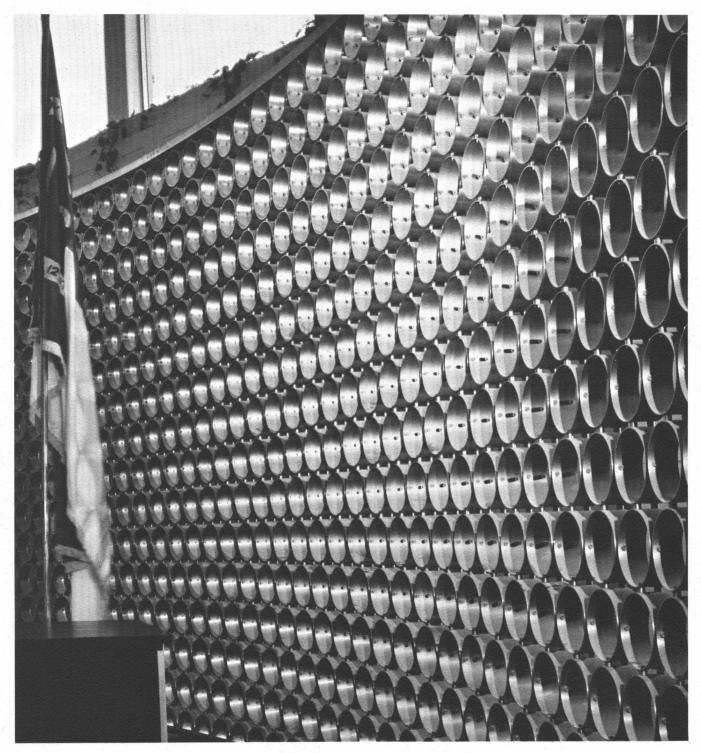
NORTH CAROLINA ARCHITECT

OFFICIAL PUBLICATION OF THE NORTH CAROLINA CHAPTER OF THE AMERICAN INSTITUTE OF ARCHITECTS



DECEMBER 1967



QUALITY METALWORK

Over 18,000 Fittings were used to produce this beautiful Gold Anodized Aluminum Screen in the Senate Chamber.

State Legislative Building, Raleigh, N. C.

Architect: Edward D. Stone, New York City Associated Architects: Holloway-Reeves Raleigh, N. C.







DECEMBER 1967, VOL. 14, NO. 12

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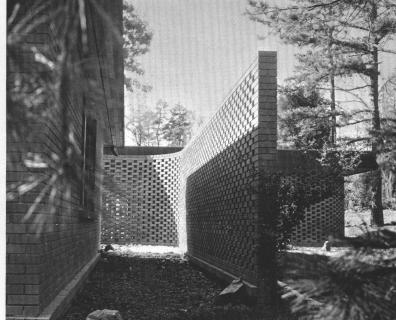


Ageless Architecture through Brick Beauty

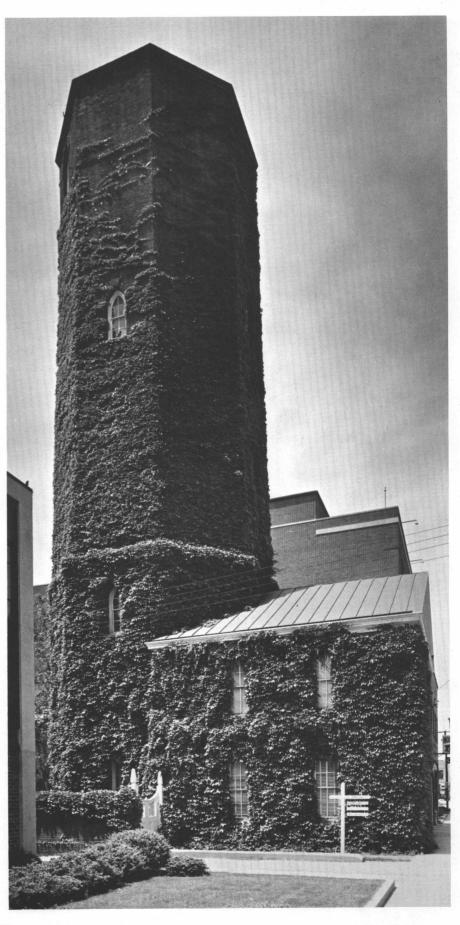
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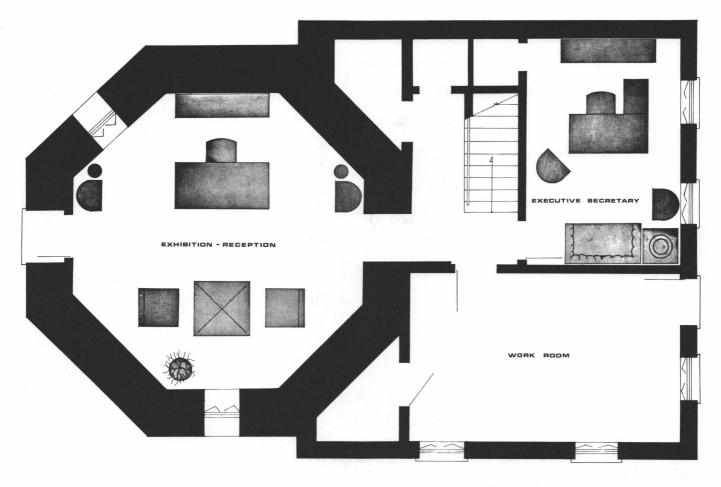
Architect J. Lewis Williams & Associates





