CONNECTICUT ARCHITECT

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Volume 12, Number 5 September-October 1976

About this issue:
In April of 1974, *Connecticut Architect* ran the first section of a two-part article by Donald Watson, AIA, on "Energy Conservation in Architecture," which included a description of the development of solar technology as one of several alternative energy sources. At that time, so far as we were able to determine, there was not one existing solar heating installation in Connecticut. In fact, one such installation, a private residence designed especially for solar heating, was in the process of construction, and another was not yet through the design phase.

In the two and one-half years since, a surprising number of buildings have been designed and constructed employing various forms of solar technology for their principle source of heating and even air conditioning. Donald Watson therefore agreed to present a summary of the current "state of the art" in the solar energy field, and several architects and designers have been good enough to share with us their experiences with several different approaches to the new technology.

Finally, as this month's cover aptly indicates, municipal buildings can be architecturally interesting as well as practical. The New Britain Town Hall is the design of Irwin Joseph Hirsch, AIA.

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Past and Present Combine in Berlin's Town Hall

by Susan Nutter

The design of a new Town Hall for any community can be a most difficult challenge for the architect. He must create a structure which is many things to many people—a symbol of local government, a meeting place for the community and its many organizations and commissions, an office facility which demands a great degree of flexibility for the conduct of town business, and not least, an aesthetically pleasing structure which will reflect well on the town and its taxpayers.

The town of Berlin, Connecticut, is itself a blend of many architectural styles, and when architect Irwin Joseph Hirsch, AIA, was commissioned to design a new Town Hall, he was faced with the problem of combining the building's many functions with both the traditional and contemporary character of the surrounding architectural landscape. His solution to the problem, which incorporates brick, hip roofs, cedar roofing shingles and wooden trim, harmonizes well with its rural setting and reflects beautifully past and present architectural styles.

Located at the top of a gentle slope, with a view of the surrounding countryside, the new Berlin Town Hall houses all of the town's administrative offices, as well as those of the Police Department, Public Health Nursing offices, the Board of Education office, and the Superintendent of Schools.

The building is comprised of two major levels, both of which are accessible at grade at different points. The first level provides access to the Board of Education offices at one corner and to the Police Department at the other. The second level, which contains the town administrative offices, can be reached from a central courtyard landscaped with trees, flowering shrubs, sitting areas, and sculpture. Three entrances to the building face on the courtyard, including the main entrance, and many of the offices look out onto this view.

In keeping with its functional purpose, the building is easy for visitors to move about in. Upon entering the main lobby, visitors come to the main reception desk and telephone switchboard, where the building directory can be consulted or directions requested from the receptionist. A public hall, seating up to 150 persons, is directly accessible from the main lobby, as are corridors leading to all of the town offices. Each administrative area can thus be entered from the main lobby or from its own public entrance.

The Board of Education offices on the first floor contain a reception and waiting area, which opens into a large general secretarial area. Here are the offices of the business manager, secretary, audio-visual director, elementary curriculum coordinator, and elementary librarian. The central educational storage area for the entire school system is a 2,700 square-foot space located largely under the southwest half of the central courtyard. Also included in this area is a meeting room which can accommodate 138 people for Board meetings which are open to the public. The office of the Superintendent of Schools is located adjacent to the reception area.

Photography by Martin Tornallyay

On the opposite side of the building, the Police Department occupies most of the remainder of the first floor area. It is internally organized to provide a high degree of security and control, with the public inquiry desk of the records room—the one area ordinarily open to the public—directly accessible from the reception area. All other areas within the department are subject to controlled entry by authorized personnel only. The control point here, the records desk, has offices that the public frequently visits grouped around it.

Civilians, subject to arrest or questioning, are brought by patrol car to the sally port, a garage space fitted with door interlocks so that suspected criminals are prevented from escaping.

Once the roll-up door on the garage has closed, the inner door can be opened and suspects brought into the booking office. They may be questioned or viewed in one of the interview rooms, or held in one of the cells until transferred. The cell block includes three men's cells and one woman's cell which will double as the "drunk tank."

Also included are numerous work areas and a three-position pistol range, which is located behind the cell block and under the central courtyard so that firing noises cannot escape through the structure into offices above.

Materials in the building were chosen for durability, practicality, and minimal maintenance. The finish floor material is terrazzo, which will last the life of the building. The terrazzo was installed over the entire building floor before partitions were erected, which eliminated the extra cost of grinding and polishing against walls and corners except the outside ones. Also, if walls need to be relocated in the future, the only necessary repairs to the floor will be to plug and finish fastener holes.

Wall construction is gypsum board screwed to steel studs with sound absorption board incorporated where necessary. The wall finish is vinyl fabric in most areas, with ceramic tile or wood paneling occasionally being used. This makes for a light, economical wall which can be easily removed if future space requirements dictate, and surface finishes with minimal maintenance. Ceilings are of the suspended acoustic type, which also can be disassembled and reconstructed as required, as well as providing sound absorption and fire protection.

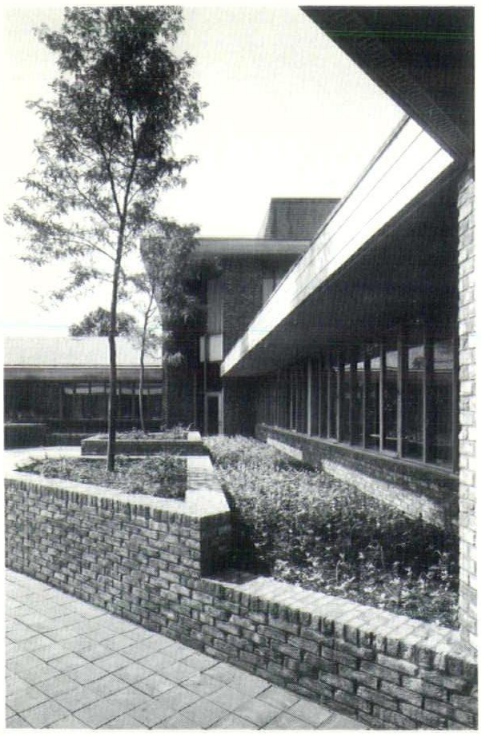
Wood-framed windows and double insulating glass have been employed to provide better insulation against heat transmission and reduce the required capacity of the heating-cooling plant by about ten percent. The glass size chosen is standard, so breakage replacement will be made easier. The pitched cedar shingle roof also requires little maintenance.

Structurally, the Town Hall complex is in residential proportions, making it possible to use conventionally reinforced concrete foundations supporting a light steel frame for a simple, economical system. The floor is a composite steel deck and reinforced concrete slab. Stressed-skin plywood panels, bearing on the steel frame and clear-spanning 20 feet from eave to ridge, made an ideal base for nailing the cedar roof shingles.

A combination heating system of cast-iron boilers, dual-fueled by No. 2 oil and natural gas, was installed for the most economical fuel use, with gas ordinarily being used during those times of the year when the heating system cycles frequently. Hot water radiant baseboards are located on exterior walls and are assisted by unit heaters in the larger rooms.

The entire building is air-conditioned, except for the storage and equipment rooms. An electric chiller is located in the first floor equipment room, discharging heat to an outdoor pad-mounted evaporative condenser. Air-handling equipment is located in three separate penthouses at the crossings of the building arms, with each serving an individual zone below.

Chilled water from the equipment room circulates to cooling coils in the



air handling equipment and the resulting cool air is distributed at low pressure to hot water reheat terminals located in the ceiling spaces of the rooms to be served by the system.

An economizer cycle is incorporated in the air handling equipment to introduce outside air on days when interior air conditioning can be accomplished without mechanical cooling.

Total cost for the 50,000 square foot building was $2,550,000.

Credits

Architect: Irwin Joseph Hirsch, AIA
New Britain, Connecticut

General Contractor: Liabson Construction Company, Inc. Bloomfield, Connecticut

Mechanical Contractor: Legnos, Cramer, Polaske, Inc.—
Hartford, Connecticut

Structural Engineer: Joseph Coel, P.E.
Bloomfield, Connecticut

Site Engineer: CR 3
Avon, Connecticut

Death of a City

Many American cities are "busy being born", to borrow a phrase from Bob Dylan, and the best of success to all of them. Bridgeport, alas, is "busy dying". It is busy dying, not from natural causes, but from suicide.

On Monday, August 2, 1976, the city inflicted a cruel gash in its southern facade. The Lafayette Building, a priceless jewel of 19th century architecture, was torn down. This event took place not with the flair of the exhibitionist, but without notice or fanfare of any kind, without an attendant chorus from its ample supply of ethnic inhabitants, and without an explanatory note of apology. It was done without anesthetic, and worst of all, without apparent reason.

This is only the latest in a series of deep wounds that Bridgeport has endured in recent years. The gash may heal in time, but the unmistakable scar tissue that conceals the city's previous wounds, and which closely resembles asphalt paving, will inevitably mark the city's inexorable march toward civic oblivion.

No one can explain why this exercise in self-mutilation had to take place. All we know is that at 9:10 AM a grotesque yellow monster of steel and cable approached what was once a veritable symphony of forms in brick, wood, slate, and terra cotta. In huge bites, its jaws dripping after each gargantuan mouthful, the thing reduced the building to a shapeless mass of kindling and rubble. This once intriguing creation, laced with gables, turrets, corbels, finials, and graced with imagination, skilled workmanship, and love—a perfectly sound structure which added a desirable note of charm and elegance to an educational institution whose architecture is at best mediocre—was leveled on orders of the administration.

It is an incident which can only bring shame to a city of Bridgeport's undeniably rich past and its putative awareness of its cultural heritage. Such an act of conscious vandalism could not have occurred in any European country, where the state, no matter how well endowed by the centuries, nevertheless jealously guards every vestige of tangible history. If this had taken place in Newark, or Gary, Indiana, or in East St. Louis, we would have shuddered. But to see it happen in Bridgeport, before our very eyes, was a painful and revealing experience.

We were "innocent bystanders", to be sure. But because we did not stand in the path of this relatively harmless monster, if only for the flick of a camera's shutter, we made ourselves accessories to a crime against humanity. Worse yet, beyond being honestly ashamed of our lack of civic indignation, we were all secretly fascinated. We thus made ourselves an active part of this hideous spectacle, and someday we will pay a bitter price for the experience.

When there are no more historic buildings left, nothing to lift our eyes and our spirits above the mundane, myopic level of commerce and expediency, we will see this same city, no longer "busy dying", but dead, a horribly disfigured corpse which everyone will avoid and which no one will mourn.

And we will go about our paltry business, devoid of the beauty of the present and without the promise of beauty in the future because, through our lethargy and lack of vision, we have allowed the beauty of the past to escape.

The Bridgeport Architecture Conservancy
Robert H. Mutrux, AIA *David Palmqui*
David Austin, AIA *Rocco Fabrizio*

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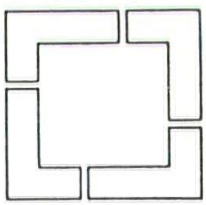
aren't we good enough to print for you?



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Incremental Solar Heating for Houses:
Six Alternatives Compared in Four Northern Climates

Donald Watson, A.I.A. and
*Fred N. Broberg, Jr., P.E.**

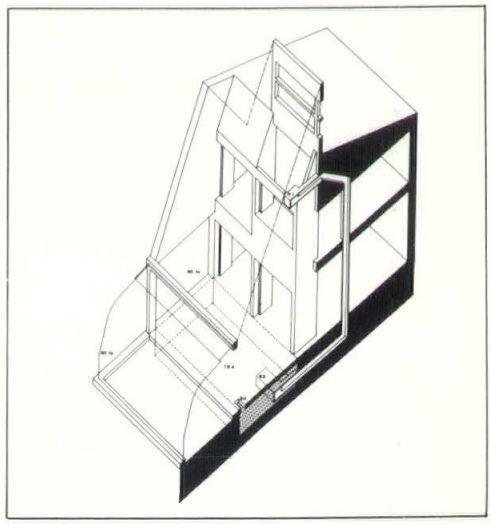
With increases in the cost of energy and the continued uncertainty of energy sources within the life of a building investment, solar technology and design has become economically justified for buildings. Design professionals — architects and engineers — now are presented with many approaches to solar heating that deserve careful consideration. In evaluating alternatives, the designer must assess the *technical performance* of solar design concepts and equipment, added *construction and mechanical installation costs*, the *aesthetic impact* of solar equipment on building design, and the projected *energy cost saving* over the long term.

Life cycle costing is at the crux of design decisions related to solar building design and technology, and yet involves highly judgmental assumptions about fuel cost increases which directly affect the relative economic merit of various solar alternatives.

