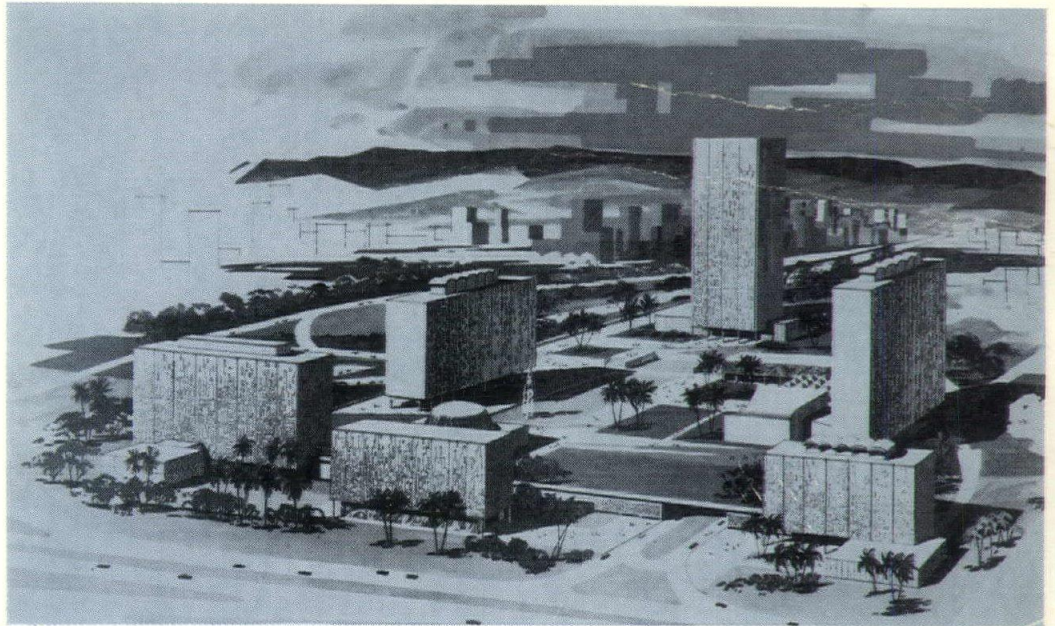


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# EMPIRE STATE ARCHITECT

JANUARY-FEBRUARY 1964

Vol. XXIV No. 1

IN THIS ISSUE: Public Buildings, Seminar Summary

NEXT ISSUE: Membership Directory







# *This school cost less with ceramic tile*

The new Waterloo, N.Y. High School contains 34,400 square feet of American Olean ceramic tile—including colorful tile murals on exterior and interior walls. Costly? Here are the facts: This school cost less—\$1.65 per square foot less than the median cost of schools built in New York State during the same period. Proof that American Olean ceramic tile can save you money on school construction costs as well as insuring big savings on cleaning and maintenance year after year.

Write for informative Booklet 620, Ceramic Tile for Schools.

**ABOVE**—Main Entrance: exterior mural in ceramic mosaics, 1" sqs., Cer Dove Gray, Citrin, Topaz with figures in Ebony. Plate 479.  
**BOTTOM LEFT**—Corridor Walls: 6" x 4¼" in 52 Daffodil and 32 Topaz. Design: 6" x 4¼", 59 Parchment, 45 Salt & Pepper and 56 Leaf Olean. Plate 480.  
**BOTTOM RIGHT**—Cafeteria Wall: ceramic mosaics 1" sqs., Beryl, Apricot, Petal Pink, Haze, Topaz. Plate 481.  
 Architect: John C. Ehrlich. Tile Contractor: Stearns & Bergstrom Inc.

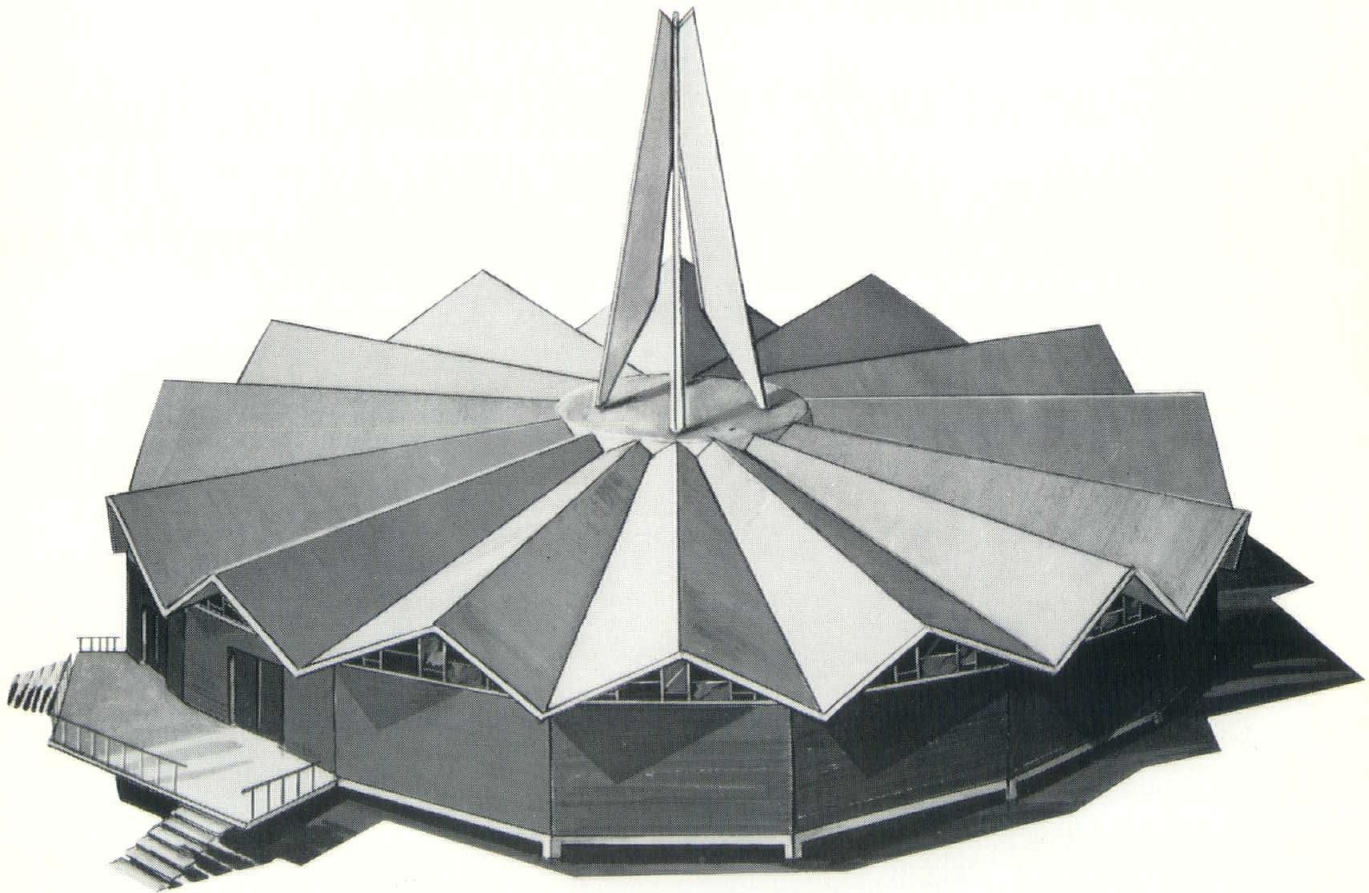
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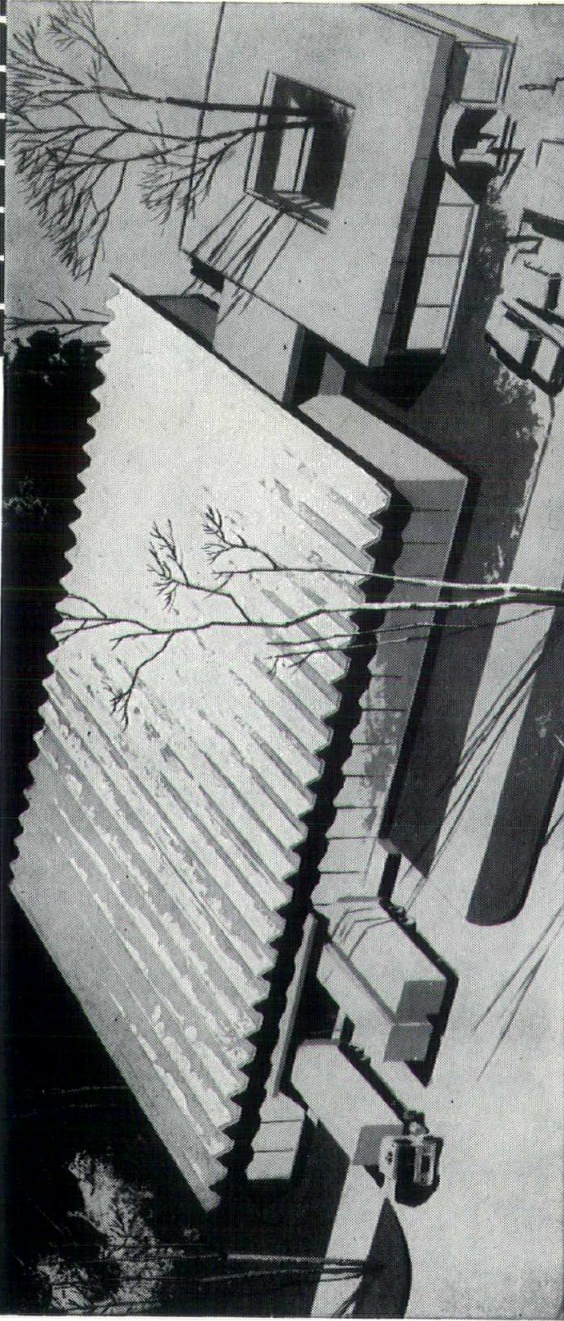
**NO. 8**

**folded plates**

a.i.a. file: 4-a

**Prepared as a service to architects by Portland Cement Association**

clip along dotted line



**Tremendous span and load-carrying abilities** characterize concrete shell roofs in the form of folded plates—also known as F/P's. In industrial construction folded plates are being used more and more to provide great areas of column-free space for manufacturing or storage.

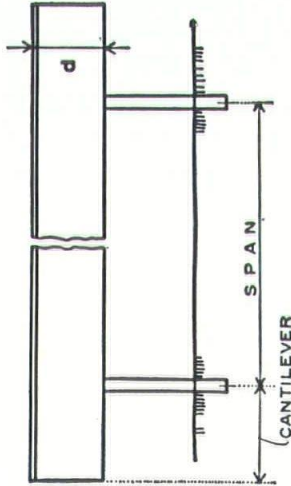
The ability of folded plates to cantilever can be applied advantageously in the design of schools, stores and hangars.

There are three basic types (two shown, below) of folded plate shells—V-shaped, Z-shaped and a modified W-shape. The economy of F/P's is increased with form re-usage.

Typical span data for V- and W-shaped plates are shown in the tables below.

For more information, write for free technical literature. (U.S. and Canada only.)

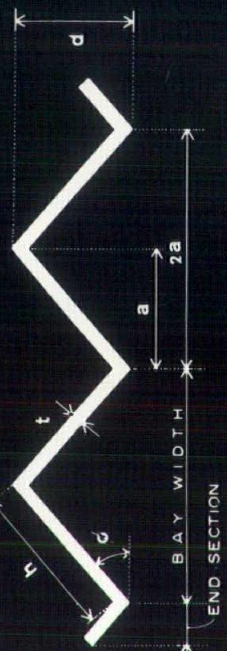
**CROSS SECTION**



Sufficient cantilever can help to counterbalance the span. The usual span-to-depth ratio varies from 1:10 to 1:15. Example: If span is 40' long, the usual minimum depth is about  $\frac{40}{10}$  or 4'.

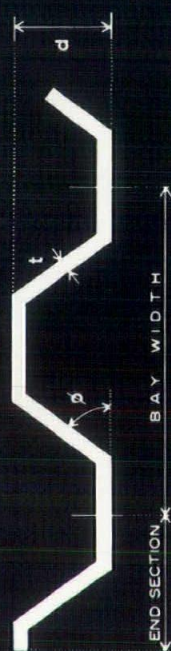
Formula:  
 VOLUME OF CONCRETE IN CU. YARDS =  $\frac{th}{324a}$   
 h = ft.  
 t = in.  
 a = ft.

