Vita Beata

Timothy R. Hart

Vita Beata

Timothy R. Hart

Thesis submitted to the faculty of Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of:

Master of Architecture

William Brown, *Chairman*

Hans C. Rott

Michael O'Brien

3/28/03

CONTENTS

"The main role of the art of building is to make our life pleasant and happy, an invaluable vita beata".

—Marco Frascari

"Vita Beata"—the blessed life, the good life—such is the common thread I find that connects most of the otherwise fragmentary and disparate desires, convictions and passions that I feel about architecture, and that make their way to the surface in this book.

In a way the book reads more like a collection of individual essays than a highly focused, linear, unfolding of events. Some might criticize the structure as a bit fragmentary, and I suppose such a critique would be fair.

I'm comfortable with it, however, for in a way it's structure is reflective of the design process itself—at times circular, at times circuitous, sometimes digressing, often wandering in search of revelation or epiphany, so too, this book follows an admittedly "nonlinear" path.

The very breadth of the art and practice of architecture necessitates the consideration of a wide and divergent body of issues, concerns and personal convictions, and in this book I attempt to frame my position as an architect in the context of several of these issues.

The book represents much more to me than just an architectural design project—it is the culmination of several years of study and represents an understanding and ideology regarding the built environment.

The introduction: *"Vita Beata—Confessions of an Epicurean"*, is an essay built around several photographs which I'd taken during my years of graduate architecture study at Virginia Tech. Alongside the photographs, which hopefully offer a glimpse into what stimulates my architectural imagination, are personal reflections on the architect's role in the world and the highest aims and aspirations of the art and practice of architecture.

The next section: *Tread Marks—the Phenomenon of Sprawl,* briefly describes the unfortunate blight of urban (and suburban) sprawl in America. Touching on the history of, and responses to sprawl, the section concludes with the descriptions of three very important architectural relationships which have been completely severed by the practices of the sprawl builders and designers.

In the next section: *Precedents—Integrating Site, Structure and Space*, I consider several architectural successes of master architects which address these important relationships, yet in thoughtful and inspiring ways—totally contrary to the "sprawl" paradigm described in the previous section.

Next, I introduce and describe an architectural design for a multi unit housing project in Blacksburg, Virginia: the *Reynolds Street Rowhouses*—whereby I try my hand at responding to these same important relationships. I've chosen to place the design project following the sections on sprawl and architectural precedents because these introductory sections serve to frame the design project in its proper context regarding important issues and principals which informed the conception and development of the idea.

One of the more interesting areas for me during my years of architecture study was proportion. And indeed, proportional theory played a significant role in the development of this design project—so much so that I felt it deserved its own section in this book. The section: *Proportion—Empathy and Abstraction*, considers the topic with a special emphasis on one of my favorite theoreticians and characters: the enigmatic Dom Hans van der Laan—20th Century Dutch monk, architect and academician. Convinced that the architecture school at Dresden ignored the most pressing issues of architecture, offering him little of tangible value, van der Laan (like another highly achieving "dropout"—Frank Lloyd Wright) dropped out of university and spent the next fifty years in the monastery—studying, practicing and teaching architecture as a Benedictine monk. Van der Laan's thoughts on proportion I've found to be among the most intriguing and compelling treatises I've found on the subject. They are highly original ideas and decidedly contrary in nature to the more well known "classical" schools of proportional thought of Corbusier and the Renaissance masters..

The concluding section: *Context—Toward a Pragmatic Idealism*, considers the notion of architectural relevance. Comparing two ways of responding to the world around us, what Lewis Mumford described as *utopian* versus *eutopian* thought, the section explores the notion of *contextualism*—a word bantied about rather cavalierly these days.

To the faculty and staff of the Graduate Department of Architecture at Virginia Tech, I offer my sincere gratitude. To Professors Bill Galloway, Hunter Pittman, Jim Jones, and especially to my thesis committee: Professors Hans Rott, Michael O'Brien and my Chairman, Bill Brown, I offer a special Thank-You. Each of you offered of your talents, skills and passions in contributing to my education.

To my good friends and colleagues: Carl Bolton, Jon Foote and Drew Queen, who constantly challenged me and made the journey all the more special.

And most especially to my wife, Dale, without whose love and tremendous support this dream would never have been possible—Thank-You.

Vita Beata

Confessions of an Epicurean

"Architecture arouses sentiments in man. The architect's task therefore, is to make those sentiments more precise."

Adolph Loos

2

3

"The purpose of construction is to make things hold together, the purpose of architecture is to move us."

Le Corbusier

In recent years the camera has become a valued tool for capturing the evocative nature of architecture—to *"make the sentiments more precise",* as Adolph Loos put it. An unabashed hedonist, my camera seeks pleasure and shoots whatever feels good. It is impetuous, unreflective, unreasoning—all the things my intellect is not. It's an appendage of my senses, connected to the world by way of my eyes.

The photograph is an honest commentary of sublime architectural feeling, uncluttered by intellectual theory. I've come to regard the photograph in general, and these photographs in particular, with a degree of importance—not for any artistic merit (which is for others to judge), but because the feelings embodied in these photographs nourish my architectural imagination—the imagination in turn shapes the intuition; intuition guides and informs judgment.

5

6

7

"As everyone knows, few observations and much discussion are conducive to error, much observation and little discussion to truth".

Alexis Carrel

As an architect I've lost my innocence. I can no longer walk into a courtyard, or down a beautiful street, and simply enjoy their beauty. Having tasted the fruit of intellectual inquiry, I'm now and forever compelled to ask the question: *"What makes this place so good?"* Yet my camera helps me reclaim some of that lost innocence, if only for a fleeting moment.

For it *does* bask in the moment, simply feeling and reacting. It doesn't analyze, theorize, or pontificate. Its child-like innocence helps distill and clarify the feelings of architecture without passing the images through the myriad intellectual filters which tend to blur and tarnish the image. It is my truest attempt at pure observation.

9

10

11

"By the use of inert materials and starting from conditions more or less utilitarian, you have established certain relationships which have aroused my emotions. This is Architecture."

LE CORBUSIER

My senses know a good thing when they encounter it. My nose and eyes inform me of the rose's wonder. My tongue knows that this or that Cabernet is good. My ears proclaim that Bach is delightful. I fully accept their conclusions—with curiosity, but without argument.

My senses likewise come alive to inform me of exceptional architectural moments. But the human being doesn't rest for long in the delight of the senses, for the intellect demands to understand (even if it often can't) *why* Bach is delightful—what motifs, patterns and themes are rationally *invoked* in order to empirically *evoke* such sublime pleasure. We want to know the chemical composition, the balance of tannins and sugars, the method of aging, that make the Cabernet good. We want a *method* for making beauty, so that through the act of creation the sublime experience might be propagated.

13

14

15

16

"You employ stone, wood and concrete, and with these materials you build houses and palaces. That is construction. Ingenuity at work. But suddenly you touch my heart, you do me good, I am happy and say: 'This is beautiful.' That is Architecture. Art enters in."

LE CORBUSIER

For the human intellect is generative by nature, it desires to create. But why? What compels the architect to build, the poet to write, the painter to paint? Is it not expression? Meaning simply, the fundamental human urge to convey to others what we have felt. It is the conveyance and expression of feeling that is at the very heart of art.

Tolstoy said that *"to evoke in oneself a feeling one has experienced, and having evoked it in oneself, then by means of movements, lines, colors, sounds, or forms expressed in words, so to transmit that feeling that others experience the same feeling—this is the activity of art."*

18

19

20

I've often wrestled with this question of whether architecture is truly art. At times, I've sided with Adolph Loos, who believed that precious little of architecture was, or should be, considered art (he made exception for the monument and the tomb).

However, I'm coming to understand that this conveyance and expression of feeling, which I believe to be the very essence of art, is precisely what I am pursuing in architecture.

Feeling—the word alone gives pause, eliciting notions of vague, fuzzy and ephemeral things, impossible to distill or rationally comprehend, that which springs forth from the immeasurable, yet is undeniably real.

Like light, which the world's greatest intellects cannot fully comprehend—at times understood as particulate, at other times as electromagnetic. Yet, every time we awaken to its splendor, we're compelled to accept it's reality and enjoy its beauty, though it defies our rational understanding.

21

22

"...there is nothing about man that is really measurable. He is completely unmeasurable. He is the seat of the immeasurable, and he employs the measurable to make it possible for him to express something".

Louis Kahn

"A great building, in my opinion, must begin with the unmeasurable, must go through measurable means when it is being designed, and in the end must be immeasurable".

Louis Kahn

23

24

Like the poet, I believe the architect is a translator. The poet feels, and translates these feelings into the rational realm of language, that others might in turn feel. The architect feels and is thereby inspired to build. He translates from the unmeasurable realm of feeling into the measurable realm of concepts, ideas, building and construction. Creation takes place, and ultimately the feelings which inspired the creative act are reciprocally understood and magnified in others.

This is a rather Epicurean view of art and architecture, that the intellect is chiefly employed to create that which transmits sublime feeling. Marco Frascari has said that "*the main role of the art of building is to make our life pleasant and happy, an invaluable vita beata*". Vita Beata. Blessed Life. Good Life. This, I believe, is the pure essence of architectural feeling.

25

26

27

"Architecture is the innately human response to our need for a place of our own to dwell in. Which is fundamental to leading a good life. To lead a good life we must be at peace with ourselves or at least believe in the possibility of such a peace. Which means we must be able to think, freely and clearly to gain knowledge of ourselves and our existence. Architecture is the provider of places in which this aspiration can be fulfilled and fostered, individually and collectively. This purpose of mankind is the limitation which we place on the imagination of the architect; through this limitation the architect gains the freedom to celebrate the great objects of his art."

Hans C. Rott

This view, however, suggests, at least indirectly, that the architect is not autonomous, but operates under the heteronomy of feeling. A language translator, for example, is not free to interject as he wishes, but is subordinate to the party for which he translates.

I believe that good architecture begins with a very focused and careful attention to the 'vita beata', the good life, which the architect seeks to translate into brick and mortar.

This requires, at times, a determined restraint of intellectual willfulness. Indeed, the intellect, in it's ardent pursuit of that which is clever and novel, often must subrogate it's will in deference to the sensual realm.

Of course there's a philosophical chasm between such *sensual* architects (Kahn, Wright, Barragan, Scarpa, Ando, Loos, Le Corbusier, to name a very few) and the *intellectual* architects, those who favor the theoretical intrigues of the building—i.e. how we might "read" the building, as opposed to how we feel it.

28

29

30

31

32

Peter Eisennman, as one example, has said that he doesn't care much for buildings which evoke emotional responses, but wishes to feel *"high in my mind, not in my gut"*. "High minded" architects are really no more intellectual than their sensual counterparts, the intellect simply serves a different master. They employ the intellect to serve the intellect, rather than to express and ultimately promulgate feeling.

Among themselves, their self-referential work is judged by whichever pedantic standards are currently in fashion. The phenomenal realm of perception and feeling is often disregarded as a quaint anachronism—a romantic sentimentality not worthy of truly "high minded" architects.

33

34

35

It's been my experience however, that satisfying intellectual hubris is considerably easier than making something beautiful. No translation is necessary—the intellect makes for the intellect. To make something truly evocative, however, the intellect must interpret, translate and convey feeling to be reciprocally understood, felt and appreciated by the much harsher critic of phenomenal experience.

Clever, novel, bombastic, interesting, curious, consistent, complex, contradictory—these are the judgments of the intellect. And as difficult as they may be to achieve, they are considerably easier to come by than *sublime, beautiful, whole*—the judgments of the senses.

---

all photographs by author:

1. Farm building—near Vals, Switzerland
2. Farm building—near Mogno, Switzerland
3. Water building—Shaker community, Pleasant Hill Kentucky
4. Street—Sienna, Italy
5-7 Foundling Hospital, Fillipo Brunelleschi—Florence, Italy
8,9 Windows—Florence, Italy
10 Street and House—Fiesole, Italy
11 Door—Venice
12 Woodworker's Tools—Shaker Community, Pleasant Hill Kentucky
13 Kitchen—Shaker Community, Pleasant Hill Kentucky
14 Light Corner—Shaker Community, Pleasant Hill Kentucky
15 Window—Shaker Community, Pleasant Hill Kentucky
16 Light Stair—Shaker Community, Pleasant Hill Kentucky
17 Street—Fiesole, Italy
18 Street and Couple—Fiesole, Italy
19 Roman Ruins—Fiesole, Italy
20 Woman in Window—Fiesole, Italy
21 Chapel of St. John the Baptist, Mario Botta—Mogno Switzerland
22 First Christian Church, Eliel Saarinen—Columbus, Indiana
23 Window, Convent of San Franceso—Fiesole, Italy
24 Arch—Florence, Italy
25 Meeting House—Shaker Community, Pleasant Hill Kentucky
26 Water Building—Shaker Community, Pleasant Hill Kentucky
27 Gate—Shaker Community, Pleasant Hill Kentucky
28 Canal—Venice, Italy
29 Street—Sienna, Italy
30,31 Canal—Venice, Italy
32 Street—Florence, Italy
33-35 Brione Cemetery, Carlo Scarpa—Brione, Italy

"The cities will be part of the country; I shall live 30 miles from my office in one direction, under a pine tree; my secretary will live 30 miles away from it too, in the other direction, under another pine tree. We shall both have our own car. We shall use up tires, wear out road surfaces and gears, consume oil and gasoline. All of which will necessitate a great deal of work...enough for all."

Le Corbusier

Tread Marks

The Phenomenon of Sprawl

To understand the following design project in its proper context, a brief consideration of the phenomenon known as *urban sprawl* is necessary. Much has been written in recent years describing, analyzing and pontificating about this very unfortunate practice in contemporary culture, so it's not my intent here to in any way add to, or rehash the voluminous diatribes aimed at sprawl. Many have already done a very fine job of putting sprawl in its rightful place.[1] Yet to accurately frame the thoughts and intents which initiated this project, at least a cursory glance at sprawl is necessary, because it was the observation of sprawl's excesses and deficiencies which unquestionably led me to undertake this particular type of design project.

Observing just a few of sprawl's more dysfunctional relationships compelled me toward this project, and it's in response to these severed relationships, in a search for a better way, that much of this design project takes its form.

My intent in this section is to briefly describe the phenomenon of sprawl, and to describe the nature of a few vital relationships (an admittedly modest subset given all the dysfunction to choose from) which have been damaged or completely severed by the paradigm of the house built by sprawl. In the section following I'll consider several architectural precedents which illustrate vitality and health in these important relationships damaged by sprawl.

The vision of the suburb goes back centuries, at least to medieval times, with the Medici's and other wealthy Florentines building villas outside of Florence to escape the plague and pestilence of the city. Today's explosive suburban sprawl, however, is traced to a much more recent phenomenon—the possibilities inherent in the universally available automobile.

Like an opiate, the great promise of the automobile lulled us into a seductive dream; we'd wake to the rooster by morning, turn the gritty wheels of industry by day, and leave the hectic city for the clean air and tranquility of our country life by night. Le Corbusier's quote on the preceding page is an eloquent description of the dream which seduced planners, developers, and architects alike, and eventually allured an entire nation during the better part of the twentieth century.

Who knows, the dream might have come true if only a few hundred million other like-minded souls hadn't shared the same dream.[2] So much for the pine tree. I'm sure that Le Corbusier, even in his

opposite page - a photo montage assembled from images published by National Geographic Magazine, July 2001, in the article *Urban Sprawl-The American Dream?* Photographs by Sarah Leen.

1. It seems those sympathetic to the New Urbanism have done the yeoman's job in detailing the historical development of sprawl, as well as it's current and future socio-political implications. Duany, Plater-Zyberck, and Speck, *Suburban Nation - The Rise of Sprawl and the Decline of the American Dream*, North Pointe Press, 2000 . Phillip Langdon, *A Better Place to Live - Reshaping the American Suburb*, U Mass Press, 1994. James Howard Kunstler, *The Geography of Nowhere - The Rise and Decline of America's Man-Made Landscape*, Touchstone Press, 1993. These are all worthwhile discussions of the phenomenon of sprawl. Duany, Plater-Zyberck, and Speck's book is written from the perspective of urbanists engaged in the day to day practice of responding to sprawl, and is the best I've seen in distilling and categorizing the particular conditions and patterns that characterize sprawl.

2. There was a time when Corbusier's vision was being enjoyed by people here in this country. The time was brief, the people were wealthy, and by and large, the automobile was the harbinger of doom, rather than utopia, as Le Corbusier envisioned it. Llewellyn Park, New Jesey (Alexander Davis 1858), Riverside, Illinois (Olmstead and Vaux 1869), Shaker Heights Ohio, Brookline Massachusetts, and dozens more like them, all at the periphery of the major cities, evolved in the mid to late 19th century as wealthy industrialists fled the increasing dirt and grime of the city brought on by the industrial age. The wealthy were the only ones with the means of transportation (horse, carriage and driver), and the resources of large domestic staffs, both of which were required to live this *Town and Country* life. With the advent of the railroad, however, the dream became attainable for even those of the middle classes, and countless towns like Oak Park, Illinois, near Chicago, located near train stations, spawned overnight, and middle income people fled the city in droves. With the advent of the Model-T at $300, the automobile age was ushered in and the dream became accessible to nearly everyone. Suburbia, no longer constrained to railroad proximity, exploded in every direction. The dream, now accessible to everyone, was destined to be increasingly enjoyed by no one. James Howard Kunstler, in his book *The Geography of Nowhere* (Touchstone Press, 1994), gives an excellent (and amusingly acidic) account of the evolutionary history of American suburbia. While his prescriptions I find a bit utopian, his descriptions, both historically and culturally, are very informative.

wildest dreams, could not have envisioned modern day Los Angeles, Atlanta or Houston, and the toll paid by human beings for the sake of the automobile's privileges—there's a fine line indeed between utopia and hell on earth.

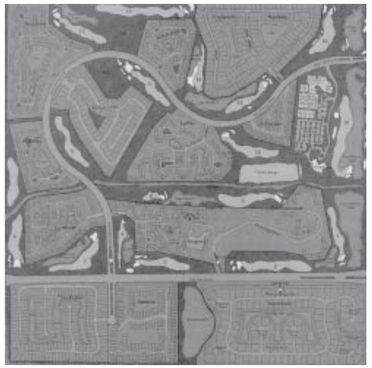

1

To be fair to Corbusier and the early auto ideologues who believed the automobile to be the harbinger of peace, tranquility and unending prosperity, no one could have anticipated the residual impact of the automobile on our urban environments. With the confluence of internal combustion technology and the manufacturing genius of Henry Ford—pioneering the use of standardized, interchangeable parts and assembly-line techniques—the automobile proliferated at a dizzying rate. Between 1908 and 1927, the reign of Ford's Model-T, over 15 million automobiles were sold by the Ford Motor Company alone. By 1930 there were more automobiles in New York City alone than on the entire continent of Europe.

Biologists have long recognized the intricate and highly evolved relationships that exist in the ecosystems around us. They've discovered how the disruption of one element in this complex web can have a deleterious ripple effect throughout the entire system. The urban fabric, I would contend, is a similarly delicate system of relationships, intricately evolved over millennia. Through trial and error, and the constant minor tweaking of generation upon generation (and without the specialized assistance from the yet to be discovered "professional planner", I might add) human beings evolved highly intricate ways of building and dwelling together in communities. We discovered densities and scales and patterns of urbanism and building which fit our human needs, and in general were satisfying and pleasing.

Yet overnight (in historical terms), this sensitive urban ecosystem, intricately evolved over millennia, was invaded by tens of millions of multiton steel projectiles, traveling at hitherto unfathomable speeds. The industrialized world was caught completely unaware and totally unprepared to deal with the magnitude of the automobile's challenge.

Enter the urban planner and traffic engineer, specialists uniquely charged to bring about a peaceful coexistence of man and automobile.[2] Under the guise of *public safety* and *efficiency*, urban planners, with officious cooperation from traffic engineers, completely undermined the delicate and vital relationships urban dwellers once enjoyed with their communities. In the mad rush to accommodate the automobile's insatiable demands, a new hierarchy (*limited access highway, arterial road, collector road* and *minor street*) was cavalierly imposed upon previously content urban forms. The magnitude and scales of these new forms were designed to appease the automobile, not the human being.


3

With the advent of modern planning's hysterical mandate to

opposite page - photograph Margaret Bourke-White, 1937

1. Henry Ford poses with the machine that literally changed the world. The Model-T, offered at $300.

2. Urban planners of the nineteenth and early twentieth century were generalists, broadly educated men, experienced in fields outside of urban design. Frederick Law Olmstead, one of America's most well known suburban planners and landscape architects, with New York's Central Park and Riverside Illinois among his more well known creations, was a seaman in the China trade, a newspaper correspondent, a farmer and a world traveler. Patrick Geddes was a field biologist, a sociologist and a civics teacher prior to his involvement with urban design. Ebenezer Howard, founder of the Garden City movement in England was a secretary, a stenographer and a court reporter before turning to urban design. Camillo Sitte, the well known Austrian urbanist was an architect by training. With industrialization has come increased specialization in all fields, and urban design is no exception. Rather than broadly educated generalists, today's planners are now trained with little or no exposure to the arts, sciences or design. They are facilitatory specialists. They facilitate meetings, interpret and apply code, and generate a copious paper trail for all to enjoy. The human judgment of a broadly educated generalist has been supplanted by the rigid code of a narrowly educated bureaucrat.

3. Typical suburban subdivision plan. Note the street hierarchy where minor streets empty out to collector streets which themselves empty onto arterial streets. One can't go from one neighborhood to another without being channeled into high speed, high traffic streets. All minor streets lead nowhere other than to the homes which line the street. This is quintessential modern residential planning. Boca Raton, Florida. Image from *A Better Place to Live - Reshaping the American Suburb*, Phillip Langdon, University of Massachusetts Press, p64

accommodate the automobile, we've effectively exchanged the wisdom acquired by generations of builders, and centuries of experimentation, for the expediency of getting from here to there as quickly as possible in our automobiles.

1

Over the past half century the urban form has been the victim of a hit-and-run accident with the urban planners and traffic engineers behind the wheel. Tread marks are now indelibly etched upon our soft and delicate urban fabric.