PLANS TO FURNISH AIA TOWER





In 1961, the North Carolina Chapter AIA established its first permanent office-a 10' x 15' room in the Raleigh Building. Following several expansion moves, the Chapter arranged with member Wm. H. Deitrick, FAIA, to obtain the old Water Tower property in downtown Raleigh. Headquarters for the North Carolina Chapter AIA have been maintained in this old Raleigh landmark since 1963. During this time, the garden area has been landscaped, furnishing a charming backdrop for this unique building, now called the AIA Tower.

Within the next six months, the AIA Tower will be completely refurbished, consisting of both architectural and interior design work. A new heating and air conditioning system is being planned and architectural modifications in keeping with the historical character of the structure are to be made. The AIA Tower Furnishings Committee, headed by Hyatt Hammond and comprised of Stuart Baesel, Charles Boney and David Hipp, have spent a great deal of time and thought on the development of the Tower headquarters.

At a meeting of the Chapter Board in Charlotte on December 7, the furniture and layouts shown on these pages were approved. It was considered imperative that no changes be made to the architecture of the building, and equally important that the furniture chosen would be of lasting good design. Consequently Barcelona chairs by Mies van der Rohe, Saarinen conference chairs, and other items of similar design have been selected

AIA TOWER

for the spaces. Wherever possible, furniture by North Carolina manufacturers has been included. To these will be added handsome antique chests, tables and other items as they can be acquired. Walls are to be light, with color accents in fabrics and carpeting. Leather, wood and marble are all in natural subdued tones, chosen for their richness, dignity and elegance.

Ultimately, it is hoped that advantage can be taken of the Tower above the second floor and access provided to a special "Tower Room" that will have a 45-foot ceiling, chandelier and special furnishings.

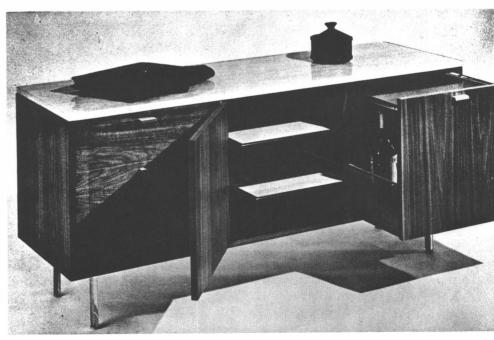
In the meantime, work is proceeding on refurbishing the two floors and it is expected to be completed in the spring of 1968.

DECEMBER 1967



XHIBITION - RECEPTION ROOM





NORTH CAROLINA ARCHITECT

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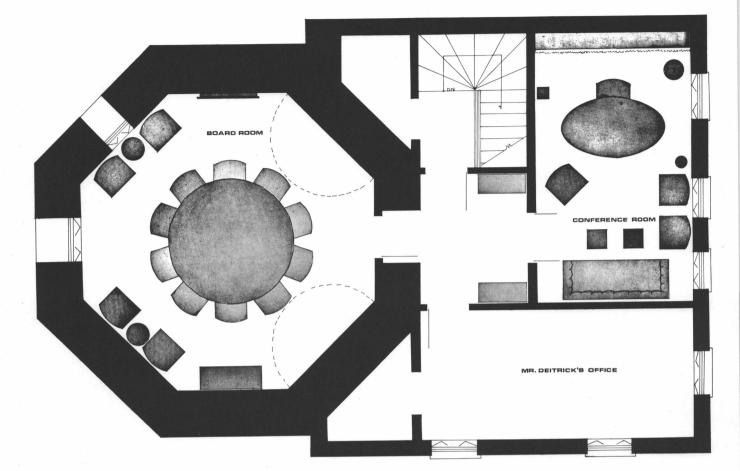