**TWO SEGMENT F/P**



SPAN	$\phi$ *		d	2a		t	(3) reinforcing
	max.	min.		max.	min.		
40'	45°	25°	4'-0"	2'-9"	15'	4"	1.2-1.6
60'	45°	25°	6'-0"	4'-0"	20'	4"	1.9-2.7
75'	45°	25°	7'-6"	5'-0"	25'	4"	2.6-3.7
100'	45°	25°	10'-0"	6'-9"	30'	5"	4.0-5.2

**FOUR SEGMENT F/P**



\* max. recommended slope is 45°  
 (1) values shown may vary with architectural design  
 (2) average thickness in inches  
 (3) pounds per square foot of projected area

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(Cover picture: Minillas Government Center)

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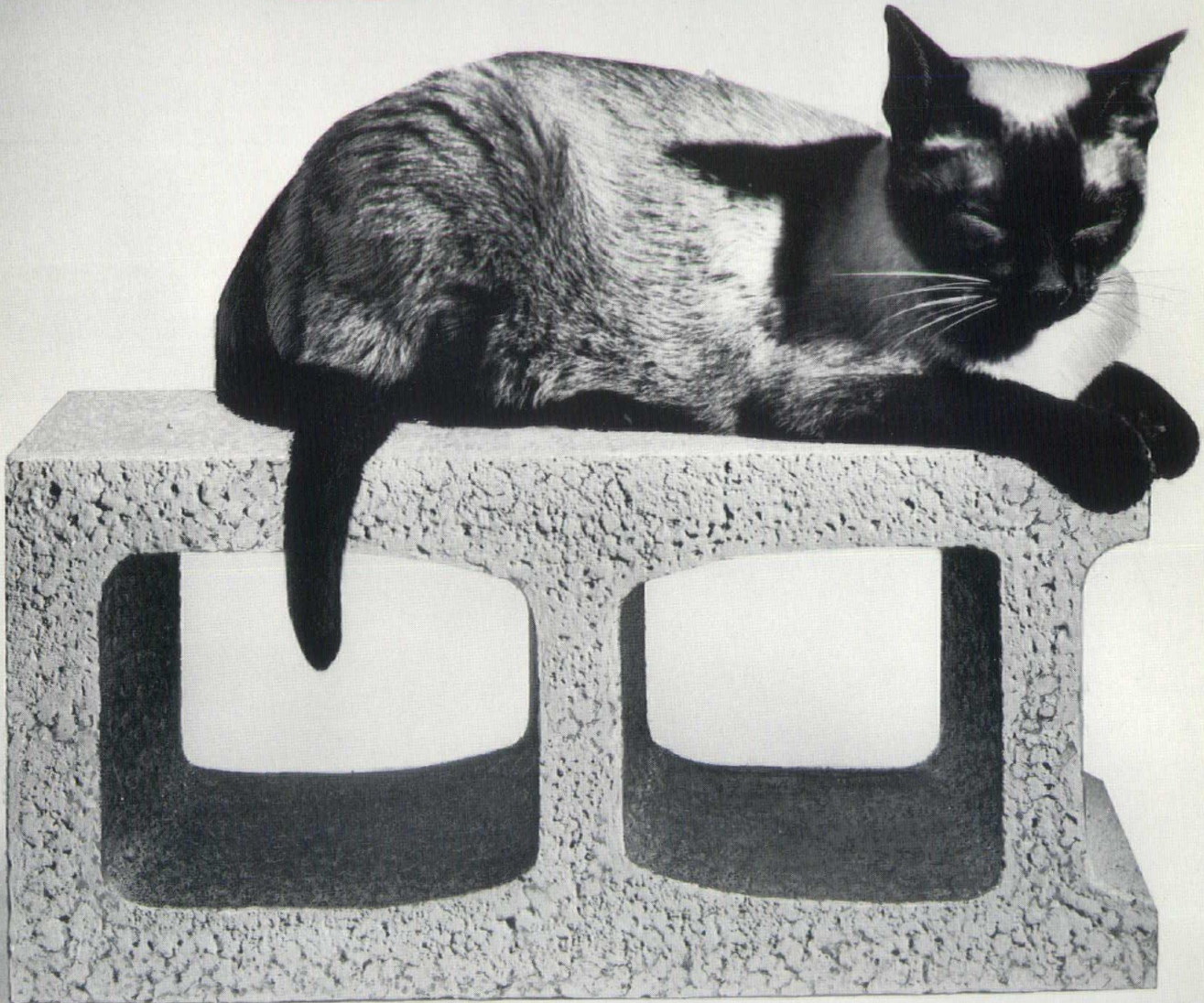
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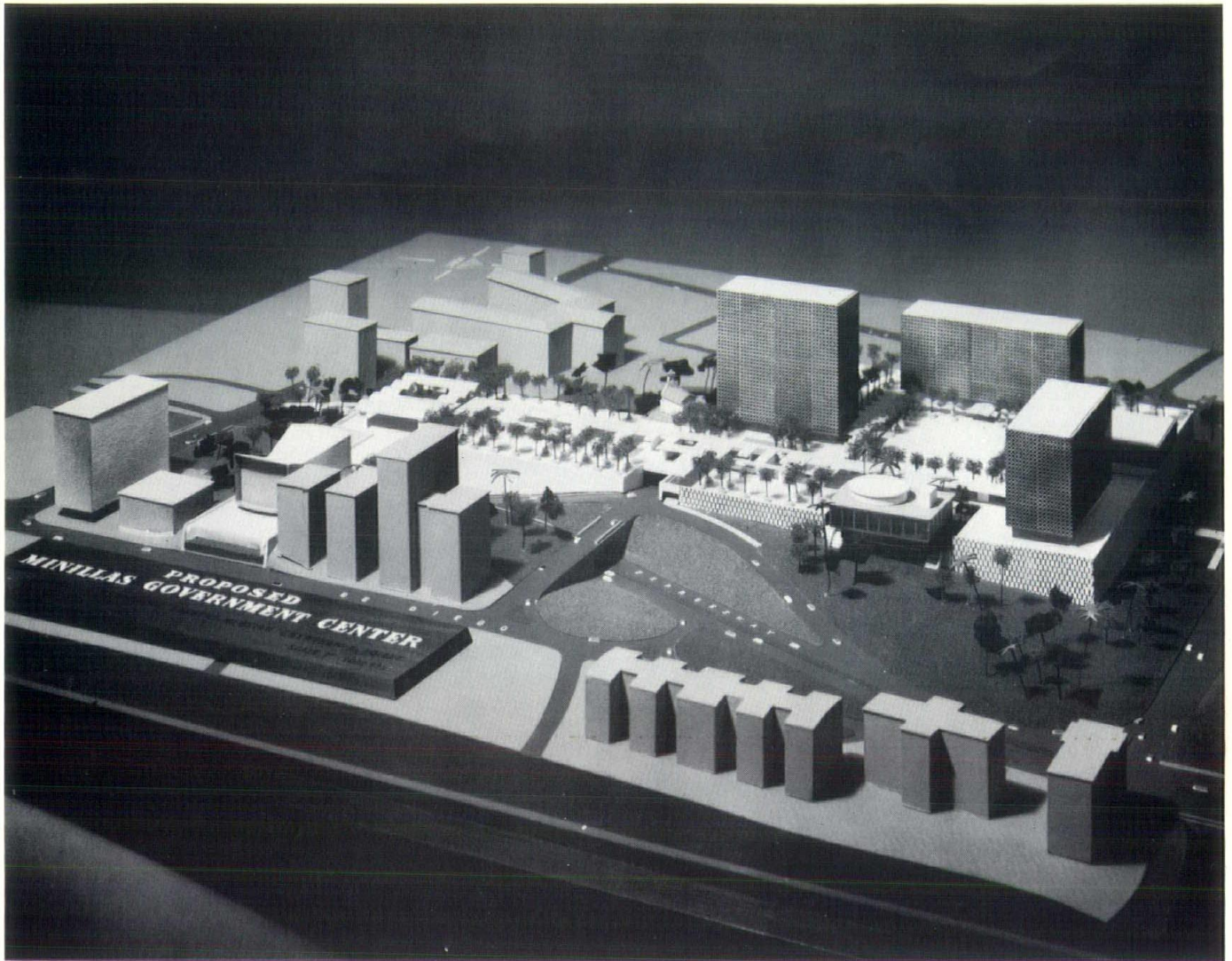
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## **Minillas Government Center, Commonwealth of Puerto Rico**

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The Minillas Government Center is the largest of four proposed governmental complexes which will form the seat of government of the Commonwealth. It was originally intended that all Departments be centralized at the Minillas Site. However, consideration of the traffic volume thereby generated led to dispersion of those Departments which do not have essential and direct inter-relationships. The result is a reduction in scope to include only the following Departments:

**LABOR**

**COMMERCE**

**PRIDCO** (Puerto Rico Industrial Development Company)—the Agency charged with the creation of a broad industrial base for the Commonwealth.

**Government Development Bank**

**A PLAZA** — historically, the focal point of urban community life, and in this instance planned for accommodation of large public assemblies featuring important events or speakers. The major pedestrian approach from the narrow end of the site is so conceived as to lead the pedestrian past a maze of Exhibit space varying in size and shape, in which will be displayed the products of Puerto Rican industry.

**AUDITORIUM**—to serve large group meetings under government sponsorship, and in dual capacity as a municipal theatre.

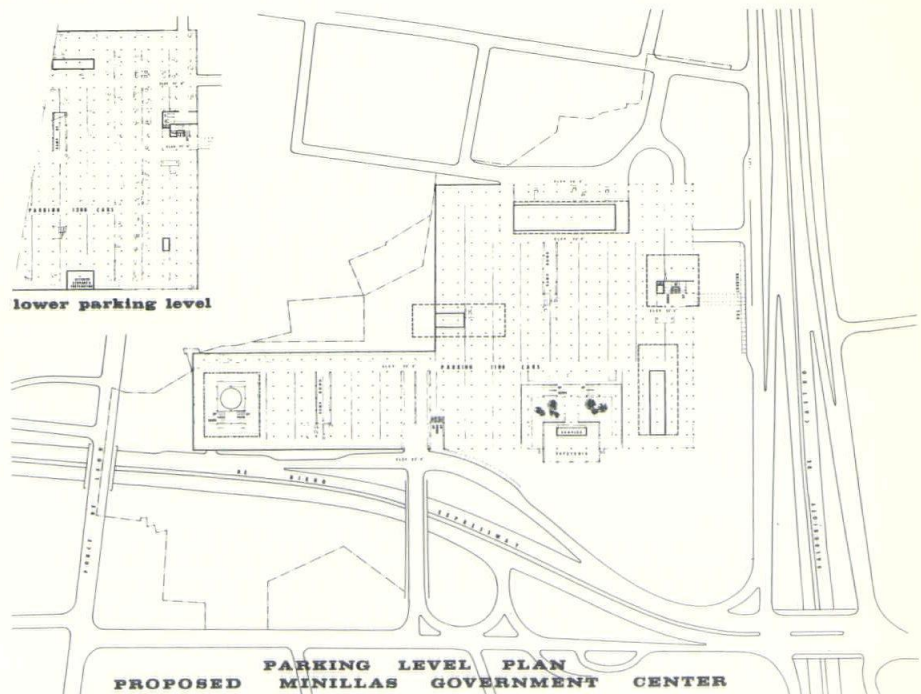
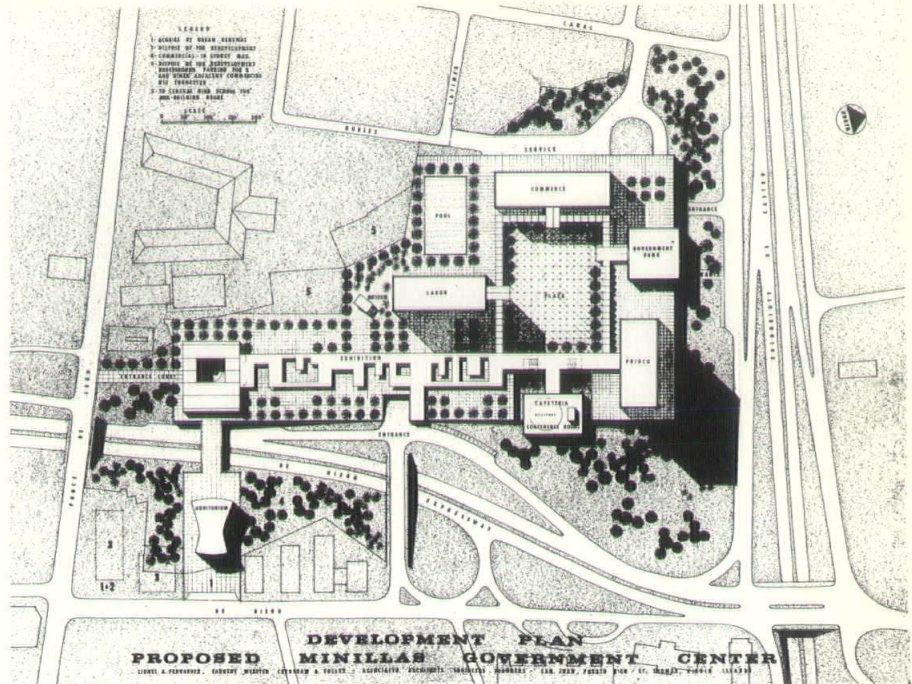
**CAFETERIA AND CONFERENCE ROOMS** — a central facility for the use of the 2,700 employees of the Center, which also provides meeting rooms for smaller groups not requiring the Auditorium. Food service will also be provided to dining-rooms within the various buildings.

**PARKING** — multilevel provision for 2,300 cars.

**MUSEUM**—a small historical Church will be left on the site and probably converted to a museum, contrasting with the functional design of the multi-story buildings adjacent.

The entire development, including site work, is estimated to cost in excess of \$23,000,000.

The responsibility for planning and constructing the center is that of the Public Buildings Authority — Ulises Barros Loubriel, Executive Director.





