

• UBC Conservation
• A304.2

1) At least one accessible route
2) At least one accessible entrance, preferably the main entrance
3) At least one toilet facility for each sex on each substantially altered floor
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Architecture In Context

This thesis is based on the exploration of the built environment and the natural environment. It is a look into the fabric of modern architecture and the cultural aesthetics of the surrounding urban fabric. In my project I looked into what makes Architecture local, as in what makes it belong in context with its surroundings. This project strived to match its small town surroundings with sustainability, modern architectural ideas, and materiality of place.
SITE:

The site is 1/2 block from the town gondola. The gondola serves as a major travel node in town. This is a main hub for the local town people to get to the ski hill and mountain village which resides on the opposite side of the mountain.
Reuse of existing buildings was crucial to my design criteria. Since sustainability was a key factor it only made sense to take full use of what was offered on the site already.
The Design utilizes conventional construction of fabricated steel I beams, Wood glulam truss systems, and Rammed earth foundation walls.