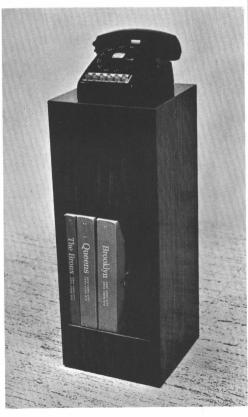
XECUTIVE SECRETARY'S OFFICE

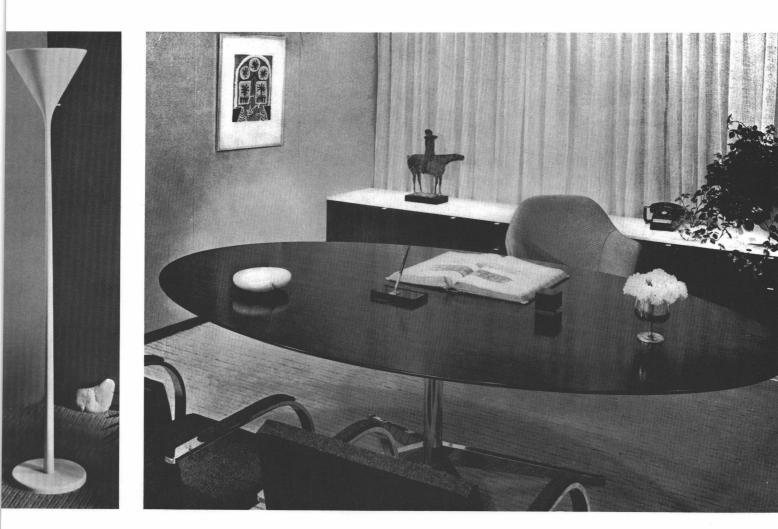




ONFERENCE ROOM







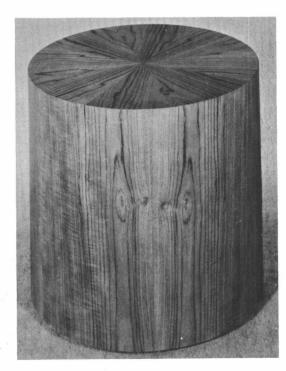




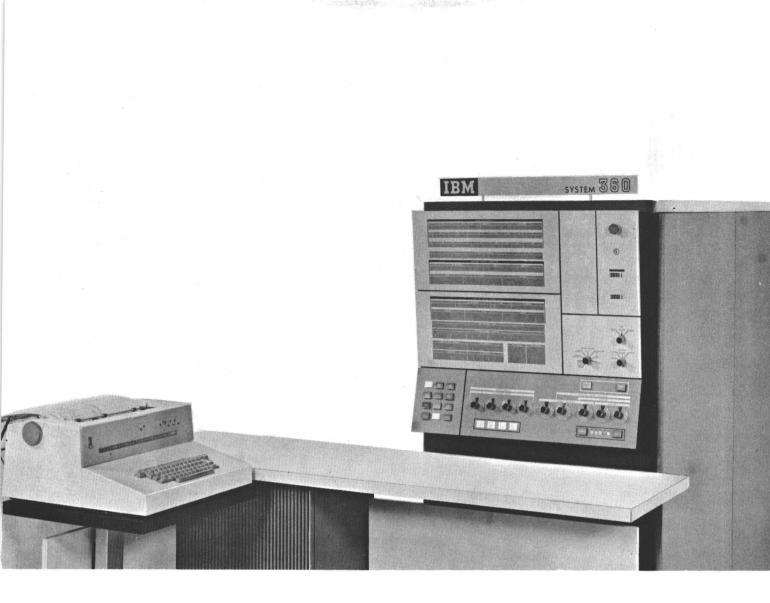


BOARD ROOM









COMMUNICATING WITH COMPUTERS

By J. C. Smith

In the last few years, many disciplines have begun to rely heavily on computers and various **problemoriented languages** are being devised to provide the programmers with simple languages. In these languages the description of a problem resembles as much as possible the established technical language of a discipline, so that the user describes the problem to the computer in essentially the same terms he would use to instruct a professional person in his own discipline.

The first major breakthrough in the effort to provide the user with a simpler coding or programming language was the invention of the procedural languages and there are many of them available today. A procedural language permits the programmer to code the operations for the computer in terms of much larger units of processing, called statements. Furthermore, for the most part, these statements are quite similar in appearance to the mathematical form that the user ordinarily employs in formulating his problem. FORTRAN, an abbreviation of the two words-FORmula TRANslation, is probably the most widely known procedural language in existence today.

The chosen problem is to demonstrate the FORTRAN coding of a simple problem.

Computer Example 1.

Mathematical statement of problem 1:

```
Given: a = 4
         b = 7
         c = 3
         d = 22
         n = 10
Find: y = \frac{ab}{c} + \sqrt{d}
         x = \sum_{i=1}^{n} i
         z = x + y^3 - c
FORTRAN program for this problem is:
```

```
Y = A*B/C + SQRT(D)
     X = 0
     DO 5 I = 1, N
    5 X = X + I
     Z = X + Y * 3 - C
$ --output values of A, B, C, D, N
and X, Y, Z via printer
.
.
```

Explanation of the Above Program

At the dollar marked locations certain, necessary FORTRAN statements have been omitted because they vary from computer to computer. Furthermore, the input-output statements are the most difficult ones to comprehend and, therefore, are omitted here. Mathematical operational symbols must be coded in FOR-TRAN arithmetic statements as follows: * for multiplication; / for division; + for addition; - for subtraction; ** for raising a variable to a power. However, = means compute the operations on the right hand side of the symbol and store the results in the location indicated by the variable name on the left hand side of the symbol. The DO statement (in this problem) means to execute the statements through the statement prefixed with the number 5, beginning with I = 1 through I = N by increments of one. SQRT(D) means to take the square root of D.