# "THE EFFICIENT ARCHITECTURAL OFFICE"

## SUMMARY OF SEMINAR 1963 CONVENTION N.Y.S.A.A. GROSSINGERS, NEW YORK

RICHARD ROTH, A.I.A. — Program Chairman

DANIEL SCHWARTZMAN, F.A.I.A. — Moderator

Panelists: HENRY L. BLATNER, A.I.A.; FREDERICK M. GINSBURN, A.I.A.; SAMUEL M. KURTZ, A.I.A.; ARTHUR A. MCKNIGHT, A.I.A.; MILTON MILSTEIN, A.I.A.; and DANIEL PERRY, A.I.A.

### INTRODUCTION TO SEMINAR

By DANIEL SCHWARTZMAN

The introduction to this Seminar can be expressed by quoting from the most recent edition of the "American Institute of Architects Handbook of Professional Practice": "Since contemporary building design and construction techniques have become increasingly inventive and complex and require an increasingly larger share of the available professional time and energy, every effort must be made to bring to every architect the best collective thinking, experience and methods of administration devised by his fellow architects in a convenient and readily understandable form to conserve that portion of his energy that must necessarily be devoted to administration and to allow him more time for design."

When two architects anywhere exchange information about their practices the interest of the Profession of Architecture is served. The more experienced architect of the two gains as much or more than the less experienced; since he must carefully organize his thoughts in order to make his advice effective. When this same information can be exchanged between many architects of a region, it will be even more effective. It must not, however, be reduced in effectiveness through an overabundance of involved and difficult-to-absorb statistics.

On the other hand, when any architect, anywhere, is in difficulties with his client or the public, the Profession of Architecture everywhere suffers. His ability as an architect is measured as often by the effectiveness of his administration of the Project as it is by the quality of his design, as unfortunate as that may be. It is difficult, if not impossible, to greatly improve the inherent quality of an architect's design through the work of a seminar, except for broad inspirational discussions which may make him resolve to improve the quality of his work. However, if through practical advice he can resolve many of the problems of administration (which have become more and more demanding in recent years) the architect will have more of his

necessarily limited time available for design. This is true whether we are referring to the individual practitioner or the largest organization.

### THE SELECTION OF AN ARCHITECT

By HENRY BLATNER

Chapter 5 of the Architect's Handbook of Professional Practice states "of the innumerable decisions the Owner will make during the building process, none will be of greater importance to him than his choice of Architect." We in the profession realize full well the truth of this statement. Therefore, our first obligation to the public and to ourselves is to make known our special training and talents so that Architecture, and all that the term implies, is entrusted to Architects without question or qualification. Our activities should include not only organized publicity on behalf of the profession, but a determined effort by each architect to assume leadership in his community, and to speak his mind clearly and forcefully on pertinent issues, placing principal ahead of expediency and mediocrity. Each architect must always perform to the best of his ability to promote for himself and his colleagues a feeling of public confidence and trust. The handbook mentions the three usual methods of selecting an architect. Direct selection, comparative selection and design competition. To these I add the methods of selection by attack, selection by pamphlet, selection by professionals.

*The direct method* of selection implies that a client chooses an architect for a project without resort to competition. The selection is made by reason of an Architect's reputation, by personal acquaintance or upon favorable recommendation.

*The comparative method* of selection is usually resorted to by groups and committees entrusted with the selection of an architect. Applications are solicited from a group of architects qualified in one way or another for consideration. From the group of initial applicants, a group of "Finalists" is determined and each candidate afforded a personal interview. Of utmost importance to each finalist is



his presentation. The younger practitioner and those from the smaller offices must offset the highly organized efforts of larger firms. Each candidate must clearly demonstrate to the prospective client the advantages he has to offer. Competition is keen with the comparative method of selection and final selection often hinges on unpredictables and intangibles. It is difficult but important to be able to refuse a commission when conditions so warrant. Points which have been useful to our office when appearing for interviews before committees include emphasis on the small office with its personal contact and service, emphasis on close control and supervision of consultants when employed and emphasis on knowledge of local building industry practices. We place great reliance in our references, both clients and contractors, and attempt to have them rather than ourselves exploit whatever virtues we may possess. And unquestionably, careful construction budgets consistently met, are the greatest boon to any architect seeking commissions. During the selection process, it behooves each candidate to size up his prospective client and make certain he would like to serve as architect.

*Selection by design competition* is well known to us all. This method, usually reserved for larger projects, is probably the most valid method of architect selection at any time. Design competition does and should imply a formal arrangement sponsored by the A.I.A. and conducted in accordance with its published recommendations. Architects are often invited by prospective clients to participate in informal competitions by submitting sketches and ideas prior to actual selection of an architect. This situation provides an unparalleled opportunity for explaining our code of ethics and the reasons why "The Free Sketch" is not in the best interests of the client.

The recently conceived method of *selection by attack* is an offshoot of the comparative method of selection. This method consists of assembling a task force of architectural prophets, arming them with tee squares and southern accents and descending from the sky upon a group of unsuspecting citizens to convince them that "Architecture on the Run" is the most inspired and efficient method of practice. After several days of charts, chatter and slides, the task force retires to the land of the sun and re-groups for the next attack.

Last but not least, is the *method of selection by pamphlet* whereby an innocent school board reads the inside page of the recently issued state folder on stock school plans, absorbs the Gospel handed down by our Governor on the inside front cover and then, selects not only its anonymous architects but its building plans all at one fell swoop, merely by

turning to the appropriate page in the pamphlet.

Obviously, discussions between prospective clients and architect candidates during the period of architect selection include a description of the services to be provided by the architect, the responsibility he assumes when commissioned, and the compensation he will receive for his services. It is unnecessary to discuss these matters further at this time. The following summary extracted from the handbook is worthy of quoting:

"Regardless of the method used by the Owner in the selection of an architect, he should be chosen as a person in whom there can be a relationship of absolute confidence and trust. He should be given complete information pertaining to the project and his judgment should be fully respected. When the decision to award the commission has been made, the Owner and the Architect should conclude their negotiations with a written agreement so that all matters between them are clearly understood by both. To proceed thus in the knowledge that a capable architect has been selected, the Owner is assured of a most pleasant and rewarding experience throughout the building process."

#### SELECTION OF CONTRACTORS BIDDING PROCEDURES

By MILTON MILSTEIN

Chapter 16 of the Handbook of Professional Practice—1963, A.I.A. deals in brief but concise form with a number of steps in the procedures of the contract system for building construction. It includes seven principle steps of importance to a properly completed project.

1. The Determination of the Awarding method—by competitive bidding or direct selection.
2. Determination of the contract system. Single or separate contracts.
3. Selection of the Type of Contract—Stipulated sum or cost-plus fee.
4. Examination or pre-qualification of bidders.
5. The bid documents.
6. Preparation and receipt of bids.
7. Award and execution of contract.

Lest these be considered too elementary for experienced architects, I commend their reading to you as a fine check list and reference source.

Because of the ten-minute time allotment for speakers, I have chosen to dwell upon two items in the list, but leave the others open to question or discussion.

A subject which has become quite controversial



in the last few years in New York State, is the manner in which contracts are awarded, that is to say, the merits of the single contract system vs. the separate contract system. It has touched off intense debate within the construction industry to an extent that has reached the legislative halls of state government. It has pitted general construction organizations against specialty contractors organizations, each lobbying for its point of view. The positions taken have sometimes reached the extreme of boycotting project bidding.

Statutory requirements in the State of New York mandate use of the separate or multiple contracts system of award in work under the jurisdiction of *all* Public Agencies. Section 101, General Municipal Law, Section 135 of the State Finance Law and pertinent sections of the Public Housing Law have since 1909 required the awarding of separate contracts for general construction, plumbing, heating and ventilating and electrical work. There is an attempt being made to extend this system by the ventilating industry, through a separate contract for air conditioning and ventilation work.

As to the use of the single contract system, in which all prime construction is undertaken by the General Construction contractor and in which one firm has complete responsibility for the mechanical and electrical trade work as well as general construction, it is estimated that the system is being employed by the Federal government in 95% of its contracts, by more than 80% of the States and by more than 85% of private enterprise. As for the trend in the State of New York where public agencies are permitted a choice under recent special enabling legislation or through independent Authorities, the single contract system has been in recent use by the State University Construction Fund, the Dormitory Authority, the State Division of Hospital Review and Planning, Thruway Authority and Port Authority of New York. The Joint Legislative Committee of School Financing recommended in January, 1963, that School Boards be granted the right to optional selection of either the single or separate (multiple) contract system. There are other examples of seeking such option. In the Western-New York area there has been a steady increase in awards under the single contract system.

The pros and cons of the two systems have been aired sufficiently by now, for all architects to be aware of the points made in favor of the single contract system by its proponents. Chief among these are centralized responsibility for coordination of all trades, a more expeditious method of completing a project on schedule and lower cost

through better administration and use of compatible subcontractors.

The specialty contractors' claims for superiority of the separate contract system are perhaps based more upon the defects they allege for the single contract system than on positive values. Noted are bid peddling and shopping, irregular and undependable payment by the general contractor, waiver of lien before payment, excessive retained percentages, etc. These contractors claim the benefits of lower cost and wider choice by the Project Owner.

As to claims for lower cost in each camp, there is room for debate; but an independent study made in recent years by Pratt Institute concludes a 3.2% saving for the single contract system over that of separate contracts. Many variables, of course, must be considered.

Certainly it simplifies the administrative tasks of the architect to award under the single contract system. By the same token, although misunderstood to already be the case by some proponents of this system, the Architect-Owner Agreement should compensate the architect for additional administrative tasks and problems where the separate or multiple contract system is employed.

Modern technology has led to a whole new world of building materials and construction systems from which the architect may choose. Leading the field of construction innovations are mechanical and electrical equipment. These portions of a building contract now run from 30% to 50% of total construction cost (and sometimes higher) and the architect's role as designer and coordinator has become more detailed than ever. This may be measured by proliferated office and field procedures and by higher professional production costs.

From personal involvement, and from knowledge of local experience, I offer the opinion that properly used and administered, there is considerable merit in the single contract system. As a personal observation, it appears logical and sensible to permit public agencies in the State of New York to exercise the option of employing the single or the multiple contract method as best fits a specific project. Measures should be studied and advanced to make this possible.

Another matter of considerable effect on the nature and character of project execution, is the manner in which the competitive bidding system is treated. With the mushrooming growth of the construction contracting industry during the past 15 years, the selection of qualified bidders has been a frequent problem. Whereas in private work there is freedom of choice in selection of bidders through pre-qualification, it is difficult to eliminate inex-



perienced or unqualified contractors in public work.

Pre-qualification methods include:

1. A Bid Bond or certified check.
2. Assurance of ability to provide performance and payment bond.
3. Filing of a current financial statement, listing heavy equipment owned, personnel qualifications and experience of principal employees, etc.
4. Listing of recent projects of comparable scope.
5. Pre-qualification by an established system.

This also extends to pre-qualification of subcontractors, mainly because so great a part of a project is now constructed by others than the prime contractor.

The Bureau of Contract Information, Inc., in Washington, D.C., publishes a yearly summary of State Regulations and Taxes affecting General Contractors. The Bureau which was established in 1929 through the joint efforts of contractors and surety companies "accumulates and verifies information regarding the qualifications of contractors, prepares condensed factual reports thereon; and supplies these reports on request, to awarding officials and others having a direct and legitimate interest in the construction capacity and business reputation of constructors." Its information is available to Owners, Architects and public officials "responsible in the award of important contracts." It is, incidentally, a non-profit organization supported by numerous bonding companies.

I recommend this document to you for the interesting information it contains. You will find that whereas in New York State pre-qualification is not required and a contractor's license also is not required, that numerous states, including some of our close neighbors, do impose these controls to one degree or another.

It would appear, as a personal observation, that Owners and Architects are entitled in the Empire State, to a greater degree of protection against poorly organized, inexperienced and incompetent contracting firms. We should give serious attention to this subject in the busy construction years ahead.

#### OWNER-ARCHITECT AGREEMENTS

By SAMUEL M. KURTZ

It has been said before that the architect today must be a talented designer, a skillful planner, a super salesman, a good businessman, an efficient administrator, and a contract negotiator.

Since our theme today is "efficiency" a definition could be "get someone to do it for you". However, in the area of contracts it is not in your interest "to get someone else to do it for you."

I believe it goes without saying that whether you put it in writing or not, the moment you agree to do something and expect to be compensated—you have a contract; and when you have a contract you legally obligate yourself to perform stipulated services and to accept stipulated payment for these services. These affect the cost of your operations and the amount of money you will receive to pay for them.

If you intend to survive financially—you must "do it yourself".

Thus, efficiency in this category, has more to do with the manner in which you negotiate your contracts, know your obligations, avoid pitfalls which may be costly to you, know the proper time to expect payment for your services, and the proper amount to expect.

Most litigation results from pure misunderstanding. This is why your contract should be sufficiently detailed so that there is a minimum of friction between you and the client during the life of the contract, concerning its performance by both parties. There is no other way — be your client friend, stranger or blood relative.

Of course, you can write your own contracts. Many architects do, in many ways and for many purposes. If the services are minor in nature, a simple letter covering the work to be done and the fee involved, accepted by the owner by signature on a copy returned to the Architect, is quite adequate. However, to insure its adequacy it should include a nominal retainer and be specific concerning payment in stages as the Architect's work progresses. This is good business, and a responsible client will respect the Architect who proposes it. This type of letter agreement applies mostly to simple consultation with respect to feasibility regarding building codes, zoning and similar matters, and spot inspections and reports. However, when it requires complete services, drawings, designs, construction supervision, construction contract administration—or any one of these, it is not only inadequate—it is dangerous.

