VIRGINIA RECORD

SEPTEMBER-OCTOBER 1983

VIRGINIA RECORD

JOURNAL OF THE VIRGINIA SOCIETY OF THE AMERICAN INSTITUTE OF ARCHITECTS

AN INDEPENDENT PUBLICATION
FOUNDED 1878
TO TELL THE VIRGINIA STORY

"*VIRGINIA RECORD* (ISSN-0042-6768) is published bi-monthly for $10 per year by Virginia Publishers Wing, Inc., 301 East Franklin Street, Richmond, Virginia 23219. Second-class postage paid at Richmond, Virginia. POSTMASTER: Send address changes to *VIRGINIA RECORD*, P.O. Box 2-Y, Richmond, VA 23205."

Vol. 105—No. 5
September-October 1983

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Published with
The Cooperation of the
Virginia Society
American Institute of Architects

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1 Year $10—2 Years $18
3 Years $25

Per Copy $2.00
Plus Tax and Postage

Phones: 804-644-6717 or 804-644-2722

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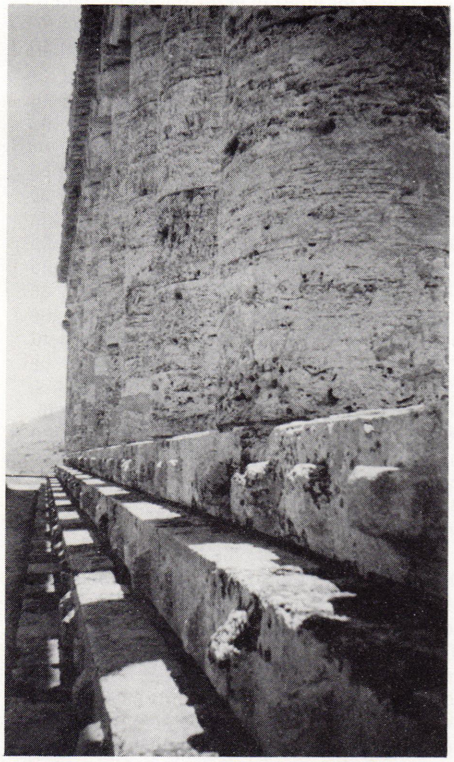
BUILDING TYPES — ENERGY CONSERVATION/SOLAR

COVER

Featured on page 36 of this issue, the Burke Presbyterian Church was designed by Lawrence Cook AIA and Associates. Cover photo by Jason Horowitz.

architectonica

'Energy Conservation—The Long View'



There is this unique 5th century, BC Greek temple at Segesta, Sicily. Its Doric columns were never fluted, as it was sacked by the Selinians before it was finished. It sits on the side of a mountain, and its plinth of steps rises out of a deep perimeter trench excavated in the surrounding silt. That 8-foot-thick layer of silt has been deposited in the intervening 24 centuries, after the forest on the mountain was cut down for fuel, ships, and shelter, and the turf grazed by sheep. The same thing has happened to all of Sicily, Southern Italy, Greece, and the North African Coast. The climate of the Mediterranean Basin has changed as the soil can no longer retain sufficient moisture. The old vineyard terraces are dry, abandoned, and crumbling. The fertile upland is gone. This bleak legacy is what the colonists of Magna Grecia left to their descendants, and explains much of the flow of immigrants to America.

What has this to do with Energy Conservation? It is a sobering graphic illustration of what can happen when a civilization uses up all its natural resources. And we are on the same track ourselves today, without a New World with which to rescue *our* descendants. What looms ahead for your childrens' children makes the Sicilian story appear generous.

For there is more to Energy Conservation than R-30 insulation, double glazing, night set-back controls, and 45 MPG cars. There is this greater concern for the legacy to generations unborn or considered which is threatened by our ravenous appetite for non-renewable natural resources.

We think of petroleum and natural gas as fuel. Should we not better consider them as the best source of complex hydro-carbons for the chemical industry? Should these assets be burned as fuel so as to use them up entirely by the second quarter of the 21st century? (That's less than fifty years off, you who are under 35 years old!) Should we not be working to preserve a significant stock of oil and gas for the use of your grandchildren's children? Or will we be known in future histories as that super-selfish generation of hedonists who, knowing full well that the resources were finite, nevertheless went and burned them all up anyway?

You might argue in defense, living as you do in a coal-producing state, that we have enough coal to last several hundred years. As if a mere 350-year supply of coal gets you off the hook with those descendants of yours! The implication is that either mankind won't be around after 350 years to need coal, oil, or gas, or that we hope against hope that they will have developed other sources of energy and hydro-carbons by then. (That's one of those optimistic hopes comparable to the one which has us nearly 40 years into a burgeoning nuclear age with neither an administrative organization or a technical solution to cope with the safe permanent disposal of atomic radioactive wastes. Someone must have said, "Surely, 'they' will figure out a way before long so let's leave the problem to 'them'.")

But perhaps before we burn up all the coal on earth we might want to think of coal as a sort of solid precipitate, out of the primordial miasmic atmosphere which existed on earth before man could appear. Coal has locked within it enough noxious carbon and sulphur dioxide to repoison the air we breathe, were all of it returned to the atmosphere through combustion.

And we might want to consider seriously, beforehand, the "Greenhouse Effect," which theorizes that increased atmospheric carbon dioxide will help contain so much solar heat that the earth's temperature will rise enough to melt the polar ice caps. All the world's rich and populated seacoasts and its major cities will join Atlantis under the salt sea. We Scrooges will have left a world without Florida or New York City, without Norfolk or the entire Chesapeake Bay, and where those who survive wear permanent gas masks, cradle to grave.

Some legacy we would leave *our* descendants!

We reap the fruits of the wisdom and foresight of our 18th century forebears in Virginia, whilst leaving *our* progeny a wasteland!

When one takes the long view, thinking about comparative difficult choices—which option is the least bad—and what are the rights and expectations of those who will live on this planet in the future, it is an inescapable conclusion that we are going to have to build, nationally and internationally, strict controls on the use and mis-use of non-renewable energy sources. The challenge is much greater than that facing the Continental Congress. Pray we can match their perception, dedication, sacrifice, and vision of the future.

Eason Cross, Jr., FAIA

Energy Design Tools & Methods: An Overview

By H. John Schell, AIA

Declining oil prices and abundant supply have caused the concern for energy issues to abate somewhat in the last year. In the long-term, however, the price for energy is expected to rise substantially. Those making decisions about a building project's energy efficiency should consider that, given a building life of at least 20 years, the substantial rise in energy prices will certainly affect their building. For this reason, the design professions should continue to strive to design more energy efficient buildings.

Architects have a particularly important role due to their involvement at the beginning of the design process. It has been said that 20% of our potential opportunity for saving energy occurs during programming and up to 90% by the end of the schematic design process. One must, then, begin looking at the energy profile of the building as soon as possible. Particularly in large commercial or industrial buildings this means *before* starting to draw floor plans. It is possible that important factors will be overlooked which would be too costly to respond to further on in the design process. Our initial design sketches should be based on assumptions generated from our analysis of this particular building's program rather than our intuition about buildings in general.

Predesign analysis should be approached differently for residential and small commercial projects than it would for larger commercial projects. This is because the principal factor contributing to the energy performance of the small projects is the building envelope, while the larger projects are influenced by internal heat gains from people, lights and equipment.

The following is an overview of the available design tools and the methods upon which they are based. It is structured more or less chronologically from predesign to detailed energy analyses.

Passive Solar First Step

For envelope dominated buildings the rules of thumb contained in the "Passive Solar Design Handbook," Volume II, developed under the sponsorship of the Department of Energy, are a good place to start. These rules of thumb are based on the most simple correlations of complex building performance data generated by the computer simulations used in developing the handbook methods. The rules address the effects of solar glazing area, thermal mass and orientation on energy performance. Even at this beginning level, one is able to apply data for specific locations around the country. If one is not familiar with the basic concepts of passive solar design, it is advisable to become so before attempting to use the Handbook.

Graphic Methods

The predesign phase for internal gain dominated buildings can be properly approached using the energy graphics techniques developed for the Department of Energy by Booz Allen & Hamilton, Inc. and published in a document titled "Predesign Energy Analysis." One begins by studying the building program to determine the energy implications of the program requirements. Graphs are plotted to reflect internal heat gain, solar heat gain, envelope heat gain and loss, and ventilation heat gain and loss for a typical day each season in four-hour increments. This graphic method, in showing the relationship of losses and gains over the course of the day, enables the architect to balance them against one another in the building design. Although predicting the total energy performance with this method is not advised due to the limited scope of the investigation, it is an excellent way to arrive at a good base from which to begin schematic design.

A second graphic method for internal gain dominated buildings is the Graphic Simplified Energy Estimation Technique (G-SEET) by Tishman Research Corporation. This technique is presented in the workbook used in the Level 3a—"Energy in Architecture" workshops developed by the American Institute of Architects. It is intended to give an estimated annual energy budget for a building. For this reason it may continue to be applied in the schematic design phase when a more defined building is being considered. The graphic basis of the G-SEET technique is the nomograph. Using the nomographs it is possible to evaluate design variables and how they relate with very little practice. The method should not be used for evaluating buildings employing passive solar design strategies such as direct gain sunspaces, atriums, greenhouses, thermal storage systems, and Trombe walls because it does not take in account the thermal mass of the building.

Algorithums

In energy analysis methods intended for use in the early phases of design, certain assumptions and approximations are made to simplify the calculations. These assumptions and approximations are called algorithums. For example, in G-SEET a typical floor plan divided into one interior zone and four perimeter zones 15 feet deep is assumed. Values for variables, such as average horizontal daily solar heat gain, and approximations for more complex calculations, such as enthalpy, are built in to the method. In making these assumptions it is felt that, at the early stages of design, the results obtained will be sufficiently accurate. Before using any analysis method it is important to review the algorithums to verify that their assumptions and approximations are reasonable for the building being evaluated.

The SLR and LCR Methods

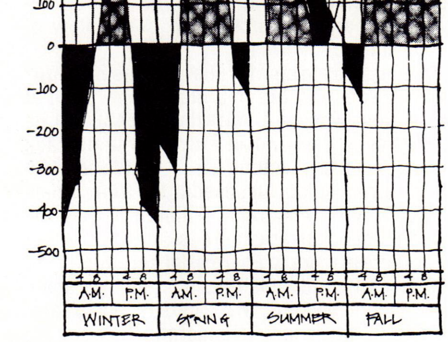
The SLR and LCR Methods are monthly and annual performance calculations introduced in the "Passive Solar Design Handbook," Volume II (Jan. 1980) and updated in Volume III (July 1982). They are intended to estimate the auxiliary heat required for various types of passive solar buildings. Performance data is available for direct gain systems, thermal storage wall systems (water & Trombe), and sunspaces. In addition, optimum mix data is provided to enable the designer to balance the solar and energy conservation features of a building to maximize energy savings.

Degree-Hour Method

The degree-hour procedure most familiar to architects is the Simplified Energy Evaluation (SEE) developed by Huber Buehrer and presented in the "Energy in Architecture" workshops. It is an improvement over the traditional degree-day method in that it takes into account both occupied and unoccupied building conditions, and gives credit for interobl loads by adjustment of the balance point. It is referred to as a steady-state model because it can represent a building as only one zone which is either heated or cooled—but not both at the same time. During schematic design it is useful for studying the solar heat gain effect for all buildings, but for larger buildings where internal zones are cooled year-round a "bin" method analysis should be used to estimate building loads in later design phases. The degree-hour method is considered quite accurate when used for residential and other envelope dominated structures such as warehouses. It is suggested for use during the schematic design and design development phases of a project. Although SEE can be adapted to model some building energy systems, including passive solar designs, it is not recommended that the designer attempt such without considerable experience and advanced understanding of the energy design techniques being considered.

Bin Method

The bin (or bin-hour) method procedure accounts for hourly variations, and is more accurate than the degree-hour procedure but it requires more detailed data input for its use. A "bin" is a range of outdoor dry-bulb temperatures, usually 5° F. Daily weather is recorded in 8-hour shifts. Instantaneous energy calculations are made at many different temperatures and the result is multiplied by the number of hours of occurrence of each temperature bin. Bin method



Composite graph of building heat gains & losses from Booz Allen Hamilton method procedures, particularly those developed using the ASHRAE TC4.7 method have given results close to those obtained from the most comprehensive simulation programs. They have the capability of analyzing buildings using standard non-residential HVAC system equipment. The Department of Energy has sponsored the development of a bin method microcomputer program, which is in the final stages of evaluation. It should be available to the public in the near future.

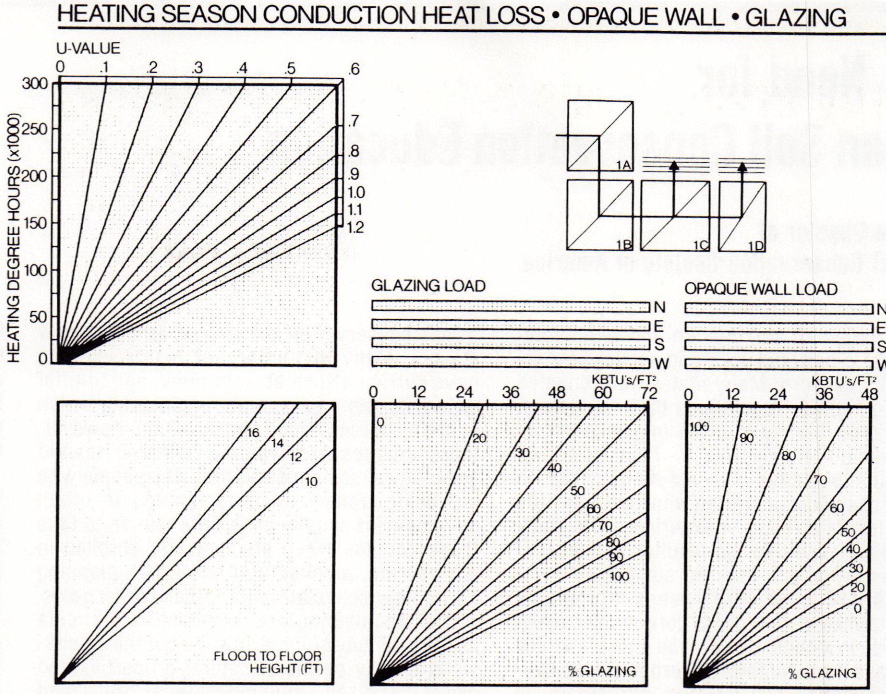
Passive Simulation

After arriving at a passive solar design by correlation methods, a more detailed analysis can be obtained using a thermal network simulation program on a micro-computer. A program of this type, such as TSWING by Solarsoft, Inc., calculates temperature swings in a building hour-by-hour using heat-transfer equations which model the design. It can be used to size and locate mass and to simulate the operation of movable insulation or fans. The graphic output allows the designer to compare alternative configurations directly through the use of overlay graphs. Although the program is well documented, a good working knowledge of thermal design and solar systems will contribute much to the accuracy of the results.

Computers

With the exception of the thermal network programs the calculations required for the methods described thus far were initially intended to be done manually. Even so, the enthusiasm for the methods was not sustained after recalculating the same building a number of times to evaluate design alternatives. To optimize energy design it is essential to be able to evaluate as many alternatives as the process will allow. Therefore, micro-computer programs have been developed for all but the simplest techniques described. Using them minimizes the time spent and maximizes the chances of a successful result.

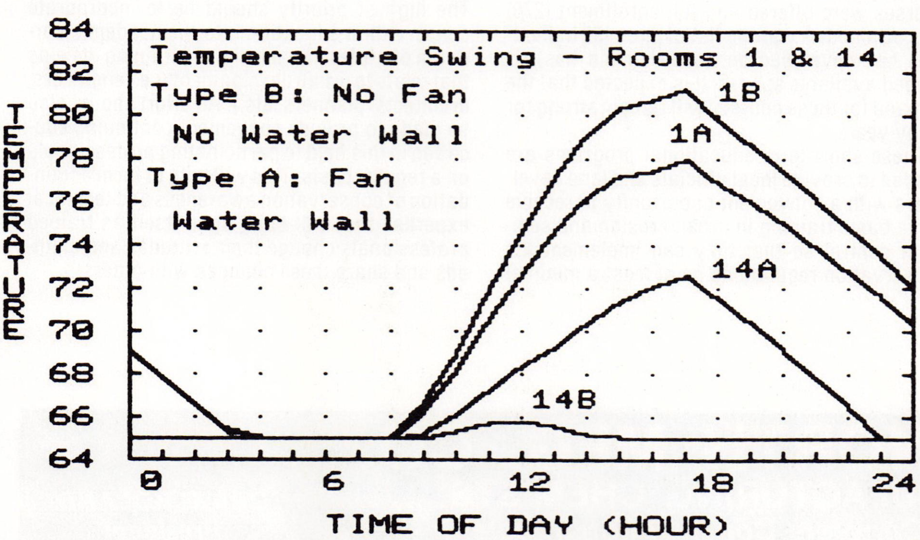
A Word of Caution: There is a tendency to ascribe greater validity to computer output than the same answer arrived at by hand calculation. The estimates of annual performance are probably best used to determine the relative benefit of one design alternative over another.



A nomograph from the G-SEET method

Detailed Energy Analyses

Detailed energy analyses are considered to be beyond the scope of an architect's basic services. These analyses might include a statement of annual energy use and a life-cycle cost-benefit analysis. At this point the methods used are more time consuming, more expensive and should involve persons with special expertise in these areas.



Graphic output from TSWING thermal network program

DOE 2.1

DOE 2.1 is a state-of-the-art computer program developed by Lawrence Berkeley Laboratories under the auspices of the Department of Energy. It is a transient load model capable of simulating building heating loads for every day of the year hour by hour. Input to the program is involved and computer run times are long. It is available for use through computer timesharing bureaus, such as Control Data. Because of its ability to simulate both HVAC and solar energy systems for large buildings at this level of detail it is unique among the energy analysis programs. The DOE 2.1 program is the standard reference analysis program for the Building Energy Performance Standards (BEPS) established by the Department of Energy.

Some elements of building energy performance are still not incorporated in even the most complex analysis programs to a level of detail in proportion to their influence on energy use. Two important elements in this category are air infiltration and daylighting.

The Future

There are several graphic, manual, and micro-computer methods under development at this time. They will have to be de-bugged and evaluated for technical accuracy. Comprehensive user's manuals will be required to insure building and systems data is interpreted correctly for input. The research of each method for its value to an architectural practice is a task too long and involved for most architects. The day when architects can look toward a single source for guidance in this area is at this time only a topic of discussion. It is too important to the profession and to the nation's energy interests as a whole for it to remain at that level much longer.

The Need for Urban Soil Conservation Education

By the
Virginia Chapter of
The Soil Conservation Society of America

The problem of soil erosion and sedimentation due to urban land development has become a national concern. Many states have enacted laws and adopted regulations that require soil conservation practices to be implemented on urban land disturbing projects. These new laws and regulations have involved many people in the field of soil conservation who have had little or no relevant training or experience. This lack of technical expertise has resulted in a level of effectiveness which may be somewhat lower than was anticipated when these state programs were established. In order to correct the current deficiency in technical expertise, there is a need to increase the availability of urban soil conservation education and training, particularly in the professions that are most involved in the urban land development processes.

The magnitude of the educational deficiency can be appreciated when one considers the number and type of people involved in administering and complying with erosion and sediment control regulations. State programs typically assign implementation authority to local governments and conservation districts who must then train staff to carry out their programs. This usually involves some combination of plan review and inspection personnel. Those rural localities with only a small amount of development may get by with only a few staff members becoming involved in the program. The larger urban localities may require the services of many plan reviewers and inspectors, all of whom require a certain level of technical expertise to do an adequate job.

On the other side of the coin are the private sector land developers who must comply with the regulations. People are needed who can evaluate conservation needs and prepare erosion and sediment control plans for construction projects in accordance with state and local standards. This usually involves the services of consulting engineers and architects. Once construction begins, trained individuals are needed on the construction site to adequately carry out the provisions of the approved conservation plans. Job superintendents and excavation contractors are primarily involved in plan implementation.

Soil conservation, of course, is not a new subject. Many institutions of higher learning have curricula such as agronomy, agricultural economics and agricultural engineering which contain courses in soil conservation; however, these courses are typically oriented toward agricultural soil conservation. The people who are being trained in fields relating to urban development usually have little reason to take these courses. They are typically enrolled in engineering, architectural and urban planning curricula which relate more to their career goals.

Civil engineering and architecture curricula usually include courses in soils but the emphasis is clearly on the structural properties and use of the soil as a building material. Some land use planning courses may briefly cover soil erodibility as a land development consideration, but the technical aspects of soil erosion and sediment control are usually passed over lightly. The curriculum which probably comes the closest to providing some degree of urban soil conservation training is Landscape Architecture. Even these courses stress the final stabilization of developed areas without much emphasis on the control of erosion and sedimentation during the construction process, which is the most critical period.

The demand for urban conservation training has been clearly demonstrated in Virginia, where erosion and sediment control laws have been in effect since the early 1970s. The Virginia Soil and Water Conservation Commission has developed a series of intensive two-day training courses in their state. One course is for plan preparers and reviewers, another is for job superintendents and inspectors and a third course is for engineers involved in storm water management design. In the first year, nine courses were offered and full enrollment (270) was attained. A waiting list of over 150 individuals has developed because demand has exceeded available spaces. It is expected that the demand for these courses will remain strong for many years.

These short-term educational programs are needed to provide local officials and land developers with a convenient opportunity to receive some basic training in urban erosion and sediment control so that they can implement the conservation regulations on at least a minimal level of effectiveness. The "desired" level of effectiveness will not likely be achieved, however, until more people who plan, design, construct and regulate urban land development projects have taken comprehensive soil conservation courses as part of their academic training.

Without such training, civil engineers, architects and other site planning professionals will continue to view erosion and sediment control as an add-on item, required by law, to be considered after the project design has been completed. A person with conservation training would better understand the importance of integrating soil conservation considerations into the overall site planning process. Decisions concerning land use, project layout and landscape design would be significantly influenced by increased knowledge of soil conservation principles and practices. Through better site planning, the cost of erosion and sediment control measures could be significantly reduced in many cases. Perhaps most importantly, through academic training, the prevailing attitude toward soil conservation on land development projects would eventually change. Instead of a necessary nuisance, soil conservation may become a professionally accepted and expected aspect of the land development process. State and local soil conservation programs could then shift their emphasis from regulation to providing guidance and technical assistance.

Soil conservation in urban areas has become a clearly established public goal. However, a major obstacle blocking the achievement of effective urban conservation programs is the lack of technically trained people to carry out the programs adequately. This deficiency can eventually be corrected by increasing the availability of technical soil conservation training. The highest priority should be to incorporate conservation education into the academic curricula of professionals who are training in fields that relate to urban development (i.e., engineers, architects, planners, etc.). An effort should also be made to provide convenient continuing education in this field to participating professionals on a regular basis. This will help to form a foundation of conservation awareness and technical expertise that will build upon itself as trained professionals change their attitudes and methods and share these changes with others.

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Let's Tell It Like It Is: Why Not Be Bullish On Architecture?

by Jim Hall, AIA, AICP

Prior to beginning this essay, as a forenote, I would like to state that a request was made that my personal interpretation of issues and concerns confronting the profession be stated for the Tidewater Virginia Chapter Newsletter. The essay is also being made available to the VIRGINIA RECORD. I would hope that the following discussion results in dialogue and letters to the RECORD offering other viewpoints. So here goes.

As we proceed into the '80s and toward a new century, architects and the architectural profession are confronted with three very salient issues:

1) Public registration of architects, the role of architects, and the place and importance of the architect's influence upon things man-made;
2) Public understanding of architects and the public's perception and awareness of the value of the architect;
3) The architect's own perception and awareness of his/her role as it pertains to the man-made and physical environments.

In the following paragraphs I will attempt to address each issue individually but only for the sake of attempted clarity since it should be fairly obvious to the discerning eye and mind that the several issues are terribly intertwined.

Public Registration, Role of Architects and Importance of Architectural Influence

Within the past ten years or so public registration of architects and the role of the architect have either been under attack, under study, or altered by numerous states. The net result has often been a diminished role or possible diminished role for the architect as it pertains to physical structures—their siting, design, and construction. This nemesis might be viewed by the architect as declining professional influence on the built-environment, diminishing market share or a combination of both. Given the fact that no profession or few individuals are completely altruistic, I propose that the issue be viewed at a higher order—the importance of the architect's influence and contribution with respect to the public interest or public good.

While the specific words may vary slightly from state to state, it is fully known that public registration and the legal role of the architect are both defined in terms of protecting the safety, health, property, and welfare of the public.[1] However, to speak to the uninhibited essentialness of architectural influence, we must look beyond the narrower words of "safety, health, and property" to the more encompassing term of "welfare" or more specifically "general welfare" of the public. In the former, the words can be construed to pertain simply to essential standards, technical soundness, etc. However, the latter term, "general welfare," invokes the greater responsibility of the state to assure its citizens that physical structures and environments will respond to and protect their psychological and spiritual well-being. This invokes the condition in which the state is expected to protect its citizens from unattractive surroundings and ugliness as well as unsafe and unsanitary conditions, narrowly defined.

The right of a jurisdiction, municipal or otherwise, to be beautiful and free from unattractiveness has been upheld by decisions of the U.S. Supreme Court. The decisions are based upon and find their roots in the protection of the "general welfare" of the public. As far back as 1954, the court ruled in the landmark case, *Berman v. Parker,* that aesthetics are included within the term "general welfare."[2] The court reasoned that attractive surroundings are necessary to a person's psychological and spiritual health. Thus, in the age-old conflict between the protection of individual property rights and the good of the whole society, it is the general welfare or public good that reigns supreme.

In terms of protecting the public's environmental good, *Berman v. Parker* ranks equally in significance with *Village of Euclid v. Ambler Realty Co.*, judicated in 1926, in which the same court first established the legal doctrine that public control of physical structures and their placement is an essential part of the police powers of the state.[3] In an extension of the *Berman v. Parker* doctrine, in 1963 in *People v. Stover,* the U.S. Supreme Court upheld a New York City ordinance that forbade outdoor clotheslines.[4] This case clearly established aesthetics as a compelling interest in protecting the general welfare or public good. In essence, the court has said that aesthetics are not a veneer but are fundamental to the human mind and spirit. Thus, it can be said that if architects represent the learned and trained profession for the creation and design of man-made physical structures and the environments in which they set, there should be no doubt about the legality of the role of architecture and architects in protecting the general welfare and public interest.

While the legal base for architecture and architects is sound, its interpretation and meaning for the public must be vigorously promoted by those who would serve the best interest of the public—and not themselves. Oftentimes issues are decided upon a misinformed base or upon other than proper legalistic or professional merit, whether in the public interest or not. That means that in terms of environmental influence and the importance of architecture, architects cannot simply rely upon the largess of public officials or proprietary rights promulgated by public regulations. Proprietary rights be damned. A/E selection processes be damned. Fee structures be damned. Architects must move to the essence and essentials of the issue: What is in the public interest? What is it that serves the public good? How can architecture be moved into the public forum, in a sustained manner, and be delineated and effectuated in terms of the need for physical structures and environments designed with logic and aesthetic reason within the realms of a democratic society whose major attribute is supposedly the possibility of choice? Our agenda must be clear and our purposes of high order. Our theme must be "architects for architecture" rather than "architecture for architects."

Finally, in terms of aesthetics, architecture, and architects, two significant points must be acceded. First, aesthetics, as they affect the human mind and spirit or the sensibilities of the public, must be well defined. That is, aesthetics in architecture cannot be a veneer or passing fancy or fad. If that be the case and if aesthetics in architecture are expected to express a much deeper and lasting meaning of society and possess, to some finite degree, a socially redeeming value, it would then appear that the profession can ill-afford the luxury of being confused by the stance of post-modernism. Second, beauty or aesthetics, in the most fundamental way, can be said to be in the eye of the beholder. Such may be accepted as fact but the vigorous view that must be pronounced is that there is an essential essence to be given a physical structure that only the learned and trained architect can bring. A physical structure inherently possesses physical essence and may very well protect the health, safety, and property of the public. However, it is hoped that architecture brings to the physical structure a spiritual essence that humanizes and speaks to the public's psychological well-being. If we are to be different in fact, legal or otherwise, it is the responsibility of the architect and the profession that, in their simplest denominator, physical structures designed by architects be "architecture" and not mere "buildings." Although the post-modernists may sneer at the name, Mies van der Rohe once reportedly stated that "even an outhouse can express architecture." Budget is no excuse. Client is no excuse. Time and other factors must provide no excuses. The conjecture "architects do it better" must ring loud and true. These are the metaphysical words that must speak to the public and for the public good. The role and place of architecture and architects rest within the general welfare and public interest. Given politics and other interest groups, our case must be made in terms of benefits that accrue to the public good. Let's tell it like it is: Why not be bullish on architecture—for the public interest.

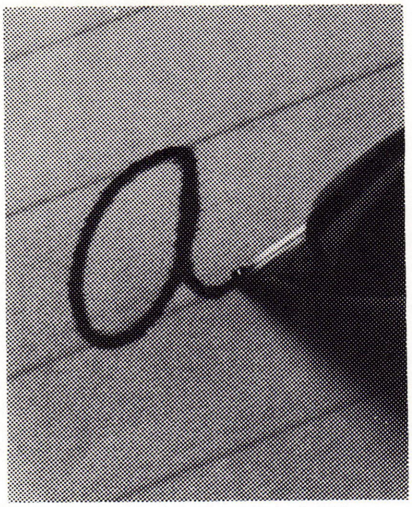
Public Understanding of Architects

First this very brief synopsis of some major attributes of architects and their profession:

- The American Institute of Architects (AIA) has existed since the mid-1800s.[5]

ABOUT THE AUTHOR: Jim Hall is an architect and certified planner and is President-Elect of the Tidewater Virginia Chapter, American Institute of Architects. He is a Professor of Architecture at Hampton Institute and President of James Hall III & Associates, P.C., Architecture, Planning and Research.

3 days in the life of a legal pad...



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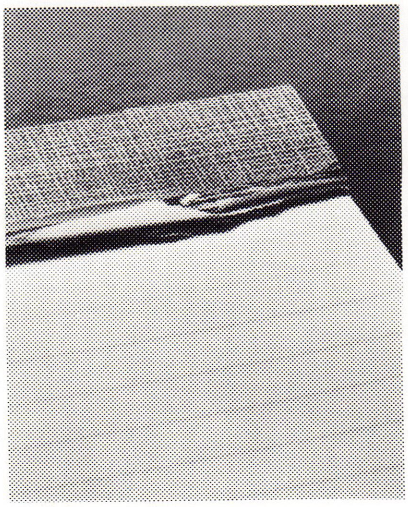
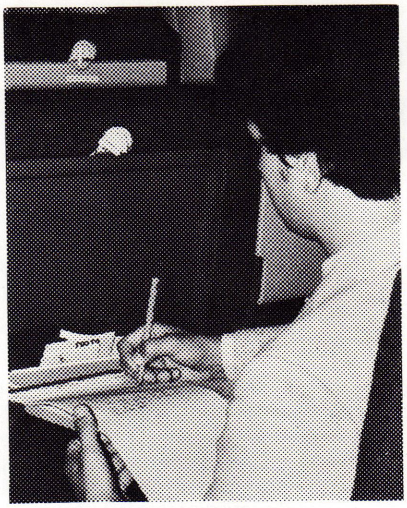


AND POOR PERFORATIONS CAUSE UNEVEN SHEET REMOVAL, AND RESULTS IN AN UNSIGHTLY BIRDS NEST APPEARANCE



JUST NORMAL, EVERYDAY USE BENDS AND CRACKS THE BACKING OF MOST LEGAL PADS AND QUICKLY GIVES A SHABBY LOOK

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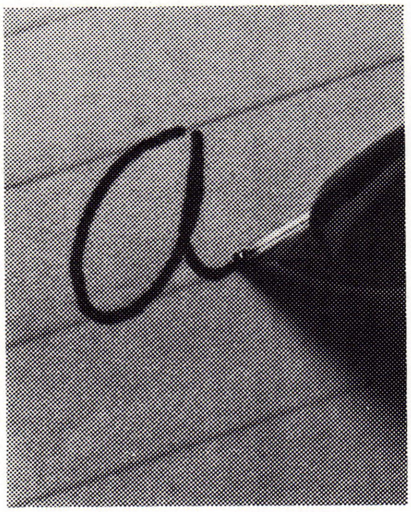
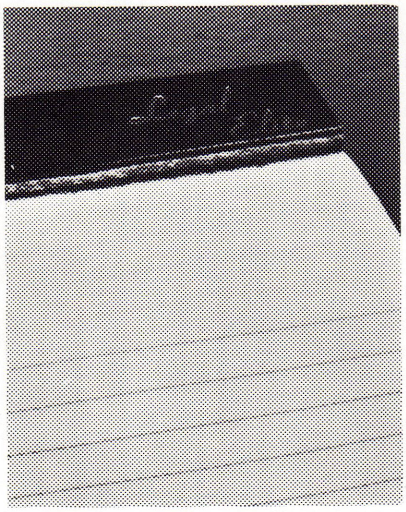
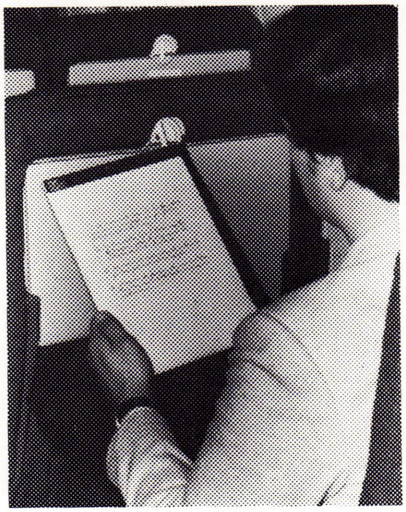


QUALITY, WATERMARKED-BOND PAPER USED IN THE LEGAL ELITE PAD RESULTS IN A CLEAN, SHARP IMAGE



A SUPERIOR HEADER STRIP AND CRISP PERFORATIONS COMBINE FOR A CLEAN TEAR AWAY, AND A MUCH NEATER LOOK



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- The first school of architecture (at MIT) was founded in 1857.[6]
- Some 3,500-4,000 architectural degrees are now conferred annually.[7]
- Some 2,500-3,000 individuals pass state architecture licensing exams annually.[8]
- There are some 90,000 architects in the United States (U.S. Census Bureau).[9]
- There are some 61,000 registered architects in this country.[10]
- At latest count there are some 34,000 AIA members.[11]
- Architects have graced the cover of *Time* magazine more than several times.
- A selected number of architects have been elevated to city, state, and federal political positions.
- The presence, influence, and contribution of the architect and the profession have been felt in countless cities and jurisdictions throughout the United States due to the essentially free planning and design services provided by the AIA originated R/UDAT teams and the most recently developed QUEST program.[12]
- The public has reacted with great acclaim and response to such recent environmental places as East Wing/National Gallery, IDS Center, and Peachtree Plaza, to name a few.

Given the rather briefly listed indicators above, a professional existence of over a century, and strong interest on the part of young people to enter the profession, why then do the questions and concerns regarding public understanding and awareness persist? On the one hand, at first thought, the dilemma of lack of public awareness and perceived necessity of the role of the architect might simply be viewed as the case of architectural esteem and necessity being stymied by growing public consumerism that has tended to breathe its wrath on all professions, including medicine, law, and the like. On the other hand, it might be viewed simply as a profession's natural and perennial instincts to react for the sake of self-preservation. Further, a case could be made that all professions are faced with increasing public skepticism and distrust. However, architects and the architectural profession, rather than facing public skepticism, are faced with the public's continuing misunderstanding of what architects do and/or whether architectural services are needed at all—not the quality of the services. Rather than loss of esteem, American society or the American public, knowledgably or in ignorance, has never accorded the architect, in general, the professional respect as provided by other cultures, especially European cultures. As in the title of the book, the ultimate question remains: *Who Designs America?*[13]

A case could be proffered that the nature of the architect and his/her work remains to be viewed by the public either with ignorance, awe, or mystery. However, in addressing the concern, one must be certain to distinguish between the public's understanding of the word architect and the word "architect." Webster defines "architect" as "one who plans and achieves a difficult objective."[14] How often has a newspaper item alluded to the "architect" of some military victory or some outstanding achievement, or referred to some high ranking official as being the "architect" of a new policy initiative in which the "concept" is based upon . . ., or most recently in which a national television news reporter intoned ". . . 'architect' of the Third Reich . . ." in reference to Adolf Hitler? Or how about the expression, "architect" of one's own destiny? Thus, the age-old problem faced by the American profession of architecture is how to unitize the two words, architect and "architect" within the psyche of the American public. One thing that time has proved with certainty is that, no matter how much well deserved, the unity of the two words cannot be achieved by the celebrity status or public accolades accorded our giants such as Frank Lloyd Wright of yesterday and the somewhat similarity beginning to be bestowed upon our giant of today, I. M. Pei (the profession needs him as a symbol of architectural sanity to counter the sometimes absurdity of post-modernism).

At the peak of the pyramid, the architect has long enjoyed the highest of esteem, admiration, and respect within the realm of intellectual thought and achievement and in terms of contributions to mankind. However, the acclaim accorded a few has never achieved generalization to the profession as a whole. Once the American psyche has been excited, it subsequently subsides to the problem or concern "next door" which cannot be mentally related to the grand scheme of things. So, the gulf between the two words increases exponentially as the pyramid moves from the apex down toward the base. Does the blame for the chasm rest with the public or with the architect and the profession? Debating the answer to that question could go on *ad infinitum* while the chasm of misunderstanding remains *insitsu*. And, after all, debate is not really the point.

One point should, however, be made unmistakably clear, it is a sheer oversimplification for architects to continue to refer to some individual who asked, "do you do blueprints?" or lament the fact that "the client doesn't understand design." This might be fine for "shop talk" over a glass of suds but such will not address or culminate the issue of who the architect is and the solution to the issue will forever remain a stillbirth. Architects must begin to address the hard questions: To what extent are physical structures and the environments in which they set, to come into being without the professional knowledge and contributions of architects? To what extent are physical structures to be "designed" by others? To what extent can the general welfare of the public be fully protected exclusive of the responsibility and knowledge of the architect and his/her perceptive powers? How can the public be made more aware of their personal and micro-environments, negative or positive, and those responsible for their being as opposed to those specialized experiences in which the fickle mind is absent at drawing the relationships? The appropriate answers require that the architect, first, pursue the answer to the question of *Who Designs America?* and, second, become bullish on the words architecture and architects and their symbiotic relationships to the word "architect." The public *must know*.

The Architect's Own Perception of His/Her Role

News Item: "Profitability Problems."[15] *News Item:* "Economic Update—Architectural Services Experience Slower Growth Rate Than Engineering Services."[16] *News Item:* "Growth in Architects' Income Lags Behind Other Professionals."[17] Do the preceding news items have any relationship to the question of *Who Designs America?* In my view, this question generates the following additional questions:

Question 1: Excepting the major edifices and most publicly originated construction, during any given year what percentage of physical structures (excluding public works projects such as bridges, etc.) comes into being without even the most fundamental influences of the architectural professional?

Question 2: What represents the most recognizable, immediate, and prolific physical environment for the American public?

Question 3: To what extent does the architectural profession influence this most recognizable, immediate, and prolific physical environment?

Focusing on the answers to the three questions could very well begin to answer the question of *Who Designs America?*

Answer 1: It is said that some 90% of American buildings are not "touched" by the influence of the architect.[18]

Answer 2: Inescapably, one must readily recognize that it is the personal living environment—the individual's hearth or home—that represents the most recognizable, immediate, and prolific physical environment of the American public. It is this environment that represents the most precious and sacred of places, the largest investment that most Americans, who become homeowners, will make in a lifetime, and an institution that is protected by the very words of the American constitution itself.

Answer 3: There is no reason to expect that the architect's influence on this prolific physical environment is any greater than the influence on American buildings in general, possibly less.

Is there a relationship between the lack of influence on housing and the lack of participation in and influence on the bulk of other build-types? Perhaps. In terms of *Who Designs America?*, maybe we can begin to get at the role and threatened role of architects by examining the vast importance of housing as the base for the remaining built-environment and by examining the architect's seemingly naive and inept perception of this commodity and its vast impact in terms of architecture and the physical environment.