Reel of -Magnetic Tape

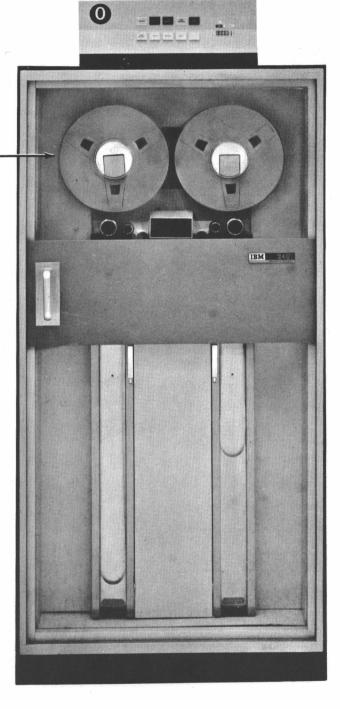
Execution of Program on a Computer

The programmer's next step is to prepare these FORTRAN statements for transmission to the computer; for example, these statements could be punched on specially designed cards and read into the computer by a card reader. Once the FORTRAN statements are in the memory of the computer, the compiler which is a processor program prepared by the computer designers and stored in the computer's memory, takes over and scans each statement for any recognizable errors. If any errors are detected, a listing of the errors is output to the programmer and the FOR-TRAN program is not executable. If no errors are detected, the compiler translates the FORTRAN statements into machine language and turns the control of the computer over to the translated version of the user's program for execution. At that time, in our problem, the computer asks the reading device for the values we are specifying for A, B, C, D and N; then the computer uses these values and executes the operations we requested; finally the computer instructs the printing device to list the results we requested.

Computer Example 2.—Suppose we wish to evaluate x, y and z for several sets of values of a, b, c, d and n, furthermore, if d is a negative number then

$$y = \frac{a b}{c}$$

and if n < 10 then x = 0. In this case our computer program must account for these additional restrictions and we can do this as shown below.

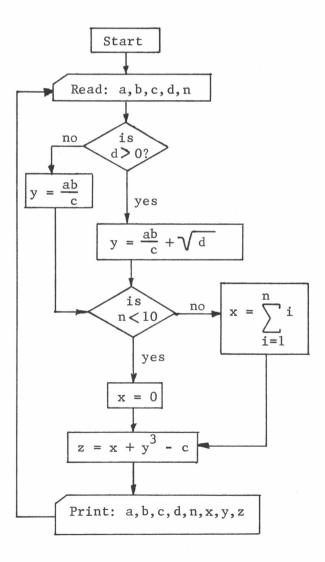


Mathematical statement of problem 2:

Given: several sets of values for a,b,c,d,n

Find:	$y = \frac{ab}{c} + \sqrt{d}$	when $d > 0$
	$y = \frac{ab}{c}$	when $d \leq 0$
	x = 0	when $n < 10$
	$\mathbf{x} = \sum_{i=1}^{n} \mathbf{i}$	when $n \ge 10$
	$z = x + y^3 - c$	

Flow chart for this problem is:



FORTRAN program for problem 2 is:

Explanation of Computer Program 2

A computer programmer first prepares a flow chart of his problem in order to outline the logical steps necessary in the computer program; the first example problem was so simple that no flow chart was necessary. Decisions at execution time are achieved by an IF () statement; the expression within the parentheses is evaluated and the numerical result is compared to zero; if the numerical result is negative, zero, or positive, respectively, the computer goes directly to the first, second, or third statement number, respectively, following the parentheses after the IF. GO TO 12 means go directly to statement number 12 and proceed. Hence, sequential execution of statements is always understood unless the programmer specifically instructs the computer to do otherwise.

Two examples of Civil Engineering problem-oriented languages are COGO and STRESS; both of these languages were initially developed by Civil Engineers at MIT (Massachusetts Institute of Technology). COGO, an abbreviation of the two words-COordinate GeOmetry-was initially designed for land surveying type computations. In COGO, the coded instructions for the computer essentially refer to the coordinates of points; therefore, COGO is directly applicable to any problem in plane geometry. In a COGO program each statement specifies the instruction to be executed and the corresponding data. The COGO processor reads one statement at a time, translates the statement into machine language, executes the user's request, outputs the results and then reads the next statement. The relative ease of inputting data and outputting results in a COGO coded program makes this language highly attractive to a beginning programmer.

STRESS, an abbreviation of the words-STRuctural Engineering System Solver-was developed for the analysis of linearly elastic structures. Structures which STRESS recognizes are: plane trusses, plane frames, plane girds, space trusses and space frames. As you well know, each of these structural types is a complex system of joints, members and loads and the behavior of any particular element depends upon how the element in question is interconnected with the other elements in the structure. Therefore, in STRESS the computer cannot read one statement at a time as is the case of COGO. In some respects a STRESS program is very similar to a FORTRAN program-namely, all of the computer program statements are read into the computer before any translation is done and then the translated program assumes control of the computer for execution of the problem. However, the chief advantages of STRESS are: (1) the input language for instructions and data are entirely in structural engineering terminology, and; (2) after a problem has been completely defined for the computer, specific modifications of the defined structure may be easily accomplished-for example, if the originally defined structure were a space truss, the structure may be easily transformed into a space frame by removing the diagonal braces and, of course, specifying that the joints must be rigid.

