

A Town Primarily for People that Functions as a Living Organism

By:
L. Gene Zellmer, AIA

L. Gene Zellmer, AIA
Architecture-Planning-Research-Development

E-mail Address:
gzellmer@redshift.com

Mailing Address:
P. O. Box 1444
Carmel Valley, CA
93924

© All copyrights including architectural arrangements of spaces defined in text or figures are retained by the author unless otherwise agreed and documented in writing.

A Town Primarily for People that Functions as a Living Organism

Abstract

How and why a simple rectangular box, a home site, as the primary and intimate point of human to earth connection, offers near total freedom and flexibility for the occupants at any stage of life, can be combined in ways that revolutionize the home's connection to the neighborhood and town with entirely new arrangements, and can grow into an ultimate sustainable relationship with surrounding open space as if it had grown there, blending in as comfortably as an actual life form: that is the focus of this paper.

It has maximum Continual Use, the ultimate in sustainability.

This real-world solution can be built today. Home-sites are in 3-D frameworks that last 1000+ years; 7 of 10 steps in building a house are permanent.

Only front wall in home-site is seen. Affordable: small budgets can buy a site, build minimum space, add as budgets and needs grow, until it's a full-sized home. Empty nesters use less space, rent extra for income; can have 4 units without negatively affecting neighbors. Home size variety has important benefits. Extended families and neighborhoods stay for generations, basic sustainability.

Ease of updating and long-term value justifies investment in systems potentially as efficient as living organisms.

Keywords

comprehensive

long-term

efficient

flexible

affordable

ultimate in sustainability

makes density desirable

Number of Words in Paper

5516 words

A Town Primarily for People that Functions as a Living Organism

Brief Overview

Our objective is to build a town that can function as efficiently as a living organism. This is a special moment in history to take on this challenge. We do not yet have all the technology, but we have enough for a good beginning. This town offers a framework to apply what we have to its maximum potential and the flexibility to improve over time.

This is a real-world solution that can be built today with initial house cost similar to comparable typical houses. It can satisfy objectives of concerned environmentalists and real estate developers.

It all starts with early experiences seeking knowledge and understanding. Succeeding in the face of everyone's doubt helped build my confidence in trying new ideas. Some are the roots of this concept.

There is too much information for one paper. The elements discussed in this paper are the human interface points: individual home site, home cluster and extended neighborhood. Some of the life related discussion might seem lengthy. But appreciating how easy, affordable and satisfying living in this town can be is the heart of its sustainability. The challenge is to fulfill its potential by perfecting all possible systems.

The second paper is titled **A Radically Sustainable Town**. It describes the overall town framework with greater detail of methods, practicality, cost efficiency and function as integrated with its surrounding open space. Repeated sections are noted with a star (*).

Long-Term Comprehensive Sustainability Needs You*

This town's potential for ultimate sustainability depends on everyone's (technical, financial, industrial, etc.) contribution to its evolution. Please indicate interest and expertise through <http://www.sprawlsolutions.com>. The objective is a book with chapters by contributors of each integrated system.

Background

By observing animals and plants on our little farm when I was young I realized they have natural instincts. Every life form knew what to do.

Observing cities years later made me realize what we built didn't have the genetic beauty or efficiency found in the instinctive world of nature.

What we build stands between us and nature. Nature has been the enemy; buildings have been our protection. What we build has become our primary environment. In big cities we make everything in sight. A lone weed really looks lost. A tree in a box and even humans look out of place, but we've grown to accept that. Some people never see a tree in a natural setting.

Think of a town as similar to a beehive. In the wild a hive is often hidden in a tree trunk. But the inside of the hive is built by bees for bees. What we build needs to be guided more by our needs rather than the limitations imposed by cars or the materials and tools we use.

Ergonomic chair design shows improved thinking. Chairs now adjust to our natural characteristics and movements. Our physical environment needs to do the same thing.

Meeting long-term human needs is necessary for any realistic sustainability.

