DECEMBER, 1968

NORTH CAROLINA ARCHITECT

PUBLISHED BY THE NORTH CAROLINA CHAPTER OF THE AMERICAN INSTITUTE OF ARCHITECTS

Ageless Architecture through Brick Beauty

M. L. Sechrest Residence
High Point, N. C.

Architects - Engineers:
Wm. F. Freeman Associates

Contractor:
Cagle & Wallace

QUALITY METALWORK

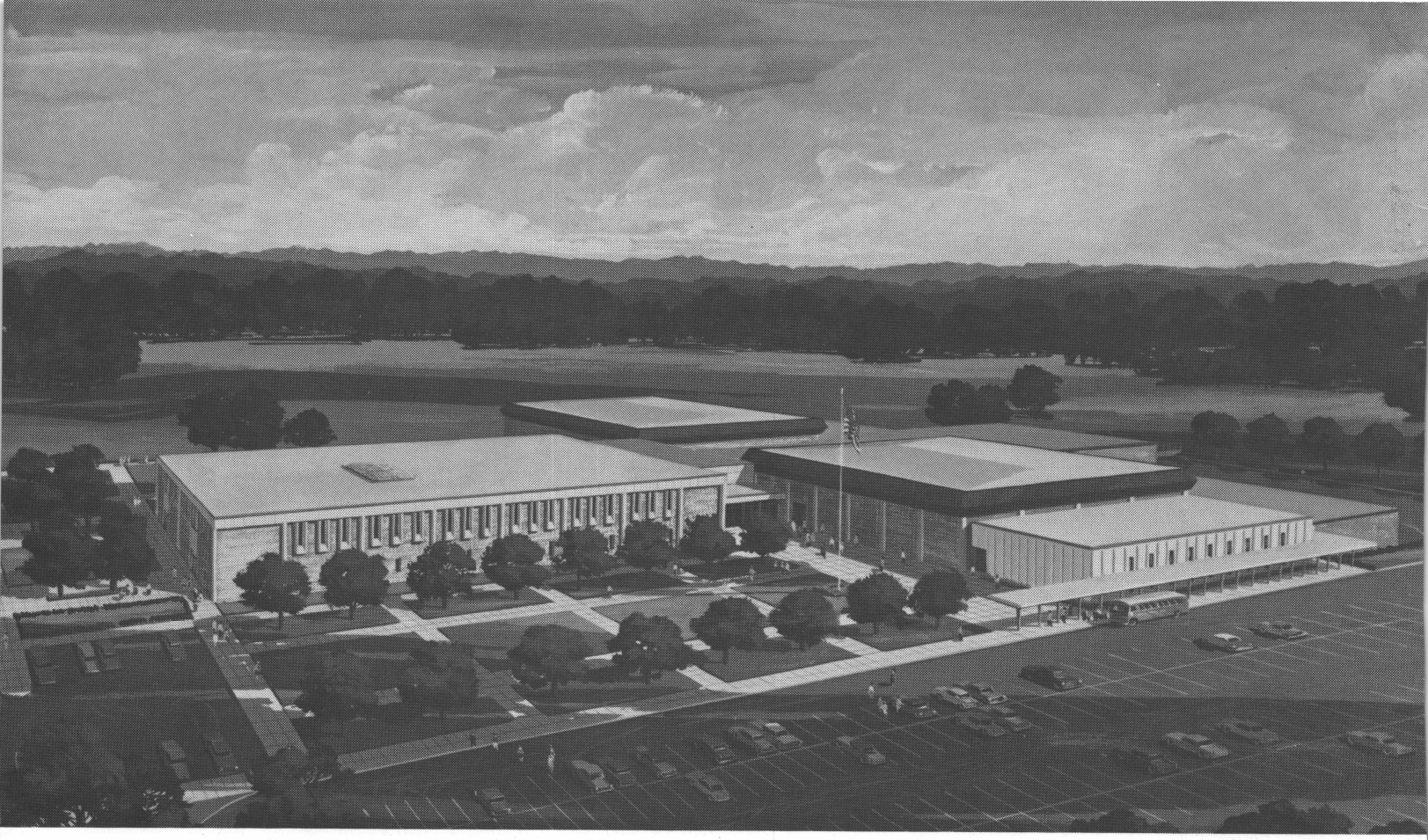
This Satin Finished Aluminum Railing fabricated of Blumcraft shapes with steel stringer covered with aluminum displays graceful curves.