We've now reared generations who have never known the vitality of good neighborhood or urban life. The children of sprawl are now our urban planners, architects, developers and social visionaries; destructive sprawl is all that many have ever known; desecration has become the accepted norm. The situation is not good.

The insidious nature of sprawl evolved largely from it's relative ease and inexpense of development, as economies of scale worked to make the large housing development much cheaper to produce, per unit, than more modest projects. Such large projects, however, require a great deal of land, often dozens, hundreds, or even thousands of acres at a time. Such quantities of land could only be found at the outer periphery of the urban envelope.

And as modern farming methods exponentially increased agricultural yields, thus requiring fewer and fewer acres to produce ever increasing yields, the agricultural value of farmland at most urban peripheries greatly diminished. The only monetary value for land was increasingly to be found in what could be built upon it.

Developers then buy huge tracts of depreciated farm and pasture land, easily convincing zoning officials that such sprawl is tantamount to progress and economic vitality. A growing community, after all, is a good community—isn't it? The cycle continues, with the urban boundary continually expanded, swallowing up more depreciated agricultural land.

As a nation, we've been in this cycle now for well over half a century, and while the scope of the blight is almost beyond imagination, there's no let up in sight. While some locales are geographically limited in terms of how far they can sprawl, many areas, such as Atlanta, Charlotte, Dallas, Houston, Phoenix, Las Vegas, and dozens more like them, seem to have no limit to how far they can ooze outward.

Most tragically, this method of development has now become the norm, not just in rapidly growing urban areas, but in small communities all across the country as well. In Blacksburg, a small town in Appalachian Virginia, and the site for this project, large tracts of pasture land are being devoured at the urban periphery to build the same homogenous and monotonous houses which could just as easily be in Charlotte, Atlanta or Washington, DC.

There are, essentially, two contemporary responses opposing this sprawl paradigm. The "new town" model, squarely in the camp of the New Urbanists, seeks to establish healthy residential enclaves through the establishment of entire new communities. The mindset here is: "if it's broke, make a new one". A second response to sprawl is the urban infill paradigm. Here, the mindset is more: "if it's broke, let's fix it."

1. Levittown, Long Island - one of the first mass produced housing suburbs. 150 identical houses were constructed per day, 17,000 total in this single development on former potato fields. Howard Kunstler remarks in *The Geography of Nowhere* (p.105), that William Levitt (the developer) made buying a house so easy that "you could sleepwalk into ownership". The model - the detached, single family dwelling, amassed in homogenous multitudes outside of the urban envelope, proved irresistible to developers, consumers and financiers alike. The automobile provided access; the post WW II boom provided demand; economies of scale and mass production techniques provided affordability; FHA loan programs provided capital; the fates had conspired to make this the "American Dream" for millions of middle to lower middle income Americans across the country.

The New Urbanists don't wage war with developers, but rather seek to make the developer their ally. The developer has a fondness for huge projects outside the urban envelope, for economic reasons already mentioned.

1

The New Urbanists accept this developer requirement as a pragmatic constraint, and then set about transforming these huge projects from homogenous housing tracts to new communities. In the spirit of Ebenezer Howard's Garden Cities, they carefully zone areas for commercial, office, retail, civic building, park, public use, green-belt, multi family, etc., all within the context of a development which would otherwise be single family houses on cul-de-sacs. In so doing, the New Urbanists attempt to generate an economic vitality and diversity in these new developments which is completely absent from the typical suburban housing tract.[2]

With regard to urban infill, many locales across the country are beginning to see this as a method of "smart growth". With a consistently growing population, even the most strident anti-growth idealogue must concede that growth cannot be stopped (at least not for long and certainly not without severe economic and political consequences). Accepting this fact, and considering the scope of blight resulting from half a century of sprawl, the idea of "filling in" or even "fixing" the existing urban envelope, much of which has been damaged by sprawl, is a thought gaining considerable momentum in recent years. The mindset here is markedly different than the "new town" paradigm. Christopher Alexander speaks of "site repair" as a goal worthy of designers.[3] Site repair is a mindset where the designer views the project as an opportunity to improve the site, perhaps even to "fix" site deficiencies through the act of building. When the notion of "site" is enlarged to take in the surrounding urban context, the paradigm of urban infill becomes "site repair" of the neighborhood, town or city. It's an improvement of what we already have, a "righting" of past wrongs. Thoughtful infill projects can introduce a synergy to the surrounding context which may never have existed, adding value to the whole, beyond the value of the individual project itself.

This notion of using architecture and development as a means to improve and repair that which already exists resonates with me and so I chose the urban infill paradigm as my method of choice for this project.

Within the existing urban periphery of Blacksburg are several opportunities for modest multiunit projects where the surrounding urban context might benefit from thoughtful development and increased density.

4

1. The "new town" model often advocated by the New Urbanists. The Village of Windsor. 416 Acre development on Florida's Atlantic coast, near Vero Beach.
2. Thus far, the New Urbanist's desire for viable, self-sustaining economies has not panned out. The commercially zoned areas of the communities seem slow to develop. The *"if we build it they will come"* mentality, while effective for the housing and, to a certain extent, the small retail (cafes and trinket shops), has not worked nearly so well with commerce and industry. Ebenezer Howard, with his Garden Cities of Letchworth and Wellwyn, a hundred years ago, had essentially the same vision, and the same problem, with developing real, vital economies. Howard, like the New Urbanists to date, had some success, perhaps, in creating a more refined suburb, but not the self sustaining, vital economic entities that he envisioned. Jane Jacobs argues that it is precisely this vital economy which is the *essence* of the diversity which for she so strongly advocates, and which the New Urbanists, seemingly, desire to promulgate. In the absence of such a vital economy, Jacobs would say that true urban diversity is impossible.
3. Christopher Alexander, A Pattern Language, Oxford Press, 1977, pp. 508-512
4. Urban infill model. Orange Tree Courts. Riverside, CA. "if it's broke, fix it". A huge parking garage behind the famous Mission Inn in Riverside left a blight in the town. This development of residential, commercial and retail was incorporated over the parking structure to "fix" a previous planning mistake.

While the nature of sprawl can be considered and analyzed at various levels and from many different perspectives, my primary interest in this design project is investigating the nature of just three vital relationships: 1. the relationship which exists between a house and neighboring houses; 2. the relationship between a house and its site; and 3. the relationship between the indoor and outdoor realms. I've become particularly intrigued by these relationships by observing how many of the disharmonies and absurdities in today's sprawlscape are in one way or another linked to these simple relationships.

1

As sprawl has evolved, it has fostered a tacit understanding among its perpetrators that "this is the way you make a house"—sprawl has become standard practice. Building tradesmen are tradition-oriented people—they do what they know. This is OK when working with healthy patterns and traditions, but now they're working with very unhealthy ones. Critical questions are no longer being asked. The house-building industry is on autopilot and the plane is in a spiral dive.

The status quo for residential housing throughout most of the country is increasingly large (2,000 to 4,000 S.F.), detached, single family houses, on decreasingly generous lots. Frontally oriented toward the street, with front yard, back yard, attached garage, and a side yard which serves as suburbia's *demilitarized zone*. The front yard is typically uninhabited, existing primarily to conform to front setback regulations imposed by code, and to present a neat and tidy scene from the street (realtors call it 'curb appeal'). The main hub of outdoor activity is invariably the backyard, where people might find a modicum of privacy if they have a fence or shrub. This paradigm has created a great deal of dysfunction and disharmony with regard to the three vital relationships which I've noted.

Relationship Between Houses

Houses are becoming larger; lots are becoming smaller.[2] Big houses are thoughtlessly "dropped" on small sites with little or no regard for the neighbor's houses. This presents sprawlscape with some of its more serious problems. First is a lack of privacy, which is only exacerbated by the fact that most of today's sprawl houses are multilevel, so upper floors overlook paltry ten foot side yards and provide an especially advantageous view of the neighbor's lives. Additionally, with lots so small and sideyards so skinny, the neighbor's house has become the dominant element of one's viewscape. As each and every square foot of lot space has become more precious, the waste of space resulting from uninhabitable side and front yards is all the more striking. Front yards are exposed to neighboring houses and, of course, to cars passing by on the street. Side yards are exposed to neighbor's windows and are often so skinny as to negate their use for anything but storing an RV or boat (not always an architectural asset for one's neighbor).

1

1. Quintessential sprawl. Blacksburg, Virginia - big houses dropped on small lots with little or no regard for what is next to it. photos: author, 2001.

2. Median house size has increased 17% from 1987 to 2000, while median lot size has decreased by 8% during the same time frame. NAHB statistics from their web page.

1

This relationship between houses in the American sprawlscape is very tenuous at best, and completely dysfunctional as a general rule. Given the sizes of the lot and house as pragmatic design constraints (which is my inclination), how could houses be designed and arranged on their site so as to provide a dignified and comfortable level of privacy for people? How could the close proximity of the houses become an architectural asset, rather than a liability for the neighbors? And with lot space becoming increasingly precious, how can throw away spaces like sideyards and front yards be somehow reclaimed for real use and enjoyment of the dwellers?

Relationship Between the Indoor and Outdoor Realms

Even the language we use to describe our outdoor spaces gives evidence of the severed relationship we have with the garden. Terms like "garden" and "court" have been largely supplanted by utilitarian terms like "frontyard" and "backyard" (as in shipyard, lumberyard or stockyard). The outdoor room (once conceived as an important and integral part of the overall plan of the house) in today's sprawlscape is left unimproved by builders and developers, and often underdeveloped, or entirely ignored by architects. The once romantic vision of the garden, with its careful integration and coexistence with the indoor realm, has all but disappeared from the architectural imaginations of the designers and dwellers of sprawlscape.

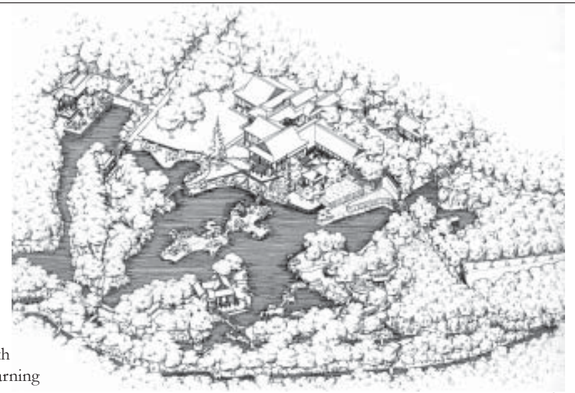
2

In ignoring these outdoor spaces, I believe we've severed an archetypal relationship that has existed with people and their cultivated landscape for millennia, and we've robbed architecture of it's full power and influence in our lives. We've minimized its potential. In effect, we've eliminated the very thing which signifies the good life for nearly every culture in the world; the garden is a recurrent theme, evoking tranquility and sublimity for all cultures, East and West.

2

1. Status quo sprawl, Blacksburg, VA. photo: author.

2. The side yard - suburbia's DMZ. Blacksburg, Virginia. photos: author.



1

2

2

2

In Judeo/Christian traditions the garden, namely the Garden of Eden, signifies the good life—in full communion with God, with self, with fellow man, and of course with nature. It signifies man living as intended by his Creator. Adam and Eve were cast out of the "Garden", not out of the "back yard". Some attribute this archetypal connection with the garden as a primal yearning for a lost remnant of innocence, a search for restored wholeness and communion with Creator and creation. To whatever one attributes our affinity for the garden, it's difficult to deny its existence.

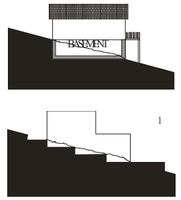
The concept of garden is obviously not unique to western culture, as the ancient cultures of the East have similarly strong ties to the cultivated landscape. The Japanese garden is a most powerful example of feelings (silence, peace, tranquility, sublimity) translated into the material language of water, gravel and flora.

There is vast synergy between garden and house. The house lends the garden tectonic mass; the garden affords hard and austere architectural materials a softness and gentility from which they benefit. The two are complementary partners in the creation of architectural space. They must not be considered separate and unrelated entities.

Again, given the modest size of today's building site as a design constraint, how can the house be designed so as to maximize this synergy between the indoor and outdoor realms? How can the transition from indoors to outdoors, and vice versa, be natural and effortless? How can the juxtaposition of houses in close proximity be negotiated such that outdoor rooms are sheltered and private?

1. Katsura Imperial Villa - a beautiful example of synergy between building and garden. The two are inextricably bound; they complete one another and magnify one another. Image from *The Poetics of Gardens*, Charles Moore, William Mitchell, William Turnbull. MIT Press, 1993, p.98

2. Chinese landscape prints. Eastern cultures have an intense connection with the cultivated landscape. Freer Gallery of Art, Washington DC, as reproduced in *The Tao of Architecture*, Amos Ih Tiao Chang, Princeton Press, 1956.



1

2

RELATIONSHIP BETWEEN HOUSE AND SITE

The relationship with the site gets off to a very shaky start in today's sprawlscape, as the site is treated as a malevolent force to be "neutralized". Trees are not assets, but obstacles to be eliminated; the slope is a bother to be sanitized with earthmover and backhoe. The site must be a "tabula rosa" before construction can begin.

The elimination of good trees is a cruel and selfish act toward the future dwellers, perpetrated by designers and builders. It will take generations for trees (if they are replanted) to re-establish themselves as the evocative presence they were before being "neutralized" for expediency's sake.

The way houses typically relate to the slope of the site in today's sprawl developments, create very dysfunctional living patterns which harass people's daily existence. The typical way to mediate a slope is to cut a basement into it, creating a single flat platform from which to build on. Pragmatic, to be sure, but often with very unfortunate results. The basement exits out to terra firma at the back of the house, but none of the living spaces do! The only accessible "ground" is in the front yard, which, as I've already alluded to, is uninhabitable due to it's lack of privacy. The knee-jerk response to the desire for private and easily accessible outdoor space is to hang a wooden deck off the back of the house. This is first, an aesthetic "high crime", and second, a phenomenally neutered experience as compared to being "grounded" and in the realm of the garden. Outdoor activities are necessarily suspended above terra firma, and the garden is either completely removed from daily experience, or at best simulated with a few terra cotta planters. To get to the real garden (if there is one), one has to work for it. There is not an effortless transition between house and garden, between the indoor and outdoor realm, but a forced and labored one. The garden will most likely either not exist, or not be used and enjoyed.

What if the site was viewed as a benevolent partner with the house rather than a malevolent force which must be neutralized? What if existing trees were seen as assets rather than liabilities? What if the house could be integrated with the slope in such a way that the relationship we have with our outdoor spaces is heightened, and the transition from the indoor to the outdoor realm is effortless, natural and desirable?

1. top - typical method employed to compensate for a sloping site. Site is neutralized with deeply excavated basement. Advantages are simplicity of construction, and basement storage. Disadvantage is a severed relationship between the dwellers and the site. Bottom - foundation follows the topography. Advantages are a greatly enhanced relationship with the site and the garden, disadvantages are added complexity and expense in excavation and construction.

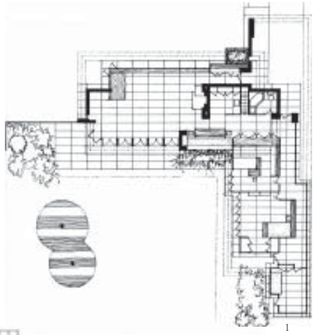
2. Typical result from the deep cut basement model. Living areas exit ten feet above grade, suspended by a "stuck on" wooden deck. Blacksburg, VA. photo: author.

Precedents

Integrating Site, Structure and Space

In this section I'll consider how some very accomplished architects have achieved strikingly better results with regard to the previously described relationships. In particular I'll consider how these relationships, when thoughtfully considered, serve to integrate indoor and outdoor spaces.

The seamless integration of indoor and outdoor living areas begins with a careful consideration of the spaces in plan. The massing of the house and outbuildings must be used as a means to frame and shelter outdoor rooms, giving them distinct architectonic boundaries, just as an indoor room. This feeling of shelter and privacy evoked by the thoughtful plan and massing of the house, is a critical aspect of evocative and truly usable outdoor spaces.



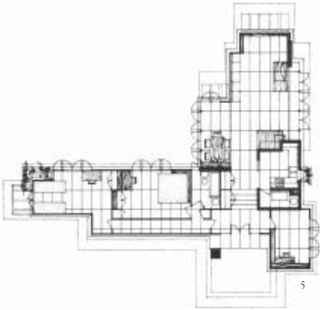
1

2

3

4

The L-plan is one simple and common way to use the mass of the house to frame a private court. Frank Lloyd Wright employed this to great advantage with many of his usonian houses. The houses invariably turned their backs to the street, with all their visual energy directed toward the private, sheltered court at the rear of the house.



5

opposite page - Edgar Kaufman house, "Fallingwater, Mill Run, Pennsylvania. Image: Frank Lloyd Wright - The Masterworks, Bruce Brooks Pfeiffer, Rizzoli Press, p.156

1. Jacobs House. Frank Lloyd Wright. Madison, Wisconsin, 1936. Image: ibid. p.17
2. Rosenbaum House. Frank Lloyd Wright. Florence, Alabama, 1939. Image: ibid. p.43
3. Zimmerman House. Frank Lloyd Wright. Manchester, New Hampshir. Image: unknown.
4. Lusk House. Frank Lloyd Wright. Huron, South Dakota, 1935. Image: Frank Lloyd Wright's Usonian Houses, John Sergeant. p.26
5. Pope House. Frank Lloyd Wright. Falls Church, Virginia, 1940. Image: ibid. p.49

Wright typically created the L with the bedroom wing meeting the living/dining wing at a right angle. The living room would open to a private terrace with the garden brought right to the door with planting beds. Wright typically made sure that one exited onto this terrace at grade, even if that often meant bringing the grade up to the house with retaining walls, as in the Hanna house.[3]

There are few usonians where Wright allowed living areas to exit to a terrace condition suspended above grade. The Sturges house, practically built on a cliff, is one example where Wright did allow this, due to the pragmatic constraints of the site. Exiting living areas at grade, rather than above grade, when possible, I believe is one important element in making the outdoor room a more inviting place to go.


1

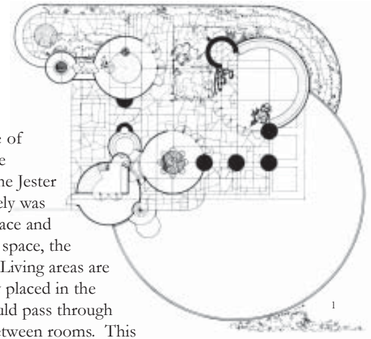
The proximity of the garden to the house is another important consideration. Wright always brought the garden right to the house with carefully conceived planting beds. The Zimmerman house[1] [2] is a nice example of this. Here the planting beds seem to permeate the house, passing from outdoor garden to indoor garden, separated only by a pane of glass. So close did Wright see this garden connection that for the Zimmerman house he renamed the living room the "garden room". The Hannah house [3] also illustrates nicely Wright's delivery of the garden to the house through carefully planned planting beds.

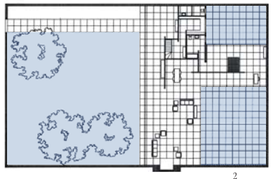

2


3

Wright, in a 1956 "House and Home" article featuring the Zimmerman house, revealed some of the "tricks of the trade" he used to make a strong connection between the indoor and outdoor realms. *"Make the terrace a part of the living room. For example, carry your planting through the glass; carry your floor line through the wall; use ceiling high glass to let people see your ceiling run right past the wall; continue the ceiling pattern out onto the overhang."* Wright considered the terrace a part of the house and had honed several design techniques to evoke that feeling.

1. Zimmerman House. Garden Room (living room) window. Planting beds pass through glass, bringing the garden inside in a powerful way. Image from *Frank Lloyd Wright - The Master Works*. p.243
2. Zimmerman House. Garden Room. Image: ibid. p.245
3. Hannah House: Retaining walls are used to bring terraces up to grade level. Planting beds are strategically placed to bring garden to the threshold between indoors and outdoors. Image: ibid. p. 148


1


2

The most radical example of Wright's integration of the indoors and outdoors is the Jester house,[1] which unfortunately was never built. Here the terrace and garden are the circulation space, the "hallways" for the house. Living areas are individual pavilions gently placed in the covered garden. One would pass through the garden when going between rooms. This project pushed the envelope of what the garden is, and poignantly reveals Wright's true feelings on the matter—the garden is the house, and the house is the garden. The two are one, completely inseparable.

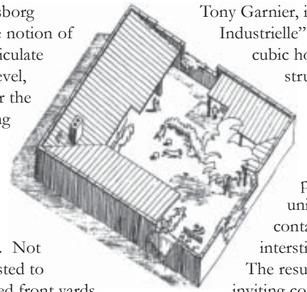
Mies too, like Wright, used the plan of the house to carefully articulate and envelope outdoor spaces. The House With Three Courts [2] has three well defined outdoor rooms which are created with the mass of the house and a masonry wall. The Karl Lemke house [3] uses a simple L plan to define a sunny, south facing rear courtyard.


3


3

1. Jester House. Frank Lloyd Wright. Palos Verdes, CA. Unbuilt. Image: Frank Lloyd Wright's Usonian Houses, John Sergeant. p.37
2. House With Three Courts. Mies van der Rohe. Image: Studies in Tectonic Structure. Kenneth Frampton, MIT Press, 1995. p.182
3. Karl Lemke House. Mies van der Rohe. Images: ibid. p.172

Jorn Jutzon in his Fredensborg housing project [1] took the notion of using building mass to articulate garden space to another level, by first using an L plan for the main house, then detaching the garage (in this case actually a boathouse) to close the corner of the tiny lot. A very sheltered and private garden courtyard room is created. Not an inch of lot space is wasted to "sliver" sideyards or unused front yards. Whatever is not used by the building is part of the private garden courtyard.



1

1

1

Tony Garnier, in his proposal for the "Cite Industrielle" [3] used the massing of the simple, cubic housing units as the mass and structure for vertical gardens created in the courtyards between buildings.

Irving Gill, in the Horatio West Apartments of Santa Monica,[2] provides a nice example of multi unit massing conceived to frame and contain courtyard gardens in the interstitial spaces between apartment units. The resulting central courtyard becomes an inviting common entry space.