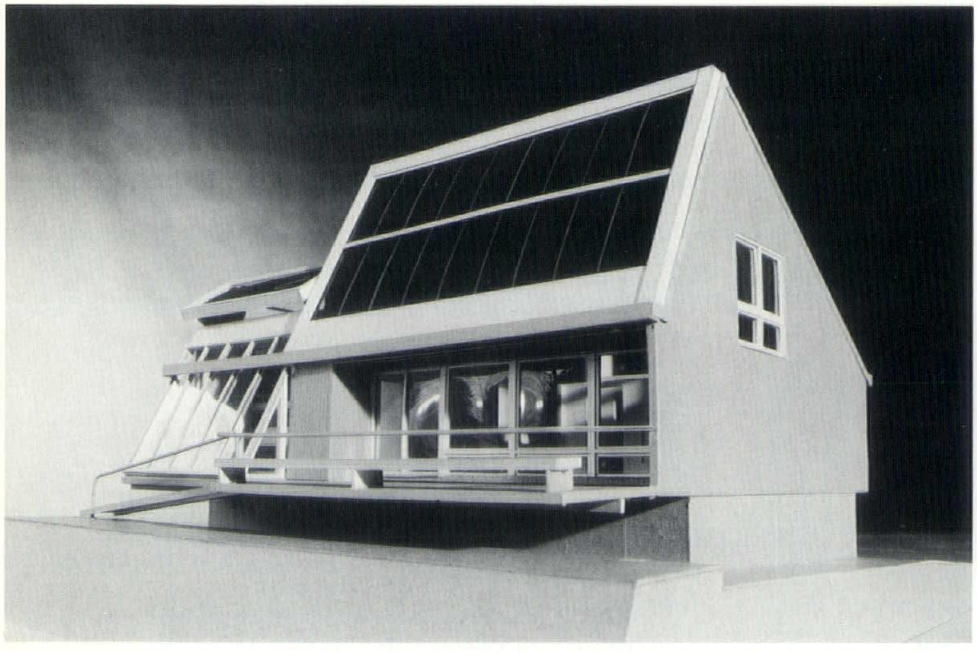
Any energy saving approach to building design is based on the premise that, for added construction cost including the accompanying financing costs — whether for insulation, window heat controls, or solar heating equipment — the fuel savings over a period of years will realize an investment return that is economically justified.

The economic viability of solar heating in a particular location depends upon factors of climate and the cost of conventional fuel. The most favorable locations are cold and clear climates where the heating requirement is high and where there is ample winter sunshine, the more so if local fuel rates are high.

Beyond these general and perhaps obvious factors, approaches to solar heating can be compared with regard to initial installation cost, energy contribution, climate and fuel escalation variables. The approaches which are compared here,



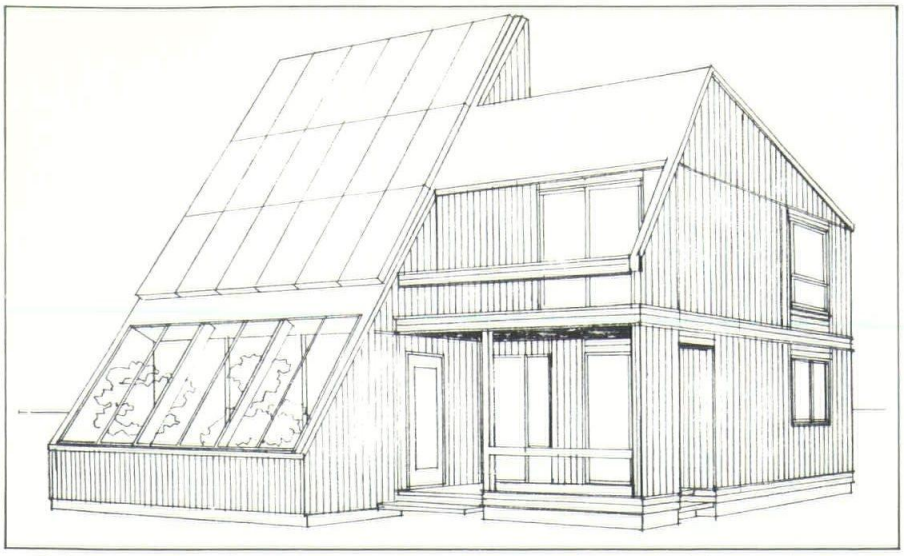
Greenhouse Heat Recovery. *Heat from greenhouse—sunroom is removed from top of space and ducted through a rock storage under a masonry floor, to provide radiant slab heating.*



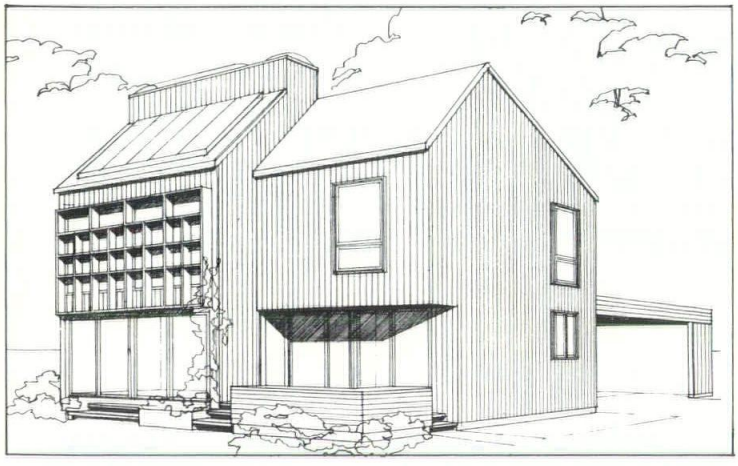
Eames Residence, Groton, Connecticut. *Large capacity air-type solar space heating system. Adjustable liquid collectors for domestic hot water. Greenhouse and window heat recovery. Being built by owners.*

alone and in combination, are solar domestic water heating, window heat recovery, auxiliary solar heating without heat storage, and large capacity solar space-heating. The question that forms the basis of the comparison is, "what is the *rank order* of economic merit of different solar heating approaches, as influenced by projections of fuel cost and by climate?"

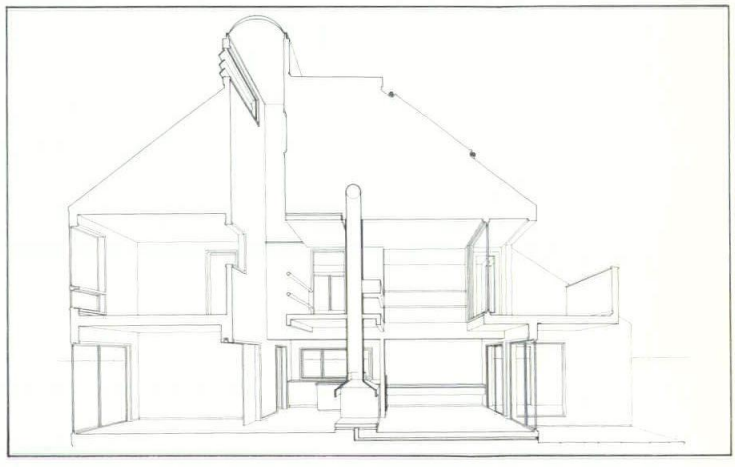
The alternatives, to be detailed below, are compared in four representative northern climates in the United States: Pittsburgh, Denver, Hartford, and Williston, North Dakota. Pittsburgh and Denver both are near the 40° north latitude, but are quite distinct in winter sunshine characteristics, due to differences in cloudiness, sky clearness, and altitude. Williston, North Dakota, while farther north and with a much greater heating energy requirement than Denver or Pittsburgh, benefits from excellent winter sunshine which, as will be seen from the caiculations, makes it as viable a location for solar heating as Denver. Hartford is included as a representative New England location, with moderately high heating requirements but only moderate winter sunshine availability.



Solar House Package. *A pre-engineered solar house building and equipment package, developed for American Timber Homes, Inc., available with any of the solar alternatives described in the article.*



Auxiliary Solar Heating with Window Heat Recovery. *A built-for-sale house for Crane Builders of Granby, Connecticut, recipient of H.U.D. Solar Demonstration grant.*



Stoker Residence, Groton, Connecticut. *Auxiliary solar heating, green-house heat recovery, central fireplace with outside combustion air inlet, ventilating thermal chimney air shaft, insulating controls on skylight and windows.*

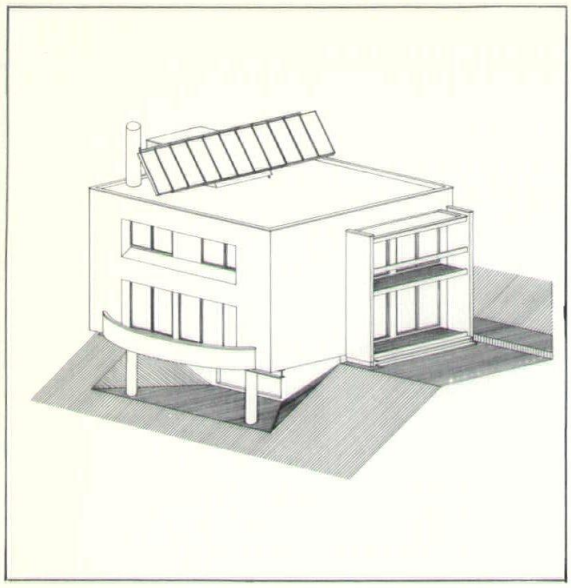
In each of four climates, six solar heating alternatives are compared:

Alternate A: Solar Domestic Water Heating. A small solar collector area (two or three collectors) can supply a major proportion of the year-round requirement for domestic water heating. Solar domestic hot water equipment, now available from many manufacturers throughout the United States, imposes few if any restrictions on the building design.

Alternate B: Window Heat Recovery. An approach to solar heating that is often neglected is to utilize the heat gain from solar-oriented windows, skylights and greenhouses. Window heat, of itself, has the effect of overheating the sunny side of a building while the colder side still calls for heat. However window heat can be recovered and more evenly utilized by an air circulation system that removes heated air from windows, sunrooms and/or upper portions of the house and passes it through low temperature rock storage, in effect cooling the house when it is overheated during sunny winter days and storing the heat for some night-time carryover. Installation costs of windows are part of the normal house construction and rock storage can be built within typical foundations. Window heat recovery systems can also be planned around sun rooms or greenhouses which can gain solar heat without overheating the residence itself.

Alternate C: Auxiliary Solar Heating. Auxiliary solar heating, like window heat recovery, involves only a small investment for partial solar heating. As first suggested to the authors by Everett Barber, Jr., auxiliary solar heating is a system that uses the same components as a solar domestic hot water installation (Alternative A, above) adding only a few more solar panels to increase collection area and a heating coil to pipe excess heat when available into the conventional space heating system. Other than the domestic hot water storage, no other heat storage or controls are involved, and thus installed cost and construction requirements are small. The control sequence used, whether to first supply domestic hot water, with the excess to space heating, or the reverse, depends on engineering decisions related to climate and comparative fuel cost. In the calculations below, the former control sequence was assumed.

Alternate D: Auxiliary Solar Heating and Window Heat Recovery. This option combines previous Alternatives B and C. If a window heat recovery system did not have the rock-type heat storage component, then it would be redundant to combine it with the auxiliary space heating system, since both would provide



Residence in Southington, CT. *Auxiliary solar heating (5 panels expandable to 11 panels in future), window heat recovery, wood burning back-up furnace.*

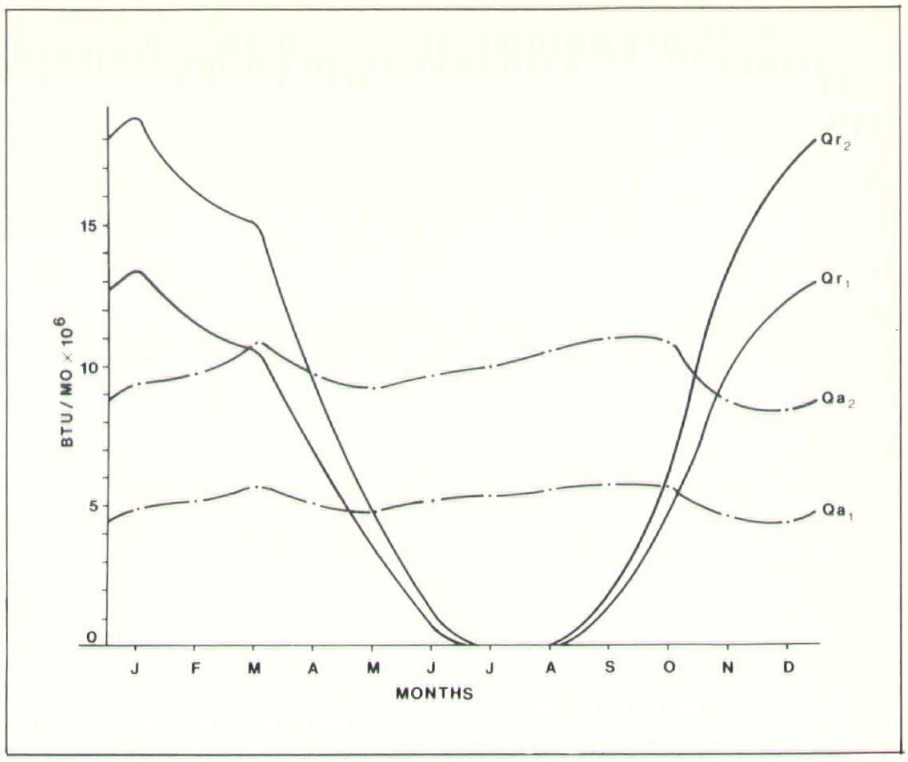


FIGURE 1: The monthly heat demand of the example house is shown for Denver, assuming conventional insulation (Qr_2) and high insulation standards (Qr_1). The comparative solar heat contribution is shown for 20% collector/floor area (Qa_1) and for 40% collector/floor area ratios (Qa_2). Although solar heating contributes more heat in the case with conventional insulation, it is not as cost-effective in terms of total investment as it is when combined with high insulation standards.

space heating on sunny days only. However with heat storage, the day-time heat recovered from the house can be carried over into night-time hours.