Experiences

In hot sunny climates the simplest solutions can be the most efficient. Transitional spaces (Fig.1) can reduce heat loads between the bright hot outside and interior spaces. Big overhangs (Fig.2) designed for summer shade and winter sun angles save energy and help buildings last longer.

Growing up with a carpenter father, helping build all of our homes and doing carpenter work until I was an architect helped me design efficient buildings. My projects consistently cost 20% less and had a higher demand than other comparable buildings. I was encouraged to do my own developments. That gave me a chance to try ideas I was afraid to try on clients, like the below-grade office (Fig.3) with its transitional entry space. It's warmed in the winter by the sun, in the summer it is shaded by the translucent fabric roof and evaporatively cooled. With outside temperatures at 110 degrees, the transition space at 95, it's easier to achieve 76 degrees on the interior. Being below grade also helps. It would be ideal if streets could be transitional spaces in severe climates.

Overcoming Stereotypical Thinking

In 1963 I proposed to MIT that someday we would build entire buildings out of fabric. Fabric was stereotyped as a temporary material. Partially convinced, they paid my way to research fabric systems at MIT and Natick laboratories. Fifteen years later, when a permanent fabric was finally available, I was prepared and designed the world's first applications of permanent fabric on a office (Fig.3), department store (Fig.4), church (Fig.5), and residence.

All previous permanent buildings used four basic systems: stacking stones, post and beams, arches or domes. For the first time in history a fifth permanent building system became possible.

The 6000 square foot roof for this 100-foot tall church (Fig.5), strong enough to resist earthquakes and 100 mile per hour winds, was shipped in a 4'x4'x12' box. It could be economically shipped anywhere in the world. It was lifted out of the box, put in place in one day and tensioned the second day. This is not your stereotypical church. It has been there over 25 years. Tests on the fabric show no evidence of deterioration. It saves energy. It has no thermal lag so it only needs heating or cooling just before it's used. It's translucent, natural light saves energy. It's perfect for inexpensive indirect lighting at night.

It's a paradigm shift away from stereotypes. Those clients were brave and daring. We also must be brave and daring.

Evolving the Home-Site Idea

The home-sites in my new town concept started with this house. What's the cheapest way to build a house? Dig a hole and put a roof on it. That is how we built our first house (Fig.6). It costs only one-fourth as much as a comparable-sized track house. The 90 by 40 foot trough was dug in one day. Dug to a 4-foot depth, the dirt was piled up around the perimeter of the trough in a berm with sides sloping at the soil's natural angle of repose. A roof spanned the middle 48-foot long section with floor to ceiling glass at each end looking into sunken patios. It was a beautiful home, we lived in it for ten years.

But the feature in this house that is useful for this new town concept was its flexibility. It is like a cave, open at both ends. The only interior walls are around the bath and pantry. It started with a bedroom alcove and my office, behind a screen toward the back. Later that same area became two bedrooms and a playroom, then three bedrooms and eventually a play area again when the bedrooms were put in a second floor added above the roof. All walls were simple moveable panels we built with a fiberboard glued between 2 layers of sheet rock.

Spending no more than we could afford may be the most important lesson of this house. Being able to build the entire house for the cost of a typical down payment on a tract house meant that we had no payments. Every month we saved that amount. In ten years we had saved enough plus the sale of the first house to build a much larger second house for cash, -once again no mortgage payments.

This town concept provides these two opportunities.

Natural and Basic Human Needs In a House*

It's usually easier to modify how we live than to change our buildings. Long-term sustainable buildings must be flexible, easily changed to accommodate the ways we naturally live. As individuals our needs in housing are continually changing. Currently as those needs change we are sometimes forced to move. Moving means leaving friends and neighborhoods that have had meaning for our lives. Housing should have the flexibility to be easily changed to meet changing needs and budgets. If someone wanted to live in the same neighborhood all their life, what we build should not prevent that. Also, flexibility is the secret to making housing affordable at every stage of life.

The Home-Site, New Opportunities*

We have the opportunity to combine the best features of urban and suburban life. People move to the suburbs to be close to nature and open spaces. Those dreams can be satisfied and even enhanced beyond normal expectations simply by the new architectural arrangements in this town.