2

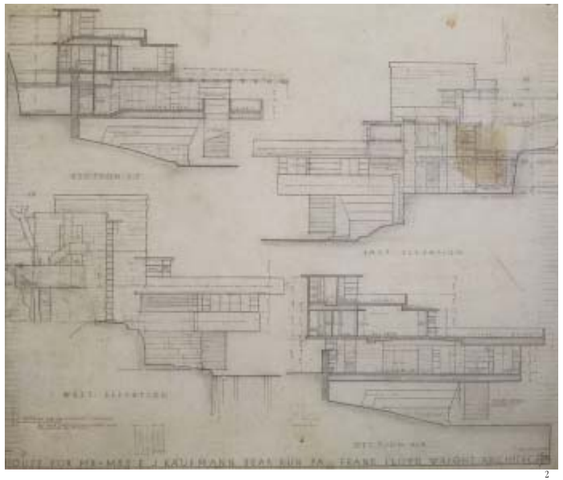
3

2

2

1. Fredensborg Housing. Jorn Utzon. Images: Studies in Tectonic Structure. pp.264-265
2. Horatio West Apartments. Irving Gill. Image Irving Gill - Architect.
3. Cite Industrielle, Tony Garnier. Image: *Towards a New Architecture,* Le Corbusier, Dover Press, 1931

In addition to the thoughtful use of massing to articulate outdoor spaces, the way in which a house engages its site is equally important in determining the degree of integration that exists between the indoors and outdoors. Frank Lloyd Wright was particularly masterful in integrating the house with the landscape. There is a very close relationship between earth and structure, as structure takes its cues from the site, rather than imposing its will on the site. The Kaufman house at Falling Water is one of the finest examples of integrating a structure to a site.

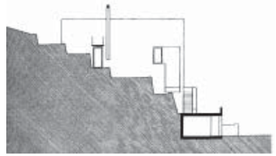


2

3

The Austrian architect, Rudolph Schindler, a disciple of Wright's (by way of Adolph Loos) established himself in Southern California, and

1

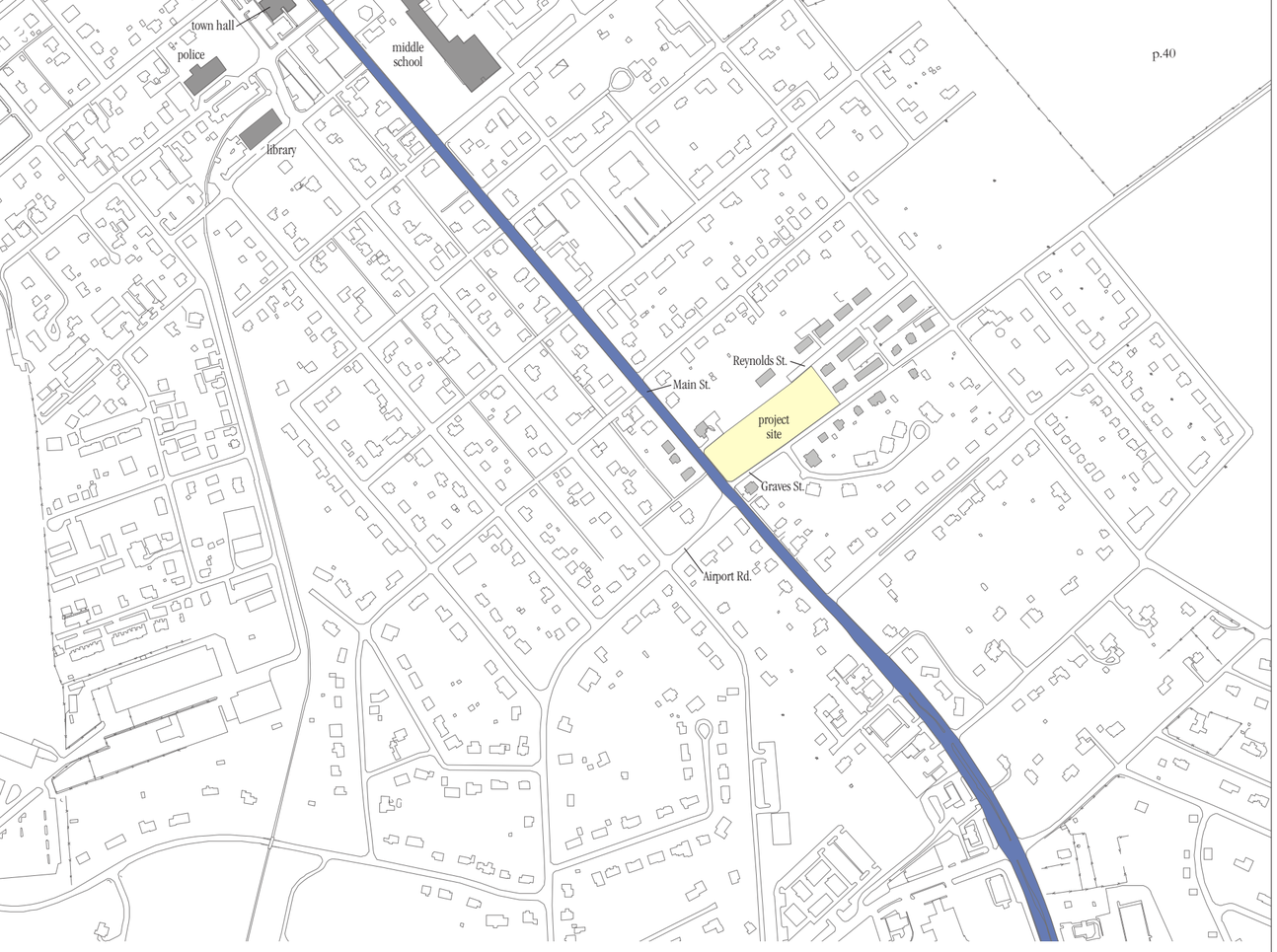


was there tested with many severe sites. [1] He became masterful with the terraced house, stepping down the steep slopes of Southern California's ravines. The Delahoyte House, in particular, shows his mastery of integrating the house with the sloped site.

The Swiss architects, of course, face some of the most severe sites. Luigi Snozzi, building in the Ticino region, has an architecture noted for it's response to dramatic and severe sites.

4

1. Frank Lloyd Wright's John Storer House. Hollywood, CA, 1923. Image: FLW –The Masterworks. p.134
2. Frank Lloyd Wright's Kaufman House—Falling Water. Mill Run, PA, 1935. Image: FLW–The Masterworks. p.152
3. Rudolph Schindler's Delahoyte House.
4. Luigi Snozzi's Diener House. Ronco, Switzerland. Near Lago Maggiore. 1990. Image: Luigi Snozzi, Birkhauser Press, 1997. pp. 146-149. See also Kalman house pp. 52-57.



Project

Reynolds Street Rowhowses

The preceding sections described some of the influences, both positive and negative, which helped shape this project.

In describing this project it is not my desire, nor intention, to exhaustively detail the project's "process"—with vignettes into the myriad iterations the project passed through during development. Rather, I'll focus primarily on key thoughts and principals that informed the project and guided it through development, and present the project, for the most part, in it's fullest stage of development.

3

Site Selection

As mentioned previously, the urban infill paradigm is my preferred model for residential development in Blacksburg. It has several advantages. First, for such a small town (less than 40,000 people), Blacksburg has a tremendous amount of traffic. Proximity to the urban core and the town's major employers (Virginia Tech University and the affiliated Corporate Research and Development Center) would afford dwellers the advantage of walking, biking or taking public transit to work, should they choose. Furthermore, it would offer close proximity to a pedestrian friendly downtown section, with shops, restaurants, pubs, farmer's market, library, street festivals and parades. These intangible urban benefits quickly dissipate as development sprawls out and away from the urban core, which is rapidly occurring in Blacksburg.

In addition, urban infill affords the value of greater diversity for the neighborhood in terms of building ages and styles. Jane Jacobs writes compellingly about the importance of this diversity in the urban environment.[1] One significant problem with sprawl is that all the buildings are of a similar age and style. It is homogenous by definition. Urban infill allows the newer buildings to share in the grace and charm of the mature neighborhood, with it's grand trees and older homes. It allows the older buildings to share in the vitality and energy of the newer buildings. The new and old complement one another, making each the better by the other's presence.

The site chosen for this project is quite close to the downtown section, within five to ten blocks of the town's core. It is located in a mature, mixed density, residential neighborhood with several rather nice 50 to 75 year old bungalow and farmhouse style homes, along with some less inspiring brick ranches of the 70's.

2

opposite page - area map showing project site with surrounding town of Blacksburg.

1. *The Death and Life of Great American Cities*. Jane Jacobs, Random House, 1961. pp.244-260

2. Site map. Site is highlighted in yellow. Topography slopes down from right to left.

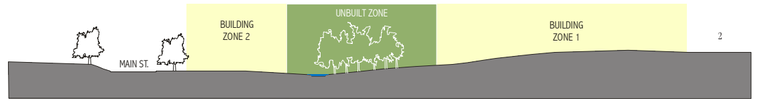
3. Photograph of site from the corner of Airport and Main (red camera on site map above).

1

Site Development

The topography and tree inventory of the site prompt me to divide it into two building zones, bisected by an undeveloped zone, with a mature stand of maples and oaks. This low zone is the collecting area for the site's rainwater and runoff (see site section below). The trees are a very valuable asset to the site. They have a significant and beautiful presence from Main Street; they will provide a valuable privacy screen and buffer for new houses, and of course they offer the charm and grace that can only come from mature trees. Retaining as many of these trees as possible is an important site development consideration.

This wooded buffer zone would be an ideal spot for a small community park with benches, shade plantings, and perhaps a small play area. The idealist in me believes that such a park would be a valuable goodwill offering to the neighborhood and community, one small way for the urban infill project to make the overall urban condition better than before. The pragmatist in me thinks that the offer of a small public park to town planners might make the permitting process go much smoother, allowing for generous variances, should they be required.



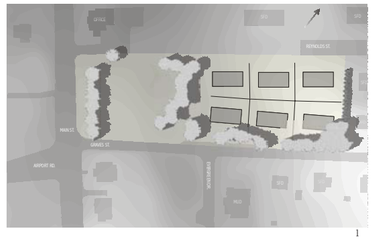
2

opposite page - Site development plan.

1. Photo from mid site in maple grove.

2. Site section showing building and non-building zones.

PROJECT DENSITY



1

As mentioned previously, it's my inclination to work within the developer's density requirements, using this as a pragmatic design constraint. Considering typical sprawl neighborhoods of today, densities range anywhere from four to eight detached units to the acre. For the purposes of this project I decided to assume a minimum density of six houses to the acre. Working at such a density affords me the opportunity to address several of the sprawl neighborhood's dysfunctions that arise from their close proximity to one another. It further compels me to test my architecture against the rigors of a difficult contextual environment of expensive land and profit inclined developers.

This project will only concern itself with the area of the site that I've described as building zone one. Building zone two, smaller, and fronting Main Street, seems an opportune place for smaller rowhouses, but its development will not be pursued in this project.

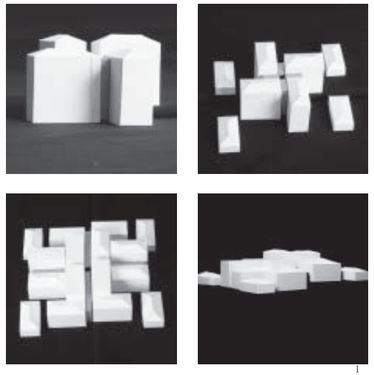
To develop zone one with my self-imposed density constraints, and using the status quo thinking of today's sprawl developer, would likely generate a site plan not too different from that shown in the diagram[1]. There would be six houses with narrow little side yards separating them. They would be frontally oriented toward the street. They would have an attached garage with a big garage door facing the street. If the developer was feeling generous, he might build privacy fences; more likely though he'd leave that to the homeowners. The houses would be placed in a sea of grass. The effect would be like living in a fish bowl. This is quintessential sprawl development.


2

It doesn't take long to recognize that this status quo arrangement of houses on the site could not produce healthy house to house, or house to street relationships. The first order of business, then, is to establish a development paradigm which provides for the required density, yet also affords much more privacy between houses.


3

1. Site map showing a status quo sprawl arrangement for six houses on one acre.
2. Sprawl neighborhood in Blacksburg showing typical house to house relationship at about six houses to the acre.
3. Sprawl neighborhood in Blacksburg. At about four houses to the acre, the houses are bigger, but the house to house relationship is the same. The upper middle income buyer gets a bigger house but the dysfunctional relationships of sprawl are still very present.


1

MASSING SCHEMES

Experimenting with myriad massing configurations at the rather high densities I've described, one rather paradoxical principal becomes readily apparent: the closer the houses are brought together, even to the point of touching and sharing a wall, the greater the level of visual privacy that might be attained (acoustic privacy is quite another matter and will be discussed later). In closer quarters the houses begin to have a profound sheltering effect on one another, they begin to frame and articulate outdoor spaces for their neighbors. The farther apart they are pushed, the more visually exposed they become.

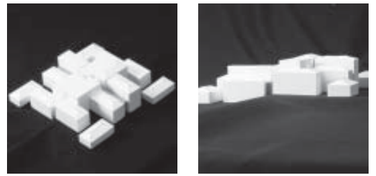
Jorn Utzon had several housing developments from the 1950's and 60's which experimented with high density housing utilizing an L-plan,[2] which as I mentioned previously, was a favorite for Wright and Mies in many of their house plans as well. Being a long time usonian admirer, I'd already been wholly convinced of the L-plan's merits. However, seeing the way Utzon utilized the plan at such high densities was a bit of an epiphany for me. The L-plan framed the courtyard, just like Wright's usonians, but then the neighbor's wall closed the third side, creating an extremely private, well defined outdoor room, claiming every inch of available lot space for the private courtyard garden (see sections and house plan on pg 38). Utzon was dealing with a Northern European aesthetic of the 1950's, whereby a single level home of less than a thousand square feet was considered perfectly adequate. Today's American family has space expectations at least double that. Utzon's projects persuaded me, though, that perhaps a high density, *multi level* L-plan might create the private courtyard gardens between units, *and* afford the quantity of space demanded by the contemporary American family's standards.

MASSING AND SOLAR ORIENTATION

In these various close-packed massing configurations[1] though, there was one problem which proved difficult, and that was solar orientation. It seemed as if one or two houses would get the best solar conditions, with wonderful eastern exposure


2

for morning light, and southern exposure for optimal thermal performance. Conversely, one or two would get the worst conditions. This problem compelled me to look for a solution where all houses would get the same optimum southeastern exposure—sun into bedrooms, bathrooms and kitchens in the morning, warm, southern exposed courtyards throughout much of the day, and protection from harsh southwestern sun in the afternoons.

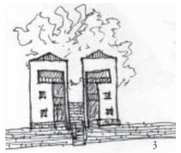

1

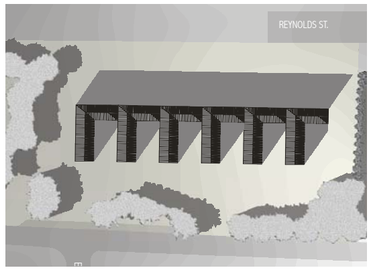
1. Massing studies, playing with blocks. Using building mass to frame private outdoor space. Photos: author.
2. Housing at Fredensborg, Jorn Utzon, 1962. Close packed L-plans create private courtyards with the neighbor's wall mass serving to close the courtyard. Very effective way to maximize private garden space on tiny lots. See also Kingo Housing, project for Odense, and housing at Birkehoj. These all employ a similar tight packed L-plan to good effect. Image from *Studies in Tectonic Culture*. Kenneth Frampton, MIT Press, 1995 p.263

BUILDING DEVELOPMENT

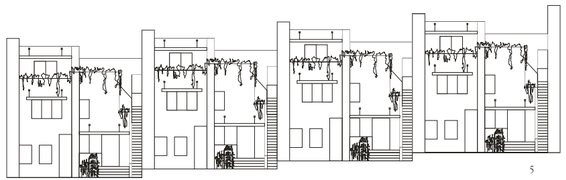
These important principles of privacy, garden courtyards and optimum solar orientation guided me toward the massing strategy and development paradigm which would ultimately define this project—one that I'd characterize as a "rowhouse with a twist". A tight packed, L-plan (a la Utzon) would create private courtyard spaces between units; a multilevel plan would provide enough space for the American family (2,000 s.f. was the ball-park figure I was working with) [1]; and houses lined up in a row, oriented to the southeast, would give everyone the same benefits of optimum solar orientation.

Technically, with a courtyard separating the units, they aren't true rowhouses, but the verticality and close proximity of the massings do seem to evoke that typology.

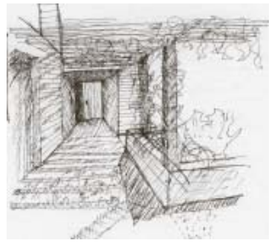




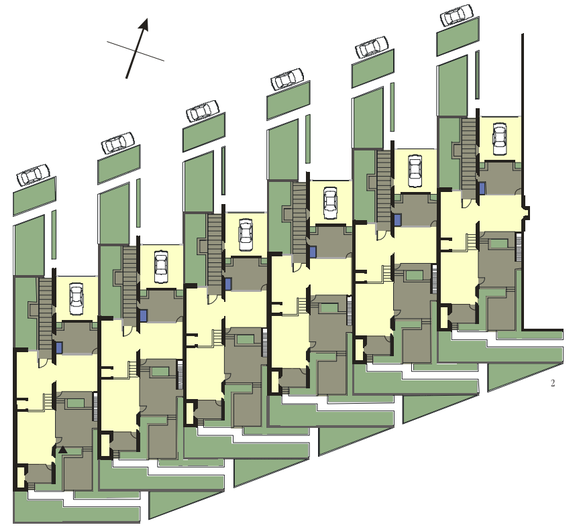
2



1. For the year 2000, the average square footage for an American home was 2,273 s.f, the median was 2,059 s.f. Size increased by over 8% in the decade between 1990 and 2000. There are several social and economic factors at work to influence this. Just a few to note here. More Americans are working at home thus requiring more space. American's continue to acquire ever increasing amounts of "stuff", thereby needing room to put it (the Mini-Storage phenomenon of the 80's and 90's is an especially revealing commentary on this). The American ethos of "bigger is better" cannot be ignored either. And with land prices ever increasing, developers need more square footage to sell to maintain profit margins. Source of figures: NAHB web page.
2. Early site plan scheme inspired in large part by Utzon's housing projects of the 50's and 60's.
3. Early conceptual sketches evoked "rowhouse".
4. Early conceptual sketch - multi level L-plan with private court.
5. Southeast elevation study suggests "rowhouse".

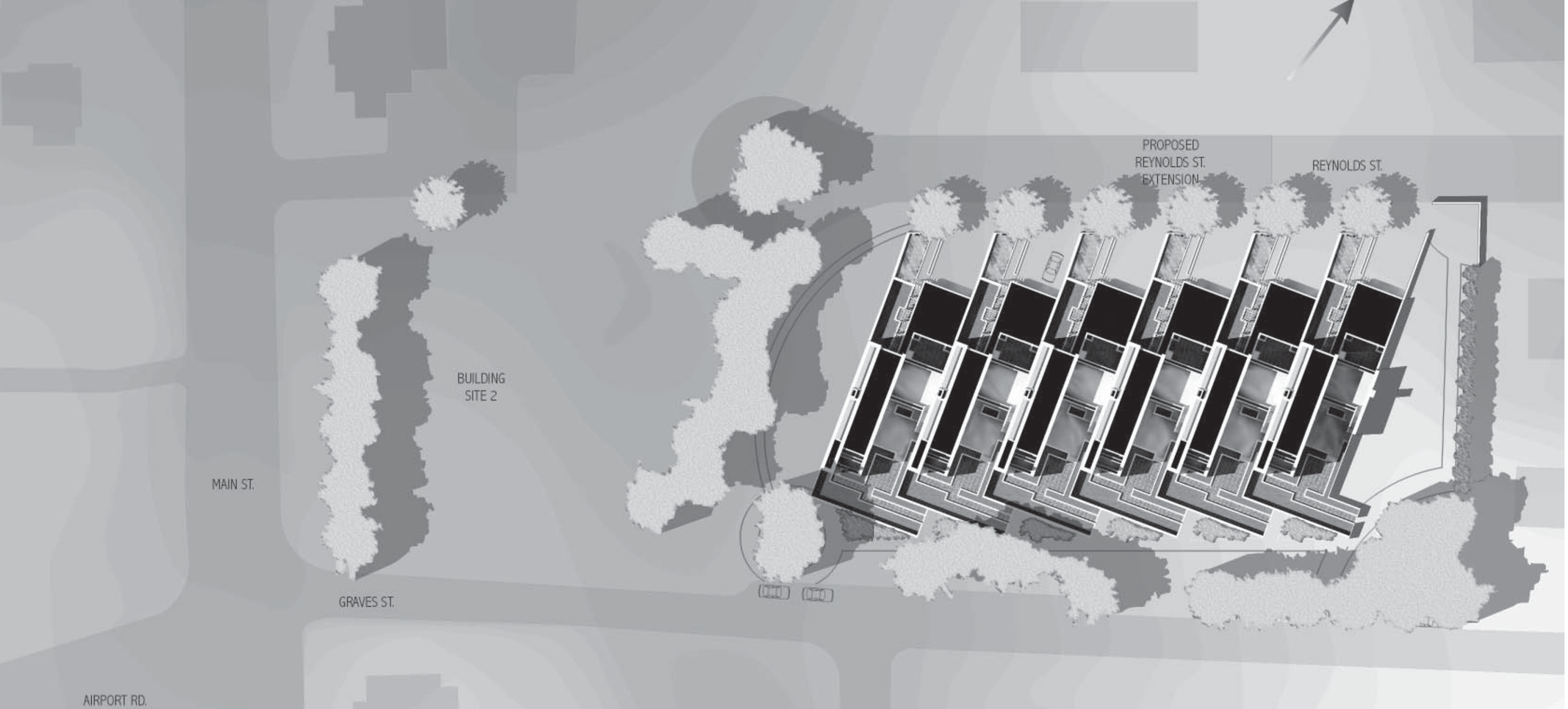

1

As the plan evolved, two fundamental massing changes were introduced. First, each unit would stagger 14' to the north, allowing greater penetration of morning sun into the courtyards and onto eastern walls. Second, the garage would be detached from the main mass of the house, serving to further the privacy of the entry and front gardens.