Alternate E: Solar Space Heating with Relatively Small Collector Area. In this option, the collector area is held to less than 20% of the heated floor area, thus imposing little constraint on architectural design while providing sufficient heat for a storage unit to partial carryover. The solar panels also supply domestic hot water.

Alternate F: Large Capacity Solar Space Heating. This is the same as Alternate E, but with more collectors (approximately 40% of the heated floor area). Of the solar alternatives compared in the example, this option requires the largest construction cost but also contributes the largest percentage of solar heating.

To compare these variables — solar heating alternative, climate, and fuel cost escalation — all other factors are assumed to be equal. The same building plan, a one family 1,200 square-foot house, is used for the example, with construction costs and present fuel costs assumed to be equal in all four locations. Housing is a good candidate for solar heating due to its steady demand for relatively low temperature heating, including a year-round demand for domestic hot water, and generally detached or low-density construction which offers a large surface area exposed to the sun — although conventional financing methods do not necessarily favor long term investment in residential construction. (Other building types, with longer term investment incentives, may be better candidates for energy-conservation technology.)

While cost and performance breakthroughs in solar technology can be eagerly awaited, these are not considered in the estimates. The performance and cost of the solar equipment and the installation costs used in the comparison that follows represent "state-of-the-art" estimates, based on current technology and construction costs. The costs used are relatively high, compared to installation costs claimed by other sources, but the solar system performance efficiency assumed in the calculations also represents high quality solar equipment. Lower installation costs appear at this time to be proportional to lower system efficiency.

Also omitted from the economic calculations were fuel savings due to improved insulation standards and other devices to reduce heat loss, even though they are used in the example house design. These steps are by now recognized as good practice in any building design and involve relatively small increases in construction cost with almost immediate payback in energy savings. The heat load required by the house used in the example is greatly reduced by the use of high insulation standards, with the result that the total energy contribution of the solar heating systems is smaller *(Figure 1)*. The solar heating payback would look better than the results reported here if a higher heat loss due to poorer insulation characteristics were assumed. However, the point is that the cost effectiveness of improved insulation standards is so apparent, that an architect or engineer would obviously use heat-saving techniques first, and *then* compare solar heating alternatives. Fuel cost savings due to high insulation standards are not included in the calculations, because the intent of the comparison is to show what the relative economic merit might be of different solar approaches *after* everything had been done to reduce the fuel requirement by practical construction and design methods.

Table 1 summarizes the heating load calculations of the example house design in the four locations. The design heat losses shown are in the range of 40% less than average to reflect higher insulation standards and reduced infiltration heat loss that good planning and construction could achieve without solar technology.

Table 2 summarizes the system variables used in calculating the performance of the six different solar approaches, together with installation costs shown as the incremental "solar premium" over and above the conventional heating system cost. The costs are based on recent

construction bids for the system alternatives that are considered. The cost per month listed in *Table 2* shows the prorated monthly mortgage payment on the added investment required for the solar installation, financed at 8½% for twenty years.

In *Table 3*, the average monthly fuel-cost saving after finance charges have been paid is shown for each of the six alternatives, also prorated over the twenty-year mortgage period, as influenced by different assumptions for annual fuel cost increases of 0, 8, 12, and 16%. Here, the negative numbers in the 0% fuel escalation rate column show that for the example taken, if fuels do not increase in cost, the solar investment in some cases does not pay back within the twenty year mortgage period. However, a projection of 8% fuel escalation represents the consensus of both private and government forecasts as a valid basis of current solar energy design decisions.

Of particular interest in examining the payback results is that the order of merit of the six alternatives does not follow the relative order of their initial cost. In addition, the relative merit of the alternatives varies considerably according to climate and assumed fuel cost escalation. The large capacity solar heating, *Alternate F*, is among the lowest of the six choices in terms of current economics, even though it may rank highest in "environmental merit" by greatly reducing the reliance on nonrenewable and polluting fuels. If fuel escalation increases above 12% per annum, the economic merit of *Alternates D* and *E* is highest in nearly every case, with the exception of Pittsburgh, where local cloudiness factors make a large investment in solar heating still unattractive, compared to the other alternatives.

LOCATION	LAT	ELEV	t_O	DD	DHL (MBH)	Qr 10^6 BTU DHW	HTG	TOT
HARTFORD, CT.	42	15	5	6235	35	13	83	96
PITTSBURGH, PA.	40	749	11	5053	33	13	67	81
WILLISTON, N.D.	48	1877	-17	9243	47	14	123	138
DENVER, CO.	40	5283	3	5524	36	13	74	87

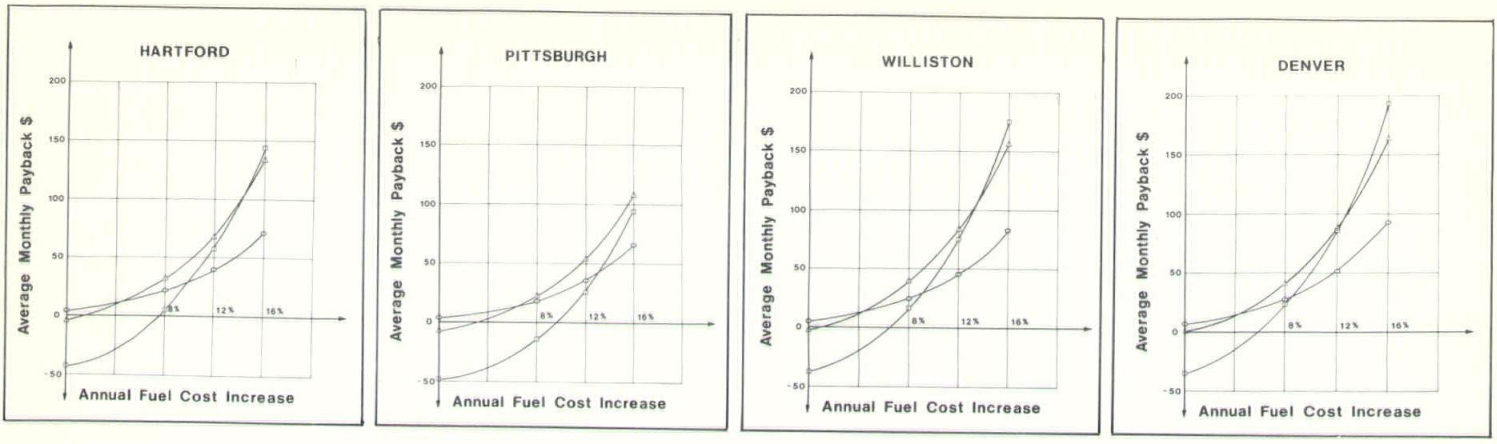
TABLE 1: Climate Design Variables Used in the Calculations (ASHRAE Degree Day Method, with Harris and Fitch correction factors)

		DHW		SPACE HEATING				INSTALLED	
		CA	tank size	AUX	WA	CA	STO	Cost$	$/mo.
ALTERNATE A domestic hot water	A	56 S.F.	60 gal.					$900	$8
ALTERNATE B window heat recovery	B				300		X	1200	10
ALTERNATE C auxiliary solar space heat	C	93	80	X				2000	17
ALTERNATE D combined alternates B and C	D	93	80	X	300		X	3200	28
ALTERNATE E large capacity solar 20% CA/FA	E	56	60		150	223	X	5800	50
ALTERNATE F large capacity solar 40% CA/FA	F	56	60		150	427	X	8500	74

TABLE 2: System Design Variables, where CA = net effective collector area; WA = net effective south window area; installed cost = incremental cost differential of solar installation minus conventional system cost; and $/mo = additional monthly mortgage payment for solar premium at finance charge of 8½% for 20 years.

	HARTFORD					PITTSBURGH					WILLISTON					DENVER				
		% fuel increase					% fuel increase					% fuel increase					% fuel increase			
	% sol	0	8	12	16	% sol	0	8	12	16	% sol	0	8	12	16	% sol	0	8	12	16
ALTERNATE A domestic hot water	11	4	21	40	72	11	3	19	36	65	8	5	25	46	81	15	7	29	52	92
ALTERNATE B window heat recovery	24	-2	10	23	45	21	-4	5	15	31	22	1	16	33	62	36	1	18	35	65
ALTERNATE C auxiliary solar space heating	18	-1	24	50	94	17	-3	17	38	75	14	1	27	55	103	25	1	28	57	106
ALTERNATE D combined alternates B and C	40	-4	31	69	134	37	-8	21	53	106	34	-1	40	83	156	58	1	43	88	164
ALTERNATE E large capacity solar 20% CA/FA	51	-24	15	57	127	44	-30	0	32	86	42	-20	24	71	151	74	-17	32	84	172
ALTERNATE F large capacity solar 40% CA/FA	70	-41	6	58	145	60	-49	-13	27	93	57	-37	18	76	176	95	-34	24	87	194

TABLE 3: Six Alternatives to Solar Heating: *Average Monthly Payback over Twenty Years* based on well insulated 1200 SF house with various annual fuel cost increase projections. Monthly payback shown is net gain (or loss) after finance charge is deducted, at rate of 8½% for twenty years. No credit is taken for savings due to added insulation. Domestic Water Heating compared to electric heating at 4.5¢/KWH. Space Heating compared to oil heating at 42¢/gallon.



○ = Alternate A domestic hot water

△ = Alternate D auxiliary solar space heat, with window heat recovery and domestic hot water

□ = Alternate F large capacity solar heating 40% CA/FA

One result shown in *Table 3* is surprising but telling: alternatives A, B and C — which individually rank low with fuel costs increases above 8% — become in combination in alternative D the most economically justified option in all of the climate locations considered. These results, in graphic form in *Figures 2 through 5*, show the approximate crossover points of economic merit of various alternatives as a function of changing fuel escalation rates. *Figures 6 through 9* show that by plotting the same data in another format, some indication of the optimum percentage of solar capacity can be derived.

Limitations of the Example

The example is limited to a single though typical case — that of a house financed under conventional mortgage terms. By excluding the contribution to fuel savings made by increased insulation, the solar results look poorer than if compared with standard house construction, in which case the paybacks would appear more favorable. Installation and financing costs also depend on individual circumstances.

Many individuals are able to undertake solar installation on different financial terms than used in the example by self-help construction or low-interest building loans. Tax incentives are being considered on the state and federal level that may further change current economics in favor of solar heating. System cost breakthroughs or performance improvements may soon result in more cost effective solar installations. Finally, the calculation methods used, while conforming to ASHRAE recommendations, are monthly averages and result in only general results.

However, despite these variables, the *relative order* of economic merit of the various alternatives shown in the example would not change.

The study does take a moderate, if not conservative, view of solar installation and fuel costs in order to represent the typical case for solar heating with the options that it presents now to building owners, designers and builders. The results in fact suggest that, in the almost certain event that fuel costs will increase, some sort of solar heating is justified in any northern climate. If only solar domestic water heating and auxiliary space heating systems were to find the place in the residential market that the above example shows is economically justified, the resulting increase in production of solar equipment would make possible substantial economies of a scale which would lead in turn to lower costs for the larger capacity systems.

An obvious middle-range solution presents itself: an *incremental approach* to solar heating in which a building is constructed with only a small solar installation to begin with, such as alternates A through D, with provision made in the design for adding larger-capacity systems in the future, as the economic variables change in favor of increased solar heating.

As shown, the economic merit of large capacity solar heating for houses depends either on a high rate of fuel-cost escalation or on installation-cost reductions. Factors which will help lower installation costs include "one contract" supply, installation and servicing, solar building and equipment packaging, do-it-yourself installations, and various subsidized economic incentives. In any case, the need is obvious for close coordination between manufacturer, architect, engineer and builder to assure that a solar installation is appropriate for a building in terms of climate, heat requirement and available financing.

*Donald Watson, A.I.A. is an architect in Guilford, Connecticut. His most recent book, *Designing and Building a Solar House*, will be published in December by Garden Way Publishing.