Rather than a typical suburban backyard with neighbors overlooking your back fence. we will make a completely private backyard that you can build with any design (Fig.7), plus it has a view over hundreds of acres of open space (Fig.8).

Rather than windows opening onto narrow side-yards, we will provide additional privacy with a solid soundproof wall on both sides.

Rather than a seldom-used front yard on a less than exciting typical street, we can provide a front porch that overlooks your cluster of homes, your cluster's play area and your extended neighborhood.

Rather than a pre-built home we will provide a Home-Site where you can build whatever you want. You can build a house with one room or ten; it can be a duplex or a four-plex. Cars are on a lower level. Therefore, within certain limits, the number of people living in your Home-Site will not have any negative effect on your neighbors.

Rather than a long walk or driving, everything is within a short walk: shopping, schools and services. In fact every front porch overlooks the section of Main Street that passes through your extended neighborhood. It continues through every part of town.

Rather than subdividing new land, we can bring better housing, open space and farming to existing large deteriorated urban areas and preserve historic buildings as focal points.

The following diagrams and descriptions show the architectural arrangements that give this Home-Site its advantages. It is a two-story loft (Fig.9), wide and deep enough for a large typical house and a yard. Dimensions can vary based on local desires. This diagram shows a front porch, the sidewalls and the backyard. Only the front can be seen, so only it needs design guidelines. Typical health, safety and welfare requirements will apply. Otherwise, the space inside the walls is completely private; you can build and change whatever whenever you want. Affordability is made practical for any budget.

Yes, it is a box. But compare a typical suburban lot. It is also a box. Height limits and setbacks define it. Suburban lots can be seen, so zoning laws control what is built to protect neighbors' values. This imposes sameness on buildings and occupants. Freedoms are very limited on typical suburban lots. There is no flexibility; if a house is too big or too small, moving could be the only option.

The first-home purchaser could be one individual. If the budget is very limited, a one-room house is allowed. As the budget and the family grow it's easy to add more rooms without affecting the neighbors. If there are more children, adding more bedrooms and baths is easy. When they grow up and want their own privacy, space needs change. Eventually, if the original purchaser is old and perhaps single again, less space is needed. It's possible to rent extra space for retirement income. It's possible to rearrange spaces to be private enough for an extended part of the family to have their own space.

Actually, any time along the way, the home site and neighborhood is designed to allow a duplex, triplex or even a fourplex on any home site. This would be impossible if cars were parked our front. So cars must be out of the picture or on separate levels from people.

The home site has near total freedom and flexibility to build whatever whenever it's needed. Standardized sizes and requirements make possible new industries for wall and floor systems that can be easily purchased, installed and later resold. This could include modular kitchen and bath units. They could be stocked at Home Depot. This would help home building to gradually evolve into a more efficient, affordable and sustainable industry.

This kind of freedom and improvement in opportunity could make the home site the best imaginable investment for every family.

Affordable Homes

This entire concept is focused on making the total experience of home and town affordable; that's necessary for long-term radical sustainability. The home site concept gives people the freedom to be more naturally efficient. If they delay the urge for a big home, they can pay cash for what they can afford, then more easily save for the big home when they need it. This is effective bottom-line thinking. The hidden home-site interior makes it possible. Starting from here beneficial financial strategies can take many forms, some never possible before.

To have small, medium, and large homes in the same neighborhood is a major beneficial accomplishment, easily overlooked. It also contributes a unique aspect of sustainability. It can avoid the stigma of government-supplied housing for low-income

families. Not needing a car is part of this solution. This home-site concept offers several ways, like sweat equity, that enable individuals and families to grow out of a low financial condition.

The freedom to mix housing types has other advantages. In parts of many cities it already happens without being properly planned. In this town, home-sites are in 12 to 20 clusters; this becomes the smallest governing group for working together with their own authority and a sense of community. No matter how the ownerships start out, they will continually be changing. As children grow up and need their own space, rearranging the home site makes it possible for them to stay in the neighborhood. Some families may buy two adjacent home sites to lease out as a source of income. Or that may be done to have more future options. Some sites may remain in an extended family for hundreds of years, continually rearranged. Portions of homes can always be rented out. Most current town concepts prohibit all these forms of flexibility.