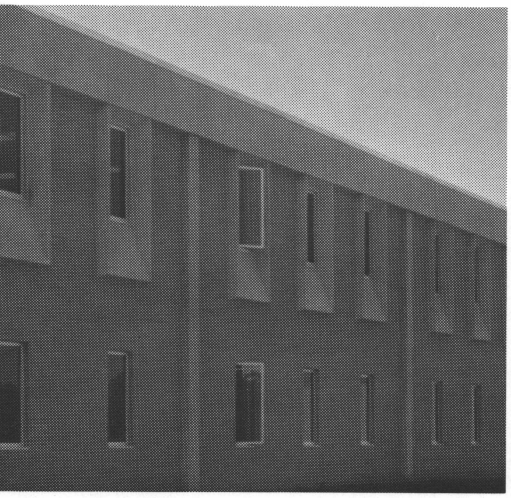
St. John's Building, Oxford Orphanage
Oxford, N. C.

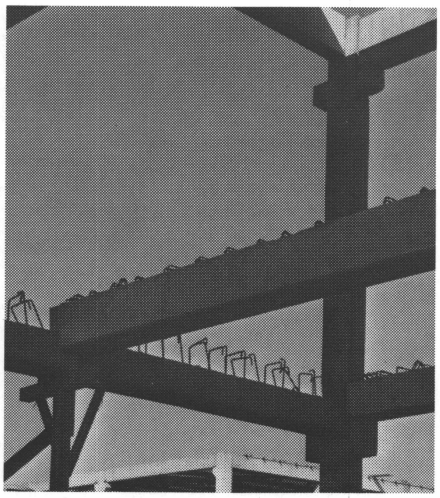
Architect: Marion A. Ham, AIA, Durham, N. C.

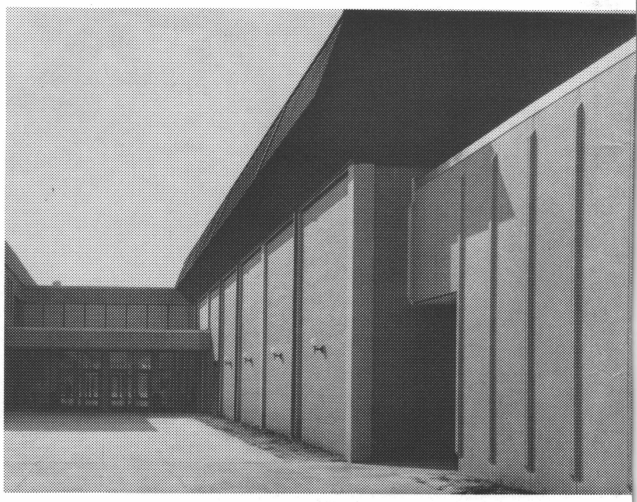
J·D·WILKINS CO.

GREENSBORO, N.C.









Another example of the versatility and economy
of prestressed-precast concrete construction:
Western Guilford High School, Greensboro.

ARNOLD STONE COMPANY

Box 3346 ☎ 668-2742 / Greensboro, North Carolina 27402

Architect: Mays & Parks, Associates, AIA
Engineer: Sutton & Kennerly

NORTH CAROLINA
ARCHITECT

DECEMBER 1968, VOL. 15, NO. 12

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CONTENTS

A-ha!

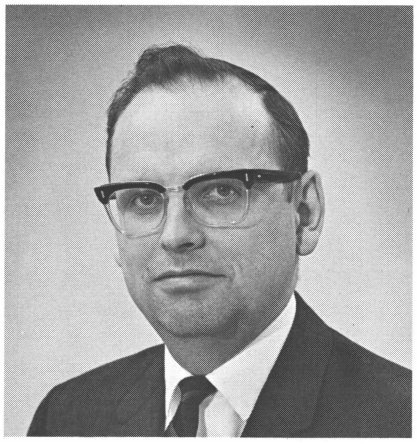
When you think about the hundreds of thousands of flawless tiles we send out, you can understand why some people get so carried away when they catch us in one tiny imperfection.

So, when you find one, go ahead and have your fun. It may be a once-in-a-lifetime opportunity.