Fred Broberg, P.E. is an engineer with Hill and Harrigan, Consulting Engineers, New Haven, Connecticut. This paper was presented at the 1976 New England Solar Energy Association Conference.

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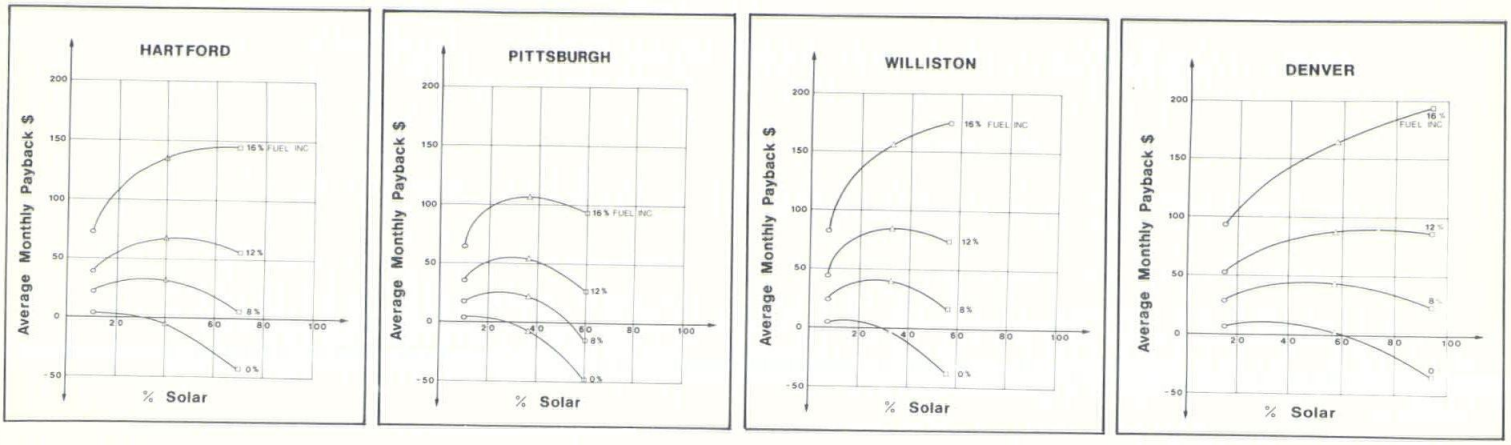


....from the CSA

From the President

There is no doubt that the determination of fees for architectural services is of great interest to architects and clients alike. Once upon a time the CSA/AIA published a recommended minimum fee schedule that was useful as a guide in establishing fees, but since that standard of comparison has vanished there has been much confusion. Although the subject deserves much more attention than can be given in this space, I do want to outline a few important considerations relating to fees and architect selection.

It is quite common for a client to ask an architect for an indication of the potential fee required for a particular project. The question is not as simple as it may seem, and the answer needs to be carefully analyzed. The broad range of services that may be required or desired for diverse kinds of projects and methods of construction production makes it impractical to apply flat rate types of fees. A fee cannot be intelligently determined until the project requirements, schedule and division of responsibilities are fully outlined. After these are established, the architect can then detail his costs for delivery of services. Any fee proposal that does not relate specific services and conditions of services to be performed to specific project requirements is incomplete and arbitrary. Fees must be understood in very specific terms.

Architects do not bid for contracts for professional services in the usual meaning of the term, and in fact are prohibited from doing so by a Rule of the State Architectural Registration Board. This rule was established in the public interest in order to prevent selection of architects on the basis of fee alone. The services of an architect are unique, and the essence of professional service — which is sound, reasoned judgment based upon training and experience, and expertise and talent for a particular task — are not fixed quantitative items that can be compared for price. Therefore architects refrain from competitive situations in which price is the only consideration. No architect should be encouraged to quote the lowest possible price for the least possible service. The fact that the two are directly related to one another is often ignored.

Some discussion of potential fees may take place prior to selection, only if the architect is assured that fees will not be the only selection consideration, and that fee information will remain confidential between architect and client until a contract is signed. An architect may offer information about fee experience for past work, and may quote an estimated fee if such fee can be related to a full description of services to be rendered and the conditions of such service.

The selection of architects should be made on the basis of competency and qualifications as they pertain to a particular project. After appropriate review of interested firms, the client should rank the best qualified in order of preference, and proceed to negotiate a fair and reasonable contract with the highest ranked firm. In the event an agreement is not reached with the first firm, the client proceeds to the second, and further if necessary until agreement is found.

In order to assist architects and clients in the fee determination process, the AIA has published a manual entitled *Compensation Management Guidelines for Architectural Services.* It outlines a detailed process for estimating fair and reasonable fees and is available for inspection and purchase at the office of the CSA.

The demise of the AIA's Recommended Minimum Fee Schedule was of benefit to architects and clients alike. The percentage fee schedule, although often fair and equitable, was likely to be arbitrary and unrelated to detailed services to be performed. The new system requires greater sophistication and effort, but it is worth the added output for it provides for rational and equitable fees for all.

Richard E. Schoenhardt

From the Executive Director

Though there is a slight lessening of activity in the chapter office during the summer months, various chapter committees have been meeting to plan an active fall season for members of CSA.

Legislative Affairs

The Legislative Affairs Committee, chaired by Murray Gibson, met on August 6 to access our position in 1976 and to develop priorities for legislation in the 1977 session of the General Assembly. There will be further meetings to define more accurately the major issues and to create specific legislation to meet these needs.

The CSA was successful in putting to rest several pieces of legislation introduced in the 1976 session that would have had harmful effects on the architectural profession. We were able to do this because members were willing to make well-prepared statements to legislative committees, and many other members were willing to contact their senators and representatives as constituents. I underline this to stress its importance. The most effective means we have to promote legislation in our interest or defeat adverse legislation is to contact our legislators personally at their homes as neighbors and constituents. Thus, I am putting in an early request for architects to respond to our subsequent pleas to contact legislators on specific issues. We will, no doubt, have specific legislation to promote, and we will certainly have to put out some fires as well.

Professional Development

Three seminars have been scheduled by Sidney Sisk's Education Committee for the fall. Don Baerman has put together an afternoon seminar on Roofing Membrance Systems held at SNETCO, George Street, New Haven on September 15. AIA Document A201 (General Conditions) has been so extensively

revised that the Education Committee felt that a seminar explaining the changes would be helpful. Ken Allen is in charge of this one, and he has gotten chapter attorney Peter G. Kelly to conduct it. Kelly is extremely well informed on legal matters involved in the construction industry, and his manner of presentation will make a difficult subject understandable.

The third seminar, that will cover a number of activities in which firms can increase their practices, is conducted by the AIA. Our Education Committee selected five or six topics from a large list of practice opportunities. The AIA will engage instructors for each topic and collect them at the seminar site on the day of the seminar. The "instructors" will be practitioners who have been successful in their given activity, so the seminar will be a practical, how-to-do-it-session on new opportunities. It will be held on November 20 at a site to be determined.

Honor Awards
Harold Roth, on agreeing to head the Honor Awards Program for 1976, decided that it should be upgraded. He has procured a jury from out of the state that consists of Peter Blake of Boston, Warren Cox and N. Michael McKinnell of Washington DC. Great care went into the design and execution of the Honor Awards announcement, handled beautifully by Mary Ann Rumney. In order to bring in an out of state jury and to improve the graphics of the announcement, we had to raise the entree fee to $20 which, incidentally, is below the average fee charged by AIA chapters throughout the country.

Fall Meetings
The August *Bulletin* contained several important proposals to change the Chapter by-laws that will be acted on at the October 27 chapter meeting to be held at the restaurant atop Kline Tower at Yale. There will also be the election of officers and directors for 1977. Just as important as by-law changes and elections is the opportunity this meeting affords any and all members of the chapter to speak out on any and all issues. Members' views are urgently needed by the officers and directors to help them guide the Chapter through these difficult times. We have found that questionnaires and other mailings are not effective in eliciting your views. Regional mini-meetings work quite well, but they take considerable time from their practices by officers and directors. The best way to get members' input is the chapter meeting devoted solely to chapter business. It is hoped that many members will think out their positions on issues facing the chapter and will voice these positions at the October 27 meeting.

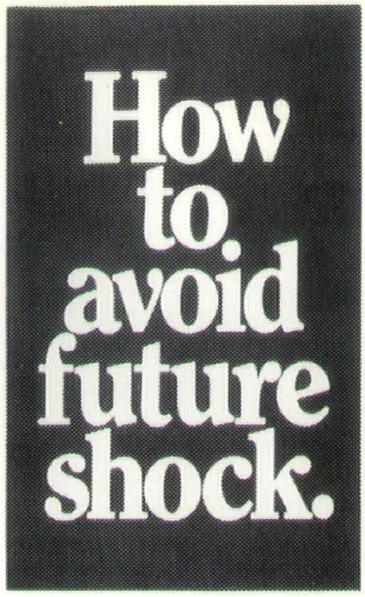
Chapter Commissioners, 1977
Dick Foster, President-elect of the chapter, announces that three commissioners have been selected for 1977. Norm Ruderman of West Hartford will handle Government Affairs.

Dick Bergmann of New Canaan is our new Commissioner of Chapter Affairs, and Harold Roth of New Haven will take on Design and Environment. At this writing, discussions are taking place with candidates for the three remaining commissioner positions to be filled.

New England Regional Council Conference, 1977
The CSA will host architects from the entire region at a conference in September, 1977. We have considered a number of themes for this conference, and we find that many have been aired *ad nauseum*. The one major architectural happening in this state is the flight of corporate headquarters to Fairfield County from Gotham, and we are considering a program that would avoid weighty issues and provide architects an opportunity to view the results of well heeled clients desiring a change of scene. We have bounced this idea off several of our members, and reactions seem favorable. We would like yours.

Document Sales
I simply cannot complete this column without hounding you about something. Though this is dues time, I will yield on that issue to badger you to buy more AIA documents from this office. Our sales are understandably affected by the low pace of business activity, but they are also affected by our members not using us. We have full stocks; UPS comes in every day to pick up what orders we have, so that you can get overnight service. Thus, you can be served well and serve your Chapter at the same time. Try us.

Peter Borgemeister



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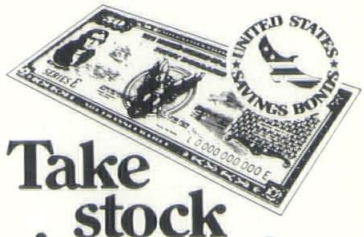

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Architects Warn FEA About Prescriptive Energy Standards

Minimum prescriptive standards for thermal efficiency in buildings bypass significant energy saving opportunities, the American Institute of Architects told the Federal Energy Administration in July in testimony at a public hearing on FEA's proposed "State Energy Conservation Plan Guidelines."

Because such prescriptive standards, best exemplified by ASHRAE 90-75, are the only energy conservation standards currently available, FEA "had no option but to cite Chapters 4 through 9 of ASHRAE 90-75 and the HUD Minimum Property Standards in the proposed Guidelines," AIA Vice President Carl L. Bradley, FAIA, chairman of the Institute's Energy Committee told the hearing. But, said Bradley, the AIA strongly recommends that FEA revise its proposed Guidelines to include Chapters 10 and 11 of the ASHRAE document, which cover alternate approaches to energy conservation, and urges FEA to acknowledge that prescriptive standards are a first step, an interim measure, and to encourage states to develop their own performance-based standards.

"Those states which take the easy way out and are content with the present prescriptive standards will not only be saving less energy, but they will also be postponing an inevitable transition to the performance approach," said Bradley. "We believe the full potential for energy savings will never be reached by using sets of prescriptive standards," Bradley said. The prescriptive approach prescribes the thermal efficiency of all components and subsystems that make up the building. "Thicker insulation, fewer windows, and lower lighting levels will help initially in some buildings. But the prescriptive approach neither encourages nor promotes capturing the full degree of savings possible."

The performance approach, Bradley told the hearing, "recognizes that a building is an energy-consuming entity, and that the effective utilization of energy is related to the many interrelationships among its various parts." An energy use goal can be expressed as an energy budget for non-renewable fuel consumption — a maximum number of BTU's per square foot per year, for example — without spelling out how the building is to be built, or without specifying the performance of any individual system within the building. Renewable energy sources such as solar power or wind could provide energy for use above the budgeted amount of non-renewable energy.

The General Services Administration has already started work on performance approaches, Bradley noted, and some states — among them Florida, Ohio, and California — are moving in that direction. Legislation authorizing the development of performance standards is currently being considered by a House-Senate conference committee. "Whatever the outcome of this particular bill," Bradley said, "it is apparent that performance criteria represent the preferred approach and that significant initiatives have been taken toward the development of performance standards."