Physically, the United States covers, continentally, 2.26 billion acres, or 3,540,939 square miles. It is said that "one-fifth of this large land area is classed as cropland; more than one-fourth is used primarily for grazing; and about one-eighth is unusable land (swamps, bare rock areas, etc.)."[19] Using a strict definition of urban land use, some 75% of the American population lives in cities, towns, and suburbs, which constitutes only 1.5% of total land use—35 million acres. When a broader definition is used which includes roads and airports, industrial, and other uses, the total land area devoted to urban uses accounts for 4% of total American land use.[20] Of this amount, 37.5% is used for residential living. From 1970 through 1981, new housing starts averaged 1,686,917 units annually. Of the total number of units, single family units averaged 1,081,833, or 64.1% of the total.[21] It is projected that during the rest of the 1980s there will be a demand for 12-20 million additional units.[22] As can be discerned, housing represents a huge chunk of the built-environment. Not only is the chunk huge, it is disaggregated for as of 1980, single family housing represented 67.7% of total United States housing units.[23] The demand for housing will not abate and housing will be built whether it involves architects or not and whether it is built in the environment with some degree of logic and reasoned perception or the more accustomed sprawl. Not only is housing one of the largest segments of the physical environment, it is also one of the largest sectors of the American economy. In 1973, the total net outstanding or accumulated demand for capital was $1,703.9 billion for the total American economy and housing constituted $422.5 billion, 24.8% of the total.[24] This figure, for housing, represented 81.4% of total demand for long-term mortgages. These figures still do not fully measure the total impact since housing provided and financed directly by Federal capital is not included. Between 1970 and 1981, housing starts of publicly owned units ranged from a low of 10,000 units annually to a high of 35,000 for a 12-year average of 18,167 units annually.[25]

In 1981, the total value of housing output was $285.1 billion, current dollars, and represented 9.7% of the American Gross National Product, averaging 9.1% of the total, 1970-1981.[26] As the following table shows, new housing units (housekeeping units) represented 40.4% of the value of private construction authorized by building permits in 1981:[27]

Private Construction Authorized By Building Permits—1981

Total			$103.6 billion
New Residential Units		$41.9	
1-unit	$28.7		
2-4 units	3.2		
5 units or more	10.0		
New Non-housekeeping Residential Units		1.9	
New Non-residential Buildings		39.3	
Industrial Buildings	$ 7.9		
Office Buildings	14.6		
Stores & Other Mercantile	6.2		
Hospitals & Other Institutional	1.7		
All Other Non-residential	8.9		
Additions and Alterations		20.5	

The relative economic value of housing as a commodity and environmental element can also be seen in the following table:[28]

Value Of New Construction Put In Place—1981 (Buildings)

Total $165.2 billion

Private $147.4			**Public** $17.8	
Residential Buildings (Incl. farm)		$86.6	Educational	$6.7
1-Unit	44.4		Hospitals	2.1
2 Or More Units	18.3		Industrial	1.6
Additions, Alterations	20.0		Housing, Redevelopment	1.7
Non-housekeeping	3.9			
Non-residential Buildings		60.2	Other Public Buildings	5.6
Industrial	17.0			
Office	17.3			
Other Commercial	16.8			
Hospitals and Other Institutional	4.9			
Religious	1.7			
Educational	1.2			
Other Non-residential	1.8			

Considering the vast role that housing plays in shaping the physical environment, the immediacy of this environment to John Q. Public, and the immenseness of its economic impact, the eternal questions that must be raised are: It may be a case of *deja vu,* but regardless of the nature of housing and the need for professional attention, somehow, architects seem to relate with smugness or good riddance when they forthrightly assert that "we don't do housing" or "we do everything but housing" or with a guilt feeling when they do say, with reservations, that "we do." Every architect seems to want to "graduate" from the house or housing. This abdication of concern and involvement is a loss to the public interest and a concomitant loss to the profession. Such is the state of conditions on which the epitaph of the profession can be written for surely the decreasing influence of architects on buildings in general and the conditions previously alluded to in an earlier piece, can be traced to the declining role of the architect in the design and siting of housing. Secondly, who designs the physical environment for the average public—that environment that the public understands, somewhat, and readily relates to and, then indeed, *Who Designs America?*

Maybe architects "don't do houses/housing" and have no desire "to do housing" but *somebody* is influencing, correctly or incorrectly, that 37.5% of the buildable environment and *somebody* "is doing" the bulk of an $86.6-plus billion newly constructed commodity. *Somebody* "is" attempting to address the needs and demands of a society faced with a substantially changing commodity, economically and physically. A society seeks out and relies upon those within that society to accomplish and service that which the masses of society cannot technically, quantitatively, and qualitatively provide for themselves. To be sure, the service will be provided—by "designer," draftsperson, builder, or *architect.* Granted that many who desire housing design services do not appreciate the full scope of services necessary, or are not willing to compensate to the level that such services require, or represent a combination of both. However, does the architectural profession accept the two mindsets as *fait accompli?* Does the architectural profession, even grudgingly, accept an inactive or passive role in an arena of individual or small scale acts that collectively represent one of the most powerful forces that shapes the physical environmental setting? The public psyche knows nothing of the full-fee client vs. those who damn paying such a fee. Once the demarcation has been fully made, the downhill snowball effect can reasonably be expected—the house, then housing, then other physical structures . . . . then the moon.

For sure, there are those who would sneer at even the lightest hint of a suggested reducing role of the architect. However, the forementioned commentary on housing and general building influence speaks for itself. One has only to peruse the almost continuous summaries in the Updates issued by the AIA Legislative Minuteman Program regarding the nature or outcomes of various state actions that affect the role of the architectural profession or note the California-proposed resolution to be acted upon at the AIA National Convention that charges AIA Headquarters with providing guidance to AIA Components to meet the various state actions. It would also be appropriate to remind that the major portion of architects in this country exist and operate down toward the base of the pyramid of professional notice, on the margin, and are not engaged in the creation of the supra edifices that direct and consume architectural thought. The existence or nonexistence of the appropriate role for architects in general involves the vitality and survivability of the profession as a whole and not the "survival of the fittest" of the architects, not in this case. Surely there are some architects and some firms who feel immune. Such a state within a weakened and crippled profession might "ring the cash register" for a few but provides long-term professional health for none. A dinosaur in an extinct profession still remains a dinosaur.

Finally, some words regarding the role and influence of the architectural profession far and above the seemingly vacated or usurped one in terms of housing—the role and influence as a forceful and unmitigating and spirited spire for the physical and man-made environments. Needless to say, the architect and the profession should be *the* environmentalist and serve as the public's intervener for improving and preserving the environment. In this light, the ultimate goal must be the non-self-righteous promotion of the public good. This is not to suggest that the architect assume the herculean task of the outdated "Renaissance man" or imply that the architect can possess the all encompassing expertise of the natural, physical, biological or other such scientists or environmentalists. It is a matter of values, support of public responsibility and justice, professional morality, and commitment to that which protects and helps society in its evolution, recognizing, but in a humble kind of way, that society must sometimes be protected from itself by those who would promote the total public good. It means seeking to be the intervening variable that attempts to intercept the "problem" before it becomes a "crisis."

Such requires immense foresight, fortitude, and commitment and seeking to make "cutting edge" more than mere rhetoric. During the mid-1960s it took the Urban League's Whitney Young to stir the profession toward its social responsibility. Who will it take to direct the profession, in the same degree of earnestness, toward its public responsibility? It is within the public forum that lies the profession's destiny. A destiny based upon the desire to serve society, first, and benefit from society, second. Herein lies the future of architecture and the profession. It represents a clarion call to duty and a challenge that must be taken. Let's tell it like it is: Why not be bullish on architecture—in the public interest. *Prosit!!!*

Footnotes

[1]Taken from the Laws Section, *Virginia Architects Handbook,* 1982-83.
[2]*Berman v. Parker,* Supreme Court of the United States, 1954, 348 U.S. 26, 75 S.Ct. 98, 99 L.Ed. 27.
[3]*Village of Euclid, Ohio v. Ambler Realty Co.,* Supreme Court of the United States, 1926, 272 U.S. 365, 47 S.Ct. 114, 71 L.Ed. 303.
[4]*People v. Stover,* Court of Appeals of New York, 1963, 12 N.Y. 2d 462, 240 N.Y. S.2d 734, 191 N.E. 2d 272. Appeal dismissed 375 U.S. 42, 84 S.Ct. 147, 11 L.Ed. 2d 107.
[5]Working Paper, "Direction '80's Task Force," The American Institute of Architects, 1981-82.
[6]Ibid.
[7]Ibid.
[8]Ibid.
[9]Source: Member/Component Affairs Department, The American Institute of Architects, March 1983.
[10]Ibid.
[11]Ibid.
[12]See any number of back issues of the *AIA Memo* or *AIA Journal.*
[13]Laurence B. Holland, *Who Designs America,* Garden City, New York: Anchor Books, 1966.
[14]*Webster's New Collegiate Dictionary,* Springfield, Massachusetts: G. & C. Merriam Company, 1974.
[15]See *AIA Memo,* No. 643, April 22, 1983.
[16]Ibid.
[17]See *AIA Journal,* June 1982.
[18]From a visiting lecturer presentation by Donald Sunshine, Chairman, Department of Architecture, Virginia Polytechnic Institute and State University, presented at Hampton Institute, April 18, 1983, titled "A View Of The Profession As We Approach the 21st Century."
[19]"Interchange," Vol. 7, No. 3, Washington, D.C.: The Population Reference Bureau, Inc., September 1978.
[20]Ibid.
[21]*Statistical Abstract of the United States*—1982-83, Washington, D.C.: U.S. Department of Commerce, Bureau of the Census.
[22]"Housing," New York, N.Y.: McGraw-Hill Inc., October, 1982.
[23]Bureau of the Census, Statistical Abstract, op. cit.
[24] Statistical Abstract, op. cit.
[25] Statistical Abstract, op. cit.
[26] Statistical Abstract, op. cit.
[27] Statistical Abstract, op. cit.
[28] Statistical Abstract, op. cit.

EGG and DART

THE VERBS

'10'

by Ralph Snell, AIA

We're fond of giving nicknames to decades. We somehow like to sum up ten years with a single adjective. The Gay 'Nineties. The Roarin' 'Twenties. The Turbulent 'Sixties. But the 'Seventies. What of the 'Seventies?

The 'Seventies began the day the 'Sixties died—one spring day in May of 1970 on a hill on a campus in Ohio. They didn't get much better. They saw a debacle in Southeast Asia. The disgracing and dismissal of a President and his henchmen. Death at the Olympics. A nuclear near-meltdown nightmare. And the 'Seventies ended much as they began—with Americans held hostage to the will of an evil madman.

It's hard even to remember that there was a bicentennial jammed in there.

Of course there were lighter times. The 'Seventies produced Star Wars. And streaking. Hang gliding. And hot tubs. Fanne Foxe and Billy Beer. Mary Richards and Charlie's Angels.

But it was surely an introspective decade, what with half the books having personal pronouns in their titles.

It was a phenomenon that helped give the only nickname really applied to the 'Seventies: The Me Decade.

I don't think that name has quite the same ring to it as the others. I come to you in search of a new nickname for the 'Seventies. Something that sums up that time. Something that for decades hence will conjure up a picture in one's mind. When I mention The Roarin' 'Twenties can you possibly *not* conjure up a picture of a flapper doing the Charleston? The flapper is the logo of the 'Twenties.

But what is the logo of the 'Seventies? The cooling towers of Three Mile Island? An oil well? A gas pump? A roll of insulation? A tube of calk?

What was the premier cult object of the 'Seventies? What was more written about, talked about, and debated? What was subject to the broadest speculation and the widest interest?

What were the words that tripped off everyone's tongues?

What was that magical thing that gave something for nothing? That was desired by all? And all the more because it was had by only a few? What was it?

It, my dear friends, was a simple object. Made of common, ordinary parts. None of them moving. Together, though, they formed an object of almost mystical reverence, in a dying world, the hope of humankind. The object: the solar collector.

The solar collector was a way out. A way of escaping the clutches of OPEC (Oil Producing and Extorting Countries). A way to beat out the utility companies (You Too Can Make Your Electric Meter Turn Backwards). A way to express our independence (now if we can only

DECADE **P Knutz**

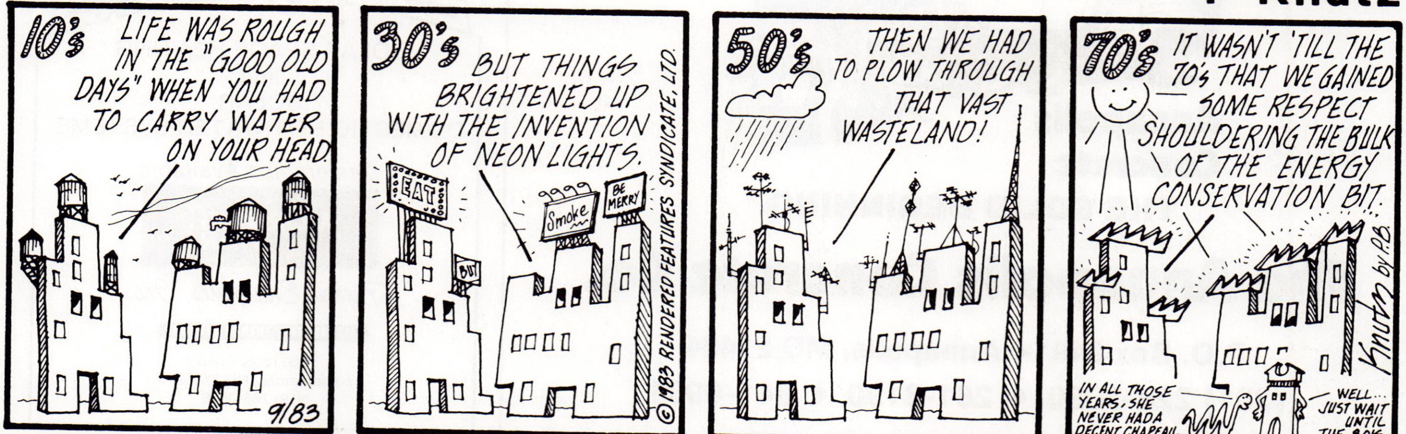


figure out a way to dump "God Save The King" as our national anthem).

Suddenly, flat roofs sprouted 3-D metal jigsaw puzzles and C.O.s (Cult Objects). Sloped roofs got covered with C.O.s. It all looked very futuristic. And very technological.

See a C.O. and heads would turn. The rabble would become awestruck.

The stuff looked weird.

But nothing, absolutely nothing, becomes a cult object more than to look weird. Just think of E.T.

The mystique grew.

And then, something happened. It's hard to trace, but some say it all started with an article in a handyperson's magazine, an article with a title something like You Too Can Make Your Solar Collectors Look Beautiful.

Look beautiful: the kiss of death.

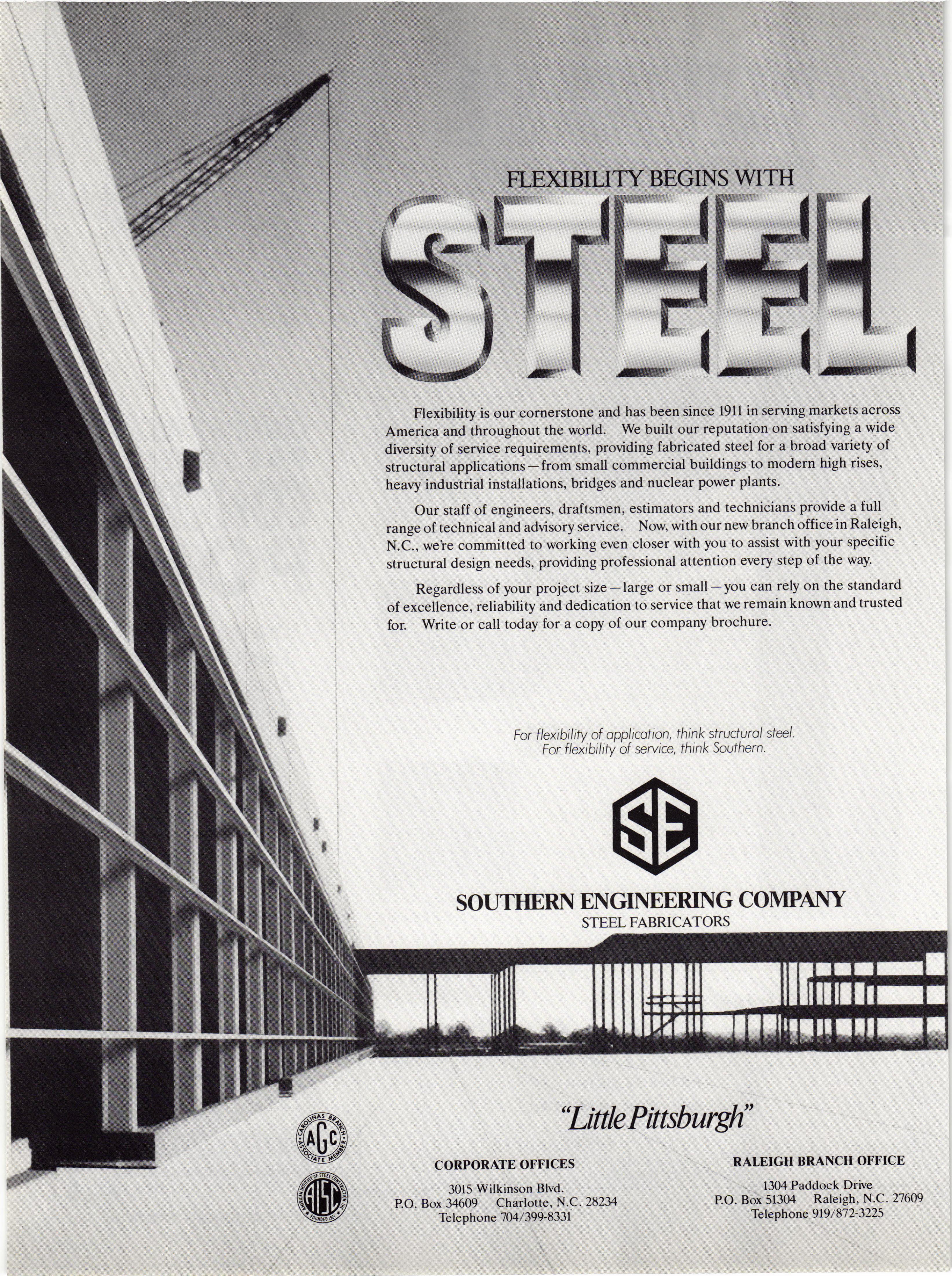
Suddenly, solar collectors were *blended* into the design of buildings. They began to complement, to be made integral, and in some extreme cases, to harmonize. The solar collector buildings moved from the technical journals to *Redbook*.

And so the solar collector passed on into a netherworld of pop mythology and popular magazines.

Nature abhors a vacuum almost as much as publishers do so the search was on for a new cause. It came swiftly enough.

What Krushchev did to Stalin, the new cause did to solar collectors. Thus the new accepted party line in the late and submissive 'Seventies became Passive Solar, which looked down upon anything effectual, and thus relegated the antediluvian solar collectors to the inaccurate and demeaning antithetical term of Active Solar. Never to be heard from again.

And now, a third of the way through the 'Eighties, here we sit, next to some big stone wall blocking off the huge windows facing south, occasionally flicking a switch to open and close vents and waiting for the breeze to come in.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VIRGINIA SOCIETY AIA NEWS

Members cum Specialis

The AIA is more than merely a "professional organization"—over the years, many architects have become so devoted to its continued growth and health that the feeling of attachment is almost as strong as to one's own children. In many cases, the attachment has become equally strong in the spouse of the member.

The leadership of the Society has long been concerned that, upon the death of such a member, the surviving spouse is suddenly cut off from the organization which has to that point been an important part of her/his life. Until now, however, there has been no formal way to make such individuals realize that they are still welcome, still valued, and still considered "part of the AIA."

An amendment to the Society's Bylaws last fall, approved by the Institute, has finally given the Society a means to correct the situation through a new membership category called *Member cum Specialis.* The criteria are basically as outlined in the above paragraph—a surviving spouse who, during the lifetime of the member, was active in AIA and VSAIA affairs and who wishes to continue that affiliation. Nomination may be made by any Chapter Board or by any member of the Society Board, and election is by the Society Board. The membership is effective only if, and continues only so long as, accepted by the recipient.

The first three *Members cum Specialis* were elected by the Board of Directors at its June meeting. All three accepted the honor and were formally inducted into membership during a reception at the Valentine Museum in Richmond on July 20 (in conjunction with a James River Chapter meeting). They are:

- Mary Bleecker Noland, of Richmond, surviving spouse of William Churchill Noland, FAIA (one of the five founders of the Virginia Chapter in 1915, its first Fellow, its second President, and the man after whom the Society's highest honor, the Noland Award, is named)
- Ella Repass Grigg, of Charlottesville, surviving spouse of Milton LaTour Grigg, FAIA (past President of the Virginia Chapter, 1972 recipient of the Noland Award)
- Martha Macklin Smith, of Virginia Beach, surviving spouse of Herbert Livingston Smith III (past President of the Virginia Chapter, 1979 recipient of the Noland Award, and Chairman of the Society's Honors Committee for several years immediately preceding his death)

Among the memorable comments made during the presentations and acceptances: "I was going to say that one of the nicest things about this membership is there are no dues, but I realized that these three honorees have already paid their dues." "Herbert would be very pleased to see me accept this membership from the organization he loved almost as much as he loved his own family." "I've always felt I was a part of the AIA, and now I have a piece of paper to prove it." "The more I have thought about this honor, the more touched I have been in receiving it."

So, with the greatest of pleasure, we welcome these three members back into the fold. While we cannot say we hope to see the number of members in this category increase, we do hope that when the occasion arises in the future we will continue to find surviving spouses wishing to maintain their affiliation with the Society.

The first honorees in the Virginia Society AIA's new membership category, Members cum Specialis, *are (left to right) Mrs. Herbert L. (Martha) Smith, Mrs. Milton (Ella) Grigg, and Mrs. William C. (Mary) Noland.*

Plan to Attend the 1983 VSAIA Fall Meeting!

Society meetings have become noted as first-class and exciting events in recent years. The 1983 convention promises to put previous meetings to shame!! The information below is just a quick sampling of the highlights of the meeting; full details will be forthcoming in a registration brochure. But be sure to plan ahead NOW and block off the dates of October 28-30 on your calendar.

THE SETTING: We will be meeting at the Marriott Crystal Gateway Hotel in the Crystal City area of Arlington. The hotel offers luxury accommodations at very reasonable (by Washington standards) rates for our meeting attendees. Completed in June 1982, it connects by a pedestrian walkway to the Crystal Underground (a delightful underground shopping center featuring a variety of restaurants and specialty shops) and the Crystal City Metro Station (with subway connections to most sites in downtown DC—no need to fight Washington traffic). Other sites being used include The Torpedo Factory (a munitions factory in Old Town Alexandria converted to use as artists' studios) for the President's Reception, The Athaneum (an art gallery in Alexandria which will have an exhibit of Art by Architects at the time) for Sunday breakfast, and the U.S. Capitol for a tour conducted by the office of the Architect of the Capitol.

SPECIAL FEATURES: The Society's premier event, the annual Noland Award Night, with presentation of the Noland Award by our guest speaker (About our speaker: we can't divulge the name at this time, but we *can* tell you it's a top person in the Washington political scene.); the Mid-Atlantic Region of the AIA is sponsoring its first Design Awards competition in over ten years with both the jurying and the presentations during our meeting; the Inter-Faith Forum on Religion, Art, and Architecture (IFRAA) is having a regional meeting (open to Society members) in conjunction with the Society meeting, complete with their own seminars, an awards program, and an exhibit of both art and architectural awards; a special exhibit honoring the 50th anniversary of HABS, focusing on Virginia structures, will be unveiled at the meeting; the Society will make a special presentation of the newly-created "Architectural Medal for Virginia Service" to a public figure in Virginia for his/her contributions to the profession of architecture and/or the built environment; and, for the first time, we will have a special orientation session for "first-time attendees" at the beginning of the convention.

REGULAR FEATURES: With all the new and exciting activities, don't forget the regular features of Society meetings which always receive rave reviews, including over 75 exhibits of products and services used or specified by architects.

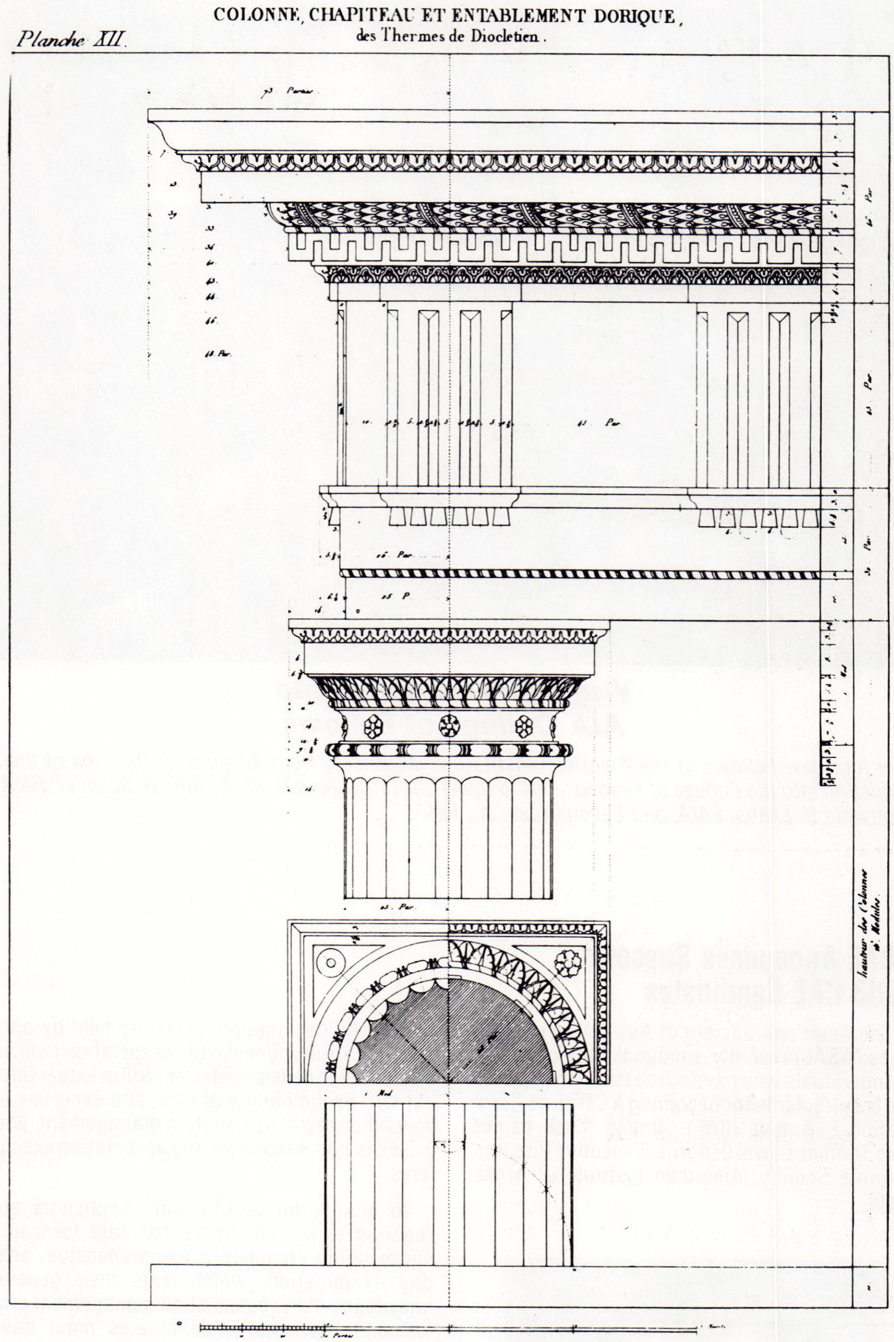


Plate 12. DORIC: Column, Capital and Entablature.
(Thermæ of Diocletian : Rome)

VIRGINIA SOCIETY

OF THE

AMERICAN INSTITUTE OF ARCHITECTS

1983 ANNUAL CONVENTION & EXHIBITION

October 28-30, 1983

Marriott Crystal Gateway Hotel

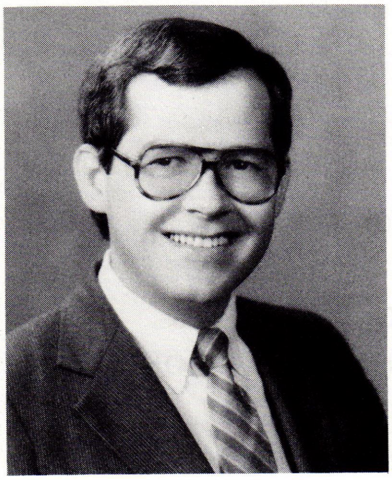
Arlington, Virginia

Virginians Inducted into AIA College of Fellows

The four new Fellows of the American Institute of Architects from Virginia, at the time of their induction into the College of Fellows: (left to right) Carlton S. Abbott, FAIA; John H. Spencer, FAIA; Benjamin H. Evans, FAIA; and Eason Cross, Jr., FAIA.

ASAE Announces Successful 1983 CAE Candidates

The American Society of Association Executives (ASAE) recently announced the names of 92 individuals who have successfully completed the requirements for becoming a Certified Association Executive (CAE). Among those named was Thomas Lewis Osborne, Executive Director, Virginia Society, American Institute of Architects.



Thomas L. Osborne

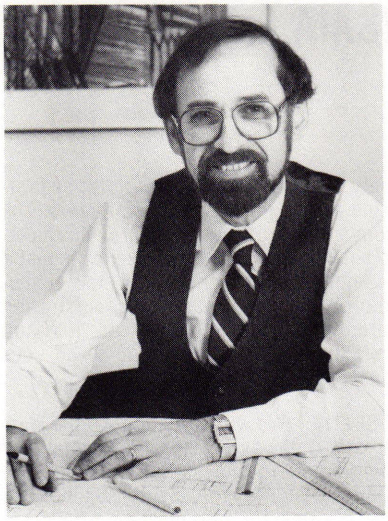
The CAE designation, currently held by only 1,000 men and women in the association field, is an indication of demonstrated skill in leadership, activity in community affairs, and expertise in specific areas of association management, and is held in high esteem among association executives.

To qualify for certification, applicants are required to submit a personal data form and successfully complete a comprehensive, one-day examination, which tests their general knowledge of the association management profession. Additionally, candidates must have either five years experience as an association executive or three years as a chief staff executive.

The successful candidates will be awarded their CAE plaques at a special recognition luncheon held in conjunction with ASAE's 63rd Annual Meeting & Exposition, September 4-7, 1983 in San Francisco.

The American Society of Association Executives, Washington, D.C., is a voluntary membership society of 10,000 executives who manage leading business, professional, educational, technical, and industrial associations. This membership, in turn, represents an underlying constituency estimated at more than 55 million individuals and firms belonging to national, regional, state, and local associations.

Virginia Architect Named Energy Man of the Year



Laszlo Aranyi, AIA

Laszlo Aranyi, AIA, of Virginia Beach was recognized for his efforts at promoting energy conservation and solar architecture by being selected as Energy Man of the Year. The award was presented at the 5th Annual International Energy Trade Show/Conference on June 8, in Columbus, Ohio. The event was sponsored by the National Energy Journal, the nation's leading energy publication. Aranyi is president of The Design Collaborative.

As chairman of the Tidewater Solar Energy Association, for the last two years, Aranyi has raised community awareness toward solar energy and energy conservation. The TSEA is a non-profit group dedicated to giving the consumer opportunities to learn wise energy choices. For the last two years, the group has sponsored a spring tour of solar homes which is open to the public, giving everyone the chance to see how it works and how the people who live in solar homes like them.

Aranyi is a frequent speaker at men's clubs and professional organizations, as well as lecturing to teachers and real estate professionals in credit-courses based on his field of expertise. He is an author, painter and musician and was recently named to the Arts and Humanities Commission of the City of Virginia Beach.

CHAPTER NEWS

James River Chapter
Alice Lehman Sunday Prize Award Program

A poster showing Richmond's historic buildings won the best in show award in the fifth Alice Lehman Sunday Prize Award Program of the James River Chapter of the Virginia Society, American Institute of Architects.

Camden Whitehead of SWA Partnership won the award, one of nine presented at a special meeting of the chapter July 20 at the Valentine Museum.

Whitehead's poster, designed as a Christmas card for his firm, is for sale at the museum's gift shop. Whitehead, who said he has done watercolors for "quite a while," photographed all the significant buildings to be included in the poster, made renderings of each, and arranged them to look as if the city is a collection of interesting buildings on a hill.

Sunday Prize awards for construction documents went to Elliott Law of Huff Morris Cox and Associates, first prize, and Jeff Atwood and Henry Ayon, both of Glave Newman Anderson, and Mark Larson of SWA, honorable mention. Jay Moore of Moseley Hening Associates Inc. won first prize for presentation drawings. He also won an honorable mention, as did Ayon and William Harris III of Huff Morris Cox and Associates.

A special award went to architect Robert P. Winthrop for focusing public awareness and appreciation on architecture.

The presentations were made in the exhibition room of the museum where reproductions of Noland's original work for structures such as St. James's Church and Temple Beth Ahabah were on display through July 31.

Camden Whitehead of SWA Partnership receives the Best in Show Award in the Alice Lehman Sunday Prize Competition from Charles E. Wilkerson, FAIA, as Marcellus Wright, Jr., FAIA looks on. Drawings in the background are part of the exhibit of works by William C. Noland which were on display at the Valentine Museum at the time.

Robert P. Winthrop, AIA receives a special award from James River Chapter, AIA President J. Terry Cox, AIA, for focusing public awareness on and appreciation of architecture.

Northern Virginia Architects Host Regional Candidates

Four candidates vying for the AIA's Middle Atlantic Region Directorship were guests of the Northern Virginia Chapter, AIA, at a "City of Lights" cruise on the Potomac in July.

Shown from left to right are: Robert C. Smith, FAIA, Washington, D.C.; Lonnie D. Overton, AIA, Annapolis, MD; Bernard L. Frishman, AIA, Silver Spring, MD (who subsequently withdrew from the race); and Leon Bridges, AIA, Baltimore, MD.

The Middle Atlantic Regional meeting and election will occur in conjunction with the Virginia Society, AIA's annual Fall Meeting to be held in Arlington, October 28-30, 1983. The successful office seeker will replace Theodore F. Mariani, FAIA, whose term expires this year. Mariani was elected an AIA Vice President at this year's National Convention in New Orleans. (Photo by Marvin Cantor)

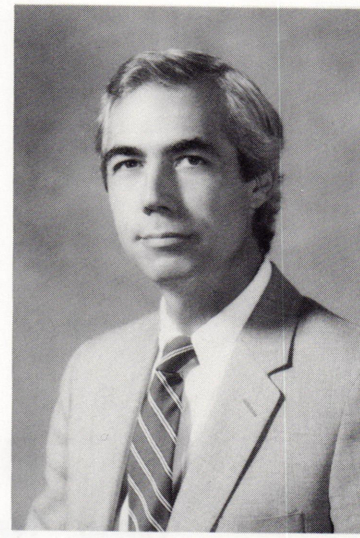
COMMITTEE ANNOUNCEMENTS

Government Affairs: Governor's Appointments

Among the many appointments made by Governor Robb during June and July, two Society members and one pending member were appointed to the positions considered "top priorities" by the VSAIA Board of Directors and Government Affairs Committee. The appointees are:

- John Paul C. Hanbury, AIA, of Norfolk, to a 4-year term on the Virginia Historic Landmarks Commission.
- William C. Newman, III, AIA, of Richmond, to a 5-year term on the State Board of Architects, Professional Engineers, Land Surveyors, and Certified Landscape Architects (APELSCLA Board).
- Celeste R. Rakes, Associate membership pending, of Blacksburg, to a 4-year term on the Board of Housing and Community Development.

J.P.C. Hanbury, AIA



William C. Newman, III, AIA

Celeste R. Rakes

PERSONNEL AND OFFICE CHANGES

CEGG—New Architectural/Engineering Firm

The CEGG Partnership announces the formation of a new multi-discipline Architectural/Engineering firm. Principals in the firm are James L. Chapman, P.E., John H. Epperson, Allan B. Gonyo, and David W. Greenfield, AIA. The firm's office is located in Corporate Center Two in Virginia Beach.

Chapman, a Structural Engineer, is a graduate of Tri-State College in Indiana, holds a Master's degree from Pennsylvania State University, and is a registered Professional Engineer in Virginia, North Carolina, New York, and Pennsylvania. He is a native of Corning, New York. Chapman was formerly a Senior Associate in the firm of Hayes, Seay, Mattern and Mattern and manager of the firm's Tidewater office.

Epperson holds a degree in Electrical Engineering from Virginia Tech and is a registered Engineer in Virginia. He is a Portsmouth native and formerly was with the firms of Hayes, Seay, Mattern and Mattern and Vansant & Gusler, Inc.

Gonyo, a Civil Engineer, holds a Bachelor's degree from Northwestern University in Illinois and a Master's degree from Old Dominion University. He is a registered Engineer in Virginia and was formerly an Associate in the firm of Hayes, Seay, Mattern and Mattern. He is a native of Waukegan, Illinois.

Greenfield holds a Bachelor of Architecture degree from Virginia Tech and is a registered Architect in Virginia. He was formerly with the firms of Hayes, Seay, Mattern and Mattern; Williams and Tazewell; and Shriver and Holland. He is a native of Virginia Beach.

The principals' project experience includes Architectural and Engineering services for schools, hospitals, office buildings, industrial facilities, government facilities, water and sewer utility systems, water and waste-water treatment facilities, energy conservation and power distribution systems.

Award-Winning Architect Joins Staff of TDFB, Inc.

On August 24, Gilbert O. "Nick" Nicholson, Jr., AIA joined the staff of Torrence, Dreelin, Farthing & Buford, Inc., a Richmond-based architecture and engineering firm. Nicholson graduated, with a Bachelor of Architecture, from VPI & SU in Blacksburg in 1970. He has also pursued graduate studies in Environmental Systems at Virginia Tech.

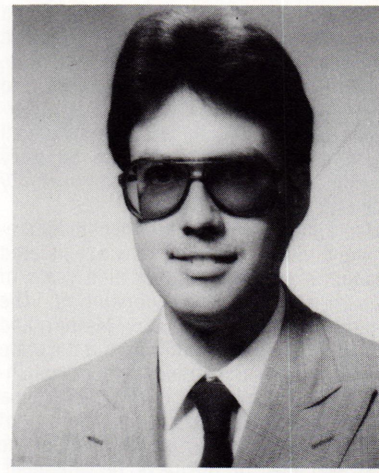
In May of 1983, Nicholson's logo submission for the American Planning Association Regional Conference was unanimously selected to be the logo for the conference. The theme of the conference, co-sponsored by the Maryland, Virginia and DC Chapters of the APA, is "Sustainable Communities in the 80's and 90's," and will be held in Columbia Maryland, September 9 and 10.

Previous to joining TDFB, Inc., Nicholson spent five years with the firm of Baskervill & Son, where he designed a pharmaceutical laboratory for A. H. Robbins Company, among other projects. Nicholson has lived and worked in both Maryland and Virginia, and today lives in Richmond with his wife and two children.

Nicholson is an active member of the James River Chapter of the American Institute of Architects.

1983 REGIONAL CONFERENCE

Mr. Nicholson's winning logo for the 1983 APA Regional Conference.



Jeffrey Alan Bleh, AIA

J. A. Bleh Joins Washington Associates' Staff

The principals at Washington Associates of Norfolk have announced that Jeffrey Alan Bleh, A.I.A., has been added to the staff as project architect. Bleh previously worked with Shriver and Holland Associates.

Bleh received his Bachelor of Architecture degree June 1978 from Virginia Polytechnic Institute and State University.

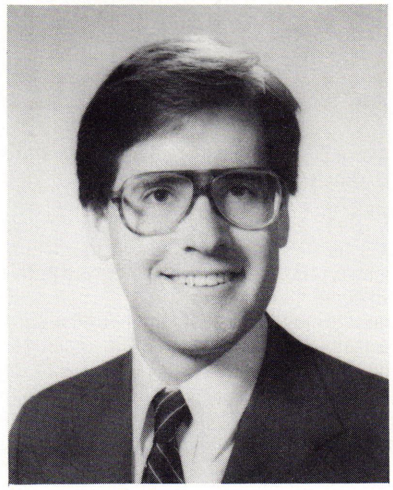
New HSMM Resident Managers

Hayes, Seay, Mattern and Mattern has announced the selection of Mr. Ronald B. Davis as Resident Manager of its Rockville, Maryland office and Mr. Samuel B. Wehrenberg as Resident Manager of its Greensboro, North Carolina office.

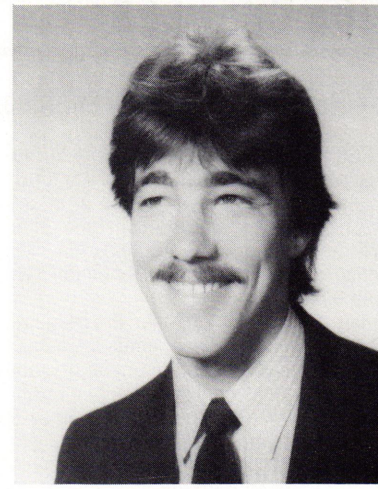
Mr. Davis holds master's degrees in both Mechanical Engineering and Business Administration and is a registered professional engineer. Mr. Davis has over 13 years of experience in engineering, business development and management. Mr. E. M. Hayward, who previously held this position as well as Project Manager, will move to full time project management. The Rockville office of Hayes, Seay, Mattern and Mattern provides architectural, engineering and planning services in the District of Columbia, Maryland, Delaware, Northern Virginia and Southeastern Pennsylvania. The U.S. Postal Service, IBM, Baltimore-Washington International Airport, and Washington Suburban Sanitary Commission are among the clients currently served by the Rockville office.

