A PATTERN LANGUAGE FOR THE FRONT RANGE OF COLORADO

by
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A THESIS

Presented to the Department of Architecture
and the Honors College of the University of Oregon
in partial fulfillment of the requirements
for the degree of
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APPROVED: 

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An Abstract of the Thesis of

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An approach to life for Brian Fuentes as he returns to his home in the Denver Metropolitan area in Colorado. An autobiographical critique of architectural education at the University of Oregon between the years of 1995 and 2000 as well as critique of the typical architectural practice are transformed into a hypothesis for a new process of architecture in which people work together in a creative, equitable, fun process to remake the Front Range of Colorado. The process incorporates a method of sharing information developed on an educational world wide web site to facilitate collaboration and equity in the built environment. A vision for the future of the region and the story a boy growing up in Colorado with the dream of living an intense, beautiful life in Denver.

ARISTOS
ARCHITECTURE

Being an artist is first discovering the self
and then stating the self in self-chosen terms.

John Fowles

LIFE FOR BRIAN FUENTES
ON THE FRONT RANGE OF COLORADO

ONLY WITH THE LOVE FROM THE FOLLOWING PEOPLE WAS THIS POSSIBLE
MANY GO UNNAMED BUT THEIR PRESENCE IS FELT AND APPRECIATED

robert proudfoot - the mug, understanding responsibility to my ancestors and people
francis cogan - straightforward academic advising and the most enjoyable classes in oregon
bill kleinsasser - architecture and the importance of telling the story of life
james w givins - passion for architecture
david owen - calculus, computers, ecs, structures the fab four
john a Gascon - being creative, the super model in the lobby, and the robot dance
NAZ - surviving in eugene, living like its the last day everyday, the pocket Emerson
kyla schuller - serious academia and importance of activism, support when I needed it
vale larsen-brasted - Carson life, crazy roommate times and janes.
austin lewis - U2, honest abe and the huerta song, and forest grove, closest thing to CO.
the carlson bros, eric and ryan - meaning of camaraderie, the bike maintenance
luis o. acosta - the chance to learn about the architectural profession
Catherine and jim starkey - jacks, art, literature, film, beauty, and the Aristos
tolguy and tara hasenfuss - kites, snowforts, nintendo, bikes, basketball, ping pong, foursquare
steve, jimmy and mark powers, jeff, ian, brad, spencer and lance gardner + jeffery's boys - boyhood times on welch circle
ann and Karen - bridgehills and gulleyruns, sprinkler capture the flag, high jump, the 800, 1600, and the joy of running
Rebecca McDowell - how to be a toughgirl and an athlete
sam and troy wellington - rec soccer, easy-goingness and a happy-go-lucky spirit
dean and darlene bowland - snowshoveling, lawnmowing, the august evening neighbor fish fry
brian McVeigh - how tough out pain and be reckless and wild
james edwards - fourth of july fireworks soccer parties and love of my nanny's gingerbread
jason taylor - frontyard World cup, how to be a goalkeeper
Roger Mollison - God, goal of service, real architecture with tile scraps and plywood
michael chaffee - the haircut, #4 jersey, green mountain soccer as a life
ryan lawson - nice guys can finish first, even with broken bones
john mooney - the skills and the love for the game, overcoming odds
denis hastings - sacrifice for those who must enjoy the present
summer kelly - how to respect your parents and culture
sara mohatt- how to do what you have to do to get through
andy mitchell - ogreness, Elk meadows mountain riding and enjoyment of appetite
tony cozzi - fun of design, being "cool" and dreaming without respect to reality
jeremy horgan-kobelski - how to stay hardcore Colorado pro mountain racer to the bone forever
mark halboth - Colorado bike racing culture and style, how to really race, and what to wear, how to pick your nose with your tongue
chris stevenson - 311 and the hotrod
mo and lisa ory - Mojo shop and team the chance to race the points series, The Trip to Cactus Cup
luke, matt, scott, dan and the mojo boys - bike building and maintenance, jokes, fantastic stories, and the smell of grease and grime.
mitch and michelle westall - how to race bikes *and* do architecture (or deal with it)
chris mcgee - the team, the van, the bikes, the road trips, the support and patience, and the lifestyle
adam blankenspoor - the joys of climbing, and the acceptance of being skinny
matt andrews - how to be a leader, how to be humble, how to deal with not being able to ride again
greg vuolo - CX debate, steamboat, and boarding on GM
matt baron - high school attitude and the last of the state championship team era boys
jack swanzy - what it means to be a Colorado architect
jeff smith - the jimb phenomenon, breadrolls, the jokes, and riding the front range
kevin williams - the drive to be the best, the welding brothers, the thumb
jeremy wendelin - the kilts, the frisbee, and the love of jazz
paul wilson - insight and careful thought
joanna ossinger - the power of confidence
miguel knochel - OM, debate, boards, bikes, woody allen, and growing up, what else?
sarah wilson - a perfect summer, what it means to love and how to feel the water
travis chapin-the training partner I have been looking for for a long time
nick bard- superjokes, laughter above all else
jenny eggers- reminding me who I am again
(grandmother) nanny - how to face the world and make garden
brittany fuentes, sis - how to be your own person, hallball, backflips and the trampoline
andy fuentes, dad - the Bike, the ball, how to own-up, how to laugh, run, tell jokes, have fun
mary fuentes, mom - how to work hard, keep it all together, how to care, and how to cry
all my ancestors - the mountains, the soil, the plants, the rain, sunshine and the sky

THIS LIST KEEPS ON GROWING THANK YOU ALL THANK YOU

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I AS A CHILD 2

As a child, frequent "creative rampages" lead me to choose to pursue a career in "architecture."

II ATTENDING THE ACADEMY 3

I considered myself a good student in high school and was confident in my ability to succeed in the school of architecture. However, I soon found myself overwhelmed trying to learn new skills associated with architecture and survive at College. I came down with mononucleosis and injured my knee on my bike. I was being tested, both mentally and physically.

III WHAT IS ARCHITECTURE? 6

I was introduced to the work of Christopher Alexander by Jim Givens during my first year of studio. At this point in my education, I did not have the background in order to appreciate the power of Alexander's work. I needed groundwork in many different fields of study before I came back to these ideas four years later. At this time, however, I caught a glimpse of the same "joy of making" in the writings of Alexander as I experienced as a child which led me to architecture in the first place.

IV THE SNOWFORT 9

The most beautiful way of making buildings I can imagine is the way we built castles out of snow as children.

V LESSONS OF THE SNOWFORT 14

I will use the process of building snowforts as the quintessential model for the rest of my life. I will measure my success by the degree I approach the beauty of this process in the "real" world. I felt uncomfortable with the process of architecture I was being taught in school and at work. I also came to realize something was deeply wrong with the buildings I was being told to imitate by my professors. I became more and more frustrated as I learned more about economics, ecology, philosophy, sociology, urban planning, art and architecture. I needed a way to reconcile my deepest feelings, intuitions and reasoning with the career I was involved in.

VI THE BIRTH OF THE VISION 21

I attended a lecture in the fall of 1997 by a forest biologist named Chris Maser. From this lecture and my other studies, I realized the universe was composed of a system of systems. My life was embedded in these systems. I came to realize I had the potential, through my life, to make things in the real the world in a way just as beautiful as making snowforts.

VII THE MOUNTAIN BEFORE ME 30

I realize that this dream will be very difficult to achieve. I am willing to accept the challenge. The mountain is my metaphor for the challenge of life. I am willing to climb the mountain.

THE DREAM 32

I LEARNING THE METHODLESS METHOD 33

What I call building snowforts, Christopher Alexander calls the "Timeless Way of Building," the methodless method. The "Timeless Way," or process of building snowforts requires throwing out all the methods taught by society and the world of ideas and simply listening to the the feelings in the deepest depths of the soul and doing what makes sense.

II A PILE ABOVE HEAD HEIGHT 46

In order to set the stage for this process in the "real world" on the Front Range of Colorado, I need to find a way to communicate and work with people on the same level I communicated and worked with Tolguy, Tara and my sister Brittany when we built snowforts. This requires the creation of a new language with which people can communicate about buildings called a language of patterns, or a pattern language. Patterns are composed of a context, problem and solution and are connected to form a language. We used patterns to communicate as children in the creation of snowforts. Patterns can easily be shared, and only by sharing them can the Front Range be repaired. I will begin generating patterns with my senior thesis which will begin to repair the Front Range. I will begin sharing them with others in a variety of ways, including publishing them on a web page.

III LEARNING TO TEACH AND TEACHING TO LEARN 61

The only way to build snowforts in the real world is to learn to be a teacher like Tolguy, who taught me to make snowforts. I have to share what I learn with the people of Colorado. I will teach in order to learn more about what I am doing. Teaching is the only way to really learn. People learn, and I learn from people. Everybody wins. This is a beautiful process.

IV ARISTOS AS THE ORGANIZATION 67

Tolguy, Tara and my Sister worked together equally in our snowfort-making process. We all loved what we were doing and and used our unique skills to contribute to the creation of the whole. We shared goals and the decision making process. In the future, I will work with a similar an organization of people with the same degree of equality and joy of making and education. The organization will educate through verbal and written communication as well as through demonstration by building buildings. This type of organization is emerging in today's marketplace because it is more efficient and productive than the typical process used today.

V BUILDING SUNPROOF SNOWFORTS 77

The experience of making our snowforts really felt wonderful. I do not believe this memory is merely a product of romantic nostalgia. I think the experiences should serve an ideal model for the processes of building real buildings and working with others. We were able to communicate and build using a pattern language to generate the creation. We were productive to an uncanny degree, as compared to my work at an architectural office. We all had a positive attitude and accepted responsibility for creating beauty.

VI REALITY OF DREAMS 87

Building snowforts was hard work and required discipline uncommon to children our age. On those days when the blizzards came, we had a vision. While accomplishing all the previous may seem impossible, I urge you, the reader of this paper, to remember those times when you have felt the most alive, the most passionate, *felt the most.* During these times, people achieve complete freedom of the limitations of our own minds, and in this state, dreams have the potential to become reality.

THE RIDE 89

I THE LANGUAGE OF THE MOUNTAINS 90

A look at the first run of a pattern language for the Front Range can be had on the primordial-soup web-page where these patterns are evolving :

http://marvelous.uoregon.edu/aristos_arch

II LIVING THE CONTINUOUS LIFE 94

The connection between the function of the healthy mind and the healthy body cannot be underestimated. My happiness, contentment, and passion has always been achieved through the careful balance of my mind and body. Health is paramount to efficiency and being alive. If I want to make the world come to life, I have to be as alive as possible. The old cliche, "the body is a temple" leads me to several critical personal beliefs.

III RETURNING HOME 98

Everything we build will someday melt like the snowfort, it will someday dissolve into the sky. We build because we must, because it is beautiful and we are alive! We build, but it cannot last. No one is recording our lives, no one is watching, no one can save this beauty in a bottle. Time slips out and away, and it is a beautiful play, and the people laugh and cry, but no one is watching. We build in the sun of the morning, but the sun will fall behind the mountains and night will come.

THE MOUNTAIN

Tortured with effort
rewarded with effortlessness
Only with Mountain, I am alive
Only with Mountain, I am truly free

I. AS A CHILD

It takes all kinds of in-and outdoor schooling
to get adapted to my kind of fooling.

-Robert Frost

Abnormal behaviors during childhood made it clear to my folks what kind of school to send Brian to when the public system cut him loose. Frequently prone to week long periods unresponsiveness to my father's demands to attend the family dinners, Brian would not leave his room during obsessive projects with Lego bricks, the cliche pre-architectural toy. He could be seen blazing around the house early winter mornings, in sheer joy from school-cancelling Colorado blizzards outside, dropping whole days down from the heavens. The millions of little waivers of freedom floating and dancing to the earth provided time to frantically construct castles in the snow with childhood collaborators before the high altitude Colorado sunshine burned through the clouds, slowly dissolving the kids' dreams, the castle steaming back into the pale blue sky.

My parents raised a child prone to random acts of construction/demolition. A log and plank tongue-and-groove bookshelf found itself metamorphosed into a cantilevered bedroom tent structure early one morning. Lamps have been cut down from the ceiling with hedge-clippers, carpets torn out, backyard fences sawn in half. Threats have been received by my parents to demolish entire walls and paint kitchen cabinets, tile floors, and dig up lawns.

Perhaps this troubled child needed more snow-days to exert creative force on the universe, perhaps it was the result of excess energy from his mother's excessively healthy meals, or father's promotion of intense athletic activity. Perhaps it was to be a gift to the world, perhaps it was a curse on Brian himself. Whatever the cause, it appeared salvation could only be found at architecture school.

II. ATTENDING THE ACADEMY

No more joking around!

My mother wrote the check for my tuition to the University of Oregon before I had even visited the campus. Oregon had been chosen in a rather haphazard manner. While throwing away booklets from prospective colleges, one tiny picture of the cycling team caught my eye on the cover of the *Oregon Insight* pamphlet. Cycling and mountain bike racing had become a critical aspect of my life physically, emotionally and spiritually during high school. It had become part of my identity and culture, I rode the mountains, in snow and shine, ate healthily, and went to bed at nine o'clock every night. I read *Mountain Bike Action,* shaved my legs, watched the Tour de France, and ate Powerbars. Cycling was crucial to my mental as well as physical health, so it was not so surprising a half-inch by half-inch photo of a group of cyclists in UO racing jerseys took me a thousand miles from home to study architecture.

After applying and being accepted to both the school of Architecture school and the Robert D. Clark Honor's College, and receiving scholarships from the Honor's College and the University, I decided Oregon was the best choice for financial, academic and "cycling" lifestyle reasons. My interests in high school had been mathematics, physics, literature, philosophy, and the big, synthesizing ideas connecting them all. I owe my interests in synthesis and connection to my beloved English teachers Catherine and James Starkey. In classes, they demanded hard work to understand, appreciate and enjoy literature, art and life itself. Because of their serious effort, I believe my friends and I experienced immense personal growth, as well as growing together as a group. My best friends from high school, Miguel Knochel, Kevin Williams, Jeremy Wendelin and Joanna Ossinger still spend time together whenever our busy schedules permit, even though our interests are dissimilar (medicine,

physics, electrical engineering, jazz performance, literature, architecture, urban planning and chemistry). I believe our desire to do so originates in the method of critical thinking established by the Starkey's in high school and the growth we experienced together.

I arrived with a 3.9 high school GPA, feeling ready to take on the college world. I had taken all the Advanced Placement classes offered by my high school (save AP Biology, which required fetal pig dissection), I considered myself a serious cyclist-athlete and was outgoing and energetic; I was confident in my ability to live in a new place, meet new friends, and learn about architecture. This confidence was short lived.

I had taken a drafting class in high school, but I soon found architecture school had more to do with art than mechanical drafting. I had had no art skills. While creative problem solving had been the best part of my extracurricular experiences, such as Odyssey of the Mind and the worldwide SolarBike Rayce physics bicycle design competition, I had no drawing or artistic skills whatsoever. Great frustration erupted during my first architectural design classes in an inability to express myself in this new medium. I was unfamiliar with the concepts of architecture, as well as the devices for communicating and presenting them. I was more comfortable writing, which is not emphasized in the architectural education. My professors suggested I draw more and write less, despite my abilities. However, even in writing, my skills were being challenged. I found that my writing was at best average in the Honor's College, despite my score of five on the Advanced Placement English test from high school.

Cycling too, was challenging. Prior to the University, I had only raced and trained on mountain bikes, I soon found out that Oregon had no mountain bike team (I was it), only a road team. I decided to try road racing, having that summer purchased a road bike. At that time, some excellent cyclists were racing for the UO. Team members included Vidylla Kungies, formerly on the US

National Team, Ryan and Erik Carlson, who finished one-two in the Northwest Collegiate Division in 1996, as well as Eric Roesinger, who placed third in a difficult stage of 1997 Tour of Willamette, which draws the top professional road cycling teams from across the nation. From a dry climate, I did not have any rain gear, and I spent many days suffering in the fog out on Lorraine Highway, trying to stay on the wheels of older, talented riders with soaking frozen feet and fingers.

The intensity of the academic challenges, physical strain of a higher training level, and the sleeping difficulties inherent in dorm life finally took their toll on my body. I came down with mononucleosis for the *second* time. After recovering from mono in the spring, a particularly hilly, grueling 70-mile ride caused an overtraining injury of inflamed cartilage around my right kneecap, and caused me to stop riding for a month. Life in rainy, cold Oregon had thrown my body a beating.

III. WHAT IS ARCHITECTURE?

"One of the most important things at stake in this building concerns the vision of a new architecture, humane in feeling, profound in meaning, of the 21st Century, yet consistent with the thousand year-old tradition of architecture. The vision, towards which my colleagues and I have struggled for many years, is the clue to a humane life, and decent society, and a humane experience of ordinary human feeling in our daily lives" (MRM 16).

-Christopher Alexander

During this time, I was enrolled in my first architectural design "studio," the carbohydrates and proteins of an architectural education. In design studio, students do mock design projects, as if they were an actual architect designing a real building. In this class I was first introduced to the work of physicist turned architect Christopher Alexander by my thesis advisor to-be, Professor Jim Givens.

I largely rejected the ideas of Christopher Alexander at this point; they were too difficult to grasp, seemed too distant from what we were doing in studio, and even appeared to conflict with the principles I had learned in my first term from Professor William Kleinsasser in "Introduction to Architecture." Jim had introduced us to Alexander's Fifteen Fundamental Properties of Wholeness, which appear in Alexander's The Nature of Order, unpublished as of this writing, in November of 1998. The Nature of Order is the latest of Alexander's ground-breaking work, and reaches the deepest to date. This publication develops, according to Nikos A. Salingaros, professor of Mathematics in San Antonio, Texas,

a comprehensive theory of how matter comes together to form coherent structures. Paralleling, but not copying, recent results from complexity theory, he (Alexander) argues that the same laws apply to all structures in the universe; from atoms, to crystals, to living forms, to galaxies. Human beings apparently have a built-in (though subconscious) understanding of these laws. Human creations have the option of following the same laws, or violating them. Those that follow them result in our greatest achievements, either as artifacts, as buildings, or as cities.

While this was too abstract for me at this point, I was inspired by something in what the work of Alexander had in it, and passion with which Jim Givens spoke about it. The Nature of Order creates the grandest, universe-encompassing argument from the deepest level of an analysis of any of Christopher Alexander's work yet. Comprehension of the concepts presented in the 1000 page tome requires background in architecture, structural engineering, biology, ecology, physics, psychology, mathematics, urban planning and the history of western cultural ideas. It is not the best introductory text for first year architecture students. It would take me four years of frustration and intense study to establish the necessary groundwork to realize the power and clarity of Alexander's work.

Had we began in studio with other books published earlier leading up to the nature of order, it might have been easier bridging the gap. It seemed a better starting point for the class would have been in one of Alexander's earlier, more architecturally specific works, such as The Timeless Way of Building, which outlines a new method of building that frees the creator from any method at all (hence "timeless"), or A Pattern Language: Towns Buildings Construction, which indeed, is that method. Other books to start with would have been specific documented case studies of real applications of this Methodless Method

including the third book from this series, The Oregon Experiment, or other publications such as Houses Generated by Patterns, or The Mary Rose Museum.

Regardless of the impact this first introduction to Christopher Alexander had on my thinking at that point, something in the way Jim talked about architecture and the process of building reached me, and although confused, I recognized a feeling within myself difficult to describe, but similar to the feeling of my childhood creative rampages, a true feeling of detachment from any other concern, accompanied by continuous energy. This energy, once flowing through the veins, so to speak, never dissipates until a work is finished. It is similar to the feeling of being in the aerobic state on the bicycle. I know this feeling distinctly, and can remember the conditions in which it emerged during my youth.

IV. THE SNOWFORT

"We build towards nothing. We build."
-John Fowles, The Aristos

In wintry youthful mornings, when snowstorms were an adventure and not a hassle, we built snowforts. I called up Tolguy, Master Snow-fort Builder, put on my snow clothes and ran down to his house. After echanging excited greetings, we began shoveling snow like mad. Our snow-forts looked more like igloos or snow caves, but at our peak of snow-fort building, we actually had an external staircase that led to a turret above the cave from which snowballs could be handed up to the turret through a small hole in the top; it was then a true fort. We only built them once or twice a year, Snowforts required a near catastrophic blizzard to construct.

We worked tirelessly, with an impossible vision of a structure bigger and roomier than the one last year, after all we were getting stronger with age, we could shovel more snow. We had more discipline, could shovel for longer periods, and take turns digging and shaping the interior. We also, unfortunately, got bigger bodies every year. We had to hurry, the sun might come out today or tomorrow. I always ran with our family's newest snow shovel down to his house; walking would have been snow-fort heresy. We loved it when it looked as if there were no return to summer ever again: big, fat, mountain snowflakes repowdering the freshly-shoveled sidewalks and driveways. Our adult neighbors wrestled their cars up the street off to work, or called it quits altogether and went inside, put on a sweater and sweatpants, made some hot chocolate, and called in sick.

I learned a lot from Master Snow-Fort Builder Tolguy Hasenfuss. Snow-fort building revolved around speed. If it snowed eighteen inches or more, they might cancel school one day, but the plows would for sure have it cleared for

school the next day unless it kept snowing like mad, which is rare after a blizzard. If it was two or three feet, like it was a couple times, we were pretty safe saying we would get two days to build the fort. However, the snow-fort builder, never safe from the power of the Sun, knows evaporation caused by the Mother Star removes snow faster than you can shovel. The snow-fort is a temporary creation, so we had to begin immediately and proceed at maximum warp. There was only time for action.

We began by choosing a spot to build the fort in Tolguy's front yard. We always used his front yard because it seemed to have more snow, due to the patterns of the wind. The first year I wasn't there to help make the first decision, but the next year, we began by deciding where to put the entrance to the fort. We couldn't put in onto the street, that is the direction of the potential attackers. The year before last we put it facing Tolguy's house, but then his Dad could see in, and yell at us that we were ruining the grass. This year we put it on the side, and planned to make the cave turn, so you couldn't see in from the outside, and hopefully the attackers, if they got near the entrance, would fear what was around the corner, and have second thoughts before coming in.

As soon as the entrance was set, we set to work immediately, creating the huge starter pile necessary to begin excavating into, which wouldn't begin for hours. Once it was about a foot or two taller than our heads, and the pile was big enough to place the entrance where we wanted it, we started digging in, and shoveling that snow on top. I learned how thin we could dig the walls before we needed to shovel more onto the outside to make it thicker and taller. When you could see a pale blue light from the inside of the cave, it was time to shovel more snow or stop digging there. We had learned from building the past years how to make the interior more room-like and less tunnel-like, by increasing wall thickness at the base while gradually tapering towards the top to reduce the horizontal thrusts of the shallow dome. When the sun came out

full bore at midday as it usually did after a big blizzard and began to melt the inside of the fort, we knew it was time to pack the inside because the snow would melt and then harden overnight, increasing the strength of the cave, just in case we got to stay home from school tomorrow and build some more.

My sister Brittany and Tolguy's sister Tara would help too. They were both younger and smaller. Sometimes they would dig out the inside and I would shovel that snow on top of the fort, while Tolguy shoveled fresh snow from the street or neighbors yard. We all worked together, simultaneously, no one person had control of the process. We all had a specialized task, but I could always dig and my sister could shovel, even though she couldn't carry as big a load as myself or throw it to the very top of the pile, which could be up to nine feet high. Likewise, I couldn't dig efficiently and push the snow outside between my legs when the cave was really small, Brittany was much better. Sometimes Tara and Brittany would stop digging and come out and say they were seeing the blue light which told them they were coming close to the surface. We would all go in an inspect the cave; it was difficult when the cave got very large, to see where to pile snow and where the cave was within the pile. Sometimes we would accidentally poke through the surface and somebody would have to go in and put the their back up against the hole while we all shoveled snow to patch the hole. Tolguy and I knew we had to work hard to keep pace with the girls who were digging fast.

We always shoveled the driveway of Tolguy's house, which he had to do for his parents anyway. Then we did the sidewalks and then expanded into the street and adjacent yard areas. Because the further we got from the location of the fort, the slower we were able to pile snow, there was a finite distance at which carrying snow on a shovel became burdensome. Therefore there was a certain depth and consistency of the snow that was required to build the fort. It had to be at least eighteen inches, and it couldn't be powdery fluff which is less dense and takes more of to make the fort. If it was powdery, it had to be at

least two feet to make up for the lack of density. We knew which storms we could build with and which ones we couldn't. Those days we went sledding instead.

It took us most of the day to build the fort. We only actually used the fort for a snowball fight once, and it lasted only 15 minutes or so. The snow-fort for us was always a game of creation and vigorous labor. The product was always the goal and the dream, but the process was fun and interesting, otherwise we would never have spent all day doing it. Our great moment of pride came when Nate George, the big red-head kid from the neighborhood across Yale ran from all the way across the street, hurling his mass of early-pubescent muscle and energy full force into the wall of our fort with a deep-throated, barbaric "yalp." For a moment, we couldn't believe he didn't respect the magic of our snow-fort building, for all the other kids who saw it were amazed, and while they would hurl snowballs at us, would never think of trying to destroy the fort itself, it was too amazing to be made by "kids," and since we had actually made it, it had a sacred quality, it was not to be destroyed. We held our breaths, but rejoiced in the next instant. Even big redhead Nate the Great could not topple the castle of snow we built.

When we were in the construction process, there was no fear that we would do something that looked a certain way or another. Aesthetics was not a member of our young association of vocabularies. We sought only the creation of a fort in which we felt "comfortable" when we all got in the fort. That's when I knew we had finished building. Tolguy would crawl in, across from me, and say, "Ah, now that's comfy, dude," sitting back against a wall. He would look up at the ceiling with a big grin on his face, sniffling, wiping his nose with the back of his glove. Breathing out wispy clouds, we sat content, warm within the cold hull, appreciating the world we had created.

I was always amazed, as I went home for dinner at night, when I turned around, about half way between Tolguy's house and ours, and looked back. The

fort always had a silent, humble presence in these moments. Somehow it did not appear as grand or beautiful from a distance. It always seemed more incredible when I was actually working on it, in it, packing the snow, carrying a heavy load from the neighbors yard and swinging my shovel in a wide arc, watching the show cascade in chunks and shapes and land with a dull thud, that sounded so distant when you were on the inside.

One year, we carefully broke off sheets of ice frozen in the gutter in roughly rectangular pieces, lugged them inside the fort and slid them between two big columns in the center of our fort as shelves. Tolguy's dad brought us out a Turkish egg soup that tasted salty, and we sat in silence. Sipping our egg soup in the luminous, grass-carpet tinted sphere, we took turns putting our soup on the ice shelves, watching the steam curl upwards, into glowing blue pockets of packed snow, our eyes dancing with the silver sparkles off the ice. My muscles glowed warm with heavy exertion. Yet I was content. From our raw, red hands we had packed and shoveled, scraped and nudged the fort into just the right position, each pat and push intended to shape and strengthen the structure. Every action and motion since the dawn intentionally created and repaired this tiny world. The floor, carefully cleaned of snow down to the grass below, revealed only a powdery, sugar-like coating. Cold and fresh, our Snowfort stood.

V. LESSONS OF THE SNOWFORT

A Patch of Old Snow

There's a patch of old snow in a corner,
That I should have guessed
Was a blown-away paper the rain
had brought to rest.
It is speckled with grime as if
Small print overspread it,
The news of a day I've forgotten-
If I ever read it.

-Robert Frost

There was no doubt I was enjoying architecture school, but something about it all was still foreign and uneasy, the feeling Snowfort had brought was not there. A fresh new world of ideas and concepts kept my mind occupied, and learning to draw, how to build three-dimensional computer models of buildings and render them photo-realistic, using computer aided drafting and document publishing programs allowed my hands to shape and craft. I had been temporarily pacified, but not satisfied on the profound spiritual level that I was seeking. There were things that felt wrong, unethical, abstract and disconnected.

I had initially become very attached to the values presented in Synthesis 9 by Professor Bill Kleinsasser in the Introduction to Architecture Class during my first term at school. It preached a value system based on the careful creation of places for people to live, called "place-making," by hard-working architects.

While the result of places that were supposed to function well and be beautiful for for the "users" seemed like an ethical, well-meaning professional goal, there was something terribly wrong with the process. It involved a complex synthesis and analysis of nine "frames of reference" which purportedly encompassed the whole of the architectural process. These "frames of reference" required specialized knowledge of abstract issues such as the "context" in which the building sat, meaning the style, character, form and materials of buildings nearby. It required understanding the architectural history of a place and consciously attempting to maintain a "historical continuity" between the old and the new. It required extensive knowledge of mechanical building systems such as heating and air conditioning systems, the structural systems of wood, concrete and steel. It required integration of all of these ideas, into a building by a group of architects. It seemed nearly impossible to enjoy the process burdened by such a complex and demanding task.

I sensed something was wrong; too much of a burden was being placed on the architects actions in a short design period of time. Hundreds of people would feel the effects of their successes and mistakes. This burden of responsibility and the associated power was too great to be held by one small group of people. Could architects be responsible for the quality of each and every place? Could quality, real beauty, like feeling of the snowfort be had through this process all over the world? I knew in my heart that this way could not produce beautiful experiences and places. My appreciation and respect go out to Bill, who teaches his class so well and does so much to improve the level of concern for the world in his students. I haven't the heart to show him this paper of what I have written about his life's work. I believe it is very valuable at the beginning to appreciate and understand the impact of the built environment on human life, but ultimately, I know it is not the right way.

I began a spiraling downward plunge, into the depths of skepticism. Bill

had introduced us to the world of problems of the human environment, ranging from the social to environmental. and it was then I began the process of "seeing" the environment around me. I saw the bland Blockbuster Video stores with their blank expanses of glass, neon lights and synthetic stucco, I saw the big box Safeway stores. How much time had the architects spent on those drawings? Had they used their minds and bodies to critically address every corner and inch of the building? Of course not! How deeply did that architect care about the quality of life of a checker named Susan? It had undoubtedly been designed in a couple weeks on a computer, printed onto perhaps twenty sheets of paper and given to a contractor to build. Then the architect undoubtedly started working on some other project, it was out of sight, out of mind and out of soul. This I learned while working for an architect during the summer. I became enraged after reading in architectural journal how an architect in San Francisco was *"especially concerned"* with a certain project's success because it stood in his own neighborhood. What does that imply about all his other work?

When I looked at buildings, I could see how little thought went into them. It was perhaps a hour for every two hundred square feet. Yet our snowfort had perhaps an hour of work for each and every square foot. And how many bushels of love, as my grandmother would say, went into making each and every corner of the Safeway a wonderful place to be? Did the masons who piled up the concrete blocks to make up the plain, blank gray wall on the back of the Safeway have as much fun as Tolguy and I shoveling snow? Even the best designs, shown to us in school by "star architects" around the world, had a finite depth to them, a level at which it was obvious the architect had stopped caring or being interested in the design of that portion. While it was easily able to recognize the difference between "good architecture" and most of the toothpicks-and-tinsel garbage thrown together all across America, even what my instructors told me was good, felt careless, soulless, lifeless, and terrible to

me.

I saw the highways and wide boulevards choked with cars. I could imagine the lines that instructed the road crews to build them exactly this way or that on the computer monitor. Straight and cold on the screen, each curb, each sidewalk had been made to be exactly like some reproducible CAD drawing. How many acres, how many miles of humanity had been shaped by that CAD drawing, made by one person, copied exactly by thousands. Did the road workers shoveling the gravel and concrete feel the joy of creation Tolguy and I felt when we shoveled snow? Did the engineers working on the computer enjoy their lunch after doing the drawings for the curb detail as much as Tolguy and I had enjoyed his father's egg soup?

I saw the miles and miles of suburban homes, exactly the same. I imagined how different each and every person lived and thought in those houses, and how exactly the same the walls and ceilings were inside. I saw how people sat uncomfortably on the bus, then walked around downtown, on the defensive and still uncomfortable. I saw people sleeping on concrete. I saw people driving who were angry and stressed out, swearing and weaving in the mess, yet they did it every day. Did society expect me to grow up and simply accept this madness? I saw the pollution in the air over the blue skies of Colorado, a terrible haze over the purest complexion in the galaxy. I saw how the cars were flushed out of the suburbs in the morning, like thousands of toilets being flushed all at once, with the sludge clogging the great highways and the terrible exhaust rising into the sky. I thought of the very few people who had made the drawings in a few hours; I thought of how little thought it took to understand how it worked, this transportation-sewer system. Then I compared this to the complexity of the snowfort process. Even though each action and problem was simple, each one had to be applied exactly at the right time. We had constantly been making adjustments as we proceeded, addressing issues of resources, time, energy expenditure, strength of the

structure, location of the spaces, and feeling generated by the rooms within. The end result was comfortable to move around, climb on top of, and be inside of.

I began reading New Urbanist theory, which promoted planning methods that attempted to reduce automobile traffic and increase the "sense of community" by employing strategies used prior to the second World War of so-called *"traditional neighborhood development."* For a while, I was satisfied: here was a an anecdote to the horrid world created by modern architecture and planning! Here was an architecture attempting to create community, and uniqueness of real places, town centers, dense, mixed-use districts (residential and commercial together) and surrounding areas of parkland, lower density residential areas and agricultural land.

However, soon I began to see the same lack of depth in the New-Urbanist designs. They too were devoid of love and thought. Houses of different configurations, mixed in with retail developments to reduce the need for automobile transportation dotted the colorful, cheerful plans of the New Urbanists. But after I had studied them a while I found that they too, were the same, lifeless and artificial. The architects had different ideas, but no more care or love in any of the buildings.

At the same time, I was studying architecture focused on solving environmental problems directly related to buildings such as energy use, by creating more efficient buildings. The solution was to create an ideal home, building or development that solved certain problems such as super insulation and low cost. Both however, suffered from the same desire to repeat this ideal model over and over. The thoughts to create one abstract building, being applied again and again in a very real situation, as if each and every different person that would live in the new homes wouldn't mind. Would we expect this from our doctor? A multivitamin, small supply of antibiotics, and some band-aids in the mail to each and every individual and family regardless of their actual

needs?

I began to wonder why people had accepted such pitiful service from their architects and planners and engineers. I realized architects and engineers and planners carefully guarded their expertise, claiming that regular people had no idea how to build buildings and therefore without a college degree and a passing score on an exam, accompanied by the proper fees, regular people had no idea how to make a house or a road or a school, and could be punished by the law if they tried. What kind of trick had these "experts" played on people? Did architects, engineers and planners really have the expertise and knowledge they claimed to have? Did the quality of the built world support their position of power? What product was the Academy trying to create out of me? Did they expect me to willingly contribute to this madness? Did they expect me to buy one of the cars, and the houses, and drive around buying things, hang my degree on the wall and pretend I knew something everyone else didn't? I didn't feel like and expert. I didn't feel like I could built a snowfort that didn't melt.

I began to feel very self-conscious about the designs I created for school and stressed-out by the process. With Tolguy in the snow, we had never been self-conscious. There was no shame in what we produced, only joy. We had no concern for what our parents thought (occasionally, some fear arose when Tolguy's father would yell out at us that we were damaging the grass) We did not care what the other kids on the block thought of our creation. We only knew the warm, tired feeling deep down inside when we all sat comfortably inside, or stood on top, surveying the block from a position we had never seen before.

Our method of applying the simple techniques we had learned over the years, over and over again until the whole fort had grown and unfolded, rising up out of the field of snow, as if by magic. It was a cyclical process, simple in method, yet complex and obviously creative and effective in result. Each year

was different, and while each year, new dreams subtly shifted the position and shape of the Snowfort, the presence and joy remained constant. I was desperate to rediscover this same process in my education.

VI. THE BIRTH OF THE VISION

"But," you may say, "trying to cure our social ills, let alone those of the world, seems so hopeless. Why even bother with the concept of sustainability?

I cannot answer the question for you. I can only answer it for myself. I am concerned about sustainability because it means the ultimate difference between the survival or the extinction of human society, and perhaps humanity itself. And I find humanity a most wonderful experiment in relationship-that with ourselves spiritually; that with one another politically, present and future; and that with our environment. This trio of relationships, carried to its zenith, has, I believe, the potential to benefit the whole of the Universe. And because I have in my life felt a little of the joy and value of community in the form of relationships that foster a sense of well being and social/environmental harmony, I feel the human experience is worth saving. So I do what I can" (Maser, 11)

- Chris Maser

In the fall of my sophomore year, Chris Maser, forest biologist and author, was speaking about his latest book, Sustainable Community Development : Principles and Concepts at the Robert D. Clark Lecture on campus. I had developed the habit of attending lectures pertaining to architecture and/or environmentalism. Taking Environmental Control Systems in architecture with Professors John Reynolds and Rob Peña had revealed the impact of the built world upon the environment, and the potential for buildings to conserve energy, water and natural resources through location, orientation and the way people interacted with buildings. I was interested in Maser's topic,

but had no idea the impact it would have on my philosophy and life. Chris Maser seemed the serious scientist type, a clean-shaven head carried by a pair of broad shoulders brought him to the pulpit of the student union; I could tell he meant business. There was no introduction, no thank-you-to-the-venue, no happy-to-be here-tonight number. He just began firing off what he called the ten essential elements of sustainability (at *least* ten). This guy didn't joke around.