Time limitations do not permit me to demonstrate either a STRESS or COGO program, but I hope that my two brief descriptions have adequately indicated to you that there is no reason that a simple problemoriented language for architectural designers cannot be developed. In fact, since the basic, peripheral, input-output devices described by Dr. Martin as the graphical plotter, the light-pen and the cathode ray tube are already available for you to use, the only thing that remains is the desire and demand of architects that a problem-oriented language for architects be developed.

Communicating with Computers in the Future

How can we expect to communicate with computers in the future and what kind of computer-aided solutions can be accomplished in the future? Current research by communications engineers seems to indicate that if we dream wildly, we will not be far from the accomplishable. For example, an audio means of communicating with computers is already being used in connection with stock market quotations. Also, I quote to you a paragraph from the November/December Digital Plotting Newsletter which is published by California Computer Products, Inc. "The Motorways Division of the French Ponts et Chaussees, at Paris, uses a CalComp 570/506 plotting device to produce complete sets of drawings for their highway projects. Latest development is a subroutine which provides perspective drawings from the same data used in the earthworks program. The result is a series of 'driver's-eye' views at successive points along the proposed roadway. The driver's-eye views are used to spot potential hazards which might cause driver error or fatigue."

Therefore, I conclude my remarks with the thought that where we go from here with respect to communicating with computers depends a great deal upon the ingenuity and desire of computer users.

The above are excerpts from a speech delivered on 4/27/67 at North Carolina State University at Raleigh for a Computer Basics Seminar sponsored by the NCAIA and the School of Design at North Carolina State University.

Mr. J. C. Smith is Assistant Professor of Civil Engineering at North Carolina State University.

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HUD BACKS EXPERIMENT WITH COMPUTERS IN SEARCH OF BETTER LOW-COST HOUSING

The use of computers to help cut costs is one of the latest applications of modern technology to the production of housing for low-income families.

With a \$160,000 demonstration grant from the U. S. Department of Housing and Urban Development, a group of architects in Chapel Hill, N. C., is experimenting with the use of computers to design low-cost multi-unit housing.

The North Carolina Fund, a non-profit organization established by several private foundations to help eradicate poverty, supports the project locally.

Known as the IBIS (Integrated Building Industry System), this computer-based design instrument will give designers of low-cost housing an instant indication of what it will cost to build their design.

Now in an early stage, IBIS is dealing mainly with costs. Other factors, however, could be introduced, such as ease of maintenance or speed of construction. Eventually the system could be used for an early analysis of the feasibility of a low-income housing project or to explore the effects upon total costs of different potential project sites.

Arthur R. Cogswell, AIA, one of the principal investigators for the project, predicts that when the system is perfected, "it will be a design tool of unprecedented power. Architects will be able to make quicker decisions without guesswork and subjectivity, and come up with the best balance of cost and design."

Growing complexity in building technology and cost information can make it impossible for an architect to know enough to make the most effective decisions during the design process. For example, space, so important to large low-income families, is a relative bargain in building—a little more space doesn't cost that much more. Yet without a quick system of calculating costs, space is often the easiest thing to reduce.

By making complete cost information on various design factors and materials readily available to the architect,



IBIS enables him to quickly determine not only the cost of his first design, but also to make changes and trade-off various elements to get the most house for his money.

Under the new system, the architect draws up a design. It is then fed into the computer, which is able to accept three-dimensional geometric designs. The computer then supplies several types of information:

- -list of construction operations necessary
- -various types of labor needed and estimated
- -material in what quantities and costs
- -equipment required and costs
- -complete specifications for project
- -a list of the detail construction drawings required
- -estimate of total construction cost

Then, by simply introducing changes in the original concept, the architect can explore the design, coming up with a number of variations. He might, for example, weigh a bigger living room against an extra bedroom. Or ask, how many windows would have to be eliminated to get an extra door?

The most difficult part of drawing up the new system is developing procedures to introduce information into the computer. For the IBIS system to operate effectively, the computer must store literally hundreds of thousands of bits of information on costs, material, labor, equipment and specifications. The architects are now working to refine and simplify methods of communicating with the computer.

To test the new system, the North Carolina group will pit IBIS against conventional designing aids by using an existing low-income multi-family building. They will have the original architect redesign the building using the IBIS system. To reflect possible increases in building costs since the building was constructed, the original design will be run through the computer to update costs to the present day level. The two designs will then be compared to see if the new design could be produced at a lower cost.



NCAIA PRESIDENT PRESENTS BOOK TO GOVERNOR DAN MOORE

In special ceremonies at The State Capitol James C. Hemphill, Jr., FAIA, President of the North Carolina Chapter of The American Institute of Architects, presented *The Potomac* to Governor Dan Moore.

The handsomely illustrated volume was a gift of Secretary of the Interior Stewart E. Udall.