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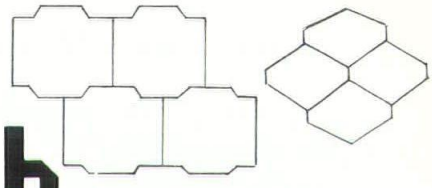

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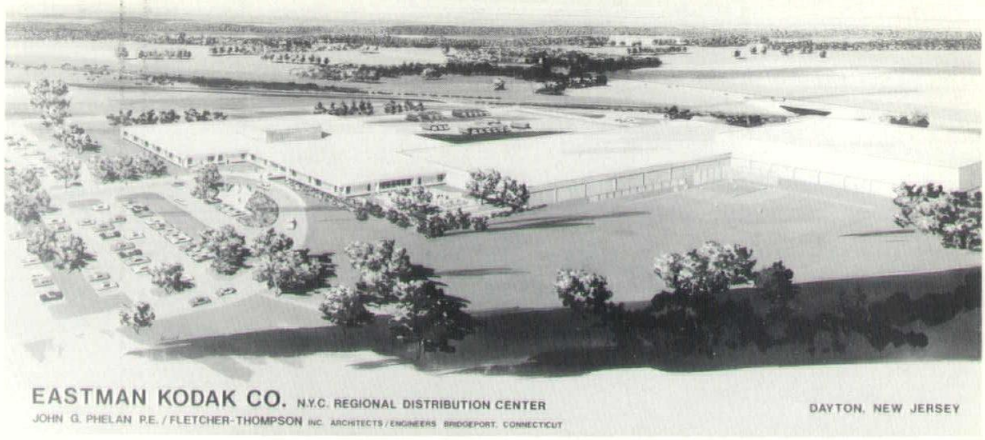
Fletcher-Thompson Design Chosen "Office-of-the-Year"

Dow Corning Corporation's headquarters administration building in Midland, Michigan, designed by Fletcher-Thompson, Inc., Bridgeport-based architects and engineers, has received an "Office of the Year" Award of Merit winner for 1975 by *Administrative Management* magazine.

The building, which is described by John S. Ludington, Dow Corning president, as "open, colorful, flexible, efficient, cost-effective, and conducive to good communications," was judged for suitability, flexibility, habitability, and advancement of the administrative function through new and improved concepts of office design and planning.

Fletcher-Thompson began work on the project ten years ago with a long-range master plan, and has since designed four different structures on the 300-acre corporate center site. Rogers Associates of Greenwich did the interior planning and design for the facility in cooperation with Fletcher-Thompson.

The most notable feature of the design is its total commitment to the concept of open-landscape office planning. There are no interior office walls or partitions, with division being achieved through furniture layout, movable acoustical screens, and over 650 tropical plants. This highly flexible concept permits fast office-layout revision at a cost of about .50 cents per square foot compared to $10 to $15 per square foot for conventional solutions.



Eastern Kodak Company's new 235,000 square foot regional distribution center, serving the greater New Jersey-New York City area, located in Dayton, N.J., is expected to be completed by late 1977 and operational by early 1978. Design is by Fletcher-Thompson of Bridgeport.

Fletcher-Thompson is also the architect for Eastman Kodak Company's regional distribution center presently under construction in Dayton, New Jersey. The facility, which will serve portions of four northeastern states, is scheduled for completion late in 1977. The center will contain approximately 235,000 square feet of floor space and will be situated on 95 acres.

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  Bring the ship's colors through the boat in cushions, sailcovers, dodgers, carpets and curtains.

Architects In Government Focus Of Nationwide AIA Survey

The needs and roles of architects in public service were the focus of a nationwide survey of more than 2,000 architects employed in federal, state, and local government, conducted this past summer by the Architects in Government Committee of the American Institute of Architects.

Architects working in government agencies and teaching in public colleges and universities received a questionnaire in June asking their feelings on the needs of the architect in terms of professional preparation and continuing education, involved in public service. Other questions focused on such subjects as educational and employment background, job responsibilities, and reasons for entering public service.

The objective of the committee's survey is to develop, among government agencies and practicing architects alike, a better understanding of the publically-employed architect's role in public decision-making. AIA will also use the survey information to develop programs designed to help the architect in federal, state, and local government play a more effective part in the decision-making process.

Survey results will be compiled for publication in the Institute's 1977 *Architects in Government Roster*, the fourth such comprehensive listing prepared and published by AIA.

Note To Editors: For further information: Bruce H. Schafer, Federal Agency Liaison, American Institute of Architects, 1735 New York Avenue, N.W., Washington, D.C. 20006. Tel. (202) 785-7382.

Connecticut Building Conference Elects Officers and Directors

Oscar H. Hobbes of the Southern New England Telephone Company, New Haven, was elected president of the Connecticut Building Congress at the association's annual meeting and outing held recently at Restland Farm in Northford.

Other officers elected include David E. Woodard, AIA, of DEW Architects, Hartford, first vice president; Kenneth C. Streeter of the Berlin Steel Construction Company, Berlin, second vice president; John E. Plantinga of Meyer, Strong & Jones, New York City, secretary; Robert A. Sapack of Stein, Sapack & Ames, Architects, Waterbury, treasurer. Serving as immediate past president is Peter Flagg of C. N. Flagg & Co., Inc. Meriden.

Elected to the board of directors for three year terms were Anthony J. Calini of Pfisterer, Tor & Associates, New Haven; Dwight Wadsworth, director of the physical plant, University of Connecticut Health Center, Farmington; Frank J. Zamecnik of Spiegel & Zamecnik, Inc., New Haven.

Continuing to serve on the board of directors are Clifton J. Cotter of M. J. Daly & Sons, Inc., Waterbury, Marvin V. Russota, F. W. Dodge Company, Milford; Roscoe D. Smith, W. J. Megin, Inc., Naugatuck, all two years.

Elected to the board of directors for a one year term was David A. Stonier, Sr. of Stonier Service Company, Milford. Continuing to serve for one year are John E. Bush of the Southern New England Telephone Company, New Haven and Rodney Midford of the Industrial Construction Company, Newington.

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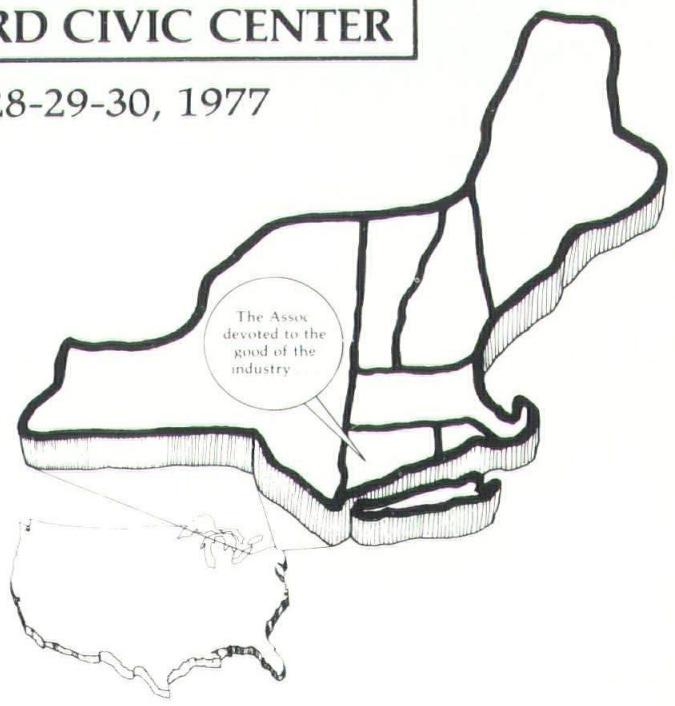

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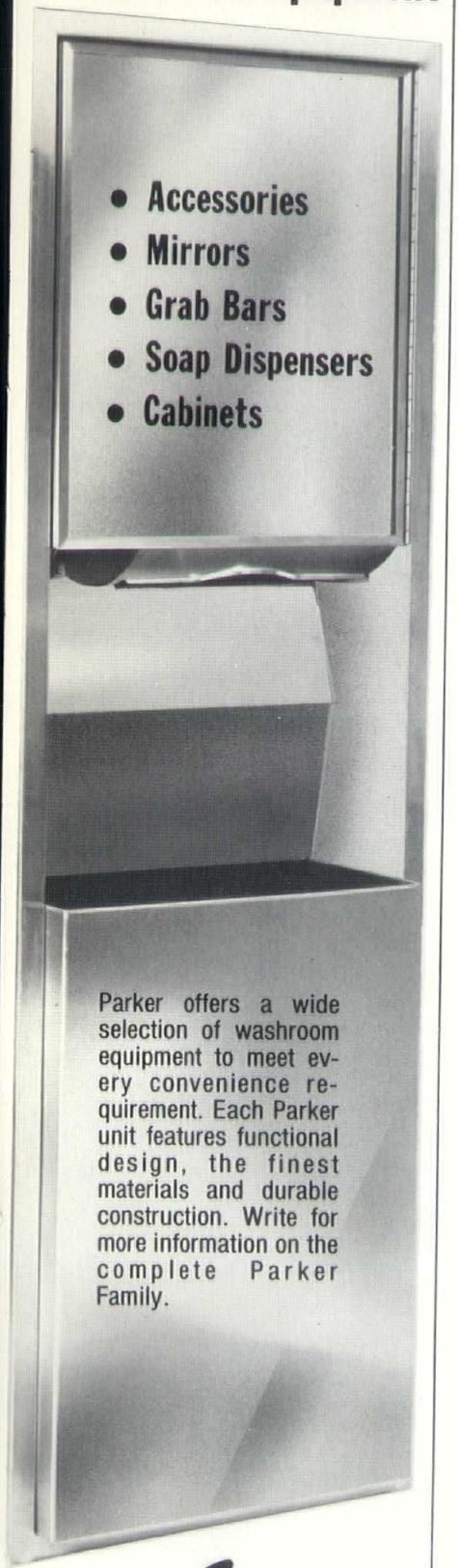

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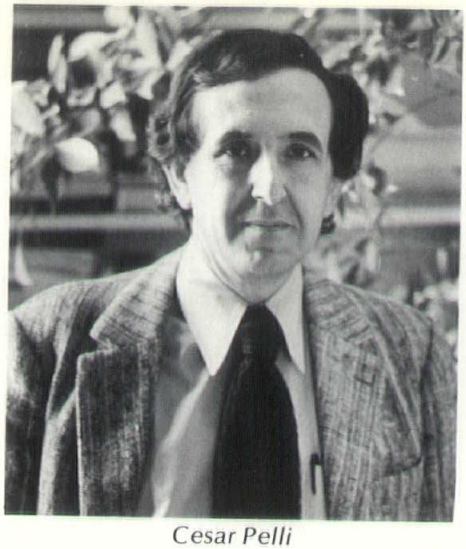

Cesar Pelli

Yale Appoints New Head of Architecture School

Cesar Pelli, of Los Angeles, has been appointed Dean of the School of Architecture at Yale University effective January 1, 1977.

Pelli, one of the country's leading designers, has held two distinguished visiting professorships in architecture over the past four years at Yale, and was the designer-in-charge for the Ezra Stiles and Morse residential colleges there while working with the late Eero Saarinen. He was also designer-in-charge of the Richard C. Lee High School in New Haven.

Pelli is partner in charge of Design for Gruen Associates of Los Angeles, and has won several national and international design competitions, including first prize in an international competition for the design of the $120 million United Nations Organization Headquarters and Conference Center.

Born in Argentina, Pelli graduated from the University of Tucuman there and then came to the United States, where he received his Master's degree in architecture from the University of Illinois.

Bridgeport Architects Elect Officers and Directors

The Bridgeport Association of Architects has elected Rocco Fabrizio of Bridgeport as its president for the coming year. Also elected by the general membership at the annual meeting were David E. Austin, of Southport, vice president; Ralph T. Rowland, of Cheshire, secretary; and Michael J. Giraldi, of Fairfield, treasurer.

The Bridgeport Association of Architects is an independent society of architects and other design professionals living or practicing in the greater Bridgeport area. Presently numbering 60 architects, planners, professional engineers and landscape architects, the organization seeks to increase public awareness of good environmental design and of the design professions.

Among the Association's activities in 1976-77 will be a major exhibit of the work of area architects to be held at Fairfield University in December. Other efforts are directed toward closer liaison with local governmental commissions and officials responsible for urban planning and land-use regulation.

Mr. Fabrizio, a native of Sandonato, Italy, holds degrees in architecture and urban design from the University of Rome. Formerly affiliated with Pier Luigi Nervi of Italy and Joseph Salerno of Westport, his Bridgeport office was established in 1969. Mr. Fabrizio was the architect for the Arduini residence in Easton and the Keyboard Center at West Farms Mall in West Hartford.

Mr. Austin, partner of Austin/Lowrie Associated Architects of Southport, is a graduate of the Harvard Graduate School of Design. He was the architect of the Pequot Library addition in Southport, a new health facility for the Greater Bridgeport YMCA, and many area residences. Mr. Austin is president of the Bridgeport Architecture Conservancy and is a trustee of the Westport School of Music and the Southport Boys' Club.