I frantically took fifteen or so pages of notes during the lecture, and upon leaving, saw his book for sale. I ran back to the dorms, and called my mother and begged her to allow me to buy the book. I got the approval and ran back, the woman was still there at the table. I wrote a check for forty dollars and took the shiny blue book with bold yellow letters and no graphics, as serious as the man himself, back to the dorm with me. It was the seed of the dream to guide the rest of my life. I had found *the* connection, I knew then there way for architecture to address the problems the world was facing. All matter and energy were related in a system of systems, and architecture was a part of the relationship.

According to the first of Maser's proposed ten essential elements of Sustainability, I must understand and accept "the inviolate physical principles governing Nature's dynamics" (Maser 14). I realized taking environmentalism seriously was essential. The economy can adjust and people can make do, but the biological systems upon which human life depends on for air, water and food have absolute limits to the damage they can sustain. At some point, people must either take a moral stand on their own over-consumptive practices, or there will not be any clean air to breathe, pure water to drink or life-giving soil to grow food.

Second I must understand and accept "that we do not and cannot manage Nature" (Maser 14). I realized then the critical error of all the specialists and experts, the engineers, planners and architects. They were trying

to manage the natural process of Design and Construction, the Ecology and Economy. They had tried to distill Nature into categories which could be specialized and analyzed, and then manipulated by an expert trained at a university, who had only studied one thing. The universe is not one thing. It is everything. They were studying nothing. This process had turned out all wrong because by trying to look at just one thing, instead of the whole system of systems, they could not see the effects of what they were doing on everything else, and thus came the problems associated with the connected issues they had not thought about.

Third, I had to understand and accept that "we make an ecosystem more fragile when we alter it." I realized not only that remaining biological systems upon which we depend must be preserved, but, fourth, we must also "invest in living systems even as we reinvest in businesses" (Maser 14). We had to invest resources in the quality and function of these systems. We are a part of nature, and must therefore must create nature. Whether this nature supported humans or not depended on the humans.

The fifth element presented by Maser consisted of my understanding and accepting "only a unified systemic world view is a sustainable world view" (Maser 14). I had to understand my current view of the entire world, its social and economic values had to be transcended to encompass the results of my actions on the entire world, not just on the local region. Conversely, I must concern myself with the global issues and those of the larger universe, for they impacted the local region.

This realization became most clear during my relationship with Professor Proudfoot in an Honor's College class entitled, "International Indigenous Cultural Survival." While exhausting emotionally and spiritually (I had nightmares nearly every night after the class), it was one of the most enlightening experiences of my academic life. Professor Proudfoot showed us the most beautiful and advanced sustainable indigenous cultures throughout

the world. Then we learned of the "European Expansionist Paradigm," and how it has systematically destroyed and continues to destroy these morally advanced peoples and the region of Earth they nurture and respect. In this class I learned of this paradigm's attempt to create and maintain a globalization of economy which had no respect for anyone or anything anywhere. I also learned of a growing movement of indigenous cultures and individuals from all over the world joining together to protect each other from the destruction. I realized my world view could contain no part of this terrible system of devastation and death, and I had a responsibility to do what I could to support the efforts and ideologies of the more ancient, more enlightened indigenous cultures.

At the final class, we met at Robert Proudfoot's home. We ate together and then he gave each member of the class a gift. Mine was a handmade mug given to Professor Proudfoot by one of his teachers long ago, and he was now passing the gift on to me. The mug has a bright blue, glazed sparrow-like bird carved in relief, along with the handwritten words, Cozumel, Mexico. I was so proud and happy to be given such a gift. I felt important and loved, and it created meaning, marking the event in my life beautifully, forever. If this is the power of gift giving, then I decided I must start giving more gifts. Could I give myself and my life back to the world?

Sixth of Maser's ten essential elements of sustainability, I must accept my own ignorance, trust my intuition, and doubt my knowledge (Maser 14). I had known from the beginning of architecture school that I knew nothing of "architecture." It was so foreign and abstract, so constructed and maintained by itself, for itself. It was an institution, and every institution, once created, must maintain itself at the cost of anything else. I could not know it. It was based on control and power, not freedom and acceptance of my humble place in the universe among so much beauty. As a child, I had created snowforts, beautiful and whole in process and result. Working only with what I felt deeply, on an entirely intuitive level, we were able to create beauty. We did not

need "architecture" or its methods and systems.

Seventh, I must specify what was to be "sustained" (Maser 14) I knew life, the feeling of truly being alive and free was what had to be sustained, for all people, alive now and in the future. This life and freedom were threatened by both ideas and actions, none of which could be included in my work. This is an intentionally broad statement because I seek to detach the essentials of human existence from the established social and economic systems and values. Eighth, I must understand and accept "Sustainability is a continual process, not a fixed-end-point" (Maser 14). I realized that right now my heart was beating and I possessed consciousness. I was alive now would not attain life at some time, but it was happening right now. Everything must constantly modify and reconfigure itself to adapt to new conditions; old information must generate new questions in a never ending "self-reinforcing feedback loop of every growing social/environmental harmony" (Maser 57). Even as I type these words, I am contributing to sustaining my own life and the future of life itself by asking new questions, and attempting to ask what kind of questions I should ask in order to think and act in the context of long-term sustainability.

Ninth, I must understand, "accept and make myself accountable for intergenerational equity" (Maser 14). I realized I was indebted to my predecessors, current neighbors in time and space, and those who will come in the future. I knew I must take measures to protect and preserve the world using my current consciousness, free will, and control of my mind and body as a tool. I have always believed inanimate objects are intensely jealous of our ability to direct the path of the universe through our consciousness. We have been given, as conscious beings, an enormous gift and responsibility.

Tenth, "understanding, accepting, and being accountable for ecological limitations to Land Ownership and the Rights of Private Property" (Maser 14). I realized that land ownership was a power construct developed in very recently by Western Civilization. Maser illustrates that more ancient, experienced

Indigenous peoples on every continent, having lived in the same areas for thousands of years, find the notion of private property ownership of land to be ludicrous and impossible" (Maser 61). In these cultures, the land is nurtured and stewarded by the people in any particular time and space. Being alive now and living in a region of the earth does not mean a person has ownership and control over it, but rather a responsibility to take care of it for others in the present and future. We must believe we are all one people living together in one big house in a time *and* space. When our bodies wear out from the housework, we get mixed back into the Earth, and newer bodies with better backs come along to take over where we left off.

The ten elements become real in the context of our relationships with ourselves, other people we encounter, the environment and people not yet born (Maser 14). The understanding and acceptance of the ten elements enacted through these relationships occurs by asking the following questions: When is enough enough? and Are the consequences of our decisions reversible?"

It was with this that I began to analyze myself and my actions and beliefs. I first asked the questions of myself. I came to the following conclusions:

- I had enough of the people and ideas trying to tempt me with the comforts of the lifestyle intended by the status quo to dull my senses, steal my soul, and condemn me to a unfulfilling life of consumerism and dead-end intellectual stimulation. I was not going to be the simple product of ideas and concepts developed in the last century in Europe. I was not going to play the part intended for me by the society at large.
- If I did not immediately start to reassess my relationships with myself, other people, and the environment right then during school, in a veritable vacuum environment where I was free to think without the distractions of work, or my old way of life, it would be too late, when I got out of school, I

would be too easily assimilated into the ideas and lifestyle of which I was attempting to circumvent, "therefore the consequences of my decisions would not be reversible."

I then asked these questions of my relationships with other people I encountered, and came to the following conclusions :

- It was time to share with others my ideas regarding life and sustainability. If I did not immediately speak to people my age in school, many I felt, would consider sustainability less when they left. If I did not push my professors to examine their own curriculum and beliefs and teaching strategies, they might not consider the implications of what they were teaching. I must speak out in school. I also must speak out to my family and friends at home. I must speak out at the office at work. I must put these ideas in people's head, just as they had put ideas in mine. I must contribute to the best of my ability. To begin with, I published an article in "Avenu", the Journal of the School of Architecture and Allied Arts, calling out to students to diversify their educations outside of architecture to broaden their perspective on sustainable architecture and be more critical of architecture that sails under the flag of sustainability (see appendix).

I then asked these questions of my relationship with the environment.

- I had had enough of my careless existence without consideration of my effects on the larger world system. I decided to define "environment" as the "nonhuman system of relationships of matter and energy," in order to differentiate it from the other 'social' relationships. I must attempt to understand these relationships and how I can improve my interaction with them. On a very literal level, I try to do typical "environmental" things people

do (recycle, conserve, ride my bicycle everywhere, compost, by local, recycled goods, etc. whenever possible). I constantly try to become more aware of strategies I can employ personally, share these with others in the present, and perhaps with those in the future through my life work and thesis. I realized that if I did not begin making these transitions in my life right now, when I returned home, I would too easily fall into old habits and value systems. I try not to, however, let these simple (yet effective) strategies prevent greater accomplishments. For example, after Chris Maser finished his lecture, a member of the audience asked him if he drove a car down from Corvallis to Eugene to give the lecture. Chris answered by asking the audience member to consider the effects of him not attending the lecture versus the effects of him not using his car for transportation that day. Obviously, Chris Maser's choice has made a serious difference in the environment through the alteration of my actions, and undoubtedly through the actions of his audience of his books and speeches.

Finally, I asked this question of those yet unborn :

I remembered all the beautiful experiences of my childhood. One in particular always stands out. One night we flew our kites so high we could not really see them any more. Then sun went down behind the mountains, and we had to go home, so we started reeling in the kites. It didn't seem like there was a kite attached, our string arched up into the darkness, into nothing. We stood there, in our bare feet and shorts and t-shirts, the warm concrete still radiating heat to our toes, with a warm breeze blowing down from the mountains. We were gazing up at the sky, smiling, laughing and reeling in the heavens. I tried to imagine the magnitude of all the amazing experiences, the joys and sorrows of the people of the future the sheer immensity of feeling and beauty and life that was yet to come. I magnified in my mind, all the wonderful and growing times I had experienced as many times as I could, till all I could do was yell and

go running down the street, shrieking at the mountains. My own body was doomed, I could not last forever, but the feelings I had had had the chance to last forever! This could be my gift to the universe.

It was during these weeks of my sophomore year that I rediscovered the writings of Christopher Alexander. Maser's clear, concrete organizational structure of ideas had laid the theoretical foundations for the interrelated system of life envisioned by Christopher Alexander. Despite Maser's background in forest biology, and Alexander background in physics and architecture, they have come to the same conclusions regarding life and how people should approach it. I sensed similar themes from my other readings. The point of life was to sustain life, and not only to sustain it, but *create it.* I began to feel as if I was a member of a growing movement that loosely could be called the sustainable one, but that term seemed temporal. What we were really working on, all people, was the act of birth, survival, and rebirth, the most fundamental acts of life itself.

> *"We see our work as fitting into the widespread effort that has emerged towards the end of the 20th century, in which people in all countries are trying to rescue the earth from the terrible damage of industrialization, over-population, poverty, and greed. To change this situation we need models in which we can conceive rebuilding the earth as a task of nourishment. We may imagine each section of the earth, each region, as a great biological structure in which people, animals, and plants co-exist in harmony, and in which the structure is created as a huge piece of nature, to sustain this cooperative life."*
>
> - Christopher Alexander

THE MOUNTAIN BEFORE ME

"The state of mind which enables a man to do work of this kind is akin to that of the religious worshiper or the lover, the daily effort comes from no deliberate intention or program, but straight from the heart."
- Albert Einstein

When I feel the pressures of society bearing me down, when I feel stuck in the infrastructural concrete, the bureaucracy behind the sterile, cold buildings, when I feel the red tape wrapping up our world with wide, black roads, obscuring truth with politics, the lies, and hatred, when I feel the gravity of society stifling creativity, preventing life, diluting love and postponing rejoicing, I go ride on the Mountain.

The people who live nearby call it Green Mountain. It stands guard at the gateway to the Rockies, west of Denver. It begins at a bit over 5000 ft. elevation and climbs to 6900 feet elevation. An oddity, it sits out in front from the Rocky Mountains onto the plains. Green Mountain stands watch over the people, the child of an ancient glacier, nothing more than rounded piles of stones and stream rubble covered by a thin layer of dusty, pebblely soil from which short golden prairie grasses ripple when brushed by spring breezes. A narrow hiking trail circumscribes the mountain, as well as ascends to its peak from three sides. It is ornamented by small cactus and hardy cruciferae flowers of thick yellow, pale orange, and light purple. From the peak, one can see to the east the Sun glimmering over the Denver Metropolis, sprawling out over the great plains. Turning North, one can see all the way to the city of Boulder nestled into the side of the majestic flatiron mountains to the West. To the South, the plains on the left, and mountains and foothills on the right unite as they vanish, together, into the horizon. To the west, the Rocky Mountains, gather together in their snow white robes, the highest peaked fourteen

thousand foot peaks open their arms to the world along the continental divide.

I begin in my garage, turn up the street, and ride up one mile to meet the sun. Upon reaching the trail, the whirling hum of my Ionic bicycle's tires on the pavement becomes a whistle of sparky cereal crunching over the clay and sandy trail. With deep breaths, I loosen up my back, chest and arms. I gently increase the torque on my legs, increasing velocity as I make the transition from pavement to earth.

I have ridden the trail for years, I know how to shift my weight slide between and over all the rocks, I know how to stand up and switch muscle groups to my anaerobic threshold, then sit back down and recover at 85% of maximum, weight up the rear wheel and get traction on the steep sections. I know the distance and slope of each section. I know how to gradually accelerate on the bottom five switchbacks and sprint over the transition at the midway point at 95% and recover on the short downgrade before the final steep rocky climb, where I gradually increase my pace to 100% effort. Quadriceps burn with lactic acid, lungs and throat throb, raw with dust and moisture expiration, arms weak from oxygen debt due to over consumption in the legs, the gears are spun and spun. Mesmerized mountain goat on a magic spinning wheel, spinning, spinning, spinning the bike up the mountain. I climb effortlessly.

Only here am I free. The forces of evil are consolidated in Gravity: counteracted so long as I use all my abilities and experience to move against them as one positive force, not distracting energy side to side, or overexerting with a choppy pedal stroke. My only limitation is myself. If I waste energy being careless or hateful, I will slow down, lose traction, or crash. When my motion is in the circular love without hatred or malice, the pain evaporates from the heat of joy, and I ascend effortlessly, spinning the gear, round and round, Gravity cannot stop it. If all of my life engages this love, the vision is focused, the vectors of the forces fuse into one. I have chosen this challenge. I accept both the suffering and the joy. I climb the Mountain.

THE DREAM

It's all right to feel good
It's all right for nothing to be wrong
The deepest dream that we have could
be tommorow's song

-Nick Hexum of 311

I. LEARNING THE METHODLESS METHOD

> *"The supreme task of the physicist is to arrive at those universal elementary laws from which the cosmos can be built up by pure deduction. There is no logical path to these laws; only intuition, resting on sympathetic understanding of experience, can reach them. In this methodological uncertainty, one might suppose that there were any number of possible systems of theoretical physics all equally well justified; and this opinion is no doubt correct, theoretically. But the development of physics has shown that at any given moment, out of all conceivable constructions, a single one has always proved itself decidedly superior to all the rest" (227).*

- Albert Einstein

I returned to the site of construction after school the day following the Blizzard, and walked casually down to Tolguy's house. There was no need to run, the sun had been out all day, probably not much left. I didn't really care anyway. I stand on the sidewalk, hands in my pockets, looking at old, tired island of snow, awkward in the field of grass. It is sagging and leaning, the roof had collapsed. I can hear water pouring into the gutters from the steaming street. I glance west, up to the mountains, still wearing patchy blankets of snow. The sky is clear and blue. No snow left in the sky. It seems hopeless, the feeling is gone. I am quiet, and close my eyes. I try to imagine the sound of the snow silently coming down onto my cheeks.

My second encounter with Alexander's work came at a time when I was trying to use my mind think in terms of systems and the relationship of these systems to other systems. I was looking for systems with the feedback loops Maser was talking about, and I had just purchased A Pattern Language: Towns Buildings Construction (APL) which claimed to embody an entirely new approach to architecture and building. For the first time reading architectural theory, I felt intuitively comfortable with what I was reading. The more I learned, the more I began to feel I could actually believe in this process. At the same time, I also read the first book in the same series, The Timeless Way of Building, which explains the concept behind pattern languages and their place in the process of building, called the Timeless Way, by Alexander. It would not be feasible to attempt to explain the concepts as deeply or carefully as it is done in the books themselves, but I will briefly summarize the concept of pattern languages and the Timeless Way of building in order to put it in the context of my own learning process.

The book begins with the assertion a building or town will only be alive and truly beautiful, if it is governed by a process called the Timeless Way. The process is timeless because it relies on no method, it is simply what comes naturally to people, if they get rid of all methods preventing them from this methodless method. This is the exact process we used to build snowforts. The Timeless Way is based on the creation of a certain quality, which the book calls, "The Quality Without a Name" (Timeless, 25). The Quality Without a Name is roughly the feeling of "being alive". The Quality Without a Name is the feeling present while laughing, crying, singing and dancing. It is present during our most intense moments of clear feeling. It cannot be named, because each word we use is too limited and contrived, one word cannot possibly summarize this quality. This quality is created because it is what is truly comfortable and natural for us to do, the quality is the essence of the feeling of being alive and free. Just as the stream finds it way down the mountain by allowing the forces

of gravity to resolve themselves, so can buildings be built by simply doing what allows people to resolve the forces they experience. To bust out laughing until your stomach hurts, to cry and sob and shriek, to smile earnestly and sincerely at seeing a good friend, to dance and fall down in the grass like children, twirling and floating, these are the activities in which the quality is present. Because this Quality Without a Name lies at the core of our being, the Timeless Way of building seeks only to allow these forces to be resolved. It is therefore timeless, it will always exist because the forces that cause it to happen are only the ones people truly experience. Therefore the timeless way is also an effortless effort, the process of building requires people to simply allow themselves to let the forces be resolved in the building; set the building free. However, this is difficult, because, in the modern world, it is easy to become caught in the hurricane wave of images, rules and concepts and ideas. It is easy to simply accept how things are done within the status quo. Designers become very afraid of building what they truly feel comfortable with for fear they might make something "ugly."

In architecture school at the University of Oregon, rarely are students actually taken to a place, and asked how they feel there, or asked to analyze how well a certain building or room works by being in it (I must credit Professor Givens for taking my class three times to different places to simply attempt to understand on a very basic human level, how a place *felt*). Instead of real experience with construction of buildings, students are bombarded with images of slides on a screen and words and rules to follow in books pertaining to the design of buildings on paper or the computer. By the time a student graduates today, they are so filled with images, regulations, standards, codes and styles that they can barely concentrate on feeling at all. They become so enraptured with their newly acquired computer drafting abilities, knowledge of architectural history and styles, their ability to solve design related problems, the business world and their new jobs they are too busy thinking and doing to

even think about stopping to try and feel. Because most new architects today are not really making a building, but moving lines on a computer screen, even if they were trying understand through feeling the social and environmental forces at work in a building, they could never be understood or solved by staring into the dark, digital depths of a computer screen. However, because they can show off flashy presentations and talk about the complexity of structural or HVAC systems, people begin to think architects know what is best for them (Timeless, 232). This trend in America was most evident during the 50's and 60's. Today, a plethora of community review boards and zoning and planning restrictions illustrate the "awakening" of the American public to the inability of architects to address the real needs of the people. John Morris Dixon briefly describes this phenomenon in his essay, *The Crisis of Confidence in Architects and the Public Design Review Process,* Reflections on Architectural Practices in the 90's. Howard Kunstler gives a more elaborate discussion in his book Home From Nowhere : Remaking Our World for the 21st Century. The public in general feels that since the architect has to deal with all those things they do not understand, they must not know anything about architecture, to the point they will not admit what a comfortable place feels like. Many submit to the postmodern architectural idea that the building is only worth its image, and resign their interest in design to dreamy home magazines with glossy pictures of Victorian cottages or southwestern-style houses. It is interesting to note most "architectural photography" does not include any people in the pictures (The Social Life of Plazas, 22). People forfeit their own sense of comfort. They are submitting their own humanity, and their own deep intuitions (Timeless, 233). It is this serious of an issue. These students and architects know only a collection of methods for solving code issues, plan issues, structural issues, and making buildings "look good" from the outside and function internally on the most elementary of levels (Peter Rowe, *Shaping Design Education,* Reflections on Architectural Practices in the 90's, 243). They are too busy dealing with

these methods to remember what it means to be comfortable and alive. Yet they hold the power to shape the environments that dictate how people can act and live. This terrible power structure is a very real form of oppression in our times. The people and ideas with power oppress those without power *through the control of the built world.* Other forces and methods of oppression are more obvious and apparent, but anyone concerned with oppression of any form, should should realize the power structures inherent in the way this country shapes its built environment and the processes that create it.

It is no wonder that the buildings built by architects and cities planned by planners in the latter half of this century in the United States make us feel horrible. These buildings attempt to separate us from our own humanity intentionally. If we did not feel so alienated, we, as human beings might begin to think we actually know something about the environments we live in. Therefore architects go out of their way, in the most fantastical manners, to make their buildings look and function in a certain way that is complex, and beyond our common comprehension. Any look at the practices of current architects popular in America will reveal this. Frank Gehry uses forms of crumpled paper in his trash can to generate building forms, using a complicated French aerospace software to prepare the construction documents. Michael Graves is lost in a world of meaningless hyperarticulation of the facade and the metamorphosis of classical forms (great example is the Denver Public Library). The outdated, lifeless, white modernist buildings of Richard Meyer make the critic wonder just how much white foam core board is lying around in his office (Ghetty Center, Los Angeles). The deconstructionists and minimalists are even more disturbing and complex in their literary and constructed rhetoric. Examples include the minimalist work of Herzog DeMeuron architects, or any of the deconstructionist work of Eric Owen Moss. This attempt to alienate the public from the making of buildings is made most obvious in a collection of interviews with seven prominent architects in New York published in Architect's

People, by Dana Cuff and Russel Ellis. Architects are so embarrassed and insecure about the buildings they are making, they have to justify themselves and prove their talent and intelligence by building intellectual abstractions and technically complex buildings.

An entirely different motive has driven the construction of buildings for thousands of years before architecture even existed as a profession. Buildings were not built by architects, but by people who were concerned with survival, shelter and comfort. A return to those times or copies of the buildings of the past is both impossible and irrelevant. Old buildings and towns cannot be copied from a thousand, hundred or even twenty years ago because new forces exist in our society and environment today that did not exist then, and vice versa. Therefore in order to achieve places with the Quality Without a Name, we must first return to the Timeless Way, the Methodless Method. The only way to reach the methodless method is to forget about "architecture," and focus on being human, and alive ourselves. But how can architects "forget" all the methods and senseless rhetoric they have learned and how can people learn to take back the control of their buildings, cities and towns and make them supportive of simply being alive again?

To return to the Timeless Way, we must first "construct a living pattern language as a gate" (APL, ix). A pattern "language" is composed of patterns, which are connected, just as words are connected to make a language. The towns and cities people live in are composed of patterns of events and space which interlock (Timeless, 75). These patterns are the building blocks of every city, town and building. One example of a pattern of an event is the process of bathing in a shower or bathtub, which occurs everywhere across the Denver Metropolitan area each morning or night. The act of going to work or school, watering plants, and opening a window are all patterns of events. Other patterns include more occasional events, such as festivals, parties or parades, such as the Taste of Colorado in downtown Denver. These patterns always

interlock with geometric patterns of space, which are formed by buildings and the landscape. Bathrooms with four walls, a shower or tub, sink and counter are repeated over and over, and interlock with the event of bathing, all across Denver. Likewise, the event Taste of Colorado interlocks with the patterns of space that form the capitol building, the Denver Post building, the Denver Public Library, the trees, the grass, the streets, the tents, the performance stages, the drifting smell of food, the curbs, and the sidewalks. The social patterns we have coexist with the built patterns.

These patterns of events and space are either alive or dead to a certain degree. The strip malls, with parking lots, wide streets, Safeway, and Blockbuster Video are very dead. One such pattern that formed this place might be called WIDE STREETS WITH BIG PARKING LOTS. This pattern does not create beauty or life. We do not want to spend the rest of our lives in a big parking lot. This is obvious. It does feel the way the snowfort did. Neither the process nor the result generates the feeling of being alive. It was not a life giving experience for the road crew when they poured the pavement, and covering the living systems on the ground with dead, blackened asphalt. Neither does the pattern HARD, RECTANGULAR CONCRETE SIDEWALK SLAB have life. These patterns are dead.

The suburbs, with their identical boxes, spilled out carelessly across the landscape covered with asphalt, concrete and grass are also dead. They are also based on patterns which do not support life. The pattern IDENTICAL HOUSE ON EVERY LOT does nothing to allow people to be themselves or to feel comfortable. In our times, pattern languages with life have broken down, they are no longer shared. Instead they are hoarded and controlled by architects and planners. The patterns do not live because the architects and planners get paid regardless of how much life the patterns they use generate. When the people have control of the patterns, they come to life because the people's lives are at stake.

Obviously, whether a building or city is alive or not is not an absolute issue. Some places are mostly dead, others are somewhat alive, and some places pulse with Quality Without a Name. The degree to which a building or city is alive depends on the degree of life of its patterns (Timeless, 123). We all know that *some* life exists in the suburbs, and at strip malls, no matter how close to utter and complete death they are. Therefore, in order to construct a pattern language that is alive and life-giving, we must work on discovering patterns which are the most alive. We can refine these patterns or create new ones simply by judging the way they make us feel (Timeless, xii).

A single pattern consists of a problem, and a solution, embedded in a context. Each published pattern in A Pattern Language has a title, and an image and an argument with text and diagrams explaining the context, problem and solution. Each pattern connects with other patterns: The first paragraph connects it with patterns of greater scale, and at the end, another paragraph connects it with patterns on a smaller scale. Thus, a pattern "language" is formed. Buildings and entire towns are created from pattern languages, just as books are written with a language of words, sentences, paragraphs and chapters. The beauty of a town or building depends on the beauty of the language and the degree of understanding of the language by the people building it.

The same thing could be said about writing: the beauty of a book depends on the richness of the vocabulary of the writers and how profoundly they combine the words into poetry. Likewise, a group of people with a rich vocabulary of life-supporting patterns can create an infinite number of different unique buildings, gardens, paths and roads, just as an author can create an infinite number of stories from a deep understand of a rich vocabulary of words.

Just as the meaning of one word is understood rather easily, so is a single pattern. For example take pattern 159, LIGHT ON TWO SIDES OF EVERY ROOM (APL, 746). The problem : in rooms with natural light on only one side,

glare makes people uncomfortable. The solution : Make sure every room has light on two sides. In order to understand how to shape the larger building that makes it possible to have LIGHT ON TWO SIDES OF EVERY ROOM, I look at the patterns in the introductory paragraph, such as WINGS OF LIGHT, or LONG, THIN HOUSE. If I want to know how to make the windows for the light just right, not too small or big, with good views, perhaps a place to sit near the window and look out, I simply refer to the patterns mentioned in the concluding paragraph, such as WINDOWS OVERLOOKING LIFE, or DEEP REVEALS. Once the pattern language is in the mind, the written language is unnecessary, the person understands the connections between the patterns, and knows when to apply each pattern.

Patterns connect with each other from the smallest pattern to the largest. Details such as the placing of stones of a path, or the trim on a window connect with the largest, dealing with the placement of towns and open space for the entire region. This was the type of connected approach in which Maser's ten essential elements of sustainability could be applied. First of all, each individual act of building is a gesture of relationship with the environment. Second, if I was using one of the smallest patterns, such as SOFT TILE AND BRICK (1165, APL), by making a path in my garden, I could deal with the ten essential elements of sustainability through my relationship with myself. be asking critical questions such as how much paving should I have? What are the impacts of the firing of clay tiles on the air? How much storm water can be absorbed into my garden, and how much will run off into the sewer system? (these pertain to the question "when is enough enough?") What will happen to the clay tiles in the future, for instance, when they crack or become undesirable in the garden? (This pertains to the question "when are the consequences of our choices reversible?") Will they gradually break down and not harm the soil in the future? It is evident these questions involve consideration of the generations yet unborn, consideration of the byproducts of this building act am

l leaving behind for the children of the future. Finally, the debate of the use of such materials in a public project could generate similar questions in a group of people doing such a project. The implementation of any of the larger patterns, all the way up to the scale of the region itself, requires debate and decision making by many groups of people in time and place.

> *"This is a fundamental view of the world. It says when you build a thing you cannot merely build that thing in isolation, but must also repair the world around it and within it, so that the larger world at that one place becomes more coherent, and more whole; and the thing which you make takes its place in the web of nature, as you make it" (xiii, APL).*

The key idea behind the pattern language is that a single pattern can only generate life if it strengthens the region as a whole, makes it more coherent, alive, and comfortable. This idea is the idea of Wholeness, and is the basis for the structure of a living pattern language. Without creating wholeness, chaos erupts. It is just this fear that has lead to the codes and regulations and creation of architects and planners. Because the shared pattern language has been forgotten by the people, they are no longer in control of their own environments. Without local control, development is primarily driven by economic power in the hands of a few developers. Enter the planners and architects, afraid of this impending chaos they are partially responsible for. They must impose order on the whole, no matter how superficial or insane. They create a system of rules and controls governed by boards, laws and committees that regulate and control everything bigger than the most humble shed or tree. This does not really stop the developers from working around and within the regulations, they are the only ones who can afford to fight their way through the bureaucracy. It does, however, discourage the individual or group without

many resources from trying to improve their own environment; they do not have the time or the resources to hire an architect to deal with all the complex issues and regulations. Without the control of their own buildings and lands, people are forced to buy or rent the off-the shelf products offered by developers : tract housing, apartments, strip mall retail, mega mall, and office park spaces.

The most difficult task in creating a living pattern language will be to overcome the regulations and codes inherent in today's the building process on the Front Range, and allow people to shape their own environments. Only when all people share a common structure of languages and are able to use them to control their own environments can the the region begin coming to life as a whole. Only when each and every person, through each act of building, strengthens and repairs the garden or house he or she is working on so to make the entire region more alive, will we pass through the "gate" into the Timeless Way of Building (Timeless 91). The region, city and building, room and window will only be alive to the degree that the smaller patterns which compose it are alive and whole. Every garden, every window, every street, building and town must therefore be composed smaller patterns which are alive.

This simple system of applying patterns to create buildings and towns is not hierarchical, and does not require special knowledge of complex or abstract ideas. With some thought, anyone can do it. Patterns could be read or explained in a few minutes. While developing a profound understanding of the pattern and the key to the life in the pattern could take a lifetime, the transmission of necessary knowledge is simple and quick. Therefore, while the patterns presented in APL are written down, they can only become useful in people's minds. They do not have to be written down, because when they become active is only when they exist in the minds of people building. Consider the patterns we used to create the snowforts. One pattern we used might be called PILE OF SNOW ABOVE HEAD HEIGHT. The problem: when most kids we knew tried to build snowforts, they didn't pile the snow high enough

initially because of their overeager desire to begin digging, so that when they got down on your hands and knees to dig into the pile, it was too low, and the ceiling got too thin and often collapsed. The solution to this problem is to make a PILE OF SNOW ABOVE HEAD HEIGHT, which gave you the roughly the excess height needed so the roof would not cave in when you began digging. Another pattern necessary to create a snowfort might be having at least TWO-FEET OF SNOW, which would explain that if you tried to build a snowfort with less than two feet of snow, you would have to start carrying the snow a very long way to achieve the necessary volume of snow, and the sun would probably come out and melt your fort before you had finished construction.

These patterns were not in a book; they existed in our minds, and from the mind, they were applied directly to a real place. Tolguy taught them to me, and I taught them to my sister and other kids I knew. This is the most remarkable insight, because upon realizing that people, children even could quickly learn and use patterns meant that architects would no longer have the impossible responsibility and corresponding illegitimate power to control and shape every place. Here was the solution to the terrible feeling I had felt all through school. Architects should not control the designs of buildings and towns, but rather should facilitate them, through education and coordination. Architects become the seekers and distributors of patterns which give life, and transmit this information to the public so that a shared pattern language can be generated which is alive and whole. Instead of only the creative power of a few architects, there now exists the potential to harness the creative power of every person in a town and city. The people who will use a building can design the project with the aid of living patterns, generated and adapted by themselves, their neighbors and friends, architects, an builders. The builder creates the actual buildings, in cooperation with the owner and architect.

Once a living pattern language has been established, and people all over the city begin making each and every place come to life with each and every act

of building, a degree of life will emerge greater than any possible from the minds of a few, overburdened, confused architects. The city comes to life, growing in complexity through a process of "unfolding" (APL, xiii), with the intensity of life growing in the city with every building, garden, fence post and window. The key element in this is the interconnection between patterns which insure patterns of a smaller scale always intensify the effect of the larger pattern, as well as structuring of the larger patterns so the smaller patterns "fit" into it. This is the "poetry" of the language; just as words in a poem have an almost infinite depth of meaning, so does the compression of many life-supporting patterns in a building or town create deep meaning. Buildings and towns formed by dense combinations of rich, life giving patterns are the only way to make buildings which are poems (APL, xliv).

Ultimately, the "pattern language" is merely a crutch, a gate. It is only needed in order to heal the building process. The use of life-giving patterns teaches people how to simply do what is comfortable and what makes sense for their environment. The crutch can then be discarded, when people leave their egos and images behind and return to making things that simply are comfortable.

From the extent of my analytical abilities and the deepest of my intuitions, I feel this method of approaching the built world and my life is the most truthful at this moment in time and space, and currently directs my thoughts and actions. My goal then, is to contribute to the development and application of a life-giving shared pattern language for the Front Range of Colorado. This pattern language will grow and evolve to intensify the life of the region through creation and repair of physical, biological, psychological and social environments, in order for the people of the Front Range to return to the Timeless Way of Building.

II. SHOVELING A PILE ABOVE HEAD HEIGHT

In order to begin the development and distribution of a shared, living pattern language, I will dedicate the remaining time I have in college to develop and share the beginnings of this language. Using the published Pattern Language as a seed, I will use my thesis for the Robert D. Clark Honor's College to develop the first wave of region-specific patterns for the Front Range of Colorado, as well as encourage the development and sharing of patterns generated by others in the region.

This thesis will be the seed of a pattern language for the Front Range in the Denver Metro area of Colorado. These infant patterns, forming the basic framework of the language, will be published on the world wide web as a resource for review and integration by other local citizens and designers, as well as a mechanism for the continuous development of my own approach to building.

Each individual pattern will focus on critical social and environmental issues currently facing the Denver Metro area. The solutions generated by the specific patterns and the language as a whole will be the basis of a new, evolving vision of sustainability and life for the Front Range in the 21st Century. Finally, these patterns, will link to other complimentary pages and projects.

The page will continue to change and grow as new patterns are added, and old ones are revised. The project will begin with submission to the Honor's College for credit for my senior thesis. It will become a living entity, serving as a place to network with potential clients, partners, and consultants after my graduation. It will also provide a platform to sustain an ongoing dialogue and open forum on the status of the Front Range environment and related issues.

"As practitioners we must decide what principles are going to guide how we think about and make architecture; as a profession, we must define what we consider right and wrong--or responsible or irresponsible--in terms of professional conduct, and we must put in place effective means to ensure adherence to these principles. This seems critical, for without ethics, architecture would not be a profession. A sense of professional ethics distinguishes the values of one group of professionals from another, and the degree to which the members of a profession adhere to its principles is the measure of that profession's integrity."

- Mark Scogin, Reflections on Architectural Practices in the Nineties

The focus of the research for this thesis is derived from the Denver Regional Council of Governments' (DRCOG) Metro Vision 2020 plan (MV). The plan identifies critical environmental and social issues facing Denver. This thesis adopts the issues MV identifies.