Communities need affordable housing to attract needed talent. Flexibility allows many different approaches for ownership, construction and financing. If the community owned the framework, only the percentage of the home site used could be sold to the purchaser with future options to buy more. The rest of the site owned by the community could be leased to another. The community would share in any increased value at a future sale if the original purchase was not expanded. The original purchaser would have the first right of refusal on any sale. In the mean time the community or the purchaser could install components and rent the extra space to cover costs. This property would be an excellent investment.

The 1000+ year use of the permanent framework makes possible financing arrangements that have yet to be imagined.

But flexibility, investment opportunities or extended family use are only a small part of what makes living in this town more affordable and attractive. Active neighborhood life requires less entertainment space in the home. A compact town saves on time, energy cost, not needing a car, not driving kids places, not having to move, in-home health care, senior care, sharing child care, recreation, and livability, to mention just a few.

There are probably always a few people in any town going through hard times. Their dignity and hope are more easily sustained in this town. From the front a home's size is unknown. They more likely can find a very tiny affordable place to stay near helpful friends until times were better.

Many things can happen in a thousand years. Ramps between the stacked cluster modules can be used like streets for animal drawn carts. And even chickens or a goat could be kept in a back yard. Now that qualifies as being radically affordable and sustainable.

Similar Costs and Savings*

How can the initial cost be similar to that of a comparable house? The cost of labor and materials in typical suburban subdivisions for streets, curbs, gutters, sewer, water, utilities, sidewalks, driveways, foundations, slabs, sidewalls, fences, floors and roofs will almost pay for building the permanent framework. Add to that the maintenance and replacement of all these elements over 1000+ years. Some elements may last 75 to

100 years, many less than 25 years. How long is the future? Our current thinking and what we build still fits more with a Kleenex mentality than with long-term thinking.

The convenience and livability of these new Home-Sites will make them sought after in the housing market and as a tourist attraction. Their prices (value) could go up dramatically. If the infrastructure is owned by the town or individuals as stock, everyone could benefit from the increase. There will be more money for everything like services and new technologies without taxes. If Home-Sites are kept in the same family for hundreds of years, there are other considerations. For them, once various components are paid for, their housing cost could approach the lowest imaginable cost for future generations. If all our new housing were of this type it would be easier to survive the demand for materials, energy and labor when our current housing stock needs to be replaced.

Efficiently manufactured high quality housing: The housing industry has tried for over fifty years to make effective manufactured houses, components for floor and wall systems, and modules for kitchens and baths. A standardized framework for a house will make this practical. Such elements could be interchangeable and easily rearranged, almost like furniture. This gives flexibility to the way individuals are able to manage their purchases and improvements. For home-site owners, near complete flexibility contains entirely new sets of potential savings and ways to improve their financial future.

This New Kind of Density Will Actually Be More Desirable*

The need for naturally occurring human interactions in our daily lives is starting to be appreciated. Growing up and old in the same neighborhood can enhance every stage of life. Our current urban and suburban arrangements aren't designed to maximize this.

The privacy and flexibility of the individual Home-Site is basic to this concept. The surrounding town does not interfere with activities within each Home-Site, and vice versa. Being in the backyard is private; it's like being on your own hillside in the country. It has a great view and no other neighbors in sight. What could be better? If you want community activity, just step on to your front porch, wave to your friends to join you. Homes are arranged to maximize the opportunities of interactions during daily life.

Each Home-Site is stepped back in plan (Fig.10) to give maximum view from the front porch and backyard. This is the basic architectural arrangement of spaces to form a Cluster. Each porch has a view of the Cluster's play area. They are in voice distance. The play area is the cluster's activity center; everyone passes through it on the way to everything. Walkways extend past porches to connect each home (Fig.11) to it. Every porch overlooks Main Street (Fig.12) and other porches in the extended neighborhood. All are in waving distance. Dimensions may vary while the general spatial arrangements still achieve desired objectives.