At a press conference in Washington upon the publication of the book, AIA President Robert L. Durham stressed the need for governors, mayors and congressmen to understand and support the conceptual framework proposed in *The Potomac*. A. G. Odell, Jr., FAIA, of Charlotte, was chairman of the task force responsible for recommending the best ultimate use of the Potomac Basin, to be used as a guide for redevelopment of other waterfront properties in the United States.

WILLIAM H. DEITRICK HONORED

At the annual meeting of the N. C. Society for the Preservation of Antiquities held in Raleigh the first week of December, Wm. H. Deitrick was awarded the Ruth Cannon Cup for his "uncommonly fine leadership in developing a preservation program for the City (Raleigh) and initiating important projects." During Mr. Deitrick's term as President of the Raleigh Historic Sites Commission, this group was instrumental in having the city purchase the Mordecai House, a fine 18th century residence, for preservation. Other important preservation projects were also initiated, and the General Assembly passed legislation giving more strength to the Historic Sites Commission.

Deitrick has devoted much time to civic projects since his retirement from the practice of architecture. He also arranged in 1963 for the N. C. Chapter AIA to preserve the old Raleigh Water Tower, an important city landmark.

ANNOUNCEMENTS

W. T. Doggett, AIA, has opened an office at 232 North Main Street, Waynesville, N. C. He will be associated with Mr. L. J. Traber, AIA, of Asheville, N. C. They will operate under a name of "Traber-Doggett, Associated Architects".

Clinton E. Gravely, AIA, has opened an office at 2932 East Market Street, Greensboro, N. C.

CHARLOTTE AMONG 63 FOR "MODEL CITIES"

Charlotte was among 63 cities named by H. U. D. to share \$11 million in "Model Cities" federal aid funds for planning purposes. Each grant will range from \$50,000 to \$350,000. The program is regarded as the most important new weapon against urban blight and is aimed at financing a comprehensive attack on the social, economic and physical decay of the inner city. The 63 cities selected contain one million families, or over four million people.

CHARLOTTE ARCHITECTS ON EDUCATIONAL COUNCIL OF M. I. T.

Frederick F. Sadri, AIA, of A. G. Odell & Associates and Harry C. Wolf III, AIA, of Wolf, Johnson Associates have been appointed to the Educational Council of the Massachusetts Institute of Technology. The Council is a carefully chosen group of informed alumni who represent M. I. T. in their communities throughout the world.

ENCS PRODUCERS' COUNCIL HOLDS FIRST MEETING

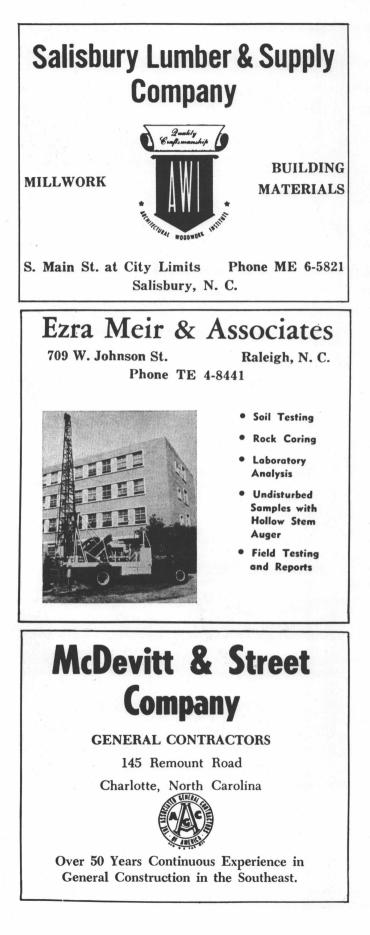
The first meeting of the newly formed Eastern North Carolina Section of the Carolinas' Chapter of Producers' Council, Inc., was held on Tuesday, November 14th at the Statler Hilton (Voyager Inn) in Raleigh.

Nineteen of the twenty-seven Section members exhibited at this display meeting, and hosted 111 guests representing 31 architectural firms, 6 engineering firms, Duke and North Carolina State Universities, and the State of North Carolina.

Due to the outstanding participation and success of this venture, the Section is planning a second meeting in February of 1968, and interested persons are asked to contact Co-Chairman A. L. Clement at the North Carolina Concrete Masonry Association in Raleigh.

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NORTH CAROLINA ARCHITECT



FEREBEE NOMINATED AS DIRECTOR



S. Scott Ferebee

Every three years the South Atlantic Region of The American Institute of Architects names a new director. AIA Chapters in the states of North Carolina, South Carolina and Georgia comprise the Region and representatives from each Chapter make up the Regional Council.

At a meeting of the Council held at Clemson, South Carolina, on November 18, S. Scott Ferebee, Jr., AIA, was the unanimous choice to be the Region's nominee for Director to serve from 1968 to 1971. Inasmuch as Mr. Ferebee is the only nominee, his nomination is tantamount to election and he will assume office during the National AIA Convention in Portland-Honolulu, June 23-29.