MV was constructed by local government officials, business and environmental groups, and "other segments of the regional public" and "strives to protect and improve the quality of life" (MV Executive Summary) in the Denver Metro area. MV identified growth as a "major issue," citing that over two million people currently live in the eight county region served by DRCOG, and by the year 2020, approximately 770,000 new people are expected to settle in the area. The effects of such growth generated the following questions from the DRCOG :

- 1) Where will people live and work?
- 2) How will their travels affect road conditions and congestion levels?
- 3) How will new development affect the region's open space?

- 4) What infrastructure needs might be prompted by growth?
- 5) How will growth affect the environment?

The MV "aims to answer these questions and proposes strategies and implementation steps" in a long range growth strategy. The strategy is at a "planning-scale," implemented as government policy. The policy at the "planning-scale" sets the context for how growth could occur at the "architectural-scale," implemented through the design of actual buildings. I seek to provide the necessary "specific strategies" sought by the MV at the architectural-scale through the creation of patterns. Developing these patterns will provide some possible answers to the questions posed by DRCOG.

I will assume current zoning and building codes can and will be adjusted to facilitate development within the urban growth boundary on both vacant and partially occupied lots in a manner congruent with the regional goals. MV defines six core elements than comprise a comprehensive growth strategy. The patterns generated in this thesis will specifically address the six core elements under the governing principle of MV's goal to "protect and improve the quality of life" in the Denver Metro area. A brief explanation of the six core elements and corresponding patterns proposed by this thesis appear below :

1) Extent of Urban Development --

> *"...just as there is a best size for every animal, so the same is true for every human institution. In the Greek type of Democracy all the citizens could listen to a series of orators and vote directly on questions of legislation. Hence the philosophers held that a small city was the largest possible democratic state..."*
> *-J.B.S. Haldane, APL*

MV limits urban growth to 700 square miles. Key factors supporting the

argument for this limit has been briefly summarized in the DRCOG executive summary report :

- "More than 161,000 people moved to the region between 1990 and 1996.
- There are fewer financial resources available today, with little prospect of significant increases in the future from federal, state or local sources.
- Today the Majority of the region's transportation dollars go toward maintaining current investments, leaving fewer dollars available for system expansion.
- People must increasingly rely on private vehicles to travel between home and job, shopping and recreation. The result: longer commute times, more traffic congestion and an increase in vehicle pollutant levels.
- Growth in vehicle miles of travel (VMT) between 1990 and 1996 increased faster than population growth. By 1995 daily VMT reached 48,600,000. As the region has grown it has spread out and people are traveling farther. Because of the greater number of workers per household, other demographic changes, and an increase in non-work related trips, people are also traveling more often.
- The further development spreads, the more it will cost to deliver needed facilities and services--such as water and sewer, roads, drainage, schools, police and fire protection, and public transit--and the more open lands are lost.
- Construction of new public projects, such as roads, water treatment

plants and transit stations, requires an increasing amount of time and more complex planning than ever before."

The enactment of an urban growth boundary becomes the largest scale pattern. This pattern sets the tone of the language. All the patterns of smaller scale will support this pattern. These smaller-scale patterns will demonstrate how to build buildings in areas that have already been developed, increasing both residential and commercial densities. It will illustrate architectural strategies that minimize the need for costly new infrastructure. New infrastructure required by the patterns proposed will be simple and inexpensive to design, implement and maintain. The pattern language will support of public transportation, seek to reduce the need for personal automobile use, and encourage forms of human-powered transportation. It will show how to locate businesses which provide goods and services within walking or bicycle distance of residences. Existing infrastructure should be modified to support the comfortable and safe use of bicycles and pedestrian paths for access to jobs, recreation, goods and services.

2) Open Space -

"Most of all, however, there is needed a wider understanding of the values that brought nineteenth century Spanish-American pioneers to Colorado. Many people's views are not very far from those of an Anglo-American in Trinidad who in 1870 wrote that Spanish Americans lived "in miserable looking houses (mud) with poor crops. I believe they are content if they can keep the life in without attempting more. A few sheep and goats, a few asses, and sometimes a few cows, and stock cattle... and we have the sum and substance of the Mexican wealth." But what was the wealth of

people living by undisturbed mountains and prairies? If we can begin accurately to assess it, we may hope, in grace, to save ourselves."

- Robert Adams, The Art and Architecture of Early Hispanic Colorado

Currently, open land between cities in the Denver Metro area is decreasing rapidly. Open space has been a major issue along the Front Range for years, yet only the city of Boulder (not under the jurisdiction of DRCOG) has created and enforced an urban growth boundary, securing a greenbelt around the city for recreation and environmental balance. Jefferson County also shows promise: it leads the metro area in acres of open space per capita. The pattern language will show how to locate new construction in currently under-utilized areas within the growth boundary that have officially "already been developed." Such areas include occupied suburban lots, parking lots industrial areas and existing commercial mega malls and strip malls. This increases density, while retaining undeveloped areas of land as open space.

3) Free Standing Communities--

"A more important question is that which asks what the existing age needs, what is the real purpose of architecture in its own time"

- Marja Riitta Norri - 1990 Alvar Aalto Symposium

The DRCOG calls for communities to maintain an "adequate employment / housing balance and internal transportation systems" which "maintain their visual and physical separation" from each other while striving "to meet the

employment, service and facility needs of their new residents." The pattern language will show how to integrate small offices and business spaces with existing suburban housing. It will show how to integrate places to live into existing single-story commercial building areas. This leaves existing open space between communities free of development, and diversifies the goods and services available to local areas.

4) Balanced, Multimodal Transportation System--

DRCOG encourages the creation and use of "bike and pedestrian facilities" in order to "support the physical, social, and economic development of the region." The pattern language will describe strategies which support the use of bicycles and pedestrian activity for recreational, social and economic interaction. It will also illustrate how to support the use of mass transit, and the combination of mass-transit and pedestrian or bicycle use.

5) Urban Centers--

> *"I've watched people criticize my country [originally South Africa] while living in 4-acre zoned areas, which is one of America's prime means of established apartheid, and not see the irony."*
>
> *-Denise Scott Brown, AIA*

The DRCOG seeks to create new urban centers akin to the Downtown Denver Central Business District, which will have a "higher density than the regional average" and provide "mixed use locations of high intensity, providing a range of retail, business, civic, cultural, and residential opportunities" (MV Executive Summary). These urban centers will "serve as focal points for social,

business, and community activity, while enabling transit to better serve the community" (MV Executive Summary). Also, due to the increase of the average home price in Denver to nearly $200,000, and a decrease in average household size and income level, a growing need exists for smaller, less expensive housing. The thesis will demonstrate how to integrate housing types for smaller households with proportionally smaller incomes within existing residential and commercial contexts to increase density and diversity. It will show how to vary the density of new development to create areas of higher intensity.

6) Environmental Quality--

> *If we do everything outlined here except clean the air, we will still pollute the entire earth. Clean air is the absolute bottom line for global biological sustainability and therefore human survival. Without clean air, there eventually will be no difference in the way we destroy ourselves, either by genocide or by air pollution (indirect suicide), because our biosphere is comprised of interrelated, interdependent, interactive components, where one affects the whole and the whole affects the one. But there are alternatives, based on intrinsic values. The choice is ours. To the children we bequeath the consequences" (31).*
>
> *- Chris Maser*

Metro Vision 2020 focuses on establishing an environment with clean air and water.

Air Quality- Denver failed the EPA standards of visibility most days during last winter. While other standards for harmful levels of particulates were not

violated, the levels have remained uncomfortably close to the limit. Denver suffers from pollution problems endemic to 20th century urban life. Vehicular miles traveled have increased disproportionate to population growth. Denver's demand for electricity, due to heavy air-conditioning use on unusually hot days this past summer, exceeded the supply, causing region-wide power outages. Use of electricity in buildings, generated from coal-fueled power plants and gasoline combustion in automobiles both cause large quantities of air pollution along the Front Range. This thesis will demonstrate strategies which reduce the need for automobile use and encourage and enhance the practicality and ease of bicycle and bus use. I plan to illustrate architectural strategies which reduce building energy consumption including on-site electricity generation, super-insulating, passive and active solar heating. Strategies will also employ stack and cross ventilation, evaporative cooling, and night ventilation of mass.

Water Use and Quality - Typical suburban homes, office parks, and traditionally zoned commercial buildings on large lots surrounded by landscaping consume large amounts of water. Using large amounts drinking-quality water for landscaping uses wastes a precious resource and preludes use of less-favorable sources for the common water supply. Water use and quality has been an issue in the Denver Metro area over the past ten years. In several local cities, including Golden and Denver, tap water has been undrinkable for periods up to several weeks. Some voluntary reduction programs are already in place to conserve water, however a more rigorous approach is needed considering the implications of growth. This thesis will demonstrate strategies that reduce the total amount of water consumed by buildings including water reuse, xeriscaping, replacing landscaped area with buildings, employing courtyards, and increasing building density.

The DRCOG emphasizes that each of the previous six "core elements [are] linked--each affects the other." This suggests a format of interactive strategies

that refer to and build off each other, creating a network of information, rather than a linear sequence of text. Each strategy should be linked to the others, each complementing and intensifying the effect of all strategies. This structure implies a pattern language.

This thesis will employ the pattern language format because it creates an efficient method of explaining the interrelationships between strategies and functions exactly like a typical web page. the authors of A Pattern Language encourage the development of and addition to the existing published language: "If you want to change any patterns, change them. There are often cases where you may have a personal version of a pattern, which is more true, or more relevant to you" (APL, xl). This thesis would develop patterns that are more specific to the region and the core elements in the Metro Vision 2020 plan than the ones presented in the published book. Once transcribed onto a web page, individual viewers can personalize the ideas further to suit their own projects.

The structure of the thesis will be a collection of patterns in the written form published in A Pattern Language. The following is a rough description of the structure of the written pattern format :

- Each pattern begins with a title, such as " 115 - COURTYARDS WHICH LIVE" (561, APL), accompanied by an image. The patterns are numbered in the order they appear in the book. The modified or new or patterns employed by this thesis will use numbers that either correspond to the number of pattern in the book they are modifying or, if they are completely new patterns, will have numbers corresponding to the pattern they are closest to with a letter following it such as "87A - Front Yard Studio"
- Next, each pattern has a short paragraph that places each pattern in the context of other related patterns (related to it, but at a similar or larger scale: at the end of a pattern, a similar paragraph relates the pattern to

patterns of a similar or lesser scale). The paragraph uses the titles and numbers of other patterns in the sentences, summarizing the connection between the patterns themselves. This thesis will include both relationships to its own modified or new patterns as well as references to Alexander's patterns. As an example, consider the first paragraph of pattern 163 "OUTDOOR ROOM" :

"every building has rooms where people stay and live and talk together-COMMON AREA AT THE HEART (129), FARMHOUSE KITCHEN (139), SEQUENCE OF SITTING SPACES (142). Whenever possible, these rooms need to be embellished by a further 'room' outdoors. This kind of outdoor room also helps to form a part of any PUBLIC OUTDOOR ROOM (69), HALF-HIDDEN GARDEN (111), PRIVATE TERRACE ON THE STREET (140), OR SUNNY PLACE (161) " (APL 764)

- Following this paragraph, an assertion in bold text sets up the argument for the pattern by presenting a problem or issue.
- Next, several pages explore the issue at length and support the argument for the pattern with supplementary evidence from other authors, drawings, diagrams and tables, etc.
- The next paragraph is a bold-text strategy statement to provide a solution to the issue presented in the first bold-text paragraph.
- Finally, another paragraph, similar to the first paragraph, illustrates connections the pattern with other related patterns of equal or lesser scale.

In essence, this thesis will create a digital habitat in which the region-specific pattern language can continue to grow and evolve to address critical

regional issues called out by the DRCOG facing the Denver Metro Area at an architectural-scale. The patterns produced by this thesis will be specific to the region. Ideally, however, the web page format should be general and simple enough to be copied and reused for other potential pattern language sites. Some of the patterns will undoubtedly be applicable beyond the Front Range region, most likely in any other modern city facing suburban sprawl, growth, and environmental issues. The specific examples of designs generated from the patterns presented in this thesis will be available on the web page, as well as my e-mail address, and links to other related sites. The patterns generated by this thesis will be connected to patterns in the published pattern language. As the page grows, the dependency on the published language should diminish. Since the patterns only have power in the context of the whole, a complete pattern language should be available on the web. There are two methods of accomplishing this. The first requires convincing the Center for Environmental Structure (CES) and Christopher Alexander to publish the pattern language on the web, which could then be linked directly to my site. The second solution is to attempt to generate a whole language from scratch, using some patterns from the published language as templates, modifying them to suit the specifics of the region and its goals, as suggested by the book. Then the basic framework of the language would be "filled in" as rapidly as is possible with respect to quality.

For the purpose of this thesis submittal, a rough framework of the language will be completed, which will be integrated into the existing Pattern Language published by the CES. As it grows, it may become more independent of the CES language, depending on if they decide to publish it or not. Patterns ranging from the large scale URBAN GROWTH BOUNDARY itself to smaller patterns will be created and connected to the degree that they make sense as a whole. Each pattern will be connected with the other patterns via links on the web page. Some patterns will have links to other sites with related material.

Other patterns to densify this loose net will follow after the thesis submission. As a benchmark, I plan to complete fifteen patterns at the point of the thesis submission. Because the thesis submission is merely a snapshot of the degree of development of the language in April of 1998, I will begin developing more than those I will present for the thesis. In order to consider the whole of the region, I may work on twenty five or even fifty patterns during this time, however only the fifteen will be "finished" in the sense that they are convincing arguments and whole in themselves for the April presentation. The following is a preliminary list of the pattern titles (from roughly the largest to smallest scale) I will begin developing:

URBAN GROWTH BOUNDARY
FREE-STANDING COMMUNITIES
NETWORK OF OPEN SPACE
TRANSIT CORRIDOR URBAN CENTERS
MAIN STREETS
GRADIENT OF SUBURBAN REDEVELOPMENT
DIFFERENT-SIZE HOMES
HOUSE IN-BETWEEN LOTS
COURTYARD HOUSE
FRONT YARD OFFICE
BICYCLE GARAGE
SOLAR-BIKE-PARK-AND-RIDE
SOLAR-ROOF BIKEWAYS
SOLAR-ANGLE ROOF
CROSS-BREEZE WINDOWS
LOW-WATER PLANTS
ROOM WITH A FOUNTAIN

It is important to note that some of the patterns in APL and the ones proposed by this thesis will one day become obsolete and useless, as forces change and evolve. Like Chris Maser's eighth essential element of sustainability, the Timeless Way is a "continual process, not a fixed-end-point," and will continue to change and evolve. Some patterns may be so fundamental they will be valid far into the future. However, many will fall by the wayside, as new patterns emerge. Most of the patterns proposed by this thesis are quite temporal in nature, yet I believe the are essential steps in the continuous process of sustainability and life. The existing fabric of the region must be repaired, and at this stage, certain patterns need to be applied in certain contexts. At some point in the future, the aforementioned context will no longer be relevant, therefore neither will the associated pattern. As I graduate and continue to develop the shared language, the patterns will change and develop, some will disappear and new ones will form. The point here is not necessarily to provide the *answers* to the problems, but at least to begin asking the *questions* needed to generate a deeper awareness and understanding of the problems and issues facing the region. This can only result in more informed solutions.

At this point, this paper has dealt only with theory, generated by my deepest feelings and intuitions, analysis and synthesis of research at a University a thousand miles away from the Rocky Mountains and the Front Range. This great distance is both literal and metaphorical: literal in the sense that the ideas generated in my head or the thesis currently have no impact on the design of new buildings or practices there, metaphorical in the sense that the leap from theory to reality is a long and difficult path. So far, I have only been able to define what makes sense intellectually and intuitively to myself, I have not been able to test the practical application of any of these patterns in the real world, or the effectiveness of the process of sharing the patterns themselves, or the evolution of the patterns in the context of the web and people's minds. The

ideas and processes presented herein radically differ from the standard practice of architecture and the professional system. The real challenge lies in the actual application of this process itself.

"The old adobe towns of the San Luis and Purgatory Valleys are not, like the mining boom towns to the west and north, moral embarrassments. Most Spanish-American settlers came to Colorado without the limitless greed that passed in some quarters of the American Dream. They were farmers and ranchers who were content to work on a small scale...

Hispanic pioneers built modestly and effectively. Their attention never strayed for long from a functional concern, the geography. From the land they extracted their prime building materials at little cost; then, because construction did not require highly specialized skills, they were at liberty, independent of banks and commercial builders, to shape their homes to the imperatives they actually experienced, those of the weather and of their social patterns.

The beauty of functional architecture is mysterious. Why one wonders, is practicality so graceful? The answer, I think, is that a builder is actually freed by a commitment to obey the climate and the materials and the simple needs of the people. He does not, having selected these priorities, need to be self-assertive, which is inevitably grotesque (never more so in the vast western landscape). As he commits himself to remaining subordinate, the building takes on an easy power."

- Robert Adams, The Architecture and Art of Early Hispanic Colorado.

III. LEARNING TO TEACH + TEACHING TO LEARN

"Education is not filling a bucket, but lighting a fire."

- William Yeats

The architect I currently work for during the summers suggested I find a mentor, and go work for them. Perhaps go intern at the Center for Environmental Structure in California. While I would surely learn a lot about process if I went to work with there, I believe the secrets to making the Front Range a better place to live are not hidden in some far away place. This is the of fallacy of the western world and the Cartesian scientific method, which requires the individual to look outside of themselves for answers, rather than inside, to find truth. George Harrison explains in "Inner Light," from the Beatles Lady Madonna B side, that "the further one travels, the less one really knows." This is true to the extent that the more time I spend in other places, the less time I spend learning about the Denver Metro area, learning from the people, experiencing the climate and the beauty of the region every day. It also allows me to focus on their immediate surroundings, and not be distracted by the thought of far away places.

Some of my friends from Oregon have come to visit me, saying Denver is not as "cool" or "diverse" or as "rich" as Seattle or San Francisco or New York or wherever. Or they say "Brian, you should go to Europe; they have all the things you always talk about." There is some sense among educated people that each individual should try to accumulate as much personal experience and knowledge as possible, and then they become "educated." Even in architecture school students are encouraged to travel as an exchange student to "broaden their

perspective" on architecture. They can talk about Paris, or Rome or London or Japan or whatever, they can make comparisons with the external, and begin to feel somewhat superior to individuals who have not traveled. I maintain, however, that the builders of the great cathedrals in France, or the Aztec city of Tenochtítlan, or the Inca city of Machu Picchu were not world travelers in the modern sense of the term. Their "world" was their immediate, local environment: no less rich, no less alive because of its size. I would argue a deeper richness and more profound quality of life existed because they lived in the place long enough to develop a deep understanding of themselves, their people and their connection with the place they lived in. The could "concentrate" on who and where they were. The great architecture of the traditional cultures was not created through an exhaustive accumulation of knowledge about different places and cultures, but rather through a deep and profound connection with themselves and their own culture and land. I would argue, reciprocally, that architecture has gotten *worse* since world travel has been possible. Modernist International style, for example, attempts to make the attempt to separate entirely architecture from the place it is in and the people who built it.

I believe it is fundamental to stay in Colorado to meet people, exchange ideas and learn the secrets of the ecology and economy. Life is short and time is limited; I have work to do and the work is in on the Front Range. One of the great benefits of the information revolution is the easy access to information about other projects of similar nature from which I can learn, via the internet. In this way I can stay reasonably well informed about the technical, social and economic strategies being used to intensify sustainability throughout the world. I believe education is about staying in one place and learning its secrets.

I feel this was crystal clear to me one night when I went to a Rockies baseball game with my neighbors, Dean and Darlene. The Rockies were losing, so we left early, we all had to work the next day. On the way home on the bus,

my neighbors had a pair of radio headphones, and they let me listen to the game. The bus was pretty quiet, it had been a long night at the ballpark, and most people were tired and probably thinking about work the next day. Dante Bichette hit a homer and brought the Rockies within one. I mentioned it to Dean and Darlene. "What just happened?" Asked a woman behind me. I turned my head around and told her, and then I noticed everyone on the bus was staring at me wide-eyed, mouths open. I wish I could have taken a picture of all their faces right then. I turned around in my seat (we were sitting at the front of the bus) taking the headphones off one ear with my hand, and shouted out to everyone on the bus that Dante had just hit a homer. I immediately found myself the official announcer for everyone on the bus. "Walt Weiss has a base hit!" I exclaimed. Everyone was on the edge of their seats, It was the ninth inning.

"It's a ball!"

"oh no, Strike."

"strike two"

"They're going to relieve the pitcher..."

"Who is it?" someone asks.

I say the name of the pitcher. Great discussion erupts on the talent of the pitcher.

"Here's Vinny Castilla up to bat.

Some men in the back were nervously talking about bunting and forced outs, all techie strategy talk.

"What are they going to do?" I asked the tech master guys.

They explained to me the other teams strategy.

"Oh, two outs now," I say, people look out the window, disappointed.

"Larry Walkers up!" I say looking back with some enthusiasm. All eyes are on me again.

The bus is turning off the highway, and we are almost back to the park and ride.

"A ball!"

"Another ball..."

"HIT! It's a hit! Its up there, they think its going! ..."

"TIE GAME!"

The bus goes wild, The techie, strategy honchos exchange expert high fives. Everyone is laughing a talking now, swaying and bouncing in the plastic bus seats. The bus is buzzing when we get off and hustle back to our cars to hear the rest of the game.

Before that night, I didn't care about baseball at all. Yet it felt great to be able to tell people something they wanted to hear, to be able to get excited and share an intense experience with people I lived with but had never communicated with before. That night I participated in a wonderful experience. I had information that people wanted to hear, and I was able to share it with them, and make their lives better in the process. My goal is to be able to generate this same excitement, interest and joy with my work concerning buildings and the land along the Front Range. My time at the UO has been a chance to study, to sit back, away from the office and the everyday hectic pace of modern life, and reflect. I feel I have learned some valuable things, but have not yet been able to share them with the people and place I care about. Admittedly, working at the office during the summer I have been able to contribute *some* of what I have learned to the architects and clients I have worked with, but it doesn't have the same impact as the information I had for the people on the bus. These difference was that the people at the office are doing their *job*, the people really interested in the repair of their neighborhoods are those with their *lives* are at stake. I believe much of what I have to share can get people excited and interested in their own environment, and I believe I can really share and contribute to the creation of a shared pattern language for the Front Range. My life will not be focused on architecture, but rather the process of education, learning and teaching, with an emphasis on the built world. In

order to repair the Front Range, the people have to regain the power to shape their own environments. As Hassan A. Sunmonu explains in Global Visions, "The first task of the world community is to ensure the empowerment of the people so that power and sovereignty rest with them. To be empowered, the people have to be educated" (GV, 194).

Teachers are really students that just don't want to stop learning by curling up into a cog and rolling into the machine. I realized, accumulating knowledge here in Oregon, practically hoarding it, I felt terrible and usually confused. Whenever I have the chance to exchange ideas with someone, I finally began to understand and process the information into coherent ideas and concepts. To really understand something is to be able to teach it to someone else, and in the process, one learns the truth behind the teaching. It is also the only way I can actually enjoy what I am learning, because I get excited about sharing it with someone else, and witnessing their excitement and interest. I am learning more every day, and I feel I have a lot to offer the people of the Denver Metro Area, and likewise, Denver and the people have a lot to teach me. Perhaps someday I will travel, but for me at this time, to not live in Colorado is not to live.

Therefore, the first critical step is to return to the Front Range, with the seeds of a shared pattern language for the Front Range available on the web, a pile of snow above head height, so to speak, ready to begin digging into. Hopefully by this time, the Denver Regional Council of Governments will be familiar with the material I have presented, as well as people in my local community with whom I will distribute copies to and speak with. The sharing of information and my intent and interest is essential. Chris Maser sees it "vitally important" to sustainable community development to have "local citizen participation in planning, implementing, and monitoring programs, policies and projects" in order to improve the "quality of participation instead of merely its quality" (Maser, 115).

All this must be made public, I must share this information in any way possible, at public schools, at city planning meetings, design charettes, etc. Children and young adults are my primary target audience. They have the least (economic interests) to lose and most to gain from a new, more sustainable future for the Front Range. They are also the people who will make the decisions of the future.

By this time, I will have generated some discussion regarding the web-published pattern language, the validity of the patterns themselves and communicated my interests in these ideas with some of the people and local governments of the Front Range. Perhaps it will provide some opportunities to share it at public hearings or meetings, and refine the page and the patterns themselves. Perhaps other people will have patterns which can be added to the language to strengthen the whole and will write them and submit them for the page. Perhaps some of my colleagues here at the University of Oregon would be interested in helping to generate some patterns that could be applied across the nation. Perhaps some of the patterns will even begin to be used in real projects. This will be the launching point for my learning and teaching process when I return home for good.

What remains to be seen is how exactly I make a living trying to repair and bring life to the Front Range, one wall, one window, one roof, one bike path, one solar panel, one pattern at a time.

III. ARISTOS AS ORGANIZATION

"This is a piece of (tile from) the Alhambra... each individual piece was taken with the same amount of love and care so that life was brought into this green hexagon...on the same level that this person had it in mind to bring life to the whole...and thats really, that's the key to what is going on in any of these things. There is no part of it, that doesn't have that deep infusion of life into it.
Of course, that's a different process completely from the one that is normally used to make a building today and that's where the problem arises, because its very difficult to do that under the circumstances where its not assumed that's what the point is.
When you realize that that is the point, and you try to make it happen in the real world, that's when things get interesting (Place For the Soul).

- Christopher Alexander

The way architects currently work with consultants and clients is changing. Not only is the typical model changing, but the process called for in the Timeless Way of building requires an entirely different approach to design and construction.

Because I am inexperienced in the world of economics and the management of the construction process, this will be a very rough picture indeed. As Jedi Master Yoda says, "difficult to see, the future is, always in motion." However blurry it is, I feel it is essential to envision the way I want to

live and work and then go about making it a reality, adjusting the vision as I learn.

Without a vision for a new practical process of building itself, the gap between theory and practical application remains a mystery. I must also take into account how I work best, and how I can be happy while achieving my goals, only then will I be able to maintain the intensity required to contribute to the creation of a better environment in the Denver Metro area.

Beginning with the most general understanding of what this work might be like, it seems important to look at the changing composition of the way people are coming together to do work. Recently, there has been a trend toward development of "virtual corporations" which use the internet to bring people and skills together to accomplish specific projects rapidly, and then quickly regroup into new organizations. This appears to be the future of organizations, made up of individuals with diverse skills, working together long only enough to accomplish a certain task, and not long enough to develop an expensive and inefficient infrastructure of management (*Three Models for the Future of Practice,* by Thomas Fisher, Reflections on Architectural Practices in the 90's).

The typical architectural practice today is wracked with inefficiency. Meetings, paperwork, memos, proposals, design competitions, computer drafting and network development take up the majority of the employees time. None of these things have to do with the product directly, which is the creation of buildings. Steven Kliment, an architect who worked for a large firm, CRSS, found that only eleven employees did design out of 310 (Reflections on Architectural Practices in the 90's, 33). The firm I work for has ten employees, with only one principal designer. Both Drucker and Fisher believe this type inefficiency will have to be eliminated or the firm will not be able to compete with more efficient firms which specialize in either production, product delivery, or design.

Therefore this organization will have to be more efficient, all members must apply themselves only to the task they specialize in.

The increasing specialization of tasks and the inability for superiors to understand the tasks of workers under their direction will create a system of associates or consultants rather than employees of different ranks. For example, in many of today's architecture firms, such as the one I work in, the older, principal architects learned architecture before computers were a part of the equation. They cannot use the new technology their younger draftspeople use to produce the actual drawings for bidding and construction. In reality, the draftsperson is more of a consultant to the architect, relating to the architect which types of drawings and models can actually be built on the computer. They also handle the organization, creation and distribution of the actual architectural documents. The argument for the inefficiency of this stems from the difference in goals. The goal of the draftsperson, is to produce drawings, while the architect, hopefully, is concerned with the creation of good buildings. This difference between goals leads to less productivity, and creativity in solving the problems associated with the specific task. For example, the draftsperson, working for the architect, is not constantly trying to increase the speed and efficiency of her or his task because they get paid for their time, not their task. If they were a consultant with a set fee to produce the drawings, they would inevitably approach the task with greater concentration toward being more efficient (Post Capitalist Society, (95). While the argument could be made that the next generation of principal architects *will* be able to use computers, the point still stands that the goal of producing a clean CAD (computer-aided design) drawing is not the same goal as producing a beautiful building.

Therefore the organization will have to contract out every task not

directly associated with their goal to consultants.

Because of the erosion of the management layer due to the evolution of more productive organizations, individuals will increasingly have to take more responsibility for their own work as it applies to the goal of the organization. Not only will individuals have to take more responsibility, but the organization itself will have to accept responsibility for accomplishment of the organizations goals. This means an organization, which Drucker defines as a "special-purpose institution," must define a specific goal. Perhaps part of the inefficiency in many architectural firms today is due to the fact that they have no defined goal, no fundamental, deep and shared moral and ethical basis for design. Perhaps it is assumed that when an employee walks in the door she or he should assume the goal is profit, or some vague idea of making "good" buildings. Every member of the organization might not have the same idea of what good design is, or what the firm is all about. Is it profit? Is it to acquire big, impressive, signature projects that will lead to even bigger contracts? Is it to enjoy the design process itself? Is it just to get the job done? Without a clearly stated goal, any organization is bound to flounder in inefficiency.

Therefore the organization must have a clearly stated fundamental goal.

I have already described the goal upon which this organization will be based: *repair of the Front Range of Colorado through a process of education.* In order to return to the Timeless Way, the people must possess and use a shared pattern language. The only foreseeable way this will occur is through the transmission of knowledge of the pattern language to the people (builders as well as the general public), where it will be developed, adapted, modified and improved as people use it to modify their own environments. This necessitates a process of education. The only way to charge for education as an architect, is

to use the actual process of building buildings to demonstrate the application of the language to the public. But how will people become interested in the types and processes of building the organization will offer? The solution to this lies in the use of the pattern language both as a marketing strategy to attract clients interested in repairing the environment (social and environmental), as well as an education strategy to create new clients by convincing them this process is a better way to make buildings in Colorado.

Therefore, the goal of the organization is to develop and contribute to a shared pattern language through a process of education including client and user participation in design the building. The marketing of the pattern language via the internet and public meetings and programs will locate and create new clients which share the vision of a sustainable Denver Metro area. While people involved in building and repairing their communities can carry the patterns with them in their minds, the published pattern language will serve as a basis for the transmission of knowledge to new people and a source for reviewing updated information by people already familiar with the process. The organization achieves the educational goals through two basic processes of communication feedback loops :

1) *Communication between the organization and other people, architects, planners, etc. through conversations, writing, the internet, and public or private meetings.* In this feedback loop, the organization shares the pattern language and solicits critique on the language and the patterns.

2) *The actual design and construction of buildings.* In this feedback loop, the organization will construct buildings for clients through the educational process in which the client learns to use the language through their participation in the design process. Likewise, the participating members of the organization are being educated. By building the building or shaping the land, the organization

will be testing its understanding and the validity of the language as well as the ability to apply it. This also demonstrates the use of the language to the public and the client.

Therefore, the organization has three functions :

1) To create, maintain, evaluate and revise the published pattern language.

2) To distribute the pattern language to as many people along the front range as possible, and then work to enhance their understanding of the language.

3) To create and encourage the creation of buildings and land which use the pattern language and achieve significant repair of region through this process.

> *"This also requires that an organization appraise and judge itself and its performance against clear, known, impersonal objectives and goals. Neither society nor community nor family need to set such goals, nor could they. Survival rather than performance is their test." (PCS, 55)*

In order to clearly define the mission of the organization, it is therefore necessary to be able to measure or judge the effectiveness of our education process. The effectiveness of our education process can be measured in the following six ways :

1) The "completeness" and depth of the pattern language itself

This judgment is based on the degree to which the language resolves pertinent social and environmental forces of the region. For example, one

question the organization might raise would be how well to the patterns of the current language reduce the amount of vehicle exhaust of the region? The initial patterns presented in my thesis take steps to reduce some of the use of automobiles through encouraging the development of workplaces within existing suburban areas (FRONT YARD OFFICE, BACKYARD STUDIO) serving the residents of those communities. By no means does this pattern alone eliminate all or even a significant amount of automobile pollution. Therefore, the organization is constantly seeking to establish new patterns which take further steps to reduce the need for the automobile for short trips within communities. Perhaps the pattern FRONT YARD OFFICE does not really affect automobile pollution significantly in suburban neighborhoods, because people still have to drive to the store, and so another pattern that integrates grocery stores (CORNER GROCERY 89, APL, 440) is necessary. This does not mean that the pattern FRONT YARD OFFICE is useless, because it does contribute to strengthening the larger patterns it is embedded in, such as FREE-STANDING COMMUNITY (2A) by allowing parents to work closer to their children, increasing the degree of social interaction between members of the community, and reducing water use by decreasing the amount of lawn areas within the community. It also helps strengthen patterns of a lesser scale, such as creating POSITIVE OUTDOOR SPACE (APL, 518) between the house and the new office. It also will reduce *to some degree* the use of the automobile. However, perhaps it needs to be rewritten (and reconceptualized) to encourage the inclusion more types of businesses to further reduce automobile pollution. This suggests the type of process in which the individual patterns and pattern language as a whole can become more complete, addressing an increasingly wider range of social and environmental issues as they emerge, and constantly working to solve them in a better way. This judgment and refinement process will continuously exist through verbal and written communication feedback loops and through the building process itself. The patterns and language as a whole will be discussed

and the web published language revised and updated regularly.

2) The quality and depth of the organization's understanding of, ability to communicate, and ability to apply the pattern language in buildings.

The organization must judge how well each member understands the pattern and can communicate and apply the pattern. Success can be judged by the degree the organization communicates and uses the patterns to generate buildings which strengthen and repair the whole of the region. Therefore, members of the organization must constantly attempt to improve their own and their colleagues understanding through communication feedback loops and their application of the patterns in the building process.

3) The number of people beyond the organization familiar with the pattern language.

The organization must assess the number of people and organizations having some knowledge of the pattern language, and the goals of the language. There is no need to conduct surveys or do any type of official count, this would detract from the goal of the organization. The judgment can be made by the number of clients interested in acquiring the services of the organization and the number of other organizations and individuals using the language in their own projects.

4) The depth of the understanding of the people: to what degree do they understand, appreciate and desire the integration of their individual building projects into the process of strengthening the whole through the use of the pattern language.

The organization can judge the depth of understanding of people by the quality of projects being built. For example, the organization can judge its own building projects, and those done by other organizations. The other method of judging the depth of understanding of other people is through communication directly associated with the construction process. For example, the deeper the understanding of the people who will live in or use the building, the more they understand and appreciate their connection to the biological and social systems of the region, and the more they want to use their project to contribute to the whole. Their degree of interest and understanding can be measured by their interest and their communication with the organization during the process of building. The organization is constantly trying to deepen this understanding.

5) The number of buildings and non-built environments generated by the pattern language.

The organization must assess how many projects are being built, by both the organization itself and by other organizations. The degree to which the Front Range is being repaired depends to some degree on the number of projects using the language and their scope of impact. The organization must construct buildings that help repair the Front Range, and encourage other individuals and organizations to do the same.

6) The degree of repair of the whole region accomplished through individual projects using the language.

The organization can judge the degree of success of the projects by assessing the degree to which they repair the whole of the region. The actual judgment of this can only be made by an intuitive understanding of the whole, which could be thought of as the degree of life of the combined biological/social

system. This ability to comprehend and improve the whole is the ongoing mission of the members of the organization. This ability can be improved through a deeper objective and intuitive understanding of these systems through the continuous process of education.

Because of this educational oriented motive, the organization will be a not-for-profit organization concerned with education through written and verbal communication and demonstration through the construction of buildings. The organization will network with other organizations (such as CES) throughout the world with similar goals in order to share ideas and strategies, and perhaps clients. Each member has the responsibility to continuously be seeking to improve their own process to accomplish the goal of the creation of life through the repair of the Front Range region. Each member also has the responsibility to use their specialized task to improve the whole.

There is one word that summarizes how the organization must try to function. *Aristos,* loosely translated, means the best for any given situation. A Greek noun and adjective, it can be used to define a philosophy, or to describe a person, as John Fowles did in his book, The Aristos. The book boldly states Fowles personal philosophy. In the closing sentence, Fowles' asserts that "to accept one's limited freedom, to accept one's isolation, to accept this responsibility, to learn one's particular powers, and then to humanize the whole: that is the best for the situation" (Aristos, 214). I would revise the concept of the Aristos to describe an organization. This organization should "accept it's limited freedom, accept it's connection and dependence on other systems, accept the responsibility to live within these systems, to learn its particular powers and place within the systems, and then to humanize the whole" as the Aristos.