MID-STATE TILE COMPANY
BOX 627 • LEXINGTON, N. C. • 27292
MEMBER TILE COUNCIL OF AMERICA

"LIGHTING IN ARCHITECTURE" THEME OF WINTER MEETING

John O. Merrill, Jr., AIA



John E. Flynn, AIA

The principal topic of discussion at the annual Winter Meeting of the North Carolina Chapter of the American Institute of Architects will be "Lighting in Architecture", to be held at the Carolina Hotel, Pinehurst, N. C., on February 6, 7, and 8. Working with the Chapter program committee, the Illuminating Engineering Society has obtained two outstanding speakers. John O. Merrill, Jr., AIA, General Partner in the firm of Skidmore, Owings & Merrill with offices in New York, Chicago, San Francisco, Portland, Oregon, and Washington, D. C., and John E. Flynn, AIA, architect and consultant of Cleveland, former staff architect for the advanced lighting application group at the General Electric Nela Park Laboratories for nine years prior to entering private practice as a lighting and systems consultant in 1964.

On Friday, there will be announcement of winners of three awards programs offered by the Chapter. Winners of Honor Awards and Awards of Merit in the Fifteenth Annual Honor Awards Program will be announced at the annual banquet. The jury for this program is comprised of Douglas Haskell, FAIA, former editor of Architectural Forum, Lawrence B. Anderson, FAIA, Dean, School of Architecture, M.I.T., and Hugh A. Stubbins, Jr., FAIA, practicing architect of Cambridge, Mass. The fifty-four entries will be on display during the entire meeting. An award to an outstanding craftsman will be made at a luncheon on Friday, as well as announcement of the Eighth Annual Press Award. Recipients of these awards will be honored at a luncheon on Friday at the Carolina.

For the distaff side a delightful entertainment has been planned. On Thursday, a buffet luncheon will be served in products display area. On Thursday evening, entertainment following the dinner will be cabaret style dance with floor show featuring Burt Massengale's orchestra. On Friday, the ladies are invited for luncheon and fashion show at the Country Club of North Carolina. Friday evening portends to be a gala affair—cocktails, President's reception and banquet, and dancing. No formal program has been planned for Saturday but golfing, cocktails, dinner and dancing are available on your own at the Country Club of North Carolina.

Also included in the program is an excellent products display. Over thirty manufacturers will have booths and will make available the latest information on new products. On Saturday a drawing for prizes donated by these exhibitors will be held.