The extended neighborhood (Fig.13) contains several clusters in the following arrangement. To form a Double Cluster, a second cluster, with a flipped plan is placed opposite, with the walkway side facing the first cluster's walkway side. The distance between is for Main Street. These facing clusters are stair-stacked: six are shown stacked in the drawing. Each pair of clusters above is a little closer together to offer shelter to lower levels and create a sense of enclosure. In bad climates the top can be closed. This forms the extended neighborhood. All of it together becomes a visual and functional unit.

Being on an elevated level offers the best opportunity for watching community activities. Twenty-foot tall trees and flowering plants can personalize your porch and walkway. What is directly below or above you is out of your sightline. Your cluster of homes and play area are your immediate world overlooking your extended neighborhood.

The value for children growing up watching and being part of a neighborhood and seeing real life change has great value. Becoming a senior affordably; helping care for great-grand kids, having health-care in your home, and growing old with childhood friends next door: this concept makes such things possible.

These Home-Sites offer many more economic and energy efficiencies. But real property is about location, location and location. Every Home-Site has location, the best of both worlds, in town and in the country at the same time. All features combined, this kind of town makes density desirable.

It has the potential for the ultimate in sustainability because it is affordable to enjoy living in it. It will be natural for the residents to enjoy taking care of it and investing in it.

Main Street*

Boring streets have no porches. You rarely see people on porches in current town concepts, even the best traditional towns. You can find miles of streets in almost any city that are boring. They are a waste of material, maintenance, and space.

This proposed town's Main Street links each extended neighborhood together like a string of beads. It has no cars. The space between overlooking clusters can be wide enough to surround a historic focal point or become a grand plaza (Fig.14). It can have fountains, street theatre, waterways, or boats.

Main Street and the town are one; it is the way to everything. The street is the town's stage. It can have everything: -sidewalk cafes, plazas, artwork, drama and all the pedestrian traffic. It's great for shop owners. It's the only street. It will be continuously full of activity. The homes relate to this Main Street as a focal point of interest for each individual resident at every age. The porch, extended neighborhood and street are a functional and visual unit. The street is the extended neighborhood's living room, like an extension of every home. Day or night, there will always be something of interest going on and people watching it from porches. This is about people casually getting to know each other by normal daily interaction. This is also about sustainable security. Features like these help build a sense of community and caring. No other town concept can match these features.

Shops can be built the same as on typical streets, up to 3 floors. They are efficiently serviced from below.

Overcome the Two-Dimensional Planning Trap!

A town designed primarily for people is not restricted to grid streets or two-dimensional circulation patterns. Towns with grid streets are based on old outdated concepts of transportation. Buildings spread across the land are exposed. All the elements of streets, buried utilities and exposed surfaces are wasteful and expensive long-term. They require continual maintenance and often 25 to 50 year replacement.

A grid pattern of streets, multiplying across the land, with potentially fast moving machines that continually keeps that pavement grid clear of people, with only occasional

places to cross, results in a less than optimal place for human life. Overtime, more people, more machines, more speed, it becomes less friendly.

Simply building four to six story housing to get more density is only a partial solution; it still becomes sprawl. How many of you have been on top of the Eiffel Tower? The mass of multistory housing extends as far as you can see. As cities grow larger, they still become one continuous mass of structures. (for more details, see other paper)

Advantages of a Three-Dimensional Framework

This new 3-D framework (Fig.15) for subdivisions is conceptually between high-rises and suburbia spreading across the land. It combines the best of each and adds opportunities not possible in either.

Many of you have walked through the Coliseum in Rome. It's been there over 1500 years. Remember those tall arches under the seating. After its original use people added notches for floor beams up about every eight feet on the sides of the arch columns. They built three to five story housing. Eight hundred to a thousand people lived within those arches, protected by that structure for hundreds of years.

This town concept uses the same idea. Within a structural frame architectural spaces are arranged for houses and required services. Designing a town as a large structure creates many new opportunities in every aspect of housing and town development.