S. Scott Ferebee, Jr. was born in Detroit, Michigan, but has been a resident of North Carolina for most of his life. A 1948 graduate of North Carolina State University, he is a principal in the architectural firm of Ferebee, Walters & Associates in Charlotte. He is a past president in 1964 of the N. C. Chapter AIA and has long been active in local, regional and national architectural affairs. He is president of the North Carolina Design Foundation and serves on the Board of the North Carolina Architectural Foundation.

Mr. Ferebee also serves as a Brigadier General in the U. S. Army Reserve, where he has successively held positions of Chief of Staff and Assistant Division Commander of the 108th Division. He has also been very active in the work of the Methodist Church, teaching an adult couples' class since 1959 at the St. Paul Methodist Church in Charlotte. He has served various local organizations, including the Civil Defense Committee, the Beautification Committee, the Urban Redevelopment committee and currently serves as a member of the Higher Education Committee. He has been Chairman of the Architects and Engineers Division of the Charlotte United Appeal since 1956.

Mr. Ferebee will succeed Bernard B. Rothschild, FAIA, of Atlanta, as Regional Director. Mr. Rothschild has been an active leader of the profession in the South Atlantic Region since 1965.

Winston-Salem Council Elects Officers

On November 21, 1967 the Winston-Salem Council of Architects elected the following officers for 1968: President—L. Ray Troxell, AIA; Vice-President—Lloyd G. Walter, Jr., AIA; Secretary-Treasurer—Dallas E. Cundiff, AIA. Directors are: Donald Van Etten, AIA and Donald H. Hines, AIA.

Competition for Architectural Students

The LeBrun Traveling Fellowship of \$3,000 is offered for the design of a metropolitan area rapid transit station and related facilities. The competition is open to any U. S. citizen between the ages of 23 and 30, who has at least one-and-a-half years experience in an architectural office and who has not been the beneficiary of any other traveling scholarship. The award is to be used for travel outside the United States to study architecture. For further information write to: Chairman, LeBrun Committee, New York Chapter, AIA, 115 East 40th Street, New York, N. Y. 10016.

Design Group Names Officers

S. Scott Ferebee, Jr., AIA, is the new president of the North Carolina Design Foundation, an organization that assists the School of Design at N. C. State University. Other officers elected during the foundation's annual meeting were: Richard C. Bell, vice-president; Robert W. Shoffner, secretary; John D. Wright, treasurer; P. H. Dalton, Hyman Dave, Ryland Edwards, AIA, Ralph K. Ingram, Bertram King, AIA, Peter J. Verna, all directors.

IN MEMORIAM

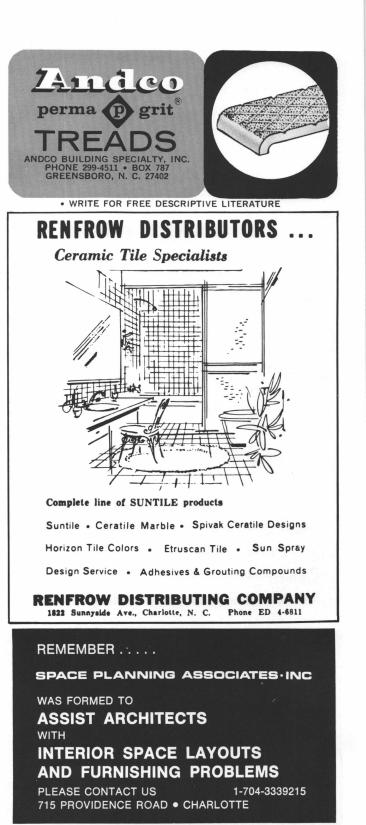
On November 18, Albert B. Cameron, President of Cameron-Little and Assoc., died of a heart attack after a short illness.

He was a member of the American Institute of Architects and director of the N. C. Design Foundation.

Survivors include his wife, a son, Albert Barnes, Jr., and three daughters. One sister, a brother and also a half brother survive.

Charles Wearn Connelly died November 29, in a Charlotte hospital. He was a member of the North Carolina Chapter of the American Institute of Architects and a member of the Charlotte Section of NCAIA. He was a former member of the Board of Stewards of Myers Park Methodist Church, and was a Mason and Shriner. He was also known as an excellent musician and artist.

He is survived by his wife, and three sons all of Charlotte.