MINGES COLISEUM AT EAST CAROLINA UNIVERSITY

Greenville, North Carolina

Architect:
F. Carter Williams

Structural Engineers:
Kahn & Furbush

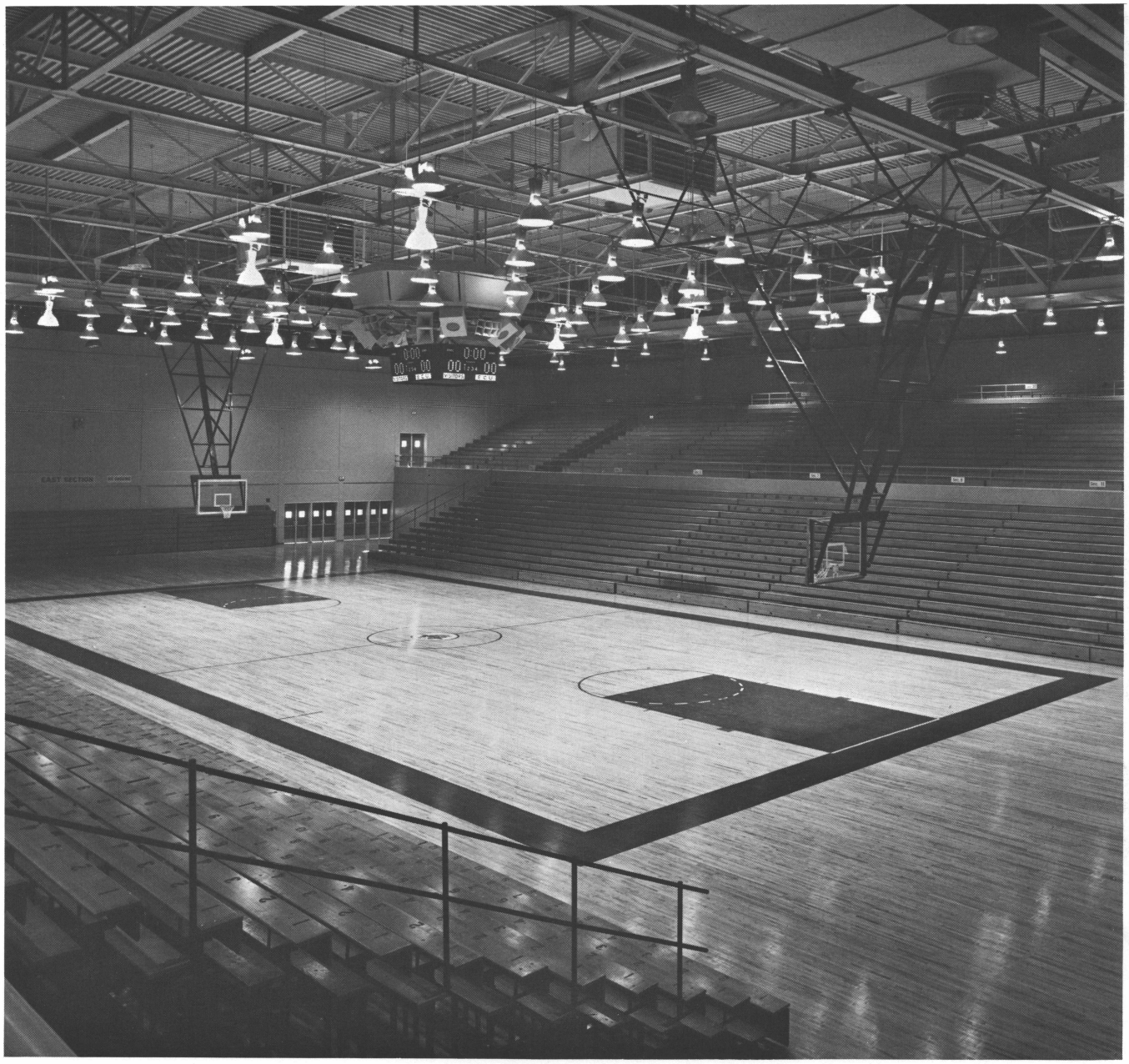
General Contractors:
Dickerson, Inc.

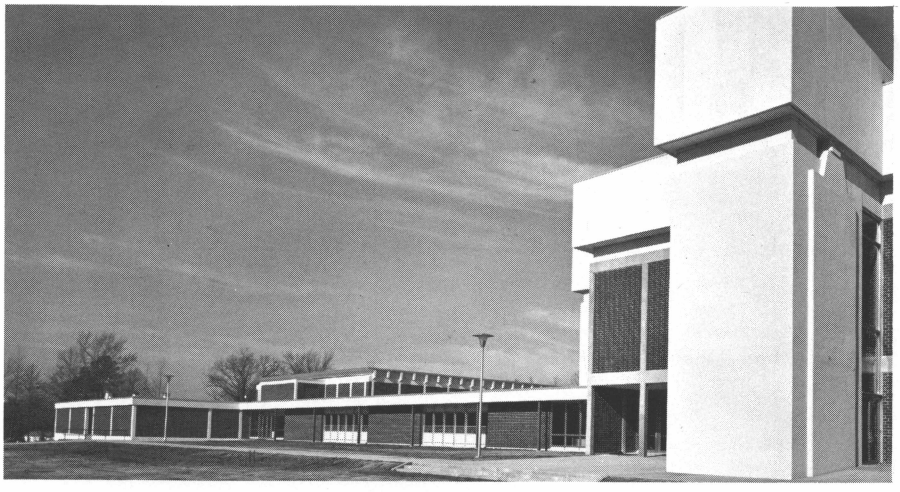
Fabricator:
Peden Steel Co.