The letter form can also be used where the scope of the work has yet to be established—as in master planning, or developing a program, or to determine project feasibility. These are done best on a cost plus basis not to exceed a fixed lump sum—with provisions concerning reversion to a standard



A.I.A. contract when complete services are required.

A word of caution is needed here. In his anxiety to obtain the commission the architect may underestimate the time it will take to reach a solution or a conclusion. He cannot survive if he is not properly compensated.

When complete services are indicated the standard A.I.A. contract forms should be used. Very often, especially in the case of the individual home, the client is scared to death of the agreement form. He must be taught that it is intended as much for his protection as it is for the architect. I am sure that many of you have heard of the client who employed an architect "to make a little sketch" only to discover that there will be additional fees for working drawings, then for filing and obtaining building department approval, then for supervision, and then—worst of all—for getting the right to occupy, the Certificate of Occupancy.

The better way, the professional way, is to educate him. Tell him as much as you can. Follow it up with a letter outlining the services and the obligations, and the compensation involved, and include a reference to standard A.I.A. contract forms. Send him your chapter's schedule of fees, and a document explaining in layman's language the architect's services.

For complete services the Institute provided us with revised agreements in 1961. These have been further revised as of September 1963, in three basic forms:

B131 Fee based on percentage of cost including engineering services

B211 Fee based on multiple of Direct Personnel expense

B311 Fee plus Direct Personnel expense

The question is when to use which. Each is intended to cover complete services for a building to be constructed. They differ principally in the manner of payment for these services.

The one most commonly used is B131, percentage of project cost basis. Its features include:

Payment of a retainer — called a "primary payment".

A realistic schedule of payments as work progresses.

Compensation for additional services in greater detail.

Compensation for prolonged construction time.

This contract, in common with the others is based

on established professional procedures and is accepted by the legal profession. But even lawyers have to be educated, and the layman's language explanation and the fee schedule helps them to understand our work and to guide their clients. These documents help to establish the standards of practice.

B211 provides complete services on the basis of a multiple of the Architects Direct Personnel expense. Ordinarily this is 2½ times such cost. It can be used for any project. It is most often used when the scope cannot be determined in advance, when complexity of problem requires many studies to be made, or when the percentage of the cost of the construction project cannot properly compensate the architect for his time.

The third form, B311, fixes the fee as a separate item, and compensates the architect for technical services on a multiple of Direct Personnel expense. The fixed fee should be 20 to 33% of the total fee that could have been expected under a percentage fee agreement. The technical services should be based on 2½ times the cost of such services. This form should be used when the client desires the personal services of the architect.

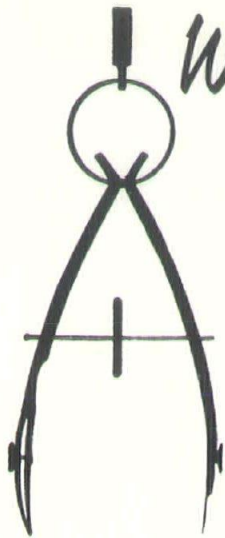
Both of these cost plus agreements contain provisions enabling the architect to be compensated for any technical services he performs himself. This is especially valuable for the small office when the principals actually do the technical work.

In Public Agency Contract Agreements the American Institute of Architects and many of its chapters have made efforts more or less (mostly less) successful, to bring them in line with standard practices and realistic fees. Be careful not to sign agreements which contain dangerous provisions—and they do! Consult an attorney.

#### In Summation:

1. Explain the services and compensation to the client.
2. Don't do any work without a statement of services and compensation.
3. In letter agreements be guided by the comments in the 1963 Edition A.I.A. Handbook of Architectural Practice.
4. Use standard A.I.A. forms. They have status in the legal community and have had validity tested in the courts.
5. Efficiency in the architect's office starts with the agreement he makes to perform his services.





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## PUBLIC SAFETY BUILDING, SYRACUSE, NEW YORK

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Coordinating architects	• GORDON P. SCHOPFER AND KETCHUM, MILLER & ARNOLD
Structural engineers	• ECKERLIN & KLEPPER
Mechanical engineers	• ROBSON & WOESE, INC.
General contractors	• WILLIAM C. PAHL CONSTRUCTION CO. AND STATEWAY BUILDERS, INC.
Plumbing	• JAMES CONWAY PLUMBING & HEATING CO.
Heating and ventilating	• F. F. & H. E. BEAN, INC.

An important step forward in the sphere of city-county administrative facilities is being taken in Syracuse, N.Y., with the start of a Community Plaza to include several local government buildings. First step is the erection of a \$6 million seven-story Public Safety Building, containing 160,000 square feet of floor area, to house the Fire, Police, and Sheriff's Departments.

Economies are affected by having facilities shared by agencies of the City of Syracuse and Onondaga County. These jointly serving the City Police and County Sheriff's staffs include: jail processing rooms; jail cells; crime laboratory; records and identification bureau; gymnasium, handball court and pistol range; training offices and lecture-room; and parking garage, which adjoins the Public Safety Building. Police Department offices, Special Sessions Court, and Traffic Court are all located on the first floor. Offices and some of the shared facilities occupy the seven-story office wing. Jail cell blocks occupy four floors of the six-story jail wing, with the top floor as the prisoners' exercise yard. There are 207 cells

for one prisoner each; each cell has an unbreakable combination water closet lavatory; each row of cells has one shower bath. Prisoners will eat meals in their cells, delivered by heated food carts from the kitchen by elevator to the cell blocks. Prisoners to be arraigned in County Court on the opposite side of South State Street will be taken to court through a tunnel below the street.

The jail wing is of heavy slab and masonry construction with no windows, to increase security and provide fallout protection. Heavy floor slabs in the first floor permit use of the basement as a fallout shelter. Office wing construction utilized steel beams with sprayed-on fireproofing and permanent steel floor forms and reinforcing bars.

The steel framing enabled the 1,500 ton framework to be erected in 45 working days.

The heating and air conditioning provides steam and chilled water from a central plant which will also serve other buildings in the plaza, such as the County Office Building, County Court House, and the future City Hall.



# THE UBIQUITOUS SHOP DRAWING

By Samuel M. Kurtz, A.I.A.

*Associate member of  
the firm of Kiff, Voss & Franklin,  
Architects, The Office of York & Sawyer*

*From a talk given to members of the Staff of Parsons,  
Brinckerhoff, Quade and Douglas, Engineers, New York*

*Editors Note: This firm sponsors an interesting series of lectures or talks, on subjects related to architectural and engineering practices for the benefit of its technical employees. Given in the office after usual business hours by persons qualified by experience in the subjects selected, it affords its personnel an educational opportunity not usually available. The program is administered by the chief of its architectural department Ralston W. Newsom, A.I.A. an associate member of the firm.*

In preparing for this talk I was advised, "Don't tell them what they know already". Since I have no way of knowing how much you know about shop drawings, or whether you know more about the subject than I do, this wasn't much good in the way of advice.

## HISTORICAL BACKGROUND

So perhaps a little history on the subject would be in order. Actually the history of the shop drawing can be said to be the history of drawing — making a graphic representation, a picture, of something intended to be made or built. Is it imaginable that the Egyptian pyramids and temples could have been built without some kind of drawing or plan of the concept as a whole? Or that any of the blocks of stone of many shapes and sizes, just happened to fit into their places by chance; that temple columns, capitals, and bases were cut and shaped to suit the whim of each stonecutter? No, there had to be a drawing. In fact, Banister Fletcher tells us in his venerable *History of Architecture* concerning Egyptian wall decoration: "The surface was first chiseled smooth and rubbed down; the figures or

hieroglyphics were then drawn with a red line by an artist and corrected with a black line by the chief artist; the sculptor made his carvings in low relief or incised the outline, slightly rounding the enclosed form towards its boundaries; a thin skin of stucco was probably applied to receive the color, and the painter carried out his work in the strong hues of the primary colors". The significance of all this lies in the fact that even decorations required design drawings.

Before I am accused of oversimplifying the history of architecture—I think it would be safe to say that there had to be a way of conveying ideas and instructions then as there is today to enable quarrymen, stonecutters, and masons, carpenters, ironworkers, sheet metal workers and other mechanics, to cut, shape, fabricate, fit and put into place the many parts that make the whole of any work of construction; and that, that way, was a drawing.

## EARLIEST SHOP DRAWINGS

To get closer to the knowledge of drawings for fabrication in our own times, let us recall the days when drawings—generally full size scale—were pin-traced onto "detail paper"—a heavy stock paper; then outlined in pencil and given to the stone masons for cutting of stone profiles, or to the millworker for making of wood moulding knives. These were perhaps the earliest shop drawings of modern times; and they were made by the designer for direct fabrication by

the shop. Today the designer knows there are skilled technical draftsmen waiting to interpret his designs into the scale and full size drawings needed by the shop or fabricating plant; he is content—quoting from Fletcher, to "correct with a black line" what he considers to be an improper interpretation of his design. Actually this is not meant as a slur on today's designer. The pace of modern practice doesn't allow him the time or the pleasure of developing all his conceptions in full size detail; and modern manufacturing procedures demand details adjusted to suit special dies, extrusions, machines and devices, with which he necessarily has no familiarity or knowledge.

## SHOP DRAWINGS OF TODAY

From those simple and obviously necessary beginnings the practice of the making of shop drawings has grown to such an extent that it is staggering to consider. To evaluate its magnitude here are the records of two jobs relatively moderate in size.

The first is a thirty-bed three-story addition to a hospital fully air conditioned, containing operating rooms, central sterile supply, X-ray, obstetrical, and nursery facilities; and an addition to its boiler-room. Of reinforced concrete structural frame, its exterior was enclosed in brick masonry. It cost \$1,206,000. The shop drawing record book discloses that there were 240 sheets, drawings, cuts or catalogs, submitted for 18 trades or categories of work plus hardware schedules



and a variety of samples. The items submitted concerned structural reinforcing; stonework; miscellaneous iron and steel, and steel stairs; metal door frames and doors; toilet and dressing room partitions; hospital cabinets; x-ray and hospital equipment; carpentry and millwork; tile and terrazzo; elevators; plumbing work; electrical work; heating, ventilating and air conditioning.

The second example is a three-story addition to an elementary school containing eight classrooms and a cafeteria. Of steel bar joist framing, it is enclosed with face brick and concrete block back-up masonry. It cost \$386,000. The shop drawing record book for this building shows that there were 90 separate sheets submitted for approval for fifteen categories of work; of which 16 sheets were for metal frames and doors, and 24 were for heating and ventilation work. Other categories included concrete reinforcing, steel and bar joist framing; aluminum windows and doors; terrazzo, tile, carpentry, glass, plumbing, etc.

#### SHOP DRAWING EXAMPLES

Let's consider the need of these shop drawings in the building program. The examples given are for two different building types, but certain trades are common to both. A few of these are drawings showing concrete reinforcing; structural framing; metal frames and doors; aluminum windows and doors; heating and ventilation. Let's look at the design drawings and the corresponding shop drawings for some of these categories of work:

This is a part of one of the structural design drawings. These notes, conventions and symbols indicate the design requirements.

This is the shop drawing of the same area of work as covered by the design drawing. All information needed to show size, shapes,

spacing and position are shown in much greater detail; it is needed for prefabrication of all rods and for accurate placement in the forms.

This is part of the design drawings covering door frames and doors. Plans indicate types, sizes, swings. Design detail illustrates the types noted on plans.

Shop drawing is in schedule form covering every door in the project by its own number, door frame and door type, size, swing, partition thickness, locations, and details. This drawing is needed for shop fabrication, and as a convenient guide for installation.

Heating and Ventilation—Part of design drawing — diagrammatic, showing duct layout.

Sheet metal duct shop drawing for same area. Usually based on field check for verification of available space and clearance of conflicts.

Catalog cut of equipment. This item has been specified in writing and the cut is submitted as verification of actual item proposed to be used showing all pertinent mechanical and electrical characteristics.

Architect's Hardware Schedule.

Contractor's Hardware Schedule.

#### SHOP DRAWINGS HAVE COME A LONG WAY

You will note from these few examples how far we have traveled from the simple requirements of years ago; and we are told that these are all essential. That they are essential for fabrication purposes is scarcely questioned by anyone. Actually, shop drawings have, in most cases, become quantity schedules, field layout diagrams, confirmations and statements of standard manufactured items in the specifications; and they serve the purpose of the contractors far beyond the

primary intention of shop fabrication to meet design criteria.

But whether it is essential that they be reviewed, checked and approved by the designing architect or engineer to the extent that they are, is increasingly being questioned today.

#### SCHEDULE FOR SHOP DRAWING SUBMISSION; CONTROLS

It should not be forgotten that the shop drawings control the manufacture and fabrication of many construction components. As such, their approval affects the timing schedule of construction progress. In the development of such a schedule, adequate time should be included for shop drawing preparation, submission, checking and approval; as well as length of time required to fabricate and ship; all based on when the items will be needed at the project.