I now have a picture of how the organization will work with the rest of the people in the region. It must be Aristos, the best process for building buildings on the Front Range of Colorado in the next millennium.

III. BUILDING SUN-PROOF SNOWFORTS

"Some of us began in the union struggle. Others, defending the environment. Others, fighting for improved housing, health, and schooling, or transportation. Others fighting for women's rights. And others out of intellectual, ethical, or religious convictions. We all walk the path that leads to a free and just society capable of preserving nature and building new political and moral values. Many have landed on this path. By their example they have lit the way we still have to travel. (GV 174).

- Luiz Inacio Lula de Silva

I feel I need to try to explain how beautiful the experience we had as children building our snowforts really felt. I do not believe this memory is merely a product of romantic nostalgia. I think the experiences should serve an ideal model for the processes of building real buildings and working with others.

We all shared the same vision, none of us was in a position of greater power, we all worked hard because we enjoyed what we were doing, and we were truly excited to see the results of our work. We had a positive attitude at all times, and this kept us working hard and prevented us from being discouraged. We were all constantly engaged in physical labor, and we were also constantly thinking about what we were doing and how it was improving and contributing to the whole of the project. Literally no one was "in charge," or responsible for the actions of the others. All our energy was directed towards our own task. It was absolutely the most efficient process with the tools we had that I can imagine. I was always conscious of what the others were doing, and I adjusted my own work to "fit into" the whole process, varying

my task and intensity to support the work of everyone else.

I have noticed in the typical "architectural" design process, there always seems to be a period at the office where we are excited to "design" and make choices about how the building will be. However, this is also followed by a period where everyone has to "bite their lip," and do the dirty work of producing the drawings that communicate the design to the contractor. This is busy work. The design process stops here, it has been artificially separated by our society from the process of building (Mary Rose Museum, 80).

The creative joy also comes screeching to a halt here. In the "architectural profession," there is a very limited amount of this "design work" to go around, so it becomes a matter of status as to who gets to "design". Usually, this becomes the prized activity of the top architects in a firm, and all the other employees below end up drawing up the design of architect. The architect checks to make sure the lower-ranking employees are drawing the drawings the way they want the building to be. There is always a little bit of jealousy and humiliation involved in this. This is not equality or democracy, it is domination. The creative energy of the employee under the architect is not fully harnessed to make the building better. This method of management is inefficient and will become less and less economically feasible in the future (Drucker 84).

The same waste of human creativity occurs at the next phase of the construction process. The drawings are given to the contractor, as a rigid set of instructions to be followed. The contractor is paid for following directions exactly, and punished for failing to do so (article 2.6.2.5 American Institute of Architects Document B-141). There is no reward for creativity or making the building better than the drawings show them. This is unfortunate, because

"when a building is built from plans that are conceived on the drawing board, and then simply built, the result is sterile at best-

> silly most of the time-and sometimes unthinkably bad. This is something familiar in all large buildings that have been built since 1950. It is inevitable, given the process of construction used to build them. And it is inevitable that this process must lead to unsatisfactory results" (Mary Rose Museum, 80)

To clearly visualize exactly why buildings built in this modern method do not come out well, consider how much thought went into our snowfort during its construction. We started by making a pile of snow where we wanted to put the fort. With each shovel full of snow, we subtly adjusted the location, a shovel a little to the left, then a little on the top, a little more or the right, etc. When we excavated the inside of the fort, every scrape was carefully considered to make the room a little bigger here, and a little higher there. We always thought about what we were doing and how it made the fort better as a whole.

There was no artificial separation between design and construction. Each and every act contained both simultaneously, it was creation, in the purest sense. Because of this, the quality of the fort was constantly our focus, creative energy was applied continuously, like a glue that held the whole fort together.

It is tragic how much creativity glue is wasted in the today's building process. The architect is being "creative" on the drawings to some degree on a computer or piece of paper. Employees of the architect then enjoy varying degrees of "design" of the details of the building depending on the firm, but in comparison to the snowfort process, only a fraction of the total time is spent creatively. Many times at the office, I am simply following instructions, doing repetitive, menial tasks not associated with the design or construction of buildings, wasting creative energy. Once the "design" has been done on paper by the office, the contractor takes the documents and goes about making the

building like following a recipe from a cookbook. The creative "experimentation" of the good cooks, with quick taste tests here and there, a bit of salt, a pinch of oregano, a bit more olive oil...is simply not applied to making "tastier" buildings in the modern world. Today's construction process wastes creative potential of hundreds and thousands of construction workers, draftsmen, and architects. Not only is this inefficient, but it is also not a process which can be a part of a sustainable society. According to Maser,

> "People's values, belief in process, and the empowerment to act and collectively resolve problems is the first component of sustainable community development. Education that allows people to learn of their connection to social/environmental problems, both local and global, is the second part of the mechanism. Teaching participants how to plan strategically is the third part, and a sound working knowledge and practice of the democratic system of government within which to fit the three parts is the final, all encompassing piece" (Maser 118).

The Aristos Organization's focus is on education concerning social and environmental relationships with the built environment. The actual building process must include the empowerment of each and every individual person to contribute creatively. This is almost unfathomably difficult to imagine beyond the childhood snowfort model. In the mechanistically fragmented process of today's world, recreating this type of social environment may be the hardest part of the organization's work.

In order to work towards a truly sustainable practice model, each person involved in the design and construction of buildings must also become aware of the connection of their work to the impact on the whole, learn to "strategically" plan the use of their task towards the improvement of the whole in the context

of a true democratic process akin to the snowfort process.

This means every person, the owner of a building, the people who will use the building, the architect, the engineers, craftspeople and builders must all be involved in a seamless process of design/construction building. Each must realize their own potential to benefit the rest of the world through their contribution. Each must have both the responsibility and the freedom to contribute their skills to the process. Most importantly, each must understand they have a responsibility to the process of creating the whole through their specialized task, whether it is laying out the building on the site, making a wall, a window, or painting a room. I believe this is source of the positive attitude we had as children in the construction of snowforts. Because we realized that without every person contributing, we might not succeed in finishing the snowfort before the sun came out, we valued the contribution of each and every member. Moreover, we depended on their reasoning skills to solve problems creatively related to their task. Every shovel of snow Tolguy picked up from the street or another yard to throw on our fort was considered for its depth, stickiness, and cleanliness (we didn't like our fort having dirt or grass on the outside). When he carried it back to the fort, carefully balancing a shovelful, he began looking for the place on the fort that needed more snow on top. One area was too high, another to thin. From the last shovelful, he had an idea of where he wanted to put more snow, but perhaps this shovelful would go a little to the left or right of that spot. After he threw the snow up on top of the fort, he had the new image of the fort in his mind, and turning around, went to get more snow. He now was considering the new whole and where he would put the next shovel. No one told him to put snow here or there, he was responsible for his contribution to the whole. While he was shoveling, so was I, and with the same process going on in my mind. I took into account the effect on the whole of his work, and he mine. Perhaps he would shout to me that the back side needed some more. So I would work on the back. He did not tell me

exactly what to do, just to make the back side. How I accomplished this was up to me. The difference is subtle, but crucial. I was responsible for "fixing the back," which meant tying it into the whole, increasing the thickness and height of the back to balance what we had been doing on the front. I had a responsibility to make the whole fort work *through* my specialized task. Meanwhile, the girls we on the inside excavating, and they would tell me where the room was expanding and what area we needed to shovel more snow onto. I would tell him the girls inside we digging more to the left, so we should start increasing the thickness of that area. On the inside of the fort, Tara and Brittany were feeling the room out, and making it taller or wider as they saw fit. Each of their actions had to take into account where they saw the light coming through, and where the snow they excavated landed, and how they could push it between their legs and out of the fort so I could shovel it on top of the fort. This degree of coordination is far superior to anything I have experienced in the office or at school. Each and every member was directly involved with the creation of the building as it "unfolded" from the pile of snow. We applied patterns over and over again, until the whole felt finished. Creativity glue was used unsparingly.

Positive attitude is essential because it generates more productive creative energy than an indifferent or negative attitude. Enthusiasm has always led to the best of my own creative projects. It focuses attention the extra amount needed for the difficult tasks that push me to the next level. It also sustains the more intense effort for a longer period of time. If positive attitude is directly related to responsibility, and responsibility to productivity, then each and every member must take responsibility for the whole.

Imagine for instance the contribution of the paint subcontractor. Typically, the painter gets the job by offering the lowest bid on painting the specified rooms the colors specified by the architect. They get paid to cover the walls with some color. Their task in menial and uses no creativity glue

whatsoever. Now imagine, if the painter is asked to make the room beautiful and paint it the color which brings the greatest harmony to the whole of the building. They are asked to buy the paint which is least detrimental to the air, water and soil of the Front Range, and the one that will bring the most life to the room. They are asked to buy it from a vendor who contributes to the benefit of the whole of the Front Range of Colorado. They are told they are an artist, and that since they see paint every day, mix it every day, apply it every day, they are the best qualified to decide how to paint the room, where to buy it and how apply it. Maybe they think it doesn't even need to be painted. They are given a mission, just as the owner gives the architect a mission. Each are given buckets of creativity glue and asked to make something beautiful and contribute to making the entire Front Range a better place.

In effect, everyone involved in the whole building is dependent on the painter to realize a successful project. The goal would be to have a big party at the end of the project, and thank each and every contributor for making the project a success. Everyone could enjoy the beauty of the new building, and appreciate the work of the others. This is another part of the process of education, celebrating and enjoying learning by making things and realizing how amazing it is. Just as Tolguy and I sat inside our new snowfort upon it's completion and sipped our hot egg soup, amazed and content with our hard work, so should the architects, owners, builders, and craftspeople celebrate the completion of the building process. I worked on the construction of a strawbale house in Eugene where this occurred. It was a ton of fun and I am very proud to have contributed to the house. Whenever I ride by on my bike, I know my work helped to make the finished product beautiful, and the people who live there appreciated my help. It is a wonderful feeling!

Chris Maser believes sustainability requires society to find new questions to ask regarding our relationships with ourselves, each other in the present, those in the future and past, and the environment (Maser 14) in order to move

towards a more sustainable society. Peter Drucker believes the question in this case should not be "What should the worker be entitled to?" (read financial compensation for labor) but rather "what should the worker be responsible for?" (Drucker 109)

With everyone involved creatively, learning and teaching simultaneously, with an energetic and positive attitude, the stage is set for a different type of construction process. In the snowfort, quality and efficiency was achieved through the continuous adjustment of our labor through "design." What design really amounts to in this situation is doing one thing, looking at the results, and gauging the next action based on the best appraisal of the situation. Full attention is given to the task at hand. because the person cares deeply about the results and understands the importance of their actions to the creation of the whole, and enjoys the responsibility. In this environment, I believe pattern languages can truly be used to generate life-giving buildings in a democratic, positive, and educational atmosphere.

A similar methodology practiced in the "real" world has been discussed in depth for a variety of building scales and types in The Nature of Order by Christopher Alexander. The book draws from Christopher's life work with the Center for Environmental Structure (CES), the non-profit organization which produced the concept of the pattern language, and has built buildings from pattern languages at many scales in the United States, Europe, South and Central America, and Japan. The unpublished manuscript highlights the pragmatics of the process at the scale of a piece of furniture, a single family home, a medium-sized shelter for the homeless, a large ship museum in the UK, and the complete planning and construction of a college campus in Japan.

Because this is radically different from the process used in the typical architectural practice today, new ways of dealing with legal contracts and the flow of money are obviously necessary, because, as Alexander explains, "the RIBA and AIA contracts in common use today are themselves in large part

responsible for the lamentable state of architecture" (Mary Rose Museum, 86). Alexander has also published a radically different set of contract agreements for use between the architects and the owner and architect/contractor and the subcontractors in the book The Mary Rose Museum. This contract begins to approach a more sustainable construction process, but is not the ideal model. While it is beyond the scope of this writing to critique CES in terms of sustainable process or summarize the process they use, I believe it is critical to focus on several of the organization's assumptions which approach a more sustainable building process.

- Builders and craftspeople on the job are treated as artists, not as construction laborers.
- Cost allocation precedes design. Instead of designing the building and then finding out how much it will cost to build as is typical today, the money is used to determine how the building will be built from the beginning. The flow of money is part of the system of systems which govern the process of building. This connection with money is embraced rather than separated.
- Both the time and budget are fixed; however the building changes in response to the physical, social and environmental structure as it is "discovered" during the building process.
- The focus is always on the whole, not on the "parts" as such. Each specialized task is seen as connected to the whole, physically, environmentally, and socially.
- The building process becomes a form of scientific experimentation rather than mechanistic production. It is about learning from doing, and doing from learning, simultaneously.
- The sequence of making, appraising the results, and making again is the step by step process that governs the entire creation. This is described as

the process of "unfolding," like a flower (Maser would call this biological process a "self-reinforcing feedback loop") At each step, the result is verified as contributing to the benefit of the whole before proceeding with the next step. This is exactly the process we used to build snowforts. Each and every action of building included "design," or the analysis of what was to be done next.

During my studies and research at the University of Oregon, and my time working at an architectural office in Denver, I have come to the conclusion that the majority of buildings and the process used to produce them is incapable to produce sustainable, beautiful buildings, and a sustainable, beautiful society. I have had some experience the typical way buildings are built in this country both in school and at work. I realize how distant the true process of making is from the one commonplace in the status quo, yet I believe it is possible to achieve. Aristos Architecture will then be a democratic, non-hierarchical group of designers, craftsmen, engineers, contractors and builders. These people will come together to work, learn, build and celebrate the creation of beautiful places in order to improve the situation of the whole region.

Fueled by positivity,
build a democracy out of love,
use plenty of creativity glue.

IV. REALITY OF DREAMS

"Nothing to keep, nothing to lose. No possessions, no security, no concern about possessions, and no concern about security: in this mood it is possible to do exactly what makes sense, and nothing else, there are no hidden fears, no morals, no rules, no undercurrent of constraint, no subtle sense of concern form the form of what the people round you are doing, and above all no concern for what you are yourself, no subtle fear of other people's ridicule, no subtle train of fears which can connect the smallest triviality with bankruptcy and loss of love and loss of friends and death, no ties, no suits, no outward elements of majesty at all. Only the laughter and the rain."

-Timeless (51)

While all the previous may seem far-fetched and even impossible to the reader, I urge you, the reader of this paper, to remember those times when you have felt the most alive, the most passionate, *felt the most.* During these times, I believe people achieve complete freedom of the limitations of our own minds, and in this state, dreams have the potential to become reality. As children, we had a vision, and we went out and built it in the snow. Other kids stayed home at watched television all day, or slept in, or read a book. What we did required incredible discipline for children of our age. It was not easy to shovel snow all day long. It was an exhausting task, but the reward was worth the effort.

Think of the great leaders of revolutions. They did not say to themselves, "This just isn't feasible," and turn around, go home and forget all about it. They had in deep in their hearts what they had to do, and they went about doing it, as if it were the most normal thing in the world, one step at a time, despite the

difficulties. Doubt is simply out of the question.

In the task I face, I realize very real opposition exists in the real world, but I feel the real limitation is my own mind and how far I am willing to dream and how hard I am willing to work to make that dream a reality. Many things in my life I have wished and worked for have come true. There are things I still wish for, and I believe they will come true. For as long as I live, there is simply no other way.

After all, the built world that exists today, each building and street, at some point in time existed only in someone's mind. It became reality because the people applied themselves to a task, and for better or worse, we have the world as we know it. What I want and believe in will be difficult to do, and perhaps the critic might be skeptical; such a radical change seems impossible. They might say I should settle for a more traditional method of architecture or a more realistic goal. I realize it will require working through a lot of hard times, and dealing with a lot of issues that will be discouraging. I realize there will be times of confusion, and anger, and deep sadness. I know sometimes I will think as if what is needed is impossible. I know I will have to undergo painful change, on a very personal level. But these types of things have been happening as long as I have been alive. Change is challenging, and life is about change. This is a dream, but dreams can become reality.

THE RIDE

"The great film, Ikiru - to live - describes it in the life of an old man.
He sat for thirty years behind a counter, preventing things from happening. And then he finds out that he is to die of cancer of the stomach, in six months. He tries to live, he seeks enjoyment; it doesn't amount to much. And finally against all obstacles, he helps to make a park in the dirty slum of Tokyo. He has lost his fear, because he knows that he is going to die; he works and works and works, there is no stopping him, because he is no longer afraid of anyone, or anything. he has no longer anything to lose, and so in this short time gains everything; and then dies, in the snow, swinging on a child's swing in the park which he has made, and singing."

(Timeless Way, 49)

I. LANGUAGE OF THE MOUNTAINS

This Site:

Dedicated to contributing to the creation of a shared vision for the future of the Denver Metro area and the Front Range of Colorado for the 21st Century. Our region is one of the most beautiful on the earth, however, like many modern urban areas, we are faced with the challenge of dealing with increasingly important environmental and social issues as our growth approaches the limit of what the water, soil, air and people can handle. If we are to sustain and improve the quality of life in our region into the next century, we need to develop a collective vision for the region, one which begins to reconcile the ecological with the social and economic systems.

In order to address these issues, The **Denver Regional Council of Governments (DRCOG)** has created the **MetroVision 2020** plan (MV), developed by local government officials, business and environmental groups, and *other segments of the regional public* and *strives to protect and improve the quality of life* (MV Executive Summary) in the Denver Metro area. MV identified growth as a major issue, citing that over two million people currently live in the eight county region served by DRCOG, and by the year 2020, approximately 770,000 new people are expected to settle in the area. The effects of such growth generated the following questions from the DRCOG:

1) Where will people live and work?
2) How will their travels affect road conditions and congestion levels?
3) How will new development affect regional open space?
4) What infrastructure needs might be prompted by growth?

5) How will growth affect the environment?

The MV *aims to answer these questions and proposes strategies and implementation steps* in a long range growth strategy. The strategy is at a regional-scale, implemented as government policy. The policy at the regional-scale sets the context for how growth could occur at the scale of cities and towns, neighborhoods, and all the way down to individual homes and gardens. This site offers some possible solutions to these questions. Click on the icons for patterns at the scale of the **region, city and town, neighborhood, building** and **garden** which appear at the top and bottom of this page.

This collection of potential strategies, or patterns, are interlinked in order to establish a coherent structure for the whole region, just as the individual strands are connected in a spiders web to make it whole. This network of interlinked strategies or *language of patterns*, is based on the format published in the book **A Pattern Language**.

This book is referenced and integrated into the material presented on this site, however, you do not need to have this book to understand the information presented on this site. It does provide support and a deeper understanding for some of the arguments, as do **other supporting texts.**

The patterns which appear on this page will specifically address the six core elements under the governing principle of MV's goal to "protect and improve the quality of life" in the Denver Metro area. The goal of this site is to support the development of a pattern language for the Front Range of Colorado which will provide potential solutions to the questions posed by the DRCOG.

How to Read the Patterns :

Each pattern has an image which describes the essence of the idea. Following the image is an assertion in larger, **bold** text which states the problem. If you understand and agree with this assertion, the following argument which explains the issue in depth will only be background information, and you can skip to the end statement which defines the actions to be taken, again in **bold** larger text. This is followed by a diagram of the statement and links to related patterns.

How You Can Make a Contribution to the Future of our Region :
Whether you are a home or business owner looking for ways to conserve energy and water, a local participant in a neighborhood association looking for ways to revitalize your neighborhood, a contractor trying to use materials which are not harmful to the environment, an architect looking for ways to locate a building on a site and give the building a form conducive to energy and water conservation, or a planner looking for ways to realize planning goals in actual projects, this site can help inform your process. It is designed to connect and present many ideas at different scales so we can begin to work together and make buildings, neighborhoods, cities and towns which come from a shared vision of the future for the Front Range.

You can contribute to our shared future by fixing up a house, growing a garden, building a new building, or working to secure safe and comfortable housing for all. You can help by making responsible choices with location of new homes and businesses, lobbying for public concerns which protect the environment and the people, and writing regulations and laws to support the repair and responsible growth of the region. You can also contribute by sharing your knowledge and learning from and working with others to develop and implement strategies which help repair our beautiful land. You can make a difference! Use the information in this site to inform your decisions, but realize this material needs

your best judgment, refinement and input to be truly beneficial and successful.

How to Be Involved in the Process of the Evolving Language :
This site is under a perpetual state of repair and improvement, just like our region. It needs your help as it continues to grow and adapt, so as to provide the viewer with the most up-to-date and valuable information. The pattern language continually needs refinement, additional patterns, and restructuring or removal of obsolete or incongruous arguments. Your suggestions, clarifications or contributions are invaluable to this site in terms of new ideas for patterns which are concurrent with the MetroVision 2020 plan, or any ideas pertaining to the resolution of other environmental, economic and social issues of the region on any scale which could be formulated into patterns for this page. We must share our ideas, skills and energy and work together collectively to make our region truly beautiful.

To submit ideas or critique about this site, get information on writing a pattern of your own for integration into the language published on this site, or to find a related book or website, click on the icons at the bottom of this page. I am also looking for links to other sites which address related issues, and also solicit critique and discussion about this site, the content and related issues. If you know of a good site, let me know!

The future of the Front Range is in our hands, I hope we can all continue to improve our own homes, neighborhoods, towns and cites as we move into the next millennium!

Sincerely,
Brian Fuentes
Lakewood

URBAN GROWTH BOUNDARY

In order establish the Front Range as an **INDEPENDENT REGION (1CES)** and maintain and increase the quality of life for people living along the Front Range of Colorado the DRCOG (Denver Regional Council of Governments) has implemented an Urban Growth Boundary.

♣ ♣ ♣

Continued sprawling growth will inevitably destroy the quality of life along the Front Range.

If the same rate of expansion were to be allowed to continue, the metro area would encompass almost 1,150 square miles by the year 2020. This is larger than Los Angeles, San Diego, San Francisco, San Jose, Oakland and Long Beach combined. The Sierra Club ranked Denver the third worst in the nation in terms of wasteful land use and low density expansion (**The Dark Side of the American Dream, the Costs and Consequences of Suburban Sprawl Sierra Club**) DRCOG has also cited the costs of not stopping unbridled growth in the **MetroVision 2020 plan,** which limits urban growth to 700 square miles. Key factors supporting the argument for this limit has been briefly summarized in the DRCOG executive summary report :
More than 161,000 people moved to the region between 1990 and 1996.

- There are fewer financial resources available today, with little prospect of significant increases in the future from federal, state or local sources.

- Today the Majority of the region's transportation dollars go toward maintaining current investments, leaving fewer dollars available for system expansion.

- People must increasingly rely on private vehicles to travel between home and job, shopping and recreation. The result: longer commute times, more traffic congestion and an increase in vehicle pollutant levels.

- Growth in vehicle miles of travel (VMT) between 1990 and 1996 increased faster than population growth. By 1995 daily VMT reached 48,600,000. As the region has grown it has spread out and people are traveling farther. Because of the greater number of workers per household, other demographic changes, and an increase in non-work related trips, people are also traveling more often.

- The further development spreads, the more it will cost to deliver needed facilities and services--such as water and sewer, roads, drainage, schools, police and fire protection, and public transit--and the more open lands are lost.

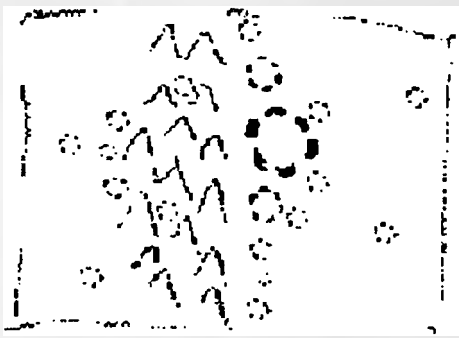
- Construction of new public projects, such as roads, water treatment plants and transit stations, requires an increasing amount of time and more complex planning than ever before.

Both developers, planners, business owners and citizens need to work together to maintain this boundary by focusing new development within the boundary in a way which repairs the existing communities. The aim of new construction should be to enhance existing communities by improving the quality of open as well as developed spaces. Open space and farmland outside of the boundary should remain to preserve the beauty and ecological health of the region. The more building is done within the boundary, the greater the tax revenue is available to repair and update existing infrastructure and provide for the acquisition of public land and the creation of new public facilities.

Therefore:

Build only inside of the Urban Growth Boundary. Knit the region together with open space.

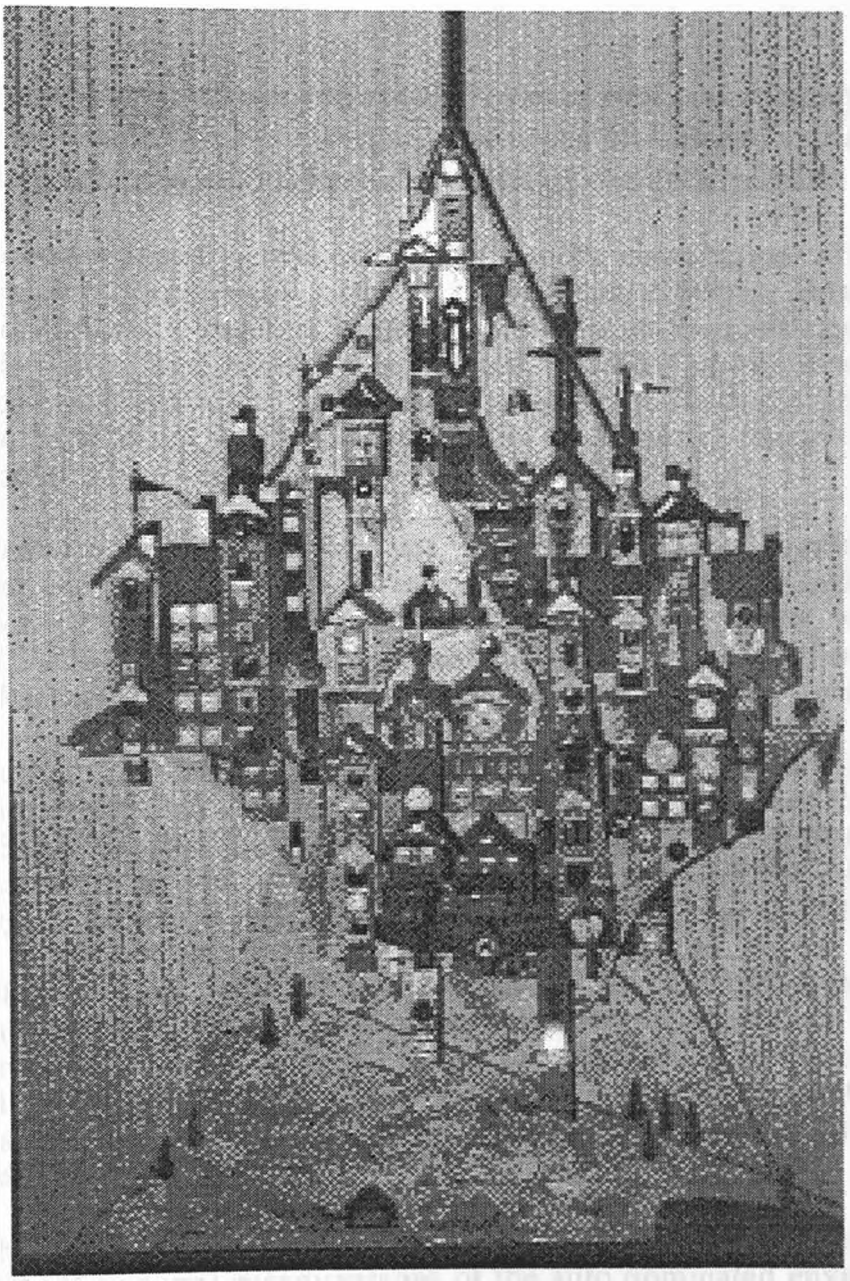
develop cities within boundaries



knitted together with land

In order build and repair the region within the Urban Growth Boundary defined by DRCOG, work to establish **FREE STANDING COMMUNITIES** surrounded by and connected to other communities by a **NETWORK OF OPEN SPACE**. Establish an efficient web of human transit systems throughout the region via a **MULTIMODAL TRANSPORTATION NETWORK**.

FREE-STANDING COMMUNITIES



...Within the Denver Metro Region **URBAN GROWTH BOUNDARY,** develop a distribution of coherent cities and towns. These cities and towns need to be separated, and distinct from each other...

♻ ♻ ♻

Daily transportation via automobile from one community to another to work wastes energy, resources and time, and destroys the biological and social environment of the community.

Currently many people live in the satellite communities of Denver and commute by car to work, many all the way to another city as far away as Boulder or Colorado Springs. People commute from the mountains, from Highlands Ranch, and Aurora. The millions of dollars of infrastructure and the cost of gasoline and car maintenance necessary to support such an expensive habit is not worth the costs to the health of our region or our own pocket books:

In the United States, the economic cost of traffic congestion, in terms of squandered energy and lost time, is about $150 billion per year...and this figure does not begin to address the social costs including health, recently estimated by the World Resources institute as a further $300 billion. (pp. 38 Richard Rogers, Cities For a Small Planet Faber and Faber Ltd. London, 1997.)

Automobile exhaust causes 50% of the pollutants in the inversion-caused haze over Denver known as the brown cloud. The Front Range Air Quality Study initiated by Governor Roy Romer found tiny particles, known as PM 2.5 cause the visual haze and pose long term health risks (*Brown Cloud not Going Anywhere, Rocky Mountain News,Tuesday, May 5 1998).*

Highways and wide boulevards consume the land and create a wasteland that devastates natural habitats and the social cohesion in neighborhoods. A study of streets in San Francisco found interaction with people living on a street was inversely proportional to the amount of traffic on that street. *(pp. 36, Richard Rogers, Cities For a Small Planet Faber and Faber Ltd. London, 1997.)*

The hours spent on the road could be spent with families and friends. These and other social disadvantages of the auto dominated environment have been argued extensively by Howard Kunstler, in *Home From Nowhere, Remaking Our World for the 21st Century,*
and in **LOCAL TRANSPORT AREAS (CES).**

For all of these reasons, the citizens, businesses and governments of Denver must work towards the establishment and improvement of communities which do not require the car to access home, work and local recreation.

The Denver Regional Council of Governments has made this pattern one of its six primary goals and calls for communities to maintain an *adequate employment / housing balance and internal transportation systems which maintain their visual and physical separation* from each other while striving *to meet the employment, service and facility needs of their new residents,* **MetroVision 2020 Plan**.

The crux of the problem is essentially that people are forced to drive to work, to school, and to access goods and services because the distribution of the essential elements are scattered throughout the region or greater city. Few, if any, communities along the Front Range have the necessary variety of places to live and to work, to shop and recreate within walking distance. Most do not offer a system of transportation that serves the needs of the residents without overrunning the community with roads, parking lots and cars. Because of this local imbalance, the entire region suffers the consequences of air and water pollution as well as high maintenance costs, while the local area suffers from these issues as well as other environmental and social disadvantages of an area overrun with automobile infrastructure.

Imagine a community where goods and services, jobs, housing and access to public transportation were all available by walking or bicycling in a safe, healthy environment. While this exists to some degree in many places along the Front Range, Boulder is perhaps the closest as a city to demonstrating this concept. With its own urban growth boundary, surrounded by open space, Boulder was ranked the best medium-sized city by *Money Magazine* in its annual survey of America's best places to live (*Rocky Mountain News, June 11, 1998).* The criteria for which Boulder was selected as the most livable city included clean water, clean air, low crime rates, good public schools, and low property taxes.

However, Boulder still is too big, as is argued in **COMMUNITY OF 7000 (CES**, which argues for a community population of between 5000 to 10,000 persons in order to facilitate functional local governments in which decisions are made through a local democratic process. Benjamin Barber believes only in a community of *at least five thousand and certainly no more than twenty-five thousand* can these democratic communities exist. *(pp. 269-270) Strong Democracy: Participatory Politics for a New Age University of California Press, Berkeley, 1984.*

While the population might vary from these figures, it would certainly not be in the tens of thousands. The essential elements to a community

which is free-standing and whole seem to be defined by **at least** the following :

1) A community in which local decisions can be made through equitable self-government by the residents.

2) Enough jobs, goods and services to serve the residents of the community.

3) A transportation system which allows all people to access the community without being forced to own and operate a car.

4) A balance of developed and undeveloped spaces so ecological and social balances can be achieved.

Therefore:

Establish free-standing communities throughout the Denver Metro Area and along the Front Range, each with its own balance of workplaces and housing, open space, internal transportation system, and physical growth boundaries. The community should be made accessible without the use of the automobile.

balance of workplaces and housing

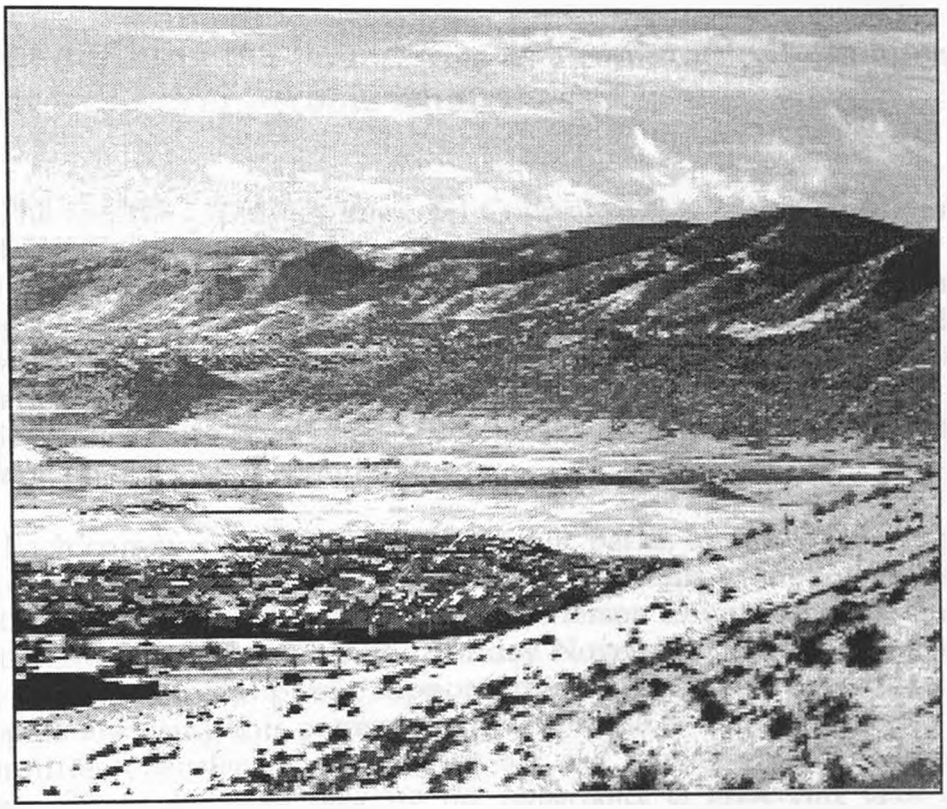
served by internal transit system

bounded by open space

♻ ♻ ♻

In order build and repair the region within the Urban Growth Boundary defined by DRCOG, work to establish **FREE STANDING COMMUNITIES** surrounded by and connected to other communities by a **NETWORK OF OPEN SPACE**. Establish an efficient web of human transit systems throughout the region: **MULTIMODAL TRANSPORTATION NETWORK**.

NETWORK OF OPEN SPACE



...within the **URBAN GROWTH BOUNDARY**, connect and define **FREE STANDING COMMUNITIES** by weaving together a network of public parks, open space, school yards, bike path corridors, outdoor sports complexes and undeveloped vacant lots. Allow this network to penetrate and connect places inside each community...