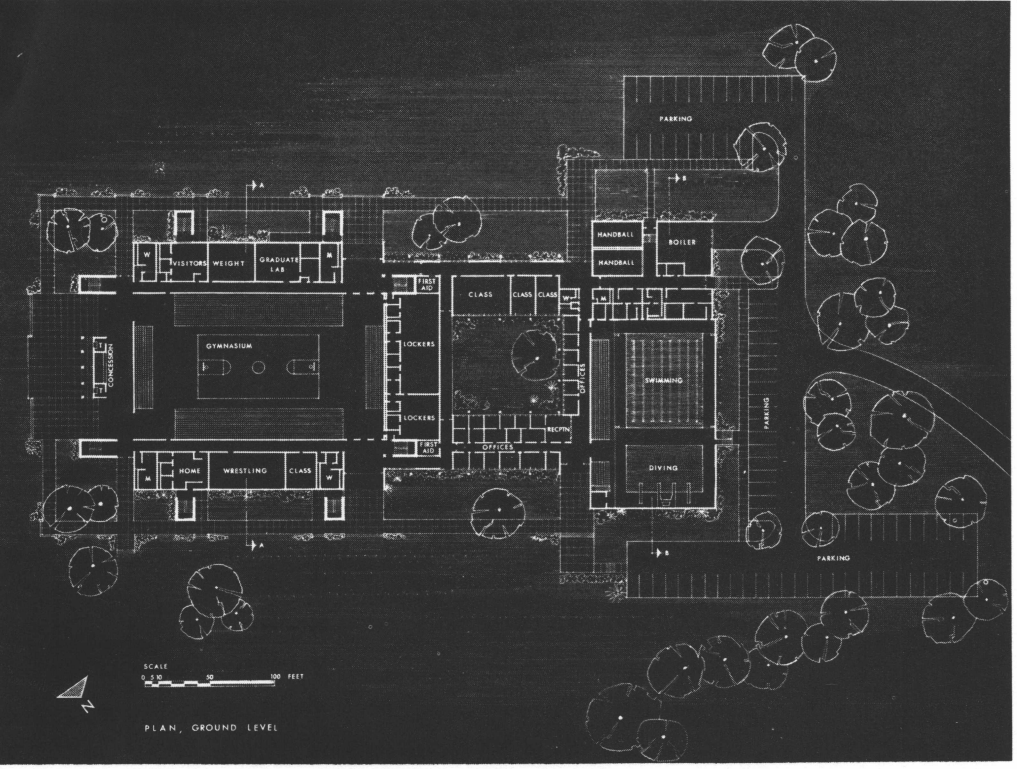
Awards:

American Institute of Steel Construction
Architectural Award of Excellence 1968

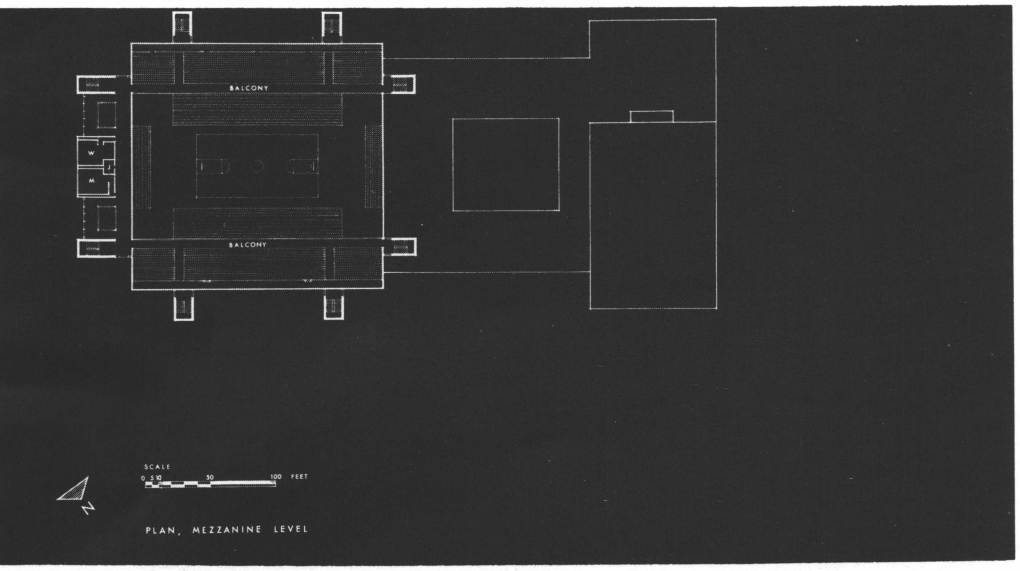
The James F. Lincoln Arc Welding
Foundation Design Award