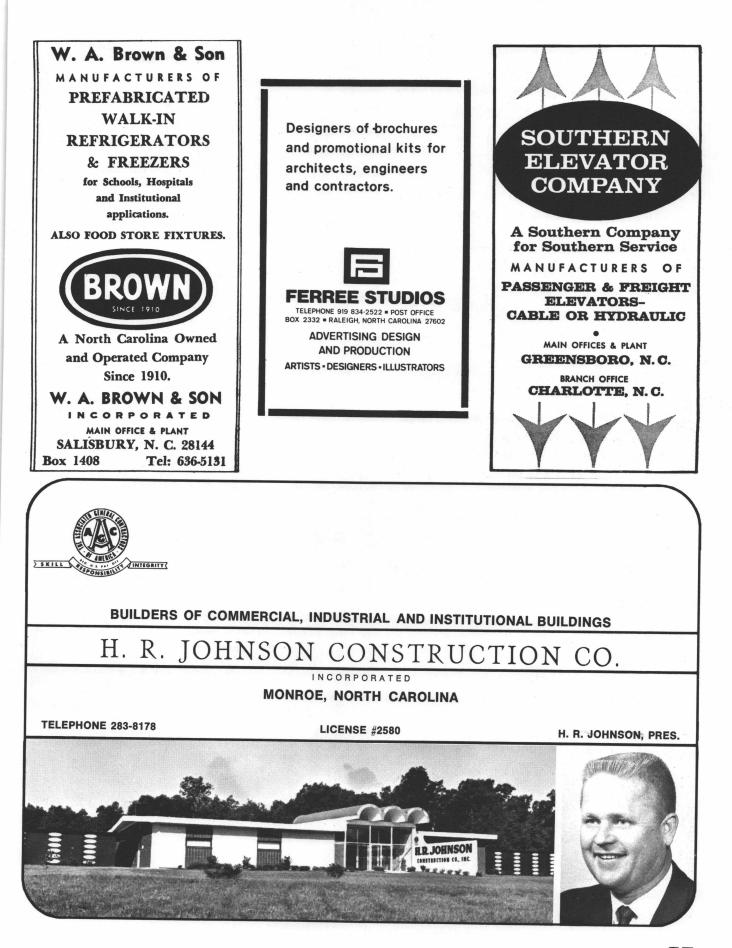


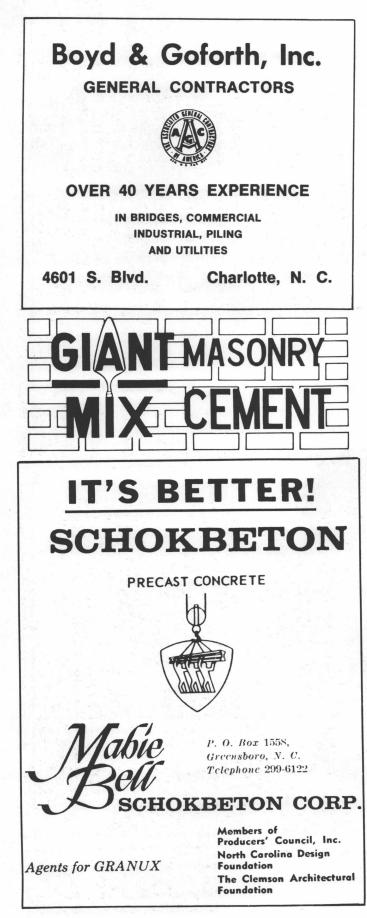
Le Corbusier Exhibition

An exhibition featuring the furniture designed by Le Corbusier, his etchings and other art work, and his architecture will be held at the villa headquarters of the Space Planning Associates in Charlotte. It will begin with a special reception on Friday night, January 26.

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CALENDAR OF EVENTS

- January 3: Charlotte Section, N. C. Chapter AIA, Charlottetown Mall Community Hall, 12:30 P.M., Roy F. Kendrick, AIA, President.
- January 4: Raleigh Council of Architects, YMCA, Hillsborough Street, 12:15 P.M., George M. Smart, AIA, President.
- January 9: Durham Council of Architects, Jack Tar Hotel, 12:30 P.M., Max Isley, AIA, President
- January 18: Greensboro Registered Architects, Cellar Antoine's, 12:30 P.M., R. E. L. Peterson, AIA, President
- June 23-29: National AIA Meeting, Portland, Oregon, and Honolulu, Hawaii.
- July 11-12-13: N. C. Chapter AIA Summer Meeting, Grove Park Inn, Asheville.

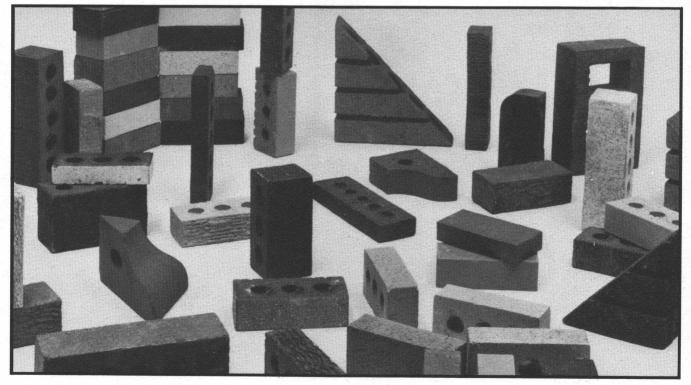
February 8-9 & 10: N. C. Chapter AIA WINTER MEETING The Carolina, Pinehurst

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NORTH CAROLINA ARCHITECT

in 1911 our complete selection meant three styles -all red



... but we have since added almost limitless variations of textures, shapes and colors to produce styles suitable for any architectural design.



FOR YOUR FILES - full color brick sample sheets. Send request to: Borden Brick and Tile Co., Borden Building, Goldsboro, N. C. 27530