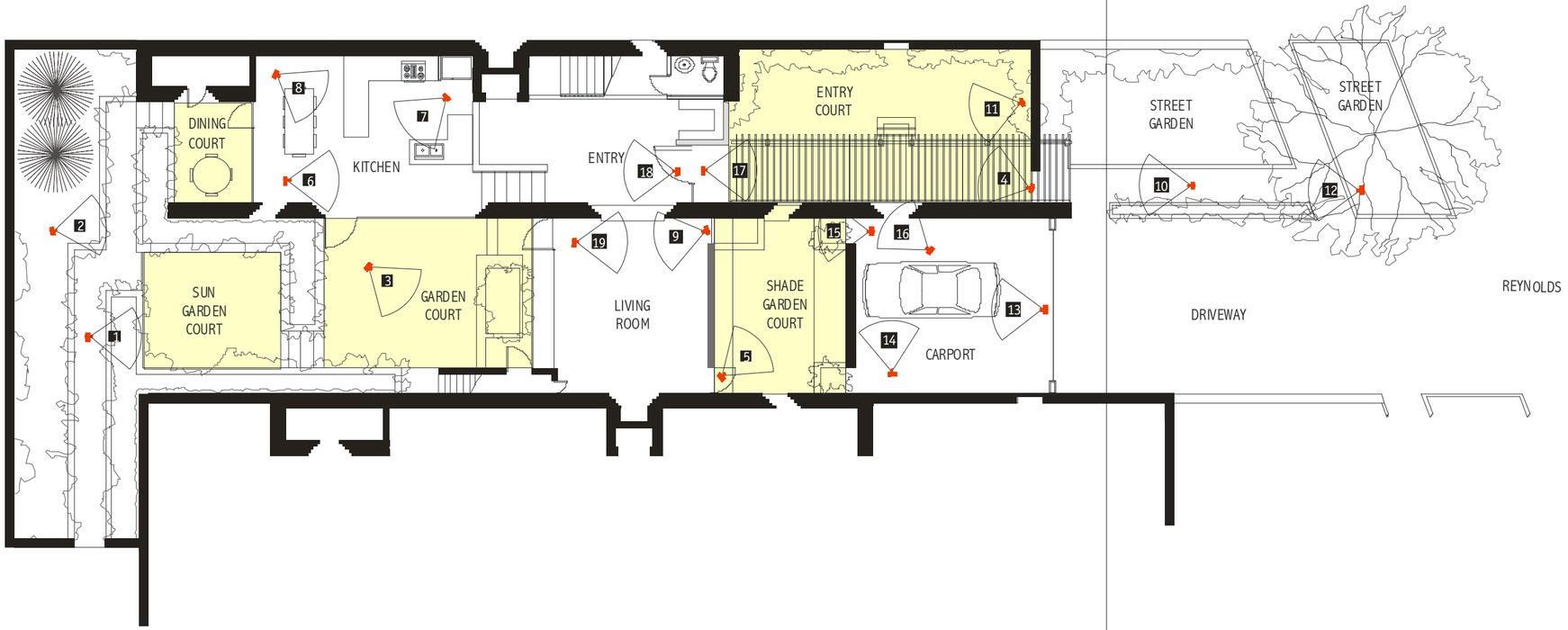

2

1. sketch - front entry court and pergola
2. Building plan. Yellow areas: building footprints; brown areas: courts and terraces, green areas: planting beds.

Reynolds Street will be extended to service all six driveways. A gravel walking path will circle the project. Graves street will be cut in to provide off street parking for the project and community park.



building plan



HOUSE PLAN— INTEGRATION OF THE INDOOR AND OUTDOOR REALMS

1

The primary aim of the plan is to frame beautiful outdoor garden rooms, then thoughtfully integrate these spaces with the indoor realm.

First, to create well defined and well scaled outdoor spaces through the careful disposition of building mass.

Second, to integrate these outdoor rooms with indoor spaces, making them easily and naturally accessible, to bring the garden to the house and the house to the garden.

Third, to orient the plan in such a way as to maximize morning sun in morning areas, to give courtyard spaces southern exposure, and to mitigate the harshness of late-afternoon light.

opposite page and this page - Ground floor plan with courtyard spaces highlighted in yellow. Several camera positions are described with a red mark, an arc and a number. The number corresponds to renderings on this page and pages to follow.

1. camera #1. Shows rear courtyards largely shaded in late afternoon light. Kitchen and dining area are to the left, living room is straight ahead, stairs to right of photo lead to second level terrace which overlooks front and rear courtyard gardens.

1

3

The rear courtyard gardens and their close relationship with the indoor living areas are, in many ways, the heart and soul of this project.

2

opposite page—camera #9 (see plan—pg. 50) looking out to rear garden courts from the living room. Again, the glazing is mullionless at floor, ceiling and wall to enhance the relationship between the indoor and outdoor rooms.

1. camera #2 (see plan—pg. 50). Rear courts in afternoon light. Shaded dining terrace to left. Large wall on right side of photo is neighbor's house, with glass block windows to provide light into house but total privacy for the courtyards.
2. camera #3 (see plan—pg. 50) rear court looking at living room glazing and stairs to second floor terrace.
3. camera #7 (see plan—pg. 50) rear courts looking out from the kitchen. Dining terrace on right, garden courts on left. Glazing on dining terrace wall is mullionless at ceiling, wall and floor. This thought is inspired by Wright's advice which he gave in an article describing the Zimmerman House. *"carry your floor line through the wall; use ceiling high glass to let people see your ceiling run right past the wall; continue the ceiling pattern out onto the overhang."* Being able to see the ceiling, floor and wall pass from inside to outside greatly enhances the close relationship between the outdoor and indoor rooms.

1

2

The potentials for the entryway and the outdoor realm at the front of the house were greatly enhanced by detaching the garage and establishing it as a separate outbuilding. The garage now serves a much higher purpose than that of automobile container. The tectonic mass of the garage frames both a very private entryway as well as a hidden shade garden between the living room and garage.

3

opposite page—camera #16 (see plan—pg. 50) from inside garage. The hidden shade garden is to the left, entry court to the right.

1. camera 56 (see plan—pg. 50) private shade garden in afternoon light, as seen from living room door. Doorway on left passes into the entry court. Fenestrations on right pass into garage.
2. camera #4 (see plan—pg. 50) entry court in afternoon light, looking back from front door. Garage is on right. Doorway on right passes into the hidden shade garden.
3. camera #17 (see plan—pg. 50) entry court in afternoon light, looking toward front door. Wall on right side is neighbor's garage.

The ground floor plan is conceived wholly in the idea of integrating the courtyard gardens and the indoor living spaces. Every room has direct access to one or two courtyards which bring the garden to the house with planting beds. The slab on grade foundation is a key element in this close integration of indoors and outdoors. Dwellers transition from house to courtyard at grade, with a minimum step down (about 1").

1

2

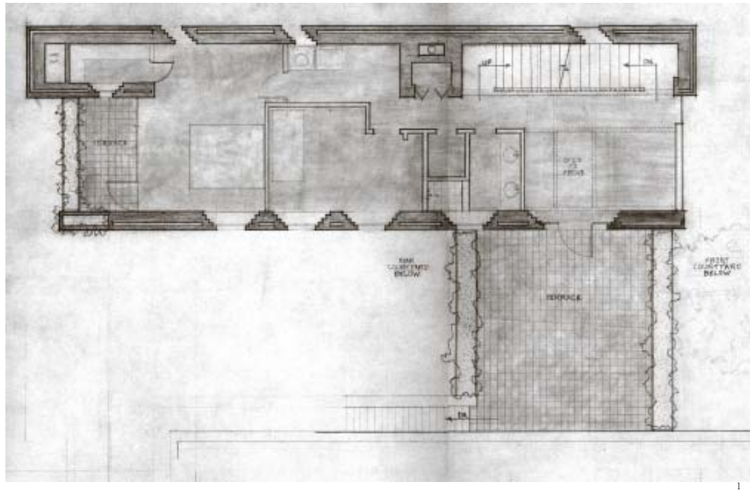
opposite page and this page - ground floor plan.

1. camera #6 (see plan—pg. 50) In the dining area looking through kitchen to front door. Garden courtyard is out the window to the right. There is a 2' transition from the entry hall to kitchen as the house responds to the slope of the site.
2. camera #19 (see plan—pg. 50) entry hall transitions to living room. Hidden shade garden through window at right, entry court through window by door.

The second floor is the children's realm, with two bedrooms, a bath, a laundry area and a small family room adjoining the second floor terrace. This terrace makes the children's area accessible to the gardens and courtyards, without having to pass downstairs through the living area. The larger bedroom has it's own outdoor terrace room as well.

The third floor is the couple's realm. At the top of the stairs is an office and library area designed for two people. A skylight above the stair volume brings natural light down into the stairwell. The Master bedroom has a southeast facing terrace which will capture the morning sun yet mitigate the afternoon sun.

2



1

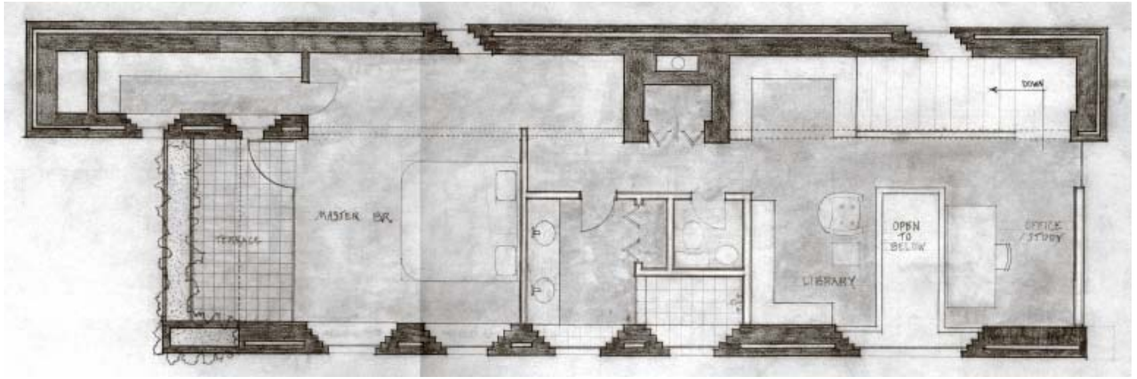
3

1. second floor plan
2. family room from the top of the stairs. Second level terrace outside.
3. family room open to above.

1

2

3



4

1. third floor - couple's library
2. third floor - couples library from top of stairs.
3. third floor - master bedroom in morning light.
4. third floor plan.

Integration of Houses with Site

Closely related to the integration of indoor and outdoor spaces, which was the primary intent of the plan, is the integration of the buildings with their site. The principal employed here is that of allowing the structures to reflect changes in topography, rather than neutralizing the topography. The result is a gently terraced feel to the project as the units follow the slope down the site.

It was previously mentioned that the proclivity of today's sprawl developers and builders is to neutralize the slope with deep cut basements and the reactionary wooden deck hanging off the back of the house. This alienates the dwellers from the site on which they live.

In this project the units terrace down the hill, each unit dropping about two feet in elevation. Combine this with the fact that the foundations are slab on grade, sans basement, and the resulting excavations are much shallower than typical in much of today's construction. Since sparing as many of the site's trees is one of the site development objectives, shallow excavations will further that goal.

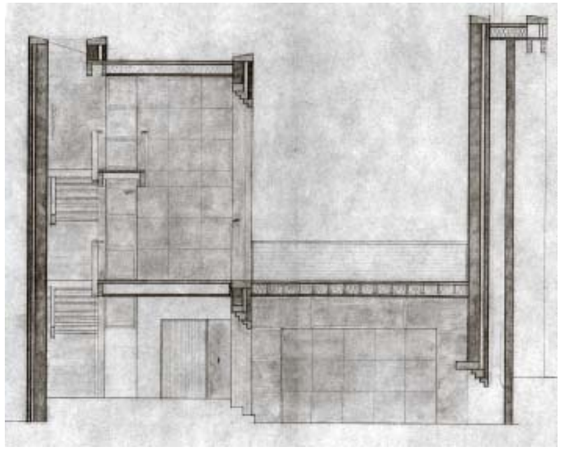
opposite page and this page - walls in afternoon light. Houses gently cascade down the sloped site.

WALL

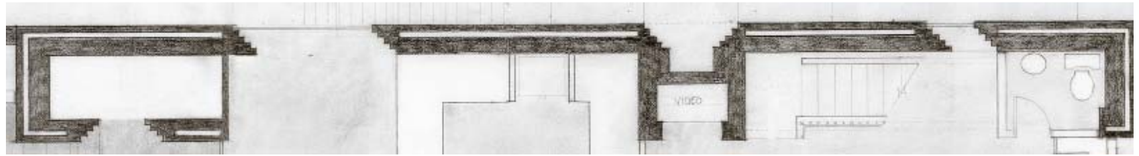
I believe the wall is the most fundamental and powerful element in architecture; and its clear expression and dominant role is critical toward an evocative architecture.

In this project, the wall separating the houses took on special significance for a variety of reasons, both aesthetic and practical.

1



2



3

opposite page - walls in afternoon light.

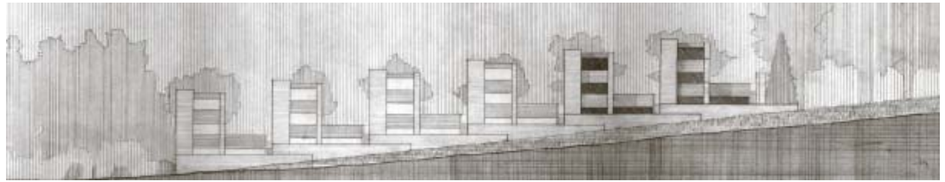
1. south view - dominant wall volume serves as a clear separator between houses.
2. vertical section cut through stair volume, entry hall and living room. North walls in elevation.
3. horizontal section cut through wall volume.

Aesthetically, I felt the wall separating the houses must express a very strong presence. With the houses so close together—essentially sharing the wall—a clear conveyance of separation, privacy and shelter became important considerations for this wall. Proportionally, the wall must not appear thin or spindly, but must present itself as quite substantial. Pragmatically, of course, with modern building methods, the wall can *be* thin, but in this case it is important that it not *appear* thin. The sum of these concerns led to the notion of a wall element which presents itself as rather monolithic from the exterior, yet is an inhabitable volume on the interior. The result of this study was a six foot wide concrete masonry volume which visually conveys a very strong separation between houses, and pragmatically becomes the "servant" space for the house.

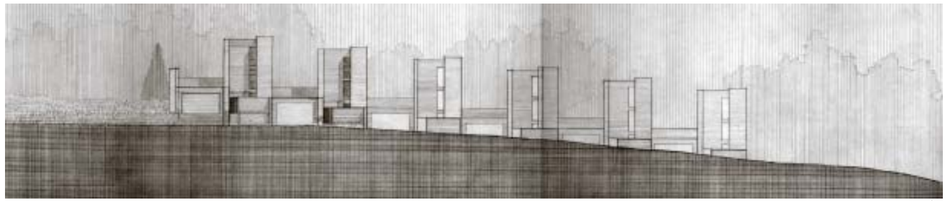
opposite page top - North elevation

opposite page bottom - South elevation

this page - view from the southwest in afternoon light.



1



2

Louis Kahn often spoke of “servant” spaces and “served” spaces—servant spaces being those which contain elements that serve the rest of the building: mechanical systems, electrical systems, plumbing, stairways, elevators, etc. In this proposal, this inhabitable “wall” becomes, in effect, the servant space for the house. It contains the stair volume, a mechanical room, all vertical distribution of HVAC, electrical and plumbing, a water closet, bedroom closets, hall closets, laundry area, and kitchen cabinets. It frees the living space up from most of the service and mechanical demands required of the modern house.

As a practical matter, since this is a shared wall, it assumes a heightened responsibility for acoustic privacy and fire protection. The concrete masonry construction lends itself well to both of these concerns.

3

4

1. opposite page - South elevation
2. opposite page - North elevation
3. Northwest aerial view
4. camera #12 (see plan—pg. 50)

ENTRY

Architecture can often be appreciated at a deeper level when conceived of as a verb rather than a noun, i.e. something which happens, a series of events, a choreographed scene of connected moments that carefully unfold to reveal or express something. Nowhere is this more true than with the notion of entry.

As a *thing*, a noun, "entry" represents a set of elements, together signalling the place at which we enter the building: a step, a door, a porch, an overhang. As a *happening* however (a verb), entry is our sensory experience (visual, auditory and kinesthetic) as we enter the realm of architecture.

opposite page - camera #10 (see plan—pg. 50) entry begins. Entry court is concealed upon approach. Engagement with the masonry wall, which passes all the way through the house, begins here with the garage wall at left.

this page - camera #11 (see plan—pg. 50) entry court is revealed after passing through the entry court gate. The pergola, fragrant vines and the play of sun and shadow on the masonry wall are an architectural "welcome mat" for dwellers and their guests.

Too often, the homecoming experience is lessened by the failure of designers to recognize that the garage/carport is an important part of the homecoming sequence. It's my intention to treat the garage as the key starting point for the unfolding series of architectural moments that occur as the dweller returns home.

Materially, the garage is very spartan, as a garage should be. This does not mean, however, that the experience must be spartan.

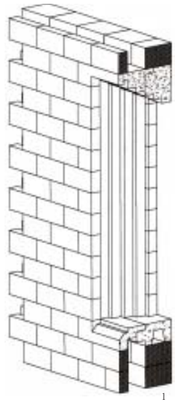
2

1

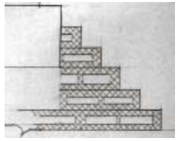
3

opposite page - camera #18 (see plan—pg. 50) upon entering the front door. Kitchen, dining area and dining terrace ahead, living room and garden court to left.

1. camera #13 (see plan—pg. 50) on entering the garage. Light spills in through openings at the front of the garage. A glimpse of the hidden shade garden is revealed; plants spill into the garage from the garden's planting beds.
2. camera #14 (see plan—pg. 50) Stepping out of the car and looking toward the entry court. A recess in the far garden wall is framed in the courtyard doorway, a simple acknowledgment of the homecoming.
3. camera #15 (see plan—pg. 50) looking through the shade garden one can see all the way through the house to the rear courtyards.



1



2

CONSTRUCTION

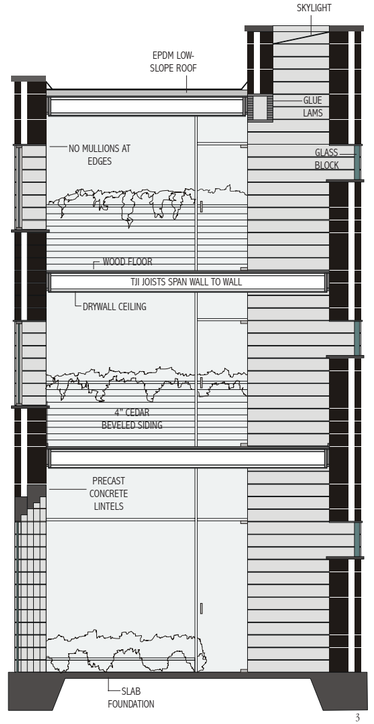
The construction method used on these houses is very similar to old fashioned "mill" construction, with two primary load bearing masonry walls supporting the secondary floor and ceiling structures. The bearing walls are cavity walls constructed of split face CMUs, with a 12 inch bearing course for the interior wall and a 4" face course for the exterior. Having the same masonry surface on the inside and outside surfaces of the wall further strengthens the feeling of a monolithic wall.

Lintels are precast concrete.[1] The articulated window and door frames are achieved with 4" CMU blocks cut in 4" intervals.[2]

Floors are supported with simple wall to wall spans of 12" TJI floor joists, supporting wood flooring above and drywall below.

The foundation is slab on grade concrete, slightly polished for the finished floor treatment.

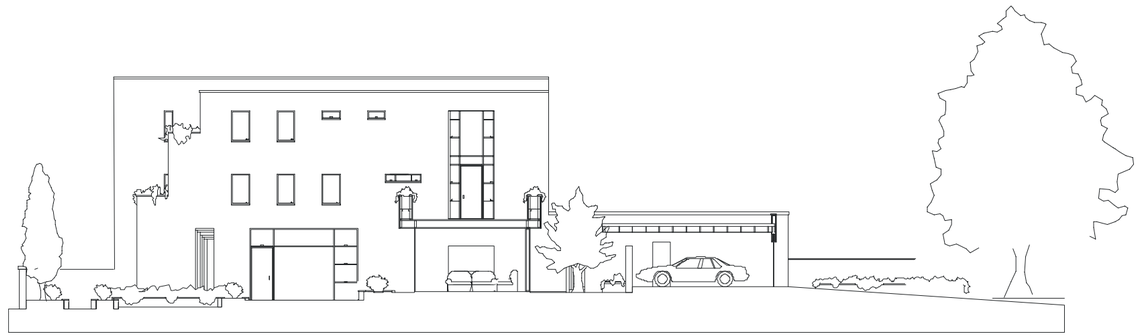
South walls are all glazed, north walls are 2x6 stud frame with 4" cedar beveled siding on the exterior and drywall on the interior.



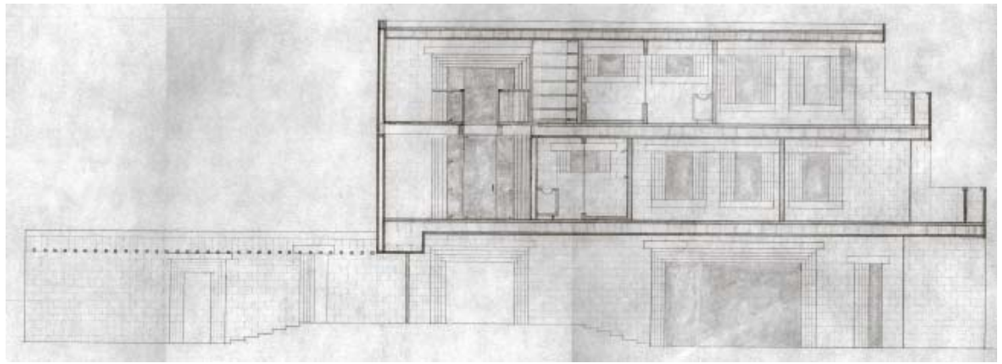
3

opposite page - much of the detailing studies for this project dealt with CMU walls and fenestrations. This page represents progress about mid-way through the design. Articulation scheme evolved to make use of 4" CMU.