Mr. Wehrenberg holds degrees in both Mathematics and Civil Engineering and is a registered professional engineer with over nine years of experience in engineering consulting. The Greensboro office of Hayes, Seay, Mattern and Mattern provides services throughout the state of North Carolina and is presently accomplishing work for R. J. Reynolds, the North Carolina Department of Transportation, and the City of Fayetteville. This office is also the base for the Regional Manager of Business Development, Mr. Tom Stone.

Two Added to Washington Associates Staff



Douglas Harold Murrow



Russell Dean Houlden

The principals at Washington Associates, a Norfolk-based architectural firm, have announced the addition of Douglas Harold Murrow and Russell Dean Houlden to their staff. Both will hold the position of staff architect.

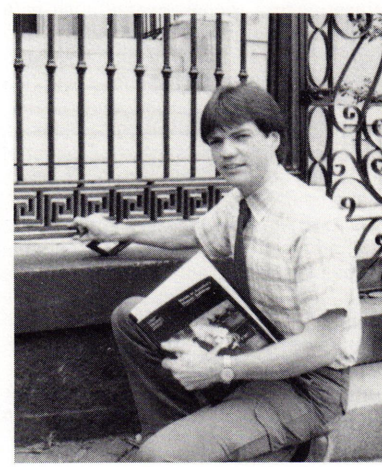
Murrow previously participated in a work/study program with Atlanta architect Wade D. Burns, in Greenwood, South Carolina. He received his Bachelor of Architecture degree from Virginia Polytechnic Institute and State University in 1982.

Houlden previously worked at Morrisette, Cederquist, Bondurant and Associates. He received his Bachelor of Architecture degree from Virginia Polytechnic Institute and State University in 1982.

Preservationist Joins DePasquale & Associates

The Richmond architectural firm of DePasquale & Associates recently added Mr. H. Christopher Slusher, an architectural preservationist, to its staff. Prior to joining this office, Mr. Slusher served professionally with the Colonial Williamsburg Foundation, the Virginia Historic Landmarks Commission, and the Kentucky Heritage Commission.

A graduate of the University of Kentucky's School of Architecture, Mr. Slusher's primary responsibilities will include design and technical development for existing structures, with particular emphasis on historic edifices. He will also expand the preservation marketing efforts of the firm, which maintains a highly diversified practice and has been involved with preservation and adaptive re-use since its inception in 1976.



H. Christopher Slusher

Mr. Slusher is currently a member of the National Trust for Historic Preservation, Association for Preservation Technology, Vernacular Architecture Forum, Historic Richmond Foundation, and the Virginia Society of the American Institute of Architects Historic Architecture Committee.

CONSTRUCTION NEWS

Ground Breaking Ceremonies Held

Ceremonial ground breaking took place on May 23 for the new headquarters building of the National Society of Professional Engineers (NSPE). Sited on the southeast corner of Peyton and King Streets in Alexandria, the six-story, 60,000 square foot building will house NSPE's staff of approximately 85.

VVKR Incorporated, an Alexandria-based firm, is providing complete architectural and engineering services for the NSPE project. The design complements the Old Town setting by the use of brick construction and through a recognition of its smaller-scale neighbors by the detailing of its primary facades.

Jim Maitland, a project architect, described the primary design challenge as one of "creating a building taller than any of its immediate neighbors in a way which is sensitive to the scale and rhythm of existing structures. Placing the bulk of the parking below grade is integral to this approach."

Although the building will occupy a rather tight site, the plans will enable an office expansion of 14,000 square feet as well as enlarged parking facilities.

The new NSPE headquarters will be energy efficient, with projected energy requirements of 48-51,000 BTUs per square foot per year, well below the national average.

Targeted for completion in late 1984, the building will be located a 5-minute walk from the King Street Metro station, a major consideration in NSPE's decision to leave its long-time tenure on K Street in northwest Washington. Approximately 50% of the open-planned office area will be rented out to other occupants.

VVKR's planning efforts included both an analysis of the association's present and anticipated long-range needs and financial assistance in the form of establishing NSPE's qualifications for an Industrial Revenue Bond. The firm also provided site selection and feasibility studies for the project. Design Collaborative, a VVKR affiliate, is contributing interior design services, including space planning and furniture specifications. The estimated construction budget is $5 million.

NSPE, a professional society with a membership of more than 80,000, will celebrate its 50th Anniversary in 1984.

Washington Associates Receives Norfolk General Job

Washington Associates, a Norfolk-based architectural firm, was awarded a contract March 7, 1983 to redesign three wings on the 8th and 9th floors of Norfolk General Hospital. The entire project encompasses 38,600 square feet, and is slated for completion this fall. The total cost of the project is approximately $700,000.

The 8th floor B-wing will be remodeled as the psychiatric unit of the hospital. This will include an 8-bed crisis center, and offer a modern, pleasant, and aesthetic atmosphere for the psychiatric patients.

The 9-A and 9-B wings will become the medical/surgical nursing unit, and the physical therapy/occupational therapy nursing unit.

Paul Finch of Washington Associates is the project architect and Bob Washington, a principal of the firm, is the partner-in-charge.

READER'S COMMENTS

Virginia Record

Sirs:

Having received your publication for only a few months, I would like to take this opportunity to say that I enjoy it very much. I especially like your feature articles and society news. Please keep up the good work.

Please find enclosed two solar projects which I offer for publication. Should there be any further information you require, you may contact me at my new partnership as indicated by the letterhead.

Sincerely,
Robert L. Yoder
ANSELL YODER ASSOCIATES

Virginia Record

Dear Editor:

. . . I want to acknowledge may indebtedness to your publication . . .

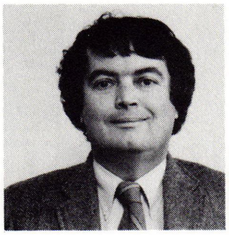
I am particularly appreciative of the high quality of your production work and your sensitivity to presenting architectural projects in a positive light. So often, the architect is not even mentioned in the publicity of a project, and your publication gives us the opportunity to get our projects in print, giving credit where credit is due. . . .

Your publication is a vital central networking focus through which many of us share ideas and ideals for professional excellence.

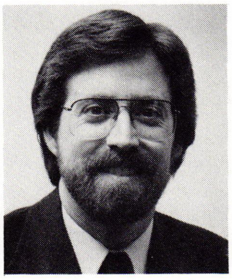
Keep up the good work, and may the *Virginia Record* go on forever.

Sincerely,
Laszlo Aranyi, AIA
President
THE DESIGN COLLABORATIVE

NEW MEMBERS

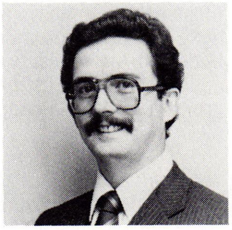


LACY W. AUSTIN, AIA
Tidewater Virginia Chapter

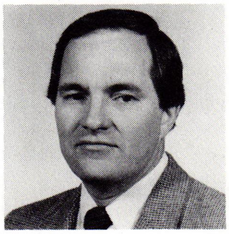


HOWARD J. COLLINS, AIA
Tidewater Virginia Chapter
With Barnes & Folck Architects, P.C.

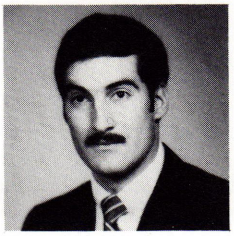
PETER BASTINELLI, Associate
Tidewater Virginia Chapter
With Forrest Coile Associates, P.C.



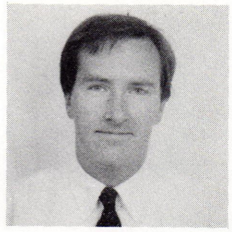
PAUL G. FINCH, AIA
Tidewater Virginia Chapter
With Washington Associates



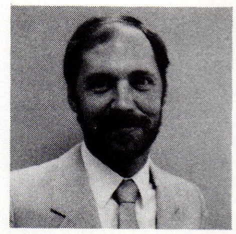
WILLIAM C. BLACK, AIA
Tidewater Virginia Chapter



DAVID B. GILES, AIA
Blue Ridge Chapter
Graduate of VPI & SU
With Fauber Garbee, Inc.



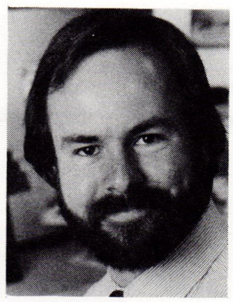
JOHN W. HASTEN, JR., AIA
Tidewater Virginia Chapter
With VVKR Incorporated



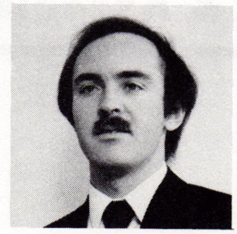
DONALD D. PRITCHARD, AIA
Blue Ridge Chapter
With Sherertz, Franklin, Crawford, Shaffner

CHARLES E. HEILIG, III, AIA
Tidewater Virginia Chapter
With Walsh-Ashe-Associates, Inc.

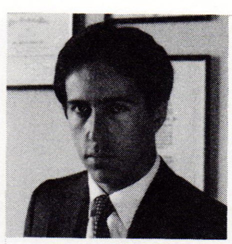
H. CHRISTOPHER SLUSHER, Associate
James River Chapter
With DePasquale & Associates



CHARLES M. HENRY, AIA
Tidewater Virginia Chapter
With The Design Collaborative

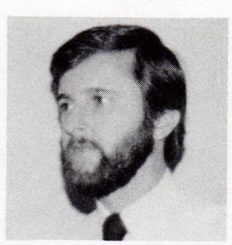


ROBERT D. STERN, AIA
Tidewater Virginia Chapter
With Morrisette Cederquist Bondurant & Associates

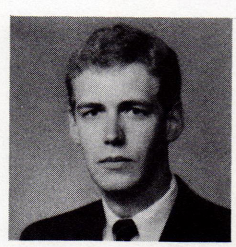


DAN W. HICKOK, JR., AIA
Blue Ridge Chapter
With Clark Nexsen Owen Barbieri & Gibson

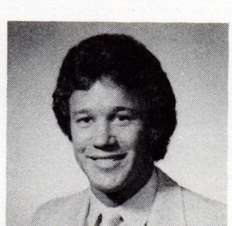
KATHERINE A. WILLIAMS, Associate
Tidewater Virginia Chapter



L. BAXTER LAWRENCE, AIA
Tidewater Virginia Chapter
With Spigel Herman Chapman, Ltd.



STEPHEN C. WRIGHT, AIA
Tidewater Virginia Chapter
With Oliver Smith & Cooke



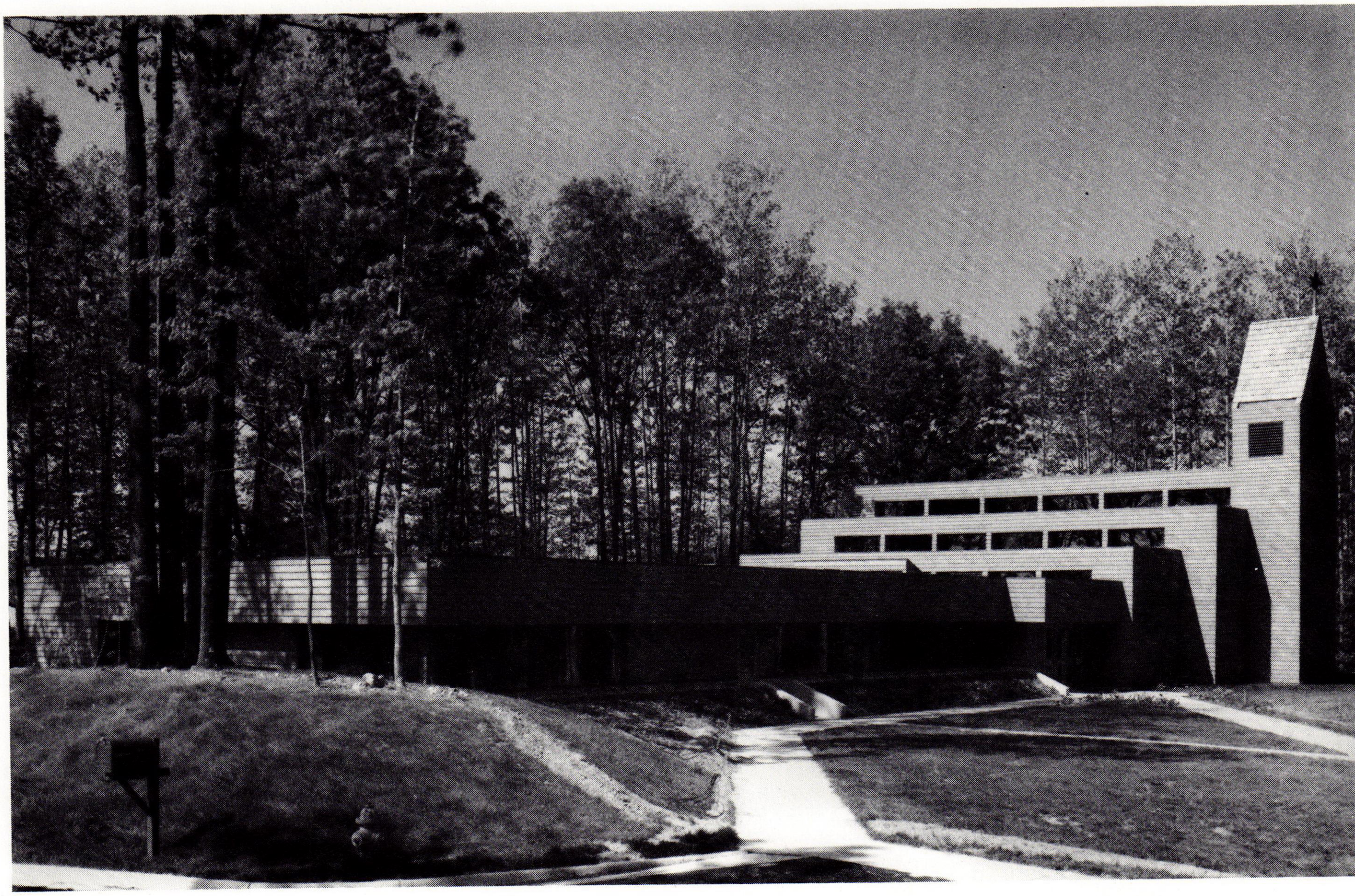
RAYMOND A. LYALL, AIA
Tidewater Virginia Chapter

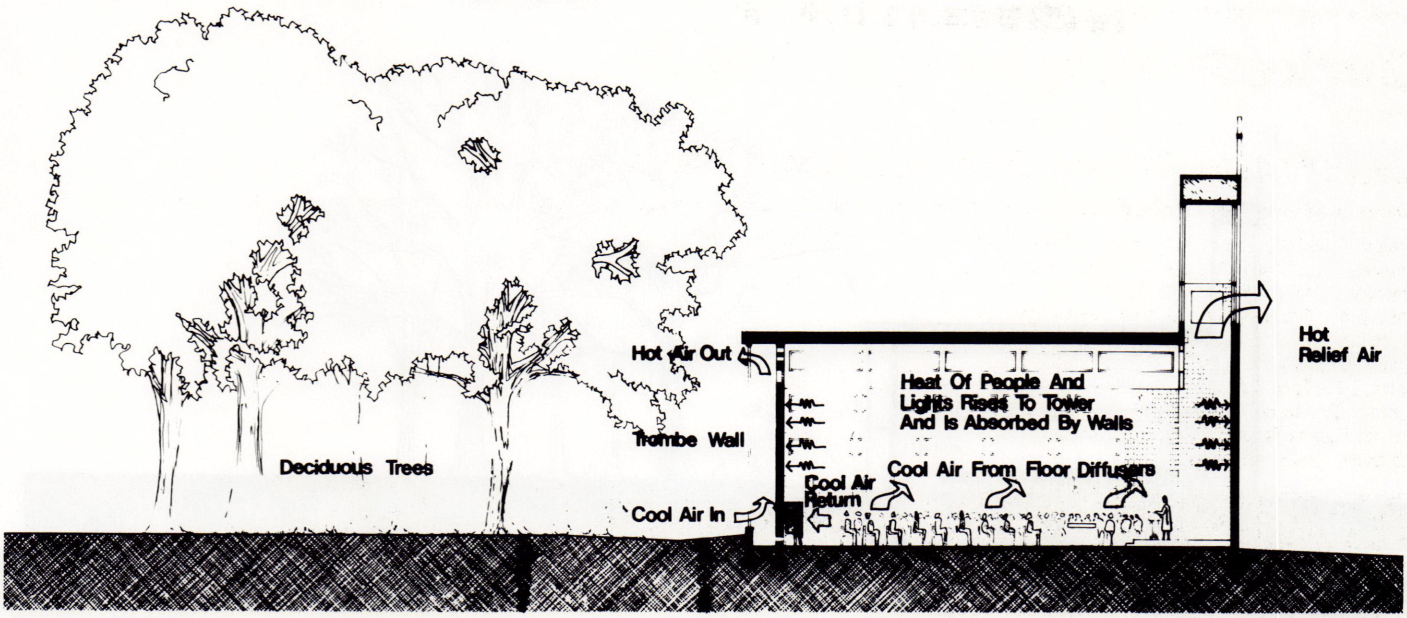
Burke Presbyterian Church

Burke

Lawrence Cook, AIA & Associates

Project Architect, Joe Taylor • Project Team, Joan Thomas, Manu Sheikhreza • Landscape Architect, Lawrence Cook, AIA • Interior Architect, Lawrence Cook, AIA • Site Engineer/Surveyor, Ross & France • Structural Engineer, Advance Engineers Ltd. • Mechanical/Electrical Engineer, McDavid Grotheer Co. • Solar, Brian Ford & Assoc. • Acoustics, Polysonics • Chancel Furniture, Thomas Fannon • General Contractor, Eugene Thomas Construction Co., Inc. • Photography, Jason Horowitz.





Summer
Occupied Period Operation

Owner's Program:
Phase 1:

An energy conscious design to accommodate 270 persons for worship in flexible seating patterns for changing liturgical seasons as well as social and educational events.

Phase 2:

Future wing to accommodate full educational and outreach programs with proper administrative support.

Site

The site is located at a major intersection of a new community. An existing cemetery and wooded hill are used to offer seclusion from street traffic. A courtyard serves as a transition space between parking and Meetinghouse. The "woodsy" setting will be preserved permanently. The elongated plan maximizes the southern exposure for the 2,000 SF Trombe wall.

Building Design

Meetinghouse is expressed by stepping of the Trombe wall on the south side and by the tower on the north side. Center bay of Meetinghouse is 26′ high to accommodate a future pipe organ. Room shape is designed for natural acoustics. Support wing is earth bermed to reduce heat transfer. All spaces are daylighted.

Passive Heating System

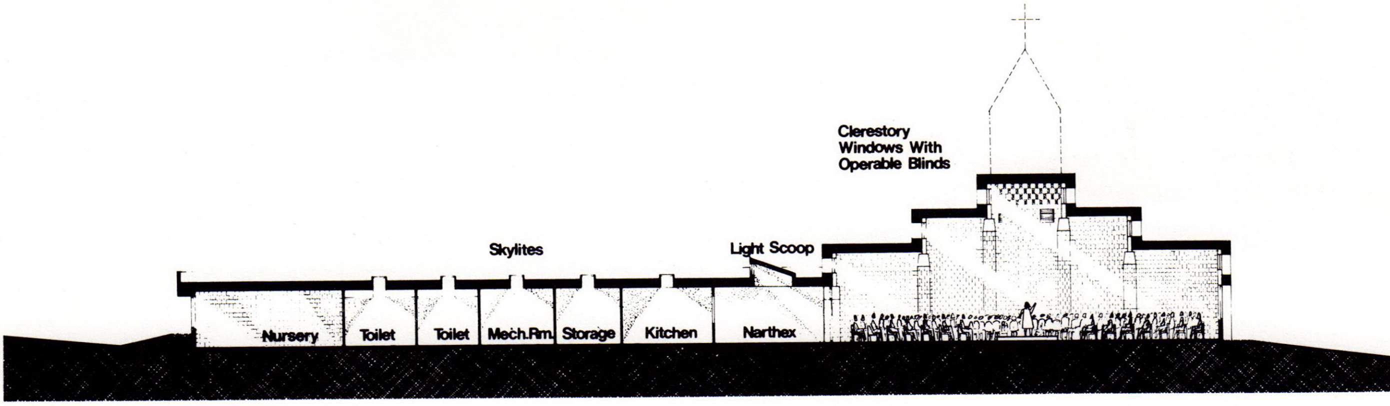
Passive Heating System is designed to provide 48% of annual heating. System consists of a solid masonry Trombe wall along entire southern exposure. The Trombe wall absorbs winter sunlight and stores heat for distribution via interconnected fans and ducts as need to heat various parts of the building. Heat is also transferred by radiation to adjoining spaces. Trombe space is used to store warm air, to provide access for cleaning, and to store yard tools.

Passive Cooling System

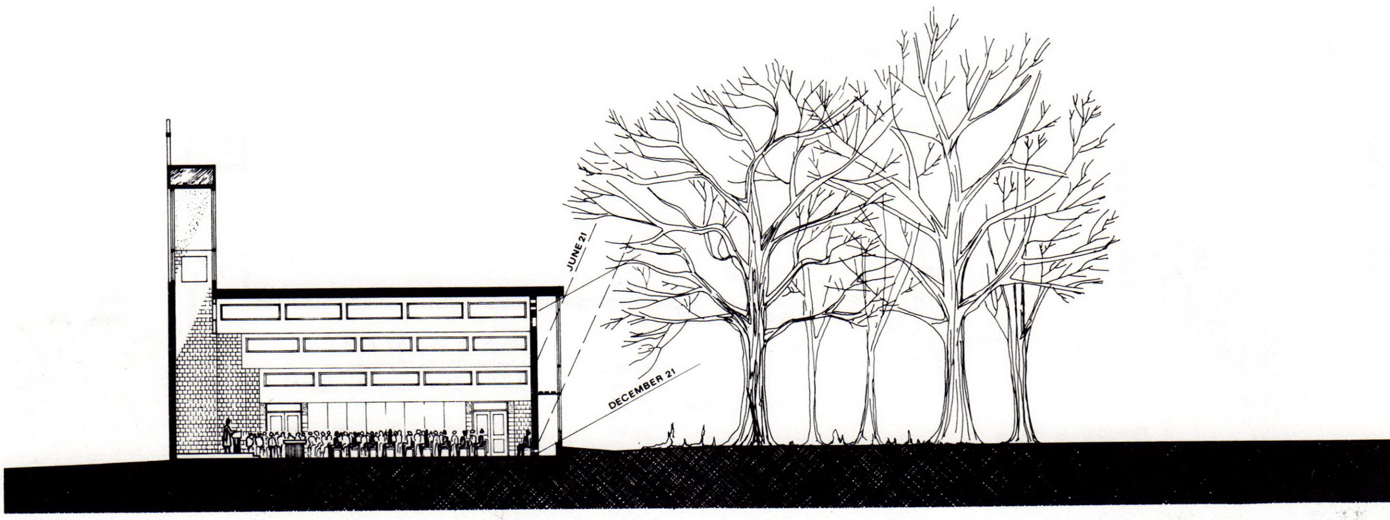
Passive Cooling System is designed to provide 60% of cooling. In summer, Trombe wall is shaded from sunlight by deciduous trees and scaffold boards within Trombe space. Outside air enters through louvers at bottom of Trombe space and exhausts through louvers at top. At night, same process is assisted by fans, thus cooling the Trombe wall which, in turn, draws heat out of the building. Gravity draft through the north tower provides constant cooling of the Meetinghouse and can be increased by large exhaust fans.

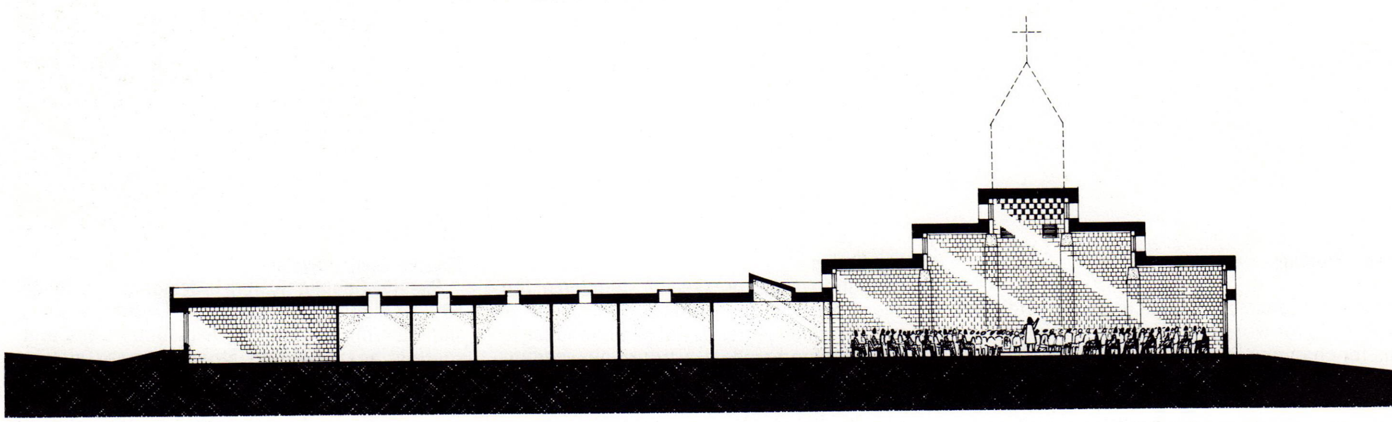
Daylighting

Every space in this building is daylighted by the sun. Clerestory windows in the Meetinghouse provide both daylighting and direct solar gain. Custom blinds are silver on one side to reflect summer sunlight but are black on the



Daylighting





other side to absorb winter sunlight. All interior rooms have operable windows for daylight and ventilation, and skylights or clerestory windows.

Materials

The materials were selected for energy performance. The structural shell of the entire building is exposed concrete block on the interior, wrapped with a 1½" layer of rigid insulation, and clad with stained cedar ship lap siding on the exterior. Laminated wood trusses with exposed steel connectors frame the clerestory windows. Trombe wall is clad with custom-made fiberglas panels by Kalwall for 78% solar radiation gain with an R = 2.2 for heat retention.

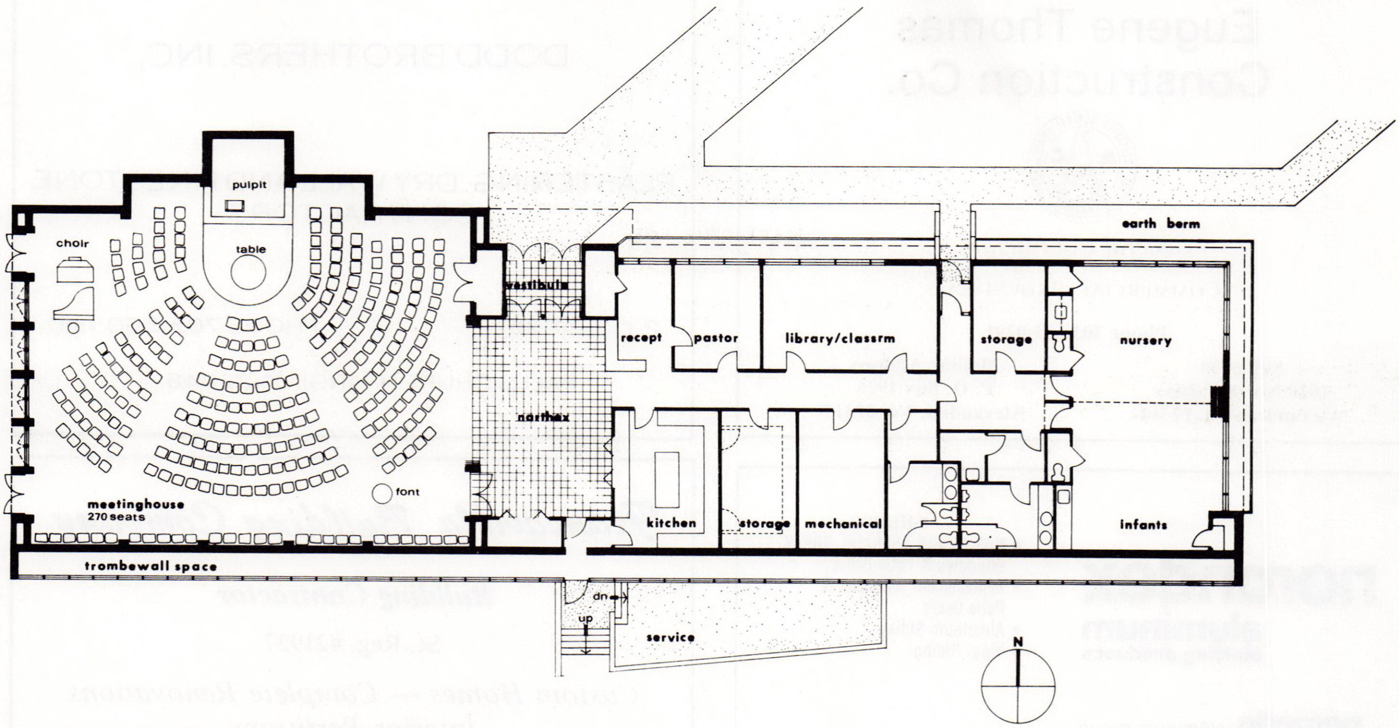
Construction Credits:

Eugene Thomas Construction Co., Inc. of Alexandria was general contractor for the project and handled foundations, concrete work and carpentry.

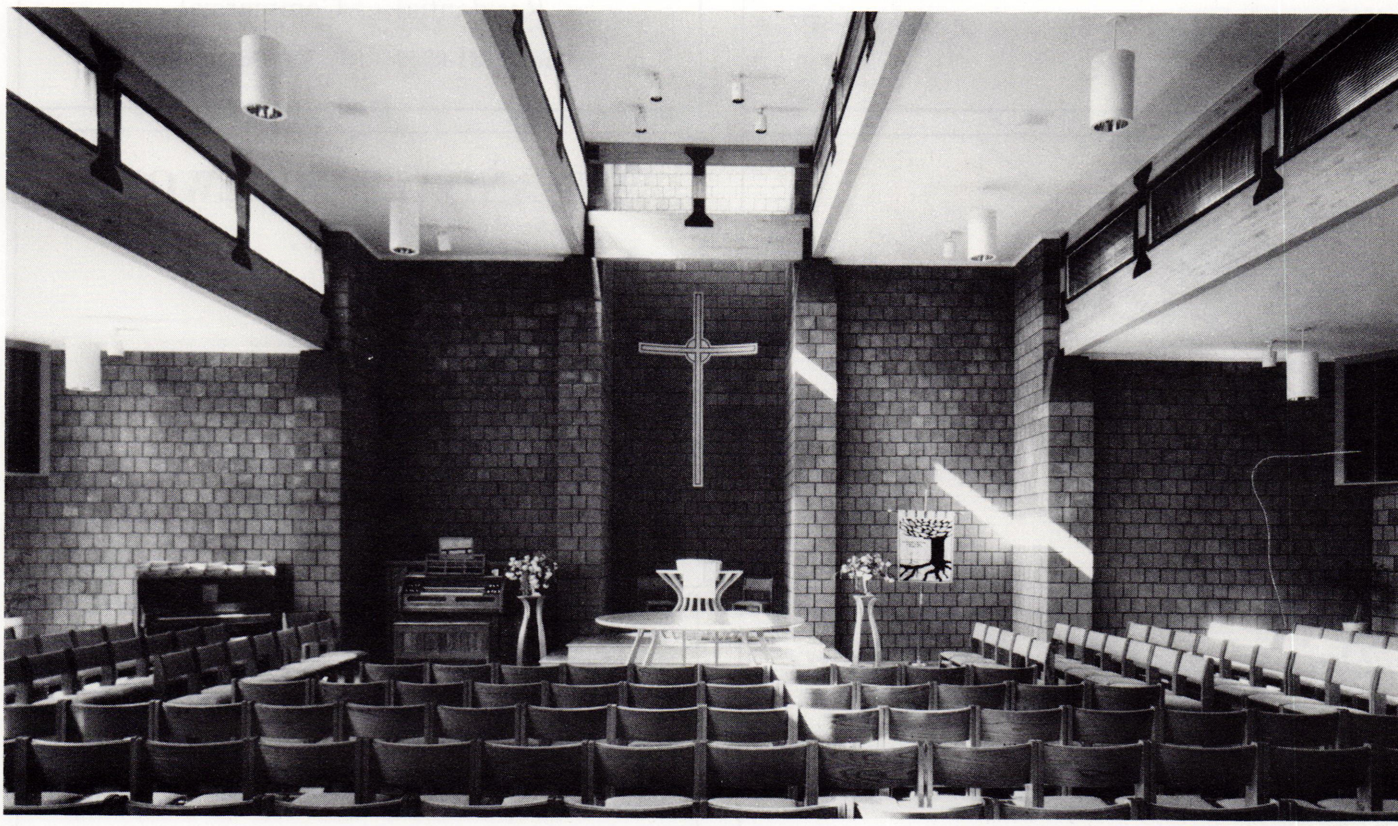
Subcontractors & Suppliers

Other Alexandria firms were: Fairfax Lumber & Millwork Co., Inc., millwork & wood doors; Higham Co., Inc., caulking, painting contractor & wall covering; Alpha Construction Corp., gypsum board contractor; McClary Tile, Inc., ceramic tile; and Fergeson Enterprises, Inc., plumbing fixture supplier.

From Springfield were: Virginia Concrete Co., Inc., concrete supplier; Hengen Construction, Div. General Industries, Inc., masonry contrac-



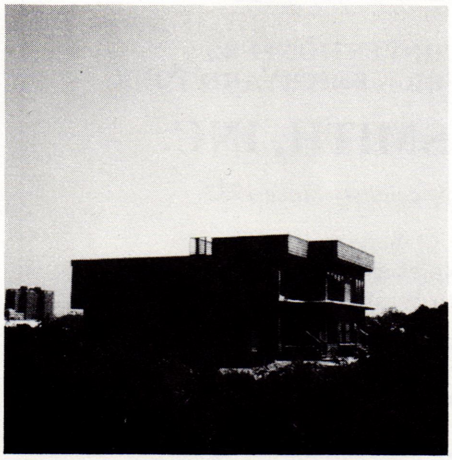
FLOOR PLAN



tor; and Air Comfort Contractors, Inc., heating/ventilating/air conditioning contractor.

Others were: Dunkirk Custom Builders, Inc., Vienna, excavating; Noah Turner, sodding, seeding, etc.; Superior Paving Corp., Fairfax, paving contractor; Trowbridge Steel Co., Inc., Sterling, reinforcing; Hallmark Iron Works, Inc., Newington, steel supplier & handrails; R. D. Bean, Inc., Beltsville, MD, built-up roof, other roofing & sheet metal; and AC&R Insulation Co., Inc., Beltsville, MD, roof insulation & wall insulation.

And, Greenwald, Tuxedo, MD, foundation insulation; Structural Systems, Gaithersburg, MD, structural wood; Miller Building Supply Co., Inc., Bailey's Crossroads, cabinets; Rosenthal Glass, glass & glazing contractor; AAA Thermal Windows & Doors, Inc., Merrifield, metal doors & frames; James A. Cassidy Co., Inc., Fairfax, windows; Kalwall Corp., Manchester, NH, window wall; W. T. Weaver, Washington, DC, hardware supplier; Dodd Brothers, Inc., Falls Church, plaster contractor; Carpeteria, Fairfax, resilient tile & carpet; Interstate Electric Supply Co., Inc., Fairfax, lighting fixtures/electrical equipment supplier; and Weller Electric Co., Great Falls, electrical contractor.



Holly Bend Solar Condominiums

Virginia Beach

Robert L. Yoder, AIA — Architect

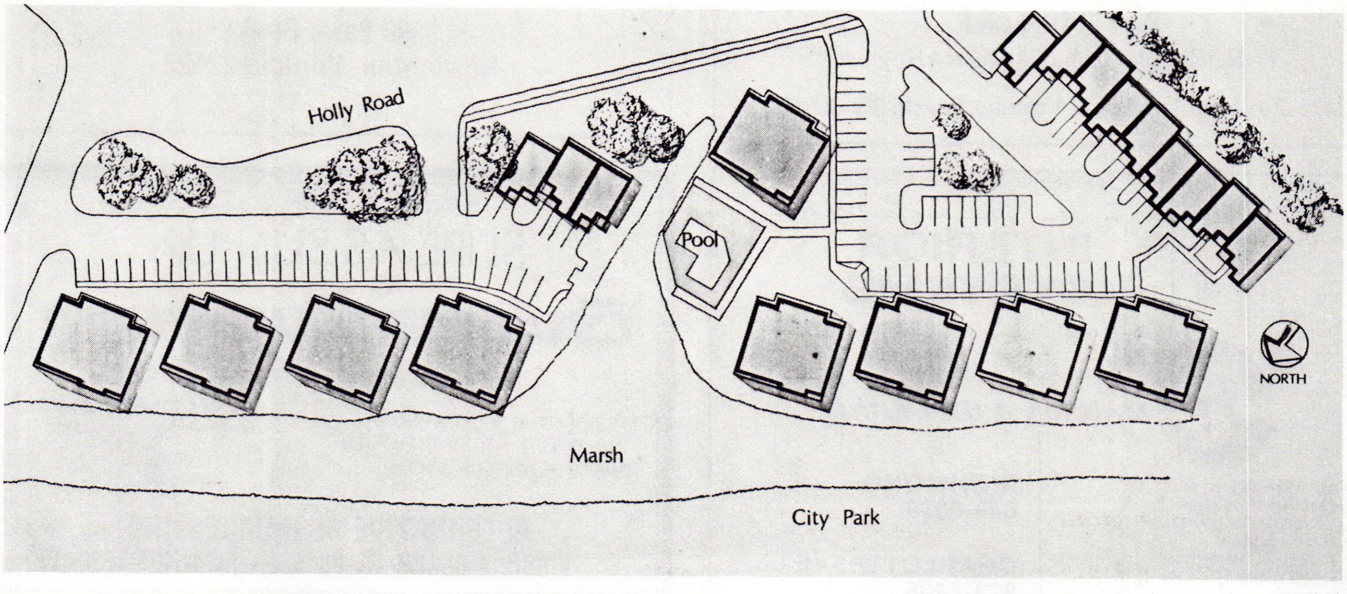
Project Architect/Designer, Robert L. Yoder, AIA • Site Engineer/Surveyor, Miller, Fox, Stephensen, P.C. • Structural Engineer, Abiouness Cross and Bradshaw, Inc. • Solar Engineer, Roger N. Whiteway • General Contractor, Crosby Construction Co. • Photography, Charles Ansell, AIA.

This 48-unit condominium project is being built on a sliver of "land" which was avoided by developers due to its history; marsh land used as a landfill. It is bordered by similar land to the north, marsh to the east and west and residential areas across the street to the south.

The developer saw a need to make a commitment to solar design early on in the project. Small sunspaces and Trombe walls became the dominant features, used for their obvious energy contributions and as a buffer for the living areas from the street and parking areas. Bedrooms to the rear of the units overlook a growing city park to the north. The solar aspects promise to contribute up to 60% of the heating requirements for the various units which range from 1380 to 1530 square feet each. Townhouse units, also featuring Trombe walls offer 1600 square feet each in addition to garages. All units offer decks or roof decks for outdoor living.

Phase One was completed March 1, 1983.

Crosby Construction Co. of Virginia Beach

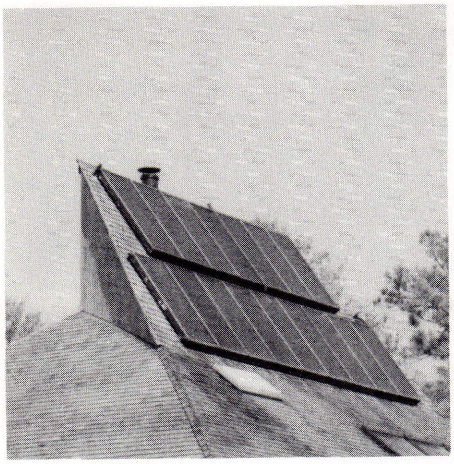


was general contractor and handled carpentry, handrails, caulking, glass, glazing and window wall.

Subcontractors & Suppliers
(Virginia Beach firms unless noted)

Virginia Builders, Inc., excavating; Lynnhaven Marine Construction, piling; Smithfield Gardens, Inc., Suffolk, landscaping materials & landscaping contractor; Contractors Paving Co., Inc., paving contractor; Century Concrete Services, Inc., foundations & concrete contractor; Hall-Hodges Co., Inc., Norfolk, reinforcing; Lone Star Industries, Inc., Norfolk, concrete supplier & mortar; Venable Masonry, masonry contractor; Batchelder & Collins, Inc., Norfolk, masonry supplier; C. F. Lambert Co., steel supplier/erection; Brock Roofing Co., built-up roof (Rapid Roof); Waymar, Inc., other roofing; and E. Carr Smith & Sons, Inc., Norfolk, roof insulation and wall insulation.