As long as this system exists as a necessary part of the building construction procedure, the great volume of drawings and documents that are submitted requires the existence of efficient methods of control. These include receiving, recording distribution, checking, and returning; and a written memorandum of the handling process which leaves no room for misunderstanding or misinterpretation. Let us look at a few examples of such control methods.

First page of a memo detailing the methods of recording and handling shop drawings. It took three and one-half pages to tell what to do with the several types involved; how to record them; where to send them; what to do when they are returned by engineering consultants; what to do with them after checking; how to file the office copy; how to handle resubmission; how to handle samples; and how to file the office record copy. With this memo are given several examples.



This example records Carpentry and Millwork shop drawing submissions.

This example records disposition of shop drawings involving a mechanical engineering consultant. It indicates that of four brochures on plumbing fixtures submitted by the general contractor, three were sent to the mechanical engineer; that the engineer returned two copies; and that two copies were returned—Approved as Noted—to the General Contractor, including the dates.

This example records the disposition of samples submitted on furring and lathing.

This particular system and recording form has been in use in our office for almost three years. The statistics as to number of drawings and trades involved mentioned before for the hospital and school were taken from the records in these two books based on this system. It is also possible at any given time to know the location and status of every shop drawing submitted.

This record keeping can be done several ways. In our office, the receiving or mail department stamps date of receipt on each print, and on transmittal form; returns the form to contractor or engineer; sends prints to shop drawing checking department. Recording takes place in the checking department by each checker assigned to the specific project. Drawings leaving the office are sent out by the mail department, with appropriate transmittal forms prepared by them.

#### CHECKING METHODS

Now that we have the shop drawings on hand, we've got to check them. How we go about this, the attitude of the checker and the methods used in the checking process, have a great

bearing on its effectiveness as well as the cost of doing it.

#### THE HARD CHECKER

One kind of checker feels that the subcontractor intends to deceive him, that he intends to provide inferior materials and improper workmanship — and intends to omit some or much of what he is required to furnish under his contract. This, the checker will not allow; he scans each drawing as if his life hangs in the balance. Nothing escapes him. Even if the drawing is perfect and without corrections, he checks and rechecks, and holds the drawing until the contractor screams in frustration.

#### THE SOFT CHECKER

The other extreme is the checker who is certain that whatever the manufacturer has shown is better because the manufacturer knows more about it than the designer, the draftsman and the spec writer. This checker's attitude is, of course, more dangerous than the other one because where the first questions everything, this one questions nothing. Neither of these fictitious checkers exist, but I am sure anyone familiar with the subject has met a checker bearing a resemblance to either one or the other. Needless to say—but I'll say it anyway, the checking approach to the shop drawing should be one of fairness. There will be times when the checker will be exasperated by incomplete, incorrect and sometimes incompetent drawings. His only attitude must be — is the intent covered, and is it within the scope of the requirements of the contract documents. If it is not, he is not obliged to check it at all.

#### APPROVAL STAMPS

Specifically the approval stamp should be limited to three categories:

1. Approved—no corrections.
2. Approved as Noted — minor corrections.
3. Disapproved — More than minor corrections.

Our experience has been that most of the drawings are finally approved in the second category — Approved as Noted. This is usually acceptable to contractors, fabricators and manufacturers, and permits the product to be made in the shop. Some producers will not manufacture unless they have a "clean approval". When this is known, additional time should be provided in the shop drawing submission schedule.

We used to have a fourth category—Approved as Noted, Resubmit. This allowed fabrication of part of the work shown on the drawing. However, we found that our checkers used this category mostly, because they hesitated to use the strong but definite Disapproved. We do not allow this to be used any more.

To get down to cases, let's look at a few examples of checking.

#### EXAMPLES OF SHOP DRAWING CHECKING

This is a shop drawing of a mortuary refrigerator. The checker not only redrew the sections and added notes of all kinds, he also made large scale blowups of details. This drawing should have been rejected as inadequate and unsatisfactory. Eventually, the contractor merely made the corrections as shown and the drawing was approved. His lack of competence induced the checker to make the drawing for him — which is perhaps what he wanted to accomplish in the first place.

Another example of making the shop drawing for the contractor. This is typical of the corrections on this shop drawing. The checker's excuse was that the



architect's drawings were insufficiently detailed. Nevertheless the information that was available to the checker was also available to the shop drawing draftsman. You can imagine the cost of this kind of checking.

This lintel was shown  $4\frac{3}{4}$ " from face of brick and should have been  $4\frac{1}{2}$ ". But the checker redrew the angles at full size.

The same checker on the same drawing, with the same condition; this time only the dimension was changed. Since all other dimensions remained—this is all that was necessary.

Of course, it helps to have a policy. This memo outlines shop drawing checking policy. At best, it works; at worst you can show a checker where he failed to follow instructions.

#### RESPONSIBILITIES OF SHOP DRAWING CHECKING

There are grave responsibilities involved in the shop drawing checking procedure. At the outset it is the contractor's obligation to obtain the approval of all manufacturers and suppliers before making any submissions; and once this is done, not to switch. I know of an example where shop drawings submitted through the general contractor by a specified manufacturer of aluminum windows were approved by the architect, who found shortly thereafter that the contractor had changed his mind and submitted another manufacturer's shop drawings. An officially approved list would prevent this useless labor. It is also the general contractor's primary obligation to see to it that his subcontractor is providing what has been purchased under the contract. Despite the requirements of the contract general conditions that shop drawings be checked by the general contractors, this is still not being done. Thus the en-

tire burden is on the architect or engineer. And where so-called equal substitutions are offered, the checker is under a great burden to make sure the product really is equal. Often substitutions affect other related trades. The checker must make sure that the cost involved in such related changes is not shifted to the owner. It is the checker's obligation to be fair, and not demanding. It is not in his province to improve upon the design—especially if it may cost the owner more money. It is his responsibility to check for accuracy and adequacy, and he should keep in mind that by the act of checking a shop drawing—regardless of what the notes on his approval stamp states—in the eyes of the law he is a primary party to the drawing. Thus he becomes a party to any of its faults as if he had made the drawing himself. Unfortunately judges fail to see any difference and the architect is often held liable based on his approval of a faulty shop drawing.

#### TRANSPARENCY SHOP DRAWINGS

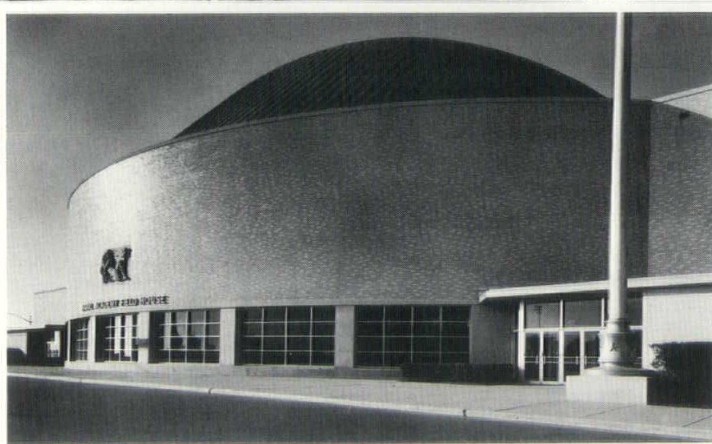
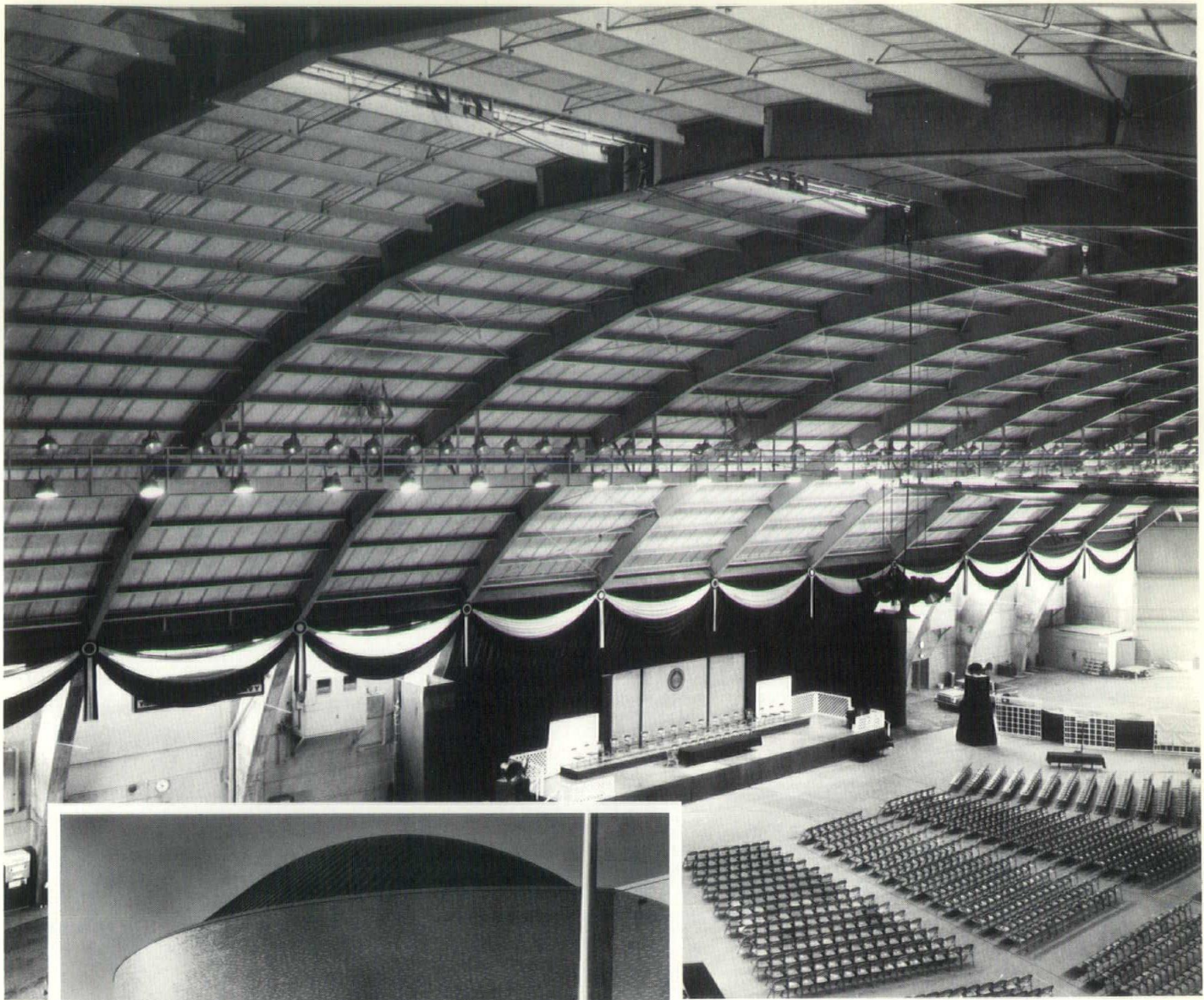
I would like to say a few words about the transparency method of shop drawing checking. Here are two examples of such shop drawings. They were prepared in pencil on tracing paper in the usual manner. But instead of sending us from three to six prints for checking they sent us this reproducible print. Our corrections are made on the print, and before returning it we make a blueprint from it for our records. Here are two such record prints. For the past three years in which we have put this into effect we have saved much time and reduced greatly the possibilities of error inherent in the making of three to six corrected copies. We

have had some difficulty with contractors unfamiliar with the process, and with checkers who treat the reproducible print like a tracing. That is to say, they make their corrections with tee square and triangle. But we have overcome much of this by repetition and education; and by explicit instructions in written form.

#### ARE SHOP DRAWINGS REALLY NECESSARY?

In conclusion I'd like to leave this thought with you: Is it really necessary that *all* of these shop drawings—assuming that they are necessary—should be checked by the architect or engineer? I believe it is well known that the U.S. Navy Department does not require the submission for approval items that are of standard manufacture if the contractor is complying with the specifications. I also know many architects feel that if their drawings and specifications are sufficiently clear to enable the schedule type shop drawing to be made why should they be asked to check such schedules? It is also true that very often structural framing shop drawings are made from reproducible prints of the engineer's drawings with a few details added. So here the engineer is really checking his own drawing. For whose benefit? As a matter of general interest I know that this subject is under study by a joint committee of architects and builders. It is proposed that representatives of the several trades who are involved in the preparation of shop drawings as a matter of course, and as a matter of specification requirement, be invited to state their opinions. It is just barely possible that this has become "one of those things"—a custom, like eating lunch at twelve noon, hungry or not.





Nearly 65,000 sq. ft. of Tectum covers the vaulted steel framing of this impressive Naval Academy Field House. Acoustics are excellent.

**Building:** Annapolis Field House, Annapolis, Md.  
**Architects:** Harbeson, Hough, Livingston, and Larson, Philadelphia; von Storch and Burkavage, Media, Pa.

## The Gold Bond difference is Tectum at the Naval Academy Field House, Annapolis

Here's an excellent example of contemporary field house design. Topped by a copper batten roof, the building is a beehive of activity for all classes at the Academy. Gold Bond Tectum was used for its obvious advantages: it serves as a structural sheathing, as a roof deck insulation against thermal transfer, as an excellent acoustical material with effective sound absorption characteristics. The textured, exposed surface of a Tectum roof deck

does not require painting—a real economy for large buildings. Tectum, a single material, covers huge areas rapidly—saves labor costs. Ideal for dormitories, gymnasiums, school buildings of all types. For complete information, write National Gypsum Company, Buffalo 25, New York, Dept. ES164.