1. wall section cut through window revealing cavity wall and precast lintels and sills.
2. horizontal section cut through door or window jam showing articulations from 4" CMU block.
3. transverse section showing "mill" type construction system spanning between the two primary load bearing masonry walls. South glazed wall shown in elevation.



1



2

opposite page - stair details for a stringer-less and riser-less stair. The purpose for the rather open and airy stair design is to allow natural light to filter down through the stairwell from the skylight above.

1. longitudinal section through living room and rear courtyards with exterior East wall in elevation.
2. longitudinal section through kitchen and entry with interior east wall in elevation.

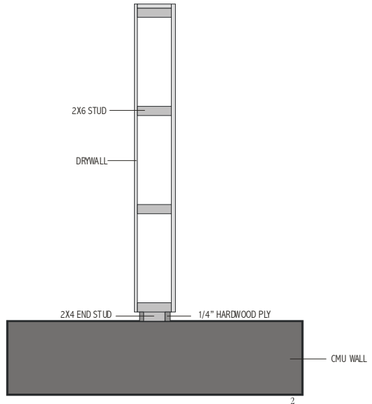
On the interior there are many lines where two planes of rather divergent materials meet. Drywall ceiling meets CMU wall; CMU wall meets concrete floor, Drywall meets concrete floor. These all represent small opportunities for elegance, or as is too often the case, they are potential risks for material "train-wrecks", requiring copious amounts of sealant and moldings to conceal the collision.

1

There's no question that increasing the number of materials needing careful reconciliation at the joint has a direct reflection on the cost and complexity of construction. Most of today' residential construction gets around this complexity by using drywall to surface just about everything. This eliminates most joint problems, as drywall joints are simply taped and textured - baseboards and sash mouldings are slapped up at the end to reconcile where wall meets floor and where wall meets fenestration. What this status-quo treatment lacks in complexity, it usually lacks in material richness, warmth and character as well. The pervasive monotony of "off-white" drywall is yet another testament to the status quo building methods of the sprawl builders.

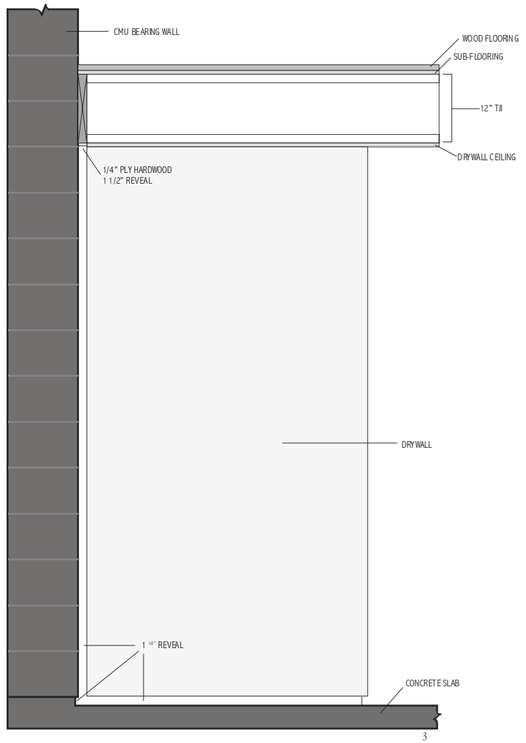
In this project, the textures of the masonry walls and concrete floors figured so prominently in how I envisioned the character of the interior realm that I felt this added material complexity was warranted and important

The shadow line is the simple principal used to reconcile divergent materials. The shadow line creates a forgiving buffer zone where two planes meet in a line. Depending on the width and depth of the shadow, it "forgives", to varying degrees, imperfections in the adjoining planes. I like to think of the shadow line as a "moulding of shadow", for it really serves the same purpose as an applied moulding, yet there's an elegance and austere beauty to the shadow line that, for me, is lacking in applied mouldings.

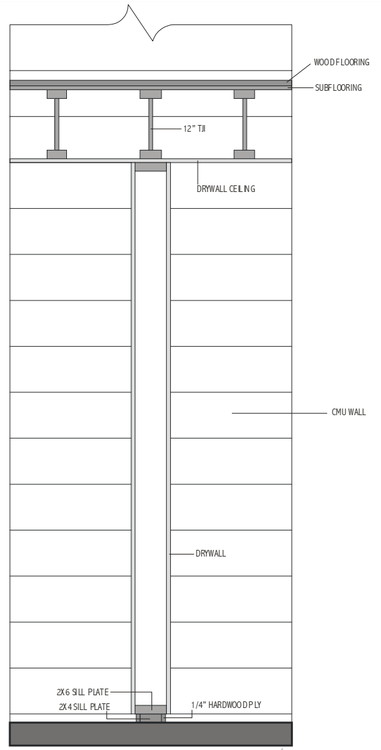


2

1. rendering of a typical condition where interior partition wall, CMU wall, drywall ceiling and concrete floor all meet. Shadow lines are created with a 1 1/2" reveal wherever two divergent materials meet.
2. plan section shows interior partition wall meeting CMU wall. A double end stud condition creates the reveal.



3



4

3. vertical section through CMU wall with interior partition wall in elevation.
4. vertical section wthrough interior partition wall with CMU wall in elevation

Proportion

Empathy & Abstraction

The thoughts of Dom Hans van der Laan played a significant role in the evolution of this design project, so it's important to elaborate a bit on this rather enigmatic figure, and explain how his theories regarding architectonic perception and proportion influenced this project.

My initial interest in van der Laan began with my eyes, to be followed some months later by my inquiring intellect. I was having a conversation with a professor, when something said sparked a memory, and off he went to the library, returning moments later with a book by Richard Padovan, entitled: *Hans van der Laan—Modern Primitive* [1]. In the book were strikingly beautiful black and white photographs of spaces designed by this Dutch architecture school dropout, turned Benedictine monk and ecclesiastical architect. In these spaces I saw an unusually inspired, austere architecture, drawing power from light and shadow, mass and void, and the rich materiality of masonry and concrete. These were, to my eyes, some of the most evocative images that I had yet encountered in my architectural studies. I was immediately enamored with the architecture of the man.

Van der Laan persuaded me through what he had made that his words might be of significance. Contrast this with today's endless parade of architects who seek to persuade me with their words that what they've made is significant.

Unfortunately, van der Laan was not an engaging writer. He was not given to spinning aphorisms like Le Corbusier or Ruskin, nor was he possessed with the alluring mysticism of a Louis Kahn. In a word, he was a bit of a bore when it comes to the written word. His arguments are exacting, arcane, at times bordering on esoteric. He is rigorous to a fault. Fifty years in the monastery apparently provided ample time to hone his theories to a level of intricacy of which his spiritual forefather, St. Thomas of Aquinas, might have been justly proud. *"Architectonic Space"* [2], van der Laan's *Summa*, while not a large book, is quite dense in the derivations of his theories. While his concepts are not that intellectually difficult, in fact most are quite common sensible, they are presented more in the manner of one proffering a systematic philosophy or mathematical proof, than an architectural manifesto. The unfortunate result of this, I believe, is that a truly significant thinker has been largely overlooked, due to the rather poor way in which his ideas are presented. Fortunately, Richard Padovan has stepped up to decipher the difficult van der Laan for a world of impatient, and often "less than well-read", architectural readers.

In his book, *"Hans van der Laan—Modern Primitive"*, Padovan makes his first attempt, with some success, of bringing van der Laan down to earth. However, it's in his following book: *Proportion*,[3] where that success is magnified, and van der Laan, and other architectural thinkers, from Pythagoras and Plato, through Vitruvius, Alberti and Le Corbusier, are scrutinized in their proper historical and philosophical context.

1. *Hans van der Laan—Modern Primitive*. Richard Padovan, 1994.
2. *Architectonic Space—Fifteen Lessons on the Disposition of the Human Habitat*. By Dom Hans van der Laan, E.J. Brill Press, Leiden, The Netherlands, 1983. Originally written in Dutch, translated by Richard Padovan.
3. *Proportion—Science, Philosophy, Architecture.* Richard Padovan. E & FN Spon Press. 1999

photos both pages: St. Benedict's Abbe at Vaals, Hans van der Laan. Image source: *Hans van der Laan—Modern Primitive.* Richard Padovan.

VAN DER LAAN & KANT

Van der Laan, properly understood, requires at least a brief consideration of his intellectual lineage. While van der Laan only explicitly references Vitruvius and Aristotle in his writings, the overall timbre of his thoughts suggest an epistemological framework, perhaps, even more Kantian than Kant himself. It's Kant's revolutionary, "Copernican" postulate, in fact, that is fundamental to van der Laan's thought.

Immanuel Kant, in 1781 made a proposition which he rightfully proclaimed the philosophical equivalent—in terms of sheer audacity—to Copernicus's heretical (albeit correct) suggestion that the universe, just possibly, might not revolve around the earth. Kant said —

> "It has hitherto been assumed that our cognition must conform to the objects…Let us then…assume that the objects must conform to our cognition…We propose to do just what Copernicus did in attempting to explain the celestial movements.[1]"

> "…The understanding does not derive its laws (a priori) from, but prescribes them to, nature.[2]"

Flustered, yet intellectually inspired by the philosophical dead end of Hume's skepticism, Kant's revolutionary (at the time) postulate became the cornerstone of his first critique, the *Critique of Pure Reason.* Considering its residual impact on philosophy and science, it is arguably the most influential philosophical proposition of modern (post-Enlightenment) times.

Karl Popper, elaborating on this Kantian paradigm and it's important influence on scientific advancement said —

> "We must give up the idea that we are passive observers, waiting for nature to impress its regularity upon us. Instead we must adopt the view that in digesting our sense-data we actively impress the order and the laws of our intellect upon them. Our cosmos bears the imprint of our minds. By emphasizing the role played by the observer…Kant made an indelible impression not only upon philosophy but also upon physics and cosmology. There is a Kantian climate of thought without which Einstein's theories, or Bohr's, are hardly conceivable...[3]" (nor van der Laan's, I would add). Popper continues,

> "Instead of explaining our propensity to expect regularities as the result of repetition, I proposed to explain repetition for us as the result of our propensity to expect regularities and to search for them…Without waiting, passively, for repetitions to impress or impose regularities upon us, we actively try to impose regularities on the world.[4]"

Popper, like Kant, viewed the human intellect as a searchlight, venturing out to illuminate nature, rather than a bucket, passively waiting for nature to fill it.[5]

And Sir Arthur Eddington, the physicist who experimentally verified Einstein's theory of relativity in 1919, weighed in on this Kantian postulate, stating that —

> "The mind has by its selective power fitted the processes of nature into a frame of law or a pattern largely of his own choosing; and in the discovery of this system of law the mind may be regarded as regaining from nature that which the mind has put into nature.[6]"

Kant's postulate,—which Popper argues has enabled our most dramatic scientific advances and shaped much of modern thought—the notion that there is an inherent (a priori) nature to the human intellect, ordering perception according to the intellect's form, is precisely the idea at the very core of Hans van der Laan's theories.

1 I. Kant, *Critique of Pure Reason*, Everyman's Library, 1934, p.12. As referenced in Richard Padovan's book: *Proportion*. p. 300

2 I. Kant, *Prolegomena*, pp. 80-82. ibid, p. 301

3 K.R. Popper, *Conjectures and Refutations*, Routledge & Kegan, 1965, p46 pp 180-1. ibid, p.302

4 ibid, p.297

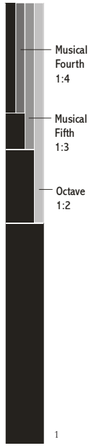
5 K.R. Popper, *Objective Knowledge*, Oxford Press, 1979, pp. 341-361. ibid. p.302

6 A.S. Eddington, *The Nature of the Physical World*, Everyman's Library, 1935, p.238. ibid. p.302

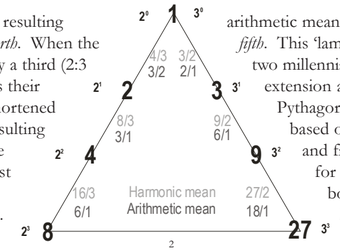
photo this page - St. Benedict's Abbe at Vaal's, Hans van der Laan. Image from *Hans van der Laan—Modern Primitive*, Richard Padovan.

EPISTEMOLOGICAL HISTORY OF SYSTEMS OF PROPORTION

Before exploring van der Laan's thoughts on architecture and proportion, it's important to first establish the uniqueness of his thinking in historical context. All systems of proportion in common use throughout the course of Western culture, up until van der Laan's, that is, were of a similar epistemological framework and could be generally classified into two broad types, *harmonic* and *geometric* proportion, both of which stem from ancient Greek origins.

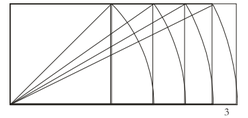


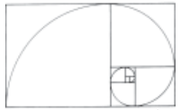
Harmonic proportion (often times referred to as *arithmetic*) is based on the ratios of simple rational numbers like 1:1, 1:2, 2:3, 3:4, etc. It's name, *harmonic*, derives from it's method of discovery by Pythagoras in the 6th century B.C., who found that when the strings of a stringed instrument were shortened according to the ratios found in the simple integers of 1, 2, 3, and 4, the resulting pitches were the most important intervals in their musical scale. When the open string (1:1 ratio) was shortened by one fourth (resulting in a 3:4 ratio with respect to the original open string length versus the new shortened string length), the resulting musical interval was their *fourth*. When the open string was shortened by a third (2:3 ratio), the resulting pitch was their musical *fifth*. When it was shortened by one half (1:2 ratio) the resulting interval was the *octave*. These resultant musical intervals just happened to be the most important ones in their scale. And even today, the fourth, fifth and octave (harmonically referred to as the *sub-dominant*, *dominant*, and *tonic*) are still arguably the most influential harmonies in Western music, especially in simple folk music where harmonic experimentation is not highly valued. And even more significantly for the Pythagoreans: these musical intervals resulted from the corresponding ratios of 1, 2, 3 and 4, — numbers which held special cosmological significance to them because their sum was the Pythagorean perfect number of 10.



Plato, in the *Timaeus* took up where the Pythagoreans left off. In Timaeus's account of the formation of the world's soul, Plato expands the rational numbers of proportional significance beyond just the 1, 2, 3 and 4 of the Pythagoreans, to also include 8, 9 and 27, essentially by creating a table of the squares and cubes of 2, and 3. Next he introduced the notion of the harmonic mean and the arithmetic mean into the mix, the harmonic mean representing the musical *fourth*, the arithmetic mean representing the musical *fifth*. This 'lamba' table created by Plato, two millennia before the Renaissance, an extension and elaboration of the Pythagorean's more simple model based on just the musical fourth and fifth, became the foundation for Renaissance proportion (see book nine of Alberti's *Ten Books on Architecture*).

Geometric proportion, can likewise be traced to Pythagoras as the 'discoverer' of the incommensurable square root of 2, and the *Pythagorean Theorem*. Plato, later in the Timaeus, discusses the making of the world's body, and there elaborates a bit on the geometries of the five regular solids. It's in the mathematical treatises of Euclid, however, where the intrigues and geometries of the five regular solids are fully revealed, in the incommensurable square roots of two, three, four, five, and of course the famous *golden section,* ϕ (a derivative of the square root of five).

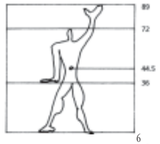




1. Pythagorean harmonic proportion.
2. Plato's formation of the world's soul in the Timaeus. The demiurge creates an extended lambda using the numbers 1, 2 and 3 and extending them to their squares and cubes. Perhaps the demiurge stopped at 27 because it is the sum of 1+2+3+4+8+9 and thus represents the completeness of the series. Plato then introduces the harmonic and arithmetic means into the mix. The blue numbers are the harmonic mean between the two numbers, the red is the arithmetic mean. Harmonic mean gives the musical *fourth*, arithmetic mean gives the musical *fifth*. This is Plato's tribute to the Pythagoreans. This table becomes the foundation for the rennaissance interpretation of Platonic proportion as represented by Aliberti in his ninth book of the Ten Books of Architecture.
3. Simple geometric construction of common geometric ratios. 1:$\sqrt{2}$, 1:$\sqrt{3}$, 1:$\sqrt{4}$, 1:$\sqrt{5}$
4. The Golden Section Spiral. Image Source: *The Old Way of Seeing*. Jonathan Hale. Houghton Mifflin Press, 1994 p.62

Le Corbusier's *Modular*, wholly derived from the golden section, is the most well known example to modern architects of a proportioning system based on geometric proportion.

Some investigators attribute the proportions of the Gothic cathedrals to geometric proportion theories based on the incommensurable square roots of two, three and five. Others make compelling arguments that the Gothic cathedrals were based on the simple arithmetic proportion systems found in rational number. Whichever system the investigator presupposed, he was likely to find in the Gothic cathedral. This affirms Kant's Copernican premise—that our intellect compels the objects to conform to our cognition—considerably more than it sheds light on the undocumented intents of medieval designers.[1]



6


7

Empathy and Abstraction

Richard Padovan, in his book: *Proportion,* proffers that these proportion systems stem from, and have been practiced from, what he calls an *empathic* point of view. He credits the term *empathy,* as used in this context, to the art historian, Wilhelm Worringer, who used that term, and it's opposite, *abstraction*, to describe two opposing epistemological viewpoints in art. In many ways the terms overlap with the philosophic polarities of rationalism/empiricism (or realism/nominalism). Padovan says —

> "From the viewpoint of *empathy*, to know something is to belong to it: we can know and understand nature because we are of it; and mathematics is the key to this understanding because nature is essentially mathematical. But from the viewpoint of *abstraction*, to know something is to have made it oneself: we cannot know nature because we have not made it; but we can interpret it through mathematics because mathematics is our own creation."[2]

> "The presumption that proportion in art proceeds from, and is validated by, the mathematical harmony of nature is characteristic of *empathy*, and can be described as essentially naturalistic. It is founded on an attitude to the external world that assumes and relies on the possibility of a perfect accord between the human mind and the perceived world.[3]"

> "From the point of view of *abstraction*, architectural proportion is an artificial and abstract mathematical ordering, an ordering that is our response to a universe that confronts us as mysterious or unknowable."[4]

To paraphrase this in Kant's words, *empathy* is to "assume that our cognition must conform to the objects" (that is nature). *Abstraction* is to "assume that the objects must conform to our cognition".

The progenitors of these proportional theories were all ancient Greeks. The Pythagoreans, Plato, Euclid—all believed that the universe conveyed to mankind its mysteries through number and mathematics. Man *received* nature's mathematical mysteries. Aristotle, commenting tongue–in–cheek on his Pythagorean forefathers said —

> "they considered the principles of numbers as the principles of all things, and the whole universe as a harmony and a number…if anything was lacking to complete their theories, they quickly supplied it[5].

While Aristotle didn't share the mystical Pythagorean associations of nature and number, he nevertheless saw nature as the quintessential example of design —


8

1 Richard Padovan, *Proportion-Science, Philosophy, Architecture*, E & FN Spon Publishers, London, 1999. See chapter 10, pp. 173-206

2 Ibid, pp. 18-19

3 Ibid, p. 26

4 Ibid, p. 27

5. Aristotle's Metaphysics, ibid. pp.62-63
6. Modular Man by Le Corbusier. Source: *The Old Way of Seeing*, Jonathan Hale, Houghton-Mifflin Press, 1994, p.65
7. Notre Dame De Paris. This analyst obviously saw the Golden Section at work here. Drawing is by Viollet-le-Duc. Source: ibid, p.80
8. Quintessential example of Golden Section geometry, the nautilus shell. Source: ibid. p. 62

> "For it is in the works of Nature, above all, that design, in contrast with random chance, is manifest; and the perfect form which anything born or made is designed to realize, holds the rank of beauty."[1]


5

So, Aristotle too, believed the order of nature was necessarily imposed upon the human intellect. The Italian Renaissance was likewise empathic in its outlook. Alberti, in typical Renaissance fashion, said —

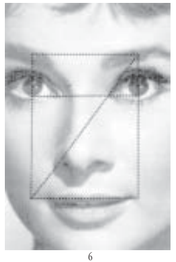
> "It is obvious from all that is fashioned, produced, or created under her influence, that Nature delights primarily in the circle. Need I mention the earth, the stars, the animals, their nests, and so on, all of which she has made circular? We notice that Nature also delights in the hexagon. For bees, hornets, and insects of every kind have learned to build the cells of their hives entirely out of hexagons." [2]

Alberti saw the circle and hexagon as being inventions of nature, imposed upon the receptive human mind.

Le Corbusier, following in true classical fashion, echoes the sentiments of the Renaissance (who themselves were echoing the sentiments of ancient Greeks) when he said —

> "Nature is ruled by mathematics, and the masterpieces of art are in consonance with nature; they express the laws of nature and themselves proceed from those laws." [3]

Corbusier, like Alberti before him, and Plato and Pythagoras long before Alberti, viewed nature as the giver of order. Man, then, was the *receiver* of that order. John Locke described this receptive human intellect as a *tabula rosa*, or blank page, in his groundbreaking: *Essay Concerning Human Understanding*, which set the stage for British Empiricism, and ultimately the Skepticism of David Hume. Or, as Karl Popper said, the empathic viewpoint would hold that the mind is an empty bucket, waiting passively to be filled by nature.


6

Proportional systems in architecture have been advocated and practiced almost exclusively by those of this *empathic* epistemological viewpoint. These systems were the means by which man could create objects which shared in the mysterious mathematical harmony and beauty of nature.

Just as Kant, "roused from his dogmatic slumber", turned the Skepticism of Hume upside down, so van der Laan seemed destined to rattle the world of proportional theory with his audacious claim that man did not receive proportion *from* nature, man imposed proportion *to* nature.