♣ ♣ ♣

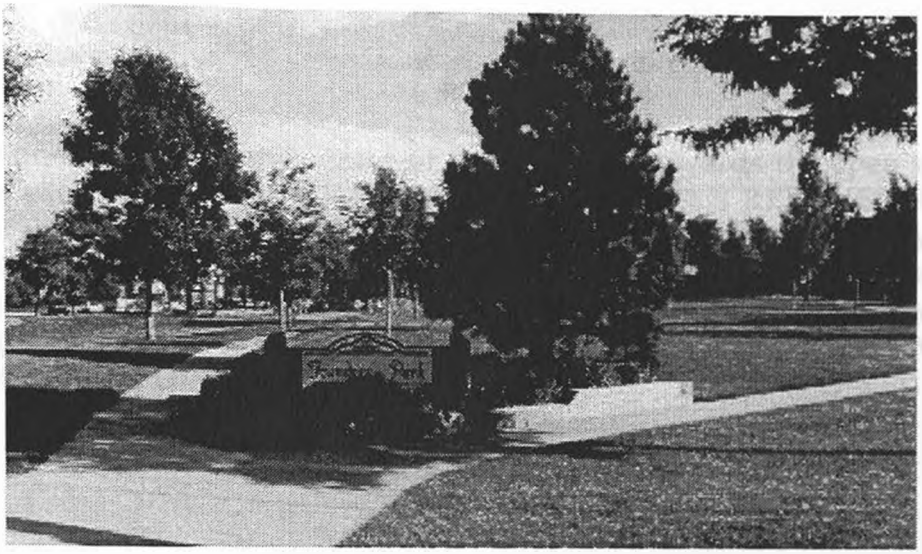
Without defining the boundaries of a community with open space, it will never become whole.

The DRCOG (Denver Regional Council of Governments) **MetroVision 2020 plan** calls for each community within the **URBAN GROWTH BOUNDARY** to be visually and physically separated, with its own balance of housing and workplaces, goods and services as argued in **FREE-STANDING COMMUNITIES**. In order to separate them, it becomes necessary to establish boundaries to each community which provide visual, acoustical, and ecological relief from developed areas. Just as the region needs a growth boundary, so does each community.

Each community needs its own public parks, undeveloped open space, farms, community gardens, bicycle and walking trails to support recreation, agriculture, wildlife and transportation. Jefferson County commissioner Michelle Lawrence, quoted in the Sunday November 30 Rocky Mountain News, feels the general public supports this pattern, so much so that developers are using this pattern to attract people to newly developed communities: *developers are stepping out and helping out with this because they are citizens too, and they see the importance of preserving open space.*

Preserving open space and creating parks, gardens, farms and trail systems only as isolated entities prevents them from achieving their full potential: to serve the larger community and region.

Many isolated open spaces (click here to see a map of the City of Lakewood's open space) can only be used by people who live nearby or those who drive their cars to the park or trailhead. By connecting open spaces together, people can access any park simply by finding the nearest connection to the network. A great example of this is the Bear Creek Trail which runs from Morrison all the way to Downtown Denver.



Paths connect parks together.

The network should connect to civic and public centers as well, so people can access the center of each community **TRANSIT CORRIDOR URBAN CENTER**, and/or the **MAIN STREET** from the system of paths and parks.

Therefore:

Build a network of open space which links and defines each neighborhood, the larger community as well as the entire region. Make connections between all trail systems and open spaces so that from any neighborhood, a person can access the whole of the region.

build a network of open space

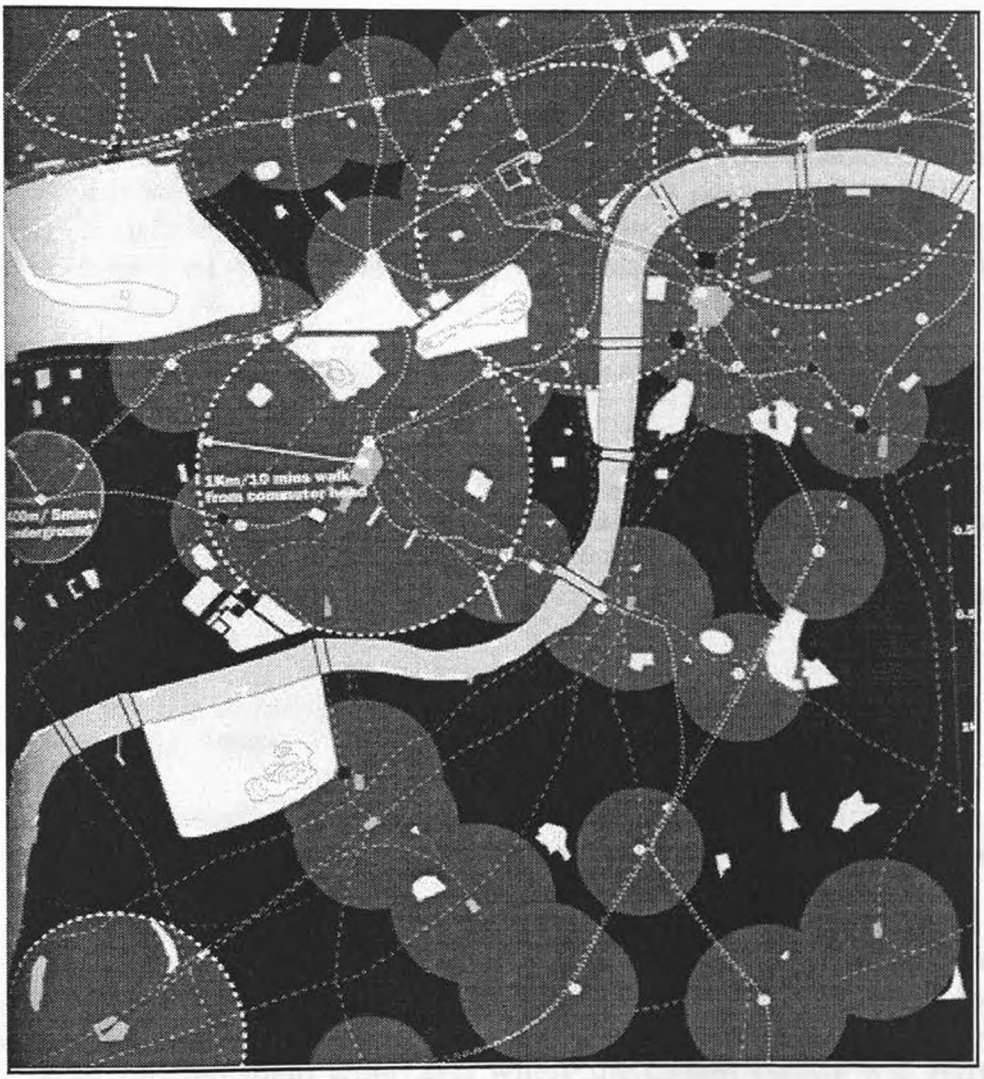
acquire and protect new public lands

connect all paths and parks

♻ ♻ ♻

Reduce densities from the center of communities towards the open space edges of each community, **GRADIENT OF SUBURBAN REDEVELOPMENT** Support use of bicycles for primary transportation in communities by locating the **BIKE SHOP** adjacent to a point on the network, support bicycle use in individual buildings by including a **BICYCLE GARAGE**. Establish stations for recharging solar power assisted bicycles at frequent intervals along this network **SOLAR ROOF BIKEWAYS**.

MULTIMODAL TRANSPORTATION NETWORK



...within the URBAN **GROWTH BOUNDARY**, develop transportation infrastructure for **FREE STANDING COMMUNITIES** which does not rely solely on the automobile. This infrastructure should accommodate bicycles and pedestrians, as well as busses and light rail...

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A transit system which relies solely on cars wastes time, resources and energy.

It is not news to anyone in the Denver Metropolitan region that traffic and congestion on major and minor roadways is increasing and becoming almost unbearable. This not only contributes to air pollution (see **FREE STANDING COMMUNITIES**), but also threatens the region's economic stability. According to Dave Morrison, vice president of Brookfield, the largest downtown landlord,

left unaddressed, these conditions will contribute to a downturn in the regional economy.

Twenty years ago when I first came here - companies would look at the entire metro area. Now they don't want to be in really congested areas. However, we are victims of our own success as the corridor suffers from permanent congestion increasing commute times, decreasing worker productivity and worsening air quality.

w(pp. 12G We *are victims of our own success,* Denver Rocky Mountain News, October 11, 1998)

A reconceptualization of the regional system of transportation is needed to facilitate the ecological health and economic stability of the region.

British architect and planner Richard Rodgers envisions a future in which "the car will be seen as a minor component of a complex and flexible network of transport systems. Citizens will have access to a transport internet that will instantaneously analyze the entire network, map the fastest route across town and tell them when and where the closest vehicle will arrive. This will enable the citizen to get about faster, more often and to more places (pp. 167)"

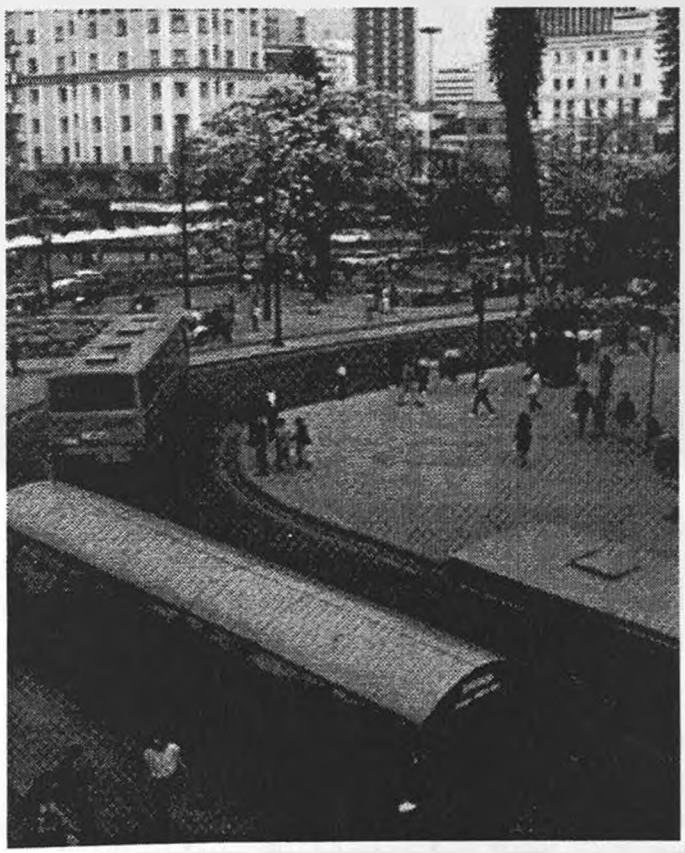
While this degree of coordination between cars, busses, small electric vehicles, pedestrians, bicycles and light rail systems might be years into the future for Denver, it seems inevitable the regional network of transportation will have to improve or the quality of life which has traditionally attracted businesses and individuals to the Front Range will be outweighed by the

inefficient, congested roadways.

Solo drivers account for over seventy percent of the metro area traffic. Proponents of expanding roads do so without realizing it is only a short term solution. Widening roads, which costs the taxpayers millions, only leads to increased use. The cost and upkeep of the roads can only increase with road widening and system expansion. Investment in road widening is a downward spiral into air pollution, congestion, and increasing cost to the taxpayer.

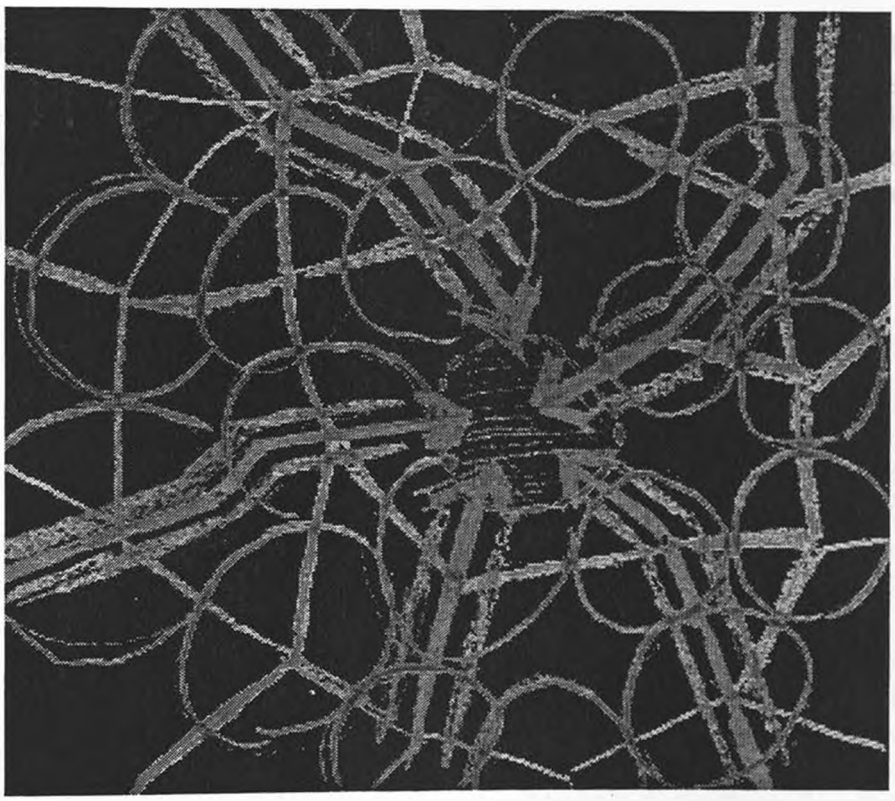
The long term transit solution requires thinking beyond the accommodation of the automobile for solutions. In Curitiba, Brazil, for example, careful planning and execution of an extensive bus system has taken precedence over the car with amazing results over the past 20 years.

When a subway was found to be too expensive, Mayor Jaime Lerner and the city government devised what they call a Surface Subway System: quite possibly the best bus system in the world. It uses a glazed tube station, which people enter after pre-purchasing of tickets in order to speed the loading of the bus. Lerner sketched out the elevated tube design after noticing how long it took people to climb the steps and pay the fare (see below).



Bus tubes speed loading and unloading of busses in Curitiba, Brazil.

The bus system was carefully woven into the existing urban fabric, rather than destroying existing neighborhoods by creating five structural axis leading in and out of the city. A system of redirecting traffic along existing parallel roads, one for traffic going into the city, the center street for high speed, tube station busses, and another for traffic leaving the city. The silver, express tube busses are served by green neighborhood loop busses and orange feeder busses. (See diagram below) A year after its inception, twenty eight percent of bus riders were new, leaving their cars behind. In 197 the system handled only 25,000 passengers a day, however, by 1993 over 1.5 million people were riding daily (pp. 68).



You're not going to invent a new city, says Curitiban Mayor Jaime Lerner. *Instead, you're doing a strange archaeology, trying to enhance the old, hidden design. You can't go wrong if the city is growing along the trail of memory and of transport. Memory is the identity of the city, and transport is the future.*

Curitiba also has an extensive bicycle network called the *ciclovia,* see **NETWORK OF OPEN SPACE** which is also supplemented with a number of pedestrian oriented shopping streets downtown, **MAINSTREETS**, with the highest densities occurring along the express bus lines, as is suggested in **TRANSIT CORRIDOR URBAN CENTERS**.

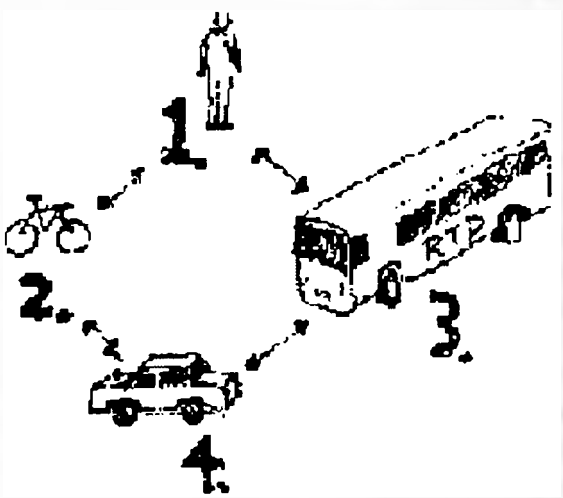
In order to create a region which makes transportation efficient, environmentally sound, and economically feasible, it is crucial to consider all forms of transportation in the equation.

The issues might be best addressed by asking the following two questions:

1) What methods of transport allows one to go from point A to point B most efficiently (in terms of time, economy, ecology)?

2) and how does the change from one method of transport to another occur most efficiently?

Since the Front Range is currently dominated by the automobile and its transportation system, the focus for new development should not be put on highways and continued road widening for cars, but rather on developing pedestrian, bicycle, and mass transit networks as well as their interaction points with each other (including cars) so as to create a more efficient, coherent network of transit.

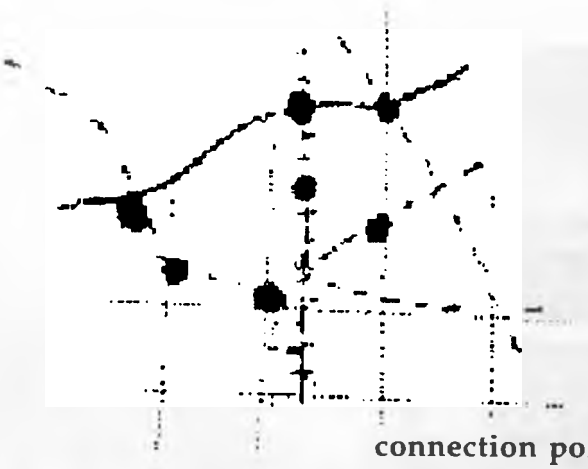


Connection points in which the pedestrian and bicycle are considered most important, mass transit such as busses and light rail second, and cars third should be developed throughout the region.

Therefore:

Create networks of paths for different types of transit with efficient nodes of connection.

different networks



connection points

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Create hubs of mass transportation at the center of each community to facilitate travel beyond the range of the pedestrian and bicycle, **TRANSIT CORRIDOR URBAN CENTERS** and support the use of the automobile only for long trips outside of the city and region. Provide connection points for bicycles and solar power assisted bicycles to meet with busses, **SOLAR BIKE PARK AND RIDE**. Enhance the network of pedestrian and bicycle accessible paths through the whole region, **NETWORK OF OPEN SPACE**, with stations along the way for solar assisted bicycle charging, **SOLAR ROOF BIKEWAYS** Support bicycles in each neighborhood by locating the **BIKE SHOP** on the intersection of a major bicycle path and a automobile roadway, support bicycle use in individual buildings by including a **BICYCLE GARAGE** in every building.

MAINSTREETS

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The regional shopping mall is self serving, and does not contribute to the neighborhood in which it sits.

Regional *destination* malls, with their big, inward-looking blank boxes and vast parking lots are failing all over the nation, Cinderella City being the first major example in the Denver Metropolitan area. With huge parking lots, pedestrian unfriendly sidewalks, and back turned to the residences it sits adjacent to, traditional malls and strip malls are unattractive to drive through as well as live next to: as soon as their novelty wears off, or a newer, fancier mall is built further out somewhere, it begins to fade into decay.

Not only do these malls fail, but they fail to serve as a public realm for the people in the community. Because the mall has a catch basin that is based on the region rather than the immediate neighborhood, it does not depend on the local community for revenue, nor does it necessarily depend on neighborhood for employees, since employees can drive long distances to get there, just as patrons are expected to do. It guarantees neither jobs nor the necessary goods and services to support the local community. In addition, this reliance of the typical mall and strip mall on the automobile forces people to drive to access the mall, which causes pollution and huge infrastructural costs to the taxpayer (see **URBAN GROWTH BOUNDARY**).

The case against this type of development has been argued extensively by James Howard Kunstler in *Home From Nowhere, Remaking Our World For the 21st Century*. He suggests we return to the traditional American pattern of shopping for goods and services, the small town Main Street. A main street acts as the center of a community, the center of commercial as well and public and civic life. A great example of this is happening in **Curitiba, Brazil**, where the Curitiba City Hall is supporting the creation of new community centers within existing neighborhoods through building facilities and public services such as health centers, day-care centers and commercial buildings while maximizing the potential of existing infrastructure.

Each community needs a center, and the shape of this center can be arranged along a street and the surrounding few blocks, as is in the traditional main-street. *Take a traditional Main Street,* says Anthony Flint of the Boston Globe, *with cars parked at angles, trees dotting the sidewalks, a cluttered storefront with offices on the second floor-it all works because its intricate and inviting. The public realm is well defined, almost cozy, like an outdoor room.*

A great example of a community that is taking matters into it's own hands is the West 29th Neighborhood Association in Denver. This group has developed a proposal to create a more pedestrian friendly environment along

their main street by planting street trees, adding benches and improving sidewalks. The plan also calls for eliminating the left turn lane, putting parking on both sides of the street, and purchasing some adjacent land for a public park. If you want to begin creating a mainstreet in your neighborhood, **click here to locate your local neighborhood association by zip code**.

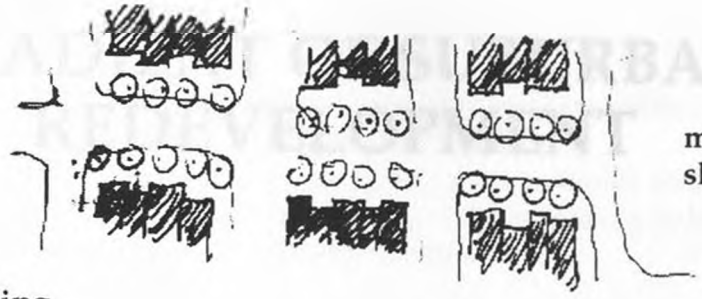
The Main Street is oriented towards serving the community in which it sits with small, **INDIVIDUALLY OWNED SHOPS** which provide a diverse array of goods and services needed by the immediate neighborhood in a walkable, pleasant public setting. Good examples of this pattern include downtown Golden (see photo above), **Pearl St. in Boulder** (live camera link), downtown Telluride, **downtown Aspen** (live camera link), **downtown Durango** (live camera link) and 32nd Street in Denver.

The main street combines retail shops, offices, lofts, apartments and civic buildings such as a **LOCAL TOWN HALL**. Because of its smaller scale, it does not seek to attract regional business via the automobile, rather, it is sensitive to the needs and feeling of the local community and supports pedestrian and bicycle transportation. Parking should be minimal along the street and mostly in back to facilitate deliveries and service vehicles. The main street can also serve as the hub for public transit to other neighborhoods and city centers: **TRANSIT CORRIDOR URBAN CENTER**.

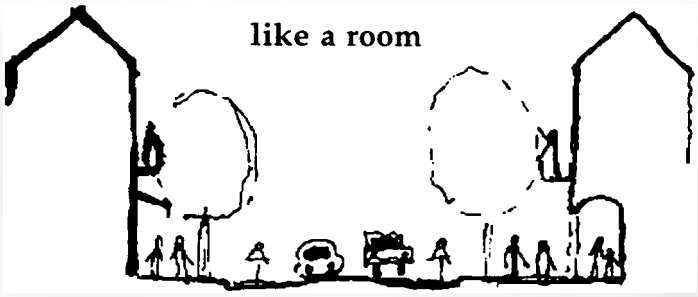
Communities without an existing mainstreet could allow for the gradual formation of a street in the center of a community which supports a mix of uses (commercial and residential), and is wonderful to walk down and be in (like an outdoor room). The street should be chosen so that so each point in the community is within ten minutes walk of it. Main points of attraction, such as a park or civic building should be locate at the two ends, to keep a constant movement up and down **(PROMENADE (CES 31)**, pp. 173).

Therefore:

Make the street the center of community life. Locate it at the heart of the community, where it can provide jobs, goods and services to the local people.



within walking
distance



pedestrians, bikes and cars

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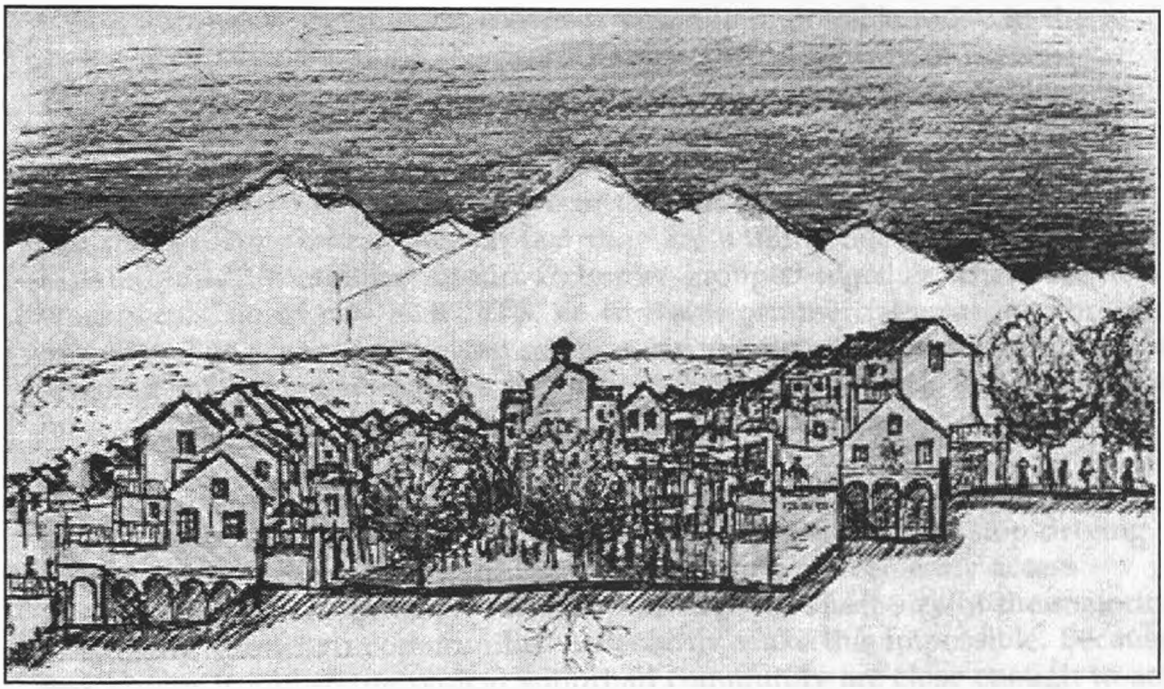
Smaller shops provide the necessary diversity of goods, services and jobs needed to serve each local community **INDIVIDUALLY OWNED SHOPS (87CES)**. Prevent buildings from exceeding the **FOUR STORY LIMIT (CES)** in order to preserve the solar access and the quality of life in neighborhoods. Develop the surrounding areas over time in existing homogeneous suburban communities by encouraging a **GRADIENT OF SUBURBAN REDEVELOPMENT** of new residences and businesses to be built towards the main street.

GRADIENT OF SUBURBAN REDEVELOPMENT



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The suburbs will never be free from the automobile.

Without providing existing suburban communities with a diversity of housing types and sizes, public spaces, and the necessary goods and services, the suburbs will never be free from the automobile.

Suburban escape, writes Lewis Mumford, *is ironically, a low-grade uniform environment from which escape is impossible.* At least for people trying survive without a car, escape *is* virtually impossible today in the majority of suburbs along the Front Range. The uniformity of the vast suburbs forces the use of the automobile on the majority of its residents to access goods and services and work.

It has become commonplace in the marketing of new subdivisions to call them *communities* when in fact they are nothing but collections of isolated, undifferentiated suburban homes grouped together. There are no workplaces, no **MAIN STREETS**, no walkable commercial areas, no libraries or parks. The places people can really come together to form a community are few and infrequent within the majority of new subdivisions. They are located far away, so far that without driving, they are inaccessible.

The fundamental paradox of reducing automobile use within the existing suburban framework is the following: People will not stop driving their automobiles every day unless they can more conveniently access workplaces and recreation without it, however the sheer size of the majority of existing suburban communities necessarily make this impossible. Because few homes if any in the typical suburban community are close enough to any area zoned commercial or mixed use to access by foot, they will not ever be accessible unless the conditions of the existing neighborhoods are changed.

Many homes sit in a sea of other homes, with the closest of any civic or public spaces too far to walk to. Second, streets in many suburban neighborhoods do not allow pedestrians and bicycles to travel pleasantly or conveniently, (for example, many suburbs lack street continuity and a functioning pedestrian network which is pleasant and safe to use **NETWORK OF OPEN SPACE**). Many existing suburbs not only fail to actively support the pedestrian, they make it impossible to access needed public areas as well as goods and services via any other form of transportation save the automobile.

In the **MetroVision 2020 Plan**, DRCOG states governments have increasingly less and less money for new infrastructure and spend the majority of the budget maintaining what already exists. However, by allowing the density of existing suburban neighborhoods to increase gradually over time, the tax base of the community can be expanded, which is needed in

many of the middle ring suburbs. Suffering from disrepair, and failing to benefit from the radical growth of central downtown and lacking the luster of shiny new suburbs on the edges of the Metro area, these so-called middle ring suburbs need their own strategy for renewal and repair.

By changing zoning to support mixed uses of both commercial and residential towards the center of a community (**TRANSIT CORRIDOR URBAN CENTER**) and supporting the addition of small-scale neighborhood businesses, each currently homogeneous neighborhood can become a real community by allowing small, appropriate businesses, **INDIVIDUALLY OWNED SHOPS**, to gradually replace regional destination shopping centers (**MAINSTREETS**). The tax money from this growth can be used to make possible the creation of civic buildings such as community libraries, parks and gardens as well as the upgrading of local infrastructure.

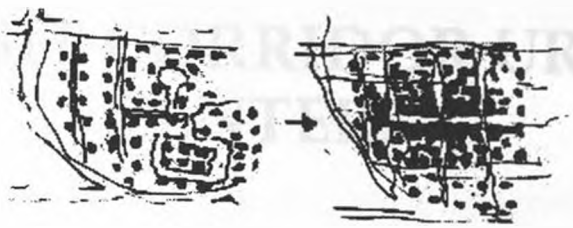
The city of Smyrna, Georgia has implemented a program which offers incentives to businesses and residences by deferring design development, plan review, and building permit fees, as well as water/sewer use charges and occupational taxes. *The intent of the ordinance is to achieve quality-controlled growth, retention, redevelopment and rehabilitation of targeted businesses and residential areas* (pp. 42-43 *Urban is In : Mayors Forum on Public Policy, Urban Land, July 1998)* .

By allowing people to gradually develop a gradient of new residential, commercial, and mixed-use construction towards **TRANSIT CORRIDOR URBAN CENTERS**, new growth can help reduce the need for automobile transportation to jobs outside of the community as well as provide new housing for the growing population by creating a housing stock of **DIFFERENT-SIZE HOMES**, by building **HOUSES IN-BETWEEN LOTS**. and **COURTYARD HOUSES**.

Therefore:

Encourage and create new workplaces, residences, and civic places which strengthen the center of the community by building and renovating existing suburban communities so a gradient of density develops from the most intense area at the center of the community to the least dense areas on the fringes of the community.

new homes



new civic places

overlay network of new goods and services

taxes for local community improvement

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...Allow the gradient of redevelopment to be developed by building **DIFFERENT-SIZE HOMES** to support a diversity of households with different needs and income levels. Generate new businesses by building **FRONT YARD OFFICES**. Create a boundary of open space around the gradients of density: **NETWORK OF OPEN SPACE**.

TRANSIT CORRIDOR URBAN CENTERS

within each **FREE-STANDING COMMUNITY** create a central core of high density which has a hub of public transportation...

♻ ♻ ♻

Mass transit stops need to be at the center of activity.

The **DRCOG** (Denver Regional Council of Governments) **MetroVision 2020 plan** seeks to create new urban centers akin to the Downtown Denver Central Business District, which will have a *higher density than the regional average* and provide *mixed use locations of high intensity, providing a range of retail, business, civic, cultural, and residential opportunities* (MV Executive Summary). These urban centers will *serve as focal points for social, business, and community activity, while enabling transit to better serve the community* (MV Executive Summary).

Currently, many people commute from home via automobile to their workplace, which destroys the social and ecological environment; this is argued in **FREE-STANDING COMMUNITIES**. In order to reduce daily VMT, which is increasing faster than the population, it is essential to direct transportation and redevelopment strategies at altering the amount of transportation required on a daily basis, which is partially achieved through the creation of **FREE-STANDING COMMUNITIES**, as well as accommodating for convenient transit without the automobile.

While the necessity of automobile transit will be reduced to varying degrees depending on the number of jobs available within single communities, daily commutes outside of communities will inevitably continue to occur. In order to facilitate this transport without automobiles, it is essential to provide an efficient system of moving many people quickly between home and workplaces, from one urban center to the next, and then home again. If these centers, are within walking distance of the homes on the outer edge of the community, then people working in this center can access their own community easily without use of the car.

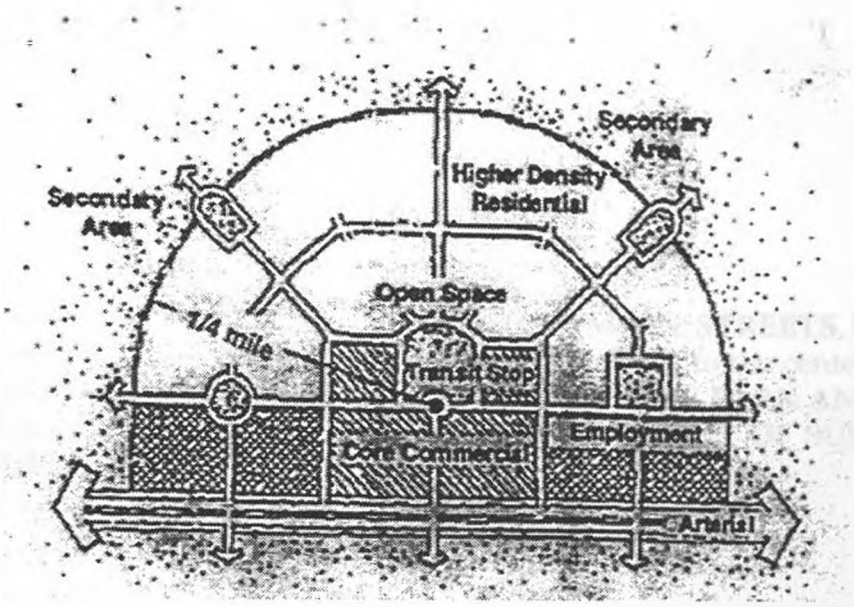

Diagram above from Eugene, Oregon, where they are using this pattern (calling it *nodal development*) for the development of a new community as well as retrofitting an existing neighborhood.

From this central point, efficient mass transportation stops should develop which are connected to other urban centers. This makes commuting from urban center to another possible in a rapid, efficient, and environmentally reparative manner (**MULTIMODAL TRANSPORTATION NETWORK**). Transportation within the community into the center of high commercial and civic intensity can be accomplished on foot or by bicycle.

Therefore:

Develop urban centers at roughly intervals of twenty minutes walking distance at which major rapid mass transit hubs are located which connect to other centers.

♣ ♣ ♣

The urban center can be organized along a street; **MAIN STREETS**. Make sure each urban center allows people to walk or ride bicycles to the center and then use mass transit to access the rest of the city **SOLAR BIKE PARK AND RIDE**. develop the surrounding density by allowing a **GRADIENT OF SUBURBAN REDEVELOPMENT** to emerge over time.

DIFFERENT SIZE HOMES

Mike Whitcomb of A.R. Monaco and Associates measures a window frame on a duplex being built in the 200 block of South Lafayette Street in Denver. The property was purchased for $220,000 and the existing structure razed. The developer plans to sell the 2,000-square-foot units for $380,000 each.

REMODELING DENVER

SPECIAL REPORT

Renovation fever sweeps metro area

- New money reshapes old neighborhoods. 4A
- Home Front's remodeling issue. 1F
- Refinancing at record $53.8 billion in 1998. 1G

. . . This pattern helps to create the **GRADIENT OF SUBURBAN REDEVELOPMENT** within the **URBAN GROWTH BOUNDARY** for existing suburban communities. Neighborhood densification can help define a center of each community, **TRANSIT CORRIDOR URBAN CENTER.** These new communities need to support a diverse population...

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People are different.

The vast majority of new housing is in the form of single family detached housing, which does not meet the needs of the changing demographics along the Front Range, which points toward an increasing number of smaller households.

This growing need for different types of housing within existing neighborhoods requires the development of new housing types and locations which respond to the changing demographics as well as income levels.

The median effective (after tax) household buying income in Denver in 1995 was $37,009. The median price of an existing single-family home sold in the Denver metro area in 1997 was $157,394. For the first quarter of 1997, the average monthly rent for a two-bedroom, one bath apartment was $711 (**Denver Chamber of Commerce**). Former Denver Governor Roy Romer believes there *is a crisis occurring in this state because of a lack of affordable housing.* He notes Colorado is the fifth-fastest growing state in the nation, yet only a sixty four percent of the state's population owns homes compared to the national average of sixty-six percent.

An Story in the Denver Post from Sunday, August 2nd 1998, *Cost of Being Poor Rising,* found lower income people were being overcharged for appliance rentals, car and bank loans, and phone connections. State consumer council Diane Callahan feels they were taken advantage of because they had an immediate need yet did not have the credit nor the knowledge of other more wealthy consumers to avoid these situations. In a similar manner, lower income households are taken advantage of by rental housing.