# NYSAA COMMITTEES AT WORK

## Digest of Officers' and Committee Reports

*During the past year, our numerous committees worked diligently in behalf of all architects, exploring, studying, conferring with other architects and public officials, and contributing generously of their time and energy in an endeavor to develop greater stature and more public acceptance in the forward progress of the profession. In the interest of better communication, and for the information of our membership, we commend to their attention these capsule summaries and digests of the reports submitted at the 1963 Convention. The complete reports are on file in the Association offices and are available for inspection.*

S. ELMER CHAMBERS  
President

### OFFICERS' REPORTS

#### PRESIDENT'S REPORT

S. Elmer Chambers

Gave an accounting of his stewardship dating from the 1962 Convention to the 1963 Convention. Full text appears in the November-December issue of Empire State Architect. We commend a careful reading of this very stimulating and, at times, rather provocative report.

#### TREASURER

George J. Cavalieri

Reviewed finances of the Association during past year and efforts to maintain a balanced budget. Auditor's report indicated that the Association is solvent.

#### SECRETARY

Roger G. Spröss

While no formal report was submitted at the Convention, the Secretary wishes to record that the duties of the office have been carefully and, he hopes, accurately discharged with the help of the Executive Director and the cooperation of the Directors and members.

#### EXECUTIVE DIRECTOR

Joseph F. Addonizio

No formal report was submitted by the Executive Director at the Convention. He prefers to let the record of the past year speak for itself, with respect to office administration, his work in Albany on legislation and

the multiple duties assigned to him, including his role as liaison between all committees' activities, conduct of conventions and the over-all supervision of the official publication, Empire State Architect.

### COMMITTEE REPORTS

#### AIA STATUS

Simeon Heller, Chairman

Recommended two Resolutions: 1) Change in Bylaws defining constituent members in NYSAA as members affiliated with AIA, and non-AIA members. (Bylaw carrying this recommendation was approved at the Convention.) 2) Recommended admission of Rockland County Society of Architects when the Society becomes a component organization of the AIA. (Resolution No. 7 adopted at Convention creates a special committee to study feasibility of admitting Rockland County Society and submit a report at 1964 Convention.)

#### BUDGET, AUDIT & FINANCE

Martyn N. Weston, Chairman

Submitted annual audit for past fiscal year and affirmed NYSAA's solvency. New budget is in preparation.

#### BYLAWS

Harry Silverman, Chairman

The Committee submitted six revisions for the consideration of the delegates. All amendments were adopted. Following were the Bylaw proposals: 1) Defining territorial area of the

Association to coincide with areas of constituent organizations. Adopted.

- 2) Deleting listing of Rochester and Syracuse Societies which are now AIA Chapters. Adopted.
- 3) Carrying out recommendations of AIA Status Committee defining NYSSA constituent members as registered architects who are AIA corporate members and non-AIA registered architects who are members of a constituent organization. Adopted.
- 4) Revision of table of delegate voting to be effective at 1964 Convention. Adopted.
- 5) Providing for appointment of a representative and an alternate on Regional Council, AIA, by the Board of Directors. Adopted.
- 6) Spells out method by which amendments may be proposed. Adopted.

#### CIVIL DEFENSE

Robert W. Trowell, Chairman

Reviewed objectives of Civil Defense efforts on Federal and State levels and recommended that all firms have at least one qualified Shelter Analyst in order that they may be properly equipped to deal with continuing interest in this phase of building design. 65 architectural and engineering schools are now working with Department of Defense to incorporate nuclear protection in their curricula. 4-hour shelter workshops have been held in 183 communities.



## COMMUNITY PLANNING

Guy H. Baldwin, Chairman

Reported on community design interests throughout the State, developments in urban areas and contribution made by the Community Design Organization of the Long Island Society Chapter, which deserves special recognition for its efforts. Recommendation that Committee name be changed to "Community Design Committee."

## CONTRACTOR RELATIONS

Leo Stillman, Chairman

Reported on meeting held with General Building Contractors of New York State and Building Employers of New York State exploring mutual objectives. Urged architects to use AIA General Conditions as part of their specifications for all jobs. Contract documents should be specific about temporary heat and recommended a single contract as against separate contracts for structural, mechanical, plumbing and electrical work.

## CONVENTION

William Lukacs, Chairman

Gave a verbal report on this year's Convention, which appears to be the largest in the history of the Association. The State University Construction Fund displayed about 140 projects, individual member architects 125 projects and the commercial and educational exhibits numbered 57. Attendance was approximately 600 surpassing any previous total.

## EDUCATION

Henry L. Blatner, Chairman

Endorsed the proposal of the State Board of Examiners for a traveling exhibit to be sponsored by the Association, touching on architectural design and site planning problems, to permit observation of these problems by prospective candidates for examinations. (Activated by Resolution No. 6 adopted at Convention.) Urged the appointment of a special committee to legally define architect-engineer spheres of practice. Committee expressed opposition to stock school building program and submitted various recommendations to benefit the architectural profession. Committee believes task of keeping architects informed as to provisions and revisions

in the Education Law should be responsibility of the State Education Department.

## FEES AND CONTRACTS

Thomas O. Morin, Chairman

Interim report described Committee's efforts to obtain equitable contracts for architects with public agencies. Reported favorable contract arrangement with State University Construction Fund and expressed hope that similar agreements can be worked out with other public agencies.

## HOSPITALS AND HEALTH

W. Newell Reynolds, Chairman

Urged adoption of 1962 Resolution No. 15, providing for Bylaw change in committee structure and creating a separate committee outside New York City and to cooperate with New York Chapter Committee in New York City. Progress reported on Committee's program outlined also in last year's report as follows:

- 1) To divorce Construction and Code problems and Safety Exit Code problems from Hospital Design Criteria.
- 2) To urge the New York State Department of Social Welfare and New York State Department of Health to leave enforcement of Building Codes and Safety and Exit Code to the local authorities where the institution is to be built.
- 3) To prepare legislative bills carrying out above objectives.

## INSURANCE

George J. Cavalieri, Chairman

Committee received no complaints from members during past year. The Committee has endeavored, without success to date, to work out over age coverage for insured members reaching age 70. Committee is considering initiating major medical plan recommended by administrators, Ter Bush & Powell. However, it will explore all phases before reaching a decision and will submit findings to the Board of Directors. Administrator's report revealed earned premium of \$47,162 and incurred claims of \$32,485, resulting in a 68.8% loss ratio, an increase of 17.8% over previous year. Experience considered good notwithstanding increase in claims.

## INTER-PROFESSIONAL RELATIONS

Simeon Heller, Chairman

President-elect and chairman of the Committee is completing his year as first president of the New York State Association of the Professions. Has refused re-nomination to devote full time to NYSAA affairs. Described aims and objectives of NYSAP as follows:

- 1) To protect and advance common interest of professions.
- 2) To encourage participation by the professions in programs designed to advance professional ideals and professional welfare.
- 3) To safeguard the public interest by preventing encroachments in professional practice by unqualified persons or organizations.
- 4) To promote better understanding among the professions.
- 5) To foster the highest standards of professional ethics and conduct.
- 6) To prepare materials and conduct programs aimed at interesting promising young people in the opportunities and rewards of a professional career.

Reviewed achievements of NYSAP, which were successful due to cooperative effort of all participating organizations. NYSAP has received recognition from the Governor, the Legislature and the administrative agencies, including the Board of Regents because of its efforts in behalf of all the learned professions. The theme of NYSAP is cooperation among all the professions and deserves the support of architects who have much to gain.

## LEGISLATION

Donald Q. Faragher, Chairman

H. I. Feldman, Co-chairman

Reviewed record of legislation in the 1963 session, of bills supported and defeated. Among bills successfully opposed were attempts to lower standards of admission, corporate practice of engineering, removal of business tax exemption from the professions, bills that would have voided and deemed unenforceable any agreement exempting owners, architects, engineers and contractors from liability for negligence in connection with construction, alteration, repair and maintenance of real property. On the credit side, NYSAA in cooperation



with other professional groups, motivated the two legislative commissions created by the Legislature for the study and revision of the State Education Law and the study of all phases of tax relief for the professions if they incorporate or form an association. The Committee expressed disappointment that single contract legislation did not prevail. Similar bills are expected to be introduced in the 1964 session.

### **MULTIPLE DWELLING LAW**

**Leo Stillman, Chairman**

Committee enjoyed a most successful year in getting legislation enacted it supported, which included:

- 1) Approval of the "Tower" bill coordinating the M.D.L. with the New York City Building Zone Resolution. This was considered an outstanding achievement for the Committee.
- 2) Extension of basement occupancy for one year under certain conditions.
- 3) Requirement set forth for water closets in old law tenements.
- 4) Permitting fixed louvers of 144 square inches in addition to transoms to receive through ventilation.
- 5) Permitting the turfing over any yard or court or the planting of shrubs or trees when approved by the Department of Buildings. A number of the bills vetoed and sponsored by the Association will be reintroduced in the 1964 session with the excellent cooperation of Mr. Harry Prince and the MacNeil Mitchell Committee.

### **MULTIPLE RESIDENCE LAW**

**Daniel Perry, Chairman**

Report was brief and to the point as follows: "One bill was introduced and passed (enacted) for revision of the M.R.L. It was in reference to providing fireproof doors in 2 or 3 story apartments."

### **NOMINATING COMMITTEE**

**John W. Briggs, Chairman**

Committee submitted following slate of officers:

President, Simeon Heller, Queens Chapter, AIA.

1st Vice President, Allen Macomber, Rochester Society, AIA. (President-elect for 1965).

2nd Vice President, Millard F. Whiteside, Westchester Chapter, AIA.

3rd Vice President, Fay A. Evans, Jr., Eastern New York Chapter, AIA.

Treasurer, George J. Cavalieri, New York Society.

Secretary, Roger G. Spross, New York Chapter, AIA.

No other nominations or petitions were submitted. (Entire slate was elected as designated, terms of officers to begin January 1, 1964).

### **OFFICE SPACE**

**Martyn N. Weston, Chairman**

Urgency requiring additional office space for central offices of Association has been fulfilled with the acquisition of larger quarters on the 7th floor of the building at 441 Lexington Avenue. After several studies of possible layout, estimates were obtained from several sources, and with the team of President Chambers, Secretary Spross and the Executive Director working together the alterations were completed and the new office was opened on July 1, 1963. This is the first major improvement we have undertaken since the business office was established more than six years ago. To date the cost of alterations has amounted to \$3,111.95, but several minor items still remain to complete the equipment. Members are cordially invited to visit the new office at any time.

### **PROFESSIONAL PRACTICE**

**E. Gilbert Barker, Chairman**

Committee reviewed 10 complaints during the year, half of which about alleged architectural practice by unlicensed persons, balance involved corporations practicing illegally. A number of complaints went direct to the Division of Professional Conduct and by-passed the Committee. The Division genuinely attempts to cooperate but reluctant witnesses and undocumented evidence has made their task more difficult. Committee is making effort to rescind Solicitor General's opinion permitting legal acceptance of plans or drawings bearing seal of architect or engineer not prepared by him or under his supervision. Committee believes this interpretation has prevented Attorney General from taking action on numerous violations of the law. Committee

will continue its efforts to obtain cooperation of public officials and building inspectors in solving our problems. Committee is of the opinion that reprints of the Education Law would be desirable and should be undertaken by the Association inasmuch as the Education Department has failed to do so.

### **PUBLIC RELATIONS**

**Allen Macomber, Chairman**

Committee has had two state-wide objectives during year:

- 1) Public Relations Workshop held in New York City last March, aided by Robert Denny, AIA Public Relations Counsel. All those in attendance paid their own way or expenses were assumed by their organizations.
- 2) Committee assumed responsibility for an "Educational Buildings" exhibit at New York State Fair, which was very successful but exceeded budget allowance by \$300. Submissions from architects all over the State, and some from out of State. It is unfortunate that public relations programs are handicapped by lack of funds and responsibility must be borne by the Chapters or Societies.

### **PUBLICATIONS**

**Allen Macomber, Chairman**

Committee reported progress on development of official publication, Empire State Architect, due in large part to the exceptional ability of the editor. A study has been authorized by the Board of Directors and is being currently conducted by a public relations firm as to format, policy, cost and future growth of the publication. The Committee solicits suggestions and recommendations from the membership.

### **REGIONAL DIRECTOR**

**Morris Ketchum, Jr., FAIA**

Reported on meeting of the New York Regional Council on October 20th, at which all component organization representatives were present. Announced that Donald Q. Faragher, FAIA, had been unanimously nominated at previous meeting as next Director of the New York Region, AIA. His election will take place at the annual convention of the American Institute of Architects to be held



in June, 1964, at St. Louis, Missouri. Council elected following members to the New York Regional Judiciary Committee:

Robert J. Stoll, Chairman  
Buffalo-Western New York Chapter, AIA

Arthur A. Schiller  
Queens Chapter, AIA

Frank C. Delle Cese  
Central New York Chapter, AIA

Gerson T. Hirsch (Alternate)  
Westchester Chapter, AIA

Herbert Epstein (Alternate)  
Brooklyn Chapter, AIA

Discussion on suggestions for an Institute program. The Regional Director reported on the Commission on Architectural Design, AIA, of which he is chairman. His report was approved.