Addington-Beaman Lumber Co., Inc., Norfolk, structural wood; Premier Millwork & Lumber Co., Inc., millwork; Greenwich Supply Corp., Norfolk, cabinets; Seaboard Paint & Supply Co., Inc., wood doors & hardware supplier; Norandex Aluminum Building Products, Norfolk, windows; John Koelenbeek, gypsum board contractor; Wall-to-Wall Decorating Center, resilient tile & carpet; Don Hildebrand, painting contractor; Schell Supply Corp., plumbing fixture supplier; D & L Plumbing, plumbing contractor; Styron HVAC, heating/ventilating/air conditioning contractor; Commercial Lighting, Inc., lighting fixtures/electrical equipment supplier; Davenport Electrical, electrical contractor; Trus Joist Corp., Midlothian, truss joist; and Sound Structures, Inc., Midlothian, Gyp-Crete.



McAdam Residence

York County

Roger S. Guernsey, AIA — Architect

Owners, Dr. and Mrs. R. Bernard McAdam • Landscape Architect, Frederick L. Belden, ASLA • Active Solar Design & Installation, Atlantic Solar Center, Inc. • Solar Heating Consultant, Solar American • Mechanical Engineer, John W. Allred • General Contractor, Don Shields Builder, Inc. • Photography, Dan Greene.

Sited on a small wooded peninsula jutting eastward into a tidal creek off the Chesapeake Bay, near Yorktown, this house orients to the east for water views and to the south to receive sunlight for the passive and active solar heating systems incorporated into its design. (See Solar and Energy Conservation description).

The passive solar approach produced a very livable greenhouse space openable to the living room. Two stories in height, balcony above, this plant filled space will allow comfortable living in all but the hottest and coldest weather. A hot tub is sunken in the dark solar absorbing tile flooring for further enjoying the warmth of the space.

Planning of the house into two pavilions connected by a bridge through a two-story space reflects the owner's requirements for a separation of children's bedroom suite and the general living areas. A panoramic view of the scenic waterway is afforded to nearly all the living areas, including bedrooms which open onto decks oriented to the view. The master bedroom overlooks, via sliding glass doors and balcony, the solarium/greenhouse below.

The exterior forms of the house reflect the traditional ocean-front wood shingled (Hatteras-style) houses prevalent along the mid-eastern seaboard. A conventional hip roof form rises into a solar collection wedge shape to receive the sun's rays at an optimum angle. The size of the house is tempered by smaller scale "domestic" arcades and careful detailing of cedar trim and siding.

Solar and Energy Conservation Approach

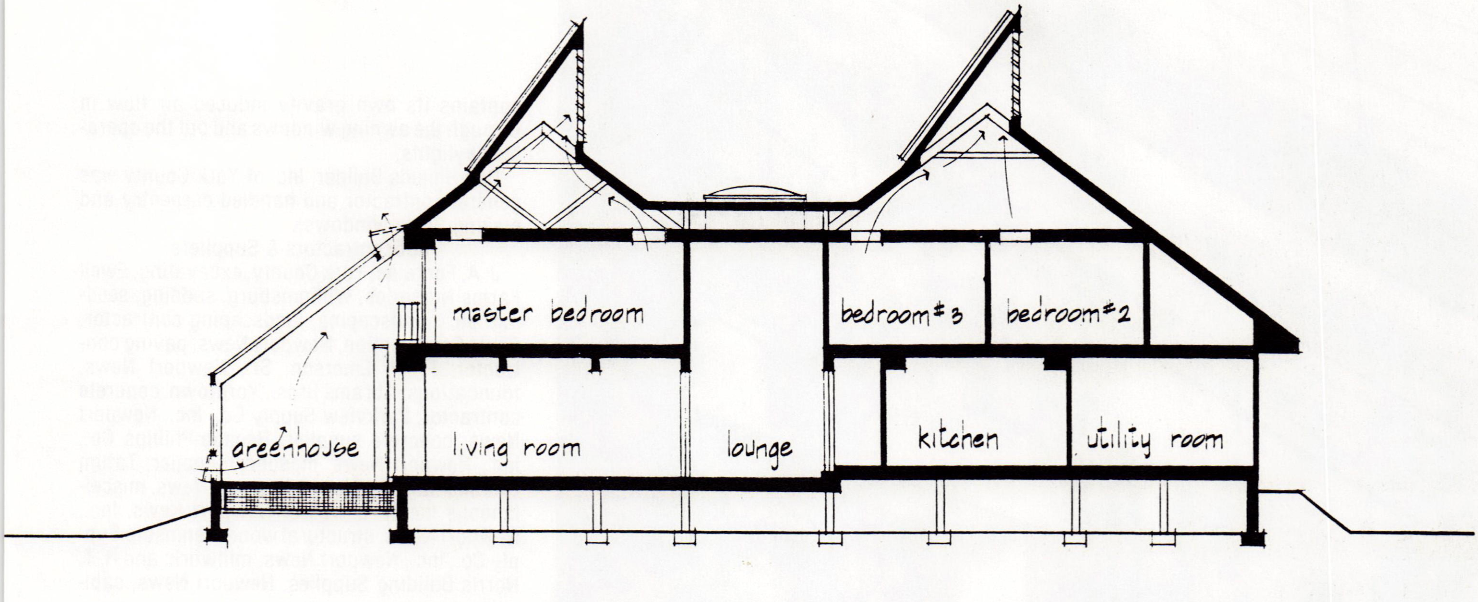
Energy conservation measures employed include the following: R38 ceilings, R19 walls, extensive sealing against air infiltration, provisions for tight fitting window coverings ("window quilts"), insulating glass, and a minimum of north facing windows.

The solar heating system of the house is two-faced, passive and active, with each system expected to contribute approximately one-third of the space heating capacity required.

The passive system employs the greenhouse/solarium concept. Glazing is a 2¾" thick hollow sandwich of fiberglass sheets ("Kalwall Sunlite" panels) plus operable skylights and conventional fixed and awning windows (for summer ventilation). Heat storage is by the mass of the insulated 7" concrete floor slab and by 18" diameter water filled cylinders receiving direct sunlight. Heat is first distributed to the living room and master bedroom through sliding glass doors and then to more distant portions of the house via a simple duct and low power fan system.

The active heating system employs 26 roof mounted collectors and supplies space heat and domestic hot water. Heat storage is by a 1500 gallon custom made fiberglass and urethane insulated storage tank. Heat exchangers within the tank interconnect the back-up heat pumps, a water circulating grate in the fireplace insert, domestic hot water system, the hot tub, and a future swimming pool. The entire system is monitored by an elaborate electronic controls and sensors system.

Whole house summer ventilation is aided by heat induced air flow out through the huge, louvered vents on the back side of the solar roof "wedges," in turn pulling warm air up through ceiling openings to the attic. The greenhouse



BUILDING SECTION 'A-A'

contains its own gravity induced air flow in through the awning windows and out the operable skylights.

Don Shields Builder, Inc. of York County was general contractor and handled carpentry and glazing (Pella windows).

Subcontractors & Suppliers

J. A. Fontaine, York County, excavating; Ewell Farms Nurseries, Williamsburg, sodding, seeding, etc., landscaping, landscaping contractor; Basic Construction, Newport News, paving contractor; F. W. Emerson, Sr., Newport News, foundations; Abrams Bros., Yorktown, concrete contractor; Parkview Supply Co., Inc., Newport News, concrete supplier; Benson-Phillips Co., Inc., Newport News, masonry supplier; Tatum Ornamental Iron Works, Newport News, miscellaneous metal; Lowes of Newport News, Inc., Newport News, structural wood; Peninsula Supply Co., Inc., Newport News, millwork; and R. T. Norris Building Supplies, Newport News, cabinets.

Also, Cedar Roofs of Virginia, Inc., Richmond, cedar shingles & EDPM; Davenport Insulation, Inc., Newport News, all insulation; Goodman Hardware Co., Hampton, glass; Acorn, metal doors & frames; Drywall Associates, Inc., Hampton, gypsum board contractor; Brunk Tile & Interiors, Newport News, ceramic tile; Town & Country, House of Carpet, Gloucester, carpet; Creech Paint Co., Newport News, painting contractor; Peebles Supply Corp., Newport News, "Jacuzzi" hot tub & plumbing fixtures/lighting fixtures supplier; Noland Co., Newport News, plumbing fixture/lighting fixture supplier; Turkovich Plumbing Co., York County, plumbing contractor; Brunk Mechanical Corp., Newport News, heating/ventilating/air conditioning contractor; and Peninsula Electric Co., Hampton, electrical contractor.

Greenhouse roof glazing: Kalwall Sunlite Panels; and active solar heating system/water system—initial installation: Atlantic Solar, Va. Beach; completed by Solar One, Va. Beach.

Aldrich Residence

Charlottesville

Michael Bednar, AIA & Alan Scouten — Associated Architects

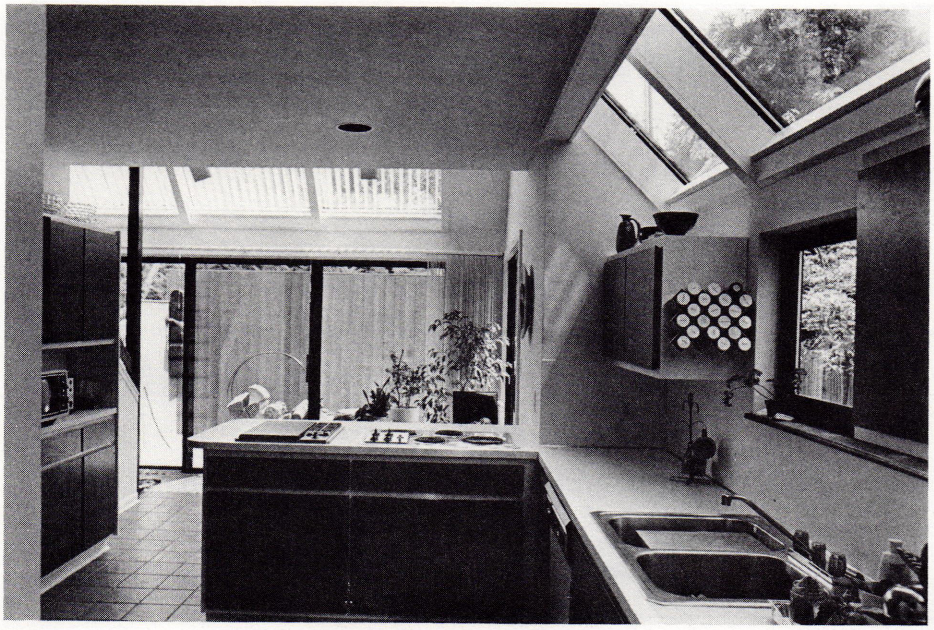
Structural Engineer, Dunbar Milby & Williams • Mechanical Engineer, Simmons & Associates • General Contractor, Gercke Construction Co., Inc. • Photography, Michael Bednar, AIA & Alan Scouten.

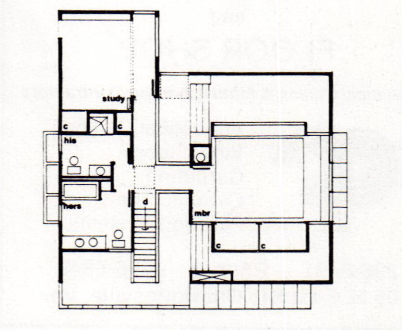
Cottage Lane in Charlottesville, is so named for its pair of 19th century cottages across the lane from a very large Victorian mansion. The narrow site was between these cottages and a Tech-built house from the last decade. It sloped to the north with views of the Blue Ridge Mountains through the trees. A 90-foot-tall tulip poplar tree in the middle of the site along with flowering dogwoods along the street had to be preserved.

The client, a couple with grown children, requested ample spaces for entertaining, including abundant deck areas. She wanted an upstairs study with visual and voice communication to the living room which he would use as a study space. The guest bedroom was to be for visiting children and grandchildren. There was a future need for an office for use in out-patient psychiatric counselling.

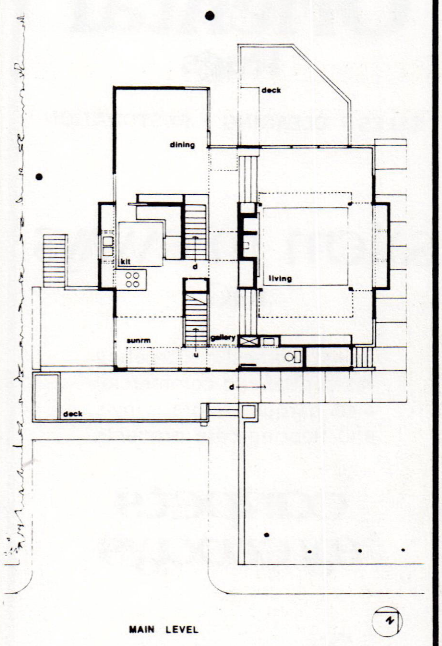
The scheme resolves the complex contextual influences while addressing the specific programmatic needs. The house front is aligned with the Tech-built house to the west and reiterates its one-story facade on the street. The lower floor is set into the grade with access around the back for guests and patients. The master bedroom is suspended over the living room under the steep roof, which does not appear to be inhabited, from the street. The tulip poplar tree establishes an entry axis and gallery organizing horizontal and vertical circulation. The standing seam, terne metal roof respects an old Virginia residential tradition.

The house presents a restrained exterior to the neighborhood while exploding in spatial complexity on the interior. The free interpenetration of spaces is enhanced by visual transparencies throughout the house. A minor axis crosses the major gallery axis creating a bridge on the second floor and locating the hearth. The structural scheme of exterior stud walls with interior

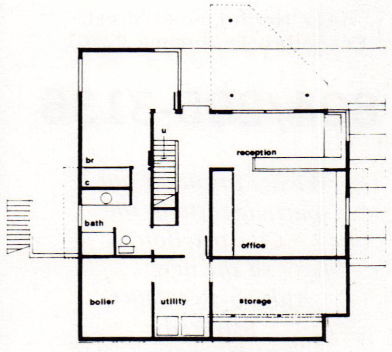




UPPER LEVEL



MAIN LEVEL



LOWER LEVEL

post and beam framing, facilitates this interior spatial erosion. The post and beam framing is left exposed.

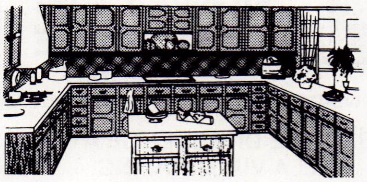
The house has been designed to optimize energy efficiency. Its basic volume is a cube 36 feet on each side to minimize the surface to volume ratio. The lower floor is set into the grade to minimize heat loss and heat gain. A passive solar greenhouse is located on the south corner. Openings to the southwest are minimal whereas openings to the north were made large to maximize the view while sacrificing heat loss. The house is very well insulated and has a double heat pump system; one in the attic for cooling and one on the lower floor for heating. A Heatilator captures heat from the fireplace. All glazing is thermal break aluminum sash with insulating glass. The roof slope is set at 45° to accommodate future solar collectors.

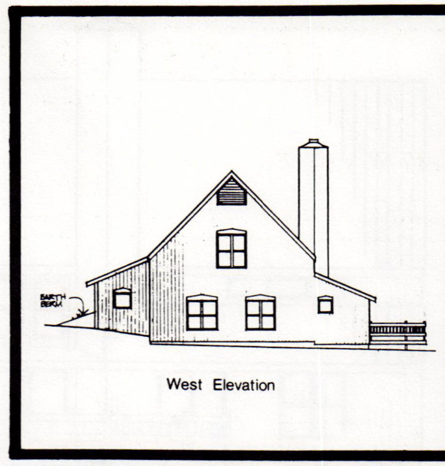
Building Cost: 3500 sq. ft. @$36.00 = $126,000

Gercke Construction Co., Inc. of Charlottesville was general contractor and handled foundations, concrete work, reinforcing, masonry work, roof/wall/foundation insulation, handrails, carpentry, structural wood, waterproofing, caulking, gypsum board, painting, plumbing and electrical work.

Subcontractors & Suppliers
(Charlottesville firms unless noted)

Allied Concrete Co., concrete supplier, masonry manufacturer/supplier & mortar; W. A. Lynch Roofing Co., Inc., roofing; Phillips Building Supply, Inc., millwork, wood doors & paint supplier (Cabot & DuPont paints); Beaver's Cabinet Shop, Waynesboro, cabinets; Virginia Glass Co., Inc., glass, glazing contractor & windows; Martin Hardware Co., hardware supplier; Floor Fashions of Virginia, Inc., resilient tile; Salem Eways, Inc., carpet; Maddux Supply Co., plumbing fixture supplier; W. E. Brown Plumbing & Heating, Inc., heating/ventilating/air conditioning contractor; and Piedmont Lighting Center, lighting fixtures/electrical equipment supplier.





West Elevation

Private Residence

Goochland County

DePasquale & Associates — Architects

Project Architect/Designer, James J. DePasquale, AIA • Structural Engineer, St. Clair, Callaway & Frye • General Contractor, Mako Builders, Inc.

Owner's Program

To create an energy-efficient house incorporating the advantages of a south-sloping site. Primary consideration had to be given to the informal life style of this young couple emphasizing outdoor living activities that were envisioned along the eastern and southern portions of the site. Audibility of a nearby waterfall, and view to the wooded portion of the site, were also significant considerations.

Interior spaces were to maintain an open flow, with the living and service areas considered as one zone, and the master bedroom, library, and other bedroom areas considered as a second zone. Direct access to the kitchen, as a country kitchen, was an owner requirement.

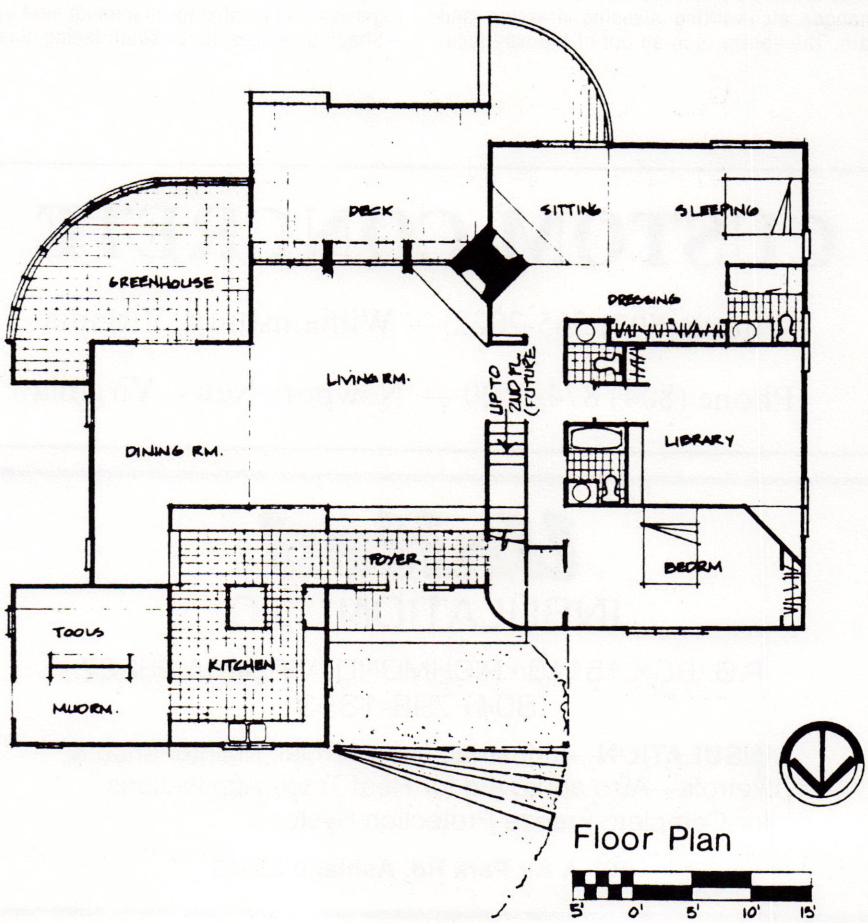
Context

Goochland County, a rural land area of Virginia, with an abundance of Barn forms. The 90-acre site includes a meadow along the northern half, and a wooded area, with a waterfall, along the southern half. Two predominant Cedar trees exist at the interface of the two portions of the site.

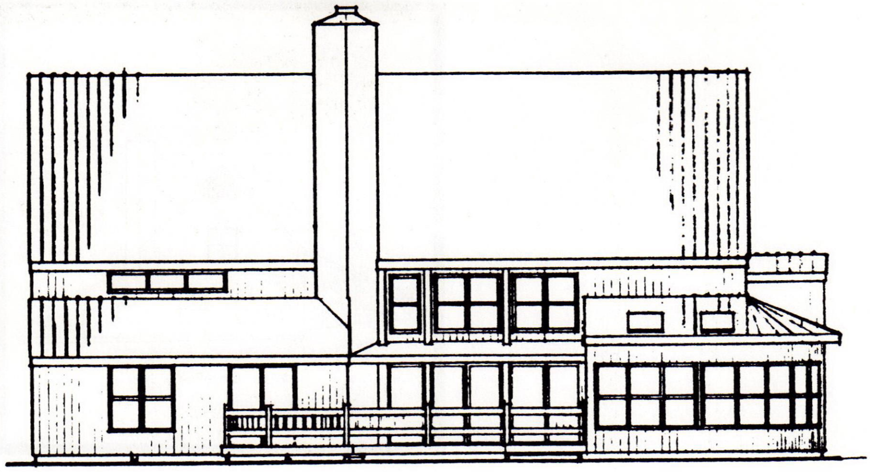
Design Solution

The house strongly reflects the rural Barn forms of its context. Board and batten cedar siding, with a tin roof and wood eyebrows at window heads, further express the rural character of this house. It is intended to quietly fit within the Goochland area and, more immediately, integrate softly into the south sloping hillside.

All living and major service spaces maintain an open flow from one area to the next, and yet a staggered overlap of these areas allows for par-



Floor Plan



South Elevation

tially independent definition of each space. Changes in floor levels, contouring with the site, also articulate spacial definition.

One enters the house through a series of spaces that become increasingly enclosed from the full outdoors to, eventually, a foyer. From there, one can immediately enter the country kitchen, or proceed into the living area. This space opens to the dining room, which flows into the greenhouse. A service block relating to yard activities along the east side of the house is directly adjacent to the kitchen, creating a back-door entrance.

The sleeping area/library zone of the house includes a master bedroom with four separate areas created by modulating walls, floor level changes, etc.—sitting, sleeping, dressing, and bath. The library is in an out-of-the-way location, further emphasizing its more passive function, and a guest bedroom comprises the remainder of this zone.

Energy Conservation Features

—Earth berm design along north face of house.
—Minimal glass area on north.
—Spaces which demand minimal heat gain on north.
—Thermal chambers (closets, bathrooms, utility spaces, cabinets, etc.) along north and west perimeter to buffer northwest winds.
—2x6 wall framing, with 6" insulation and foil-faced insulated sheathing.
—Heavy insulation package for floors and ceilings.
—Solar orientation to south, with predominant glass areas located for maximum heat gain.
—Shading devices above south facing glass to create protection from sun in Summer, and allow for entry of sun in Winter.
—Active areas of house located along south.
—Greenhouse, with tile floor for heat storage, along south.
—Wood-stove as backup heat source.
—Flow-thru ventilation with high exit of air for natural cooling in summer.

Construction Credits

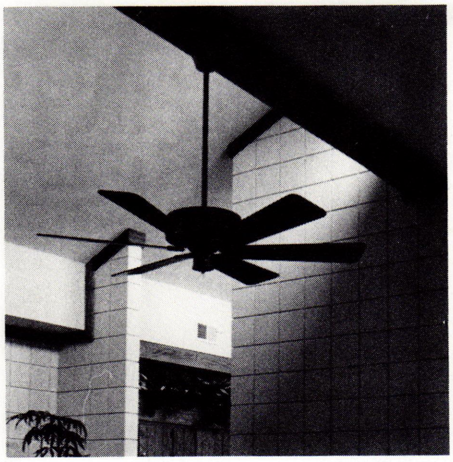
Mako Builders, Inc. of Richmond was general contractor for the project and handled foundations, concrete work, carpentry and waterproofing.

The owners handled landscaping.

Subcontractors & Suppliers
(Richmond firms unless noted)

Arvil W. Faw, Glen Allen, excavating; West End Fabricators, Inc., Goochland, reinforcing; Lone Star Cement Co., Inc., concrete supplier; Richard A. Coates Masonry, Ashland, masonry contractor & stonework contractor; Southern Brick & Supply Co., Inc., masonry supplier; Brixment, mortar; Luck Stone Center, Manakin, stonework supplier; R. R. Waters Roofing Co., Glen Allen, roofing; and Southern Insulators, Inc., wall insulation and foundation insulation.

Also, Ruffin & Payne, Inc., millwork, paneling & wood doors; Bernhardt & Taylor Custom Cabinets, Inc., cabinets; Pella of Virginia, windows; Pleasants Hardware, hardware supplier; J. N. Wolfe Drywall, Bumpass, gypsum board contractor; Bragg & Francis Tile & Marble, Inc., ceramic tile; Linwood Trimyer, painting contractor; Southern Decorators, paint supplier (Duron Paint); Richmond Plumbing & Heating Supplies, Inc., plumbing fixture supplier; Phil Satterwhite Plumbing & Heating, Inc., plumbing contractor; Locklear's Heating & A/C, ventilating contractor; Atlantic Electrical Supply Corp., lighting fixtures supplier; Dixie Electric Supply Corp., electrical equipment supplier; and Seay Electric Co., electrical contractor.



Passive Solar Home

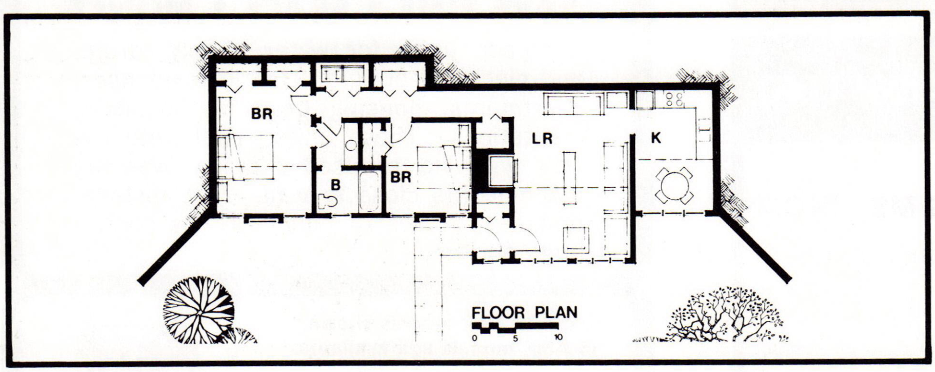
Roanoke County

Byron R. Dickson — Architect

General Contractor, Strauss Construction Co. • Photography, Richard Thomas.

Located in southwest Roanoke County, this passive solar dwelling was conceived as a prototype for low cost energy efficient housing. Developed by RR Incorporated, an affiliate of Solite Corporation, the residence utilizes Solarblock concrete masonry units and aggregates in the concrete floors to maximize the balance between effective solar mass and insulating properties.

The basic solar strategy consists of direct gain and two Trombe walls. The residence is bermed to eave height on three elevations for the maximum of cost effective earth sheltering. Roof overhangs provide summer shading of the solar apertures. A natural convective ventilation system through operable clerestory windows is supplemented by power ventilation. Primary auxiliary backup heating is by a wood burning stove fireplace insert. Secondary auxiliary backup heating and summer cooling is by electric heat pump. The heat pump return air system is connected to the heat plenum over the stove insert. This allows the heated air from the stove to be distributed through the duct system by the heat pump fan. Domestic hot water is heated by a gas fired instantaneous hot water heater which prevents energy loss through storage of hot water.



The total solar load is 16,070 BTU/hr. Building load coefficient (BLC) is 5.6 BTU/DDSF. Load collector ratio (LCR) is 25.7 with 75% of the glazing in direct gain and 25% in Trombe wall. Total glazing is 22% of the floor area.

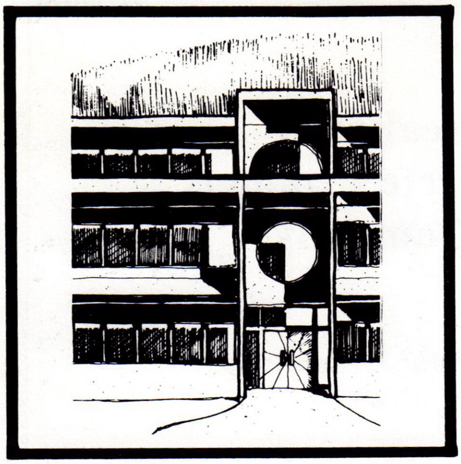
The residence comprises 1054 square feet of living area including two bedrooms, great room, dining area and kitchen with breakfast nook. The house was sold for $55,000 before being advertised for sale. The project has received national publicity and three other prototypes are either being constructed or in the design phase.

Interior and exterior walls are almost entirely of concrete masonry units. The exterior finish consists of a cementitious coating applied to 2" of rigid insulation which is adhered to the CMU. The roof structure is framed in wood, covered with asphalt roof shingles and is insulated by fiberglass batts. All window units are double glazed and are fitted with night insulation.

Strauss Construction Co. of Roanoke was general contractor for the project.

Subcontractors & Suppliers
(Roanoke firms unless noted)

Yagel Nursery, landscaping contractor; Overfelt Concrete Finishes, Rocky Mount, concrete contractor; Thompson Masonry Contractor, Salem, masonry; Bowman Cabinets, Ferrum, cabinets; James E. Lyles Co., gypsum board contractor; Virginia Floor & Wall Coverings, Inc., carpet; Bowles Plumbing & Heating, Inc., plumbing fixture supplier; Hubbard Sheet Metal Works, heating contractor; and G & W Electrical Contractors, Inc., electrical equipment supplier.



Lynnhaven North Professional Building

Virginia Beach

The Design Collaborative — Architect

Project Architect/Designer, Laszlo Aranyi, AIA • Site Engineer/Surveyor, Engineering Services • Structural Engineer, Stroud-Pence & Associates, P.C. • Construction Manager, CM Associates, Inc.

This building will be headquarters for The Design Collaborative, an architectural firm whose members have won many national and state awards for solar design.

Special features will include a landscaped atrium admitting daylight into the center of the building. Clerestory windows bring light and heat from the sunny south side of the building into the suites on the north. Heating and cooling are assisted by building orientation, insulation, and architectural features that permit heat gain in winter and exclude the sun in summer. Light sensor controls automatically dim the lights or brighten the rooms as needed. Double-glazing and reflective window ledges assist light and temperature control.

Out of 11,000 square feet available as leasable space, The Design Collaborative has reserved 3,000 square feet on the second floor for their new offices. Ralph J. Doudera, President of Financial Technology Associates, reserved 2,000 square feet on the second floor, which leaves 5,000 square feet of leasable space on the ground floor to be tailored to the needs of interested clients.

Through the use of computerized projections, it has been determined that this building will save 50% on energy costs compared to conventional buildings. VEPCO has been invited to monitor the energy consumption of the building as a matter of consumer interest. The size of the building is representative of many similar buildings in Virginia. Data gathered by VEPCO could be instrumental in confirming the success of the building design, in identifying potential improvements, and in convincing others to build similar energy-saving buildings.

Studies have shown that productivity level goes up when workers are in rooms lighted with natural daylight and heated through natural solar means. People living and working in such environments are happier and healthier.

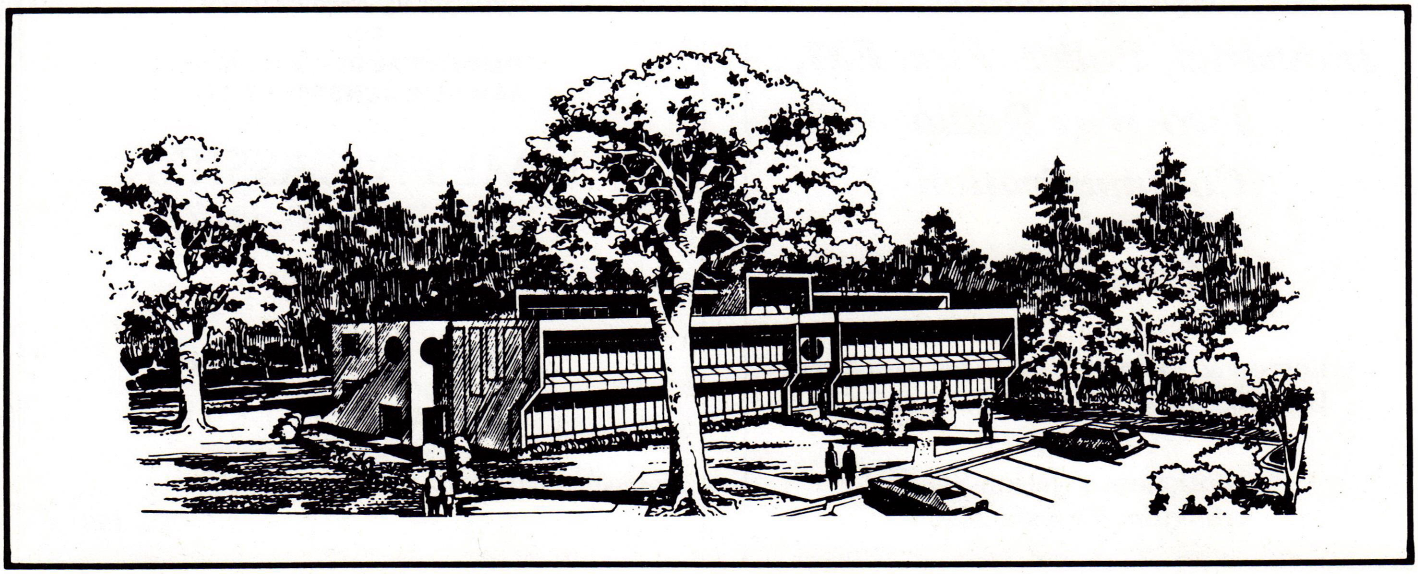
Located in an area of Virginia Beach that is predicted to grow as much as 25% in the next three years, the site is 12 minutes from the Oceanfront, 2 minutes from the Expressway Exit, 5 minutes from two major shopping centers and 15 minutes from the Municipal Center.

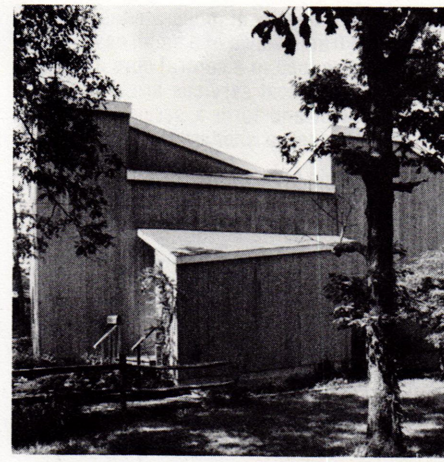
Flexible design means that suites can be individually tailored to suit the comfort of each lessee and a space planner will be provided by the owners.

CM Associates, Inc. of Virginia Beach acted as construction manager for the project.

Subcontractors & Suppliers
(Virginia Beach firms unless noted)

W. L. Birsch, Inc., Chesapeake, excavating & paving contractor; W & M Masonry Contractors, Inc., Norfolk, foundations & masonry contractor; Gunter Brothers Concrete Co., Inc., concrete contractor; Sadler Materials Corp., concrete supplier; Suffolk Concrete Products, Suffolk, masonry supplier; Trus-Joist Corp., Valdosta, GA, wood joists; Kempsville Building Materials, Inc., roof deck & structural wood; B. G. Martin Construction, Inc., carpentry; Tony Annarino, Jr., Inc., plumbing contractor; AirCon, Ltd., plumbing/ventilating/air conditioning contractor; and L. E. Ballance Electrical Service, Chesapeake, electrical contractor.





Residence for David Barnes

Lake Rudee, Virginia Beach

Richard L. Grimstead, AIA — Architect

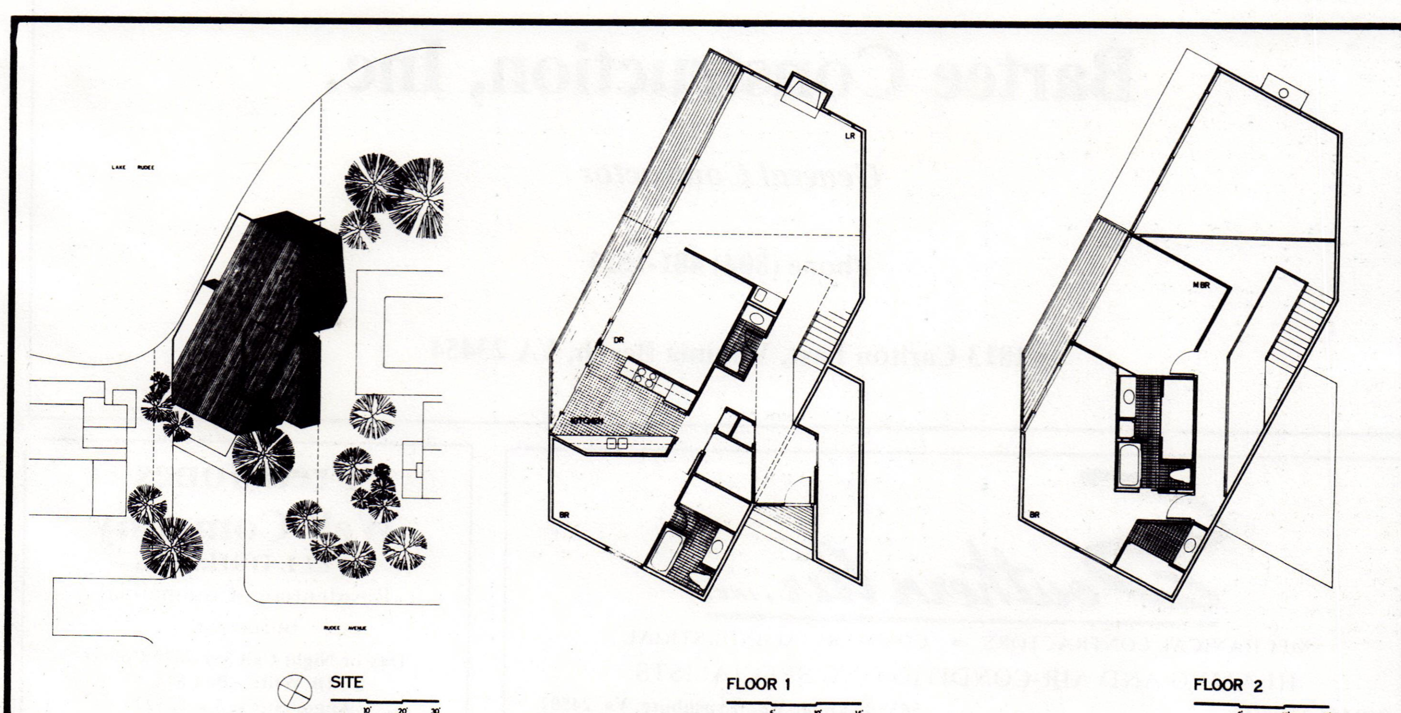
General Contractor, Bartee Construction, Inc. • Photography, Julian Sawyer.

Program

A three-bedroom single family residence for speculative re-sale within a budget of $60,000.00 for construction. The site is narrow (45 feet), irregularly shaped, bordered by two adjacent residences on the north and southeast and by Lake Rudee on the south and west.

Solution

The design is generated by the geometric interaction of the east-west axis of the site and the eroded southwest lake front. The 1828 square foot house is sited with its entrance and sky-lighted double-story circulation space on an east-west axis. All the living spaces are along an insulated double glazed south wall paralleling the lakefront, which links the living spaces to a waterfront deck, provides panoramic views and allows maximum solar gain. Sliding glass doors in the south wall provide cross ventilation through to the circulation corridor. The punched



openings in the west wall moderate late afternoon sun and frame views of a small cove. Wet services are grouped in a central core on both levels and mechanical services are along the blank north wall and form a service/storage wing which creates a sheltered entrance and provides privacy.

The loft overlooking the double-story living area is angled relative to the water to provide maximum views and to define the entrance to the living area. The street side walls are perpendicular to the water's edge beyond and preserve existing trees. Construction is 2x6 wood framing clad with 1x4 T&G cedar lightly stained. Unstable soil conditions required a salt treated wood pile foundation. A two-zone heat pump provides heating and air conditioning.