This new town's final structure may look similar to a honeycomb, but square-cornered, rather than hexagonal spaces. The home site spaces are stair-stepped. It provides a yard space for each home site. Along the edge of this backyard area deciduous trees provide summer shade and allow the winter sun, reducing energy demand.

The town looks like a tree-covered hillside (Fig.16). It's not a hill; it's hollow, made of stair-stacked home-sites on each side of Main Street. (for more details, see other paper)

Continual Use of a Permanent Framework Revolutionizes Cost

The 3-D framework that subdivides the spaces into home-sites is designed to last for 1000+ years. That frame amounts to 70% of each house.

That adds a new kind of sustainability, CONTINUAL USE. Continual use is more efficient than re-use, loops or recycling. Just imagine: Once built, 70% of a house never has to be built again. Current houses only last for 50 to 100 years. All typical cost and environmental impacts are avoided for 1000+ years. It's as if 7 out of 10 steps were skipped each time a new house would normally be built.

The only elements needed to complete a house are whatever rooms and floors you want inside. Those usually amount to less than 30% of a home's cost. Those are an optional expense based on need and budget. This potential source of savings is made possible by each home-site's privacy and flexibility.

This overall unique copyrighted 3-D arrangement of the architectural spaces and its variations offers advantages beyond any other housing and town concepts.

In Conclusion*

This concept represents an entire rethinking of the construction of a town and its housing systems. It's not finished. This has been a huge undertaking, much more than can

be presented in two papers. These concluding paragraphs apply to both papers. There is a book: A Town Primarily For People, it has more information. Here follows a brief restatement of the basics: the problem and solution.

The Problem, Restated*

Problem: Design a town-size device to comprehensively solve all the interface problems between places for humans to live and the natural world, and between that device and the humans living in it.

The Solution, Restated*

Solution: Build a town-size device as compact as possible to make all connections, movements and operations as short and as efficient as possible. Allow space and raceways to accommodate function and change for every imaginable connecting and servicing system to every required location. The production and processing of all products and by-products will have interior spaces and will use an appropriately sized surrounding area of open space to maximize and optimize interaction with natural systems and processes necessary for a comprehensive interface. The interface is designed to function for 1000+ years with no residual or unused by-products; that interface will use and enhance the function, longevity and health of all systems.

Since, of all the systems involved, the human life function is the most variable, that interface is provided with complete flexibility within desired size and function parameters. The smallest fixed module, the home-site, can accommodate up to four minimum sized living units. The module height is for two levels, the fixed width and useable length is based on local custom. The home-site modules are double stacked in clusters of 12 to 20 modules arranged along one side of shared connecting spaces. A large central space, the play area, varies in size up to a surface area of four modules. A similar cluster with a flipped plan is placed opposite with connecting spaces facing. The distance between facing clusters creates a larger shared space, main street, open at each end.

This two-cluster grouping has other similar groupings stacked on top of it. The distance between clusters in the upper groups is reduced slightly to offer shelter for the lowest level of this partially enclosed space. Any desired number of these stacked cluster groupings can be connected at the open ends; over time many of these become a town.

Within this framework occupants build, change and refine whatever and whenever they desire with the least amount of arbitrary limitations on any future idea needed to perfect their existence and their interface with nature.

Closing Comment*

This concept offers the potential to accommodate any and all objectives, interest and systems for Radically Sustainable Construction. It is more than just an idea; it offers a real-world solution that can be built today with initial house cost similar to comparable typical houses in suburbia. It can satisfy the objectives of the comprehensively concerned environmentalist and real estate developer.

Its 3-Dimensional subdivision framework allows new relationships and functions to comprehensively address challenges in ways never possible before.

Once initially built, 70% of what we currently expect as recurring and replacement housing costs disappear for 1000+ years or more, including the related environmental impacts.

It has the potential to employ and optimize new solutions for all sustainability objectives. The framework's raceways make it possible to update every type of system and interface. This combined with the compactness inside this town as well as the surrounding open space and long time frames justifies the highest quality systems. Eventually, for every interface, systems will be invented that are as efficient as nature. At some point this will become a town, fully integrated with nature, that functions as a living organism.