#### RESOLUTIONS

Albert Melniker, Chairman

Reviewed Resolutions of 1962 Convention. Explained procedure of preparation and submission of Resolutions. Stressed necessity for reference to appropriate committee to activate policy and direction. (Submitted 10 Resolutions for consideration of delegates.)

#### SCHOLARSHIP

Milton Milstein, Chairman

Traced six-year history of the Scholarship Fund, outlined purpose and function of the Committee and basis for source of funds and manner in which awards are made. Most important problem facing the Committee is the necessity to procure funds to continue its work and suggested several methods by which this could be accomplished:

- 1) By circularizing membership for voluntary contributions and pledges.
- 2) Appeal for contributions from building material suppliers and manufacturers.
- 3) By adding a small yearly dues increase. An increase of \$1.00 in dues would net the Scholarship Fund over \$2,000.00 per year.

The Committee hopes to reach some conclusions in the coming year. It is convinced that there is already excellent machinery to disburse money but no effective method of getting it. Money remaining in the Fund will be distributed to a number of students

recommended by the Deans of the six architectural schools in New York State in amounts of \$250.00 per student.

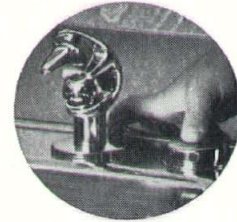
#### SCHOOL BUILDINGS

John B. Cummings, Chairman

Committee considered request to challenge legal section of Education Department on requirement that drawings and specifications have "Commissioner approval" before architect can be paid. Statute was amended early to allow payment of preliminary planning fee. Law protects taxpayer from expansive school board from the

expansive architect by insisting that coordination and ultimate acceptance be retained by State on the basis of the "Commissioner's approval." Reported efforts of New York State School Boards Association to solicit school architects to exhibit at its convention. Majority rejected proposal with few exceptions. Also reported on release of stock school buildings brochure by the State. Committee suggests that this is "law of the land" and caution should prevail, continued opposition may turn our business over to others. We must maintain public image of smiling cooperation coupled with pointed plain facts that stock

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buildings must still be made to meet local requirements of education needs, sites and other factors, supervised and administered by architects earning their fees. Committee concluded "this is for more astute groups or committees to decide, and we wish them luck."

## WORLD'S FAIR

Herbert Epstein, Chairman

In cooperation with World's Fair Committee of the New York Chapter, NYSAA Committee has worked diligently to effectuate participation in the promotion and operation of a jointly sponsored NYSAA and AIA exhibit at the Fair. Effort was made at AIA Convention to obtain support of AIA but it failed due to necessity of raising an extremely high budget sufficient to make this possible. Other plans conceived by New York Chapter Committee to develop an outline description and projection of color slides coordinated with a tape recording, whereby visual and oral portions would be confined to broad concept of the architect's place in the community—the New York community. This proposal has received the approval of the Institute Board based on the anticipation that a private foundation grant might be obtainable. Time element, however, may militate against having a permanent exhibit although the program could be tailored to provide a traveling exhibit that might be shown at the Fair and other places where space may be made available. Other recommendations by the Committee included:

- 1) Designation of Architects' Week at the Fair.
- 2) An award to the outstanding building at the Fair.
- 3) Make World's Fair theme of 1964 NYSAA Convention.
- 4) Have a special issue of Empire State Architect featuring "Architecture at the World's Fair."
- 5) Newspaper and magazine articles on buildings at the Fair and their architects.
- 6) Radio and television programs featuring architects of Fair buildings.

Committee believes above objectives are in the realm of public relations which should be developed by NYSAA and AIA public relations committees. Recommends now that special World's Fair Committee be discharged.

(End of Committee Reports)

# NY STATE BUILDING CODE NEWS

## STATE'S MODEL HOUSING CODE CAN FULFILL URBAN RENEWAL REQUIREMENT

An important service which the State's Building Codes Bureau extends to communities is the State Model Housing Code. This Code is an adjunct to the State Building Construction Code and is particularly helpful to smaller communities which do not have the technical staff to draw up their own housing code.

The State Model Housing Code is a performance type code similar to the Building Code and shares the same technical staff of architects and engineers to keep it up to date. The State Model Housing Code acts as a complement to the Building Code. Where the State Building Code leads to sound construction—the Housing Code insures proper maintenance. Together these codes can aid in forming a pattern for the orderly development of a municipality. They are both acceptable as prerequisites for the Workable Program for Community Improvement which is required before a community can receive Urban Renewal Funds.

Eighteen communities have already taken advantage of the research and technical service available through the adoption of a housing code based on the State model.

A limited number of copies of the State Model Housing Code are available free to municipal officials and building inspectors from the State Building Codes Bureau, 393 Seventh Avenue, New York 1, New York.

## ALBANY OFFICE TO HAVE NEW LOCATION

The Building Codes Bureau's Albany field office will be found in a new location starting early in December. The new office will be in rooms 1012 and 1014 of the Alfred E. Smith Office Building. However, the telephone number in its new office will still remain 518-HO 3-6158. The Code Bureau was required to find new space for its field office as the building in which it is now located is soon to be demolished.

Frederick Pavlicek, the director of the Building Codes Bureau, will continue to be in the Albany field office on Fridays to meet with those interested in the Building and Housing Code and answer questions concerning the codes or related problems. On

Mondays, Eugene Malone, the Albany field representative, is in the office and during the rest of the week the office is open for messages.

## ACCEPTANCE OF STATE BUILDING CODE CONTINUES

Commissioner Gaynor reports the State's Building Construction Code continued its steady record of acceptances during the year. Nineteen new communities have accepted the code and become eligible for the ancillary services it provides since the beginning of the year. To date, 421 communities, which have 55.2 percent of the State's population outside of New York City, are protected by the provisions of the State Building Code. The latest communities to accept the code are; the towns of Avon and Williamson and the villages of East Rockaway and Kenmore.

## BUILDING CODE BUREAU OFFICE WILL OPEN IN BUFFALO

The Building Code Bureau has increased its facilities in the Buffalo-Niagara Frontier area and will soon open a Buffalo office. The new office will be located in the new State Office Building in Buffalo and will be attended on Mondays every week to service information requests and supply technical advice. On other weekdays messages may be left for the field representative.

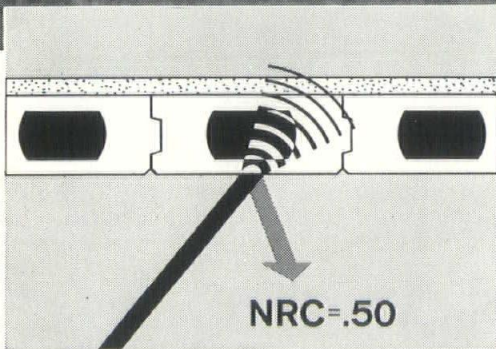
## PUBLIC HEARINGS ON PROPOSED CODE AMENDMENTS

The State Building Codes Council is presently planning to hold public hearings on proposed amendments to the State Building Construction Code. The proposed amendments would include requirements for stronger and safer glass or shatter-resistance materials in shower and tub enclosures, doorways and exits. The public hearings are being planned for early this year. Municipal officials, architects, engineers, builders and representatives of the building construction industry will be invited to attend so they may present their views on the new standards.

The State Building Codes Bureau is presently preparing the proposed amendments for distribution to interested persons and organizations. Recommendations concerning the amendments will continue to be accepted and reviewed by the Bureau through the end of January.



# Balanced Sound Control



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# A PROPOSAL TO AMEND THE AIA GENERAL CONDITIONS REGARDING SHOP DRAWINGS

An increase in the efficiency of the administration of construction might be accomplished by the reduction of the volume of shop drawings submitted to Architects and Engineers for checking. The premise for this is that much of that nature that is submitted today is no longer necessary or essential as far as detailed checking and back checking by the Architect or Engineer is concerned.

Following is a rough first draft of a proposed revision to Article 5—Shop Drawings—of the A.I.A. GENERAL CONDITIONS—which would necessarily have the effect of virtually eliminating the greatest volume of shop drawing submissions. It would also serve to relieve the Architect Engineer

of a professional jeopardy beyond that initially established by his design documents.

## SHOP DRAWINGS

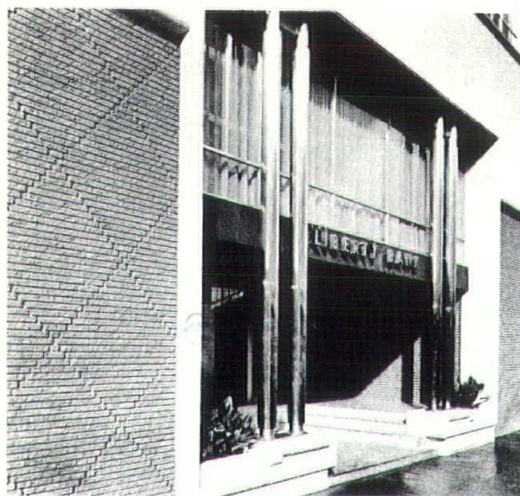
“It is understood that contractor under these general conditions has undertaken the obligation to provide, furnish and install in place ready for use all items indicated on the drawings and described by the Specifications to meet the design details and criteria established by these documents; and to provide these items in the correct quantity for the proper place and at the proper time.

“Contractor shall prepare shop and fabrication drawings, setting diagrams, schedules, and so forth as may be necessary and required for fabrication, manufacture and

installation of items required for the performance of the contract. He shall submit copies of such drawings in the manner herein described for review by the Architect when required by the Specifications for any particular trade.

“The Architect shall review such shop drawings as are required to be submitted for general conformance with the intent of the design drawings. The Architect and Contractor will agree on a limited period of time for review of these drawings, which if not Rejected by the Architect within the limit of that period shall be considered as Acceptable Without Comment.

“The Architect shall not be responsible by his review, for accuracy of dimensions, quantities, conflicts and clearances; or by



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# PROGRAMMING A PUBLIC BUILDING

by MORRIS ROTHENBERG, Senior Architect  
*Department of Public Works, New York City*

Bradford N. Clark, P.E., Commissioner  
Meyer F. Wiles, P.E., Deputy Commissioner  
General Manager

In embarking upon the design of a public building, the preparation of a program is one of the initial, and perhaps most important steps. The proper development of this program will determine to a large extent, whether the building will function efficiently and whether large sums of public funds be well spent.

The key to the successful development of such a program is an orderly procedure, to simplify the problem and assure satisfactory results. Its preparation is intended to accomplish two major objectives: 1. To crystallize and put into writing what has been envisioned for the structure. 2. To arrive at a reasonably accurate estimate of cubage and construction cost.

If it appears that the size of the site proposed for the building or institution may be too small, another step should be taken: the development of schematic plans. These are simple drawings which indicate graphically, the mass of the building, and the size and relationship of its elements. They include floor plans, a section, and an isometric drawing. Detailed room layouts are not required at this stage. These plans will demonstrate whether the building, constructed in accordance with the program requirements, can be satisfactorily accommodated on the site. If not, this is the time to determine whether the bulk of the building should be reduced by eliminating portions of the program, or efforts made to enlarge the site, or to find a new one.

An important function that a program can serve, is to determine whether the building, as proposed, will fit a previously established budget. It may be found that to provide every facility desired, the cost would be well above such a budget. The time



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to trim this cost, if necessary, is during the preparation of the program when economies can be made judiciously, where they will be least objectionable. After months of planning and considerable expense, when working drawings and specifications are completed, the necessity of reducing quality of room finishes, omitting important facilities, or wings of the building, or even abandoning the project entirely would be minimized.

## PREPARATION OF THE PROGRAM

The first step, is to hold a policy meeting attended by representatives of the principal agencies concerned with the development of the institution. It is important that the top executives of each agency be represented, to reduce the possibility of future changes. At this meeting, the major policies concerning the require-

ments of the institution are established. These requirements, of course, vary with each public building.

Before commencing the writing of the program, the architect should become familiar with similar institutions within the city, which have a bearing on his project. He should also visit recently constructed buildings of a similar nature in other cities to become acquainted with the most recent developments in the planning of that type of public building.

When he has become familiar with the requirements of his project, he can begin writing the program. Usually the sponsor department assigns supervisory personnel to be consulted during the establishment of the detailed program requirements, with one man in over-all charge. It is recommended that the architect work closely with the head of each depart-



ment in setting up these requirements. Under no circumstance should the listed services be sent to the architect, and be incorporated in the program, without being discussed personally with the supervisor in charge. The preparation of a program should be a joint effort combining the background and training of the architect, with the operational experience of the supervisory staff. Supervisors, while thoroughly familiar with the functioning of their departments, do not always have a feeling for space requirements. They are aware of their present unsatisfactory conditions, and often unintentionally make excessive requests for space, to make certain that their new facilities will be adequate. The architect can not sit alone on cloud nine and dream up an institution without these requirements.

A standard form for tabulating the program data materially simplifies the procedure. It should include the following headings:

NAME OF UNIT, ROOM, SIZE,  
SQ. FT. AREA, PRINCIPAL  
FURNITURE, REMARKS

A separate heading for both the size of the room, as well as the area, may appear to be redundant. However, it is easier to visualize a space of 20' x 25', than an area of 500 square feet.