For example, In the North Lincoln Park project near West Colfax and Speer Boulevard, 206 units of housing were built at a cost of $14.5 million dollars by HUD as transitional housing: *The emphasis here is on self sufficiency. We want them to move up and out within five years,* said Ron St. Clair, construction manager for the Denver Housing Authority and supervisor of the project. There are three obvious misconceptions which this government supported housing strategy illustrates:

First, money wasted on rental property could go towards an

investment in home ownership:

"All I want is for my kids to grow up in a better environment," says Sherl Hay, who lives in the North Lincoln Project. The Hays, Sherl and Steve, pay $480 dollars and month for rent. Take this amount of money for the five years they would be allowed to live in North Lincoln Park, and it cost them $28,800 and five years of their life in a neighborhood the government *ensures* will be transitional. This money could be invested in a smaller home, on a smaller lot, as in argued in **HOUSE IN-BETWEEN LOTS**. These people could then have a home in a permanent setting, and if they chose to move after that time, they could at least recoup the value of their home in a sale, not to mention the possibility of preserving the social relationships they have developed over the past five years with people who live in a permanent, established neighborhood.

Secondly, making a transitional rental housing project does nothing for the long term value of the neighborhood in which it sits:

No one wants a low-income project in their neighborhood, they know the people will be transitional (especially if the government forces tenants to move out, as is the case at North Lincoln). These places are not thought of as homes and neighborhoods to be nurtured and cared for, with neighbors to be met, long term friends to be made, community associations and groups to be formed, a sense of community developed. In essence people living in these projects not only gain no financial or long term social reward with property ownership from their investment in temporary housing, they are also discouraged from forming any relationship with their neighbors, discouraged from investing in their community due to the transitional nature of the project.

Thirdly, the renters at projects such as North Lincoln Park have to leave within five years or they have to go back to the older projects.

While the goal of assisting lower income households to save up money, find better jobs and move to more affluent neighborhoods appears on the surface beneficial, the government could have assisted these same people in buying a real home with the $14.5 million dollars it spent on the transitional project. The only problem with this is that, as Rep. David Skaggs points out in an article from the Rocky Mountain News *Housing Cash on the Way* pp. 1B, 8-25-98) *The strong economy has raised the bar by raising home prices, which shoves a lot of people out of the market..*

What is needed then, it seems, is a way to provide affordable housing in a situation where people can make an investment, both economic and social, into a home and permanent neighborhood. Only existing neighborhoods could begin to provide these people with places to live, mixed

in with more expensive, larger homes, so that these people who are trying hard to make a living and live in a real neighborhood, are able to do so.

Many people want their own place, where their economic and social investments result in real economic and long term social value. Lower income households deserve the right to live a permanent neighborhood. If the **URBAN GROWTH BOUNDARY** is to be maintained, housing for the increasing population of Colorado will have to be provided by existing neighborhoods in a way which is fair to all.

Most existing neighborhoods are developed so to provide the same size homes, catering to a people of similar incomes. These neighborhoods are based on economic class. If you don't make enough money, you can't live in the neighborhood. This prevents anyone below a certain income level from living there. This is common practice but obviously discriminatory. Architect Denise Scott Brown has a similar critique of large zoned suburban areas. *I've watched people criticize my country,* says Brown, originally from South Africa, *while living in 4-acre zoned areas, which is one of America's prime means of established apartheid, and not see the irony.*

In order to establish housing which accommodates different size households with different income levels, homes of different sizes and costs are needed within existing neighborhoods, built in a way which enhances the quality and character of existing neighborhoods while diversifying the economic classes represented in each neighborhood.

Aid in financing for home loans is available from the Fannie Mae Association, under a program called **House Colorado** which pioneering a program to help people afford homes of their own with a variety of programs. What is important is that people are able to purchase homes and not rent them, regardless of their income level.

A few potential examples of housing include:
1) Mixed use dwellings (flats above a store)
2) Apartment over a garage
3) Dividing up an single family home
4) Smaller **HOUSES IN BETWEEN LOTS.**
5) Addition to a house

Therefore:

Build homes of a wide range of sizes and costs within existing neighborhoods to accommodate single people, groups of families, single parents with children as well as "traditional" families. Allow the savings of not developing new infrastructure to be transferred to the new homebuyer, so lower income households can afford to invest in home ownership, instead of spending money on a rental.

different households

apartments, flats
detached homes,
shared amenities

wide range of prices

♣ ♣ ♣

. . . Accomplish the creation of different size homes within existing neighborhoods by encouraging small design build groups and contractors to build affordable, new, smaller housing within existing neighborhoods by subdividing lots into smaller lots: **HOUSE IN-BETWEEN LOTS**, maintain private outdoor spaces in denser residential development with a **COURTYARD HOUSE**. Maintain the character of existing neighborhoods while offering increased housing opportunities by building accessory units in back yards, **BACKYARD STUDIO**.

COURTYARD HOUSE

according to **DIFFERENT-SIZE HOMES** people need many housing options at different costs and densities. One solution to dense housing which provides privacy is a house built around a courtyard...

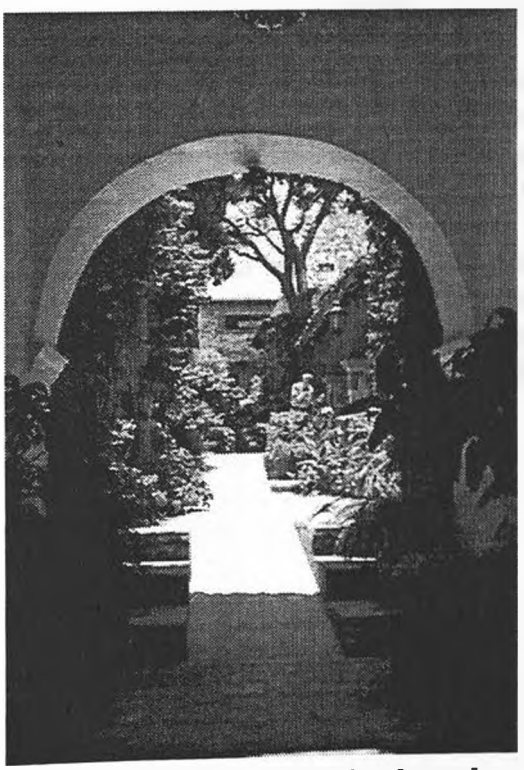
♣ ♣ ♣

To truly make a beautiful outdoor space, you have to use the building.

Most of the year can be enjoyed outside in Colorado, yet in the suburbs, the pattern of surrounding the house with a garden does is not as private nor as temperate as a garden surrounded by a house.

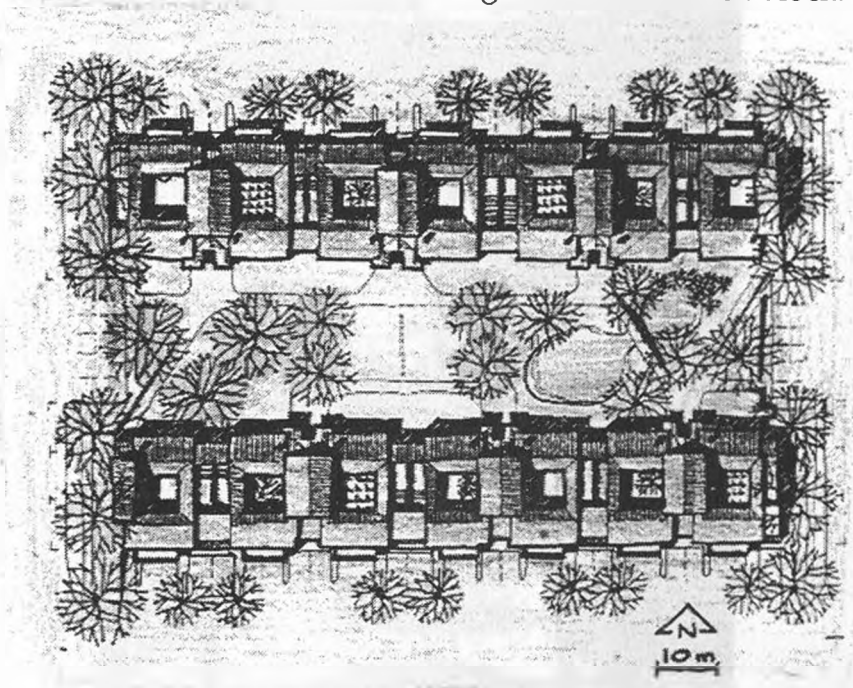
Most typical suburban homes have a lot of wasted space between them, areas which are either neglected or landscaped. Either no windows exist in this space or the windows feel like uncomfortable peepholes into your neighbors home. The negative space between the majority of existing suburban homes is illustrated in **HOUSE IN-BETWEEN LOTS**.

Also, in order to increase density of housing while maintaining livable space and a high degree of privacy, both indoors and out, the house can be wrapped around a garden area to provide a more private outdoor space.



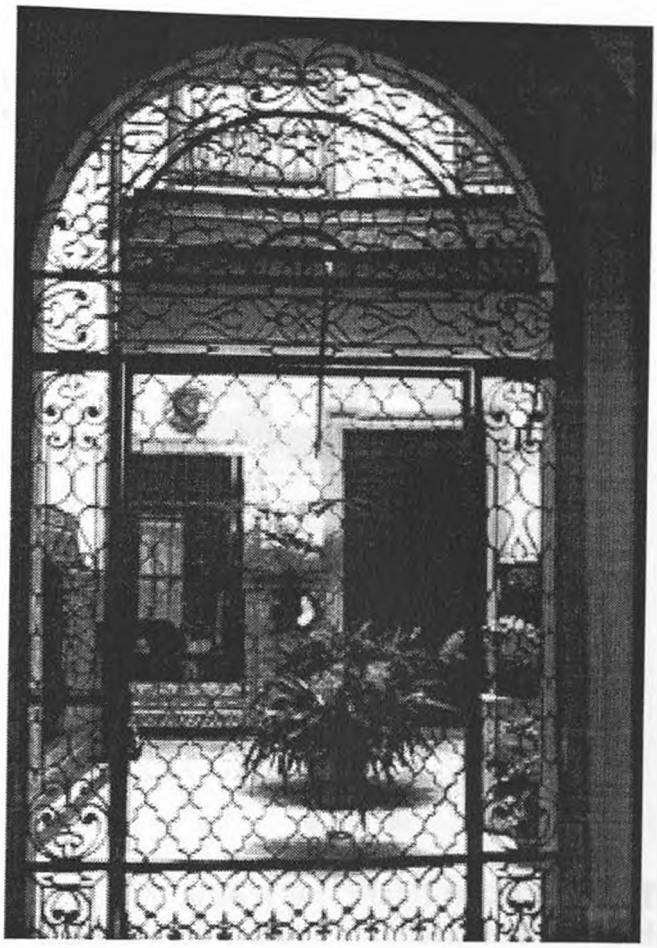
more private than a backyard

A plan of a hypothetical residential block of courtyard houses by John Reynolds, professor of architecture at the University of Oregon is shown below (pp. 123-137). The design illustrates a shared parkspace in the center of the block, in addition to the private courtyards for each individual house. Parking is in front of each home, and along the sides of each block.



houses share walls

In Europe, the middle east, Mexico and China a home which surrounds a garden, or courtyard house, has been in use for centuries. An outdoor patio in the middle of the house creates a cool oasis during the summer, shaded by the building around it, with the soft rustling of leaves from a tree, the soft trickle of a fountain, **ROOM WITH A FOUNTAIN.** Visually, the courtyard is not invaded by a neighbors house or yard. In Cordoba, Spain, the courtyard opens to the street via an arched passageway, called the zaguan. The zaguan has both cast iron gates and heavy solid doors which allow the homeowner to close off the courtyard from the street for security as well as complete privacy.



gate and door for complete security and privacy

With proper size and location, (**SOUTH ORIENTATION**) courtyards can offer sunny spaces in winter as well as shady, cool places in the summer. A cross section of this Chinese courtyard house below illustrates how the sun hits the house in the winter for heating, **SOLAR WINDOWS**.

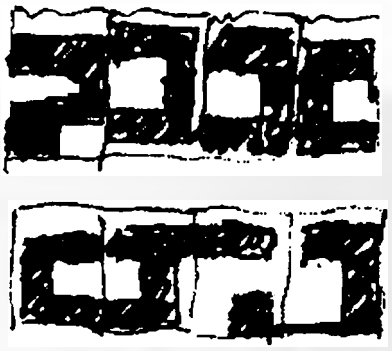
An easy way to check for how much sun will hit the courtyard and the windows of the house during different parts of the year, build a small, rough model of the house,with only the mass of the house and the location of the openings. It can be attached it to a **40 degrees latitude sun-angle peg chart**, to quickly check the amount of sun at different times of the year by tilting the model in the light, locating the peg with the proper month on the chart.

Courtyard houses can share walls (called party walls) if they are of masonry construction. This creates both a soundproof and fireproof wall. By sharing walls, courtyard homes can be built in denser configurations than typical single family detached housing and offer superior privacy as well as beautiful private courtyards.

Therefore:

Arrange the house around a courtyard as the central outdoor living space. Make sure some places are shaded during the summer, and some places get sun in the winter.

shared walls



wrap the house around a garden

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Locate and shape the building so it has **SOUTH ORIENTATION**, making sure there are enough windows facing south to heat the house during the winter, **SOLAR WINDOWS**. Make many entrances into the courtyard from the house and create a view out of the courtyard into the street or alley as is explained in **COURTYARDS WHICH LIVE (APL)**. Make a part of the courtyard a **SUNNY PLACE (APL)** and use a **ROOM WITH A FOUNTAIN** to help cool the courtyard in the summer. Use **CROSS BREEZE WINDOWS** to use the cooler air in the courtyard to cool the house in the summer and **LOW-WATER PLANTS** to conserve water.

HOUSE IN-BETWEEN LOTS

. . . This pattern helps to create **DIFFERENT-SIZE HOMES** to diversify suburban neighborhoods and provides the opportunity to establish a **HOUSEHOLD MIX (CES35)**. It helps to accomplish **SITE REPAIR** on a suburban lot and can begin to form a **HOUSE CLUSTER (CES37)**. This pattern helps provide new housing within the **URBAN GROWTH BOUNDARY** helping to create a **GRADIENT OF SUBURBAN REDEVELOPMENT** within a single neighborhood.

♣ ♣ ♣

A great deal of dead, unused space exists in-between lots of existing suburban homes along the Front Range.

A growing need for housing along the Front Range requires the development of new housing types and locations inside existing neighborhoods. The creation of an **URBAN GROWTH BOUNDARY** inevitably will exacerbate this problem.

Second, we know from **SITE REPAIR**, that in order to make any building, neighborhood the most beautiful and alive, the buildings should be built on the parts of land in the worst condition and not the best, so as to leave the most beautiful, healthy parts of the land in tact. Therefore, it is essential to identify areas which are the least pleasant, least healthy, and least desirable to be in without a building and build new places to live on them which makes these areas beautiful and alive.

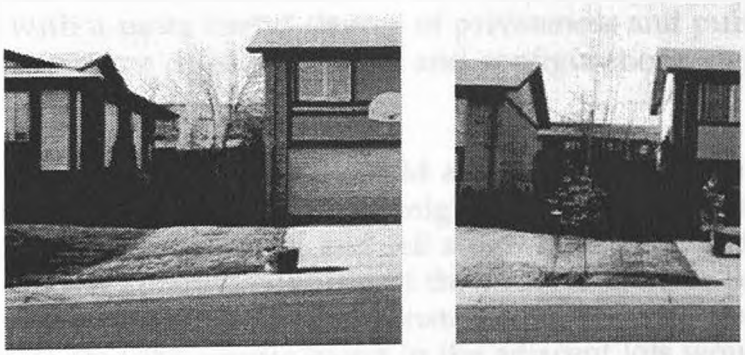
On the regional scale, in order to create and preserve a **NETWORK OF OPEN SPACE**, the location of new housing type needs to be integrated into existing neighborhoods without occupying increasingly valuable areas of open space still remaining within the growth boundary which can be used by the public. The increasing value of land and discriminates against households without home ownership or large incomes. These groups will have to pay increasingly higher rent while facing higher home prices, making the dream of home ownership even more distant.

This has already happened in Boulder, where an **URBAN GROWTH BOUNDARY** has raised the average home price to $240,000. The average home price in the Denver Metro area is already over $200,000, and public housing projects can never seem to keep up with the demand. Private projects favor the upper end of the market for higher profits and less resistance from local neighborhood groups. Also, the demographics of the Front Range has also show a trend toward smaller households; the proportion of couples, single parents with children, or several roommates is growing with respect to the number of nuclear families for which suburban homes are designed.

What is needed then, is new, narrower lots in-between existing lots which are less expensive, proportionally smaller and ideal for houses for smaller households. The typical suburban configuration of creating unusable space on the sides of the suburban house not only generates unnecessary additional cost to the homeowner, but has spread out development even further than if the houses were touching each other. New homebuyers should note how little space there actually is between the houses, sometimes as little as ten to twelve feet. This space never seems to have the intended effect, which is to create privacy and individuality between the adjacent homes.

The windows on the sides of houses, built so close to each other, *are not essential and are little more than embarrassing peepholes and acoustic leaks* (pp. 126,).

Because of this, the spaces are usually landscaped with rocks or trees in order to block the neighbors view into the yard or house through windows.



unused space in-between homes

The only other argument for distance between houses for fire gaps is irrelevant, since greater safety can be achieved through use of fire resistant building materials which also typically transmit less sound.

Likewise the area in front of the house and the back are not used to their potential because the front yard is too formal and connected with the public, and the back yard is too disconnected from the opportunity to see a neighbor pass by or to stop and relax in informally before entering the house. This argument is made more extensively in **HALF-HIDDEN GARDEN (111CES)**.

Unused front, side and backyards

By creating new, small lots and houses in-between existing lots, in between existing homes, located anywhere from the back of the lot, perhaps on the alley to the middle, to the front of the street itself actually creates outdoor areas with a more useful degree of privateness and publicness. These new houses can assume different shapes and configurations, depending on the specific situation.

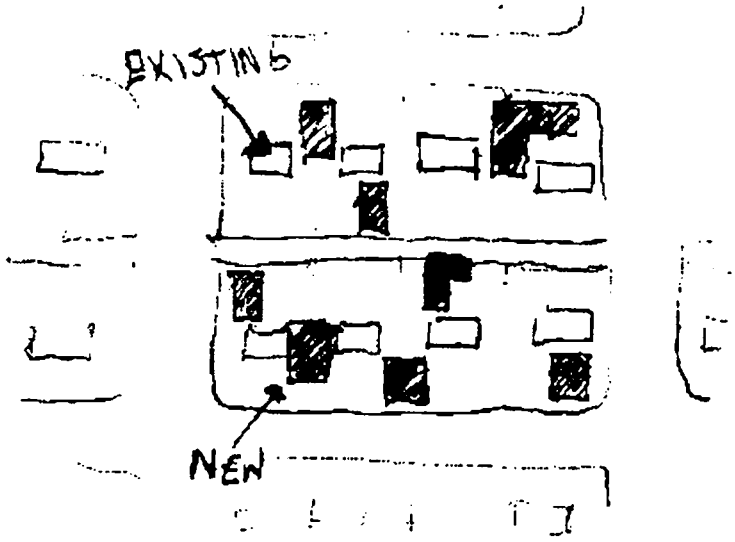
Two neighbors may choose to build a new house between their homes, and then sell it jointly, or one neighbor might purchase a portion of his neighbors lot in order to construct and sell a new house. Or, both neighbors could simply sell the adjacent portions of their lots to another person or group of people for development and construction (It would make sense, in any of these cases that the people living in the adjacent lots would want to be involved with the design and construction so as to preserve and enhance their own properties simultaneously).

Local governments should subsidize the cost of utilities hookups. New homes could also borrow utilities from an adjacent lot, with separate meters.

Therefore:

Fill in the unused "gaps" between suburban homes with new houses that occupy the land on two adjacent lots. Change zoning and building codes to support small-scale additions to neighborhoods through the creation of new, smaller houses in-between existing lots, as it becomes necessary.

subdivide lots



new houses in between

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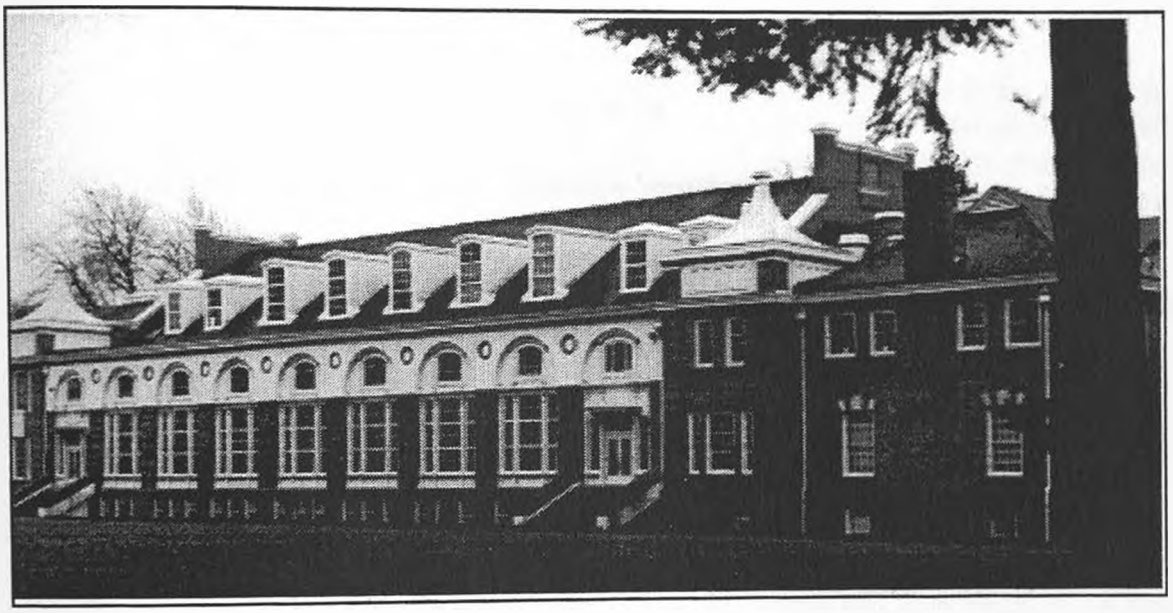
New buildings should not exceed the **FOUR STORY LIMIT (CES)** and will likely be lower due to **NUMBER OF STORIES (CES96)**. They can be developed as **ROOMS TO RENT (CES)**, **A HOUSE FOR A SMALL FAMILY (CES76)**, **HOUSE FOR A COUPLE (CES)**, **HOUSE FOR ONE PERSON (CES78)** Give this new house a **SOLAR-ANGLE ROOF** with solar panels to generate electricity. **ROOF GARDEN** if there is no place for a garden on the ground. Depending on their size; the new dwellings can be mixed use and include or be a part of a **FRONT-YARD OFFICE** or **BACKYARD STUDIO** to reduce new or existing residents total transportation energy and fossil fuel consumption to and from work. Use the new houses to form **POSITIVE OUTDOOR SPACE (CES)**, possibly in the form of a **COURTYARD HOUSE**. New buildings should include a **BICYCLE GARAGE** to support transportation and be a part of the **FAMILY OF ENTRANCES (CES102)**.

SOLAR ORIENTATION

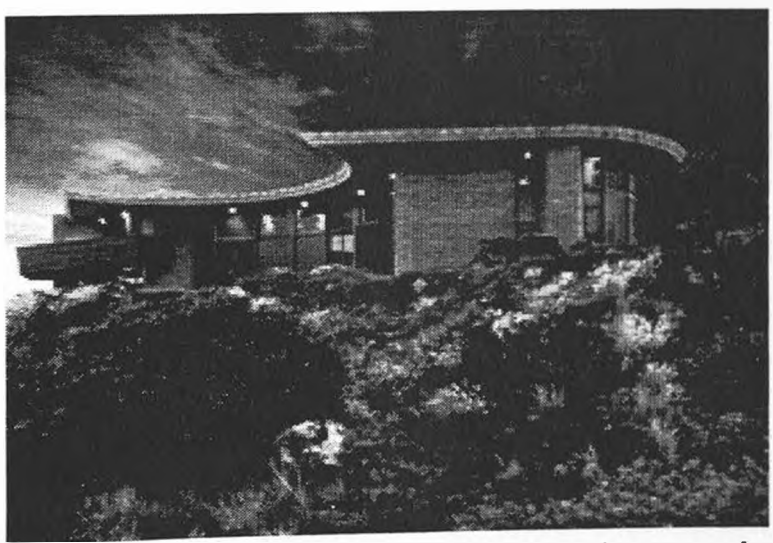


Along with **SITE REPAIR**, this pattern determines the best way to place a new building on the site. Use this pattern to equally distribute access to the sun for **DIFFERENT-SIZE HOMES**, regardless of their size or cost. This pattern also helps determine the careful placement of a **HOUSE IN-BETWEEN LOTS** and determines the form of a **COURTYARD HOUSE**. Locate every building on the site so to capture the sunlight for electricity, hot water, as well as indoor and outdoor warmth during the winter...

♻ ♻ ♻

South-facing buildings can reduce energy demands.

Because the majority of buildings now employ mechanical systems to heat and cool the building, the form of the building is rarely used as an energy saver. Heating and cooling with mechanical systems waste energy and cause pollution. In Colorado, we are lucky to have over 300 sunny days a year, and the sun's heat can be harnessed in the winter see **SOLAR WINDOWS**. Likewise, electricity can be generated year round by photovoltaic solar panels, **SOLAR ANGLE ROOF**. During the summer, if the building is thin enough, natural ventilation can be used to cool the building with **CROSS-BREEZE WINDOWS** in conjunction with **THERMAL MASS**, which also helps keep the building warmer in the winter.



Architect Frank Lloyd Wright oriented this home to the sun.

Each of these patterns depends on the orientation of the building according to the sun and wind. Because the Denver Metro area is North of the equator at roughly 40 degrees latitude, the sun stays to the South during the winter and only moves to the North of the building during the summer months in the morning and evening. In order to use the heat of the sun in the winter and open up the building to cool breezes in the summer, a building needs to be oriented with its long axis facing south; the building should be stretched out like a sail to take in sun, wind and light.

This also allows for cool places outdoors to the north of the building during the summer, and warm sunny places on the south side of the building in the summer. The building doesn't have to have as literal an orientation as either the image of the long rectangular gymnasium at the top of this page or the semi-circular *hemicycle* house by Frank Lloyd Wright. Energy savings only require each room to have adequate south facing glass (**SOLAR WINDOWS**), and be thin enough to use **CROSS BREEZE WINDOWS**. So long as these patterns are used, the building can be molded and shaped to fit the site, **SITE REPAIR**, and accommodate the needs of the individual rooms. The final shape needs only to be *roughly* oriented toward the sun and wind, enough to benefit from them.

Therefore:

Put the long axis of the building running east and west so that the long face of the building faces South to harness the power of the sun.

orient building
to the south

♻ ♻ ♻

Set the roof pitch to facilitate photovoltaics and solar-heated hot water panels: **SOLAR ANGLE ROOF**. Heat the house primarily with the sun via **SOLAR WINDOWS**. For cooling in the summer, use **CROSS-BREEZE WINDOWS** for natural ventilation and fresh, cool air, possibly cooled and humidified by a **ROOM WITH A FOUNTAIN**.

FRONT YARD OFFICE

According to the **GRADIENT OF SUBURBAN REDEVELOPMENT**, establish small new businesses in existing suburban neighborhoods...

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People want to work at home.

Small, efficient, individually owned businesses in live work scenarios will gradually replace many of the current workplaces. The model for business since the industrial revolution has been the machine: based on the economies of scale, consistency, division of labor, hierarchies and capital. However a new model is emerging, based on the biological organism: adaptation, continuous improvement,

Until recently, business people saw their worlds through the Industrial Age metaphor of the machine and built their organizations accordingly. Now in irreversibly increasing numbers, they see business more as a living system. And in the process they are leading business back to its roots as a natural and fundamentally human institution. pp. B1, New York Times Thomas Petzinger, Jr. *A New Model for the Nature of Business: Its Alive! Forget the Mechanical-Todays Leaders Embrace the Biological.*

People are realizing that work does not need to be uncomfortable or separate from their everyday lives. Denver Architect David Tryba, responsible for many historic renovations in Lo Do, recently bought and restored the Fisher Mansion at 1600 Logan Street as a office for his firm and home for his family (*pp. 19 Man With a Plan, Westword, February 19, 1999*). Due to corporate downsizing, small entrepreneurships are springing up everywhere, as Petzinger Jr. explains:

Just as all these downsized executives were thrown into their spare bedrooms to pioneer a new economy, an easy-to-use tool met them there, a back-office-in-a-box as well as a looking glass into the global economy. this explains how a punkadelic artist in Minneapolis known as Chank Diesel could go from homelessness to a Horatio Alger story by selling his font designs over the world wide web.

Or how *Jake Albright and his son-in-law Bill Dudleston, working from a garage next to an Illinois grain elevator, could sell their handmade speakers at $10,000 a pair to customers in Japan.*

The personal computer and the world wide web have made possible many such operations, and this trend continues. A conference in October at the University of Washington called *Seattle, City of Bits* which explored the transformation of the city by communications technology, pointed out

services which support these new home businesses powered by downsized executives also were needed (**GRADIENT OF SUBURBAN REDEVELOPMENT**):

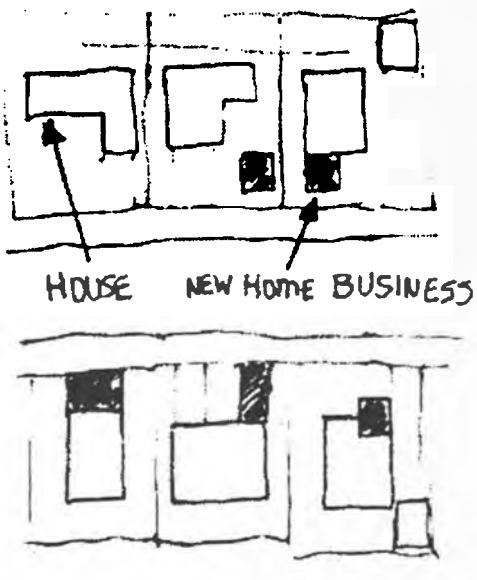
as more work is conducted in home offices, suburban neighborhoods are becoming repopulated during the day. Services that cannot be replaced by electronic equivalents, such as restaurants and health clubs, could be relocated from city centers to these live/work neighborhoods.

(pp. 52, Architects Path on Info Highway Charted at Seattle Conference, Architectural Record, November 1998. B.J. Novitski)

The development of these businesses and the services which support them within the neighborhoods creates a need for more space adjacent to the typical home. On a typical suburban lot, the public front to the street is most obvious place for a business to be located. Front yards are almost always wasted space (**HOUSE IN BETWEEN LOTS**), usually ornamental in an attempt to create greater privacy from the street with trees and foliage. This privacy function can easily be accomplished with a building or room which is intended to be more public, for work by the people who live in the home and maybe a small number of employees.

Therefore:

Provide space in every home for people to work. Build new offices in front yard, either attached or detached from the house.



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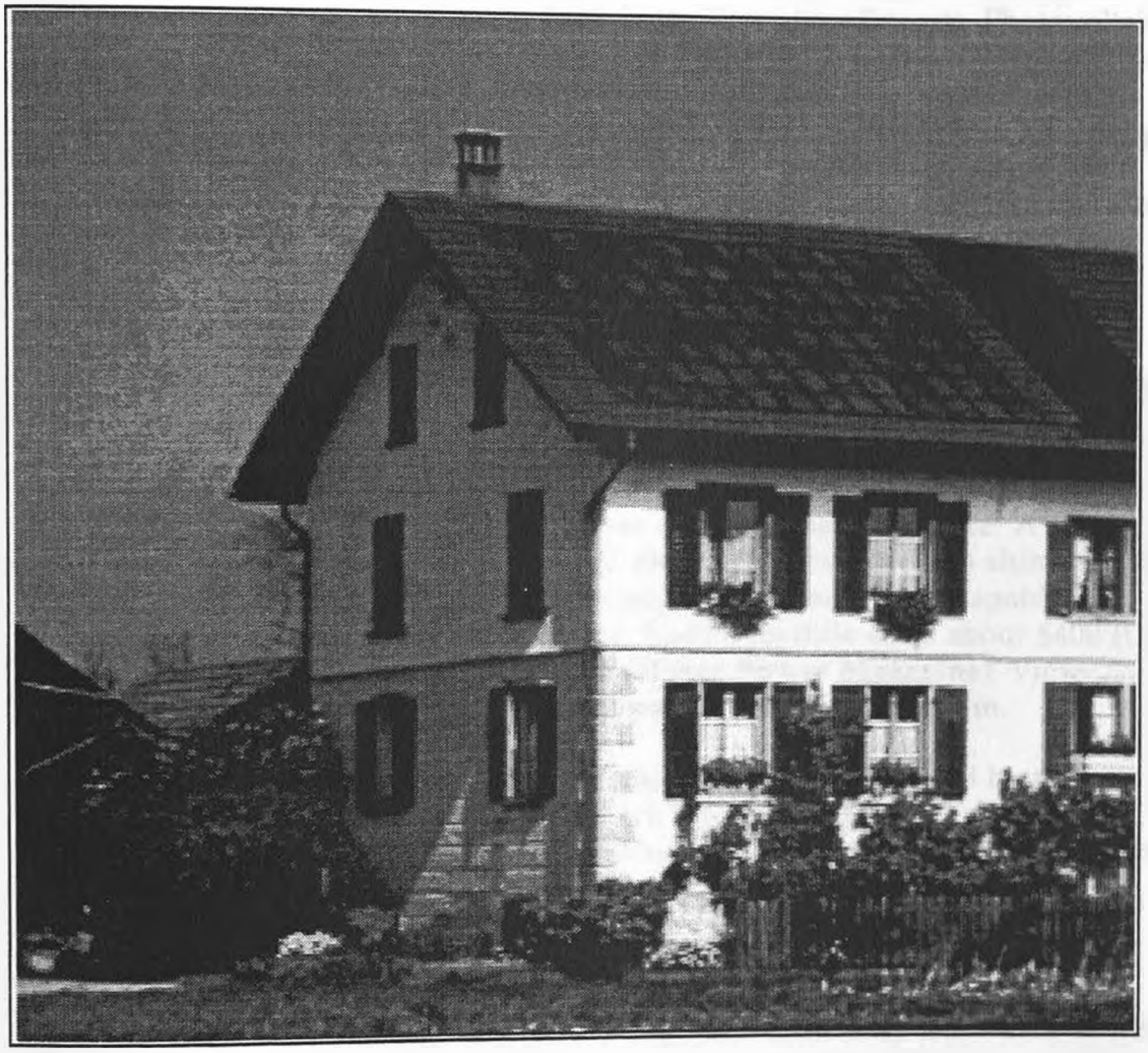
As with any addition, care must be taken to preserve the character of the existing neighborhood, in **NUMBER OF STORIES (CES 96)**, form, and location. Make sure the building improves the neighborhood and lot, **SITE REPAIR**, and give it **SOUTH ORIENTATION** to harness the power of the sun: Give each new office a **SOLAR ANGLE ROOF** to help supply clean efficient power to the building, and **SOLAR WINDOWS** to reduce the heating load in the winter. These can double as **CROSS BREEZE WINDOWS** for cooling in the summer. People commuting to these new businesses via bicycle or on foot need a facility to shower before work nearby, **SOLAR BATH HOUSE**.

SOLAR ANGLE ROOF



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Solar panels don't have to be ugly.

Colorado has over 300 sunny days a year, and enough radiation from the sun hits Colorado to provide 500 times the energy budget of the entire state (Mayor's Renewable Energy Task Force Executive Report). Photovoltaics, commonly called PV's or solar panels, generate electricity from the suns rays. While PVs have been around since the seventies, their use has not been widespread. This is perhaps due to the general lack of interest and knowledge about the systems as well as their initial costs. However, more people are learning about solar panels and they are becoming economically competitive with electricity offered by utilities generated from air-polluting coal-fired powerplants. Coal fired powerplants, which still provide more than 55 percent of the electricity generated in the United States, cause a third of nitrogen oxides and roughly two thirds of the sulfur dioxide produced each year. (Robert Cullen. 1993. The true cost of coal. *Atlantic Monthly* December: 38, 40, 48-50, 51.)