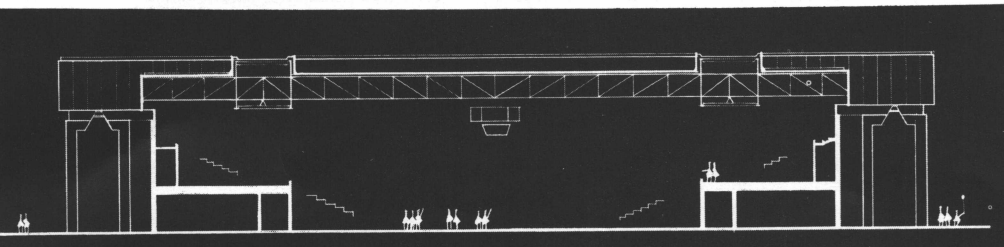




PLAN, GROUND LEVEL



PLAN, MEZZANINE LEVEL



SECTION AA

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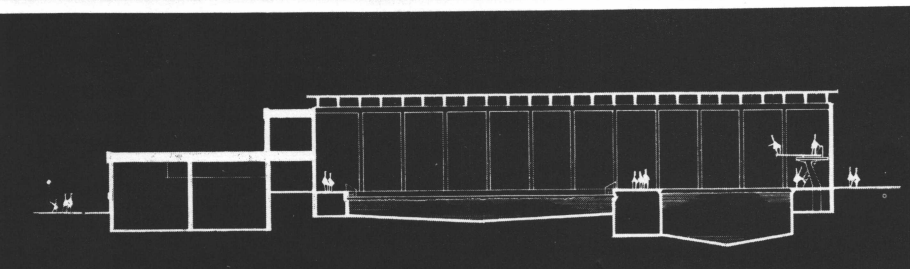

SECTION BB

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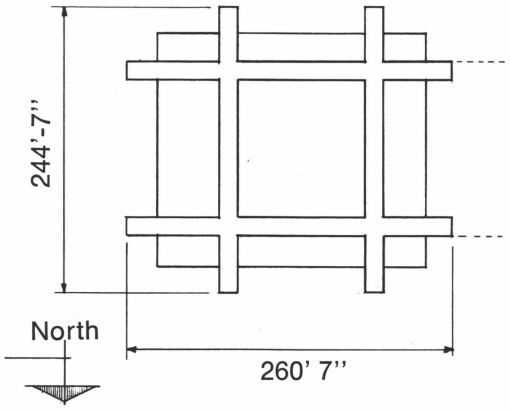
MINGES COLISEUM

by Gene W. Jones, AIA

The Minges Coliseum of East Carolina University, Greenville, North Carolina, is a three-unit complex consisting of a Gymnasium and Natatorium connected by an Administrative Office section. The Administrative Office (steel frame and joist) and the Natatorium (steel frame and precast concrete tees) are not included in this presentation.

The structure is primarily a steel truss frame on pile foundations. The Gymnasium is framed with four double rows of trusses spanning at right angles to each other. The double trusses in turn are supported by eight stair towers at the terminal ends of each of the four trusses. The double trusses (acting "two-way") form a "tic-tac-toe" arrangement in plan. The spaces between are spanned by smaller "two-way" trusses. See Figure (1) below.



"Tic-Tac-Toe" Double Truss Arrangement
Figure (1)

The Gymnasium, as the name implies, was designed for athletic events. The building is also intended for civic and theatrical events. Therefore, it was a design criteria that there be a minimum clear height over the playing floor of thirty-five feet. Because of this height requirement and the clear-spans of over two hundred feet, it was decided as basic to the design to **field assemble the roof truss system on the ground and to lift the structure into place.** It is this feature of the Coliseum that is presented here for consideration.

As the preliminary drawings developed it became apparent that the roof system could be field assembled on the ground and subsequently lifted into place. This would eliminate the building of more than an acre of falsework. More important, the mechanical, plumbing and electrical contractors were advised that they would be able to work on the ground rather than thirty-five feet above grade. It should be pointed out that the contract drawings proposed a lifting format. The details of the format are not as important as the fact that this format made it common knowledge to all contracting parties that the field assembly and lift was basic. The validity of the lift idea was proved by the fact that the competitive bids indicated a savings of approximately $70,000 in a total construction cost of a little over two million dollars.