Mr. Rowland is a vice-president of Fletcher-Thompson, Inc., Architects-Engineers of Bridgeport. A former president of the Connecticut Society of Architects, he currently serves as chairman of the State Fire Code Standards Committee and is a member of the State Building Code Standards Committee. Educated at Manhattan College and Columbia University, he was the principal project manager for the new St. Vincent's Medical Center.

Mr. Girardi, who has his office at 1700 Post Road, Fairfield, is a graduate of Syracuse University and a former member of the Fairfield Parking Authority. Works of his office include the Hartford Insurance Building in Fairfield, Homes for the Elderly in Derby, Norwalk Community College and the Meriden Knights of Columbus building.

Classified

Connecticut Architect classified appears every month. One-time insertion, 80 cents per word; three consecutive insertions, 60 cents per word; ten word minimum. Classified display ads, $35 for one inch; $47 for one and one-half inches; $59 for two inches. Discount for multiple insertions; rates on request. Straight classified is not commissionable. Check or money order must accompany copy. All ads printed at the discretion of the publishers. Copy with the order is required on the 18th day of the month preceding date of issue. Noncancelable.

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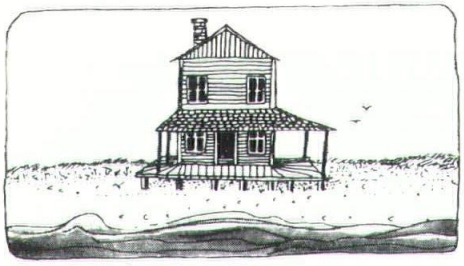

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Department Of Defense Selects Minges and Watson for Solar Heating Demonstration Program

Several Connecticut and New York firms have provided designs of solar space heating and domestic hot water systems throughout the U.S. as part of the Federal Government Demonstration Act.

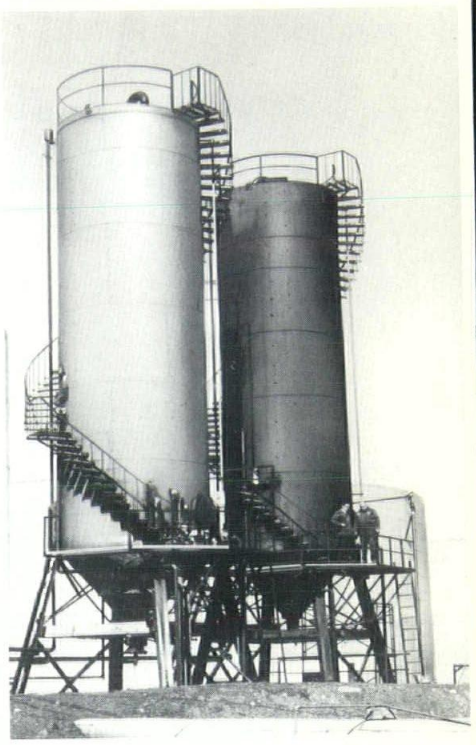
The design contractors selected to plan and implement this program are: Architects—Ezra D. Ehrenkrantz and Associates, New York City; Engineers—The Minges Associates, Inc., Farmington, Connecticut; Solar Consultants—Wormser Scientific Corporation, Stamford, Connecticut; and Donald Watson, AIA, Guilford, Connecticut.

The Department of Defense, in cooperation with the Energy Research and Development Agency, the Department of Housing and Urban Development, and the National Aeronautics and Space Administration, is conducting a demonstration of solar heating systems at 15 Army, Navy, and Air Force bases throughout the Continental United States. This national effort is to provide early operational data and other application information in support of the National Solar Heating and Cooling Demonstration Program.

The objective of the design contract is to demonstrate the use of commercially available solar space-heating and water-heating systems, and to adapt these systems for use in 50 selected military family housing units. The project's prime goals are to demonstrate the effectiveness of selected systems and monitor their performance in the reduction of energy consumption in residential buildings while maintaining quality design.

The architects and engineers modified the existing designs of approximately 35 new units of military family housing currently under contract to turnkey contractors and the retrofitting of 15 occupied units. The demonstration plan defines a mix of demonstration objectives for each site. Variables which will be demonstrated and compared include: solar collector types, building types, solar heating system types, solar collector mounting location variations, solar heat storage variations, and various solar backup systems.

Wyatt Introduces New Oil Reclamation Equipment



The two 46-foot high structures pictured above could easily be mistaken for space rockets on launching pads. Actually they are fuel oil reclamation tanks, a new type of equipment for conserving energy and preventing pollution, invented and constructed by engineers of Wyatt, Inc., fuel oil wholesalers headquartered in New Haven, Connecticut.

The tanks will process waste oil and oil tank sludge, a residual mixture of oil, water, rust, and silt that gradually accumulates in the bottoms of oil storage tanks and contains up to 50 percent oil. The oil is reclaimed by allowing the sludge and waste mixture to settle in the tank, where oil rises and floats on top of the water and the deposits settle into the funnel below. Drain pipes at different levels make it possible to draw off the clean oil separately from the water. The purified oil is returned to use, the clean water is flushed away, and trucks drive beneath the tanks and haul the remaining dirt and sediment to be buried for land fill.

The tanks are located in Wyatt's New Haven Terminal, where companies from New England can truck their waste oil and sludge for processing. Wyatt may erect similar tanks at its pipeline terminal in Springfield, Massachusetts in the future.

Howard Bidwell, left, of Consolidated Precast, Inc. receives "Award of Excellence" from C. J. Wilmot, Sr., Chairman, APA Awards Committee, right.

Hartford Civic Center Receives Awards from A.P.A.

Two awards were presented in connection with the construction of the Hartford Civic Center at the 1976 Convention of the Architectural Precast Association (APA) in Daytona Beach, Florida.

Howard Bidwell, President of Consolidated Precast, Inc., Farmington, Connecticut, received the Carl E. Shawver Award for Manufacturing Excellence, and Vincent G. Kling, FAIA, of Vincent G. Kling & Partners of Philadelphia, was presented with the Carl E. Shawver "Award of Excellence" in recognition of design in the utilization of architectural precast concrete.

The Hartford Civic Center was designed by Kling in association with the Hartford architectural firm of Danos and Associates. Consolidated Precast furnished precast concrete elements for construction of the exterior of the Civic Center.

Also at the meeting, Bidwell was elected President of the Association. He has previously served as APA Director and Vice President, and was 1974-75 Chairman of the Membership Promotion Committee. A graduate of Bucknell University with a B.S. in civil engineering, he has been in the construction industry for 23 years, with 13 years in architectural precast concrete production.

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National Trust Lends H.A.C $50,000 For Preservation Effort

The National Trust for Historic Preservation in Washington, D.C. has awarded the Hartford Architecture Conservancy (HAC) a $50,000 loan to seed the Conservancy's efforts to establish a local revolving fund for historic preservation.

"We hope to use the funds to purchase endangered properties in Hartford and then sell them to individuals who would become owner-occupants and renovate the buildings," explained Executive Director Tyler Smith. "To augment the Trust loan, HAC will initiate a fundraising drive this fall with a goal of $250,000."

This loan is the largest ever granted by the national organization and its terms dictate that the money will be loaned for one year at an one-half prime interest rate (about 4%). Upon repayment of the loan, the $50,000 will guarantee a line of credit with local lending institutions, enabling HAC to borrow up to $150,000 toward its revolving fund. With this prototypical arrangement, the Trust hopes to "encourage participation of local private, institutional lenders and local capital in such revolving funds.

The Trust is the only nonprofit organization chartered by Congress to encourage public participation in the preservation of sites, buildings, and objects significant in American history and culture.

AIA Names Committees To Explore Ethics, Other Issues

The American Institute of Architects has set up a mechanism for dealing with major issues, including possible changes in its ethics, that will come before its 1977 national convention, according to AIA President Louis de Moll, FAIA.

A 1977 Issues Committee has been created to deal with the three questions of AIA's Standards of Ethical Practice, dues, and membership. The committee includes a coordinating group made up of six members of its Board of Directors and chaired by First Vice President-elect Elmer Botsai, FAIA. Three sub-groups have been named to address the three specific issues of ethics, membership, and dues.

The ethics sub-group, under the chairmanship of AIA Secretary-elect Robert M. Lawrence, FAIA, will consist of

four task forces, each charged with studying and reporting on one of four major ethical issues: advertising; expanded practice; foreign practice, and free sketches.

Each task force will be chaired by a Board member and will include four representatives from the leadership of the Institute's chapters. President de Moll said that task force members had been selected to represent the widest possible cross-section of AIA membership, based on such factors as geographical region, age, size of firm, and type of practice.

The four task forces will hold meetings in cities across the country during the summer in order to hear from as many Institute members as possible on each ethics question. They will also meet together to assemble reports for presentation to the Coordinating Committee and to the membership at "Grassroots" meetings early in 1977. The final report will be presented at the national convention, to be held in San Diego in June.

It is interesting to note that no member architects from Connecticut or any of the other New England states were named to the coordinating group or any of the task force groups.

Michael Buckley Appointed to Connecticut Habitat Board

Michael P. Buckley, CSA officer and President of Halcyon, Ltd., a Hartford-based Development firm, has been appointed to serve on the board of Connecticut Habitat, Inc., a newly formed public service corporation. Connecticut Habitat, which will focus primarily on the design of the public environment, is a joint effort of the Connecticut Humanities Council and the Connecticut Commission on the Arts. Richard Sharpe, FAIA, who is currently serving on the board of the Connecticut Humanities Council, will also be a member of the new corporation.

Michael P. Buckley

SCGC Offers New Energy Service

In a move designed to improve energy conservation and efficiency in the state, the Southern Connecticut Gas Company has introduced a new energy-efficiency consulting service called CONNSERVE to Connecticut industrial and commercial establishments.

A team of energy experts, including staff engineers and specialists in purchasing, accounting, finance and operations, will be available to assist Connecticut businesses in combating rising energy costs. The service is designed to reduce consumption of natural gas.

Fees for the consulting service will vary, depending on the scope of advice sought by clients, but basically will involve a three-phase approach: an energy-facilities evaluation, a comprehensive recommendation report, and program implementation. The service is being offered initially to the company's marketing area, which reaches from Westport to Clinton, and is offered to firms of all sizes.

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Books

Abandoned New England: Its Hidden Ruins and Where to Find Them. By William F. Robinson. A New York Graphic Society Book, published by Little, Brown and Company, Boston. $19.95.

In every corner of the New England landscape, waiting to be discovered and explored lie forgotten traces of New England's past. A milestone unnoticed in a city's bustle, a canal hidden deep in a forest, an empty church standing in lonely faded splendor — these and hundreds of other sites and relics are described in ABANDONED NEW ENGLAND; *Its Hidden Ruins and Where to Find Them,* a refreshing and unique guidebook that visitors, armchair travelers, and residents alike will welcome.

William F. Robinson, a Connecticut-born writer and photographer, has devoted years to studying and seeking out the ruins of New England. Overgrown with vines and worn by many winters, they often possess a somber beauty akin to the great ruins of Europe. Each one has a story to tell of a nearly forgotten trade, industry, or way of life from the days when New England's farms, ships, mines, and factories supplied all that a young nation needed. In his narrative, Mr. Robinson evokes this heyday and opens our eyes to the wealth of its remains. Lying untouched since the day progress made them obsolete, these abandoned places, machines, and buildings are silent witnesses in stone, wood, and iron to the forces that transformed New England from a network of small farms and industries into an urban corridor.

Over 100 photographs, maps, and prints, including 16 pages in color, illustrate ABANDONED NEW ENGLAND. A detailed list of hundreds of sites and objects, with precise directions for reaching them, will lead the traveler to the delights of exploring the unknown or revisiting the familiar. In suburban neighborhoods, off thruways, and on remote hillsides there are more ruins, still forgotten, and Mr. Robinson tells you where they are likely to be and how to identify what you may find. An annotated bibliography lists sources for further reading.

Simplified Guide to Construction Management for Architects and Engineers. By James E. Gorman, P.E. Cahners Books International, Boston, Mass. 269 Pages. $14.95

Construction management (CM) has emerged to fill a void in the construction industry. Now a new book offers a comprehensive treatise on professional project and construction management. This book brings professional, project, and management services into perspective with design services, offering practical check-lists on design phases, guidelines for project services, and sample forms and documents.

Written for both the practicing professional and the student, this nuts-and-bolts handbook will provide the reader with a fundamental understanding of construction management that will help him evaluate and deal intelligently with the CM team. The book will also be of value to the owner and builder.

Numerous forms, charts, field notebook pages, estimates, and reports — as well as information-filled appendices —

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add to the book's usefulness as a practical handbook and text.

James E. Gorman is President of Constructioneering Northwest, Inc., of Bellevue, Washington, a construction management and engineering firm. He is a Registered Professional Engineer in Washington, Hawaii, and the District of Columbia.