Photovoltaic (PV) modules convert sunlight into direct current (DC) electricity. A single PV module measures about one meter square. A single module produces about 75 Watts of DC electricity when the sun shines on it, and they can be wired together to form larger arrays which are capable of delivering thousands of Watts of power. Such a module costs about $400 (US) and has a lifetime of over twenty years. (**Home Power Magazine**). View Homepower Magazine's **diagram of a typical home power system.**

Trace Inverters, allow people to plug the power generated by their panels into any outlet and put power back into the grid (meter will run backwards if more power is being produced than being used). Check with your utility about selling power back, a process called net metering.

Currently, net metering is offered by Public Service Co. of Colorado, giving consumers to become producers by selling excess power back to the utility to reduce air pollution by producing clean electricity from their home. To find out about Public Service's net metering program call **(303) 783-3899** in the Denver Metro area or toll-free outside of the metro area **(877) 783-3899**. They also offer the free *Consumers Guide to Buying a Solar Electric System.*

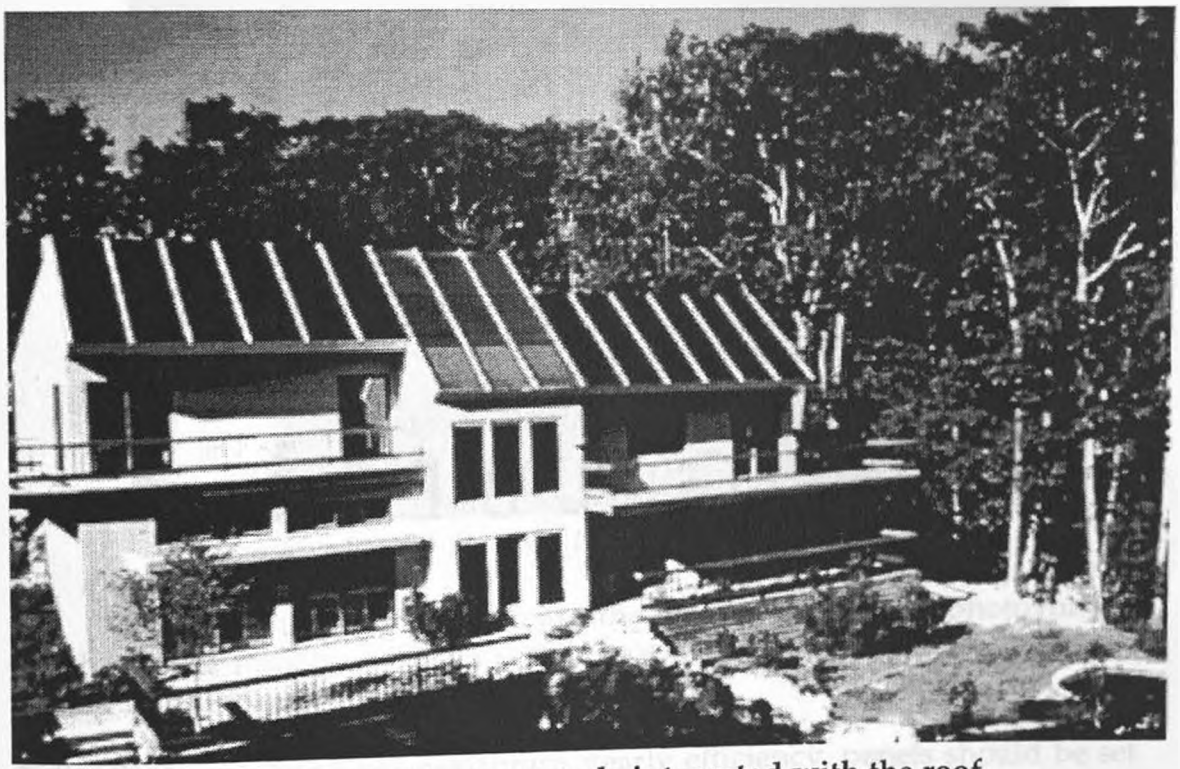
Several power outages this summer indicate a growing energy demand along the Front Range due to homes which require air conditioning during hot times. At these times, PV panels make excellent sense (as well as cents):

"In many climates, photovoltaics provide the greatest amount of

electricity just when it is needed most-on summer afternoons when air conditioners are going full blast. this 'peak shaving' capability of solar electricity greatly increases its value compared with a centralized power station'" (pp. 8 *Solutions to Global Warming* Atmosphere Alliance Special Report, email: atmosphere@olywa.net)

The only barriers to installing solar panels have been their initial investment costs and a lack of information about the advantages. Coloradans should consider not only the long term economic benefits of not having to pay for electricity from the utility, but also the ecological benefits of reducing air pollution by installing PV panels on their home.

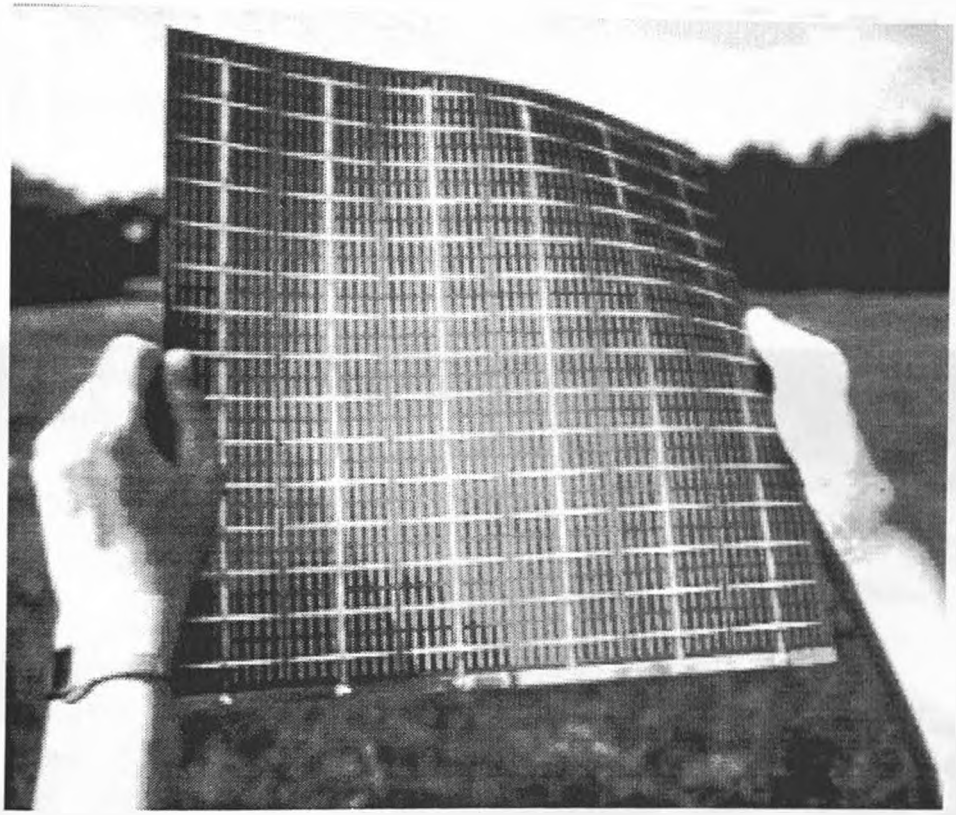
Solar water heaters can also be used to heat water for domestic use, and require the same orientation as photovoltaics. The home in the photo below has both photovoltaics as well as hot water panels, which are integrated into the roof of the whole house:



PV's and hot water panels integrated with the roof

Roofs are the best place for panels, they are higher and less likely to be shaded by buildings or in the way of harm in a yard.

PV's come in several varieties, both typical panels (shown in the above photo as well as the photo of the Swiss home at the top of this page), and thin film amorphous solar roofing, a flexible thin sheet which can cover any roof (see below.)

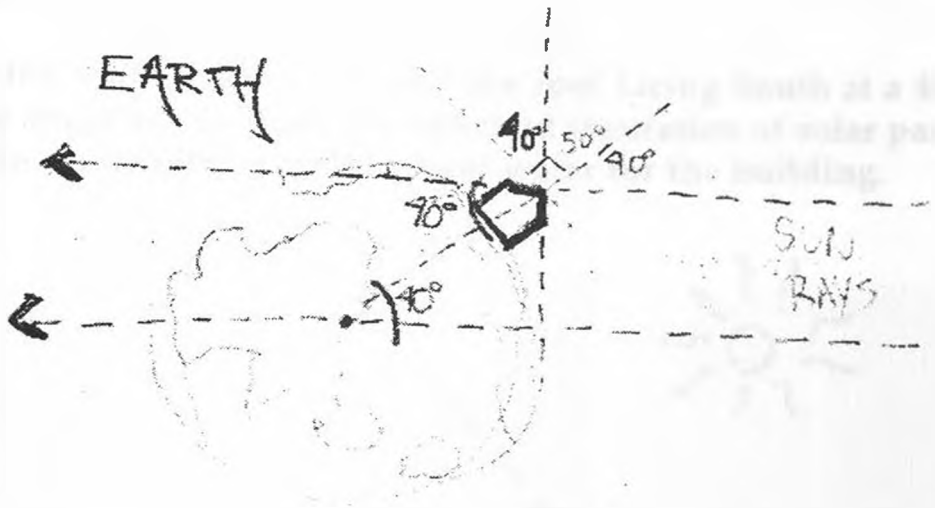


flexible PV sheathing

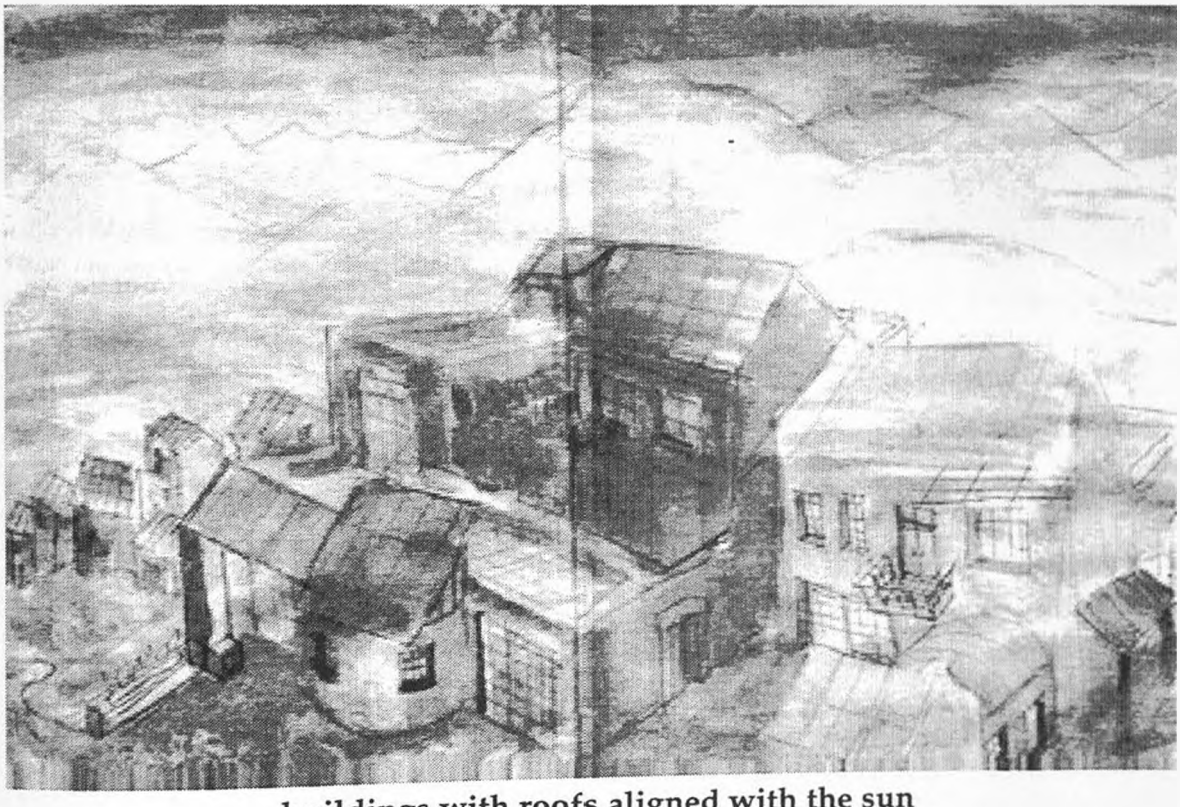
Therefore, in order to facilitate the ideal orientation of photovoltaics and hot water panels, at least a certain portion of the roofs of new buildings should be made with respect to two things:

1) South Orientation : For maximum yearly efficiency, panels should be set facing due South.

2) 40 degree tilt for the Denver Metropolitan area. Putting the panels at 40 degrees maximizes the power generation over the course of the year. If more power is used during the summer, use less tilt (not below 16.5 degrees), if the building uses more energy in the winter, greater tilt (not to exceed 63.5 degrees).



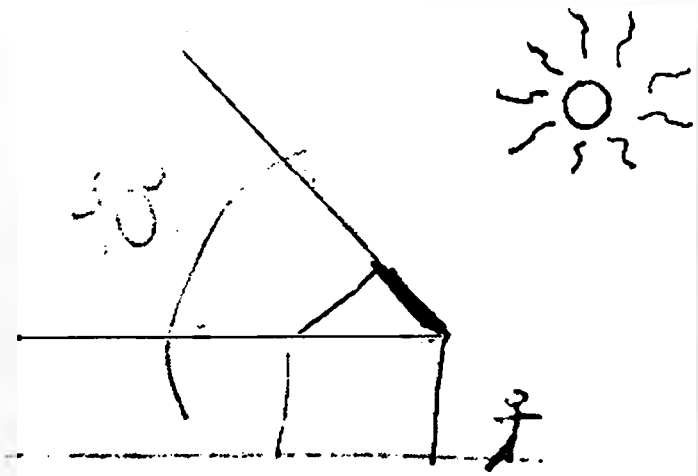
geometric explanation of roof angle at the equinox



buildings with roofs aligned with the sun

Therefore:

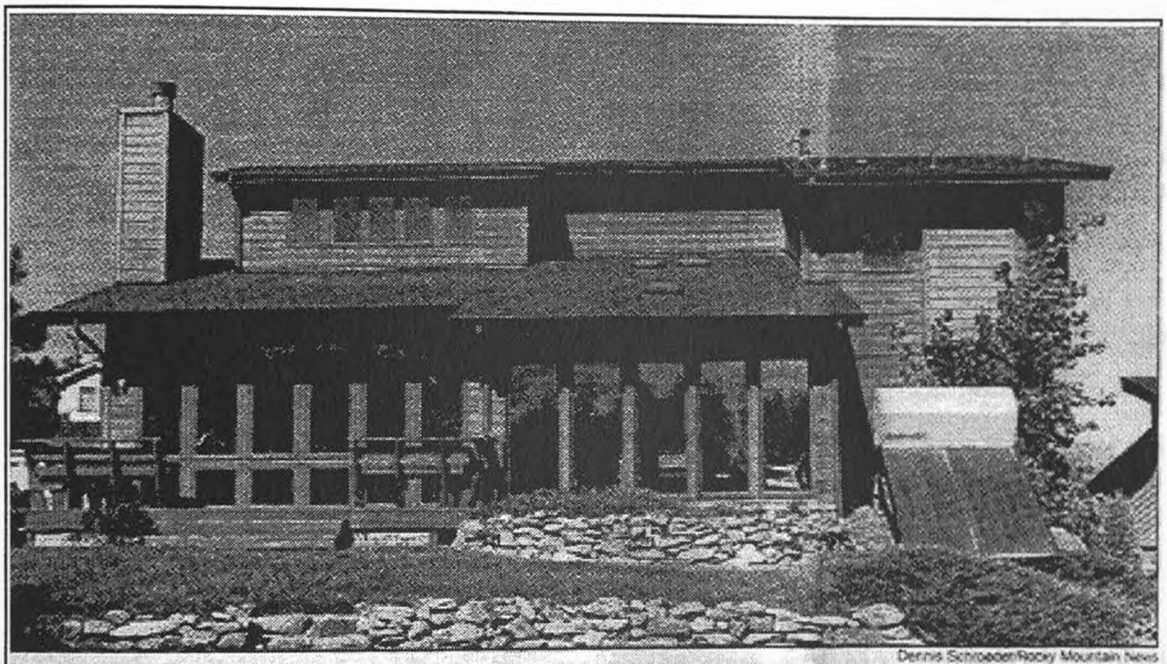
Make the main area of the roof the roof facing South at a 40 degree angle to facilitate the efficient insulation of solar panels to provide electricity as well as heat water for the building.



roof facing south at about 40 degrees

♻ ♻ ♻

SOLAR WINDOWS



Dennis Schroeder/Rocky Mountain News

Passive and active solar features abound on the Golden home of Grace Gruga and Steve Sargent.

This pattern describes the heating of a building with **SOUTH ORIENTATION** in the winter by the sun...

♣ ♣ ♣

Placing a window is placing the flow of energy in the house.

The heating bill for Craig Christensen's house in Golden, Colorado (above photo) is sometimes as low as 75 cents during the winter thanks to his south facing windows which capture the warmth of the sun for heat in the winter. Christensen explains the concept behind solar windows: "The general rule of thumb is that a passive solar home will collect and retain enough heat from the sun (in a day) to keep the furnace from coming on during the day and the night in the winter."

(pp. 18D Let the Sun Shine In: Solar Energy Can Keep Heating Bills to Pennies a Year, Rocky Mountain News, Saturday, October 18, 1997)

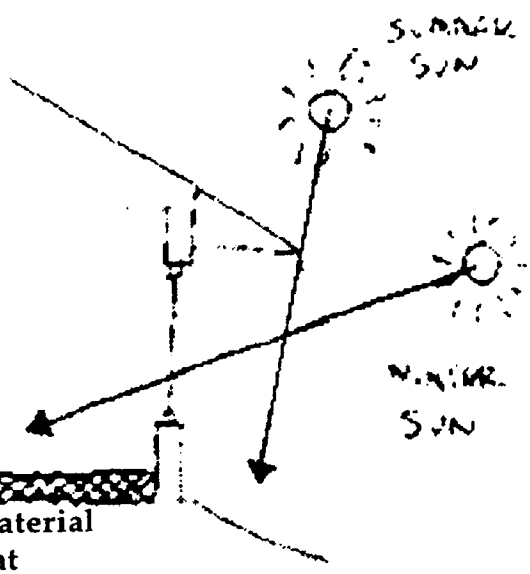
The size and location of a solar window determines how much energy comes in during the day, and therefore how much heat is generated. We know from **SOUTH ORIENTATION** that the building should be oriented so that the long axis of the building runs east and west, providing the rooms with south facing openings for light and winter heat. A solar window is located on the south side of the building, or at most fifteen degrees to the southeast or southwest. Heat obviously also comes from windows to the east and west, however it is very difficult to control during the summer due to the low altitude angle at which it has during the morning and afternoon. It is much more practical to harness the warmth of the sun using windows on the south of a building.

The size of the window can be determined by how much floor area the window is being used to heat. If the room becomes to hot during the day, either the window is too large or not enough massive material is exposed to absorb the extra heat for the night time (a brick fireplace or a tile floor over a concrete floor are examples of massive materials which can store heat, see **THERMAL MASS**). For the Denver Metro area, use .1 to .3 square feet of glass for every one square foot of floor area. If you live in the mountains or somewhere else in Colorado, use pp. 122 of The Passive Solar Energy Book - A Complete Guide to the Passive Solar Home Greenhouse and Building Design. Mazria, Edward. Rodale Press Emmaus, Pennsylvania 1979 to determine the ratio of south facing glass to floor area. For this you will need the average winter outdoor temperature, with **your own locations climate data for Colorado.**

Therefore:

Use between .1 to .3 square feet of south-facing glass for every one square foot of floor area. Also, make sure to provide operable or removable shades on the outside of the building for the windows so the building doesn't overheat in the summer.

south facing windows



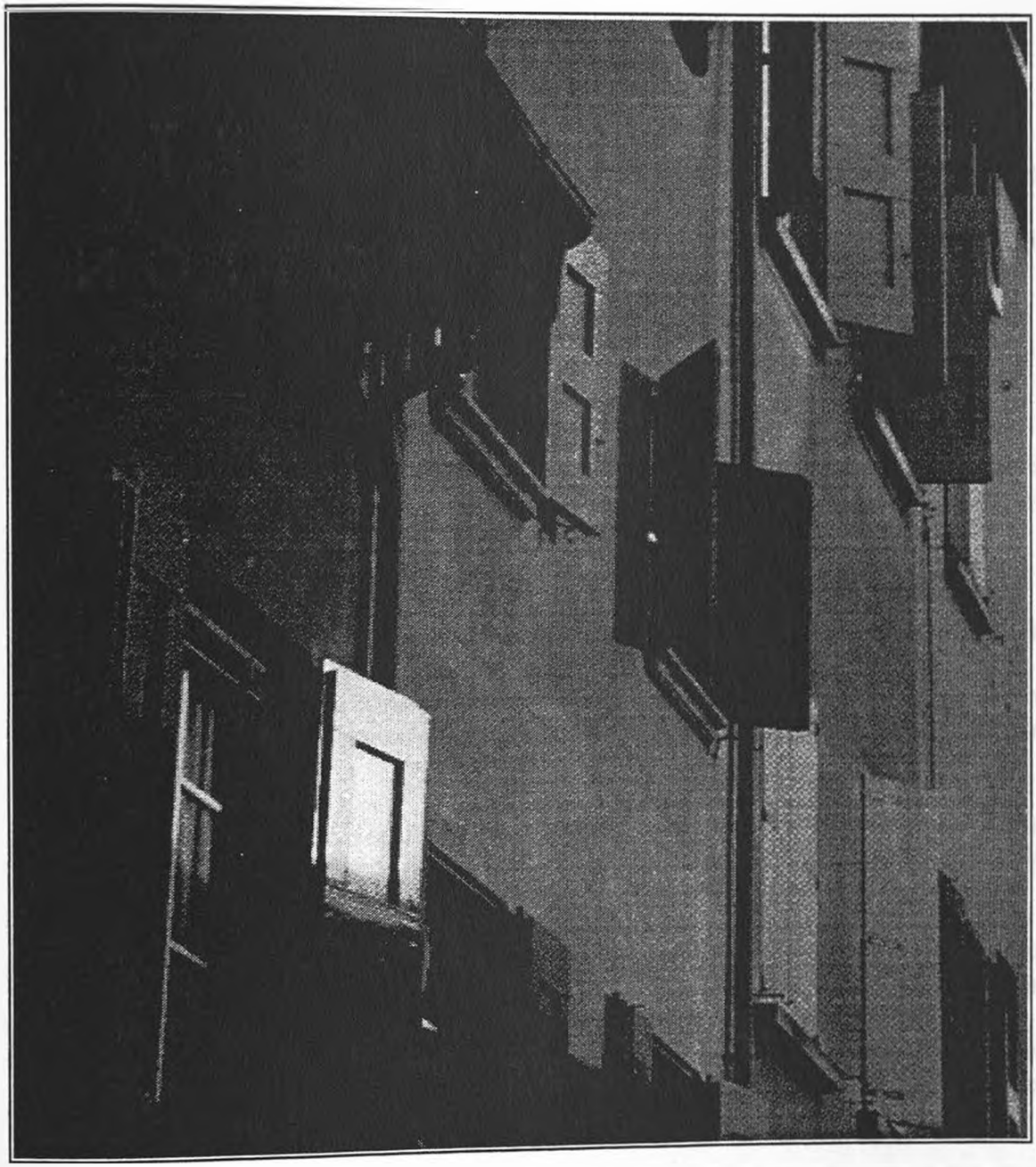
massive material to store heat

shade window in summer

♣ ♣ ♣

Make the windows operable so the same windows that heat the building in the winter can also cool it in the summer, **CROSS-BREEZE WINDOWS.**

CROSS BREEZE WINDOWS



In **COURTYARD HOUSES** and **LONG THIN HOUSES**, use windows for ventilation in order to reduce the need for mechanical air-conditioning.

♻ ♻ ♻

Mechanical air conditioning is expensive, unhealthy, and uses massive amounts of electricity.

There are three major arguments for this pattern. First, mechanical air conditioning is an added cost to a building and the environment which is unnecessary if adequate cooling of the building can be accomplished through non-mechanical means. Second, forced air systems easily accumulate dust and can become unhealthy for the building's inhabitants (pp. 61-65 The Natural House Book). Third, the psychological cooling effect of fresh air blowing through a room is always more soothing than the stuffy conditioned air from machines.

Air-conditioners are expensive to operate and use massive amounts of electricity. The Denver Metropolitan area experienced several power outages this previous summer (1998) due to heavy air conditioning use during several days of high temperatures. Electricity comes largely from coal-fired power plants, such as Public Service Co.'s Cherokee power plant in Adams County, which are major causes of air pollution (**SOLAR ANGLE ROOF**). The initial cost of mechanical systems which will inevitably break down combined with the long term costs to the air quality from heavy electricity use on the regional scale suggest cross ventilation has long term economic as well as ecological value.

Cross ventilation requires windows on opposite sides of a room. Air is drawn in from the outside by breezes which pass through the room and help cool it during the hot summer months. Casement windows are the best for ventilation because the entire window can be opened, while double hung windows and sliders only offer half the opening size. Because the amount of ventilation is dependent on the size of the opening, if one window is smaller than the other (for example, if South facing windows are larger to heat the house in the winter, see **SOLAR WINDOWS**), the ventilation will be limited to the amount of air which can pass through the smaller window, in this case on the North side.

Because the outside air temperature during the hottest part of the day might be too hot to bring into the house, sometimes air can only be brought in during the morning, evening and during the night. Then when the it gets too hot out during the day, the windows can be closed. If the house is poorly insulated, or suffers from high infiltration of air through cracks in doors and

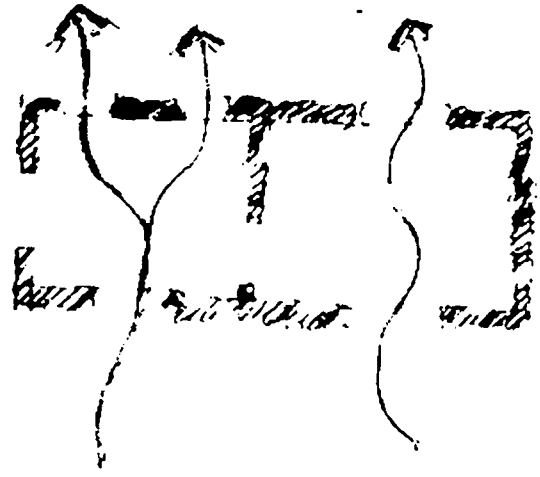
windows, the temperature might go above the comfort zone for some people. Therefore, windows and doors should be tightly sealed, and in older homes with poorly performing windows, replaced.

If it is difficult to maintain cool temperatures during the hottest part of the day using natural ventilation alone, additional cooling can be achieved by exposing massive materials to cool air ventilated during the night, such as a brick fireplace or concrete floor with ceramic tile. This mass, cooled during the night, acts like an ice cube in a glass of water, keeping it cool during the hot day.

This same mass can be used to store heat generated by South facing windows in the winter: **THERMAL MASS.**

Place operable windows on opposite sides of each room on axis with the local prevailing winds. Make sure doors or other partitions will not block the passage of breezes through the room during the summer.

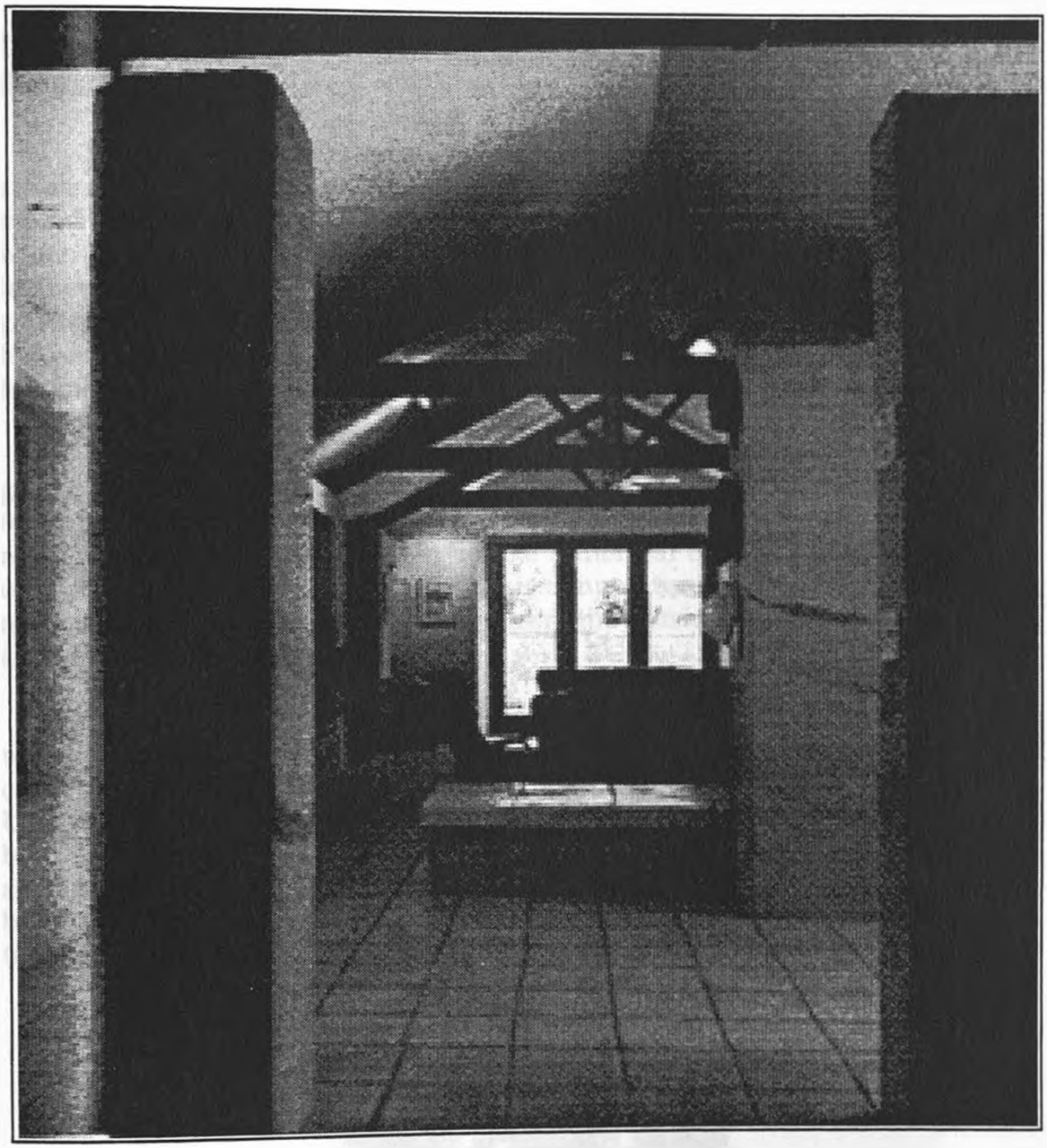
operable windows



on axis with prevailing summer

Use **THERMAL MASS** to store up the cool brought in during the night to keep the room cool all day long. Air coming in through windows could be pre-cooled using evaporative cooling from a **ROOM WITH A FOUNTAIN.**

THERMAL MASS



In order to keep buildings cool in the summer, **CROSS BREEZE WINDOWS** and warm in the winter, **SOLAR WINDOWS**, use massive materials

♣ ♣ ♣

To be comfortable year round, buildings need to maintain roughly the same temperature.

Many modern buildings are built out of lightweight materials which are cheap to produce, transport, and construct, however, they require mechanical systems to keep them cool in the summer and warm in the winter because their ability to store energy is so small. Consider the temperature of a concrete sidewalk, how it stays warm long after the sun has gone down. Contrast this with the metal hood on a car which might be quick to heat up in the sun but also rapidly cools after the sun goes down and becomes as cool as the surrounding air very quickly.

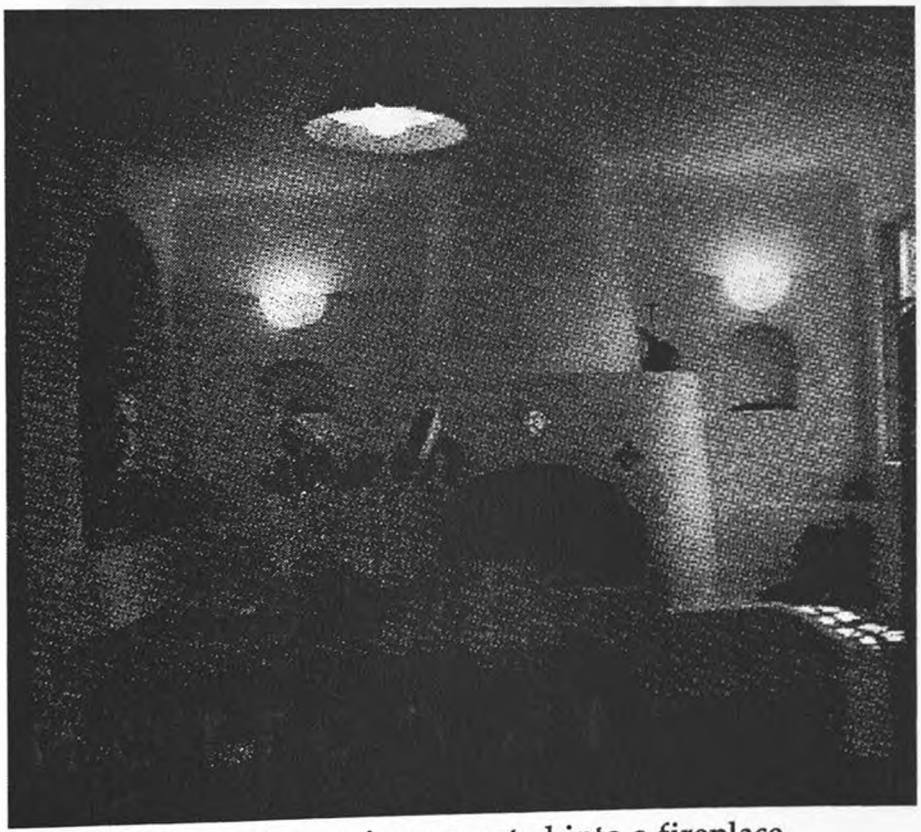
Both of these materials *conduct* heat well, however the concrete has a greater mass, which means more it has more molecules. Energy is a measure of molecular motion, and this is what we perceive as heat or coldness. The more massive material, concrete, is like a thermal ballast, maintains a more consistent temperature despite daily air temperature swings because it has more molecules to absorb the energy from the outside; it is less affected by the air temperature.

Daily and seasonal temperature swings are managed in buildings without thermal mass with mechanical systems which consume energy and cause air pollution (**CROSS BREEZE WINDOWS, SOLAR ANGLE ROOF**). Using thermal mass to maintain more consistent temperatures in a building both in the winter and summer has been used in many buildings, from the ancient Mesa Verde dwellings in southwestern Colorado (below) to modern buildings such as the home of the Rocky Mountain Institute in Boulder (image Home and Garden page).

thermal mass used at Mesa Verde

In these buildings, varying local air temperatures are moderated by the more consistent temperature of the mass. In the case of Mesa Verde, the sun heats up the massive stone walls during the day in the winter, and the mass slowly releases the heat during the night, keeping the occupants warm until the sun returns the next day. Likewise, during the summer, when Mesa Verde is shielded by the overhanging cliff from the sun, the mass stays shaded and cool. This helps mediate the temperature of the outside air, which heats up quickly as the sun comes up.

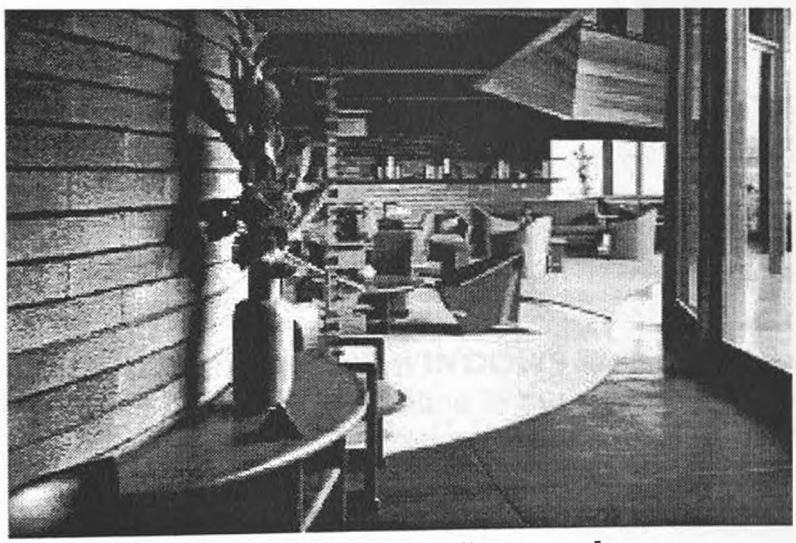
Thermal mass needs to be exposed to the air in order to be "charged" with either heat or "coolth" (the opposite of heat, and refers to its absence). If heat is generated in the winter from **SOLAR WINDOWS**, the mass works best if is directly exposed to the sunshine. For example, the home shown at the top of this page has tile floors over a concrete slab which are exposed to sunlight from windows. In the photo below, from page 79 of the same book, shows mass from **BUILT IN SEATS (CES 202)** and a fireplace of adobe covered with plaster. Thermal mass can be built into the room in many different forms, floors, walls, seats and fireplaces, even in water or potted plants.