To fully appreciate the "lift" it is necessary to describe the design development of the roof structure in some detail. First of all, the site consists of a sandy silt that extends uniformly to a marl approximately forty-five feet below. The water table in general is about twenty feet below the existing grade. The site, therefore, dictated a pile foundation. Because of the long spans and concentration of heavy loads, the foundations dictated a roof structure that could tolerate some anticipated differential settlement.

The truss supports evolved into cast in place concrete towers. It was logical to develop the eight towers into stairs for vertical movement of students and spectators. It was then logical to establish the previously shown "tic-tac-toe" framing geometry. (Figure 1.)

In general the "tic-tac-toe" trusses are double trusses forming a box. These box trusses form a "two-way" system. The box is 13 feet high by 13'-6" wide. Spans as shown in Figures (2) and (3) below are 224'-5" center of sup-

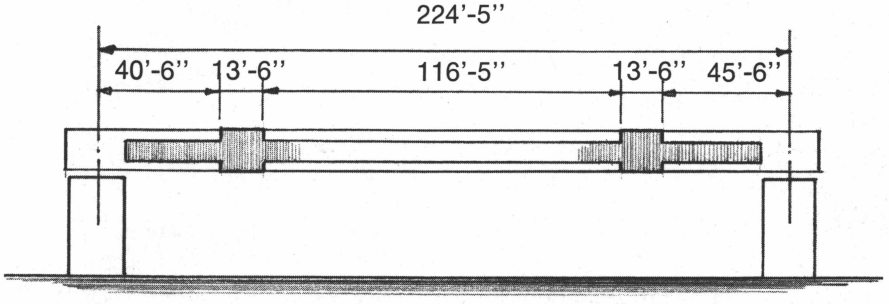


Figure (2) North/South Section Through the Building

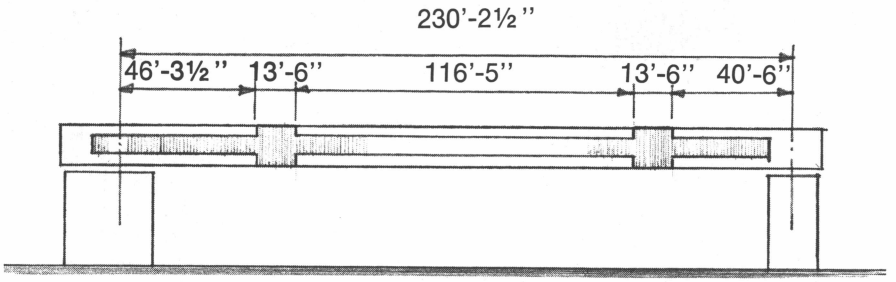


Figure (3) East/West Section Through the Building

port to center of support in a north-south direction. The overall length of the north-south box trusses are 244'-7" long. The trusses spanning in an east-west direction form the same size box; however, these trusses span 230'-2½" from center of support to center of support. Their overall length is 260'-7".

It should be pointed out that after these basic dimensions were established it was undesirable to deviate from these dimensional commitments. Therefore, to keep the basic height of the box trusses constant it was necessary to use more efficient (higher strength) steels at the higher stressed portions of the truss cords. A36 steel was used at the end spans. These were butt welded to V45 steel and the V45 steel was butt welded to V50 steel for the center portion of the truss.

The major portion of this discussion concerns the assembly and erection of the major truss system. However, it should be mentioned that the structure spanning between the "tic-tac-toe" trusses is also a two-way system. These trusses span between the box sections, through them and cantilever beyond. These trusses are six feet deep and form the general roof area—**approximately an acre in size.**

All trusses were shop welded, some in pieces up to one hundred eighty feet long, and shipped by rail to the building site. After positioning, the box trusses were field welded together. The six foot deep intermediate trusses also act two way and were also field welded.

It should be noted that there was very nominal correction required for field welding. This was due to careful supervision by the steel fabricator.

Field and shop fabrication played a unique roll in the final assembly and lift of the roof. The design was based on the assumption that the completed truss would form a smooth arc. (See Figure 4.)

Figure (4) shows the camber as required by analysis to provide for dead load deflections and for proper roof drainage. Figure (5) shows the same allowances for dead and live load deflections, as the trusses were actually fabricated.