The Quantizing Human Mind - "How Manyness" From "How Muchness"

Van der Laan believed there to be an inherent (a priori) nature to the human intellect, actively engaged in quantizing and relating objects of perception as to their magnitudes (reminiscent of Kant's categories of cognition, namely the categories under 'quantity' and 'quality'). Borrowing (as did Kant) from Aristotle's Metaphysics, Van der Laan argued that the intellect is predisposed to assign a discreet "how manyness" (unit) to a perceptual world which manifests itself in infinitely divisible degrees of "how muchness"—

> "The quantity of things, in terms of either how large or how many, cannot be experienced directly. Quantity is accessible to the mind only through number – in other words by its relation to a known unit. The unit for discreet quantity, 'how many', is given by the nature of number itself: it is the individual oneness of things that we count. But the quantity of the spatial datum is not discreet but continuous: it is a matter not of counting how many, but of measuring how much."[4]

1. Aristotle, *On the Parts of Animals*. Reference in: *Proportion*. Richard Padovan, p.117
2. Leon Battista Alberti, *On the Art of Building in Ten Books*, p.196 ibid. p.220
3. Le Corbusier, *Le Modular*. pp.29-30. ibid p.5
4. *Architectonic Space—Fifteen Lessons on the Disposition of the Human Habitat*. H. van der Laan, Leiden Press, 1983. p. 17
5. Pentagram and golden section geometry in a maple leaf. Image from *The Old Way of Seeing*, Jonathan Hale, Houghton-Mifflin Press, 1994, p.72
6. My personal favorite, golden section geometry in the face of Audrey Hepburn. Image: ibid. p.68

Architectonic Dualism - "Type of Size" and "Order of Size"

In order to resolve this apparent incongruity between the way the natural world manifests itself and the way in which the human intellect perceives natural phenomena, van der Laan created a relational dualism, which he termed *types of size* and *orders of size*. All architectonic elements belong to both a *type,* and an *order* of size.[1]

To illustrate this concept it's helpful to consider some examples from outside the architectural realm. Consider first the order of a musical scale. A scale is nothing more than *quantized* tones. The tone of 440Hz, for example, is the currently agreed upon standard of tuning that represents the musical note of A–natural, above middle–C, on the piano keyboard. One octave above that, 880 Hz, is the next A–natural note. Between 440 Hz and 880 Hz—one musical octave—are infinite possibilities of division, yet this tonal spectrum is *quantized* into just twelve intervals (there's twelve black and white keys per octave on the keyboard). These twelve intervals, called half steps, or semi-tones—the distance between A–natural and A–flat, for instance—are the building blocks, the fundamental units by which the entirety of our music is written and performed. Why twelve tones? Why not a hundred? Why not three? I believe a compelling argument can be made that the semi–tone is an evolutionary measure, approaching the threshold of our perceptual capacity to identify that: "this tone is readily distinguishable, and clearly different, from that tone". It is still clearly within that threshold, yet it is nearing it, for most people. For example, as already mentioned, A–natural is, by agreement, 440 Hz. Yet, if the cellist plays a tone of 439 Hz., or 441 Hz., it is still, for all practical purposes, the same note of A–natural. Or, to now introduce van der Laan's principle: 439, 440 and 441 Hz., while unquestionably different *tones*, are the same *type* of tone—namely the type of tone we call the musical note of A–natural.

3

3

Another example to consider is a photographic methodology pioneered by Ansel Adams: the *Zone System*—based on another of Adam's pioneering principles which he called the *Gray Scale*.[2] The tonal range of a black and white photograph consists, like the tonal range of the musical octave, of infinitely divisible magnitudes. Adam's realized, however, due to his perceptual limitations, he could only readily distinguish about ten shades of gray (he later expanded it to twelve). In the *Gray Scale*, each of the ten quantized shades of gray (as they got progressively lighter), were given an increasing number—zero (representing totally black) through 10 (representing totally white). Five was considered *middle gray*. Adams concluded that if he was to make creative decisions regarding the tonal characteristics of the finished photographic print, then he would need to *quantize* the tonal range in a way that his intellect was capable of working with. The zone system became Adam's method of manipulating exposure, filtering and development variables, in order to assure that select objects in the photographic field ended up in the Gray Scale zone which his creative vision predetermined. The tonal richness of Adam's photography is, arguably, the result of his early recognition of his perceptual limitations, which compelled him to quantize the tonal spectrum of the photograph into intellectually "bite sized" intervals.

1 Hans van der Laan, *Architectonic Space*. See chapter 5, pp.45-59 and chapter 7, pp.70-83.

2 *The Negative*—Volume 2 of the Ansel Adam's Photography Series. By Ansel Adams, Little-Brown Press, 1976. This is the best source I've seen to describe Adam's Gray Scale and Zone System.

3. *Northern Cascades, Washington*. Ansel Adams, 1960. Source: *Ansel Adams Photography Series, Book 3 -- The Print*. Cover photograph from 1997 paperback edition.

This notion is absolutely crucial to Van der Laan's entire system of thought. Speaking on architectonic perception, van der Laan said —

> "The human intellect is unable to penetrate the individual size of things. We know that everything has its own size, since we never find two things of precisely the same size, but we cannot form an image of each of these sizes."[1]

> "Precisely because of our inability to penetrate directly into the concrete size of things, we establish a range which accompanies each size as a margin. All concrete sizes within the limits of this margin answer to the selfsame image that we form of the size: they are all of the same *type* of size."[2]

Van der Laan considers the metaphor of a pile of gravel—

5

> "If we look at a heap of gravel we can easily see that the little stones are all of different sizes; but each actual size eludes us, We can however sieve the gravel and divide it into smaller heaps, each containing stones between certain limits of size – for instance between four and three centimeters, between three and two centimeters, and less that two centimeters. We then have three sorts of gravel, each of stones of a particular size. The size is no longer that of each individual stone, but a size to which a certain number of stones belongs. We call these stones the same size, even though we know that they are not; we say that they are of the same size, a size dependent on the sieve with which gravel has been graded. The continuous series of different sizes characteristic of the unsieved gravel has given way to a limited number of clearly distinct sorts of size. Our intellect goes to work on the concrete size of things in a similar way. We call things the same size if they are nearly the same size, because they correspond to the image we have formed of this given size."[3]

6

This metaphor of the sieved gravel becomes a foundational principle for van der Laan's plastic number ratios. Closely related to the concept of *type of size,* is another concept he called *margin of size*. How much margin is required by the quantizing intellect, between architectonic elements (or sieved gravel piles in this example), in order to regard something as of a next larger or smaller *type* of size? Considering the musical example again, how much must a tone change before the intellect considers it a different type of tone? (i.e. a different *note*).

Key to van der Laan's understanding of this quantizing intellect is the crucial concept of the *unit*. This is where Aristotle's influence is most evident. In *Architectonic Space*, van der Laan quotes Aristotle from the *Metaphysics* —

> "for everywhere we seek as the measure something one and indivisible…Now where it is thought impossible to take away or add, there the measure is exact. Hence that of number is most exact; for we posit the unit as absolutely indivisible, and in all other cases we imitate this sort of measure. For in the case of a furlong, or a talent, or of anything large, any addition or subtraction might more easily escape our notice than in the case of something smaller; so that the first thing from which, as far as our perception goes, nothing can be added or subtracted, all men make the measure…; and they think they know the quantity when they know it by means of this measure".[4]

1. Hans van der Laan, Architectonic Space, p.47
2. Ibid, p.54
3. Ibid. pp.47-48
4 Aristotle's Metaphysics (first chapter of the tenth book) refererenced ibid., p. 96

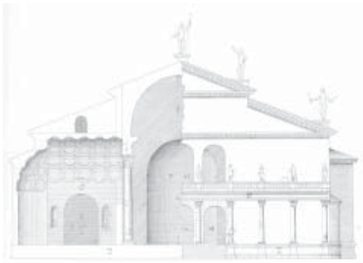
5. Van der Laan uses the process of sieving gravel to illustrate the a priori tendency of the human intellect to quantize magnitudes into "types" of size, separated by "margins" of size. Image: *Proportion—Science, Philosophy, Architecture*, Richard Padovan, E & FN Son Press, 1999, p.364

6. Benedictine Abbey at Vaals, H.van der Laan. Image: *H. van der Laan—Modern Primitive*. Richard Padovan, 1994

This inherent nature of the human intellect to ascribe "how manyness"—through number—to a universe of natural phenomena manifest in infinite degrees of "how muchness", is the fundamental underpinning of all of van der Laan's thoughts and theories. To deny this Kantian and Aristotelian framework, which van der Laan establishes as fundamental, is to reject his theories outright, for it's only upon this foundation which the structure of his theories can be built.

Orders of Size

An *order* of size is the range within which any two magnitudes can be related to one another by the mind. In other words, there must be a certain proximity of magnitudes in order for the mind to make a relation between them. As we saw with *type* of size, if elements are too close together, our mind cannot readily distinguish them apart and therefore treats them as the same magnitude. *Order* of size deals, conversely, with exactly the opposite question. What if two elements are so far apart in magnitude that the mind cannot make a relation between them? (what kind of relation I'll explain later). For example, consider again the musical metaphor. If one plays middle–C on the keyboard, followed by the F just above it, the mind easily makes the relation between the two tones— the interval known as the *fourth*. Even if the hearer can't make the semantic connection of the interval to the musical term: *fourth*—if asked to hum the first two notes of *"here comes the bride"*, he proves that his mind understands quite well what a *fourth* is. However, if the same middle–C is played, followed by the F three octaves above the middle–C, the notes are so far away from one another that even well trained musicians would have difficulty making the relation (at least quickly and naturally). That's probably why intervals of much more than an octave are quite rare in music; the mind has difficulty relating them, therefore finds them confusing, even displeasing.



Van der Laan makes the same argument for architectonic size. If two elements, or members of an edifice, are too far apart in their size, the mind will have difficulty relating them, one to the other. This inability of the mind to establish a relation between them, by van der Laan's definition, puts them in different *orders* of size. In van der Laan's theory, however, multiple *orders* of size can, and usually will, be in play on the same project. There might be elements sized according to an order appropriate to the scale of the site, others ordered, perhaps, appropriate to the scale of the building, and even a third, scaled to the size of elements within a room. In this way, the analogy to the musical scale is especially nice—with a musical piece, notes from several different octaves might be in play, within the entirety of a piece, however, directly juxtaposed notes will usually be quite close to one another in tonality, so that the mind can make the relation between them.

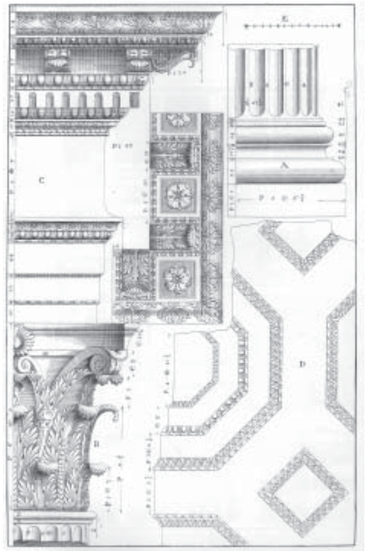
Van der Laan and Vitruvius

What kind of relationships is van der Laan talking about? This is where Vitruvius's influence on van der Laan is most evident and influential. The overriding principle which van der Laan gleans from Vitruvius is that the parts of an edifice must be related—not only to themselves and to one another—but to the whole.

These principles are laid out in Vitruvius's second chapter, of the first book, of his *Ten Books on Architecture*. His famous "six principles" are: *order, arrangement, eurythmy, symmetry, decorum* and *economy*. Distinguishing, and clarifying, Vitruvius's six principles, historically, has been a bit of a bother—for there seems to be considerable slop and overlap in his definitions. For example, it's difficult to see the difference between ordonnance and symmetry, because they seem to be of a very similar nature—

> "*Order* gives due measure to the members of a work considered separately and symmetrical agreement to the proportions of the whole. It is an adjustment according to quantity. By this I mean the selection of modules from the members of the work itself and, starting from these individual parts of members, constructing the whole work to correspond."[1]
>
> "*Eurythmy* is beauty and fitness in the adjustments of the members. This is found when the members of a work are of a height suited to their breadth, of a breadth suited to their length, and, in a word, when they all correspond symmetrically."[2]
>
> "*Symmetry* is a proper agreement between the members of the work itself, and relation between the different and the whole general scheme, in accordance with a certain part selected as standard."[3]

Image: *The Four Books of Architecture*. Andrea Palladio. Book Four, chapter VIII, plate II.



Van der Laan comments on Vitruvius's description of symmetry and eurythmy in *Architectonic Space*—

> "Symmetry involves the comparison of corresponding measures of different forms: length is compared with length, breadth with breadth, and height with height. But the form of the squared mass as such is determined by the mutual proportions between its three dimensions, which are not symmetrical but eurythmic: length is compared with breadth, breadth with height, and height with length. Symmetrical proportions enable us to determine the size of forms, by relating them to a form that acts as a unit of size; but eurythmic proportions give us an insight, not into the quantity of form, but into its qualitative properties."[4]

It's exactly here, in this Vitruvian fog, that van der Laan stakes his claim. He interprets Vitruvius to be essentially describing an architectural dualism, with *ordonnance* and *disposition* being the two main categories, *eurythmy* and *symmetry* are subcategories of *ordonnance*, *decorum* and *economy* are subcategories of *disposition*. Broadly speaking, ordonnance relates to quantitative issues like the sizes, and relations of sizes of things; disposition relates to the qualitative issues like appropriate decoration and relative cost. Van der Laan's career was to focus on the quantitative elements of ordonnance, namely symmetry and eurythmy.

Eurythmy then, is how an element relates unto itself. If, for example, the element in question is a column, the most obvious eurythmic question would be: how does the diameter of the column relate to its height? If the object is a room, the question might be how does its length relate to its breadth, and how do these relate to the ceiling height.

Symmetry was understood by Vitruvius and van der Laan considerably different than is common today. Symmetry is how an object relates not unto itself, but to other objects. Again, if the object in question is a column, the symmetrical questions might be: how far apart should the columns be? or how big should the pediment be in relation to the column?

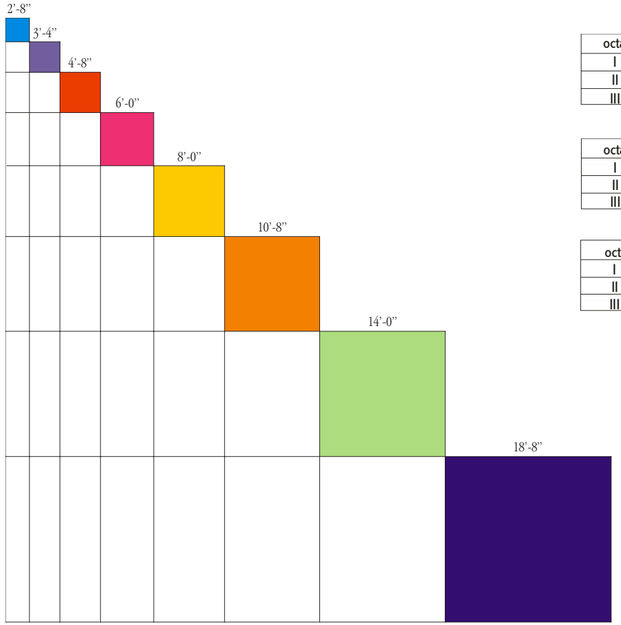
Van der Laan believed the confusion over Vitruvius's definitions were not because Vitruvius was a particularly sloppy writer, or that Vitruvius didn't know what he meant, but rather the problem was that our modern understanding of proportional concepts is much less than the ancients, such that—

> "Nowadays the words ordonnance, symmetry, rhythm, etc. are used more or less indiscriminately to express a vague and rudimentary concept of proportion that has come down to us from the ancient world. But it is certain that for the ancient mind all these terms referred to clearly defined and mutually distinct concepts." [5]

Summary of

1. Vitruvius, *Ten Books on Architecture*, Translated by Morris Hickey Morgan, Dover Publications, 1960 p. 13
2. Ibid., p.14
3. Ibid.
4. Hans van der Laan, Architectonic Space, p. 114
5. Hans van der Laan, Het Plastiche Getal (the Plastic Number), p 17.

Image: Andrea Palladio, *The Four Books of Architecture*, Dover Publications, Book 4, chapter VIII, plate III.



The rectangles formed by the intersecting grid of lines, above, represent the "form bank", generated by one octave of plastic number ratios.

octave	Plastic Number scales - numbers of units							
I	2	$2^{1/2}$	$3^{1/2}$	$4^{1/2}$	6	8	$10^{1/2}$	14
II	14	$18^{1/2}$	$24^{1/2}$	$32^{1/2}$	43	57	$75^{1/2}$	100
III	100	$132^{1/2}$	$175^{1/2}$	$232^{1/2}$	308	408	$540^{1/2}$	716

octave	Plastic Number masonry courses							
I	4	5	7	9	12	16	21	28
II	28	37	49	65	86	114	151	200
III	200	265	351	465	616	816	1081	1432

octave	Plastic Number sizes for 8" unit masonry							
I	2'-8"	3'-4"	4'-8"	6'-0"	8'-0"	10'-8"	14'-0"	18'-8"
II	18'-8"	24'-8"	32'-8"	43'-4"	57'-4"	76'-0"	100'-8"	133'-4"
III	133'-4"	176'-8"	234'-0"	310'-0"	410'-8"	544'-0"	720'-8"	954'-8"

The squares below illustrate the highly additive nature of the plastic number system. Every measure is related to every other measure in the system. The largest of any four consecutive measures is the sum of the smallest two. This is similar to the golden section system, where the largest of any *three* consecutive measures, is the sum of the smaller two. Algebraically, then, the golden section, ϕ, can be represented by the formula ($\phi^2 = 1 + \phi$). The plastic number, call it ψ, can be represented by the formula ($\psi^3 = 1 + \psi$). Numerically ϕ is approximately 1.618, whereas the Plastic Number, ψ, is approximately 1.325

FOUNDATIONAL PRINCIPLES

Van der Laan's thinking is characterized, first, by a Kantian epistemological framework—the intellect is endowed with a priori cognitive powers, framing our perception of natural phenomena, rather than cognition, itself, being framed by natural phenomena. Paraphrasing Karl Popper—the mind is a search-light, venturing to illuminate natural phenomena, not an empty bucket passively waiting to be filled by nature. Secondly, is Aristotle's concept of the *unit*—the quantizing nature of the human intellect, seeking to ascribe "how manyness" to a phenomenal world manifested in infinite degrees of "how muchness". And third are the Vitruvian notions of *ordonnance*, *eurythmy* and *symmetry*—all architectonic elements must be in careful relation to themselves, to each other and to the whole. These fundamental principles are the foundation on which van der Laan builds the entirety of his theories, and his proportional system known as the *plastic number*.

Image: St. Benedict's Abbey at Vaals. Hans van der Laan. *From Hans van der Laan—Modern Primitive*. Richard Padovan, 1994.

THE PLASTIC NUMBER

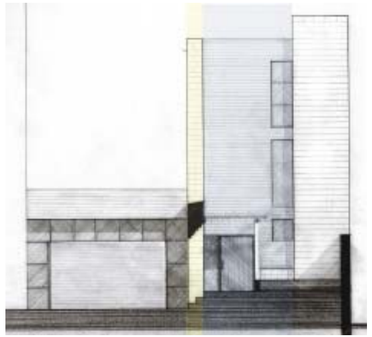
Van der Laan takes great pains in his writings to examine the derivation of the *plastic number* (as represented by the top table on the opposite page), and to validate its efficacy. For an exhaustive (literally) description of the system, and its derivation, I'd refer the reader to the source.[1] It is sufficient for my purposes to present the system in its historic and philosophic contexts—in the light of the fundamental principles on which it is based—and to illustrate its influence on my design project.

I've come to think of the plastic number proportions as an architectonic musical scale—each measure in the system analogous to a tone in the scale—carefully quantized magnitudes, enabling my mind to differentiate, and relate them, to other measures in the system.

Each number in the system (see top table on opposite page) represents a different *type of size*—a different pile of sieved gravel (to use van der Laan's metaphor). Each octave, or line, represents a different *order of size*. Each order of size begins where the previous one left off. So octave number I ends at 14 units, octave number II begins at 14 units.

And the word *units* is key to this system—for it is a relative system. Unlike the *Modular*, which is an absolute system, based on a six foot man (not 5'-11" and not 6'-1"), and fixed at exactly so many centimeters, the plastic number *unit* can be any measure which makes sense for the nature of the project, or the nature of the building system being employed. For van der Laan it is not the *absolute* size of something which matters, but its size *relative* to other things around it. This relativity becomes especially advantageous when working with a unit masonry system like brick or CMU. For unit masonry to make pragmatic sense, the number of courses must be an integer. With the plastic number system, simply multiplying van der Laan's table of ratios (top table, opposite page) by two, removes all fractional numbers and returns plastic number proportions for even coursings (middle table, opposite page). This, now, can be employed with any system of masonry. My choice for this project was standard sized CMU's, with a nominal course height of eight inches. Multiplying the number of masonry courses by eight inches, returns a plastic number proportioning system of measures, scaled to even courses of CMU's (bottom table, opposite page). The same could be done for standard brick, by multiplying the number of courses by $2^{2/3"}$, or for any type of unit masonry. This worked out especially nice for

1. *Architectonic Space - Fifteen Lessons on the Disposition of the Human Habitat*, by Hans van der Laan. Leiden Press, 1983. This is the most exhaustive account of van der Laan's theories as presented by himself. Very helpful companions, however, are Richard Padovan's: *Hans van der Laan—Modern Primitive,* and *Proportion—Science, Philosophy, Architecture*.



The image at the bottom of the page illustrates the order of size which the major wall volume relates to. The blue and yellow shaded areas together represent this measure, about forty feet in width. The yellow shading is the width of the major wall volume, established to be about 1/7 of the total width of the space which the wall divides.

The image to the left illustrates the minor wall—the order of size that the wall relates to here, was chosen to be the width of the primary house volume—about 14'.

The same notion of order of size was employed at two different scales to establish the approximate widths of the two primary wall volumes.

CMU block, because the 8" grid that creates even vertical coursings, also creates horizontal measurements that don't require cutting block. In effect, then, the bottom table represents a system of proportions for 8" block, where all courses lay out even, and no blocks ever require cutting. The graphic with the colored squares (pg.88) shows one plastic number octave, with the resulting shapes, created from the implementation of these measures. The rectangles formed by the intersecting lines Van der Laan called the *form bank*—as if this is where he goes to "withdraw" a needed form. In his book, *Architectonic Space*, he logically extends the concept of the *form bank* into three dimensional space, by extruding each shape into the z-axis, by plastic number measures[1].