Thermal mass incorporated into a fireplace, walls and built in seating In the case of summer cooling,

If **CROSS BREEZE WINDOWS** are used to let in cool air during the night, morning and evening, the mass should be exposed to the air passing through those rooms.

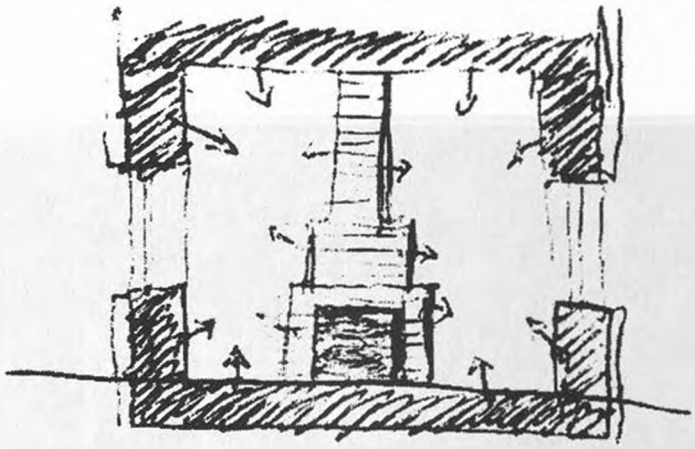
In order to roughly estimate how much mass is needed to store the heat for a building in the Denver Metro area, use between .3 and .4 square feet of masonry for every one square foot of floor area. More specific estimation can be done by consulting pp. 211 of Mechanical and Electrical Equipment in Buildings. John S. Reynolds and Benjamin Stein. Eighth Edition, John Wiley and Sons, Inc. New York, 1992.



Brick wall and concrete floor used as mass in a home by Frank Lloyd Wright

Therefore:

Provide between .3 to .4 square feet of exposed brick, concrete, earth, water or other massive material in the room for every one square foot of floor area to store thermal energy during the winter and moderate temperature in the summer.

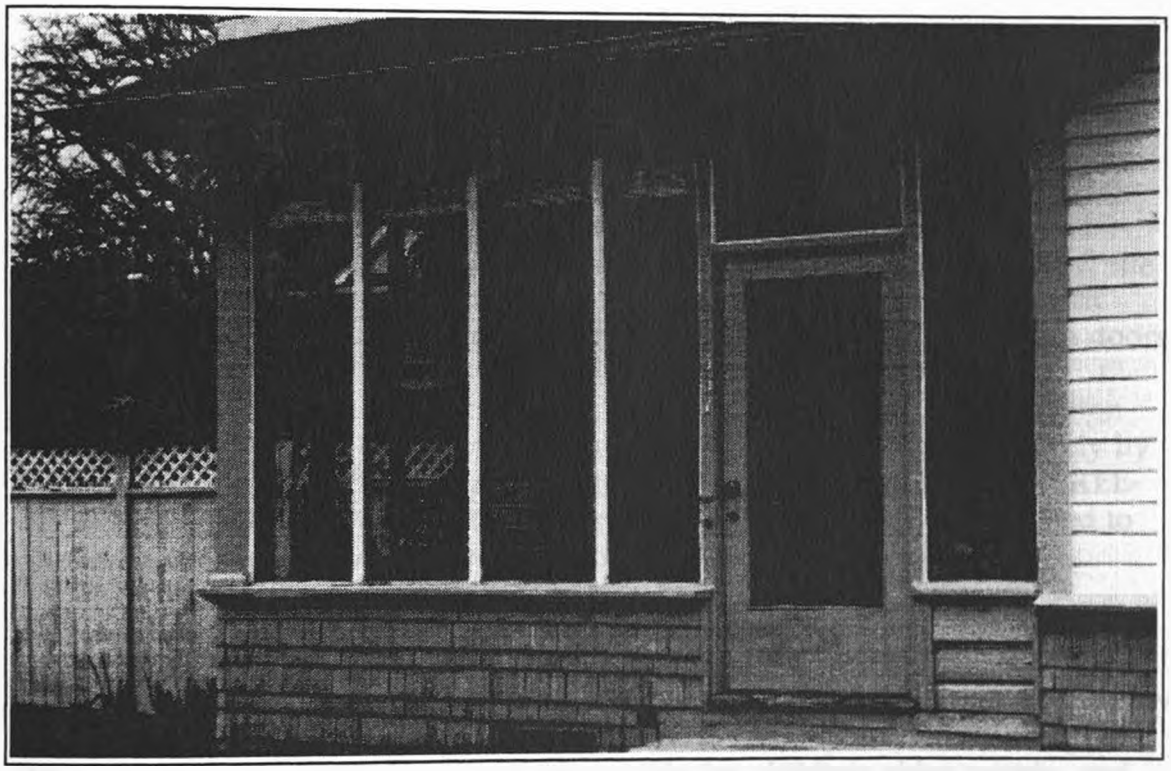


exposed massive material inside

♻ ♻ ♻

Charge thermal mass with **SOLAR WINDOWS** for heat in the winter and **CROSS BREEZE WINDOWS** for cooling in the summer. Additional cooling can be accomplished through evaporation from a **COURTYARD FOUNTAIN**.

BICYCLE GARAGE



This pattern supports the **MULTIMODAL TRANSPORTATION NETWORK** for the region, and supports non-automotive transportation within neighborhoods, potentially reducing parking requirements for **DIFFERENT-SIZE HOMES**, built within the **GRADIENT OF SUBURBAN REDEVELOPMENT** and can be included in any new building regardless of their size or cost: **HOUSE IN-BETWEEN LOTS** and **COURTYARD HOUSE**.

♣ ♣ ♣

To replace the car as the staple of everyday transportation, the bicycle needs a room of its own in each building.

The history leading to the reliance on the automobile for transportation for the single-family home can be traced by following the march of the car garage from the back of the house to the side, finally advancing to the front of the house, joining it in a single building. Now the car garage has such a firm grip on most homes, it is the most prominent feature on the front of the house, with two, and sometimes even three doors.

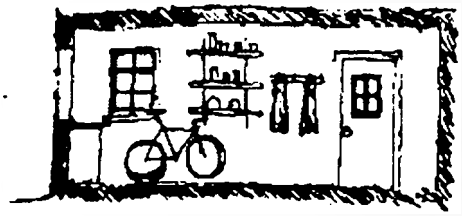
The costs to the environment of an auto-dominated transportation system, both socially and environmentally have been argued extensively by authors and in **MULTI-MODAL TRANSPORTATION SYSTEM** and **FREE-STANDING COMMUNITIES**. Unfortunately, most homes are designed to facilitate the automobile as the primary mode of transportation.

A cheap, healthy alternative for local transportation is the bicycle. Bicycles are sometimes stored piled up in a garage, in the way of people and cars. Sometimes they are hung from hooks in the ceiling, and while this may or may not be safer (watch your head), becomes a major hassle to bring the bike down, very difficult or near impossible for children older people, and discourages frequent use. Left on the porch or on the side of the house, bicycles are vulnerable to theft and the elements. Many bicycles are stolen right out of the car garage, which is not so surprising since most car garages are nothing more than dark, dusty boxes for storing the car, with no windows or views possible from the inside of the house to discourage thieves.

The problem of promoting bicycle use is not only the changing of the social preference for driving cars, nor solely the dangerous conditions of the roads which rarely are conceived around bicycle travel (**MULTIMODAL TRANSPORTATION SYSTEM, NETWORK OF OPEN SPACE**), but simply the lack of functionality of using the bicycle with the modern home. If the inconvenience of the storage of the bicycle discourages its use, it seems essential then to accommodate the bicycle within new homes in a way which is convenient and pleasant.

The bicycle is different from the car in that it requires vastly less space, in fact, a small single car garage can easily be converted to accommodate bicycles for a family of four, with room left over for a workbench, carpentry, bicycle and garden tools. It is vastly less expensive and ideally could come to replace the car garage in new homes built in existing communities redesigned for freedom from the necessity of the automobile (**FREE-STANDING COMMUNITIES**). Not only is the bicycle garage less expensive, but a good bicycle is a fraction of the cost of a car, both to the purchaser and the environment.

The bicycle also requires protective clothing: Jackets, helmets, sunglasses, gloves and shoes. If it is raining or snowing, some of these items may become wet and need to be hung up to dry. Shelves for these items, as well as a small clothesline or some coat hooks would suffice. Storage is also needed for extra tubes and tires, a floor pump, and basic bike tools. Depending on the degree of maintenance desired to be done in the house, or the proximity of the local **BIKE SHOP**, other tools might necessitate more room and some counter space, at least 4 linear feet.

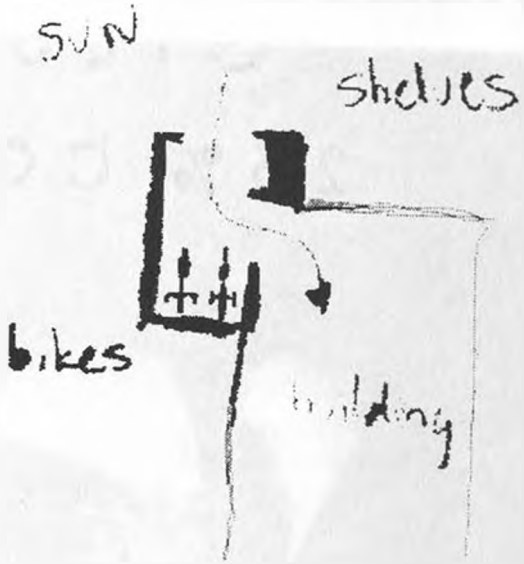


a room made for bicycles

A room which makes storage and use of the bicycle pleasant and convenient encourages using the bicycle for transportation within the neighborhood to access restaurants, stores, school and workplaces (**GRADIENT OF SUBURBAN REDEVELOPMENT**). Place the room so it serves as a point of transition into the house. Therefore:

Make a room in every building for bicycle storage and work as a point of entry into the building from the street or alley, with windows for natural light and ventilation, shelves for storage of helmets, clothing and shoes, and perhaps a small clothes line. Size the room according to the number of occupants or patrons of the building, approximately twenty square feet per person.

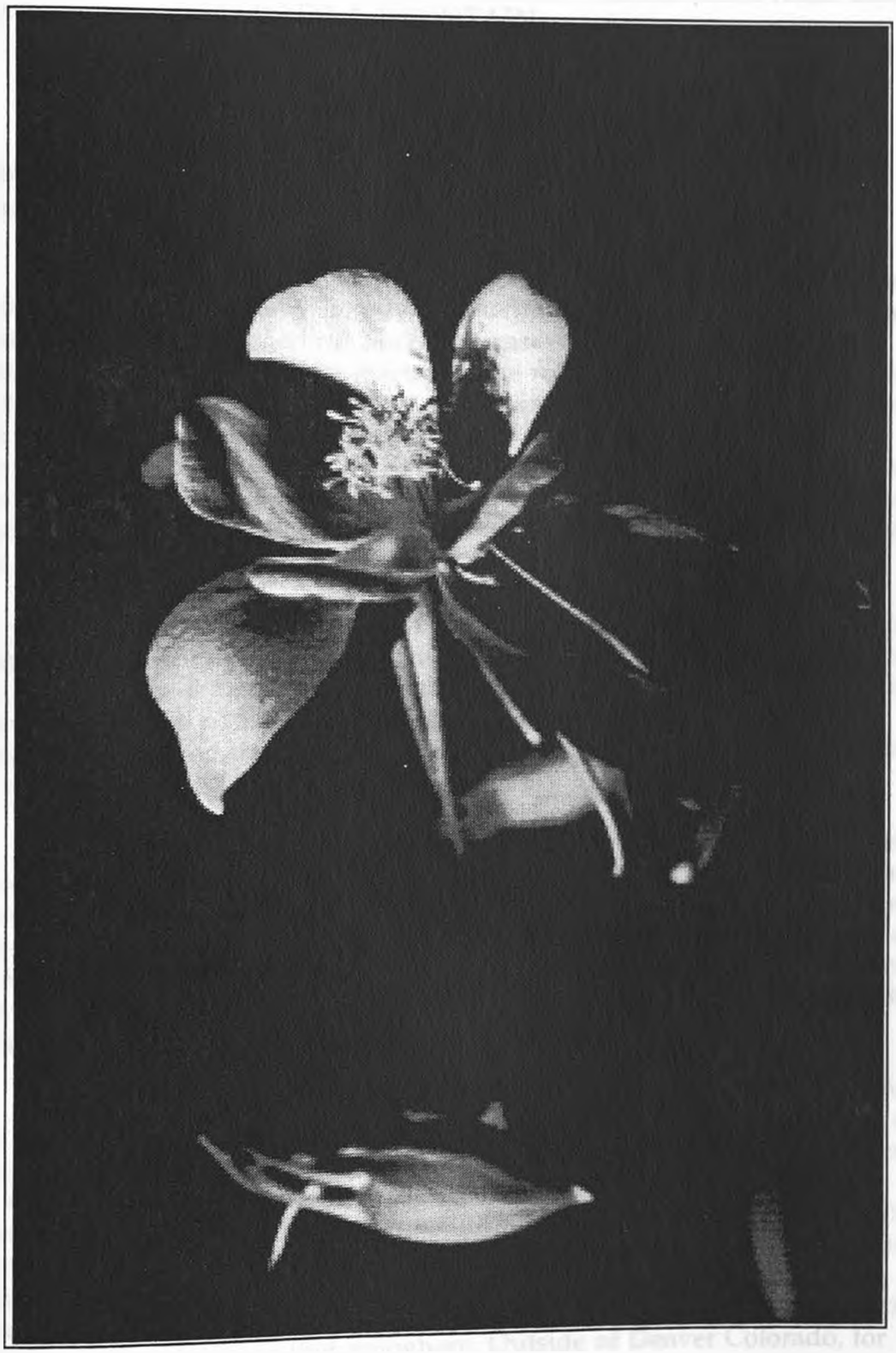
transition to house



natural light and ventilation

Make a place to sit to put on shoes or boots, add some plants to freshen the air, **LOW WATER PLANTS**. Ventilate the room with **CROSS-BREEZE WINDOWS**. Use the room as an attached sun space, with **SOLAR WINDOWS**. If, like the modern attached car garage, the bicycle garage is attached to the house as an important point of entry, it can also reduce the amount of air exchange between the inside and the outside of the building by acting as an airlock between the outside and the inside of the building. See PROTECTED ENTRANCE, pp. 93, Mazria, Edward. The Passive Solar Energy Book - A Complete Guide to the Passive Solar Home Greenhouse and Building Design. Rodale Press Emmaus, Pennsylvania 1979.

LOW WATER PLANTS



. . .this pattern helps support **VEGETABLE GARDEN (CES 177)** and **GARDEN GROWING WILD (172)** for gardening along the Front Range. This pattern can also be applied to planters and pots in a **GREENHOUSE (175)**. Water these plants from a **ROOM WITH A FOUNTAIN**.

♣ ♣ ♣

Gardens that consume large amounts of water make no sense along the Front Range.

Lately water has come to be a major issue in the Denver Metro area. With a finite supply, there is only so much water for drinking, agricultural uses, industry and gardening. Guzzling gardens imported from wetter climates also diminish the character of the rolling short-grass prairies native to the Front Range. Native flowers and plants have a singular beauty in the bold sunshine reminding Coloradans of their location on the Earth, the natural beauty of the region. What can compare with a mountain hillside covered in cruciferae, or golden waves of short grasses cascading over the plains in early spring? Plants that use very little water can be both beautiful and productive for home vegetable gardening.

Maintaining the character of the region with native plants also has a deep spiritual and educational value. The self image of people living along the Front Range is tied to the presence of the mountains, and the dry, sunny climate along the plains. Chris Maser, a forest biologist from Corvallis, Oregon has praised the beauty of the native landscape along the Front Range by comparing it to his own native forest:

If a community is in a forest setting, the forest more likely than not is a major contributor to the communities image of itself, furthermore, if the community is, or has been, a 'timber town' then most of the forest may well have been converted to economic tree farms; therefore, maintaining an area of native forest may be of even greater value. And if some old-growth trees are included in the area, its spiritual value may well be heightened and its value as habitat for some plants and animals greatly enhanced.

On the other hand, if what surrounds a community is no longer forest, but an economic tree farm, a purchased area could be allowed to evolve once again towards a forest. As such, its aesthetic and spiritual values will increase, as will its potential educational value period. Much can be learned by comparing a relatively sterile tree farm with a real forest. One will find, for instance, that a forest harbors a far greater diversity of species of both plants and animals than does a tree farm, even one near the age of cutting.
I have used the forest as an example only because I grew up in one, but the same concept can be applied anywhere. Outside of Denver Colorado, for

example, is a wonderful open space, which represents a vestige of native short-grass prairie which once covered that part of the state. It is beautiful! And it is inspirational, creating as it does, a tangible tie to a now intangible past and an unknowable future (Maser, Chris. Sustainable Community Development : Principles and Concepts, St. Lucie Press, Delray Beach, Florida 1997.pp. 170-171).

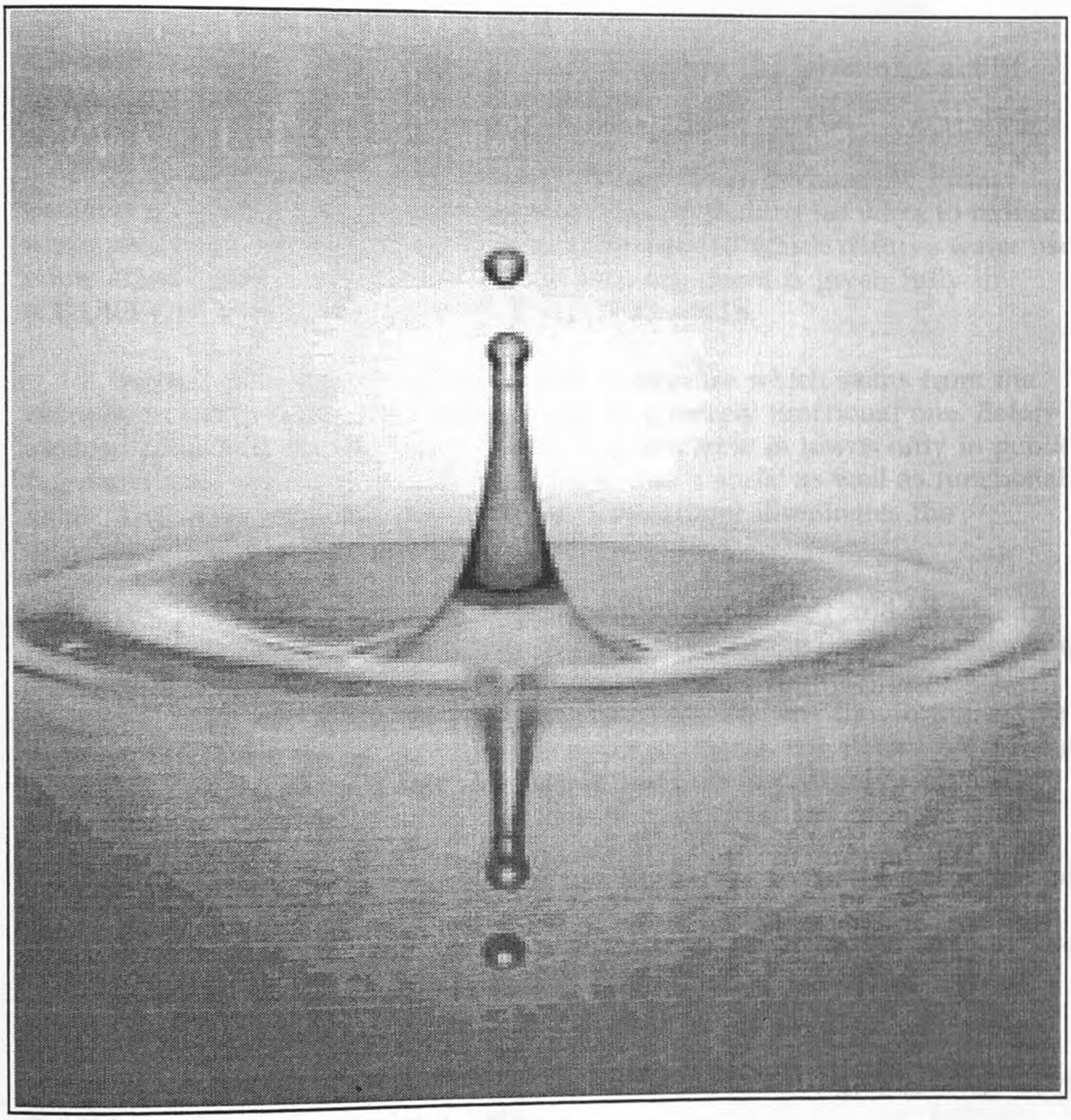
Not all plants can be native corresponds to the Colorado climate and connects people to sun, mountains and plains, all plants should use relatively low amounts of water. Denver coined the term **Xeriscaping** in 1980 to describe gardening methods that use very little water. Xeriscaping can be summarized in **seven principles**. Combine the plants with the greatest consumption in groups. Shield them from the North and West with more drought tolerant plants.

Use plants that don't require much water. Group plants by how much water they use, and shield them from the North and West with more drought tolerant plants.

♣ ♣ ♣

Fertilize low water plants with **COMPOST (178)** generated by yard clippings and uncooked food waste from the kitchen. Make planter boxes for landscaping that follow the pattern of **RAISED FLOWERS (245)**, or form part of a **SITTING WALL (243)** so people can sit down, smell and touch the plants.

ROOM WITH A FOUNTAIN



. . . In any **COURTYARD HOUSE** or outdoor room . . .

♣ ♣ ♣

Modern outdoor plumbing fixtures devalue the precious act of obtaining water.

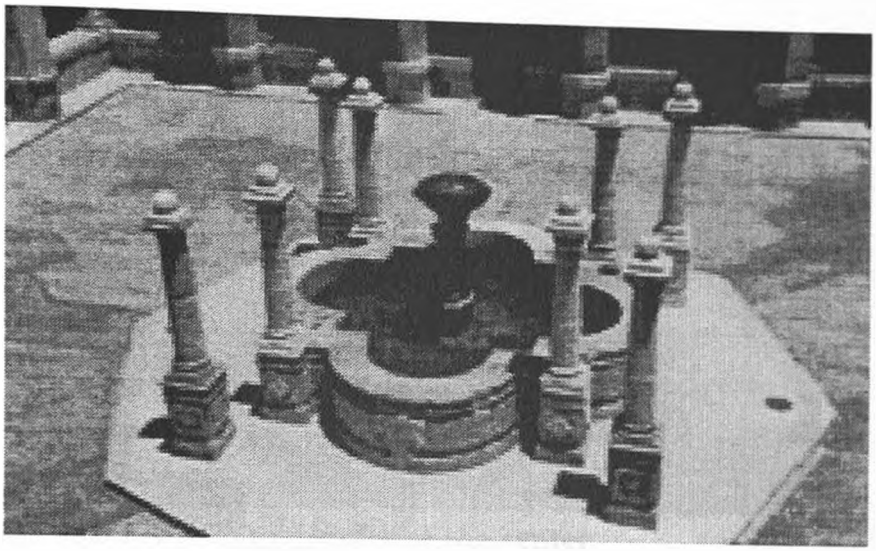
Several arguments comprise this pattern. First, because the Front Range is increasingly facing a water shortage and looking for ways to reduce water use, a new type of private landscape is needed which reduces water use while creating beautiful environments. This argument is given fully in (**COURTYARD HOUSE** and **LOW-WATER PLANTS**.

Second, this water shortage is due to overuse which stems from the reduction of the value of obtaining water to a merely functional one. Before modern plumbing was available, water was available in towns only in public fountains, and the ritual of obtaining water had a social as well as functional value. The story from the city of Berne, Switzerland illuminates the difference :

Whenever a city arose on a hill, whereon no spring could be traced, men did not hesitate to dig conduits in order to bring the precious water from the bottom of the valley. Whenever it was possible, a fountain-head was made utilizable within the walls of the city, to ensure, that should the city be beleaguered, there would be sufficient water available, not alone for drinking purposes, but also close at hand to quench any fires that might be started through enemy action.

Even as recently as eighty years ago, the public fountains played a much more important part of life of an urban community than can be imagined nowadays. Housewives and maid-servants, alike, met at the fountains where they filled their gleaming copper vessels with the clear, sparkling water and carried it home for their domestic requirements.

(p. 5) A chronicle of the Fountains of Berne. Paul Schenk. Herbert Lang & Cie Publishers, Berne, Switzerland 1949.



water as a precious thing

Likewise, in Córdoba, Spain,

The water...brought from the mountains was conveyed to this palace, and thence distributed into every corner of the city by means of leaden pipes, from which it flowed into basins of different shapes, made of the purest gold, the finest silver, or plated brass, as well as into vast lakes, curious tanks and amazing reservoirs, and fountains of Grecian marble, beautifully carved. In this palace too, was an astonishing *jet d'eau* which raised the water to a considerable height, and the like of which was nowhere to be found in the East or West.

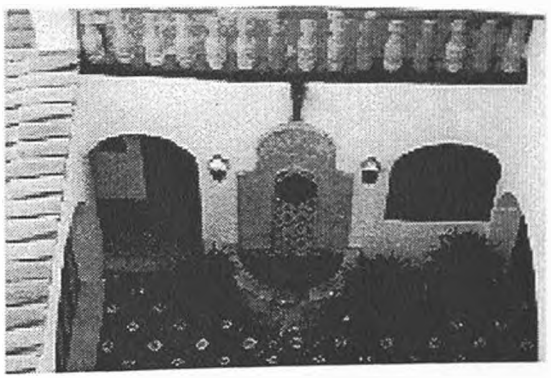
Hispanic Society of America. (pp. 2) Hispano-Moresque Marble Basin in the Collection of the Hispanic Society of America. Printed by the order of Trustees, New York 1928.

While fountains built today will obviously not be the only way to obtain water, or be served by lead pipes of the purest gold, they can help to remind us of the preciousness of water in the semi-arid climate of the Front Range.

water at the center

Fountains also have another important purpose: to cool the air through evaporation. The sound of the running water also helps to provide a psychological sense of cooling. For more specific information on courtyard fountains as cooling devices and other benefits, check out this essay by Joe Gelt.

The fountain should be thought of as a symbol of life in a courtyard. It does not have to be expensive or elaborate, a simple fountain is usually the the most beautiful.



simplicity and beauty

Make a beautiful fountain that intensifies the life of the room and cools the space through evaporation. Make it a reminder of the preciousness of water.

♻ ♻ ♻

...In order to make the space usable, don't put the fountain in the dead center of the courtyard, but rather make it **SOMETHING ROUGHLY IN THE MIDDLE (126CES)** of the courtyard and be used to maintain **LOW-WATER PLANTS** growing in the courtyard. Power the fountain with sun generated electricity from a **SOLAR ANGLE ROOF**. Allow the cool air of the courtyard to cool the rest of the house by ventilating with **CROSS BREEZE WINDOWS**.

II. LIVING THE CONTINUOUS LIFE

"Its not ambiguous
Its continuous
Its all about us
Its for real my man
the continuous life there is no end
movin' through life
movin' through death"

- SA Martinez of 311

The connection between the function of the healthy mind and the healthy body cannot be underestimated. My happiness, contentment, and passion has always been achieved through the careful balance of my mind and body. Health is paramount to efficiency and being alive. If I want to make the world come to life, I have to be as alive as possible. The old cliche, "the body is a temple" leads me to several critical personal beliefs.

- I do not believe in alcohol. I am conscious of both the positive and negative effects of the substance, but feel it is a chemical that does not contribute to my health, energy levels and life.
- I do not believe in television. The mind is more at rest watching this Brainwash Box than it is while asleep. It is absolutely worthless, except for the public broadcasting stations, which occasionally have some piece of film worth a little time of my life.
- I have chosen to be a vegetarian. In a different time, I might have eaten or eat meat; however the impacts on the environment and

the current process of raising animals does not contribute to greater life. I have been able to eat a healthy diet within the bounds of vegetarian foods despite a fairly rigorous athletic lifestyle. As a courtesy gesture, I will always eat any food prepared for me when I am a guest.

- I exercise not to stay healthy, but to feel alive. I cannot describe to the reader what it means to me to ride my bike on Green Mountain. The mountain gives me my strength to face the world. *Sacred ground.*
- I believe in stretching and dancing. The human body needs to be worked out, it all different directions and ways. Not only this, but the mind needs to be allowed to rest, and only when the body takes over can the mind be set free. One should try to dance in a new way every time.
- I believe in singing and music. While I am still learning the intricacies of official types of music, I sing in the shower, and with friends (not in the shower) and whenever I go places by myself. It is entertaining and I like it.
- I believe in cooking good dinners with people I like. Consider the following two alternate scenarios, written in a way intended not to bias the reader : 1) Eating alone in a dark, damp cave. 2) Eating hot food on a cold winter day in a warm house with good friends with your favorite desert afterwards. See?
- I believe in telling good stories and jokes. My father responds to every bad situation with humor. Humor, like the Death Star, is the ultimate weapon in the Universe. If you tell Death itself a good enough joke, it will have to stop and laugh a while.
- I believe in saying words like ooga and booga. There are no such things as "nonsense words." Words like Fachang hulperflack have a

meaning "educated" people are simply to ignorant or immature to understand.

- I believe in affection. Expert scientists in white lab coats say that you need 10 hugs a day, that's one every 2.4 hours! When someone says they need a hug, they need a hug. So don't frown or shrug, or give them a flimsy, half-hearted pat on the back. Saying you need a hug is like saying you need to go the bathroom; it is no laughing matter.
- I believe that every breath you take is a gift from God. You take in the entire universe, and breathe it out again in every breath. Therefore, make the universe good to breathe. And breathe deeply, in (yes, right now) and out. Good job.
- I believe in lots of sleep. If you are tired, you should sleep. Staying out late is for people in Spain. Colorado mornings are too beautiful to miss.
- I believe in giving people gifts that come from your heart. I love to make things and give them to people. My grade school music teacher, whom ironically, I blame for my early hatred of music, taught me the following beautiful song, "love is like a magic penny, hold it tight and you won't have any. Lend it, spend it, you'll have so many, they will roll all over the floor!"
- I also believe in the genius song. The genius song is the secret of being a genius. The genius song goes, "I am a genius, I am a genius, oh yes I am." After a while, you will convince yourself subconsciously you are actually a genius (assuming you weren't initially) and then you will become one.
- I believe in breakfast. Replenishing your body in the morning is the best way to prepare yourself for a challenging day.
- I believe in the art of appreciation. I believe if, for one minute, we

could really appreciate the full beauty of the universe, we would explode out of amazement. Whenever I get depressed, I think of how amazing things like time, the blue sky, clouds, oatmeal, flowers, and my grandmother are, and then I get happy because it is all so beautiful.

- I believe in playing with children and old people. People near the beginning and end of life have it all figured out. Its all of us somewhere in the middle that are confused.
- I believe in drinking water. Humans are ninety eight percent water. Evaporation and expiration are no joke; they are very real, measurable scientific phenomena. Urine should always be clear. If you get bored drinking so much water, try taking a hot shower while drinking ice cold water. It feels really groovy. Flush those kidneys!
- I believe in simplicity. My family, my bike, water, shelter and healthy food.
- I believe life is trying to say what you mean and trying to figure out what other people mean when they say things. I hope I have been clear here about what I mean in saying this. What are you trying to say, and how and what do you mean?
- Without the support of my family, I could have never made it this far. Also, I have been so inspired and cared for by my friends and other loved ones, I could have never felt so alive without them. I will make the necessary sacrifices to be with the people I love. Nothing is worth as much as love.

IV. RETURNING HOME

"You're a Transistor
Lightning resistor
conducting to the Mother Star
that's what you are."

- Nicholas Hexum and SA Martinez of 311

Everything we build will melt like the snowfort; it will someday dissolve into the sky. We build because we must, because it is beautiful and we are alive! We build, but it cannot last. No one is recording our lives, no one is watching, no one can save this beauty in a bottle. Time slips out and away, and it is a beautiful play, and the people laugh and cry, but no one is watching. We build in the Sun of the morning, but the Sun will fall behind the mountains and night will come.

One morning, I will not wake up.
The sunshine will not peek in, and sift quietly through into the room
the curtains will not yawn or stretch.
There will be no children's laughing and squealing bouncing around,
below in the street. The sparrows will not be singing in the trees.
It has rained, but the fresh pollen breeze,
twirling her dotted dress in circles,
dancing and tripping down from the foothills,
will not pass by my house.
i cannot hear the sound of her aspen bells,
whispering
The cupboards is empty,
The windows are broken and gone.

There is no water flowing from the fountain in the patio.
The road bike, and the mountain bike too, are gone.
To the west, the mountains, the day before, present and powerful,
keeping watch over the people, will have left their posts.
Their camp, swept and void, the surface of a mirror.
The sky, blue and crystal clear has turned its back.
The columbines, just yesterday, blooming by the window, have been pulled out,
and the patio tiles torn up and missing
amid the once sandy, pale soil
fresh, dark and moist earth remains upturned.

One morning, when I was gathering signatures for open space in front of the grocery store, I asked an older woman, "Would you like to sign a petition to preserve open space in Jefferson County?" She didn't even look at me, but walked right by. "At my age, I don't care," she muttered. I felt as if she had slapped me in the face. I was reeling back, I could not say anything for a while. I stood and watched her as she shuffled towards her car.

I was watching a dead person. How long ago had it been? Just yesterday? A week ago? A month? Perhaps it was five years ago! When had she given up hope? When had she given up caring? Perhaps she was having a bad day. But I could tell, she hadn't even checked her stride. She was dead and she was on the path of death, walking it slowly. I don't think there was any pain left, maybe a dull buzz. When would I die? Will I ever die, like that? I will not.

Death is the final lesson of life, the final test of potency and passion. On día de los Muertos, I stop, and look back, I remember the dead. My Grandfathers and Grandmother, their Fathers and Mothers

and Grandfathers and Grandmothers, and their great grandmothers and grandfathers. and before them, one after another, until they become one people in my mind. They are coming, beating softly, a thudding lumber. Deep with emotion in their bones, but they do not smile, and they do not weep. They are looking at me, they are walking forward and backward, both at the same time. They do not seem to be tired old people, and not excited children either. They are heavy, somber and composed, all tanned and brown, rough like the earth at Red Rocks. I can see the pallor of their flesh, it is red and warm, it is thick and leathery. I am not afraid to look at them, because I can see the fire in their eyes.

I turn my head up, searching the stars. I stick my tongue out as far as it will go; I make a giant landing pad for those intergalactic snowflake travelers. I cross my eyes and watch them coming in, all in sparkles and blurs. I feel one touch down gracefully, pure elegance, right on the center stage. An electric spark shattering, a tingling tip toe twanging and tangy somersault: gone. Another spark and tingle, there's one, and two and there's three! I gaze into the darkness of the night. The whole troop, emerging from the blackness, come in, one after another, after another, after another, swinging legs bending, they dance nimbly on my cheeks and eyelids, and on the tip of my tongue and red peak of my nose. Breathing smokestack steam into the dark heavens, curling and groaning, slowly and dreamily, but the snow dancers fall right straight through, direct and undaunted. They twitter in my eyebrows and one now, right into my line of sight, getting larger and spinning sideways, all uppity in arms, legs and twisted torsos. My eyelash comes flying up, catching the kamikaze ice ballerina with only a split second to spare. I crack a smile, uncross the eyes and hiccup-retract the landing pad, total frogstyle. Swinging the red plastic shovel around in a low arc, I take another scrape at the sidewalk, sweeping a wide swath of snow into the muffled street. There seems to be no end to this blizzard, tomorrow will be another snowday, I can just feel it.

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