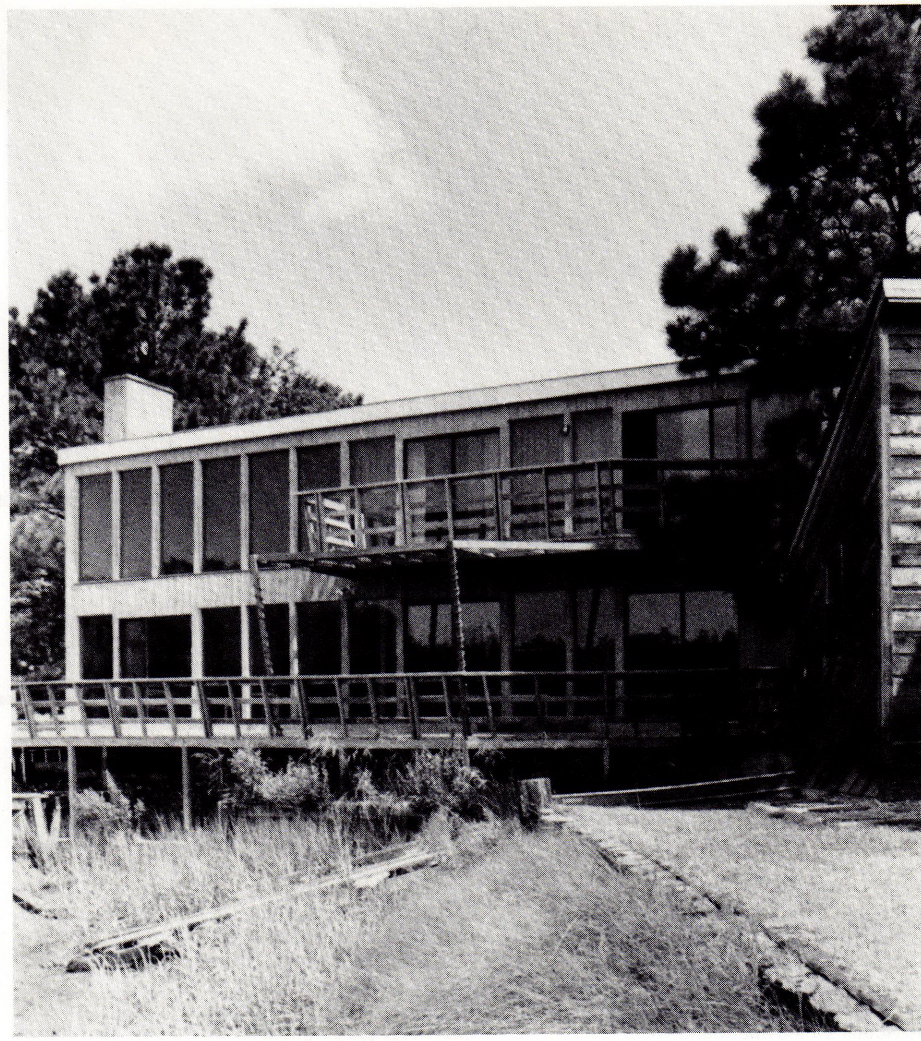
Construction Credits

Bartee Construction, Inc. of Virginia Beach was general contractor for the project and handled sodding, seeding, etc., paving, carpentry, waterproofing, caulking, roofing, roof and wall insulation, gypsum board work, ceramic tile and painting.

The owner handled landscaping.

Subcontractors & Suppliers
(Virginia Beach firms unless noted)

Welch Pile Driving Corp., piling; The Great Big Greenhouse, landscaping materials; Kempsville Building Materials, Inc., structural wood; Premier Millwork & Lumber Co., Inc., millwork; Kitchen Towne, Norfolk, cabinets; Binswanger Glass Co., glass; Bass & Co., wood doors; Reynolds Metals Co., Richmond, windows; Seaboard Supply Co., hardware supplier; Armstrong Tile Co., Norfolk, resilient tile; Hudgins Carpets, carpet; Sherwin-Williams Paint Co., paint supplier/manufacturer; Princess Anne Plumbing & Electrical Suppliers, Inc., plumbing fixture supplier & plumbing contractor; Brooks Electric Co., Chesapeake, heating/air conditioning/electrical contractor; and Atlantic Electric Corp., Norfolk, lighting fixtures supplier.



Residence for Richard Maddox

Lake Rudee, Virginia Beach

Richard L. Grimstead, AIA — Architect

General Contractor, Creative Structures Contractors • Photography, Julian Sawyer.

Program

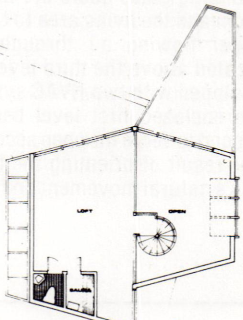
A two bedroom single family residence within a budget of $80,000.00 for construction. The site (90 feet of street frontage with 125 feet of depth) is deceiving since the majority of the site consists of marsh leaving less than one-third of the site as permissible building area. Residences border the site to the east and west with Lake Rudee to the south.

Solution

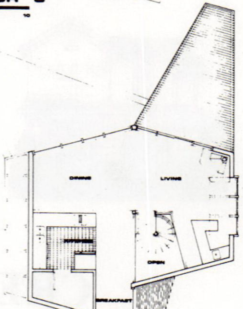
The design evolved by the combination of site limitations and a desire to achieve maximum passive solar efficiency. Although the site restricted the location of the structure it also provided many positive attributes. The outstanding feature is the south orientation of the property that provides a view of the tidal wetlands of Lake Rudee and permits a maximum use of glass for passive solar utilization.

The house is a three-story wood framed structure on salt treated wood piling with a half basement. Six-inch wood stud exterior walls were used to achieve an insulation value of R-19. Solar grey insulated glass windows are used throughout the house with maximum glass exposure at the south wall and additional openings on the west wall. The east and north walls are windowless to provide protection from the severe cold and driving rain coming from the northeast off the Atlantic Ocean during the autumn and winter months. The movement of the sun from the south in the winter to the north in the summer enables the use of glass in the south walls to produce natural heat during the winter while rendering the glass in the shade during the summer.

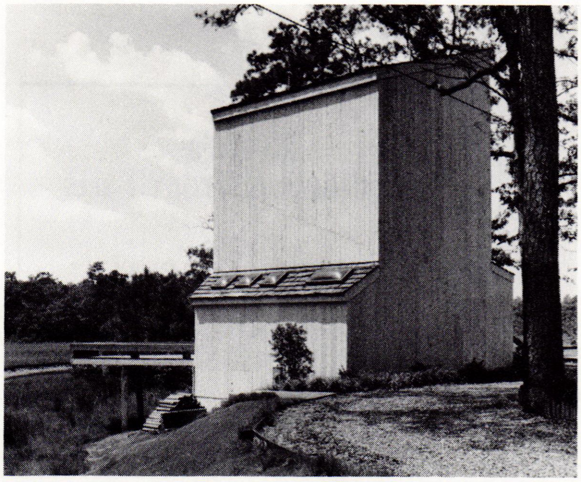
Due to the limitations of building area on the site and a desire to save as many trees as possible the per floor area of each level was restricted to 600 square feet resulting in a total of 2000 square feet. The master bedroom with bath and the second bedroom with bath are located on the first level along with the entry foyer. The kitchen, dining and living areas are on the open second level. The third level is a loft that serves as a study and TV room. The three

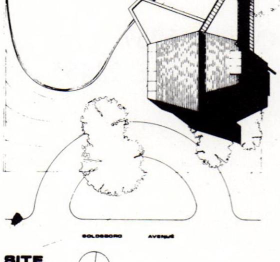


FLOOR 3

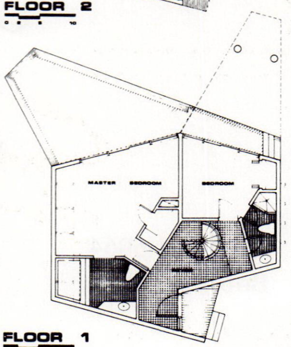


FLOOR 2

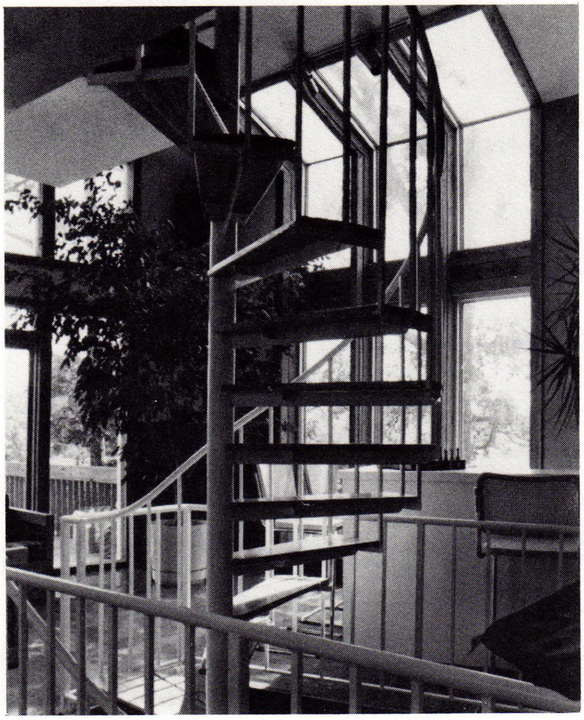




SITE



FLOOR 1



levels are accessible by a continuous spiral stair extending from the first level to the third level.

Sliding glass doors are located in each bedroom and the living area to create ventilation of upper flowing air through hopper windows located above the third level loft. The house is equipped with two HVAC systems; one to serve the enclosed first level bedroom area and a second to serve the open second and third levels. The result of orienting the house to utilize the sun's natural movement and the increase in wall insulation has reduced the electrical cost and operation of HVAC equipment by 50%.

This house, completed in January 1982, and the Barnes residence two blocks to the south have illustrated that the study and utilization of the sun's movement and understanding the local seasonal climatic conditions can produce efficient and interesting architecture. The architects have gained valuable knowledge about siting and passive solar energy from the two residences presented and hope to further expand their knowledge to produce even more efficient use of nature's available services by monitoring these houses during the next several years.

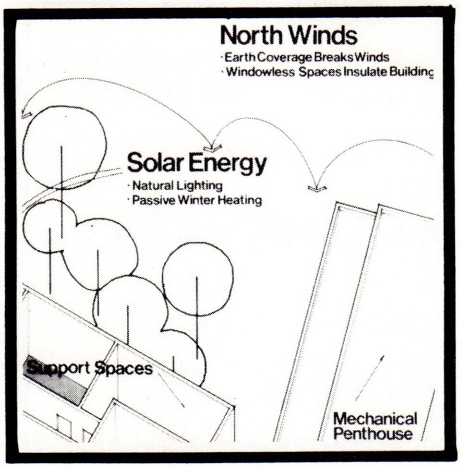
Construction Credits

Creative Structures Contractors of Virginia Beach was general contractor for the project and handled sodding, seeding, etc., paving, handrails, carpentry, waterproofing, caulking, roofing, roof and wall insulation, gypsum board work, painting and plumbing.

The owner handled landscaping.

Subcontractors & Suppliers
(Virginia Beach firms unless noted)

Welch Pile Driving Corp., piling; Kempsville Building Materials, Inc., structural wood, millwork & wood doors; Kitchen Towne, Norfolk, cabinets; C. E. Morgan, Portsmouth, Andersen windows; Seaboard Supply Co., hardware supplier; Lundy & Sons Construction, Norfolk, ceramic tile; Hudgins Carpets, carpet; Glidden Paint & Wallcovering Stores, paint supplier/manufacturer; Schell Supply Corp., plumbing fixture supplier; Brooks Electric Co., Chesapeake, heating/air conditioning/electrical contractor; and Hillegass Lighting Corp., Chesapeake, lighting fixtures supplier.

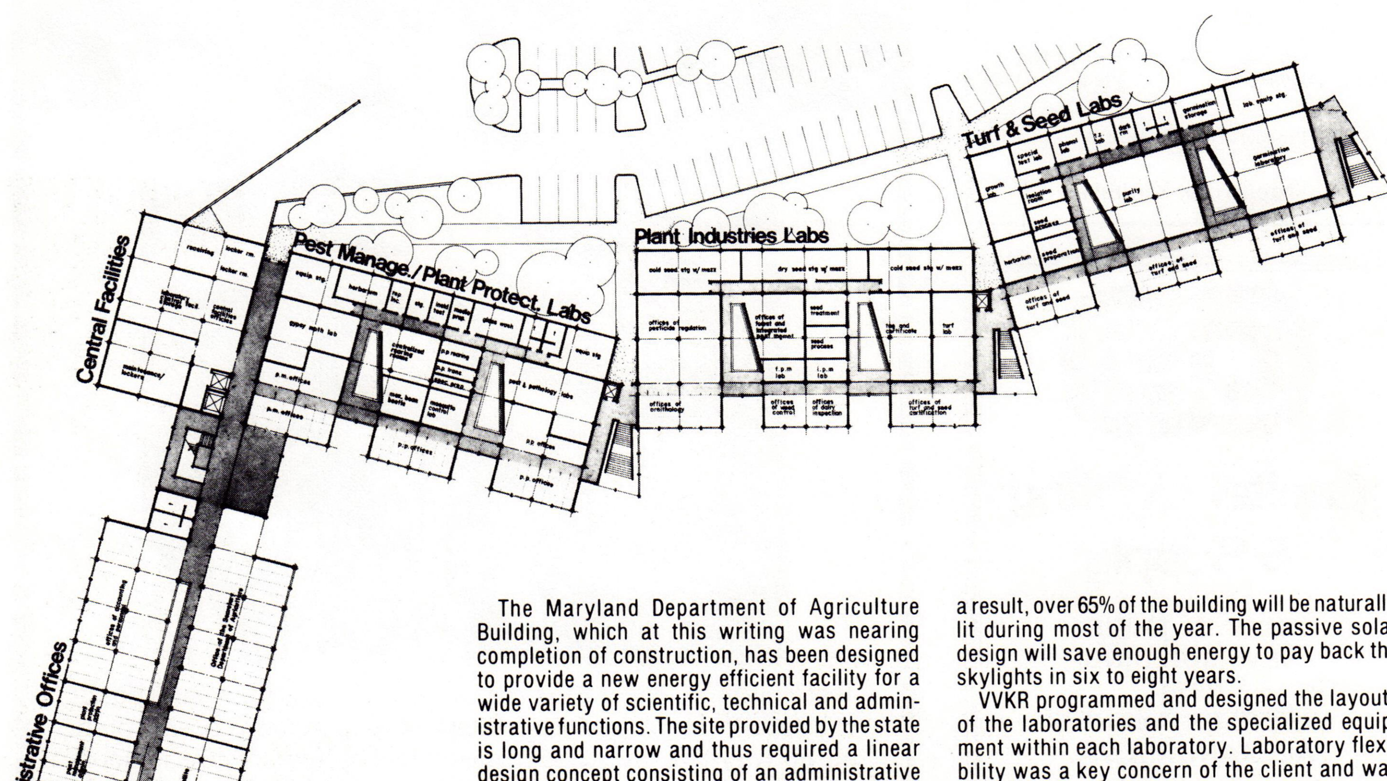


Maryland Department of Agriculture

Headquarters Building, Annapolis, Maryland

VVKR Incorporated — Architect

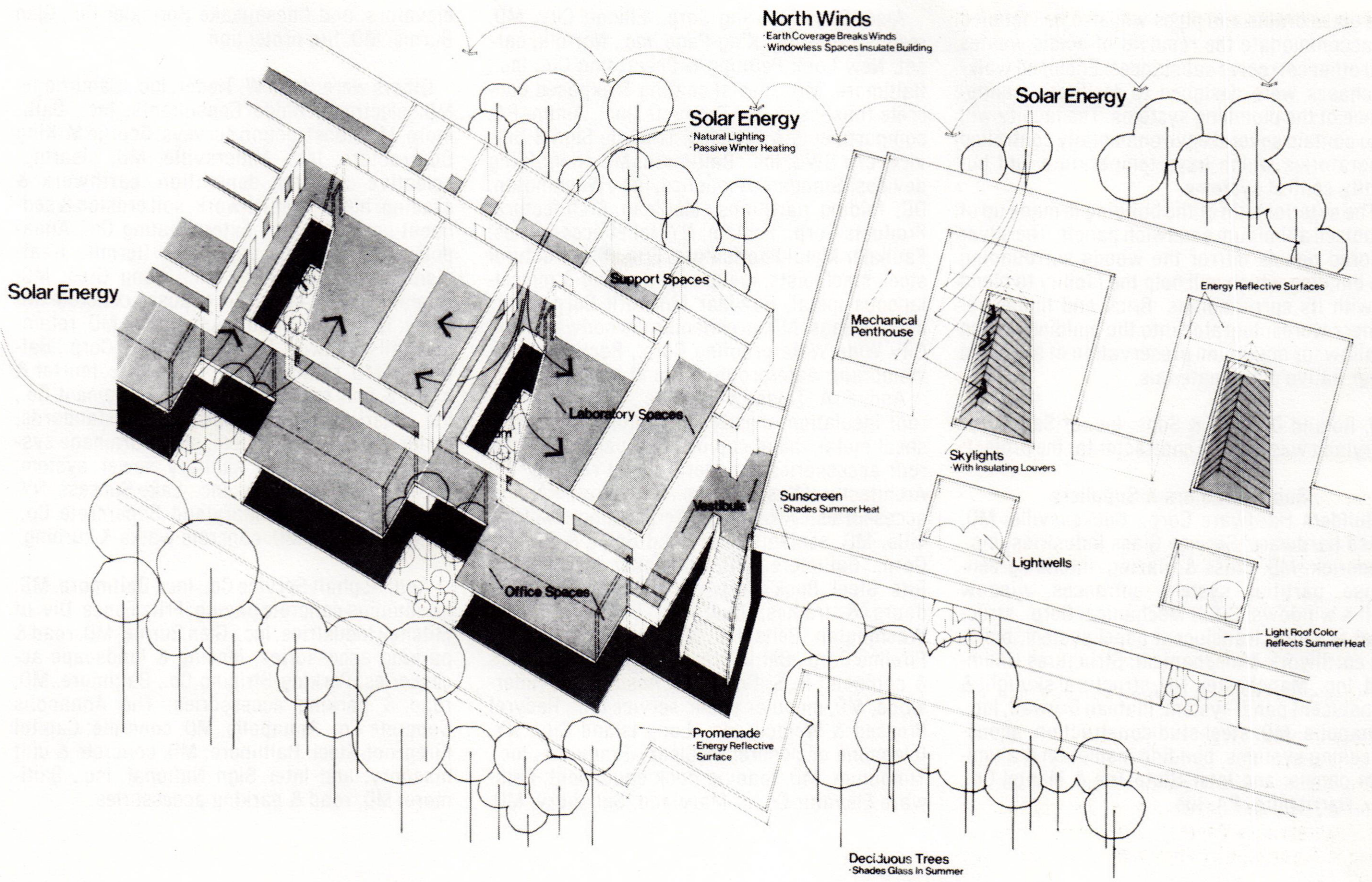
Project Architect/Designer, Landscape Architect, Interior Designer, Cost Consultant, Site Engineer/Surveyor, Structural/Mechanical/Electrical Engineer, VVKR Incorporated • Geotechnical Engineer, Schnabel Engineering • General Contractor, J. Roland Dashiell & Sons, Inc. • Photography, VVKR Incorporated.



The Maryland Department of Agriculture Building, which at this writing was nearing completion of construction, has been designed to provide a new energy efficient facility for a wide variety of scientific, technical and administrative functions. The site provided by the state is long and narrow and thus required a linear design concept consisting of an administrative wing and three laboratory wings with the capability to construct a fourth laboratory wing.

Large skylights are planned above a landscaped atrium to emit solar energy and provide natural lighting and passive winter heating to both administrative and laboratory areas. The skylights were designed through the use of computer simulated daylighting techniques. As a result, over 65% of the building will be naturally lit during most of the year. The passive solar design will save enough energy to pay back the skylights in six to eight years.

VVKR programmed and designed the layouts of the laboratories and the specialized equipment within each laboratory. Laboratory flexibility was a key concern of the client and was accommodated with a modular laboratory system in each wing. Discrete staff/visitor circulation patterns are maintained in each wing. Laboratory space will be provided for a broad range of departmental functions. Several of the laboratories will have special acidic and stainproof finishes on the walls, floors, ceilings, and equipment. Specialized plumbing systems which


North Winds
·Earth Coverage Breaks Winds
·Windowless Spaces Insulate Building
Solar Energy
·Natural Lighting
·Passive Winter Heating
Solar Energy
Solar Energy
Support Spaces
Mechanical Penthouse
Energy Reflective Surfaces
Laboratory Spaces
Skylights
·With Insulating Louvers
Vestibule
Sunscreen
·Shades Summer Heat
Lightwells
Office Spaces
Light Roof Color
Reflects Summer Heat
Promenade
·Energy Reflective Surface
Deciduous Trees
·Shades Glass In Summer

use glass drains and pipes will also be installed to accommodate the removal of acidic wastes and other corrosive substances. Enclosed walk-in chases were designed to facilitate maintenance of the plumbing systems. The facility will also contain several environmentally controlled laboratories which have temperature and humidity control systems.

The exterior skin of the building is made up of anodized aluminum sandwich panels. The silver colored panels mirror the woods surrounding the building which will help the facility to blend in with its surroundings. Brick and timber retainers were integrated into the building design to allow for maximum preservation of trees and other native plant materials.

J. Roland Dashiell & Sons, Inc. of Salisbury, Maryland was general contractor for the project.

Subcontractors & Suppliers

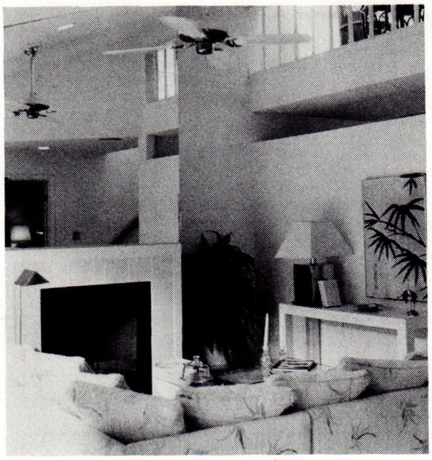
Builders Hardware Corp., Cockeysville, MD, finish hardware; Service Glass Industries, Inc., Frederick, MD, glass & glazing, interior greenhouse, partition system, entrances, window wall & windows; C & H Mechanical Corp., structural skylight, translucent panel system, building earthwork & mechanical; Structures Unlimited, Inc., Manchester, NH, structural skylight & translucent panel system; Plateau Drywall, Inc., Annapolis, MD, steel stud construction, acoustic ceiling systems, building insulation & aluminum panels; and Inter-State Tile & Mantel Co., Inc., Harrisburg, PA, tile.

Also, Bode Flooring Corp., Ellicott City, MD, resilient flooring; King-Page, Inc., Norfolk, carpet; New Look Painting & Decorating Co., Inc., Baltimore, MD, special coating & exposed concrete finishes; A & P Products, Inc., Aston, PA, compartments & cubicles; Triangle Sign & Service, c/o SWG, Inc., Baltimore, MD, identifying devices; Standard Acoustics, Inc., Washington, DC, folding partitions; McClean Architectural Products Corp., Pelham, NY, toilet accessories; Faulkner Metal Fabricators, Erie, PA, structural steel, steel joists, metal roof decking & miscellaneous metal; BowMar Millwork Corp., Mardela Springs, MD, architectural woodwork; and City Wide Waterproofing Corp., Rockville, MD, membrane waterproofing & unit masonry.

And, F. A. Taylor & Son, Inc., Baltimore, MD, roof insulation, membrane roofing, flashing & sheet metal, metal copings & expansion joints, roof accessories & general metal roofing; EPI Architectural Systems, Inc., Pittsburgh, PA, roof accessories; Arundel Waterproofing, Millersville, MD, sealants; Maryland Sales & Service Corp., Baltimore, MD, aluminum panels; Bilt-Rite Steel Buck Corp., Westbury, NY, metal doors & frames; Overhead Door Co. of N. Washington, Beltsville, MD, rolling doors; The Fireline Corp., Baltimore, MD, fire extinguishers & cabinets; R. S. Bonsall & Associates, Riderwood, MD, modular public service unit; Redyref Pressed & Welded, Inc., Long Island City, NY, telephone enclosure; McCleary-Franz Co., Inc., Timonium, MD, loading dock equipment; Delaware Elevator Co. of Maryland, Salisbury, MD, elevators; and Chesapeake Sprinkler Co., Glen Burnie, MD, fire protection.

Others were: John W. Tieder, Inc., Cambridge, MD, electrical; Kidde Consultants, Inc., Baltimore, MD, construction surveys; George M. King Contractors, Inc., Millersville, MD, clearing, selective clearing, demolition, earthwork & grading, building earthwork, soil erosion & sediment control; Home Exterminating Co., Annapolis, MD, building earthwork (termite treatment); Dance Brothers, Inc., Long Gree, MD, retaining walls, concrete, exposed concrete finishes; Robert W. Childs, Annapolis, MD, retaining walls & lawns; Banner Masonry Corp., Baltimore, MD, retaining walls, concrete, mortar & grout & unit masonry; Gorman Equipment Co., Inc., Marlow Heights, MD, utility standards, water distribution system, storm drainage system, & gravity flow sanitary sewer system; Hastings Pavement Co., Inc., Lake Success, NY, special walks; and Maryland Supercrete Co., Inc., Annapolis, MD, concrete walks & curbing.

And, Asphalt Service Co., Inc., Baltimore, MD, bituminous concrete paving; Fritz Fence, Div. of Mitchell Industries, Inc., Glen Burnie, MD, road & parking accessories, fencing & landscape accessories; Parking-Striping Co., Baltimore, MD, road & parking accessories; The Annapolis Concrete Co., Annapolis, MD, concrete; Capitol Fireproof Steel, Baltimore, MD, concrete & unit masonry; and Inter Sign National, Inc., Baltimore, MD, road & parking accessories.

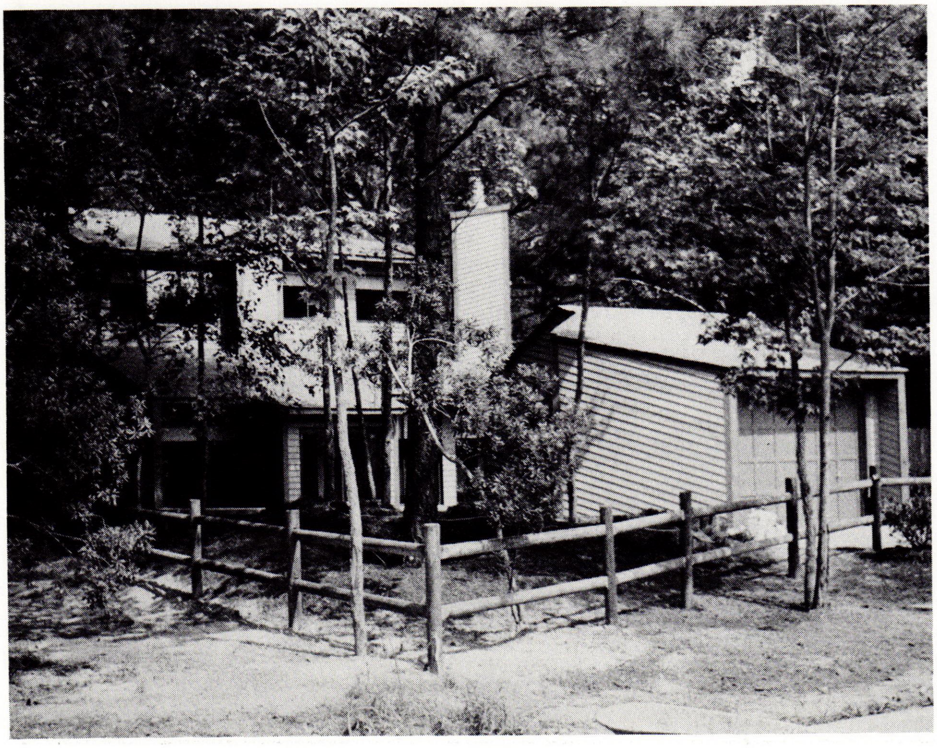


Salt Marsh Point "Solar Series"

Virginia Beach

The Design Collaborative — Architect

Project Architect/Designer, C. Michael Henry, AIA • Landscape Architect, Edward G. Carson & Associates • Interior Designer, Barnel Interiors • General Contractor, Hudgins & Associates • Photography, Ginny Bradford.



Littleton C. Hudgins was the first developer in Tidewater to include passive solar models in a major subdivision development. He contracted with The Design Collaborative for six flexible passive solar designs that could be used on either side of the street and still get direct gain.

The project architect created this series of six different plans using a variety of interesting spatial arrangements. Unit variations respond to the requirement to provide solar access for the same basic plan whether it is located on the north or south side of the street. Models with south-facing fronts have detached garages which create privacy for a "backyard" in the front, which can feature landscape, decks and even a hot tub option. On the other side of the street, the garages are attached to the house to act as a wind block and reduce heat loss from the north wall.

Because of their design and insulation package, the Solar Series homes were designated as "VEPCO Energy Saver Homes." The solar contribution was not computed by the power company but it is a factor that will enhance the predicted energy savings considerably.

The outside appearance of the solar homes at Salt Marsh Point is not remarkably different from the non-solar homes, but the interiors reflect the designer's concern with conservation and use of natural energies. For instance, south-facing glass is bordered by heavy quarry tile flooring on the concrete slab, so that the strip of floor in front of these doors and windows captures and contains the sun's heat in winter, slowly releasing that heat into the room long after sunset.

Interior spaces are arranged in a semi-open pattern to allow air-convection cooling through cut-outs in walls as natural breezes flow from room to room with the help of vents and ceiling fans. Properly designed overhangs on all the south-facing glass keep out much of the high-angled summer sun but let the low-angled winter sun inside to produce a greenhouse effect, warming both the air and the mass. Specially designed movable insulation, in the form of track-mounted quilted shades, keeps out heat in summer, and keeps in the heat in winter.

In keeping with the resort atmosphere of Salt Marsh Point, the developer named the six solar models after waterfowl: Wood Duck, Widgeon, Mallard, Canada Goose, Emperor Goose, and Snow Goose. The Wood Duck is the smallest in square footage, with 1,385 square feet of living area and a 240 square foot garage. The Canada Goose is its across-the-street opposite with slight variations. Similarly, the Widgeon and the Snow Goose are opposites and the Mallard/Emperor Goose pair offers the greatest square footage of 1,984 square feet.

The Widgeon, preferred by "singles," features two master bedroom suites each with private bath and dressing room. One is upstairs and one downstairs. Patios and decking with earth-bermed landscaping minimize yard work and leave more time to enjoy the refreshing lifestyle the home embodies.

Even the smallest of the three models, the Wood Duck, offers three bedrooms and two full baths. It has an eat-in kitchen and separate dining room, both defined by the placement of the diagonal open stair in the spacious great room.

Larger families lean toward the comfort of the Mallard, a three-bedroom two-and-a-half bath home featuring a second floor lofted family room, potentially a private domain for the children. Downstairs, a sunken great room, dining room and kitchen are separated from each other by partial walls and changes in floor elevation. The master bedroom and master bath contain ample closet and cabinet space. Its north-facing counterpart, the Emperor Goose has proven so popular that the developer has constructed a revised version for a home show.

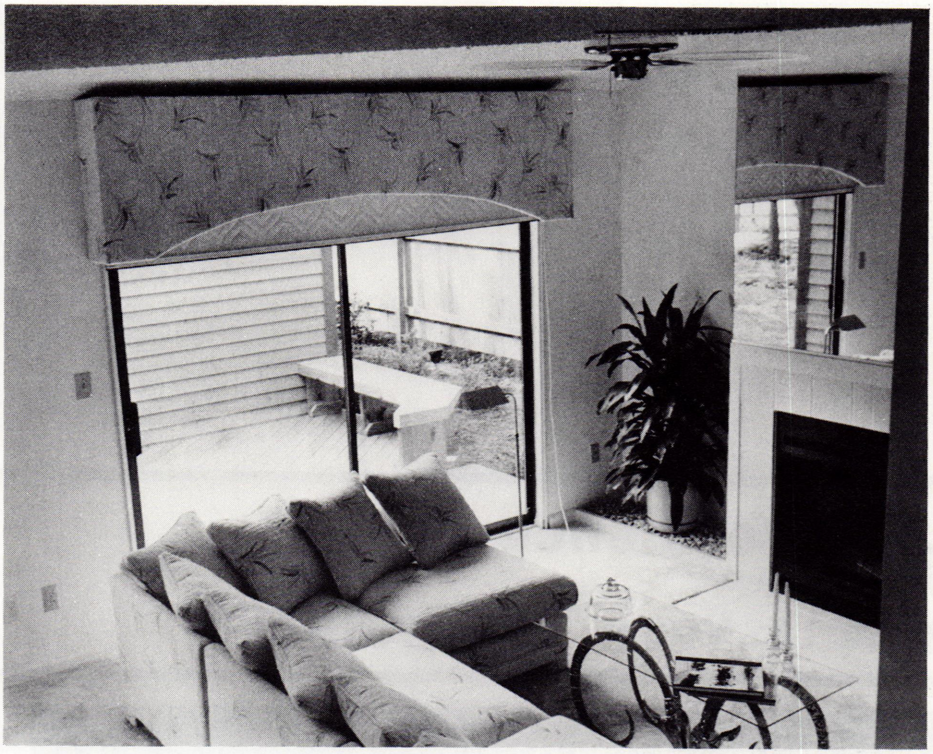
All of the models offer variable speed ceiling fans, heat-circulating fireplaces with outside combustion air, timers on water heaters or optional solar domestic water heaters, highly efficient air-to-air heat pumps and other energy conserving features.

Hudgins & Associates of Virginia Beach was general contractor and handled excavating.

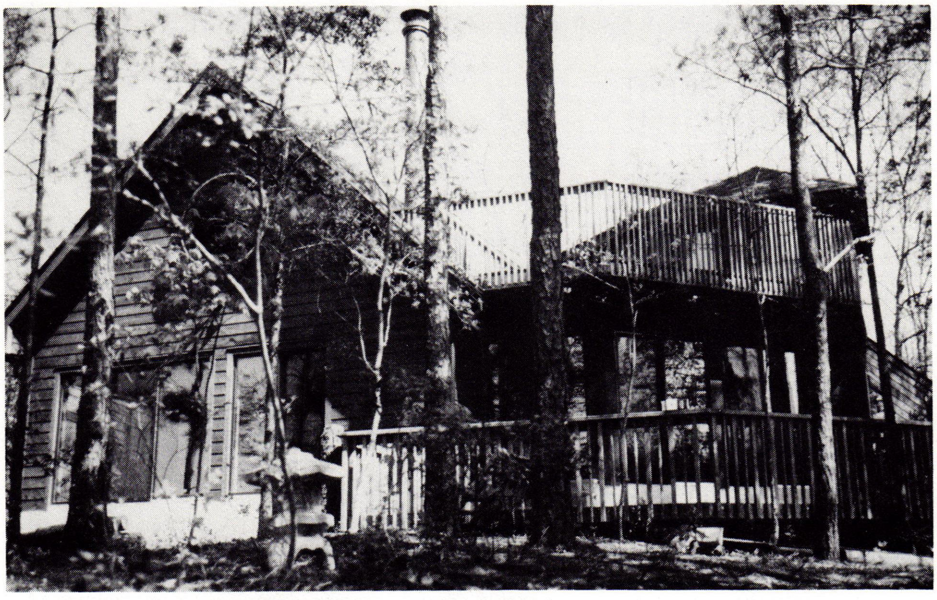
Subcontractors & Suppliers
(Virginia Beach firms unless noted)

Winn Nursery, Norfolk, landscaping materials & landscaping contractor; J. M. Briggs Concrete, foundations & concrete contractor; Hall-Hodges Co., Inc., Norfolk, reinforcing; Lone Star Industries, Inc., Norfolk, concrete supplier, masonry manufacturer/supplier & mortar; Robert Evans, masonry contractor; Addington-Beaman Lumber Co., Inc., Norfolk, Elk/Prestique II roofing, handrails & millwork; Ayers Insulating & Supply Co., Inc., Owens-Corning roof & wall insulation, and Polyseal caulking; Greenwich Supply Corp., foundation insulation, Merrilat cabinets, Benchmark metal doors & frames and gypsum board contractor; and Olde Point Builders, Chesapeake, carpentry.

Also, Kempsville Building Materials, Inc., structural wood & wood doors; Smith & Keene Electric Service, Chesapeake, sheet metal, & heating/air conditioning contractor; Colonial Insulation, Inc., Norfolk, Acorn windows; Virginia Beach Key & Lock Co., hardware supplier; American Tile Co., ceramic tile; Barnel Interiors, Inc., carpet & wall covering; Frank Knight, painting contractor; Glidden Paint & Wallcovering Stores, paint supplier/manufacturer; New Energy Systems, Inc., Chesapeake, window quilts; Princess Anne Plumbing & Electrical Suppliers, Inc., plumbing fixture supplier & plumbing contractor; Atlantic Electric Corp., Norfolk, lighting fixtures supplier; and R. H. Smith, Jr. & Son, electrical equipment supplier & electrical contractor.



Love Residence
Virginia Beach
Robert L. Yoder, AIA — Architect

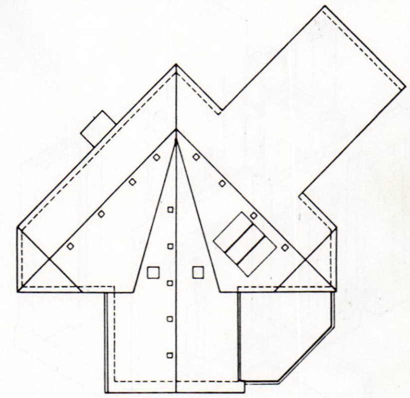


General Contractor, Crosby Construction Co. • Photography, Robert L. Yoder, AIA.

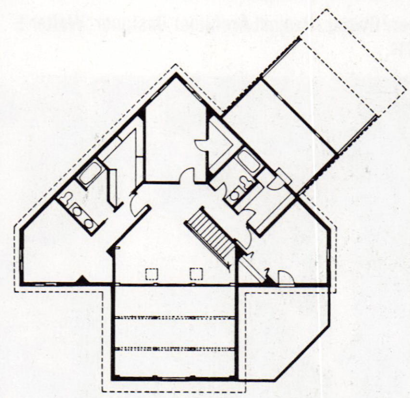
The program was to design an open and spacious, passively heated home, zoned for privacy, for a growing family with professional parents. The site is a finger of wooded land jutting into the Lynnhaven River and surrounded by salt marsh.

The solution inadvertantly became a "north arrow" as advantages of view and the solar window were exploited. The envelope was closed to the weather on the northeast and northwest, and opened up to the view and sun. The guest suite, playroom and bedrooms are well segregated from each other and the living areas. Thermal storage in the quarry tile floor throughout the public areas is supplemented by a wood stove and water-to-air heat pump.

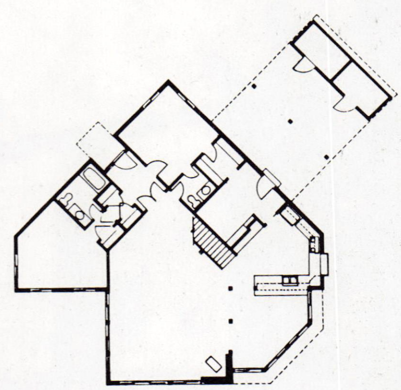
Drafts and heat loss were minimized through the envelope with vapor barriers, infiltration barriers, R-25 walls and R-38 ceilings. The whole



ROOF PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN

house fan effectively cools the home on all but the most blistering days and when the humidity from the marsh surrounding the home becomes unbearable.

Construction costs were $38.00 per square foot.

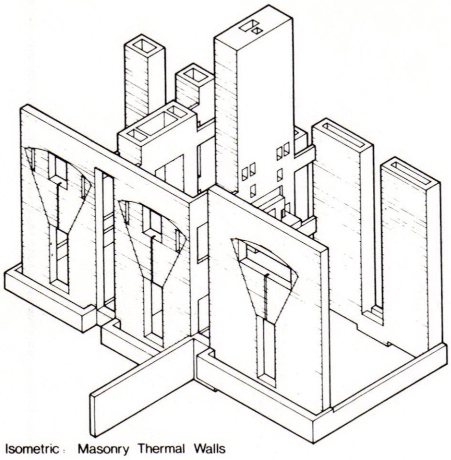
Crosby Construction Co. of Virginia Beach was general contractor and handled carpentry, handrails, caulking and foundation insulation.

The owner handled landscaping.

Subcontractors & Suppliers
(Virginia Beach firms unless noted)

Withrow Concrete, foundations; B & L Concrete, concrete contractor; Hall Hodges Co., Inc., Norfolk, reinforcing; Lone Star Industries, Inc., Norfolk, concrete supplier & masonry manufacturer; General Venable, masonry contractor; Virginia Beach Welding, miscellaneous metal; Addington-Beaman Lumber Co., Inc., Norfolk, structural wood, millwork & paneling; Princess Anne Cabinets, cabinets; Brock Roofing Co., built-up roof (Rapid Roof); Waymar, Inc., other roofing; E. Carr Smith Insulation, roof insulation & wall insulation; and Seaboard Paint & Supply Co., Inc., metal doors & frames, wood doors & hardware supplier.

Also, Norandex Aluminum Building Products, Norfolk, windows & window wall; Aspen Tile Co., quarry tile; Wall-to-Wall Decorating Center, resilient tile & carpet; Don Hildebrand, painting contractor; Schell Supply Corp., plumbing fixture supplier; D & L Plumbing, plumbing contractor; Styron HVAC, heating/ventilating/air conditioning contractor; Atlantic Electric Corp., Norfolk, lighting fixtures/electrical equipment supplier; R & S Electric Co., electrical contractor; and Phil Moser, Dryvit.