2

With the plastic number ratios, van der Laan created an "inventory" of discernible shapes (like musical notes), that the perceiver of architecture could see—and conclude that: "this shape is of a different type than that shape". Considering the grid of rectangles created in the graphic on page 88, I believe he was quite successful. Each shape, while similar to ones juxtaposing it, is also readily discernible. Van der Laan saw this as crucial to creating a visually pleasing architecture. In van der Laan's view, to make architecture from measures not thoughtfully quantized for the perceiver, would be tantamount to making music from the continuous tones of a wailing siren.

In this design project, one of the most significant and obvious results of my dalliance with van der Laan's theories, came in the size of the wall volume which separates units.

Van der Laan's notion of *order of size* requires that two measures must be within a certain range of magnitude to one another for the mind to make a meaningful relation between them. He ultimately concluded that the outer limit for this relation was at about a 1:7 ratio. In his writings he goes to great lengths to demonstrate this derivation—which I shall not do here. Hence, the range of each of his "systems" (what I call octaves), is a 1:7 ratio.

3

Van der Laan used the phrase: "counts for", to describe his concept of *order of size*. He'd say that: in order for one magnitude to *count for* another magnitude, they must be within this 1:7 order of size. A pebble does not *count for* a boulder—but it does count for another pebble. So, in considering this separation which I desired between units, I took van der Laan at his word, and tried a wall width that would *count for* the space which it was separating. I knew, based on approximate room sizes, and the basic L-plan I had chosen, that the measure between units would be in the neighborhood of 35 to 40 feet. In order for the wall separating this space to *count for* the overall measure of 35 to 40 feet, it must be no less than 1/7 of that measure, or 5 to 6 feet.

I experimented with the notion of a five to six foot wide masonry volume to separate these spaces (initially, a thought which, frankly, struck me as odd). However, my eyes were generally pleased with the results produced—there was indeed something nice about the relative proportion of that volume in relation to the overall space it divided. Coupled with the pragmatic role that such a "servant" space could play, the thick wall volume became an essential element. For the minor wall, I considered the width of the house as the measure for which the thickness of the wall must "count for". With rooms approximately 14' wide, a 2' thick wall would be 1/7 of that.

1 See *Architectonic Space - Fifteen Lessons on the Disposition of the Human Habitat*. H. van der Laan. Chapter X, entitled: "Eurythmy". pp.114–132.

2,3. Kitchen , looking at east wall. Van der Laan would say that: for the thickness of the wall to "count for" the width of the room, it should not be less than a 1:7 ratio to the width of the room. With 14' wide rooms, I started with a 2' thick wall.

These are nice illustrations of the flexibility, and scalability, with which van der Laan's system can be employed. The major wall was scaled according to the order of the *house to house relationship*—the minor wall was scaled according to the order of the much smaller *room to room relationships*. Yet all the measures are intimately related by the additive and geometric properties of the system.

The system is used in many more places in the project—the sizing of rooms, fenestrations, elevations, kitchen counters, fireplaces, planter beds, etc. Nearly every detail of this project, in plan, section and elevation, was informed by the system—but only as a guide, not as an autocratic dictator. There were many times when intuition, or pragmatics, compelled me to change a measure from what the system suggested. In fact, *suggestion* is a nice word to describe the benefits of working with an architectural proportioning system. The system offered helpful *suggestions* as to the measure of this or that element. To use any system, however (be it proportional, philosophic or syntactic) as dictator, is to lower architecture's stature, relegating it to nothing more than the visual manifestation of the system which informed it. Such slavish consistency to a rational construct brings to mind one of Emerson's aphorisms: "consistency is the hobgoblin of little minds". Such allegiance to a rational construct is antithetical to my position as an architect. The system, in and of itself, is only as good as the experiential results it helps one to achieve. If my judgement and intuition, however, inform me that such results are not the case, the system must go—regardless of any titillating, or quasi–mystical intrigues to be found in the system. With the plastic number, though, I generally found its suggestions quite helpful toward achieving pleasing results. And when my intuition disagreed with the system—intuition won the day.

There's nothing magical about the plastic number or any system of proportion for that matter. Many architects, working only with judgment and intuition, create beautiful things, never employing a system of proportion. Obviously, then, one can't argue that such a system is requisite for good architecture. For my purposes though, especially as a rather "green" architect (one still filling my reservoir of architectural intuition and judgement) I found a proportioning system a rather helpful tool in making design decisions—decisions that might otherwise be made somewhat capriciously without such a tool.

With that said about proportional systems in general, I've found the plastic number, in particular, to be the most elegant of any system that I've yet studied. I find systems offering both additive and geometric relationships among their various measures to offer the richest results. Both the golden section (as manifested in the Modular or Fibonacci series) and the plastic number provide these "dual" relationships. I find the plastic number more elegant than the Modular, though, for a couple of reasons—both practical and theoretical.

First, and to which I've already alluded to, is the *relative* nature of van der Laan's system. This is not only extremely useful in accommodating various scales and construction systems, it moreover, goes to the very heart of what proportion is. Proportion *is* relative. Van der Laan saw that we do not perceive magnitudes in and of themselves—we always perceive them in relation to other proximate objects, what he called the "mutual neighborhood" of objects. A big stone is only big if it's next to a smaller stone. This is the weakness of the Modular. Its anthropomorphic scaling (to a six foot man) is rather arbitrary—its absolute measures, set in stone, is quite limiting. I believe the system misses the true *relative* essence of what proportion is.

Secondly, is van der Laan's compelling apologetic for his concepts—*type of size* and *order of size*. With these concepts—evolved from his strong belief in an a priori, ordering human intellect—he effectively brings Kant to a world of proportional theory, steeped for centuries in Pythagoras, Plato and Alberti. He unabashedly imposes the human intellect onto nature—compelling the created object to conform to the human intellect, not to nature. This is diametrically opposite Le Corbusier's view (and all classicists), who looked to nature, to discover that which must be imposed onto the human intellect.

The main weaknesses in van der Laan's theories are sins of omission. His architecture is particularly powerful and evocative in it's use of light and shadow, and in material richness. Yet, these

aspects of his architecture he never mentions in his writings. He was either unaware of his architecture's strength in these regards, or just assumed such matters were tacitly understood by architects and thereby not requiring comment (he may have overestimated us).

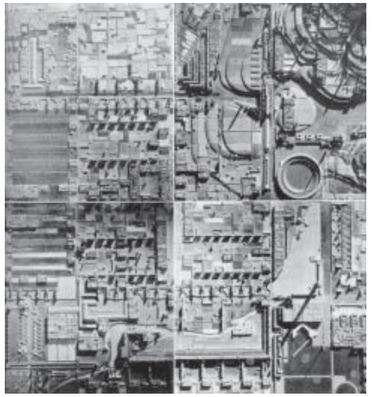
Dom Hans van der Laan is a unique and valuable voice in architectural theory—one that's unfortunately been largely overlooked. He liberates the architect to use and enjoy proportional tools—free from the classical/Renaissance baggage of naturalism. He exhorts the architect to look to his own intellect as the ultimate source of order, and to unabashedly impose that order onto the created object. And in so doing, to participate in what, van der Laan believed, was man's offering toward the *completion* of nature.

Context

Toward a Pragmatic Idealism

"*Damn utopias, life is better than utopia!*"—Such were the sentiments of Lewis Mumford,[1] to his good friend and colleague, Catherine Baur—this, after spending much of his long career studying utopian thought.

Mumford described utopia as the perfect place, yet the *unattainable* place. Like his mentor, Patrick Geddes, Mumford invoked the archaic term *eutopia* to describe "the *good place*"[2]—admittedly not perfect—but nevertheless good, and moreover, *attainable* in the imperfect here and now.



Eutopians choose to accept certain things as they are, resolved to work under certain pragmatic constraints—a condition they call *reality*—even if reality is, admittedly, imperfect and a bit untidy at times. Utopians, on the other hand, reject outright (or naively overlook), certain intrinsic principles of human nature; or deep seated cultural mores—things that sully the purity of their vision. Utopians *wish* reality were different—then construct their theories as if it indeed were.

The most well known architectural utopias to modern architects and planners are Frank Lloyd Wright's *Broadacre City* and Le Corbusier's *Radiant City*, both conceived in the early 1930's—Corbusier's in Europe, Wright's in America. Like the socio/political utopias in fashion at the time (on both sides of the Atlantic, but much more firmly entrenched in Europe), these architectural utopias were wholly conceived in egalitarian notions of land redistribution—taking from large landholders, giving to the *common man*.

Le Corbusier, in his opening salvo of *The Radiant City* [3], said: "We must undertake the redistribution of the land in the country and in the cities...mobilization of the land for the common good."[3] Marx and Engels, of course, had their own redistribution plan for the *common good*—"*from* each according to his ability—*to* each according to his need". Wright, with Broadacre City, had a redistribution plan as well—take *from* large landowners, give an acre *to* each citizen upon birth.

Le Corbusier's redistributionist sentiments were widely shared by his European contemporaries (to be a Bohemian in Paris during Corbusier's time Marxist sympathies were to be expected). Wright, however, didn't enjoy such a receptive audience in America; his redistributionist visions were an affront to very powerful, deeply held values of the American ethos—values not nearly so strong in Europe.

4 ici, l'académisme dit: Non!

photos opposite and this page: Wright's Broadacre city. Shows one acre building sites—given to each and every citizen by the federal government upon birth. Photos from *Frank Lloyd Wright—The Masterworks*, Bruce Brooks Pfeiffer, Rizzoli Press, p.145

1. Lewis Mumford—prolific architectural critic of the 20th century; wrote extensively on utopian thought, the city, and architecture. *Lewis Mumford & American Modernism* by Robert Wojtowicz (Cambridge University Press, 1998) is an excellent overview of the life, times and writings of this great American mind.
2. Etymologically, both terms, Utopia and Eutopia, have a common source in Sir Thomas More's Novel "Utopia" of 1516. Literally from the Greek, Utopia means "no-place", whereas eutopia means "good-place".
3. *The Radiant City,* Le Corbusier, Grossman Publishers, 1967, p.1
4. Rendering of *Radiant City*—Corbusier's utopian vision of the ideal modern city—profoundly inspiring to utopian visionaries of America's inner–city public housing "projects" of the 1950's–1970's.

1

1

Wright's personal rejection of many aspects of the American ethos: private property rights, individual liberty, freedom from overly intrusive government—were all well and good as personal convictions—but this is where utopians are apt to make their biggest mistake. Their personal disdain for reality does not alter reality—much as they may wish otherwise. Indeed, most decent people sincerely *wish* and *hope* for world peace—but the prudent leader does not *plan* on it. Utopians wish reality were different, they hope people will change—they then proceed to construct their plans as if their hopes and dreams have come true.

Utopian thought is quite prevalent in architectural circles today, especially among the academic intelligentsia and those who write about architecture. In fact, architects as a group probably tend toward utopianism.

This seems important to address because we live in a culture that desperately needs relevant proposals and solutions from architects for the built environment. While Utopia is often intriguing and titillating, it's rarely relevant. As curious a notion as Broadacre City was, it was largely irrelevant as a serious proposal for its American audience because it rejected deeply entrenched elements of American context. It was visionary, but not contextual.

And it's this notion of contextualism which I'd like to address in this section. Mumford invoked the archaic term *eutopian* to describe a mindset which rejects utopia (the perfect place) because it is unattainable. It seeks, rather, eutopia (the good place) because it is better than where we are, and it is attainable in the imperfect here and now. Eutopian is a word little used or understood anymore, but *contextualism* is a term very much in vogue today in architectural circles. Eutopian is really nothing more than contextualism. Eutopia accepts certain contextual constraints and moves forward toward a better place, a good place, even amidst difficult contextual obstacles. Utopia rejects the obstacles—but unfortunately, rejecting the obstacles doesn't make them go away.

Against this introductory backdrop of utopia and eutopia, and in the spirit of contextualism, I'd like to consider two architectural movements that strike me as highly *eutopian*, that is contextual: Frank Lloyd Wright's Usonian house experiment, a product of the 1930's, and the New Urbanism, a movement begun in the late 1980's and still very

1

1. Quiet and self–restrained architectural power. Zimmerman House. Frank Lloyd Wright. Images: *Frank Lloyd Wright—The Masterworks*. Bruce Brooks Pfeiffer, Rizzoli Press, p.244.

prevalent today.

Curiously enough, from the same mind that gave birth to the utopian vision of Broadacre City, came what I believe is one of the most contextual proposals for architects to consider—the Usonian house.

1

Prior to the great depression, Wright was primarily an architect of the wealthy. His prairie houses, civic works and commercial projects were typically of very robust budgets. With the Great Depression, however, Wright soon found himself in the unenviable position of having more time on his hands than commissions in contract. This respite from his former practice, however difficult the financial pressures it imposed, did give him the opportunity to address a concern which had been on his mind for some time—middle and lower income home owners were increasingly squeezed by the escalating costs of building a house. Wright obsessed for years over this dilemma: how can a beautiful dwelling be constructed which might afford a middle class home owner the same dignity in his home that was, more and more, only being enjoyed by his wealthier clients? In this patient search the *Usonian* concept was born—and Wright reveals himself a master "contextualist", assessing and reacting to a myriad of complex issues of economic, cultural and aesthetic context.

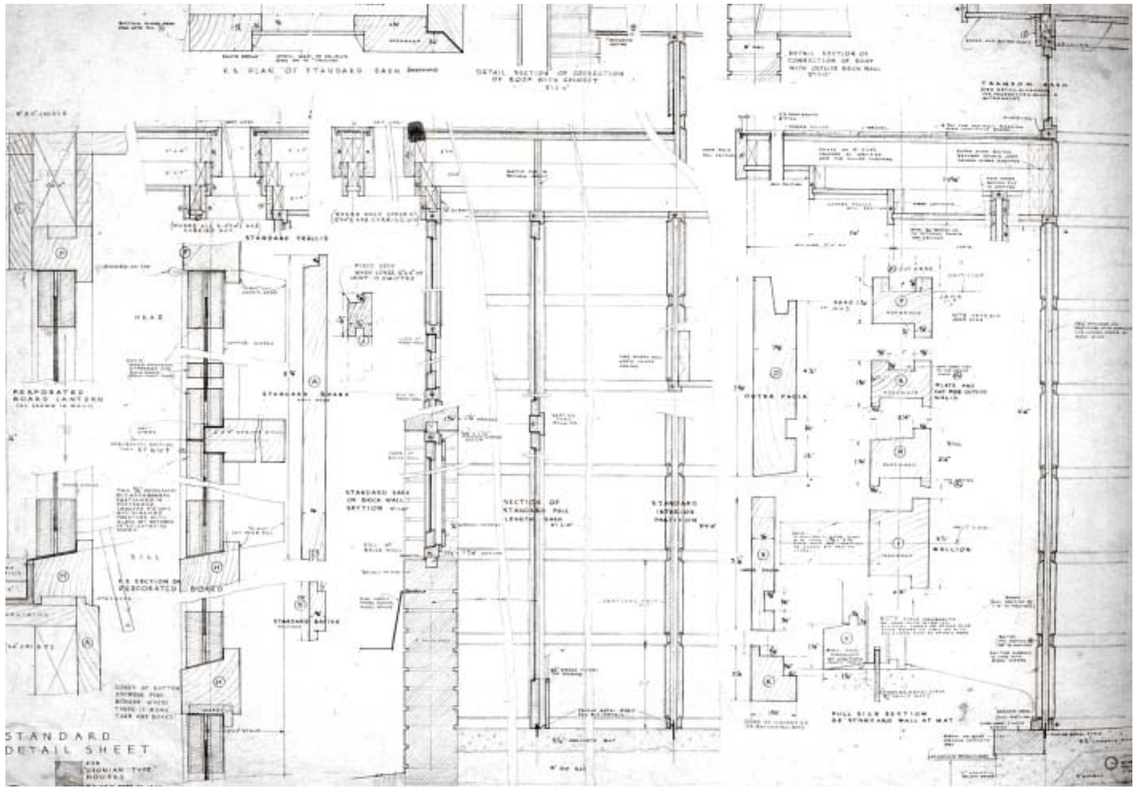
Today's use of the word "context" among architects is rather limited in scope, usually referring to the nature and character of the area around a prospective project. So we hear a lot about the "urban context", or the "neighborhood context" or the "vernacular context". And these are all very important aspects. However, I'm using the word here in a much broader and holistic sense which I believe is displayed by Wright with his Usonian experiment.

He carefully considered economic context in identifying the problem of escalating building costs. He concluded that he'd need to minimize costly and less efficient on–site labor, and maximize more efficient off–site mill work. He concluded that mechanical systems were inefficient and much too costly, so he completely rethought duct, plumbing and electrical runs. In the end, he challenged himself to produce a dignified and beautiful house for $5,000—that which could be afforded by a very typical middle income family in his day (this was the early 1930's).[2]

3

3

1. opposite page and this page—Quiet and self–restrained architectural power. Zimmerman House. Frank Lloyd Wright. Images: *Frank Lloyd Wright—The Masterworks*. Bruce Brooks Pfeiffer, Rizzoli Press, p.244.
2. Wright's first Usonian—the Jacob's house of 1936, in Madison, WI—indeed came in at the budget of $5,500. Wright waived part of his fee and pirated "reject" bricks from the Johnson Wax headquarters job (which was being built concurrently in nearby Racine, WI), in order to make the budget.
3. Jacobs house. Photo: *"Frank Lloyd Wright—The Masterworks"*. Bruce Brooks Pfeiffer, Rizzoli Press: an excellent overview of Wright's work, with very high quality photography and many original Wright drawings.



He likewise reacted to social and cultural context—in particular his own personal conviction that middle and lower income families deserve dignity and beauty in their homes, just as his wealthier clients. Lacking such a home environment, Wright believed, society would ultimately suffer.

2

He carefully considered technological context—looking for ways that new building products might be used to better serve beauty, utility and economy. Of particular note in the Usonians is Wright's embrace of plywood, a new building product at the time which Wright saw held great promise.

He wrestled a great deal within the context of typical and accepted building practices—carefully studying every minute detail of how a house is constructed—weighing these accepted practices against what he was trying to achieve both economically and aesthetically. He pioneered several "radical" ideas—most notable among these was a new wall system, rejecting the traditional stud frame altogether. He likewise rejected the traditional basement in favor of the slab on grade foundation. He rejected the traditional high pitch roof, with an attic, in favor of the flat roof (as in Jacobs), or the asymmetrical low pitch roof (as in Zimmerman). He rejected traditional heating systems in favor of a radical new radiant heated slab.

Whatever traditional practices did not serve his vision for economy, beauty and utility, were rejected. In this regard, Wright reveals himself the quintessential modern architect.

Confronting, head on, difficult contextual issues, such as economic viability and constructability, Wright guaranteed the *relevance* and ultimate acceptance of his idea. Ignoring any of these important contextual issues may have doomed his experiment to failure. But he viewed the Usonian idea as a holistic proposal, one which must succeed on every contextual front if it's to succeed at all. Ultimately, this deep understanding of contextual issues (not to mention a prodigious design talent) earned Wright the gratitude, respect and admiration of dwellers and builders alike. It also produced a huge legacy of *built* Usonian works.

Beyond the wealth of wonderful spatial characteristics found in these dignified little houses, I believe Wright's embrace of context in such a broad and all–inclusive manner, is one of the most important lessons an architect might take away from this tremendously successful experiment in housing.

Wright's success was that he viewed context in a very broad way—as the sum total of all the forces acting upon his project—economic, social, cultural, legal, aesthetic, constructional, financial[1], technological, etc. Wright sought, and achieved, relevance in as many of these contextual arenas as possible.

It's curious to consider Wright's highly contextual response to middle class housing against his anti-contextual proposal for the city of the future. Both were conceived at the approximate same time, yet at the scale of the house Wright is focused and pragmatic, at the scale of the city he allowed himself to dream and fantasize that harsh realities don't exist, that people's very nature and ethos would change to accommodate his vision.

2

Opposite page: Wright's standard details for a Usonian house. Image: *"Frank Lloyd Wright—The Masterworks"*. Bruce Brooks Pfeiffer, Rizzoli. p.172

1. This question of financing was a continual problem for Wright. Mrs. Lusk, whom Wright designed a Usonian house for, wrote: *"Government loans were about the only source of building funds in those days, and we couldn't build without one. The FHA declared that because our house was 'different', that it had been designed specifically for us and our personal requirements and way of life, that its resale value was nil."* From John Sergeant's book: *Frank Lloyd Wright's Usonian Houses*, Whitney, 1976 p.172. Apparently this obsession over resale value is not a new phenomenon. The Lusk's ultimately overcame this snag, and indeed got their house built—but Wright's inventiveness continued to challenge the financial and regulatory framework of his day. If only those FHA bankers could see the resale value of the Usonians today.
2. Photos showing the construction of the Haslett house in Hillsborough, California. From *"Frank Lloyd Wright The Masterworks"*. Bruce Brooks Pfeiffer, Rizzoli. Top left photo shows the radical nature of Wright's wall system—a plywood core with horizontal cypress siding inside and out—no studs, no insulation. Bottom right photo shows the radiant heating coils prior to the pouring of the slab. This system eliminated all need for mechanical ductwork and provided what Wright, and many today, consider a more comfortable way to heat a house.

Where Wright's urbanism was decidedly utopian, a new and emerging school of thought is very culturally focused and contextual. Whereas Wright essentially denied reality, The "New Urbanism" embraces it, taking a much more pragmatic approach to changing the way we think about development.[1]

3

Whatever one's criticism of the New Urbanism (and architects, as a group, are quite critical of this movement), they cannot be accused of being utopian thinkers. They are decidedly eutopian. They firmly believe in incremental change in the imperfect here and now. They believe their principles, if employed faithfully, will create healthier and more vital neighborhoods, towns and cities, even in the midst of dealing with profit hungry developers, kitschy public tastes and a regulatory framework badly in need of renewal and fresh thought.

They believe that for architects and urbanists to be relevant, they must not make proposals which alienate the developer or the "consuming" public. Their vision for a *good place* is manifest in several principles which they've distilled from studying successful and time tested "traditional" cities, towns and neighborhoods, places which are still vital and compelling places to be after many, many years.[2] This willingness to look back in time and search for lessons from history has earned them the title of "neotraditionalists" among many.