American Architects from the Civil War to the First World War. *A Guide to Information Sources*, edited by Lawrence Wodehouse. Gale Research Co., Detroit. 343 pages. $18.00

The third volume in the Art and Architecture Information Guide Series, this book is an annotated bibliography of books and articles on the lives, careers, and works of prominent architects of the period. The material is divided into three sections. The first cites general references, including bibliographies, anthologies of criticism or biography, and specific critical works focusing on one or more aspects of the architecture of the period. The second section covers 175 major architects, giving a brief biographical sketch for each, followed by a listing of works by and about the architects. Section 3 covers 46 additional significant architects of the period about whom little has been written. For each architect, biographical notes and citations of sources of additional information, including publications and obituaries, are provided.

This book is a continuation from the work begun by Frank J. Roos, Jr. in *Bibliography of Early American Architecture*. A subsequent volume by Mr. Wodehouse, who is Professor of architectural history at Pratt Institute, will be titled *American Architects from the First World War to the Present*.

Illustrated Encyclopedic Dictionary of Building and Construction Terms. By Huch Brooks. Prentice-Hall, Inc., Englewood Cliffs, N.J. 366 Pages. $24.95.

Where can professional builders and contractors find an up-to-date listing of non-technical terms in all areas of construction, including real estate, insurance, mathematics, surveying and engineering? The data may be found in this new handbook.

Designed for busy, "time-conscious" professionals, the volume's alphabetical format makes information-finding easy and fast. Many terms are expanded and given a "mini-text" treatment that provides a condensed overview of the subject.

This comprehensive handbook also features an "Index by Function" which separates all the terms into 23 subject areas for easy locating. It contains frequently used formulas, charts and tables that help the builder compute areas and volumes of commonly used shapes . . . conversion factors that quickly convert feet into meters, B.T.U.'s to kilowatts, and liters to gallons . . . plus many standard abbreviations that are frequently used on building plans.

In addition, this storehouse of construction facts includes detailed answers to problems in plumbing, use of plywood, prestressed concrete, arc welding, lumber ordering, structural steel, door types, central air conditioning, plastics and electrical service.

Hugh Brooks is a consulting engineer in Newport Beach, California where his firm, Hugh Brooks Associates, is in its 18th year. As consultants to architects, contractors and industrial firms, they have been involved in the design of a wide range of commercial and industrial facilities including office buildings, shopping centers, schools, recreational projects and manufacturing plants.

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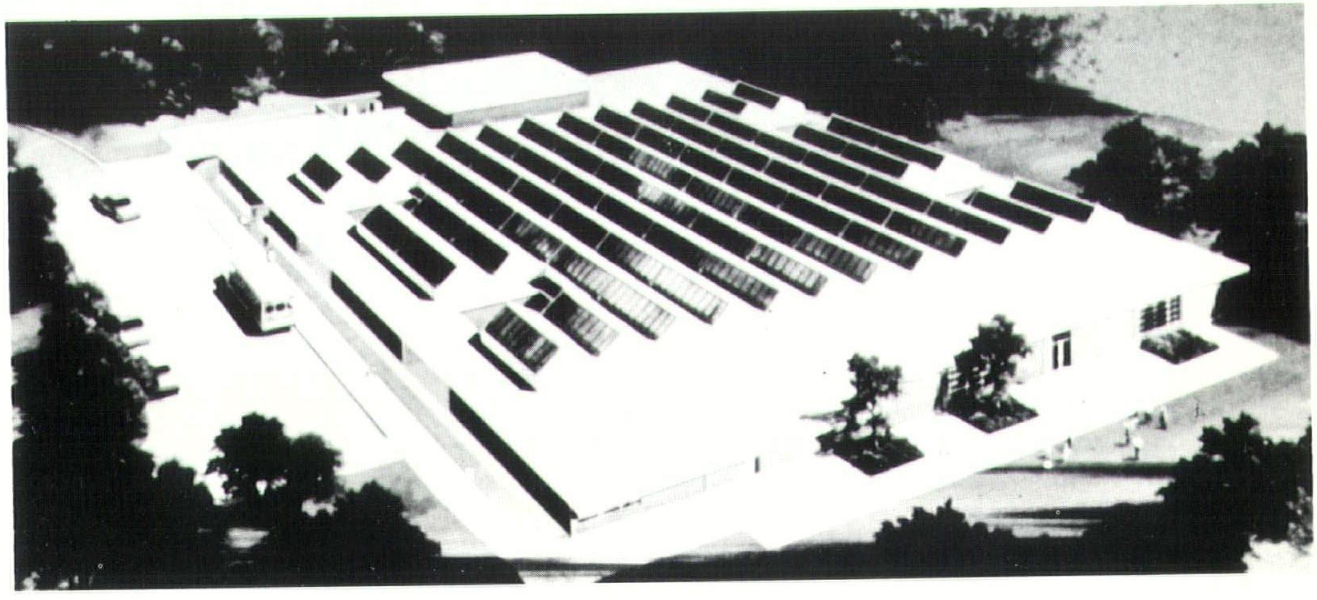

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So You Want to Build a House. By Peter Hotton. Little, Brown and Company, Boston. 234 pages. $6.95 (paper).

This complete guide to the process of building a house might be subtitled, "How to raise the roof and save money, despite a rough mortgage market and sky-high labor and materials costs." Peter Hotton, home and garden editor of the *Boston Globe*, begins his book with the dreaming and planning stages for a home, goes through the details of buying land and determining how to build it, and then tells how to put the house up. Basically, the author states, there are three ways to approach building a new house: (1) contract it out entirely; (2) the owner becoming his own contractor, subcontracting most of the work and leaving the "simple" jobs for himself; or (3) the owner handling most of the work himself, except for those jobs which must by law be performed by licensed professionals. Hotton discusses each approach thoroughly, and then provides a step-by-step manual for house construction that accommodates each of the three methods. There are also a glossary of building terms, a list of publications on house building, and a source list of information and materials. While the book attempts to make the builder's chore a little easier, experienced do-it-yourselfers may find it too elementary.

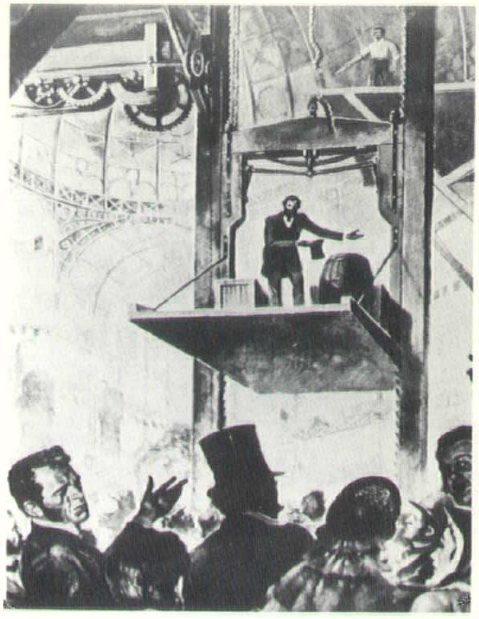
Catalogs & Brochures

Tell Me About Elevators. Available from the Otis Elevator Company, 750 Third Avenue, New York, N.Y. 10017.

During 1976, Americans will celebrate the U. S. Bicentennial year by traveling some 15 billion miles on a form of transportation only dimly foreshadowed when their nation was born: the elevator. This invention's evolution during the past two centuries and more is described in text and photographs in this new 40-page publication from Otis Elevator Company.

Early hoists, used for freight, were not safe enough for passengers until 1852, when Elisha Graves Otis built a safe hoist for a Yonkers, N.Y. factory by incorporating a simple, fail-safe device to stop the hoist automatically if its rope broke. At America's first World's Fair, in the New York Crystal Palace in 1854, Otis dramatically demonstrated his new "safety hoister" by riding on its platform as the hoisting rope was being cut. Word of the invention spread and, in 1857, Otis installed the first passenger elevator in a New York department store.

"Tell Me About Elevators" traces the development of the modern elevator from these beginnings to today's glass-walled observation elevators, such as the one in Atlanta's Regency Hyatt Hotel, and concludes with glimpses of the elevators of the future and answers to frequently-asked questions about this essential aid to modern living.



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Architectural Aluminum Certification Program Directory, published by the Architectural Aluminum Manufacturers Association (AAMA) is now being distributed to assist architects, specifiers, and builders in determining certification status of various prime windows, sliding glass doors, and storm windows made of aluminum and used in residential, commercial, and monumental building construction.

Certification Program Directory lists products which meet present voluntary AAMA testing requirements, using voluntary standards of the American National Standards Institute. This means that products have been tested regularly in-plant for air infiltration, water resistance, windloads, and structural strength. By specifying these products, designers can be assured of products meeting the quality and voluntary performance standards recommended by AAMA.

Cataloguing in the directory is by AAMA specification number, listing manufacturer name, product description, and maximum size tested. A complete index of manufacturers addresses is also provided. For copies of the directory, send a written request on company letterhead to AAMA, 35 E. Wacker Drive, Chicago, Illinois 60601.

Build A Better Roof is the title of a new 24-page brochure from the American Plywood Association. The various grades of plywood for commercial and industrial construction are reviewed, as are several new cost saving roof systems. These include: built-in-place plywood roofs, long-span systems, preframed panelized roofs and plywood for bonded roofs. Engineering tables are included. For a copy, write: American Plywood Association, 1119 A Street, Tacoma, Washington, 98401. Ask for Form A310.

From The Preservation Press

Three new books on topics ranging from restoration economics, recycling old courthouses and principles and practices of the historic preservation field have been published by the Preservation Press of the National Trust for Historic Preservation. The books are: **Economic Benefits of Preserving Old Buildings** (168 pages, illus., $5.50 paperbound); **A Courthouse Conservation Handbook** (80 pages, illus., $3 paperbound); and **Preservation and Conservation: Principles and Practices** (547 pages, illus., $15 hardcover).

One of the reasons for the sudden interest in saving and reusing old buildings of architectural and historical value or interest is the fact that preservation is proving to be more profitable than much new construction. With the publication of **Economic Benefits of Preserving Old Buildings,** developers, bankers, architects, planners, government officials and preservationists — all those interested in conserving the built environment — at last have at hand hard figures and case histories on the economic potential of recycling old buildings and neighborhoods.

The book presents 25 papers from the 1975 Seattle Conference on Economic Benefits of Preserving Old Buildings, which was sponsored by the National Trust, City of Seattle and Seattle Preservation and Development Authority. Topics include the Seattle preservation experience, municipal action to encourage private investment in preservation, continuing and adaptive use, the costs of preservation, government and private financing programs and preserved buildings as profitable real estate. Case study subjects include projects in San Francisco, New Orleans, Savannah, Ga., Dallas, Denver, Boston, Chicago, Washington, D. C., Baltimore, among others. Special focus is given to such concerns as 19th-century commercial structures, office

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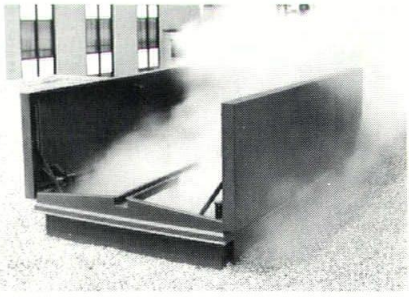

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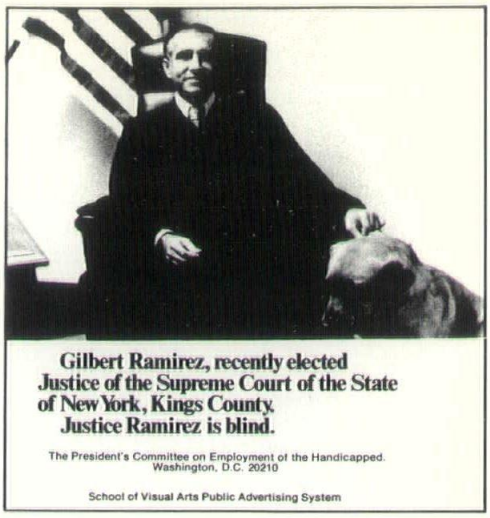
"As the most prominent public building in the county, the older courthouse was built with great pride and attention to detail, for its builders intended it to represent the county's stature, prosperity and confidence in the future," suggests **A Courthouse Conservation Handbook.** This important new book, published by the Preservation Press for use at the just-concluded National Conference on Historic Courthouses, answers many of the questions county governments and architects are now encountering as they try to decide what to do with seemingly outdated but historically valuable facilities.

A Courthouse Conservation Handbook clearly discusses the problems found in rehabilitating old courthouses, offering practical alternatives that have worked elsewhere. Chapters cover structural, code and maintenance considerations; such interior features as lighting, acoustics and mechanical systems; space planning; updating the courtroom and auxiliary spaces; creating new spaces; financing improvements; and group action. The book also surveys the architectural history of courthouses and presents a case study of the successful effort to save and restore the Marshall County Courthouse, Marshalltown, Iowa.