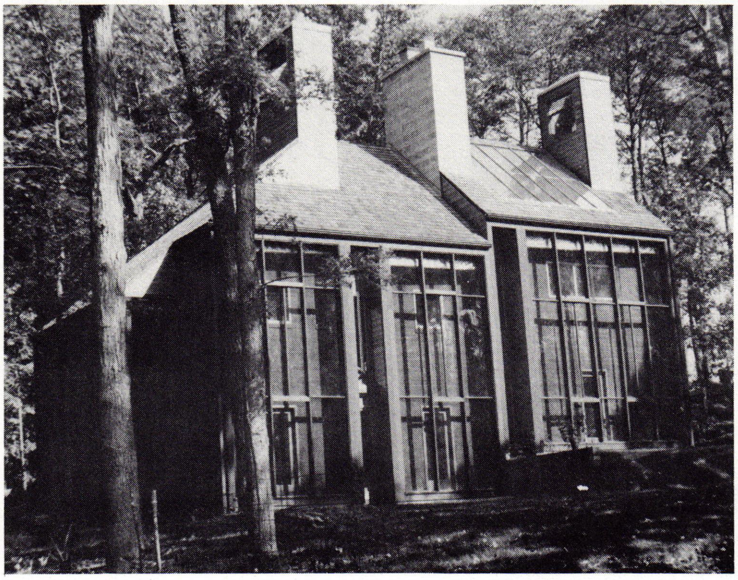
Isometric: Masonry Thermal Walls

Sundance One

Reston

Alternative Design — Architect

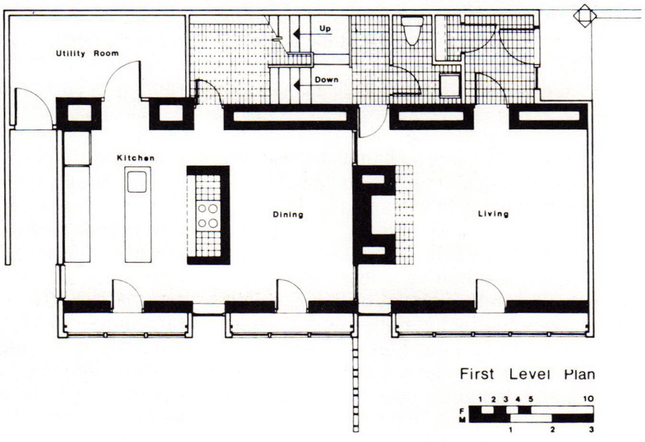
Builder/Owner/Project Architect-Designer, Walter F. Roberts.



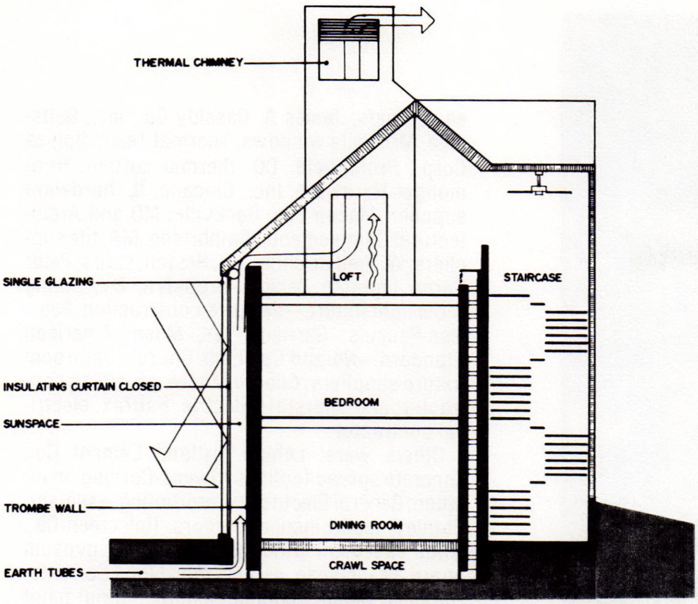
The objective of the architect was to develop a single family house which would require a minimum of external energy to maintain a comfortable internal environment. The integration of environmental systems into the building form was desired. To achieve this goal, a house-within-a-house concept was developed.

Living spaces are sandwiched within the mass walls of the inner house. These mass walls store heat collected from the sun and radiate this warmth into the living spaces. The mass also moderates temperature swings within these areas. The outer house of wood acts as a cocoon to shelter the inner house from the elements and climatic temperature extremes.

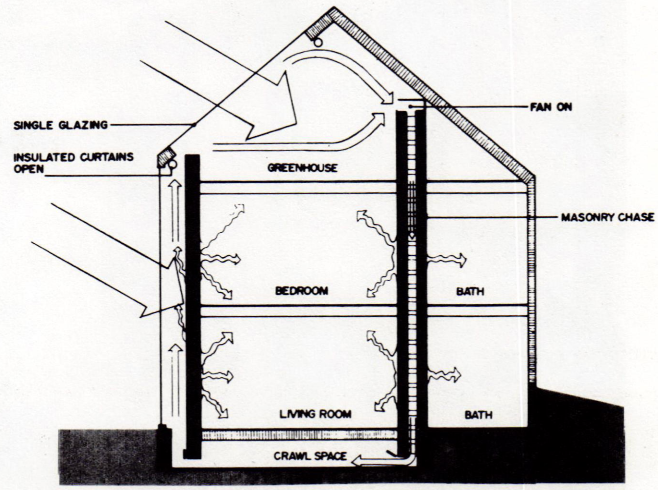
The compact layout allows the home to enclose a large amount of interior space with a minimum of exterior wall surface, an important energy conserving concept. In addition to the basic rooms, a greenhouse was added to the attic level to assist in solar gain as well as for indoor gardening. All living spaces, in this 2300 s.f. house, have a southern exposure, while the service areas; stairway, utility room, closets and bathrooms are located on the northern side



First Level Plan



summer day



winter day

creating a buffer zone to prevent winter winds from having direct contact with the living spaces.

The home is located on a heavily wooded lot in the suburbs of Washington, D.C. The site slopes gently down to the west. Tall trees and earth berms protect the house from prevailing winter winds. A south lawn was cleared of trees to allow for passive solar collection.

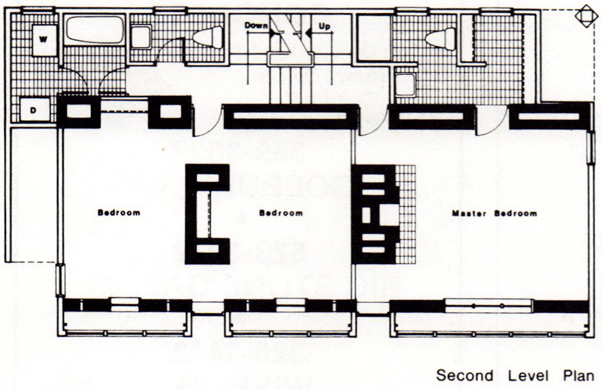
The facade is a contemporary expression of the Colonial Georgian style popular in America in the 18th century. This image was derived from the very functional aspects of the solar system itself by utilizing the same concepts used by our forefathers before the advent of mechanical systems for heating and cooling.

The cost of construction was $140,000.

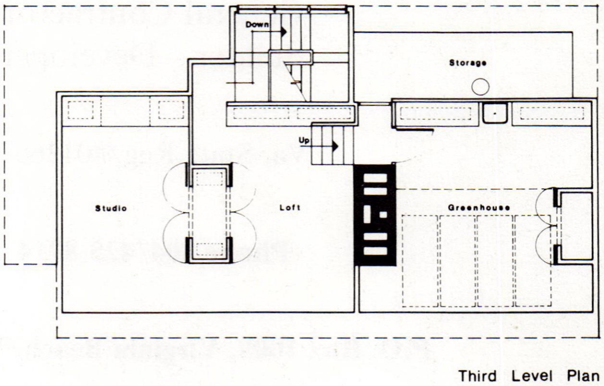
The architect/owner, Walter F. Roberts, Jr. of Reston acted as his own builder.

Subcontractors & Suppliers

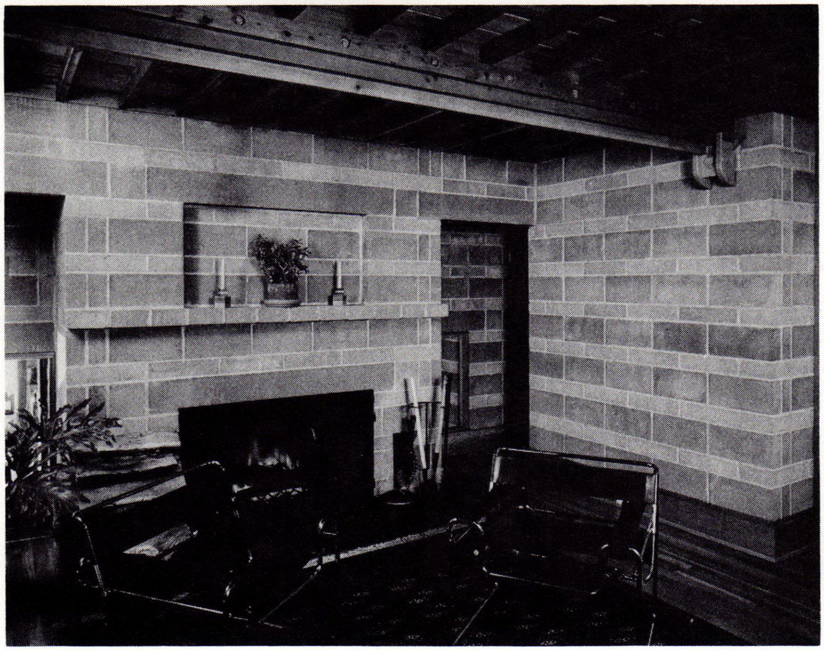
Cherrydale Block, Herndon, block supplier; Finn Jensen, Falls Church, masonry contractor; Mid-South Building Products, Springfield, kitch-



Second Level Plan



Third Level Plan



en cabinets; James A. Cassidy Co., Inc., Beltsville, MD, Pella windows; Thermal Technologies Corp., Broomfield, CO, thermal curtain; Ironmonger Hardware, Inc., Chicago, IL, hardware supplier; Macon Tile, Rockville, MD and Architectural Complements, Cambridge, MA, tile suppliers; W. Fred Kirchner, Jr., Reston, stairs; Peter Barna Lighting Design, Brooklyn, NY, dining room light fixture—design & construction; Fearless-Faucets, Garrison, NY, Moen, American Standard—Noland Co., Falls Church, bathroom fixture suppliers; George Moore, plumbing contractor; and Interstate Electric, Fairfax, electrical contractor.

Others were: Lehigh-Portland Cement Co., concrete spread footings; Owens-Corning, insulation; General Electric, waterproofing—sealant; Stanley, metal insulated doors; Rolscreen Co., wood casement windows; Gold Bond, gypsum board; Franciscan, ceramic tile; Flood Co., exterior clear finish; Benjamin Moore, interior paint manufacturer; and Amana, Thermador, Waste King & Maytag, kitchen equipment.

Market Square Branch, Investors Savings & Loan

Brandermill, Chesterfield County

Edward F. Sinnott & Son, P.C. — Architects

Project Designer, Stephen Donahue • Landscape Designer, Michael C. Hildebrand • Interior Designer, Robert Watkins, DESIGN • Site Engineer/Surveyor, J. K. Timmons & Associates • Structural Engineer, Robert H. Deaderick • Mechanical/Electrical Engineer, Dubovsky Engineering • Geotechnical Engineer, Froehling & Robertson • General Contractor, Brandermill Construction Co.

Introduction

Investors Savings and Loan in Brandermill's Market Square is one of the first commercial applications of solar energy design in the Richmond area. The 1700 square foot building was designed by the office of Edward F. Sinnott & Son, P.C., Architects. E. F. Sinnott, Jr., principal of the firm, is very familiar with Richmond's formal styles and traditions in architecture, while open to new trends and innovations. This range of background is what allows such projects to become reality. Steve Donahue, the project's principal designer, is a young innovative, aspiring architect whose design philosophy definitely tends toward the contemporary applications of solar technology. Donahue knew when handed the opportunity to design the Investors branch, that the building would have to be well organized as well as efficient to win approval. The result is a fairly simple layout, with a very complex organization of sun angles and solar organization.

Description

The overriding design concept was simply to fulfill the site and environmental requirements that Brandermill presents. Simply is not exactly the word, as Market Square presented a rather challenging proposition. The ideas was to create a striking visual effect and at the same time blend into Market Square's combined commercial and residential tone. The rustic contemporary, passive solar design fit well into this category and also provided the pattern for orientation and site organization. The steep roof slopes, overhangs and clerestory windows all resulted from the passive design systems.

The building organization is based purely on interior function while utilizing natural lighting and the southern exposure. Windows in the office areas are organized to give a wash of light onto walls rather than direct harsh light into the interior. In both office areas the east and west windows are positioned so that the rising and setting sun washes the rear (north) wall. This use of reflected light is prominent throughout the building design distinguished by the recessing of the southern windows for both vertical and horizontal shading.

The clerestory windows are situated to provide a shaft of reflected light, while direct light is only allowed to fall onto the brick pavers at the front of the teller counter. These pavers act as heat sinks for the passive heating and also provide a very durable walking surface at the teller counter.

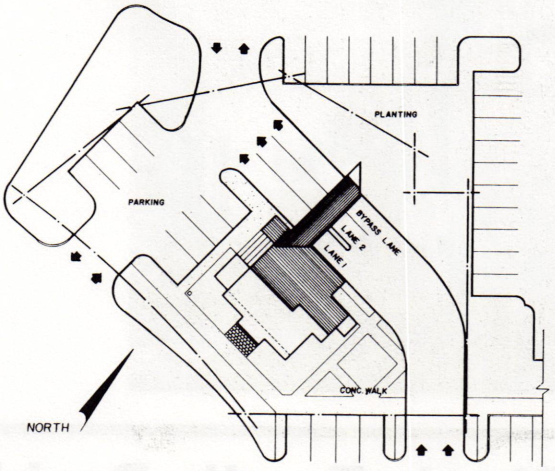
Brick pavers are again incorporated into the air lock entry for similar reasons. The entry acts as a greenhouse which, due to overhangs and orientation, allows only direct winter sun to enter. This provides a naturally heated entry in winter.

Offices are organized to allow visual control of the teller areas while the secretary and reception area allows entry control as well as direct access to the offices.

Interior effects become a primary result of the clerestory light shaft which divides the building from north to south. The high sloping ceilings are buffered with exposed trusses which provide mounts for night lighting and paddle fans which reduce air stratification.

Solar

The solar design incorporates both passive and active systems, as well as the classic features of southern orientation, window location, masonry mass, and overhangs. Passive features include 60 square feet of south facing clerestory windows which flood light and heat to both the teller counter and the brick pavers, used as a high traffic finish and a heat sink. Overall there are 200 square feet of south facing glass, capable of producing up to 300,000 BTUs on a clear February day. The slab on grade construction with brick paved areas provides the mass for the solar heat storage.



SITE PLAN

The active system is a hybrid air system which incorporates 290 square feet of active collector with 500 cubic feet of stone heat storage. The low-cost site built system, also designed by Steve Donahue, is controlled by a series of automatic dampers which in turn, are controlled by a solid state differential controller. The active air system feeds the 150° air down to the gravel storage which is located below the entry and lobby area. The heat is then transferred to the interior space through a direct tie into the conventional heat pump air system, and by direct radiant heat up through the floor slab. The active solar system is capable of producing up to 500,000 BTUs on a clear February day. Once fully charged, the gravel storage area can store up to 750,000 BTUs for night time and cloudy days.

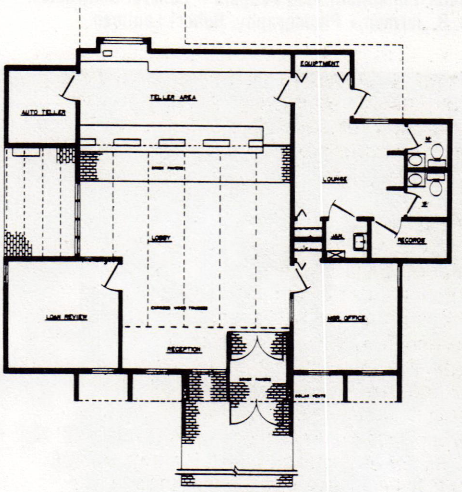
Construction Credits

Brandermill Construction Company of Midlothian was general contractor for the project and handled foundations.

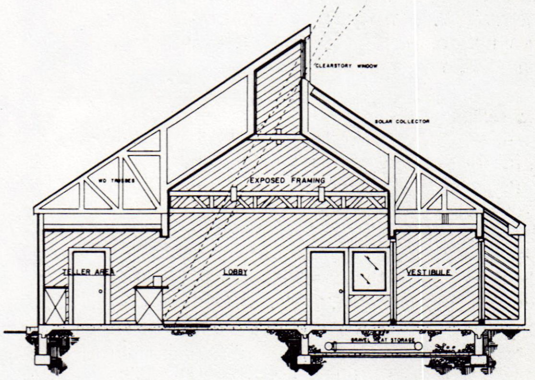
Subcontractors & Suppliers
(Richmond firms unless noted)

E. G. Bowles Co., excavating & paving contractor; J. J. Sturt, Jr., Matoaca, concrete contractor & masonry contractor; Richmond Steel, Inc., miscellaneous metal; Chesterfield Roofing, Inc., Midlothian, roofing; Southern Insulators, Inc., Midlothian, roof insulation & wall insulation; Custom Woodwork, Inc., teller counters; and H. N. Smith, General Contractor, Chesterfield County, carpentry.

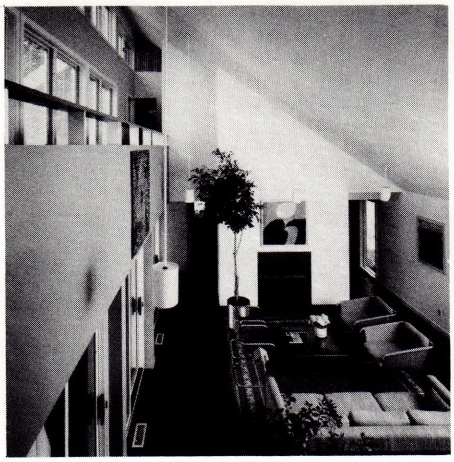
Also, Builders Supply Co. of Petersburg, Petersburg, structural wood; N. B. Goodwyn & Sons, Inc., Powhatan, millwork, paneling & wood doors; Mays Custom Kitchens & Appliances, cabinets; Binswanger Glass Co., glass, glazing contractor, metal doors & frames, windows, window wall & storefront; Pleasants Hardware, hardware supplier; G M Drywall (George Moore), gypsum board contractor; Ernest H. Mann, painting contractor, paint supplier; Brunk Mechanical, Inc., plumbing/heating/ventilating/air conditioning contractor; and Knight Electrical Contractor, Inc., electrical contractor.



FLOOR PLAN

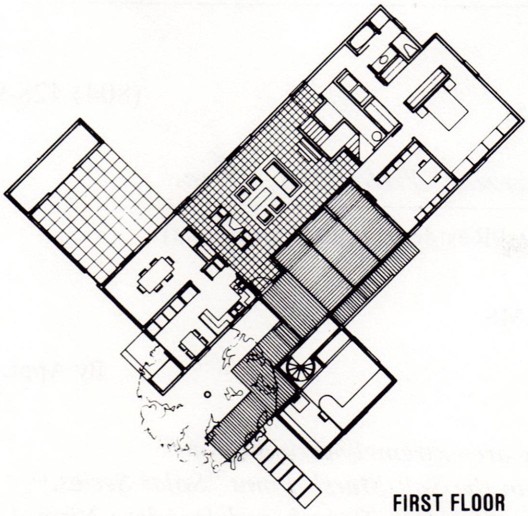


SECTION VIEW

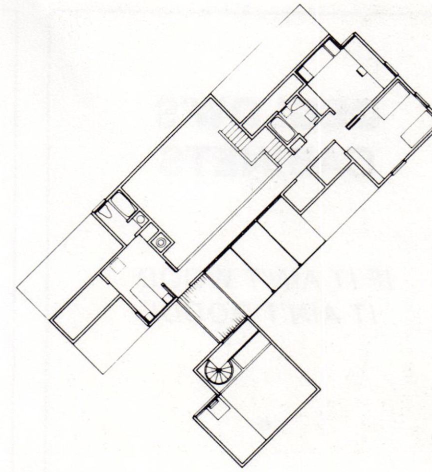


Single Family Residence
Charlottesville
Warren Boeschenstein — Architect

Solar Consultant, Don Dougald • General Contractor, J. B. Jarman • Photography, Robert Lautman.



FIRST FLOOR



SECOND FLOOR

Site

The site is in an older residential section of the city, four blocks from the University of Virginia. Houses in the neighborhood were built primarily in the 1930–1950 period. The house lot was the side yard of one of these older houses and consequently there is varied and mature vegetation on the land. Most of the original landscaping has been preserved. The 100 by 150 foot southwest facing lot slopes toward the street and has good solar exposure.

House Concept and Organization

The house was designed to be sympathetic in scale, form and placement to its surroundings in addition to being responsive to the particular site conditions and the requirements of the family. It is sited parallel to the street and towards the rear, north side of the lot. Entrance to the house is along the side, thus preserving the front lawn intact as a usable area. There are three outdoor spaces directly related to the house: an entry court centered on a mature magnolia tree; a shaded, secluded rear patio off the dining room; and a semi-enclosed, south facing, central court adjacent to the living room and overlooking the street.

The central court is enclosed by the main house and studio. The studio is pulled away to allow for entrance into the house under a connecting bridge. The house is zoned with public functions to the west and bedrooms to the east, adults on the ground level and children on the second floor. The centrally located double-height living room serves as a unifying space for the house and family. A bridge extends across the front of the living room, giving access to a guest room and to a porch which separates, for privacy, the studio from the main house.

Passive Solar Heating

The living room has extensive windows facing south to collect winter sun. In winter solar energy is stored in the living room floor composed of slate tiles on four inches of concrete and the balcony wall which is four ply of drywall—the equivalent thermal mass of a four inch block wall. The heat is released later in the evening, rising to mechanical air return ducts at the peak of the living room walls and recirculated through the wings of the house. The south facing windows have venetian blinds within two panes of glass. Consequently light and heat can be carefully modulated. The living room, in addition to its passive solar heat capabilities, has magnificent light qualities, everchanging throughout the day.

House Construction

The house is constructed of 2" x 6" stud walls, thus allowing for additional insulation. The exterior walls are covered with vertical rough-sawn cedar siding, the interior walls with drywall; the roof is composed of shingles, floors are oak strip, slate tiles and carpet.

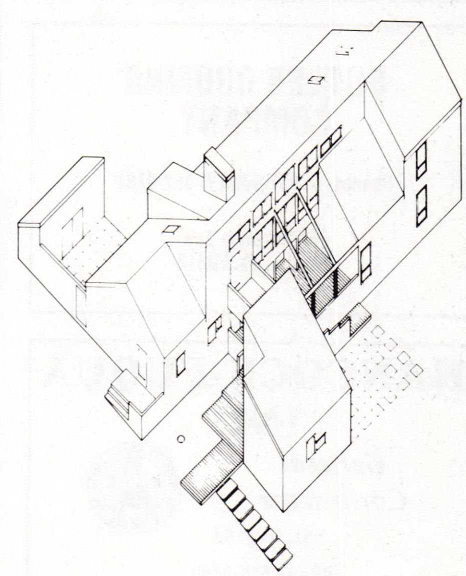
Construction Credits

J. B. Jarman of Crozet was general contractor and handled carpentry.

Subcontractors & Suppliers
(Charlottesville firms unless noted)

Virgil Humphreys, Crozet, excavating; Barnes Lumber Corp., foundations & structural wood; Moore Masonry, concrete contractor; Kenneth Sprouse, Scottsville, roofing; G. S. Duval, roof insulation; Beaver's Cabinet Shop, Waynesboro, cabinets; Charlottesville Glass & Mirror Corp., glass & glazing contractor; and Better Living, Inc., wood doors, resilient tile, carpet & special flooring.

Also, Pella Virginia, Inc., Richmond, windows; Frank Ware Plastering-Dry Wall Contractor, gypsum board contractor; Amos Breeden, Earlysville, painting contractor; Jim Beck, Inc., plumbing fixture supplier & plumbing/heating/ventilating/air conditioning contractor; and Jarman Electric, Crozet, electrical contractor.



Residence for Drs. Ganesh and Jasodera Nirmul

Suffolk

The Design Collaborative — Architect

Project Architect/Designer, C. Michael Henry, AIA • Interior Designer, Barnel Interiors • Site Engineer/Surveyor, Hoggard-Addison & Associates • General Contractor, Hudgins & Adkins, Inc. • Photography, C. Michael Henry.

The Nirmul Residence in Westhaven Lakes is located in a prestigious area of Suffolk on a rolling site adjacent to a five-acre lake. The house is designed to take advantage of views of the lake to the north and the unobstructed solar access to the front of the site.

Built for a family of five with a housekeeper-in-residence, the house features a swimming pool off the game room, surrounded by a terraced patio overlooking the lake. A tennis court will complete the outdoor recreation package and balance the site from a visual standpoint.

The contemporary three-level design utilizes the warm, earthy tones of chestnut brown brick and honey-colored vertical ship-lap cedar siding, along with accents of fieldstone to create a building in harmony with the tall pines and oaks surrounding the site.

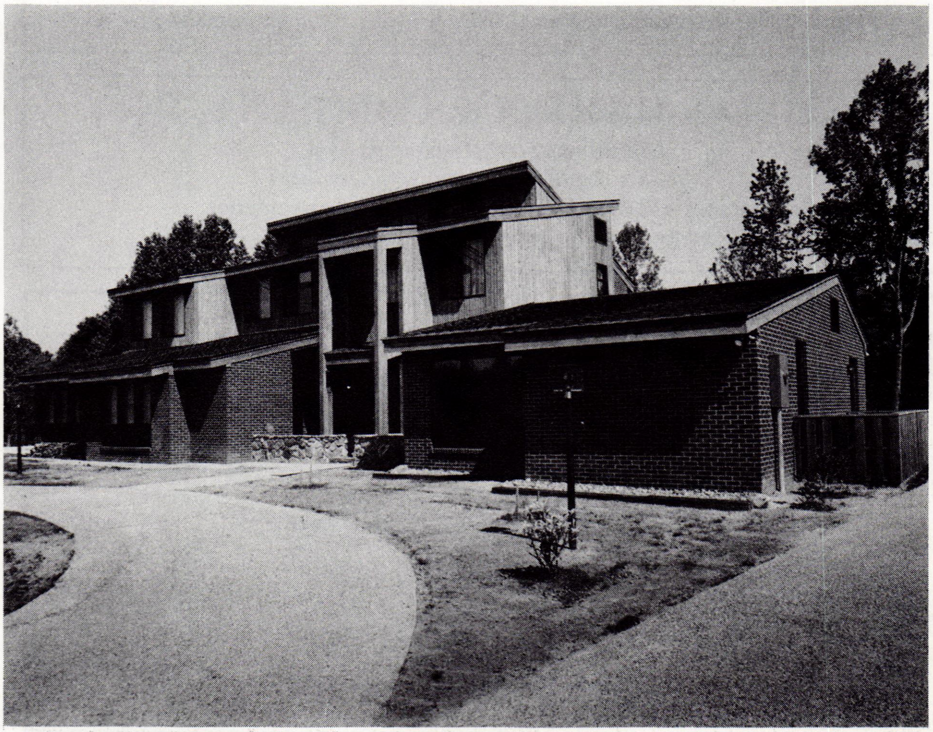
The main entrance of the house faces south and is approached by a long curved driveway that leads to an unusual entranceway. A panelled front door, recessed between two wings of the house, is protected by wide canopy supports. Red slate floors on the porch and large fieldstone planters flank the entry doors and add a feeling of stability and permanence to the two-story entrance canopy.

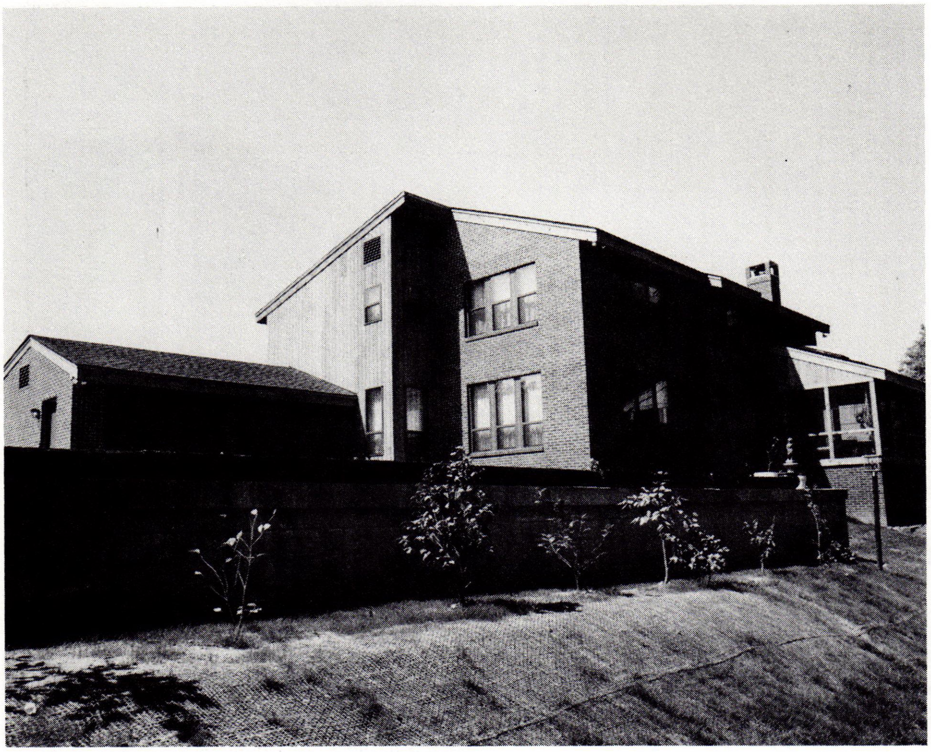
Behind the tall canopy, the foyer soars up two stories to the balcony sunspaces which are drenched in direct sunlight and create a healthy environment for numerous plants and hanging baskets. Marble floors in the foyer add to the south-facing thermal mass created by interior stone planters over an insulated concrete slab. Inside the foyer, natural light shimmers through stained glass panels into the adjacent dining room and upstairs master bedroom suite. The sun's heat is only welcomed in the winter months when its low-angled beams pass below the overhangs and trellises.

The three-level open stairway climbs around a free standing stone planter into the tallest area of the house which is open from the foyer floor to the pinnacle of the clerestory, more than 30 feet straight up. This appears to be a tower of sunlight during the day.

Immediately behind the sculptured stairway, the formal living room, dining room, family room and kitchen are situated on the north side of the house to take advantage of lake views. The cool, north-facing screen porch also has a view of the lake and helps buffer the family room and kitchen from northerly winds. This porch has two skylights which bring natural daylight into the family room and northern interiors.

Triple-glazed windows complete the energy conservation measures which make these primary spaces comfortable in spite of their north orientation. For economy in heating and cooling, the house is divided into four zones with separate heat pumps which can be shut down





when the zones are vacant. Water heaters are zoned and on timers.

A focal point of activity, the family room has a natural stone fireplace and hearth with recessed lighted display areas for sculpture and art objects. The natural wood ceiling complements the oak flooring and creates a warm, cheerful family gathering place.

Flowing openly into the family area, a spacious kitchen thrusts an angular peninsula of cabinets into the circular termination of a built-in breakfast table. A semi-circular planning desk echoes the breakfast table theme and serves as a message center for the family. The kitchen was designed by Gerald Dionne, CKD, and features cabinetry imported from Germany with Italian ceramic floor tiles and backsplashes.

Acoustically buffered from the family living areas by the walk-in pantry and laundry room, the game room is open to the pool patio on the west end of the house and is designed around a billiard table and table tennis. The 10-foot ceiling and fully recessed cabinetry allows free movement for enjoying the games.

The three children's bedroom suites are clustered around the upstairs hall which captures heat and light from clerestory windows high overhead. This zone can be isolated by closing one door, and is ventilated by a variable speed exhaust fan positioned at the head of the stairs.

The master bedroom suite has its own private bath with whirlpool soaking tub set in a high marble platform with plants surrounding it. A stained glass window allows natural light, but maintains privacy. The owners have an extensive library which is upstairs in this private zone of the house.

The Nirmuls have a large and complex home suited to their lifestyle and arranged for convenience and energy conservation. It takes advantage of natural daylighting, cross-ventilation, direct gain solar heating and zone control.

Hudgins & Adkins, Inc. of Virginia Beach was general contractor and handled excavating, landscaping materials, landscaping, paving, foundations, concrete work, masonry work, carpentry, waterproofing, caulking, sheet metal and plastering.

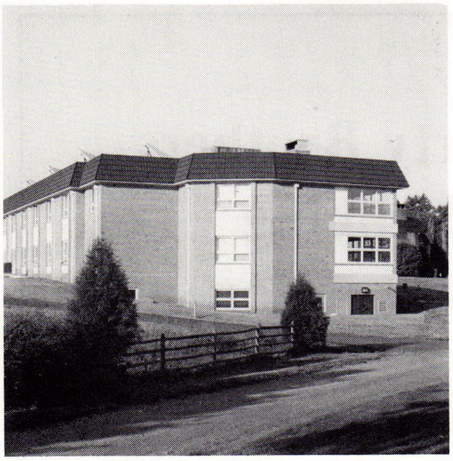
Subcontractors & Suppliers

Other Virginia Beach firms were: Tom Wynn, stonework contractor; Greenwich Supply Corp., wall insulation, metal doors & frames, windows, & gypsum board contractor; Premier Millwork & Lumber Co., Inc., handrails, millwork & paneling; Deglow's Cabinets, cabinets; Seaboard Supply Co., hardware supplier; American Tile Co., ceramic tile; Barnel Interiors, resilient tile, carpet & wall covering; Ray Messing, painting contractor; Kempsville Building Materials, Inc., Cuprinol paint; Rainmaker, sprinkler contractor; Byler Plumbing & Heating, plumbing contractor; Heat Pump Specialists Co., heating/ventilating/air conditioning contractor; and R. H. Smith & Son, electrical contractor.

From Norfolk were: Hall-Hodges Co., Inc., reinforcing; Batchelder & Collins, Inc., masonry supplier, mortar & foundation insulation; and Addington-Beaman Lumber Co., Inc., roofing structural wood and wood doors.

Newport News firms were: Luck Stone Center, stonework supplier; Schertle Swimming Pools, swimming pool; and Peebles Supply Co., plumbing fixture supplier.

Other were: J. W. Lassiter, Inc., Suffolk, concrete supplier; Lawrenceville Brick & Tile, Lawrenceville, masonry manufacturer; Mercedes Reinhart, Hampton, stained glass; and Noland Co., Chesapeake, lighting fixtures & electrical equipment supplier.



Orange County Nursing Home

Addition, Orange County

Bailey & Gardner — Architects

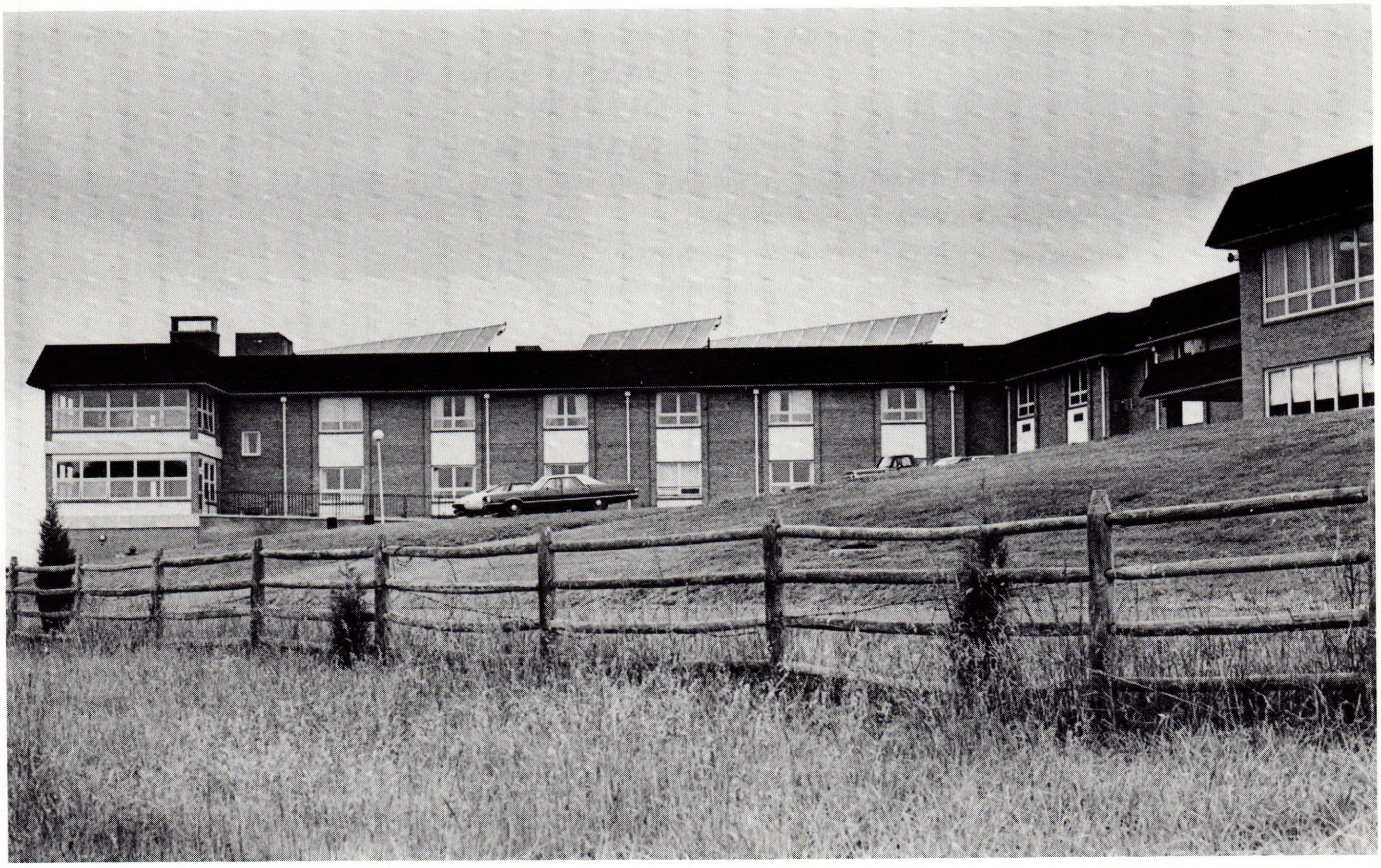
Structural Engineer, St. Clair, Callaway & Frye • Mechanical/Electrical Engineer, Systems II • General Contractor, H. B. Sedwick, Jr. Construction Co.

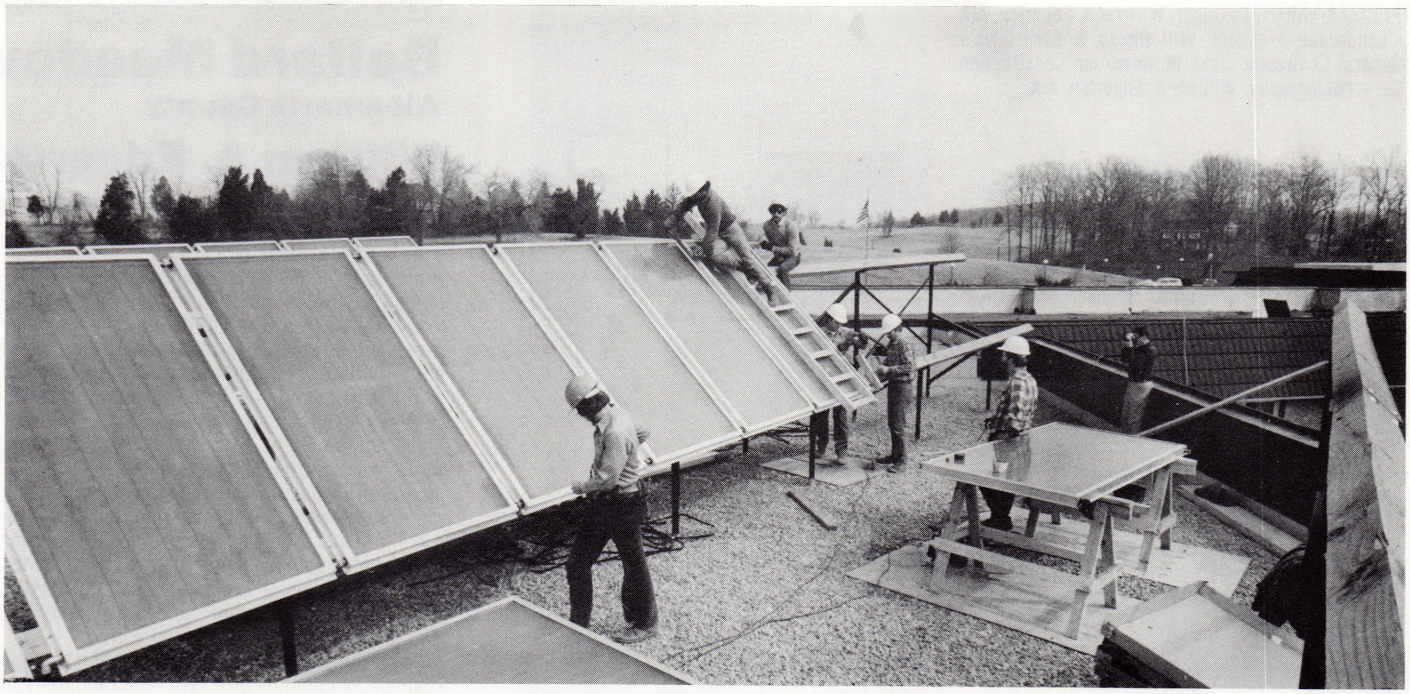
Original Building—1970
First Addition—1974
Second Addition
and Renovation—1982

Houses—120 beds for intermediate nursing care
35 beds for adult care

1982 Addition and Renovation were made to increase the number of beds and to make nursing facilities more efficient in that each nurses' station could serve 60 beds. Former plans had four nurses' stations serving 95 beds. The original 1970 building housing 35 limited care beds has been remodeled to provide a home for adults. Both units are served by the same kitchen, laundry, and administrative offices.