Your critique is welcomed. With your help this idea will be refined and continue to evolve. This is an original copyrighted 3-D arrangement of architectural spaces potentially able to comprehensively meet all our challenges. It will require an equally new and comprehensively concerned entity to build the first prototype.

Acknowledgements*

This is almost part of the paper, because my experiences from home construction, planning, landscaping, to the overall framework, each started with a separate root and then became one in this comprehensive town concept.

More people than can be mentioned here have my highest gratitude. Everyone and everything I have encountered has influenced my thinking, understanding and appreciation of the interface between people, economics, and nature with what we build. Some individuals, those listed below, had more direct influence than others.

Eduardo Catalano convinced me of the logic of a permanent structural frame with changeable interiors in the mid 60's. I greatly appreciated that encounter and the support from MIT. While there, my research and structural investigation was critiqued and advised by Waclaw Zalewski, Paul Weidlinger, and Horatio Caminos. I am grateful for the additional funds offered by Dean, Petro Belluschi, and Eduardo Catalano for help from a technical fabrication assistant at Natick Laboratories. I also appreciated being inspired from working under Georgy Kepes in visual design, working briefly in Harold Edgerton's lab, and descriptions by Kevin Lynch on landscape design and people.

My interest in fabric was inspired by Frei Otto, our brief moments together in California and visiting his work and university studio in Germany. Working knowledge of fabric came from David Gieger (structural fabric pioneer), technicians at Natick Laboratories, and Walter Bird of Bird Air. Later, I gained more experience doing fabric projects with computer software systems and Roy Hall at Bird Air. And, Horst Berger (structural fabric pioneer) was the structural engineer on my major permanent fabric project.

My interest in the concept of a "Community Space Frame" was inspired by Kenneth R. Schneider. He wrote the text and I did some sketches to express his thoughts in a booklet published by UC Berkeley in the 70's. There was no actual design, just descriptions of visions of an idea. That began my search to put those ideas into a functional, buildable set of architectural arrangements. Later I found a book and met Richard Register, a friend of Ken's, who encourage many of the same thoughts.

Gratitude for the practical side goes to my carpenter father and the fact that we had to build our homes. Also thanks for a willingness to explore together new and better ways to build goes to several builders and clients.

My sincere gratitude goes to Emmett Wemple for turning me on to the excitement of architectural and landscape design while at USC. Inspiration for high quality design also came from Conrad Buff III, Calvin Straub, and Maynard Lyndon. Years later, another USC connection, Sam Hurst, encouraged my opportunity at MIT. The importance of planning and concerns about what was happening in places like Los Angeles began with study under Simon Eisner and Arthur Gallion. The first roots of the need for a better way to design towns began then.

This is what becomes obvious from my 50 years of reflections above: if we hope to have future success in this finally popular issue of sustainability, it all begins with education.

A Town Primarily for People that Functions as a Living Organism

List of Figures, 1 to 16

Figure 1. Sheltered Transition Entry

Figure 2. Four-Story Sun Protected Entry

Figure 3. Temperature Moderated Fabric Roofed Entry, Below Grade 10'

Figure 4. First Permanent Fabric Department Store

Figure 5. First Permanent Fabric Church

Figure 6. Low-Cost Below-Grade House

Figure 7. Backyard, Any Design You Want

Figure 8. Backyard Views Open Space

Figure 9. Two-Story Home-Site, Front Porch & Backyard

Figure 10. Cluster of Home-Sites with Backyards, Porches & Play Area

Figure 11. Homes, Front Porches & Walkway

Figure 12. Porches Overlooking Main Street Plaza, In Waving Distance

Figure 13. Stair-Stacked Homes Overlook Main Street, Service Below

Figure 14. Grand Plaza View From Upper Level Walkway

Figure 15. Permanent 3-D Framework with Home-Sites

Figure 16. Town's Main Street is Inside This Hollow Tree-Covered Hillside Built of Stair-Stacked Home-Sites