Geddes, Howard, Unwin, Mumford, Frank Lloyd Wright et. al., were passionately anti-city. The New Urbanists are decidedly anti-suburbia, at least with regard to how the American suburb has evolved over the better part of the twentieth century.

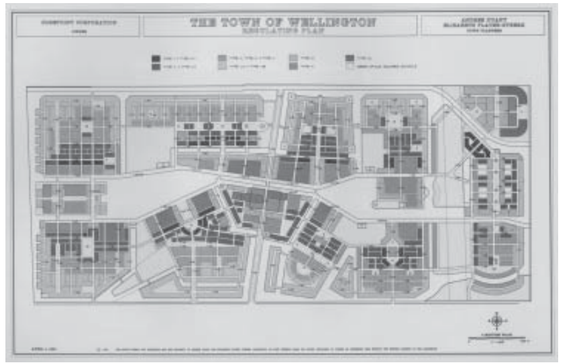
New Urbanists see the devil in rigid planning codes that perpetuate bad suburban development patterns. They see problems not only with the content of the code, but with the *proscriptive* nature of the code. They have embarked, not only, to change the rules, but to change the timbre of the code, to offer a *prescriptive* paradigm as opposed to the existing proscriptive one. A New Urbanist code, then, shows examples (with illustrations) of how things *can* be done, as opposed to the existing codes which tell (with words) what *can't* be done (see illustrations on next page).

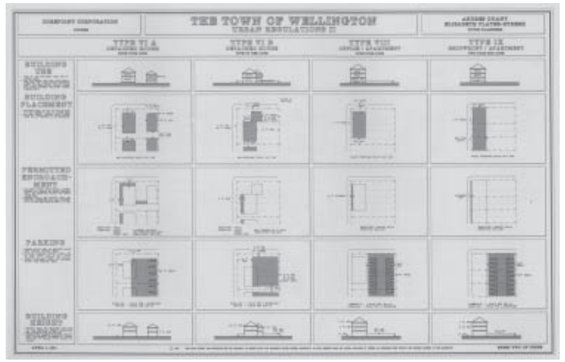
This slight and subtle deviation in tone is actually quite significant, for in acting prescriptively, the New Urbanists, in effect, proclaim what is *good*. This is the antithesis of the current planning paradigm which goes to great lengths to declare what is *bad*, but would not dare suggest what might actually be good.

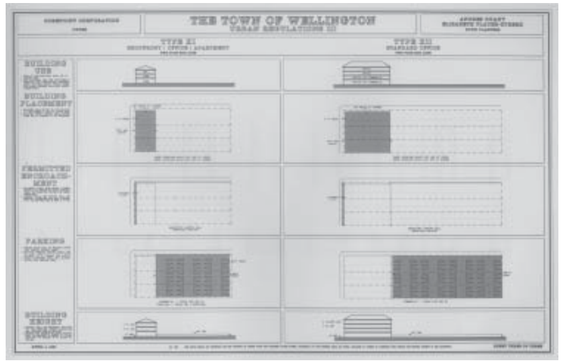
3

opposite page - Rendering for a New Urbanist (Duany & Plater-Zyberck) project called Wellington, in Florida. The rather romantic renderings characteristic of the New Urbanists are often criticized by architects as being mannered and overtly sentimental. New Urbanists defend them as being for the consumption of developers, planners, and citizen's groups, unabashed "marketing" tools employed to "sell" an idea in a language that's understood and appreciated by a non-design audience. These renderings reveal the savvy (critics might say shameless) methods embraced by New Urbanists to get their neighborhood and town proposals accepted.

1. When I refer to the New Urbanism I am speaking of like minded architects and urbanists who ascribe to most of the tenets of a loosely organized group called the *Congress for the New Urbanism*. The group has written a charter (manifesto) which delineates the major tenets of their beliefs. Organizationally modeled after C.I.A.M., the group has an annual conference whereby they keep the issues of common interest before the group. Most would attribute Andres Duany and Elizabeth Plater-Zyberk as being the formulative impetus for the new movement, ushered in with the design of the 80-acre Seaside, Florida development in 1982. Other notable architects and writers sympathetic to this movement are Vincent Sculley (professor of Duany and Zyberk when they were at Princeton), James Howard Kunstler, Phillip Langdon, Leon Krier, Peter Calthorpe, Peter Katz and many others.
2. Vincent Sculley was a seminar professor for Duany and Zyberk while they were graduate students at Yale. He says that while students in his class they became intrigued with the beauty of the old neighborhoods in New Haven and began to carefully study them in an effort to distill exactly the conditions which makes them good.
3. Seaside Florida - generally attributed as being the start of the New Urbanism. Images from *The New Urbanism, Toward an Architecture of Community*, Peter Katz, McGraw Hill







New Urbanists, then, have carefully picked their battle. It is not with the developer; it is not with the traditional (critics would say 'kitschy') tastes of the general public. Their fight is with urban planners, traffic engineers, and the harmful and voluminous codes which they have written and enforce with bureaucratic zeal.

1

This is not to say that their proposals don't often stretch developers, because they do. Anytime a developer is asked to deviate from a "slam dunk" development that made him a gold mine last year, he is going to be skeptical. But the New Urbanists have embraced the developer and brought him into the fold. They assure him that good urban design and planning will bring him *more* money and profit, an argument which resonates understandably well among developers.

The New Urbanists likewise see the rather traditional tastes of the American public as a kind of aesthetic *sensus communis*, one which they regard with a degree of respect, rather than the highbrow contempt commonly afforded such sentiments by many in the architectural community. They enjoy a careful study of the traditional, vernacular forms of a region, distilling, clarifying and articulating the best conditions they feel the tradition offers. For example, if they invoke a New England motif for a New England development (an idea which horrifies many architects), they will at least attempt to ensure that the houses proposed are well proportioned, well scaled to the street and well related to one another. These are design issues which, they would contend, transcend stylistic nuance.

The New Urbanists attribute many of suburbia's ills to the urban planner's officious attention to the automobile over the past 50 to 75 years. They argue that this fawning over the automobile is revealed in streets that are too wide, set backs that are too large, and streets that lead nowhere. In other words, the typical suburban development full of fat cul-de-sacs. Much of the New Urbanist's attention, then, is given to reestablishing a sense of proportion to the elements of the street, a proper scale between the building and street, and a more traditional grid-like network of streets, allowing traffic to be dispersed, rather than concentrated on heavy use arterial roads.

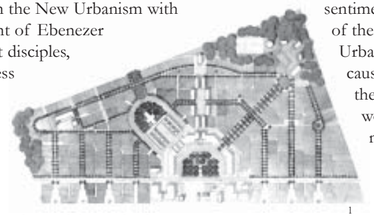
Single use zoning, another proclivity of modern planners, the New Urbanists eschew with similar zeal. Urban planners of the past half century would much prefer to see houses situated only next to other similar houses, commercial property with commercial property, offices with offices, industry with industry, etc. The New Urbanists look fondly upon pre-modern planning neighborhoods where apartments or townhomes might be located above shops and offices, where a corner grocery store might be set among a mostly residential neighborhood, where areas of work or mass transit might be located within easy walking distance of homes. These conditions now violate code in most municipalities and so New Urbanists typically have to wage battle with county planners to bring these ideas to fruition.

2

Opposite page - Examples of the graphic planning codes developed by New Urbanists to replace the text codes of the conventional bureaucrat planner. Careful attention is given to building use. New Urbanists believe that retail, office and residential should be thoughtfully integrated. Furthermore, they believe that it's advantageous for renters to be in the same neighborhoods as homeowners. So they advocate housing types that maximize opportunities like studio apartments over garages and outbuildings, and integrating duplex type structures in the same neighborhoods as larger single family homes. Also evident is an aesthetic concern for the scale of the street, and the relationship of the building to the street. It's obvious from this proposal that New Urbanists favor narrower streets and much smaller building setbacks. Also, they are firm believers in carefully conceived tree plantings to affect the character and feeling of the street. Images from The New Urbanism, Toward an Architecture of Community, Peter Katz, McGraw Hill

1. Seaside, Florida. Roof lines indicate the type of higher density conditions many New Urbanists favor over typical suburban development with comparatively large lot and street set-backs. Source same as above.
2. Seaside, Florida. Office, retail, residential building designed by Steven Holl. Source same as above.

One can see sympathies in the New Urbanism with the Garden City movement of Ebenezer Howard and his decentrist disciples, as well as a certain fondness for the planning which came out of the City Beautiful movement. They likewise value the earnest observation of writers like Jane Jacobs and Christopher Alexander, theoreticians who have labored to distill specific conditions which make places good to dwell.


1

There's one very important distinction, however, which distinguishes the New Urbanists from many in the architectural community, both past and present: they are shrewd, savvy, organized and highly focused. As a result they have been tremendously successful in implementing their ideas. They know exactly what they want to accomplish; and moreover, they understand how things get done in American development and financial contexts. They may not necessarily *like* the way things get done, but they understand it, and they *choose* to respond appropriately to it. *"Don't alienate those with the money". "Make the developer your friend". "Please the customer". "Sell your project in a relevant way to your non-designer audience". "Get it built".* Such sentiments could be the thoughts of the month on a New Urbanist calendar—such is the cause of serious heartburn for the diehard idealist, who would view these sentiments as tantamount to "selling out" to the mass consumer market. New Urbanists, being a bit more pragmatic, see these as admittedly untidy necessities, employed to achieve an imperfect something better, in the imperfect here and now.

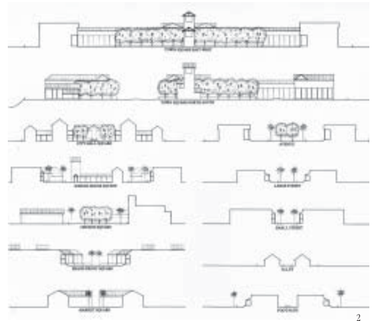
They assure the developer that they are going to make him more money, or in the words of Daniel Burnham, that *"good design is good business"*. In as much as the New Urbanists are attempting to recapture an urban vitality which existed prior to modern planning, and in as much as they believe their principals will indeed reestablish such a vitality, they are irrefutable in their pitch to the developer. Consider any urban area recognized as a place of special charm and character. We know them when we experience them, especially as architects. Georgetown, Alexandria, Charleston, many parts of Manhattan, Boston's Beacon Hill or North End, San Francisco, Carmel, Nantucket and many others. Now, consider the real estate prices in these locales. Daniel Burnham was right. Good design is good business indeed.


2

The predominant criticism of the New Urbanists, from the architectural community, stems from their employment of neotraditional design motifs. Here, the New Urbanists have largely acquiesced to the developers', and the buying public's, preference for neotraditional styles. These motifs are, in large part, a marketing decision. The developers are convinced, based on experience and market research, that this stylistic pastiche is what the public wants. Consequently, the developer is very comfortable with "traditional" and the New Urbanists, thus far, have served it up on a platter. In return, they are given

1. Seaside, Florida -site plan for the 80 acre development which is regarded as the generative act of the New Urbanism. Plan shows fondness for City Beautiful type planning.
2. Example of civic building spawned by the New Urbanism. A school at the Kentlands in Gaithersburg, Maryland. This neoclassical pastiche shows the worst aspects of the New Urbanism and illustrates why many are so vehemently critical of it. The civic buildings are quite often Greek Revival in style, showing, again, a fondness for the City Beautiful movement. Compared to the grand gestures of City Beautiful architecture (one of Daniel Burnham's favorite aphorism was "make no small plans") these New Urbanist offerings seem rather cartoonish. City Beautiful grew out of the famous Chicago Columbian Exhibition of 1893, which featured a strong neoclassical theme, much to the chagrin of Chicago's pioneering modernist, Louis Sullivan, and much to the delight of McKim, Mead and White. Daniel Burnham was one of the preeminent urban designers of this short lived movement which seemed to dissipate in the despair and cynicism of World War I. Images from *The New Urbanism, Toward an Architecture of Community*, Peter Katz, McGraw Hill.

considerable latitude to employ their urban design principles, oft times bringing a level of refinement, through better scale, proportion, and material choices, even to the tired styles requested by the developer.


2

Convinced that the true power of their vision is in their planning and urban design principles, not necessarily in the stylistic nuances of the individual buildings, New Urbanists might fight tooth and nail for a 15' wide alley, then meekly acquiesce to a kitschy Greek Revival civic building, or a "stage-prop" picket fence in front of a sentimental clapboard colonial. Consequently, many of their projects are criticized by architects as overtly sentimental, even "theme parkish". I believe this is a very fair criticism. I find most of their urban design principles to be of rather sound judgment, evolved from thoughtful and earnest observation of good places. Yet, the power of their urbanism would be strengthened, not weakened, by greater diversity and stylistic freedom among individual buildings.

Many in the architectural community have been so distracted by the neotraditional pastiche invoked by the New Urbanists, that any real value embodied in their careful articulation of urban scales, proportions, densities, and street conditions, has been largely overlooked. It's understandably difficult for many to see through the veil of fake pediments and hollow Tuscan columns, to the underlying urban principles which may very well be of significant value .

More grievous than their acquiescence to pastiche, however, is their codification of it. While I find it perfectly reasonable to prescriptively codify certain urban conditions which are proven to make positive contributions to the public realm, like sidewalks, narrower streets, thoughtful tree plantings, smaller set backs, higher densities where appropriate, mixed uses, zoned public spaces, building height requirements, etc., however, to mandate Colonial, Georgian, or any style, through the code, is to guarantee the "theme park" condition for which they are criticized. It's a highly unnecessary mistake.

As disturbing as these kitschy tendencies may be, I think there are some very encouraging signs in the New Urbanist camp, as more and more architects are making the important distinction between the urbanism of the New Urbanists and their neotraditional architectural leanings.[2]


3

1. Street sections for Seaside Florida. This type of careful study of scale and proportion for the public "street rooms" created by private buildings, represents, in my opinion, one of the most significant contribution of the New Urbanism toward making positive change in the built environment. From *The New Urbanism, Toward an Architecture of Community*, Peter Katz, McGraw Hill.
2. See *The New City 3*, University of Miami School of Architecture, 1996, Jean-Francois Lejune, Editor. This book examines several precedents of successful urban planning which drew upon more modern and eclectic design vocabularies. Tel Aviv, planned largely by Patrick Geddes in the 1920's, employs many urban design principles strongly advocated by the New Urbanists, yet the design vocabulary of most buildings is International Style. Miami Beach, planned and built largely during the first three decades of the 1900's, is an eclectic assemblage of building styles (Mediterranean Revival, International Style, Art Deco, etc.) all thrown together in a hodgepodge, yet employing sound planning principles vigorously supported by the New Urbanists, with generally pleasing results. The new town of Kirchsteigfeld in Potsdam, planned by Rob Krier, employs dogmatic New Urbanist planning principles, yet has given individual architects considerable latitude in stylistic interpretation of buildings, creating an environment which seems much richer than many of the more stylistically restrained American offerings. This book is encouraging, as it illustrates a marked evolution in the New Urbanism, one seeking greater diversity of architectural expression, yet still committed to good, proven planning principles.
3. Image from The New City 3. Tel Aviv, Israel. Urban design by Patrick Geddes employs design principles advocated by the New Urbanists, yet the design vocabulary for the buildings was not constrained to neoclassical or vernacular forms. A good example of modern building design successfully wed to traditional urban form. Traditional urbanism does not need neotraditional buildings to be successful.

If there's a common theme connecting the thoughts in this section, it's the notion that idealism must be tempered with a degree of pragmatism in order to be truly relevant. The hard-core idealist often retreats to the purity of his vision, finding fault with the pragmatist's impure and world sullied ways, and ends up proposing utopia. The unabashed pragmatist, in turn, scoffs at the idealist's "ivory tower" ineffectiveness and irrelevance. Yet, nothing truly important is ever *conceived* without a degree of idealism, and nothing truly important ever *gets done* without a degree of pragmatism.

1

Today's idealistic extremes (ideologues) are found in the architectural press and throughout much of academia. The press is replete with glossy computer images of projects with little to no hope of ever being built, or with the iconoclastic works of the "rock-star" architects, with little meaning or relevance for those outside of the avant garde design community. The academic community often values the "purity" of an idea, or the adherence to a rigorous theoretical syntax, over the practical contributions, or palpable benefits to a client or community.

At the other extreme are the unabashed, hard-core pragmatists, those folks in professional practice who would queue up in a blizzard to win their next suburban mall, strip-center or business park commission.

However, it's those who have carefully and thoughtfully forged a middle ground which intrigue me most. Their work is conceived in idealism, yet refined in the fire of reality, achieving relevance for a society desperately in need of an architect's contributions. They have assessed the battlefield and prudently identified the battles they believe they can win—and equally important, those which they can't win, at least not presently.

The New Urbanists, for example, *will* fight for their principles of urban design: for the scale of the street, for the grid, for small set backs, for "City Beautiful" public spaces, for limited neighborhood size, and most especially, they'll fight hard for the pedestrian. They *won't* fight the American fondness for kitchy, historical pastiche. They *will* fight with the county planner, they *won't* fight with the developer.

Wright, with his Usonians, *would* fight traditional building methods. His radical new wall system, heated slab, flat roof, his eschewing of basement and attic, these were all bold rejections of status-quo practices. Yet he never alienated the builder—quite the contrary; he honored the craft of the builder, detailing the houses in such a way that allowed the builder to celebrate his craftsmanship in a much richer way. Wright, however, would *not* fight the economic context which constrained his target client—middle income America. And he

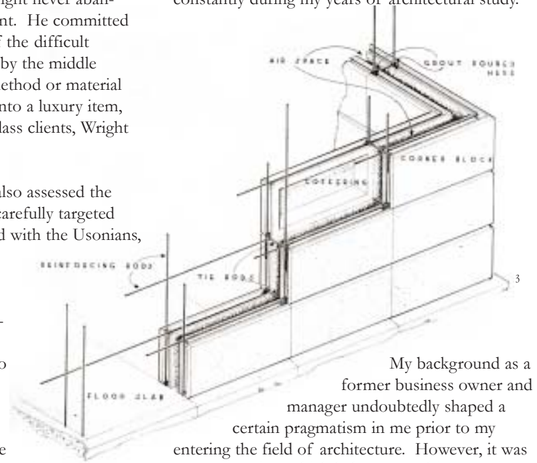
1. Gerald B. Tonkens House. Frank Lloyd Wright, 1954. Employs the new concrete block wall system that Wright designed for his Usonian Automatics of the 1950's. Photo from *Frank Lloyd Wright - The Masterworks*, Bruce Brooks Pfeiffer, Rizzoli Press

easily could have. There were plenty of clients with money (especially after the depression ended) whereby Wright could have easily allowed the Usonian to evolve into a luxury item for the rich, and indeed, some of the later Usonians did take on more robust budgets. But Wright never abandoned the middle income client. He committed himself to an acquiescence of the difficult financial constraints imposed by the middle income client. Whenever a method or material used in the Usonian evolved into a luxury item, thereby pinching his middle class clients, Wright would adapt. [2]

With Broadacre City, Wright also assessed the battlefield, and rather than a carefully targeted guerilla campaign, as he waged with the Usonians, here he opted for an all out nuclear assault on the entire American paradigm of real estate ownership and development, not to mention the American ethos of freedom to pursue land wealth and freedom from an overly intrusive federal government. Here, he clearly picked a battle for which he was ill equipped to win.

Which battles to fight and which to avoid are issues for honest debate, and it's precisely here, I believe, where the architect will largely determine his relevance, or lack thereof, for a society which sorely needs his help.

This tension has been at the forefront for me constantly during my years of architectural study.



3

My background as a former business owner and manager undoubtedly shaped a certain pragmatism in me prior to my entering the field of architecture. However, it was not pragmatism which led me to architecture, it was clearly an idealism about the potentiality of the built environment to affect peoples' lives in a meaningful way—an idealism which grew significantly and flourished all the more with my studies.

Synthesizing these tendencies toward a *pragmatic idealism* is my aim. The nature of this synthesis, over time and through the medium of architecture, I believe will, in large part, determine my relevance as an architect. There will always be a dialectic tension between these pragmatic and idealistic tendencies, as there should be—indeed as there must be. For if this tension ever dissipates, if I ever stop dreaming of architecture's potential to fulfill fundamental human longings, or if I ever stop laboring to bring those dreams to material fruition through pragmatic, contextual analysis and common sense, then relevance will indeed be threatened.

It's in this spirit of dialectic tension which I began architecture school, which I undertook and struggled with this design project for many months, and in which I now look back on it in retrospect. Did I pick the right battles? Was I too pragmatic? Too idealistic? The tension remains. I take that as an encouraging sign.

To affect the quality of the day,

that is the highest of the arts.

—*Henry David Thoreau*, Walden

2. When Wright's favorite siding material, the red tidewater cypress, became financially untenable for his middle class target market in the 1940's and 50's, he decided to devise a new wall system for the Usonian. The *Usonian Automatic* was his answer to the problem. He returned to a concrete block system which he had successfully visited earlier, in the 1930's, with his famous textile block houses. In this case, Wright simplified the block, removing all ornament, and devised a "self-leveling" block system that could be installed by a layman, not requiring the highly skilled labor of a mason. Wright envisioned the house owner helping with much of the labor to reduce the cost of the house. His idea was to make the concrete block forms widely available to lumber yards and building supply companies, along with house plans and construction manuals, so that homeowners could, essentially, purchase a construction "kit", thereby greatly reducing the cost of skilled labor. Several of the Usonian Automatic houses were constructed, some with startlingly beautiful results. The construction kit idea was well ahead of where the building industry was at the time so the concept never took off, but the few experiments that were built are truly wonderful little houses. Image: ibid.

3. The concrete block wall system devised by Wright to replace the red tidewater cypress for the Usonian House. Photo from *Frank Lloyd Wright - The Masterworks*, Bruce Brooks Pfeiffer, Rizzoli Press

Bibliographic References

To assist the reader in quickly finding key sources, all important bibliographic references are footnoted on the page in which they occur in the book.

VITA

Timothy R. Hart

b. 1960 in Fremont, CA

Lived in Santa Cruz, CA through 1998

B.S. Business Administration with concentration in Finance, Cal Poly, San Luis Obispo, 1984

Owned & operated fabrics & interior design stores throughout California, 1984-1998