The new solar water heating system provides for the bathing of patients, hot water use in the kitchen, and for the laundry. Where existing





systems were in use, these have been supplemented by piping solar heated tempered water to these areas where it is raised to required temperatures for specific uses.

The major requirement for hot water is during the daylight hours when the collectors are working. No major storage problem exists; therefore, a minimum of storage was provided, keeping the cost of the installation down.

Solar collectors located on the roof of the new addition have 1,400 sq. ft. collector area with the ability to raise 3,000 gallons of water 50° per hour providing 1,060,000 to 1,508,000 BTU's or the equivalent of 310 to 440 KWH.

Entirely automatic, the solar water heating system operates without need for monitoring or adjustment. The Delta T differential temperature controller measures temperature at the collector outlet and at the storage tanks. When collector temperature exceeds that of storage by 9° F. the system is turned *on*, and when this difference drops to less than 3° F. the system shuts *off*. Two differential temperature controllers (Model DTT 80 by Heliotrop General, Inc.) are wired in series. The first controller powers the second. Both must be "ON" for the system to be "ON." This redundancy is a safety feature.

Two additional sensors override the controller. A frost sensor will not allow the system to run if collector temperature is below 40° F. A thermostatically controlled tempering valve has been installed in the output line to prevent water in excess of 110° F. from reaching points of use.

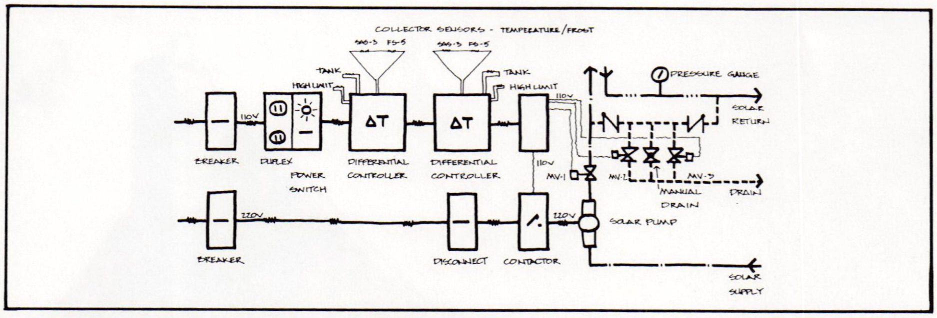
H. B. Sedwick, Jr. Construction Co. of Orange was general contractor for the project.

Subcontractors & Suppliers

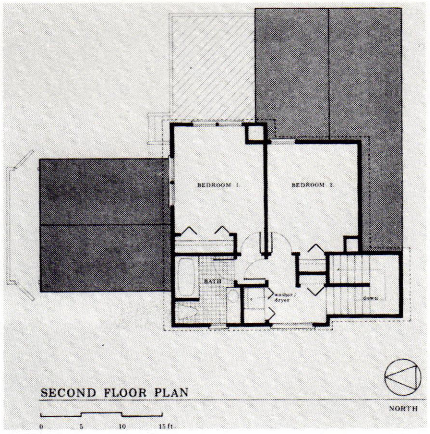
Rock & Raines Construction Co., Orange, excavating, grading & paving; Culpeper Stone Co., Culpeper, concrete supplier; Allied Concrete, Charlottesville, concrete block; Luther F. Dean & Son, Harrisonburg, masonry contractor; Webster Brick Co., Inc., Roanoke, masonry manufacturer; Riverton Corp., Riverton, Flamingo mortar; Bolling Steel Co., Salem, structural steel; John W. Hancock, Jr., Inc., Salem, steel joists; Automated Building Components, Inc., Miami, FL, mansard shingles; and Bonitz Co., Inc., Statesville, NC, other roofing.

Also, Virginia Metal Industries, Inc., Orange, metal doors & frames; Pella Rolscreen Co., Pella, IA, windows; Russwin Div., Emhart Corp., Connecticut, hardware; Richard A. Oliva & Sons, Inc., Charlottesville, ceramic tile; Manson & Utley, Inc., Charlottesville, floor & ceiling tile; The Ceiling & Floor Shop, Charlottesville, carpet; and The Edwards Co., Inc., Newport News, nurses' call & smoke detection equipment.

Others were: Virginia Elevator Co., Inc., Richmond, elevator; Dagenhart Sprinkler Co., Norfolk, sprinkler contractor; Riddleberger Bros., Inc., Harrisonburg, mechanical contractor; Virginia Solar Contracting Services, Ltd., Charlottesville, solar system; Associated Electric Service, Inc., Richmond, electrical contractor; Sunway Mfg., Inc., Ocala, FL, solar collectors; Bell & Gossett, pumps; ASCO, valves; and Bradford White Corp., hot water tanks.



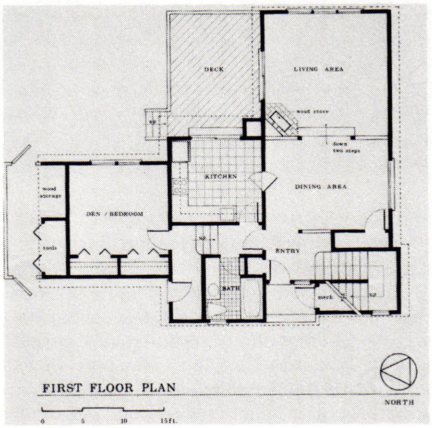
Project Architect/Designer, William A. Edgerton, AIA • Landscape Architect, Will Rieley & Associates • General Contractor, John M. Anderson Construction Co. • Photography, William A. Edgerton, AIA



Ballard Meadows
Albemarle County
William A. Edgerton,

Ballard Meadows is a complex of four solar rental units in Albemarle County that were designed to provide maximum flexibility and privacy in plan. The siting of the units in a cluster arrangement allows for obvious economies in construction, yet the plan allows for a maximum of privacy from one unit to the next. It is virtually impossible to see into any of the living or sleeping spaces of any unit from an adjacent unit. The arrangement of spaces in plan has successfully accommodated families with small children as well as groups of individual graduate students. The deck becomes an exterior extension of both the living room and the kitchen and the change of levels and ceiling heights helps to define different spaces in the living/dining areas without the use of walls.

The solar-assisted heat pump system of these residences consists of a roof mounted array of 16 solar collectors, a 1000 gallon solar storage tank buried in the ground beneath the crawl space, a heat exchanger in the ducts leading to the living space, an electronic controller which also measures tank and solar collector temperatures, a thermostat and various pumps, valves and vents. The solar collector loop is filled with an anti-freeze solution as its freeze protection system.



AIA & Associates — Architect

Design Statement

The heating systems in these houses are designed to utilize three methods of heating referred to as stages.

STAGE ONE is the Solar Heating System, designed to provide 60% of the space heating and 100% of the domestic hot water.

STAGE TWO is the air source heat pump, included as the primary back-up system.

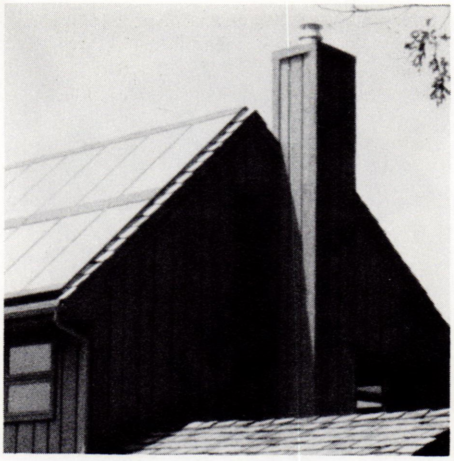
STAGE THREE is the air tight wood burning stove, included as the secondary back-up system.

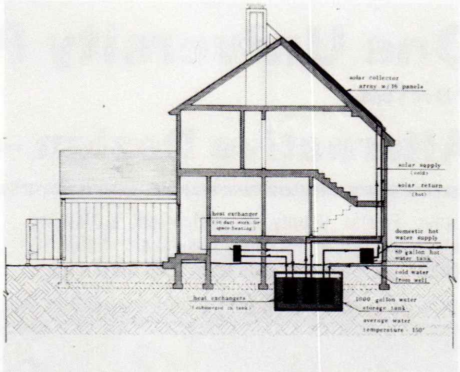
John M. Anderson Construction Co. of Charlottesville was general contractor for the project and handled landscaping work, millwork, waterproofing, caulking, glazing and plastering.

Subcontractors & Suppliers
(All Charlottesville firms)

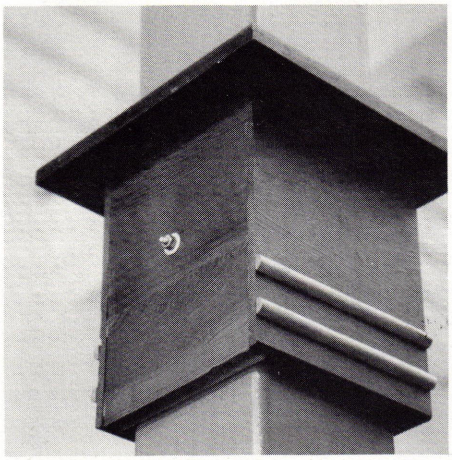
Dudley's Paving Co., paving contractor; H. T. Ferron Co., foundations, concrete contractor & concrete supplier; Associated Steel Products, Inc., reinforcing, steel supplier/grating & miscellaneous metal; McCann, masonry contractor; Allied Concrete Co., masonry manufacturer/supplier & mortar; Charlottesville Stone Corp., stonework contractor/supplier; W. A. Lynch Roofing Co., Inc., roofing; Virginia Insulation Corp., roof/wall/foundation insulation; and R. M. Mawyer, structural wood.

Also, Hickey's Woodworking Shop, cabinets; Better Living, Inc., glass & wood doors; Better Living Windows, windows; Martin Hardware Co., hardware supplier; Thomas Frazier, gypsum board contractor; J. T. Shifflett, special flooring; Amos Breeden, painting contractor; Virginia Solar Contracting Services, Ltd., solar systems; Ray Fisher-Ron Martin, Inc., equipment & heating/ventilating/air conditioning contractor; Noland Co., plumbing fixture supplier; T. D. Payne, plumbing contractor; Piedmont Electric Supply Corp., electrical equipment supplier; and Gibson Electric, electrical contractor.





SECTION: ACTIVE SOLAR SYSTEM

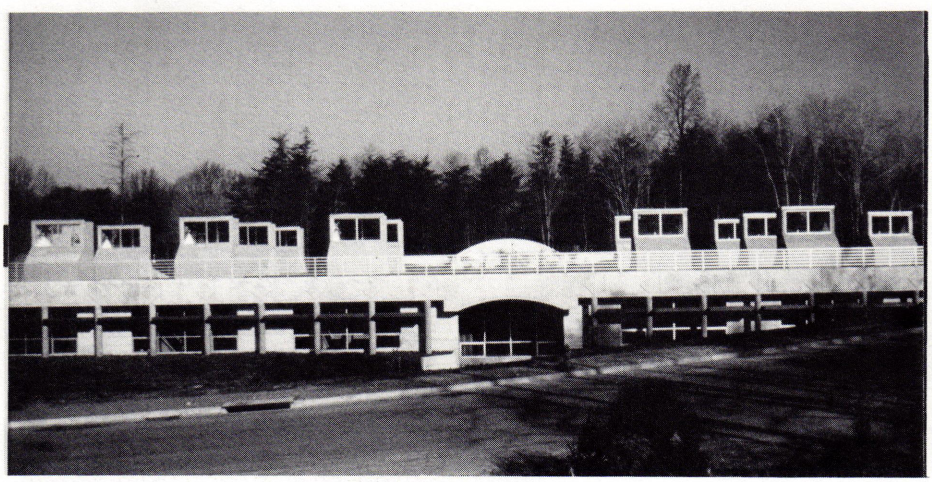


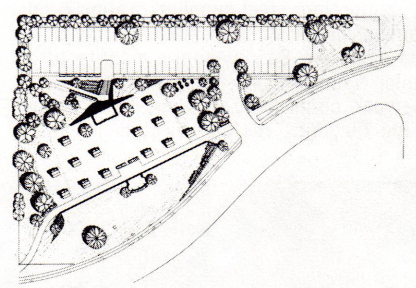
One University Plaza

Fairfax

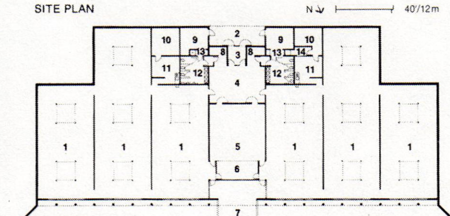
Alternative Design — Architect

Owner, Fairfax County Redevelopment & Housing Authority • Project Architect/Designer, Walter F. Roberts, Jr. • General Contractor, E. H. Glover, Inc.



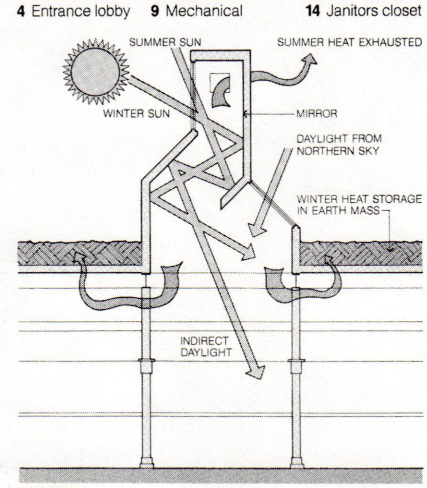


SITE PLAN



FLOOR PLAN

Legend
1 Office area
2 Portal
3 Vestibule
4 Entrance lobby
5 Conference room
6 Platform
7 South plaza
8 Coat room
9 Mechanical
10 Filing
11 Duplication
12 Toilets
13 Shower
14 Janitors closet



SECTION

The headquarters building for Fairfax County's Redevelopment and Housing Authority, One University Plaza, which was completed in November 1981, is the result of an idea for an underground office structure which not only would assist with energy conservation but would also make the office structure less obtrusive within the residential area where it was to be built.

The 18,000 sq. ft. building was carefully integrated into a triangular-shaped site with the exposed south elevation becoming the public face. On the east, the building cuts directly into the earth, while on the north and west it is earth-bermed. Earth and rigid insulation cover the composite roof. This earth-covered roof provides a landscaped area, dotted by sculptured light monitors, which doubles as a recreation site for the employees. A regional bike path also crosses over this landscaped area.

Energy conserving features of the building include a south elevation with operable insulated glazing, protected from the summer sun by a redwood sunscreen, and day-lighting monitors rising above the earth-bermed structure. In the plan, the 10′ x 10′ light monitors occur in the center of the 30′ x 30′ bays. The bays are grouped into six main spaces for the Housing Authority's six departments. Acoustical walls with integrated mechanical spaces divide the departments. In addition to giving every office a connection to the outdoors, the innovative design of the monitors maximizes the use of daylight to reduce lighting costs 50%. The monitors capture and reflect natural light while photoelectric dimmers located within the monitors control the addition of artificial light when necessary to maintain a constant illumination.

The light monitors also assist in heating and cooling the building by acting as either exhaust chimneys or heat collectors. In the cooling process, the building's 14-foot ceiling height assists in stratifying the hot air which rises into the monitors and is exhausted by automatically controlled louvers. During the heating process, solar radiation generates warm air within the monitors thus collecting at the ceiling, allowing the warmth to be stored in the earth mass which acts as a flywheel to return the warmth back to the interior of the building at night. The earth-sheltering also moderates the yearly temperature fluctuations of the building.

Features incorporated into this building will reduce estimated energy costs to approximately one-third of those in a conventional building of comparable size with a cost recovery of 4.5 years.

E. H. Glover, Inc. of Fairfax was general contractor for the project.

Subcontractors & Suppliers

American Excavating Co., Inc., Fairfax, earthwork; William B. Hopke Co., Inc., Alexandria, site utilities; National Asphalt Paving Corp., Merrifield, bituminous paving; Northern Virginia Nursery, Nokesville, landscaping; Bolling Steel Co., Inc., Salem, structural steel, shear studs & metal deck; Hallmark Iron Works, Inc., Newington, miscellaneous iron; Arlington Woodworking & Lumber, McLean, millwork & wood doors; Concrete Applicators, Capitol Heights, MD, elas. roof, roof & wall insulation, flash, S/M & WP Aluminum windows, storefront, glass & glazing; Davenport Insulation, Inc., Springfield, insulation; and T. M. Woodall, Inc., Takoma Park, MD, plaster, drywall & acoustical.

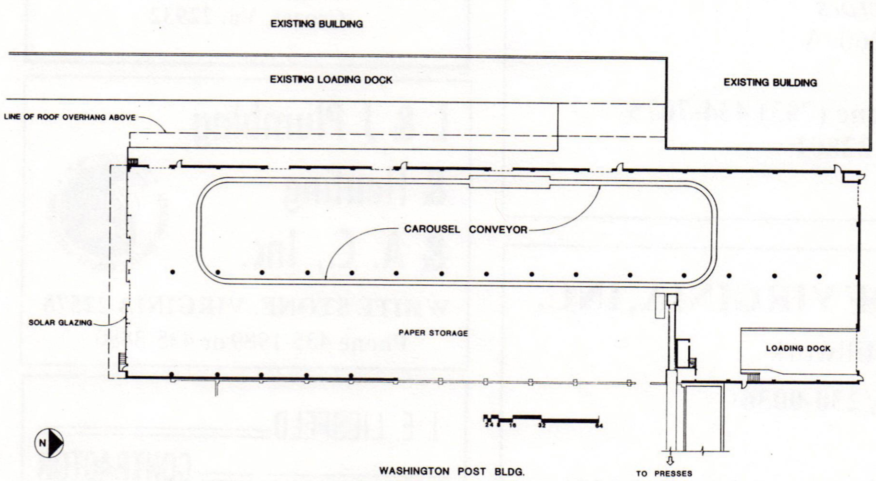
Also, A & S Ceramic Tile, Inc., Frederick, MD, ceramic tile; Southern Maryland Floors, Waldorf, MD, resilient floor & carpet; Dixon Products, Inc., Temple Hills, MD, toilet partitions; Contract Hardware, Laurel, MD, builders hardware; AAA Thermal Windows & Doors, Fairfax, hollow metal doors & frames; Graham, Van Leer & Elmore Co., Inc., Vienna, folding partitions; Schultz & Mellits, Bowie, MD, fire extinguishers & cabinets; H. N. Redmer, Inc., Baltimore, MD, kitchen units; Sita Tile, Capitol Heights, MD, toilet accessories; Bryan & Assoc., Edmonston, MD, painting & finishing; Wilcox Caulking Corp., Lorton, caulking & sealing; Air Movers, Springfield, HVAC; L. T. Bowden, Inc., Vienna, electrical; Dittmar Co., Arlington, plumbing & sprinkler; and Todd Construction Co., Inc., Fairfax Station, building concrete.

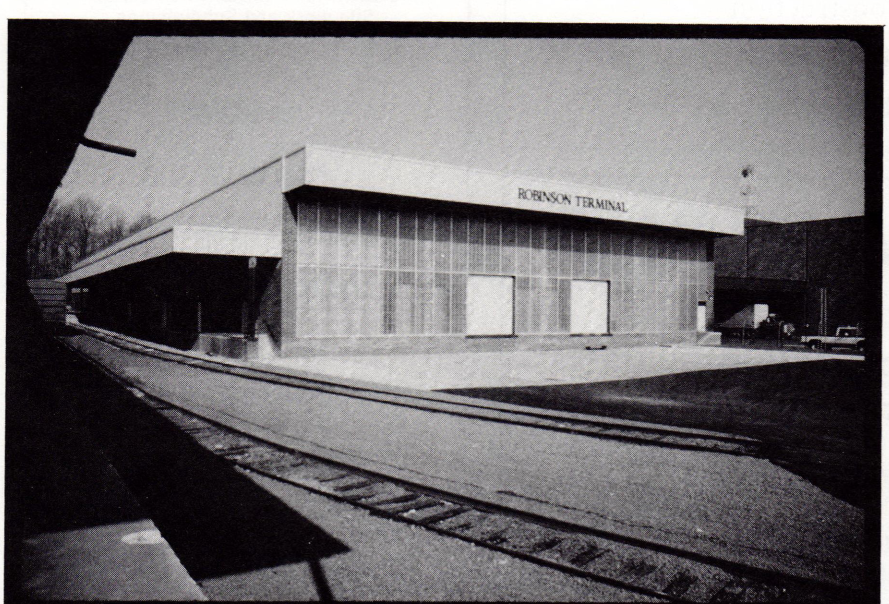
And, Lehigh Portland Cement Co., reinforced concrete, composite roof slab; United Steel Deck, Inc., roof deck; Howmet-Terrel, windows; Kawneer, doors; Metropolitan Ceramics, floors; Armstrong, ceilings; Carlisle Corp., roofing; Tremco, waterproofing; Integrated Insulation Systems & Owens-Corning, insulation; Josam Manufacturing Co., drains; Holcomb & Hoke Manufacturing Co., wood stud partitions; and Foldoor, movable partitions.

Others were: Flood Co., exterior clear finish; Duron Manufacturing Co., interior paint & varnish; Mont Hardware, Falcon, LCN & Kawneer, hardware; Dwyer, kitchen equipment; Robson-Downes, handrails; Devine Lighting, Inc., exterior lighting; Columbia Lighting, Inc., Lam, Inc. & Westinghouse, interior lighting; Lutron Electronics, dimmers; Kohler, plumbing fixtures; Moen, fittings; Sloan Valve Co., flush valves; Global Steel Products, bathroom partitions; A & J United Machine and Metal Products, bathroom accessories; Halsey Taylor, water fountains; General Electric, heat pump; Honeywell, pneumatic controls; Lees, carpet; McGraw Edison, lamps; and Armstrong, acoustical panels.

Structural Engineer, Thomas Downey, Ltd. • Mechanical/Electrical Engineer, Mueller Associates, Inc. • General Contractor, Robinson Terminal Warehouse Corp. • Photography, David S. Strang.

Robinson Terminal Warehouse
Springfield
Strang, Downham and Samaha, AIA — Architects





The Robinson Terminal Warehouse is a 48,000 square foot facility which stores newsprint for the adjoining Washington Post Newspaper printing plant.

The architects' feasibility study indicated that passive solar heating and lighting were economically suitable for this project. Program factors which supported this design approach included a low space temperature requirement of only 58° F, large thermal storage capacity in the form of the paper, and the building's site orientation which offered a 3000 square foot south wall. The construction of the south wall utilized translucent solar sandwich panels for its full height and width.

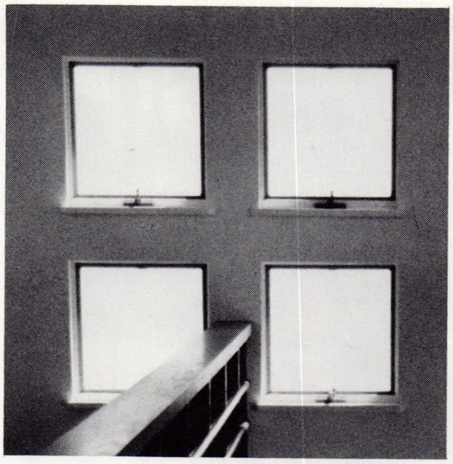
Approximately 5000, 40" diameter by 58" tall, rolls of paper are stored in the warehouse at a given time. A two man work force loads a 24 hour supply of paper onto a carousel and conveyor system, which transfers the newsprint directly to the Washington Post presses.

Since Robinson Terminal Warehouse started operations as of January 1982, they have realized substantial annual cost savings for heating and lighting.

Robinson Terminal Warehouse Corporation of Alexandria acted as their own general contractor.

Subcontractors & Suppliers

W. R. Cannon, Inc., Alexandria, masonry contractor; Southern Iron Works, Inc., Springfield, steel supplier; John W. Hancock, Jr., Inc., Salem, steel joists & steel roof deck; Rayco Roof Service, Inc., Alexandria, built-up roof & other roofing; Davenport Insulation, Inc., Springfield, Owens-Corning roof insulation & wall insulation; Overhead Door Corp., Beltsville, MD, metal doors & frames; Armstrong Ceiling Tiles, acoustical treatment; Kalwall Corp., Manchester, NH, solar panels; and Worsham Sprinkler Co., Inc., Ashland, sprinkler contractor.



Residence for Dr. Richard Willard

Sandbridge, Virginia Beach

The Design Collaborative — Architect

Project Architect/Designer, Edward G. Lazaron, AIA • Site Engineer/Surveyor, Engineering Services, Inc. • Structural Engineer, Stroud-Pence & Associates, P.C. • Solar Hot Water, Alternative Resources, Inc. • General Contractor, Design 3 Corporation.

Sandbridge Beach is one of the most beautiful and secluded beachfronts along the Atlantic Coast. This five-mile stretch of land, which connects Virginia Beach with Currituck Sound in North Carolina, has approximately 1,000 single-family houses. Half of them are lived in year-round by resident families and the other half are available for rental on a weekly or monthly basis.

Twelve miles south of Virginia Beach, a 40-minute drive from Norfolk International Airport and about two-and-a-half hours' drive from

Richmond, Sandbridge offers a unique lifestyle and comfortable climate with tennis courts and golf courses nearby.

Dr. Richard Willard's family enjoyed their summers there so much they built a new solar home on the oceanfront. Their desire was to have an energy-efficient, full-time residence that met their needs as a family of five. Although this house will be rented at first, they plan to live there permanently some years hence.

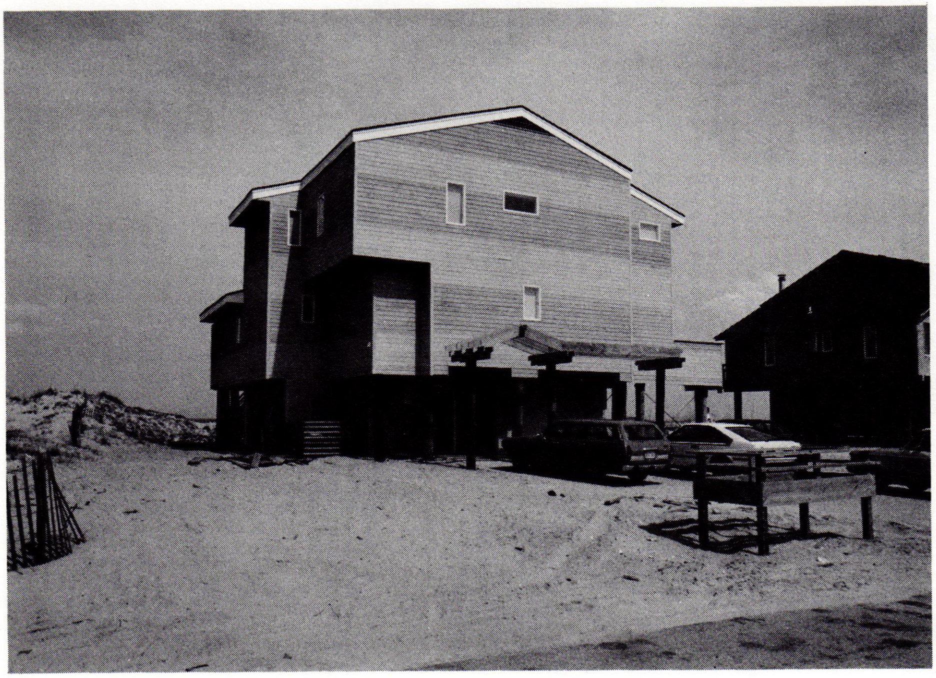
The design is centered around their love of sunshine and fresh air, both indoors and outdoors. Spacious decks surround the house on the south and east (ocean) side. The plan is stepped across the south and east to provide a myriad of changing ocean views and still capture the sun for heating.

Rough-sawn cypress siding is used at the ground level to create a rusticated base. Alternating four-foot bands of shiplap siding, some smooth and some rough-sawn, on the remainder of the facade produce the illusion of figure-ground on the planes of the walls. This technique brings texture to the large, flat surfaces on the north and west and reduces them to a more human scale.

A contemporary peaked trellis above the entry door and garage accentuates the entrance of the house and produces subtle shade as well as visual interest. Variety of light and space have been combined with energy efficiency to create the ultimate beach house for this family.

Both active and passive features are incorporated into the design for cost-effective use of the sun. The high levels of insulation (R-21 walls, R-30 ceilings) and tight construction allow the house to retain winter heat, in spite of its exposure to the weather. An energy-efficient wood-burning fireplace in the living room complements the snuggness of the walls and windows and adds a bit of cheerfulness to offset winter gales.

The living room, with its multi-level walls and gleaming hardwood floors and trim is enhanced by ornamental tile in a stair-stepped design surrounding the fireplace. Indirect fluorescent lighting combined with recessed down-lights provides a variety of subtle nighttime moods.



Above the living room, a clerestory soars to Gothic heights at the top of the stairs and contains a balconied library with numerous book niches cut into the walls. Looking eastward down the balcony, one focuses on a sequence of ocean views revealed through an arrangement of small square windows. The clerestory windows are operable, allowing heat to escape from the rooms below in summer. They let in heat and light during the winter for solar gain. The result of all this unusual fenestration is that the space glows all day long. Architectural planning for ventilation air currents takes advantage of ocean breezes and directs their movement throughout the house. Openings in walls and spaces that are not entirely closed off allow the air to circulate through the house. The high-pitched clerestory acts as a convention chimney for the rising air which is pulled out by opening windows on the down-wind side. Ceiling fans have not been necessary yet, and the whole-house fan in the attic is used only a few days of the year when hot, muggy, breezeless days occur or when the house needs a good airing after being closed up for a while.

The active solar hot water system of this house, a series of 4′ x 8′ x 2¾″ Grummann solar collectors on the south roof, supplies a 120-gallon storage tank with enough water to provide rounds of summer showers for an active family of six with 20 gallons of hot water per person per day at 140 degrees F. This is computed to supply 75% of the yearly need from 96 square feet of collector area.

High performance and low maintenance were priorities for the owners, so the bathrooms are covered in a beautiful variety of ceramic tiles, as are the kitchen, laundry room and the entire ground floor.

Individual bedrooms (there are five) are modest in size but appear much larger through the use of built-in furniture and cathedral ceilings. Each one is different from the others, catering to different personalities. Niches in walls, play lofts and storage units are used for space efficiency and visual impact.

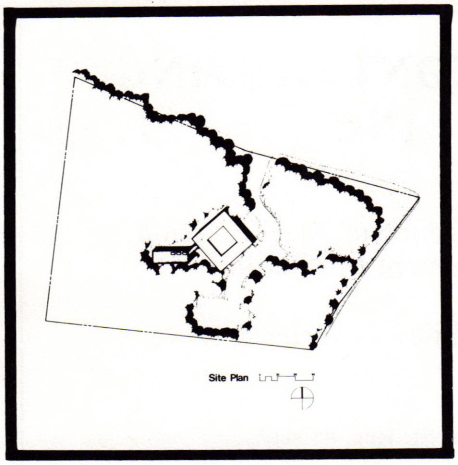
Everywhere one looks in this home, the eye is led through archways, windows, or open spaces ultimately to ocean views. This is to encourage each occupant and visitor to interact more fully with the house and its surrounding environment.

Design 3 Corporation of Virginia Beach was general contractor and handled steel erection and carpentry.

Subcontractors & Suppliers
(Virginia Beach firms unless noted)

Welch Pile Driving Corp., piling; J. C. General Hauling & Septic Tank Service, Inc., concrete contractor, reinforcing, septic tank & driveway; Lone Star Cement, Inc., Norfolk, concrete supplier; Tidewater Steel Co., Inc., Norfolk, steel supplier; Russell Gillam, Norfolk, roofing; Ayers Insulating & Supply Co., Inc., roof insulation & wall insulation; and The Shed, cabinets.

Also, Colonial Insulation, Inc., Norfolk, metal doors & frames; Lowes of Virginia Beach, wood doors & windows; Seaboard Paint & Supply Co., Inc., hardware supplier; Jackson Drywall & Paint Co., gypsum board contractor; Ornamental Tile, ceramic tile; Hudgins Carpet, carpet; Floor Magicians, special flooring; Robert Phillips Painting, Inc., painting contractor; Schell Supply Corp., plumbing fixture supplier; F. P. Manni Plumbing, plumbing contractor; Classic Air Care, Inc., heating/ventilating/air conditioning contractor; and Mac's Electric, electrical contractor (Virginia-Carolina Lighting, fixtures & electrical equipment).



Northern Virginia Regional Park Authority

Headquarters Addition, Fairfax

Lawrence Cook, AIA & Associates

Project Architect, Joe Taylor • Design Team, Joan Thomas • Landscape Architect, Lawrence Cook AIA & Assoc. • Interior Designer, Lawrence Cook, AIA & Assoc. • Site Engineer/Surveyor, Bartlett & Chavez, Inc. • Structural Engineer, Advance Engineers, Ltd. • Mechanical Engineer, Brian Ford & Associates • Electrical Engineer, Alex Perez & Associates • General Contractor, Caldwell & Santmyer • Photography, Jason Horowitz.

Owner's Program

The design problem was to add 1,500 square feet of energy efficient office space to an existing 5,000 square foot Administration Building. The building is located within a forest of deciduous trees.

Building Design

The architect's approach was to recognize that the user of the addition would be working only during the daylight hours. Their schedules of being at their work stations would vary greatly. Considering the function and size of the addition, the architect believed natural daylighting would provide the greatest energy savings. By the use of siting, glazing, a light shelf, reflective surfaces, glass partitions and skylites, 87% of the required light was provided from the sun. Individual control of task lighting and perforated blinds at each work station increases the user's options.

Other energy savings features are the solar preheater for fresh air intake, direct gain with wall storage, mass, night insulation for the glazing, and natural ventilation for cooling. These features will save the owner 68% of the cost of heating and cooling the space.

Solar Systems & Energy Concepts

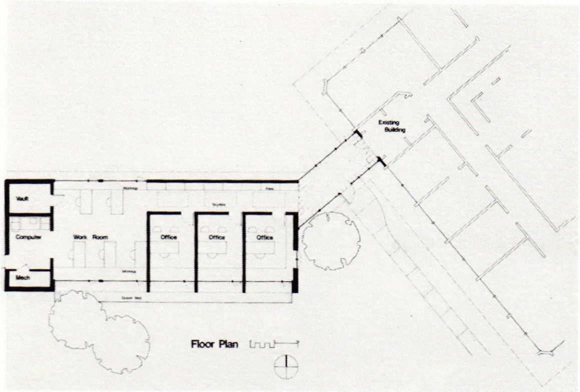
Energy concepts covered five basic areas: daylighting, direct gain, preheating fresh air, high returns, and natural ventilation. The daylighting was achieved by the use of southern glazing and a light shelf with a reflective top surface that bounces light to the ceiling and back down into the space. The worktop counters have a neutral surface to eliminate glare. Each work station has perforated blinds to control the amount of light. The light shelf also contains a strip of indirect fluorescent light.

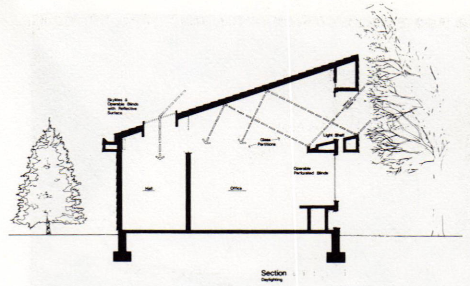
The direct gain was not designed to maintain overnight temperature. This addition contains no plumbing so overnight temperatures can drop lower than normal. A quick heatup in the morning is provided by direct solar gain, the computer and employe body heat.

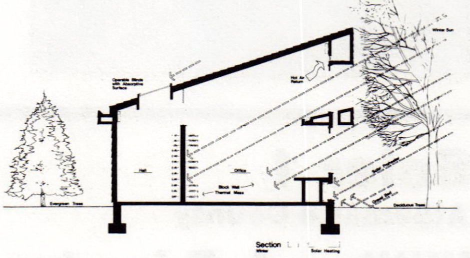
A solar preheater at the lower windows preheats the intake of winter fresh air. The preheater creates positive air pressure within the space to limit air infiltration.

The return air louvers are located at the highest possible location; this acts to correct hot air stratification and return the hottest air back through the mechanical system. During the winter the louver acts as a return and during the summer it switches to an exhaust system.

For summer cooling, operable windows were located on both sides of the building in the direction of the prevailing breezes.







Materials

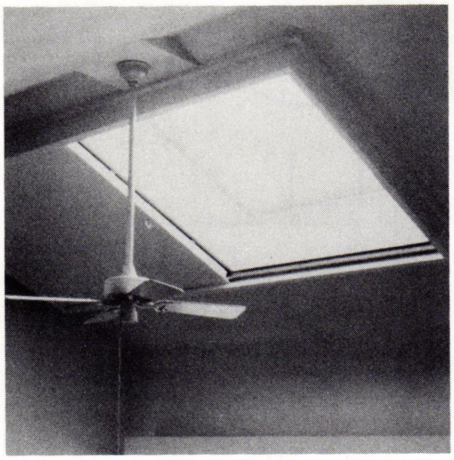
The structural shell is concrete block wrapped with 2" exterior insulation board and clad with cedar shingles on the walls and cedar shakes on the roof. Laminated wood beams and decking form the roof structural system. All partitions are concrete masonry units with wet plaster finish for solar heat storage.

Construction Credits

Caldwell & Santmyer of McLean was general contractor for the project.

Subcontractors & Suppliers

Kim the Mason, Inc., Fredericksburg, masonry contractor; Koppers Co., Inc., Morrisville, NC, roof deck & structural wood; C & F Roofing, built-up roof; Cedar Shake & Shingles, Inc., Manassas, other roofing & sheet metal; Potomac Insulation Co., Alexandria, roof insulation & wall insulation; Jordan Millwork, Beltsville, MD, millwork; Glasscock Drywall, plaster contractor & gypsum board contractor; McClary Tile, Alexandria, special flooring; W. T. Imlay Co., Merrifield, heating/ventilating/air conditioning contractor; and Dynalectric Co., Vienna, electrical contractor.