The listing of the principal furniture required in the various rooms is of value in establishing the size of the rooms. If a room is to be occupied with four desks as the principal furniture, an allowance of between 60 square feet to 100 square feet per desk can be made. However, a detailed listing of each article of furniture, in each room, should be left for the more advanced stages of planning. The engineering portion of the program should include a description of the Heating, Ventilating, Refrigeration and Air Conditioning Work, the Plumbing Work and the Electrical Work. A description of the proposed yard work and landscaping should also be provided, if the site permits of it. Reference should be made to the demolition of existing buildings on the site, if any, roads and approaches, parking, outdoor recreation facilities, fences, etc.

#### THE CONSTRUCTION COST ESTIMATE

The construction cost estimate can be arrived at with reasonable ac-

curacy from the data obtained in the written program. The total floor area of the building is broken down into two parts, the net area, which is generally about 2/3 of the total, and the service area, which is about 1/3 of the total floor area. The net floor area is the sum of the sizes of all the spaces listed in the program. The service area is the space occupied by corridors, walls, partitions, elevators, stairs, toilets, small locker-rooms, etc. The service floor area is generally equal to 1/2 of the net area. This figure may vary, depending on the extent of the corridors, lobbies, etc. in the building, which are not listed in the program. The service floor area is added to the net area, and the sum is the total floor area of the building. For example, if the net floor area is 100,000 square feet, then the *total floor area* is established as 150,000 square feet.

To obtain the cubic foot contents of the building, the *average* story height is established, taking into account footings, roof fill and bulkheads. This average story height, multiplied by the total floor area, will give the total cubic foot contents of the building. This figure multiplied by an estimated construction cost per cubic foot, obtained as nearly as possible from similarly constructed buildings, adjusted for location and time of construction, results in the total estimated construction cost of the building. The site development cost, if any, should be added to this figure. If there are special foundation problems, the estimated cost should also be considered.

We have estimated the total *construction cost*, but for the budget purposes, we must still determine the *total cost* of the project, which includes architectural and engineering fees, 5% for contingencies and an allowance for furniture and equipment. These latter items may come to approximately 20% of the total construction cost. The total construction cost, plus this additional 20%, plus the cost of acquiring the site, if any, will give the total estimated *project cost*.

#### EXAMPLE OF METHOD

An example of the process described above will serve as an illustration. The City proposed to build a new, urgently needed Police Academy. The writer met with a Commissioner of the Police Department and

with the Commanding Officer of the Academy and his staff, and the requirements of the proposed building were discussed. A tour was made of the existing Academy, as well as a recently constructed school in the city. A trip was also made to Washington, D.C., to examine the F.B.I. Crime Laboratories and indoor shooting range. Meetings were then held with the Commanding Officer of the Academy and the heads of each division, and a listing of their requirements was established in tabular form. The Commanding Officer prepared an introduction to the program, setting forth the functions, policies and aims of the institution for the information of the architect. The heating and ventilating, electrical, and plumbing engineers of the department each prepared their portion of the program requirements.

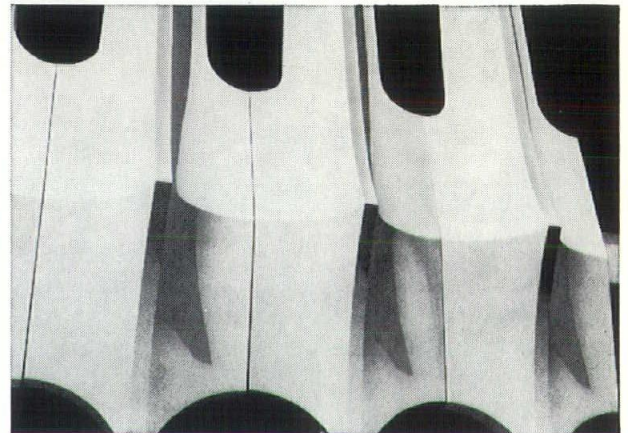
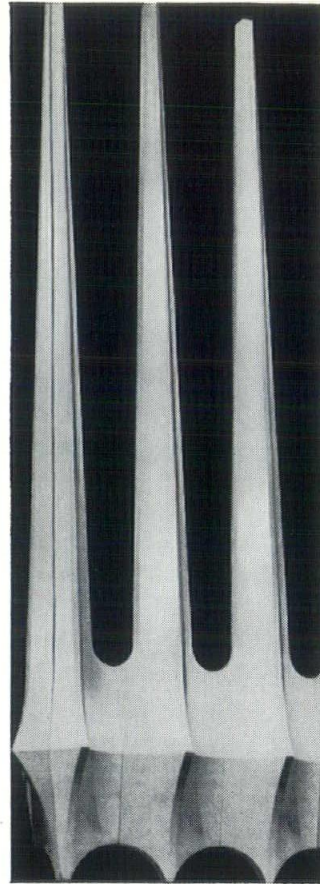
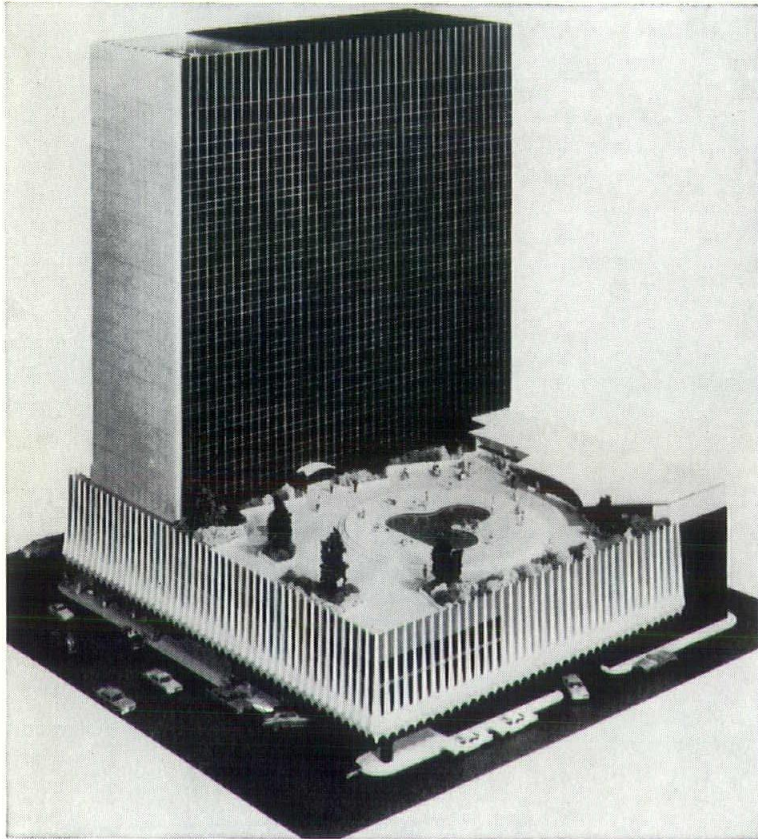
By observation, the designated site in Manhattan appeared to be inadequate to accommodate all of the facilities requested, which included a 15,000 square foot gymnasium. Before authorizing the preparation of plans, therefore, a study was made to determine whether the site was of sufficient size. A zoning diagram was prepared indicating the maximum volume of the building permitted under the Zoning Resolution. The cubage of this turned out to be well below the total cubage required by the program, proving conclusively that the site selected as inadequate. With this information, a request was made to the city authorities for an enlargement of the site. This was granted, and at the same time a double precinct station and the police crime laboratories were included in the project. The total estimated construction cost of the enlarged project came to \$7,000,000. The firm of Kelly and Gruzen, Architects and Engineers, was then engaged to prepare the contract documents for the construction. Approximately two years after the program was written and the construction cost established, the job went out for bids, and the construction cost turned out to be \$7,800,000. This was a comparatively slight increase, especially when one takes into account the normal annual increase in the cost of construction during the two years.

The procedure described above has been used many times, and, used systematically, has proven to be a satisfactory method for setting up a project, and arriving at a reasonably accurate estimate of cost.



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NATURAL CREAM • Size—12"x12" Gauge— $\frac{1}{8}$ " and  $\frac{3}{16}$ "

# Ruberoid Travertine Vinyl-Asbestos Floor Tile

...a new texture...a new look of richness

Now--the vein-textured marble of ancient Italy...with nature's subtle shadings and stratifications...has been captured in all its beauty in Vinyl-Asbestos by Ruberoid. Here is a tile for those floor areas where distinction and design are important. Quality built for quality performance...Ruberoid's new TRAVERTINE Vinyl-Asbestos Floor Tile.

The TRAVERTINE sampler containing 3" x 3" samples of all colors and a full size 12" x 12" is yours for the asking. Ask your Ruberoid Sales Representative or write the company.

keep your eye  
on RUBEROID



**RUBEROID**  
FINE FLOORING

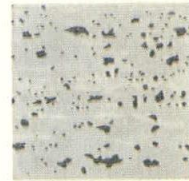
The RUBEROID Co., 733 Third Avenue, New York 17, N. Y.



ET-205 AVOCADO



ET-204 CLAY BUFF



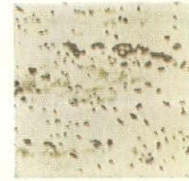
ET-202 GREIGE



SAMPLER

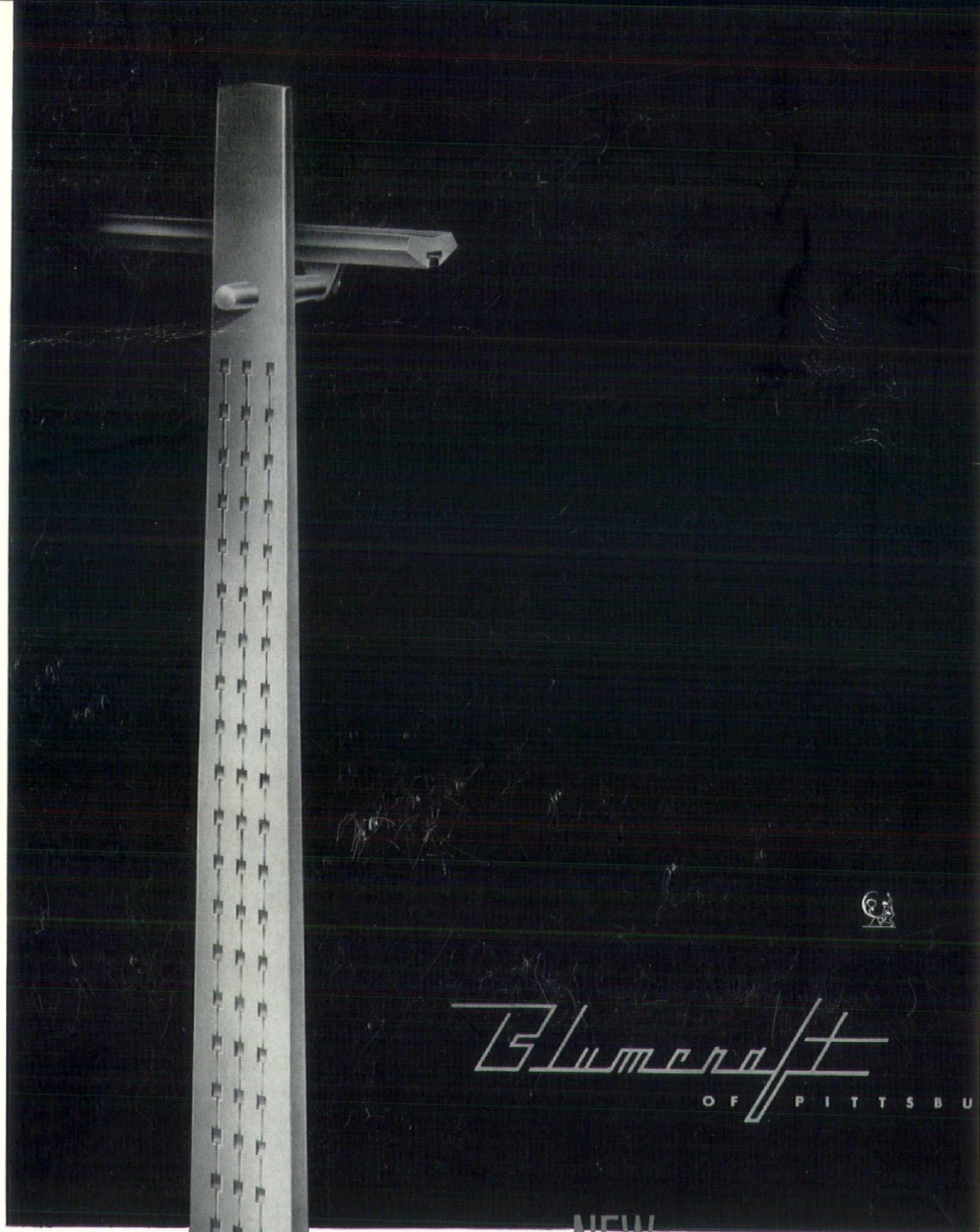


ET-201 IVORY



ET-203 NATURAL CREAM





*Blumcraft*  
OF PITTSBURGH

**NEW** classic tapered aluminum post 149-S. Sculptured pattern shown. Available with a plain surface or inlaid natural wood.

Complete catalogue of railings and grilles available upon request.

Permanent display - Architects Building, 101 Park Ave., New York, N.Y.