Preservation and Conservation: Principles and Practices, produced for the Preservation Press by the Smithsonian Institution Press, is expected to become one of the major resource works in the United States on the technical practices involved in conservation and restoration of cultural resources.

A compilation of more than 60 essays and commentaries presented at an international conference on the subject, the book's chapters cover such topics as materials and techniques for restoration of wood, masonry and masonry products, metals, paints and varnishes; maintenance considerations and life expectancy of materials, and the problems of increasing visitation at historic sites. Other sections investigate the relationship of the various conservation professions — architects, historians, curators, conservators, archaeologists, attorneys and planners. Preservation philosophy and criteria, procedures and performance standards, accreditation and licensing, and university and apprenticeship training programs also are presented in detail. A special section in **Preservation and Conservation** examines the restorations of Colonial Williamsburg and Independence National Historical Park. Another chapter assesses the leading national conservation-preservation organizations. The European experience in conservation techniques and training is highlighted throughout the book. Chapters are annotated with comprehensive notes and bibliographies.

All three books may be purchased from the Preservation Bookshop, National Trust, 740 Jackson Place, N. W., Washington, D. C. 20006. Please add 50 cents each for postage and handling ($1.00 on **Preservation and Conservation**)



Gilbert Ramirez, recently elected Justice of the Supreme Court of the State of New York, Kings County. Justice Ramirez is blind.

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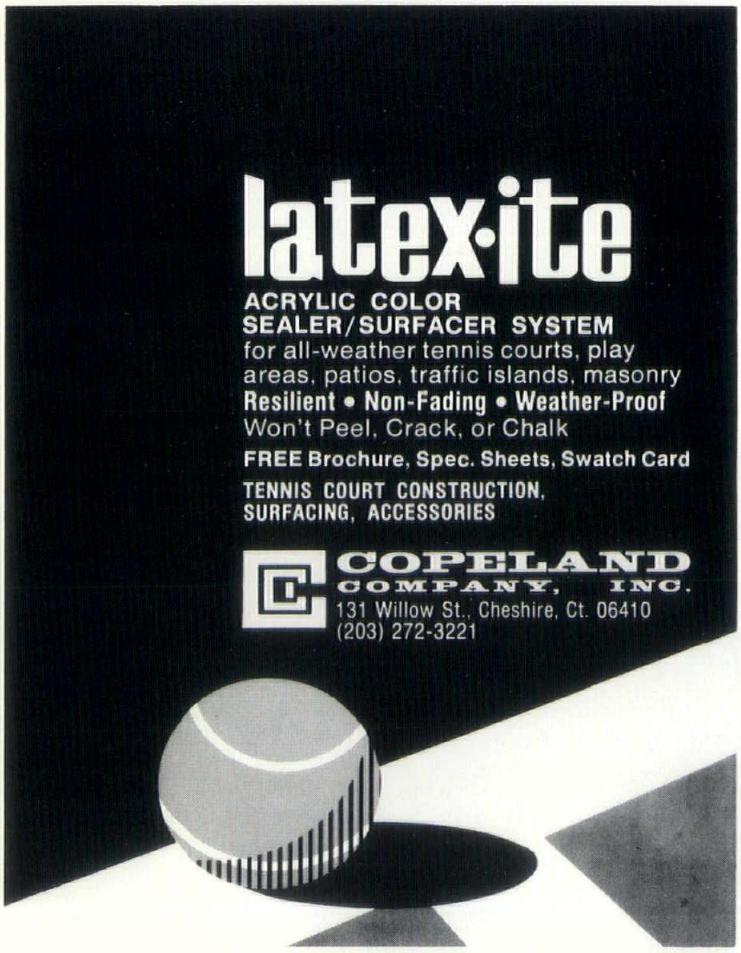

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The Design of Herman Miller by Ralph Caplan, New York, The Whitney Library of Design. 120 pages, $13.50

The history of Herman Miller is much more than the story of a midwestern furniture manufacturing company that developed a national and international reputation for design innovation. It is really the story of the introduction of modern design at the contract level as well as of the growing reputation and influence of such leading designers as George Nelson, Charles Eames, Robert Propst, Gilbert Rohde, and Alexander Girard, whose careers are closely linked with Herman Miller.

Also, for the story to be complete, it must include the importance of an imaginative marketing approach, the growing influence of the user, the relation of research to development, office landscaping, component furniture systems, the introduction of brilliant color in the office environment, and the struggle for survival in a changing economic setting. All these facets of the Herman Miller story are skillfully woven into a lively narrative that describes the climate of the changing times and the personalities that created the Herman Miller dynamic over the past thirty years.

This volume is richly illustrated with photographs of the many innovative Herman Miller furniture systems and prototype designs now accepted as classics, as well as anecdotal pictures of the chief personalities. Because it is a record of the development of a corporation that is both uniquely American and yet international in its influence and implications, this book has as much to offer the social historian as it does the architect and the designer.

John Merriman

The History of the National Trust for Historic Preservation, 1963-1973. The Preservation Press, Washington, D.C. 320 pages, 22 appendixes, and index. $11.00

"The past belongs not to the limited number of professional historians, teachers, architectural historians, but to anyone who is aware of it, and it grows —lives— by being shared," suggests Gordon Gray, chairman of the National Trust Board of Trustees from 1963 to 1973, in this Bicentennial publication from the Preservation Press. In detailing the growth of the leading private American preservation organization, the book also encompasses the growth of the historic preservation movement which it serves.

Informative reading for preservationists and environmentalists as well as a valuable reference for documentation of the history of the National Trust, the book is a sequel to the 1947-63 history of the Trust formative years written by David E. Finley, chairman of the Board of Trustees from 1950-62. Twenty-two appendixes detail the growth of the Trust: its policies, people, legislation, funding, organization and programs.

Chartered by Congress in 1949 to encourage public participation in the preservation of sites, buildings and objects significant to American history and culture, the National Trust has grown from a small staff and limited membership and funding to a staff of more than 150, membership of more than 100,000 and a 1976 budget of $5.8 million, including matching grants from the U.S. Department of the Interior, National Park Service, under provisions of the National Historic Preservation Act of 1966. Over the past five years the opening of Western and Midwestern regional offices and New England, Southwest/Plains and Mid-Atlantic field offices has enabled the Trust to increase its advisory services in all parts of the country and further promote public awareness of this need to protect America's built environment. During the Bicentennial, as millions of Americans begin to see, appreciate and defend this heritage, the National Trust continues its task of preserving the quality of life and the tangible evidence of the foundations on which America is built.

AAMA Publishes New Guide Specifications Manual

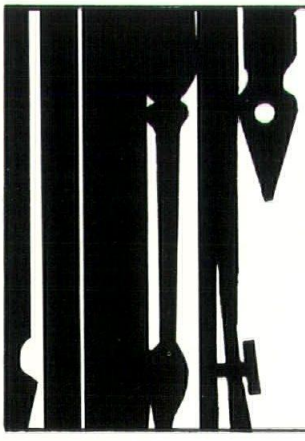
Updated technical data and guide specifications for metal curtain walls, windows, and store fronts and entrances have been published in a new manual by the Architectural Aluminum Manufacturers Association (AAMA).

Aimed at promoting better curtain wall design and application, this publication provides useful, reliable, unbiased technical information to architects, manufacturers, and suppliers.

Guide Specifications Manual replaces and expands two publications of the National Association of Architectural Metal Manufacturers to include information on the use of all metals in curtain wall construction, as well as standards for the important components of curtain walls. For convenience to architects and specifiers, the 128-page guide follows the current format recommended by the Construction Specifications Institute.

The specifications section contains voluntary guide specifications and a complete commentary explaining the reasoning behind specifications and gives background information and references to technical data and standards.

AAMA's Metal Curtain Wall, Window, Store Front and Entrance Guide Specifications Manual is available from AAMA, 35 E. Wacker Drive, Chicago, Illinois 60601. Price is $9.00 plus $1.50 for postage and handling.



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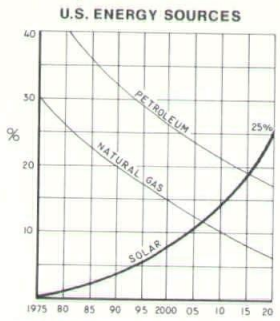

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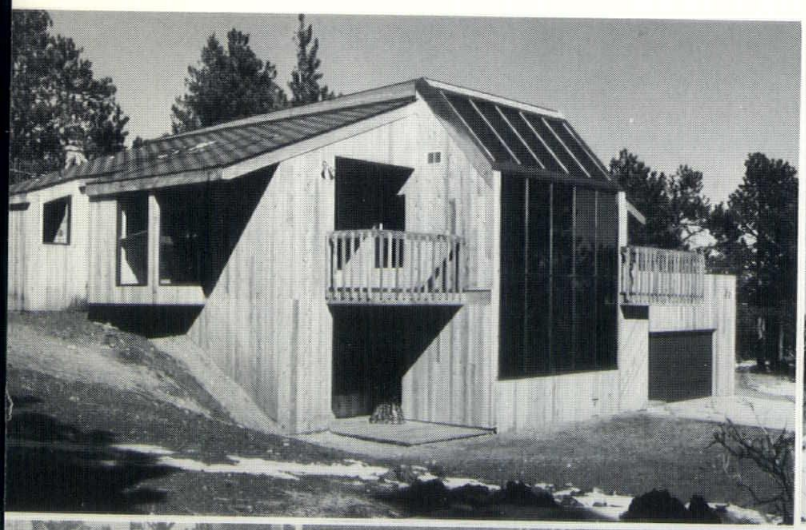

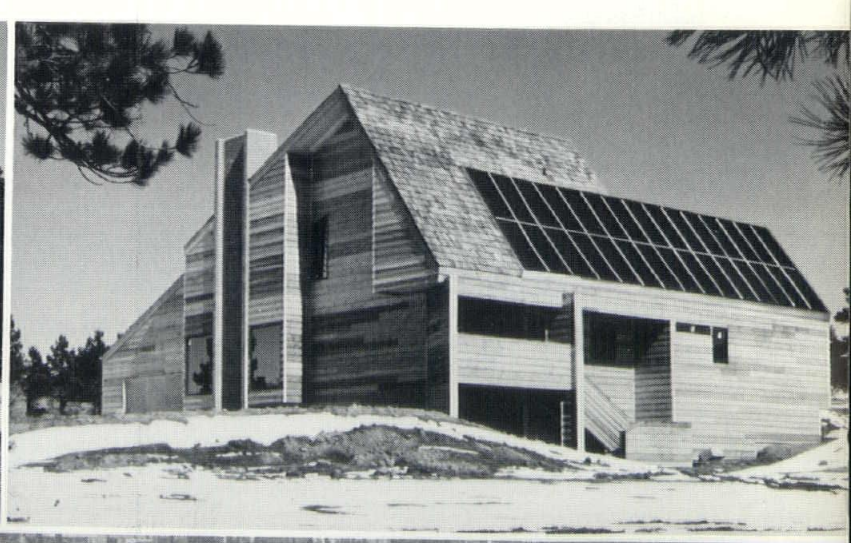

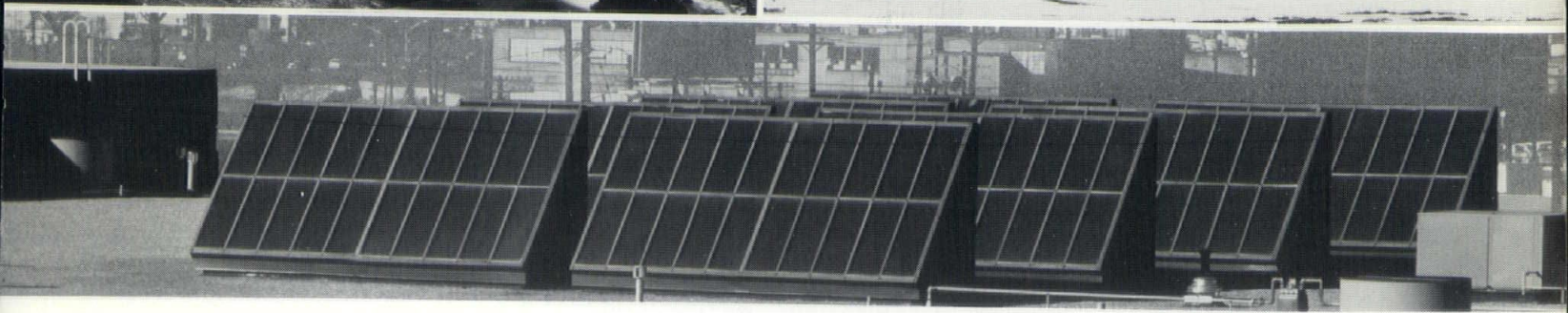

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