Solar 1

Albemarle County

William A. Edgerton, AIA & Associates — Architects

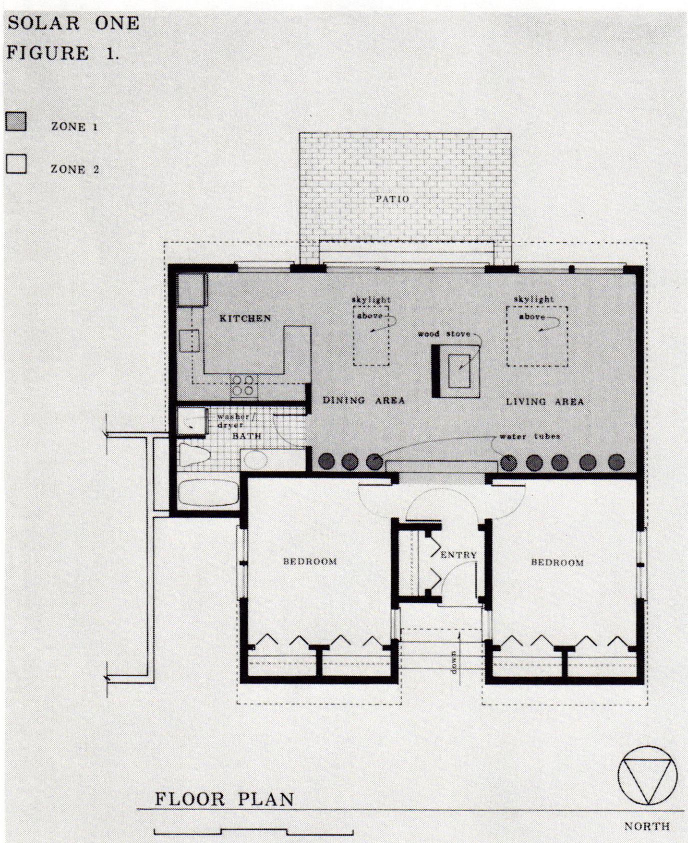
Project Architect/Designer, William A. Edgerton, AIA • Landscape Architect, Will Rieley & Associates • General Contractor, R. G. Carter Building Contractor • Photography, William A. Edgerton, AIA

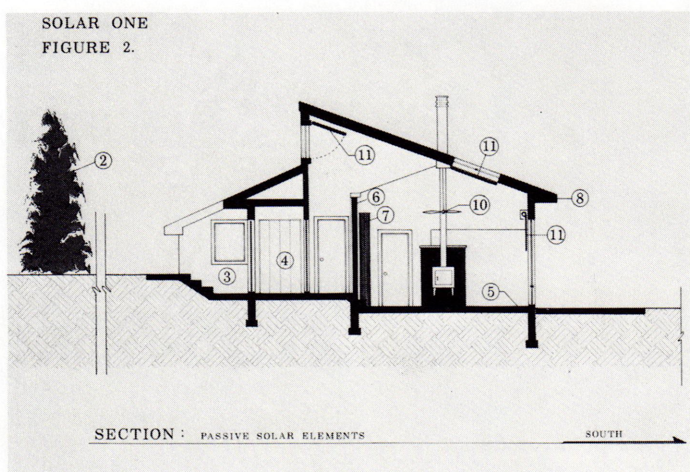
Solar 1 consists of two passive solar duplex rental units built in Albemarle County last year. The units incorporate many passive features as described in the following text. Even though this past winter was considered a mild one by most standards, the success of the units was demonstrated by one of the tenants who reportedly did not turn on the heat pump all winter and only occasionally used her woodstove for back-up heat.

The following text and accompanying drawings outline the passive solar features of the Solar I units.

Figures 1 & 2 show a plan and a sectional drawing of one unit. Passive elements described below are keyed to Figure 2 by corresponding numbers.

Figures 3 & 4 graphically show how the various elements described should be utilized for





optimum results. Passive solar design is an alternative to the needless waste of energy in the traditional built form of single family homes. It is a simple solution, but requires the understanding of the user. If used correctly these units should be 60-80% energy independent, according to a computer analysis performed on them. As a back-up system and for auxiliary heat each unit has a heat pump and an air-tight wood stove.

1. General Passive Elements

The units are oriented on an east/west axis with all of the living space oriented due south. In plan (see figure 1) space is divided into two zones.

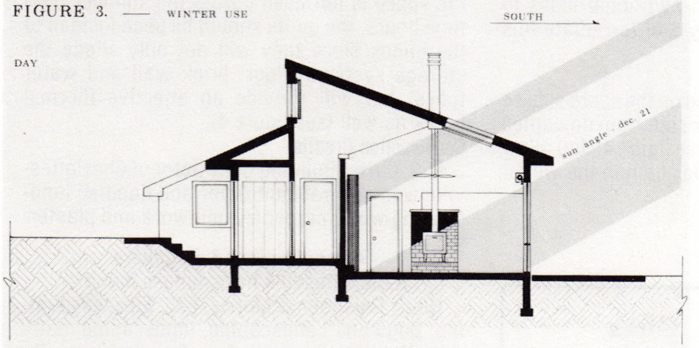
ZONE 1: The living space (kitchen/dining & living areas) is a direct gain space and was designed to allow as much solar gain as possible. This space will probably be used primarily during daytime hours when the solar gain will be most appreciated.

ZONE 2: The sleeping areas will be used primarily at night and were thus located along the north side of the units. They are separated from the direct gain space (Zone 1) by a thermal storage wall which was intended to radiate excess heat collected in Zone 1 into Zone 2.

The units are thoroughly insulated with 2 x 6

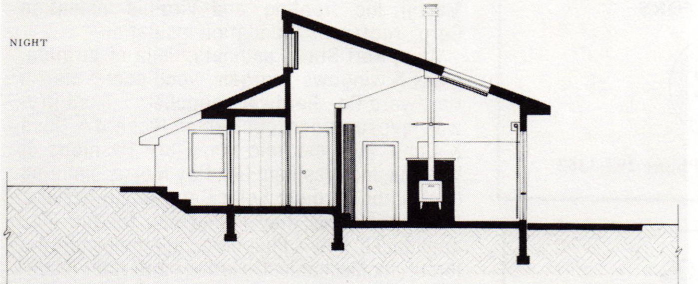
SOLAR ONE
FIGURE 3. — WINTER USE

DAY



1.) All windows, skylights & doors securely closed (especially air lock entry).
2.) All quilts & shutters that are oriented to South fully open to allow maximum amount of sunlight on storage wall, tubes & slab.
3.) All other quilts and shutters closed.

NIGHT

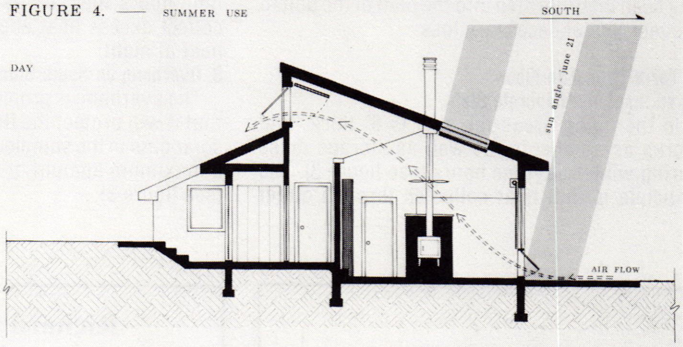


1.) All windows, skylights and doors securely closed.
2.) All quilts and shutters in closed position.

Note: 1.) Set thermostat and leave it alone.
2.) Continuous use of wood stove should provide all needed auxiliary heat.

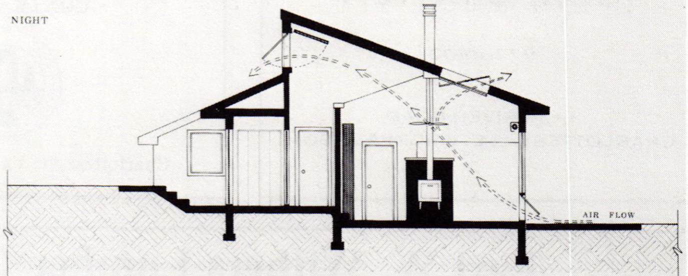
SOLAR ONE
FIGURE 4. — SUMMER USE

DAY



1.) All windows open. (note: Leave patio door closed with quilt closed.)
2.) Skylight shutters closed.
3.) Quilts on south side closed partially. (note: Do not block lower awnings on south side.)
4.) All louvred blinds should be adjusted to prevent any sunlight from getting onto the storage system (especially on west).

NIGHT



1.) All windows, quilts, shutters, skylights, clerestories & doors fully open (including both doors in air lock entry).

stud walls and an "R-Factor" in excess of 40. Particular attention was paid to insulating corners and around windows and door openings to minimize infiltration.

2. Wind Screen

A carefully located screen of dense evergreens to shield the units from cold north winds in the winter.

3. Protected Entrance

The entrance is recessed into the mass of the building and set below the natural grade to protect the entry to the units from winter winds.

4. "Air Lock" Entry

According to recent studies 10% of all heat in a home is lost just in the opening and closing of the front door. A double door "air lock" entry has been incorporated into the plan of the unit to prevent this unnecessary loss.

5. Terra-Cotta Tile Floor on an Insulated Concrete Slab

In the living areas the slab is 6" thick, and works as a collector as well as storage mass during winter daytime hours (see figure 3). The principle is that heat collected through direct solar gain in the daytime will be stored and re-radiated into the space at night when it is needed.

6. Interior Brick Wall

The wall separating the sleeping areas from the living areas also acts as a collector as well as a storage mass during winter daytime hours (see figure 3). Direct solar gain occurs when the shutters on the skylights are left open and sunlight can "wash" this wall. Heat from this wall is radiated into the sleeping rooms as well as the living area.

7. Water-Filled Thermal Storage Tubes

The eight plastic tubes filled with water in the living areas also have a double function as collectors and storage mass. During winter daytime hours they act as an additional mass to collect excess heat energy and re-radiate this heat at night.

8. Overhang on South Side

The overhang is projected on the south side so that it will protect the floor slab from unwanted solar gain in the summer (see figure 4), but allow a maximum amount of solar gain in the winter (see figure 3).

9. No Windows on the North Facade

There are no windows on the north facade of the units to prevent heat loss during the winter months. The closets were located along this wall and the wall was partially set into the hillside to further increase the insulating capacity of this side of the unit.

10. Ceiling Fan with Reversible Blades

The ceiling fan in the living area was included to allow warm air that will collect in this high area to be forced down and circulated during the heating season. In the cooling season the blades can be manually turned to reverse the flow of air and assist in exhausting the unwanted warm air through the open skylight (see figure 4).

11. Night Insulation

(Figures 3 & 4)

All windows are equipped with "window quilts," and the skylights and clerestory have insulated interior shutters. These can significantly reduce the heating and cooling needs of the units if used correctly. In general all shutters and quilts on south oriented windows and skylights should be left open during daytime hours during the heating season to allow the maximum solar gain on the collector/storage systems (floor, brick wall and water tubes). At night and during extremely cold, cloudy days these should be closed to retain as much heat as possible.

During the cooling season (summer) the process would be reversed. The quilts and shutters oriented to the south would be left in a partially closed position (see figure 4) during daytime hours to shade the storage systems. On summer nights all quilts, shutters, windows, doors and skylights should be left open to vent the space, and cool the storage systems.

12. Window Blinds

All windows have blinds built into them and this is so that when the space is to be used during daylight hours in the summer the mass can be shaded without have to close the quilts. If the space is not used during the summer daytime hours, the quilts should be used instead of the blinds since they will not only shade the storage systems (floor, brick wall and water tubes) but will provide an effective thermal break as well (see figure 4).

Construction Credits

R. G. Carter Building Contractor of Charlottesville was general contractor and handled landscaping work, carpentry, millwork and plastering.

Subcontractors & Suppliers
(Charlottesville firms unless noted)

Haley Chisholm & Morris/E. L. Sipe, excavating; Dogwood Landscaping, landscaping materials; Williams Concrete, foundations & concrete contractor; Associated Steel Products, Inc., reinforcing, steel grating & miscellaneous metal; H. T. Ferron Co., concrete supplier & masonry supplier; Roy Pippin, masonry contractor; E. M. Martin, Inc., roofing; and Virginia Insulation Corp., roof/wall/foundation insulation.

Also, Karl Stark, cabinets; Pella of Virginia, glass & windows; Morgan, wood doors; Martin Hardware Co., hardware supplier; Troxell Drywall, gypsum board contractor; Richard A. Oliva & Sons, Inc., ceramic tile; Floor Fashions of Virginia, Inc., resilient tile; Ray Morris, painting contractor; Virginia Solar Contracting Service, Ltd., specialties; Ray Fisher-Ron Martin, Inc., appliances; Pete's Plumbing, plumbing contractor; Brunk Mechanical, heating contractor (backup system) & ventilating/air conditioning contractor; Interstate Electric Supply Co., Inc., electrical equipment supplier; and Safeway Electric, electrical contractor.

Link Harbour Condominiums
Virginia Beach
The Design Collaborative — Architect

Landscape Architect, Edward G. Carson & Assoc. • Site Engineer/Surveyor, Langley & McDonal • Structural Engineer, Stroud-Pence & Associates, P.C. • General Contractor, Salasky & Sedel, Inc. • Photography, Laszlo Aranyi, AIA.

A contemporary community, Link Harbour is located in Virginia Beach's prestigious Linkhorn Park. An escape from the stresses of life, it is nestled in a peaceful, secluded setting overlooking Linkhorn Bay. The closest neighbors are seagulls and fresh winds that blow down the winding waterways.

This 48-unit low rise condominium offers spacious two-bedroom designs in either one or two-story units. Passive solar and energy efficient features such as greenhouses and fireplaces are in line with today's energy conscious buyers. Private boat slips give seafarers deepwater access for their boating pleasure. "We wanted something very special for this piece of land," said Arnold Salasky, "and we knew we wanted a 'showpiece' to go on it." When Salasky and his partner, Jon Sedel, saw the sketches for Ed Lazaron and Mike Padden's award-winning design in the 1981 Virginia State Passive Solar Competition, they asked them to modify it for their property on Linkhorn Bay. The result is a practical and innovative contemporary arrangement of two-story townhouse flats over one-story garden apartments.

The project is surrounded on three sides by water, isolating it on the north, south and west from crowding by neighbors, noises or anything that would block the sun or the views. All of the fronts of the condominiums face outward around the tiny peninsula with views and sounds of the water lapping against the shore. Access to the condominiums is from the east, where entry is from the parking lot in the center of the U-shaped project.

Subtle variations in the coloring and staggering of these units creates clusters of row-houses reminiscent of the little villages on the water in Venice and Amsterdam.

Clerestory windows framed by diagonally cut cedar planks jut up over the rooftops and occasional round "fish-eye" windows afford selective daylighting. All the units realize some direct gain through these windows. Daylighting is supplemented by recessed lights and track lights as ceiling heights vary from 8' to 16' cathedral ceilings in the townhouses to fully illuminated kitchen ceilings in the lower units. Corridors are skylighted. Sliding glass doors open onto balconies overlooking the water. The kitchen/dining areas are separated from the living areas only by fireplaces in contemporary angled partial walls. The feeling of openness and the circulation of air

and light creates a feeling of spaciousness beyond the existing square footage.

Link Harbour's units are in the $89,500 to $116,500 price range.

Salasky-Sedel, Inc. of Virginia Beach acted as general contractor for the project.

Subcontractors & Suppliers

Other Virginia Beach firms were: Virginia Builders, Inc., excavating; Lynnhaven Marine Construction, piling; Asphalt Roads & Materials Co., Inc., paving contractor; Coastal Concrete Co., concrete contractor; Beach Welding, steel handrails; Premier Millwork & Lumber Co., Inc., millwork; Ocean Glass & Mirror Co., glazing contractor/mirrors; Brunk Mechanical Corp., plumbing contractor; Styron Heating & Air Conditioning, Inc., heating/ventilating/air conditioning contractor; and Commercial Lighting, Inc., lighting fixtures supplier.

From Norfolk were: Winn Nursery, Inc., landscaping materials & landscaping contractor; H & H Construction Co., carpentry; Addington-Beaman Lumber Co., Inc., structural wood; Kitchen Towne Distributors, cabinets & carpet; Ferrell Linoleum & Tile Co., Inc., ceramic tile; Hearth & Home Distributors, Inc., fireplaces; George G. Lee Co., plumbing fixture supplier; and Hightower Electric, electrical contractor.

Others were: Interior Systems of VA, Inc., Chesapeake, wall insulation, gypsum board contractor & painting contractor; K & P Caulking Co., Inc., Chesapeake, caulking; Lord & Burnham Construction Co., Irvington, NY, glass/greenhouses; Therma-Tru Steel Doors, wood doors; and Andersen Windows, Bayport, MN, windows.

8th Annual Fall Festival of Needlework At Woodlawn Plantation

Learn From the Pros

Seven famous needle artists will conduct classes in their specialties for Woodlawn Plantation's 8th Annual Fall Festival of Needlework. Inspired by the stitchery of Nelly Custis Lewis, and sponsored by Nelly's Needlers—Woodlawn's volunteer support group—the festival will be held October 17-22 and October 24 from 10:00 a.m.-3:00 p.m.

The year's program is the most comprehensive ever. Georgia Bonesteel opens the festival Monday, October 17th, exploring the art of lap quilting, and giving some previews of her new Fall TV series. On Tuesday, October 18, Rosemary Drysdale will teach hardanger, an embroidery technique that originated in Scandanavia. Popular Erica Wilson will teach two workshops this fall: silk and metal threads on Wednesday, October 19, and a special "Christmas World" class on Thursday, October 20th. Friday, October 21st is the day to concentrate on crewel embroidery, with author and designer Audrey Francini leading the class. On Saturday, October 22, Chottie Alderson teaches canvas lace, an old fashioned needlepoint technique. An extra day has been added to the festival this year—Monday, October 24, when English artist Anna Pearson brings to Woodlawn a day of bargello.

Participants learn by working original designs created by instructors especially for the festival. Mark your calendar and register early for one or more seminars. Class size is limited. Registration fee of $40.00 per day includes lunch, sherry, stitching materials, and a tour of the historic house where Nelly Custis Lewis' 19th century needlework is preserved. For registration information call 703/557-7880.

Woodlawn Plantation, a property of the National Trust for Historic Preservation, is located on Route 1 in Alexandria, 14 miles south of Washington, D.C. Mansion and grounds are open daily from 9:30 a.m.-4:30 p.m.

Guided Walking Tours Of Old Town Alexandria Offered Through Nov. 28

As an additional service to visitors, the Alexandria Tourist Council will again offer guided walking tours of Old Town Alexandria on Mondays and Saturdays only, Sept. 10 through Nov. 28.

A trained, authentically-clothed guide takes visitors on a 60-90 minute tour of the city's historic district and discusses Alexandria's rich heritage and sites associated with memorable persons and events. The guide is trained and employed by an Alexandria guide service, Doorways to Old Virginia. The same company also offers progressive dinner tours of Alexandria.

Guided walking tours follow the 10:30 a.m. showing of a free film on Alexandria history at the Ramsay House Visitors Center, 221 King St. Tickets for the tour are purchased at the Ramsay House just before the tour begins. Reservations are not necessary unless for a group of ten or more persons. Tickets are $2 per person.

For more information, call (703) 549-0205 or (703) 548-0100.

30th Annual Antiques Show & Sale

Northampton-Accomack Memorial Hospital Auxiliary will again sponsor the Annual Fall Antiques Show and Sale in Belle Haven. This 30th Annual event will be held at the Moose Lodge in Belle Haven on November 11, 12 and 13. Y'all come.

TRAVELERS' GUIDE

Sky Meadows State Park Grand Opening Held

Ronald D. Sutton, Virginia Division of Parks and Recreation Commissioner, announced the opening of Sky Meadows State Park, effective August 27, 1983. Lying adjacent to U.S. Route 17, the park overlaps Fauquier and Clarke Counties, near the intersection of Route 17 and Route 50. The park is 50 miles west of Washington, D.C.

Formal opening ceremonies were held at 11:00 a.m. on the lawn of the park's Manor House, Mount Bleak. Present were The Honorable Alson H. Smith, Jr., Delegate from the Sixteenth House District; The Honorable Thomas M. Moncure, Jr., Delegate from the Twentieth House District; and The Honorable Kenneth B. Rollins, Delegate from the Seventeenth House District. Willard Scott, of NBC's *Today Show*, was the Master of Ceremonies.

Sky Meadows, stretching across 1132 acres of rolling pasture and wooded mountain land, will open with a limited operation. Hiking trails, picnicking near the historic Mount Bleak House in the center of the park, temporary restroom facilities, a primitive walk-in campground—a staging area and access to the Appalachian Trail, and the park office will be available. Parking is provided for 48 vehicles, including designated areas for buses and handicapped parking.

The primitive campground has nine sites offering pit toilet facilities, tent pads and fire rings. Nearby an old farm building has been converted to a temporary shelter, providing three additional campsites consisting of three wooden platforms to accommodate sleeping bags for at least 12 hikers.

Further development is continuing, and when completed, the park will offer an interpretive program keyed to the natural and historical resources of the park, a relocated and expanded picnic area, and additional hiking trails.

"Even with the limited facilities that will be available this season," said Commissioner Sutton, "the extraordinary surroundings—scenic overlooks, prevailing breezes, abundant wildlife and broad open spaces—are certain to be well worth the trip to Sky Meadows. We hope to have many visitors to the park who will take advantage of what it has to offer."

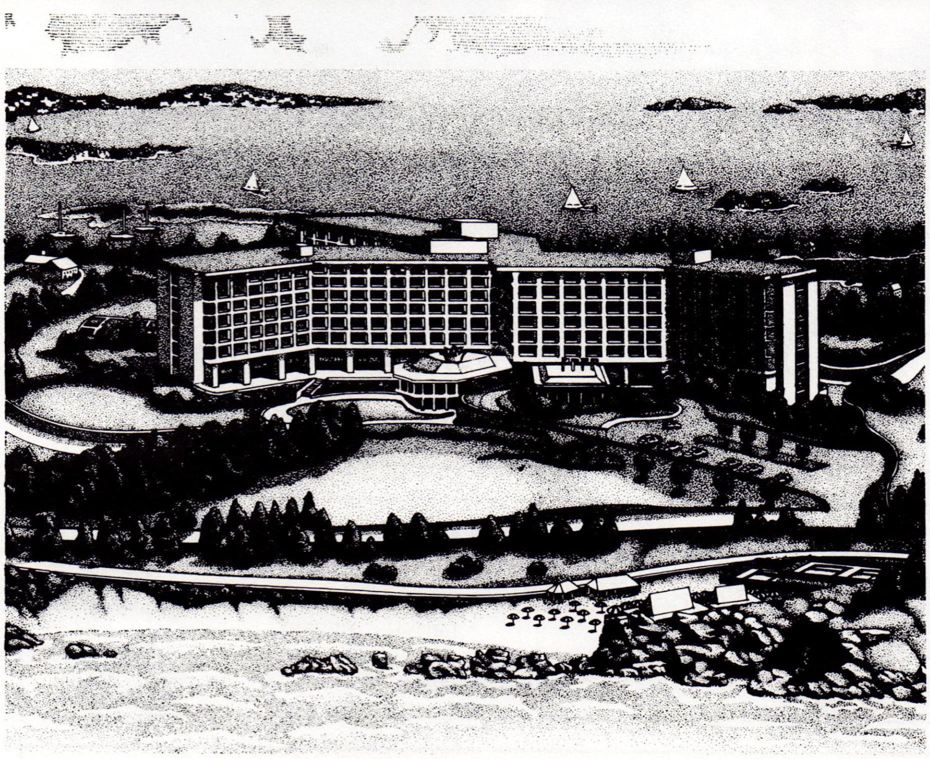
Primitive camping fees are $4.50 per night, per campsite. Campsites are available on a first-come, first-served basis.

The park will be open daily from 8:00 a.m.-10:00 p.m. through November 28, 1983; the primitive campground is open year-round.

For more information on Sky Meadows State Park, contact the Park Superintendent's office: Route 1, Box 540, Delaplane, Virginia 22025, (703) 592-3556; or the Division of Parks and Recreation's Central Office: 1201 Washington Building, Capitol Square, Richmond, Virginia 23219, (804) 786-2132.

KEEP Virginia Beautiful

FOR THE RECORD



Southampton Princess Hotel, Bermuda

AGC Members Enjoy Bermuda Management Conference

As this issue is distributed, some 140 Associated General Contractors of Virginia members and families are enjoying the beautiful and spacious facilities of the Southampton Princess Hotel in Bermuda. Business sessions during the trip, September 14 through 19, will include an open forum on Bidding Systems, Labor Relations, Materials and Supplies, conducted by four contractors who are leaders in the construction industry in Bermuda. They are: Zang Weinacht (Sea-Land Construction, Ltd.); Robert L. Soares and John G. Burland (Burland, Conyers & Marirea, Ltd.); and Brian Northcutt (Bermuda Air Conditioning, Ltd.).

Tours will be conducted to building sites, including a power plant, air station, AT&T Communications Dish and others. The Minister of Planning and Environment, Haskins Davis, will greet the group and give background information about the unique building situation Bermuda presents.

The full schedule of seminar sessions and activities is balanced by ample free time to explore the Gibbs Hill Lighthouse, Bermuda Maritime Museum and Keepyard, Crystal and Leamington Caves, St. George's Historical Society Museum dating from 1725, Bermuda Cathedral with locally sculptured reredos, Old Devonshire Church built in 1716, and Forts Scaur and Hamilton from the 19th century.

This favorite site for conferences has been AGC's choice three times within the last ten years. The management conferences in 1973, 1978, and now 1983 have been scheduled to take advantage of the relaxed atmosphere, excellent accommodations, and beautiful surroundings for which Bermuda is famous.

Greece is next year's destination. Conference sessions will be held in Greece and on the cruise ship during a tour of the Aegean Sea and islands.

Houck Named President of John R. Houck Company

J. R. (Jack) Houck has been named President of John R. Houck Company, distributors of steel and aluminum roofing and siding and steel floor deck, roof deck and steel joists.

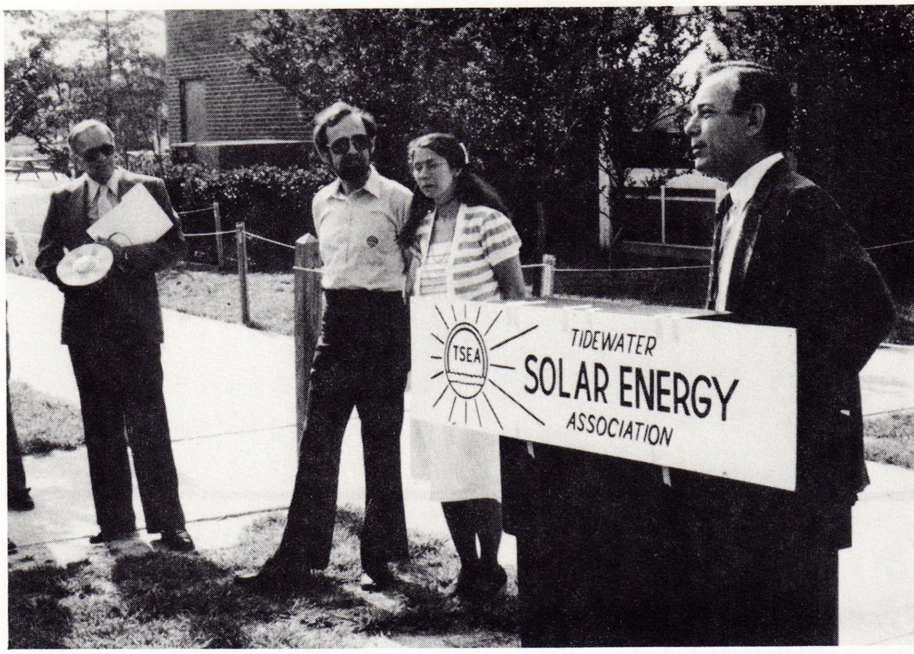
Houck joined the company in 1972 and became Vice President in 1974.

Roanoke College Announces New VP—Business Affairs

Norman D. Fintel, President of Roanoke College has announced the appointment of William R. Walton as Vice President—Business Affairs, effective August 1, 1983.

Mr. Walton replaces C. P. Caldwell, Jr., Vice President—Finance, who retired July 31, 1983.

Maria Trione of The Design Collaborative looks at electronic visual displays with Mike Alderman, professor at TCC and Coordinator of Solar Programs.



Jim Kincaid, anchorman for WVEC-TV and solar energy supporter, addresses opening exercises at TSEA's Suntrek '83. Shown left to right are: Dr. Michael LaBouve, Provost of Tidewater Community College (holding his "solar power toy"); Laszlo Aranyi, AIA, Chairman of TSEA; Jeany Carter, Public Relations Co-Chairman for the event; and Jim Kincaid.

Suntrek '83

The second spring tour of solar homes, sponsored by the Tidewater Solar Energy Association took place on May 14, 1983. The tour featured some 20 sites with proven solar systems. On display were passive systems, including Trombe walls and a batch feeder, two condominium designs, an owner-designed/ owner-built home and a number of retrofits featuring a variety of active domes, domestic hot water and space systems. There was even a solar heated swimming pool.

Tidewater Community College hosted the opening ceremonies of the event and had multimedia electronic displays describing the uses of solar energy. Dr. LaBouve, Provost of TCC described the solar program at the college and was presented with a photovoltaic powered daisy by TSEA Chairman, Laszlo Aranyi. Jim Kincaid, anchorman for WVEC-TV said a few humorous and serious words about Solar Energy and received a photovoltaic sun-visor radio from Jeany Carter, public relations person for TSEA.

The tour, attended by some 300-400 people, was endorsed by Governor Charles Robb and Dr. Temple Bayliss, Director of the Division of Energy.

New President, Vice President and Three Directors Named at Belden Brick

William H. Belden, President of The Belden Brick Company, Canton, Ohio, announced that William H. Belden, Jr., formerly a director of the company, became President effective July 1. William Belden assumed the position of Chairman of the Executive Committee. P.B. Belden, Jr. remains Chairman of the Board.

In addition, Belden announced that Robert F. Belden became Vice-President-Marketing on August 1st. He will be elected to the Board of Directors along with David H. Hartung of the company and Daniel M. Belden, Jr., General Manager of Central States Can Co., Composite Can Operations.

William H. Belden, Jr. becomes the fourth generation of Beldens to assume the Presidency of the 98-year-old company. A graduate of Central Catholic High School in Canton, Ohio, Belden received a degree in electrical engineering from the University of Notre Dame and a Masters in Business Administration from Case Western Reserve University. He became a sales engineer and later sales manager for Jackson Bayley Electric Co. He has been President of Power Systems Development since 1974. He has served as Chairman of the Stark County Republican Finance Committee, serves as a Director of Central Trust Company, Central Bancorporation, and Danner Press Corporation. Belden is on the Advisory Board at the House of Loreto. He is currently President of the United Way of Central Stark County.

William H. Belden
President, Belden Brick Co.

Robert F. Belden, new Vice President-Marketing comes to The Belden Brick Company from the Chicago Board of Options Exchange where he is a member. He is a graduate of Central Catholic High School and received a B.S. Degree in Mathematics from the University of Notre Dame in 1969. He received an M.B.A. in Operation Research/Management Science from the University of Michigan in 1971. Prior to working at the Chicago Board of Options, he worked in various marketing positions for the 3M Company. Belden was a quarterback on the Dallas Cowboys of the N.F.L. for two seasons, 1969 and 1970.

The Belden Brick Company, with eight plants throughout Ohio, is one of the largest face brick manufacturers in the country. It is reported that Belden Brick provides the largest selection of color, texture, and size in the industry.

Highway Department Promotes J. G. Ripley

Joseph G. Ripley, former urban engineer and now right-of-way engineer for the Virginia Department of Highways and Transportation, has been promoted to director of planning and programming.

Ripley, a 54-year-old native of Buchanan, succeeds Oscar K. Mabry, who was recently named deputy commissioner for the department.

In his new position, Ripley will coordinate the agency's urban, secondary roads, programming and scheduling, and transportation planning divisions.

He was graduated from Virginia Military Institute with a Bachelor of Science degree in civil engineering in 1950, and joined the department's graduate engineer training program the same year.

After an 18-month leave to serve in the army during the Korean War in 1951, he returned to complete the training program in 1954. He was then assigned as the department's assistant resident engineer at Lebanon in Russell County, and was promoted to resident engineer at Chatham three years later.

Ripley also worked briefly as resident engineer at Christiansburg in 1964 before becoming assistant urban engineer in the department's central office in Richmond.

He was named head of the urban division in 1972, coordinating the department's relations with municipalities throughout Virginia, and then became head of the right-of-way division last November.

Ripley is a member of the American Association of State Highway and Transportation Officials. He is married to the former Mary Jack Haskins of Callands, and they are the parents of a son and a daughter.

Former Architectural Rep. Dies Suddenly

DONALD O. DUFF SR., of Colonial Heights, former architectural representative for the Virginia Chapter AWI, died suddenly at his home on May 15. Don had served as A/R for the past three years and had just resigned that post on May 1st to accept a position with Premier Millwork of Virginia Beach.

He was a former partner in the Michigan firm, McClelland-Duff. Survivors include his wife, Leslie , and their son Don Jr., Erb Lumber Co., Birmingham, Michigan.

AGC Announces Courses for Construction Management

The Associated General Contractors of Virginia has announced the 1983-84 schedule of Certified Construction Management courses. These seminars provide continuing education for key managers to develop further skills and competency in management. They also serve as training for potential managers.

The Business Management Committee of the AGC of Virginia, with the assistance and cooperation of Virginia Tech, has designed the program to cover the essential aspects of construction management that are critical to building and maintaining an effective business operation.

Those who participate satisfactorily in any 15 seminar days and who pass a certifying examination will be awarded a Diploma in Construction Management issued jointly by the AGC of Virginia and Virginia Polytechnic Institute and State University.

The courses are open to all interested. A complete brochure listing the seminars, locations, dates and costs is available on request from the AGC of Virginia, P.O. Box 6878, Richmond, VA, 23230. (804) 359-9288. Below are the courses offered this year:

COURSE SCHEDULE — 1983-1984
CERTIFIED CONSTRUCTION MANAGEMENT DIPLOMA PROGRAM

Course	Length	Date	Location
Financial Management for Contractors	2 days	Sept. 13-14	Charlottesville
Estimating & Bidding	2 days	Oct. 4-5	Williamsburg
Insurance & Bonding For Contractors	1 day	Oct. 25	Fredericksburg
Project Scheduling for Contractors	2 days	Nov. 15-16	Roanoke
Computer Management Systems for Contractors	2 days	Dec. 6-7	Richmond
Management Succession in the Closely Held Construction Firm	2 days	Feb. 7-8	Harrisonburg
Managing People in Construction	2 days	Feb. 28-29	Lexington
Construction Law	2 days	March 20-21	Williamsburg
Construction Contract Administration	2 days	April 10-11	Virginia Beach
Marketing For Contractors	1 day	May 2	Richmond

Virginia Industrial Development News

West German Firm Locates in Richmond

Fahnen-Schmid of Bad Reichenhal, West Germany has established a manufacturing facility in Richmond. Schmid Flags, Inc., the new Virginia subsidiary, will manufacture embroidered flags, banners, patches, and family crests for domestic markets.

The company is located at 5000 Osborne Turnpike, in the former Cedar Works property now owned by the Raschig Corporation. Schmid Flags, Inc. has invested $200,000 and is leasing approximately 3,000 square feet of office and production space from the Raschig Corporation.

According to owner Johann B. Schmid, Schmid Flags, Inc. now employs three people, and expects to expand its labor force over the next several months. Fahnen-Schmid, the parent firm, employs 12 people. The Industrial Training Division of the Virginia Community College System will provide training assistance.

Several other locations in the Mid-Atlantic region were considered, prior to the company's selection of Richmond. Schmid Flags, Inc. was assisted in the location process by the Richmond and Brussels offices of the Virginia Division of Industrial Development.

Governor Robb Dedicates Two Virginia Company Expansions

Two Virginia companies dedicated expansions of their facilities on Friday, August 26, 1983. Governor Charles S. Robb was the keynote speaker at ceremonies for Bowman Apple Products Company in Mount Jackson at 10 a.m. and Arthur H. Fulton, Inc. in Stephens City at 11:30 a.m.

Bowman Apple Products Company dedicated a $5 million, 55,000 square foot building which will be used to blend and bottle pure unsweetened fruit juices such as orange, grapefruit, grape and apple from concentrate. According to the company, this plant is the first of its kind in Virginia. The new plant will also pack fresh apple juice on a 10-month basis, and other product lines, such as cranberry, prune and pineapple will be added in the near future. When operating at maximum speeds the production line will be capable of producing 15,000 cases of pure fruit juice in a single eight hour shift.

Bowman Apple Products Company estimates the expansion will create 50 to 60 new jobs and that employment will eventually rise to 100 to 200 new jobs. Founded in 1939 by Gordon D. Bowman, Sr., the company has long been recognized as a processor of quality apple products and in 1982 acquired the trademark and recipes of the "Old Virginia" label. The dedication of the new facility will launch Bowman Apple Products Company into a new phase of food preparation.

The company held an open house for its employees and the general public on Saturday, August 27.

Also on August 26, Governor Robb spoke at the dedication ceremonies for the 9,000 square foot expansion of the Arthur H. Fulton, Inc. corporate offices in Stephens City. Located on Route 277, the Stephens City facility includes the company's main terminal with complete maintenance facilities, as well as the headquarters complex, which employs about 75 people. Satellite terminals are located in Eden, North Carolina and Byron, Georgia.

Arthur H. Fulton, Inc. services some 2,500 customers in every state east of the Mississippi River, with approximately half of the product loads comprised of malt beverages and the remaining half composed of general industrial products. The company's fleet has expanded to over 110 tractors, with three times as many trailers. In 1982, gross sales for Arthur H. Fulton, Inc. exceeded $10 million.

The company was founded in 1966 by Arthur H. Fulton, a native of Virginia. An open house for the general public was held on Friday, August 26.

Manager of Bristol, Virginia Firm Honored by White-Westinghouse

In the photo above, H. E. "Hal" Schafer (left), White Consolidated Industries, Inc., vice president-consumer products domestic marketing, congratulates Charlie Schlipf, sales manager of Service Appliance Company, Inc., Bristol, Virginia, a distributor for White-Westinghouse Appliance Company, who was named one of the company's top distributor sales managers at White Westinghouse's recent annual Hall of Fame awards banquet at the Hyatt Islandia Hotel in San Diego, California. Based on outstanding sales achievement, the awards are presented each year to the top performers in seven management categories.

Innovation in Charlottesville

What may be the world's first completely solar-heated railroad freight depot has opened its doors for business in Charlottesville.

Built and owned by Southern Railway, which prides itself on giving "a green light to innovations," the $180,000 building is the latest of a long list of technological "firsts" claimed by Southern in its 96-year history of progress and growth.

Southern built the Charlottesville depot as a demonstration project, incorporating the very latest in solar technology, to further its knowledge of the state of the art. The architect was Van Fraser, Chief Architect of Southern Railway, and solar heating contractor was Solar Contracting Services, Inc. of Charlottesville.

Designed to operate completely free of outside electrical power, with the exception of lighting, the solar system heats the 1,000-square-foot building with one-fourth the power needed with conventional electrical sources. In emergencies the solar electrical generating system may also power the depot's communications link with Southern's main computer in Atlanta, Georgia.

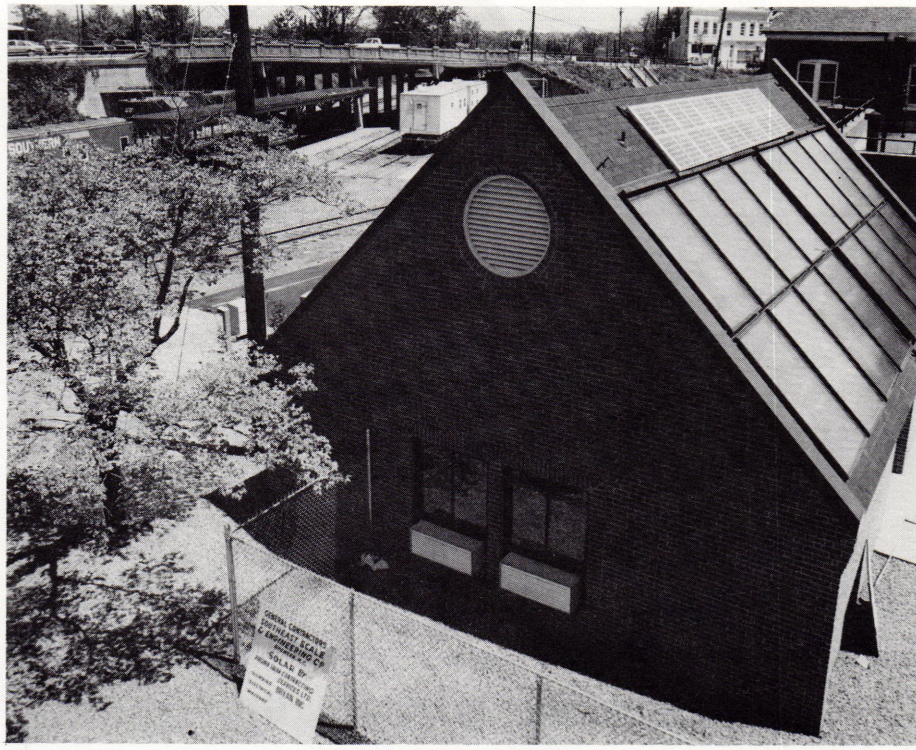
Additionally, while no solar cooling system currently available meets Southern's efficiency standards, empty piping and conduit has been installed for this application in the future.

The installation is a liquid, flat-plate loop system containing half-water and half-propylene glycol solution (an antifreeze-type chemical). This solution is heated by the sun in 400-square-feet of roof-mounted double-glazed copper tube-on-sheet collectors. It is then transferred to a hellical coil suspended in the center of a 1,000-gallon steel holding tank by valves and pumps powered by a separate 88-square-foot solar array of photovoltaic collectors.

The tank is foam insulated, buried vertically in the ground and filled with water. Heat exchange occurs as the solar-heated solution passes through the hellical coil suspended in the tank. The hot water is then circulated through radiant floor coils and wall-mounted convectors inside the building.

Heat is controlled by thermostats and temperature-activated valves, both powered by the photovoltaic system but which are independent of each other. Exclusive of hardware, Southern expects to save in power bills approximately $2,200 annually.

Design specifications can be maintained through any power failure as long as cloud cover does not exceed three consecutive days. Back-up heat and cooling is electric resistance in through-wall units.



Nation's first solar-heated freight depot.

Index to Advertisers