Note in Figure (5) that the truss ends are straight rather than curved. Also note the flat at the truss intersections. Had the smooth curve been insisted upon as in Figure (4), each truss of the box would have been a different size (depth). The deviation from the curve on the truss ends was recognized in the shop drawings and approved at that time. However, the magnitude of the geometry as shown in Figure (5) was not appreciated until the trusses were actually field welded into the total assembly. The "flat" induced secondary stresses which caused the truss to act improperly on the initial lift.

The lift of the completed truss system was preceded by a trial lift to be accomplished by conventional hydraulic jacks. This trial lift had two purposes: (1) To check the behavior of the truss system under dead load and (2) To put the truss in its "dead load" position so that the stone fascia could be applied on the ground without racking and the ensuing chipping and cracking of the stone. Because the stone erection would have taken several

(Continued on page 16)

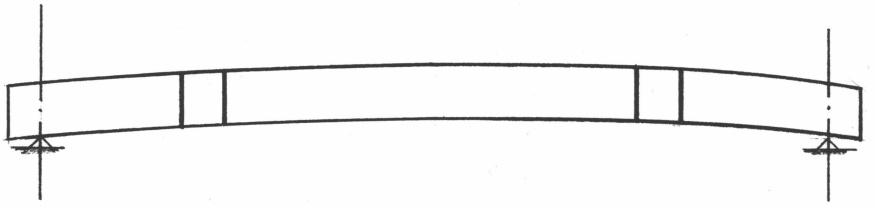


Figure (4)

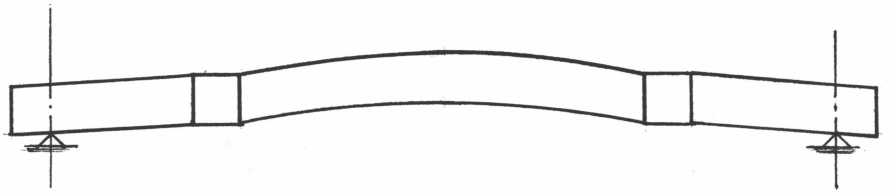
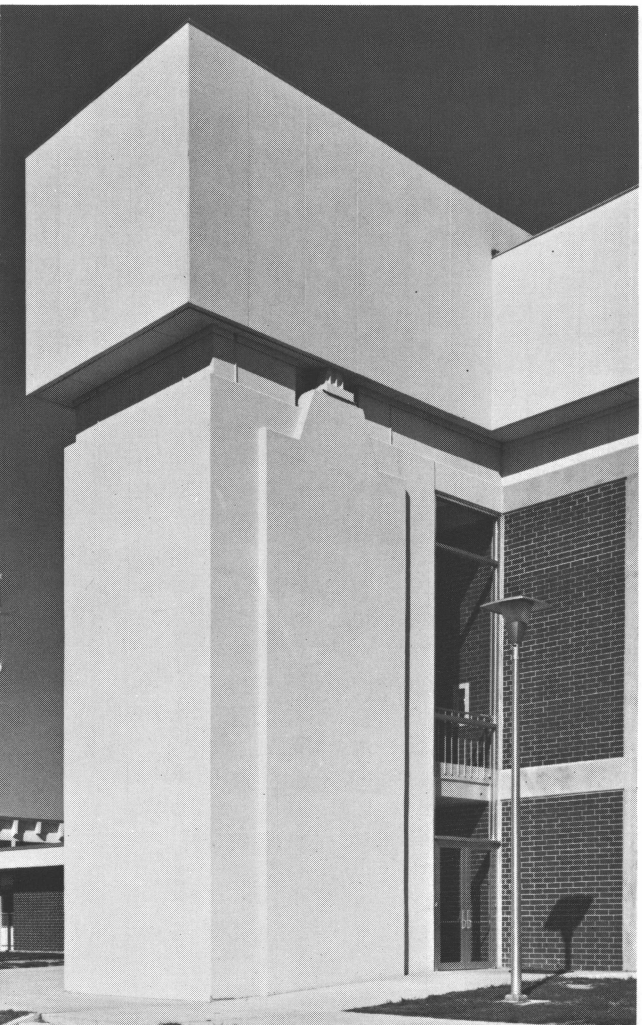
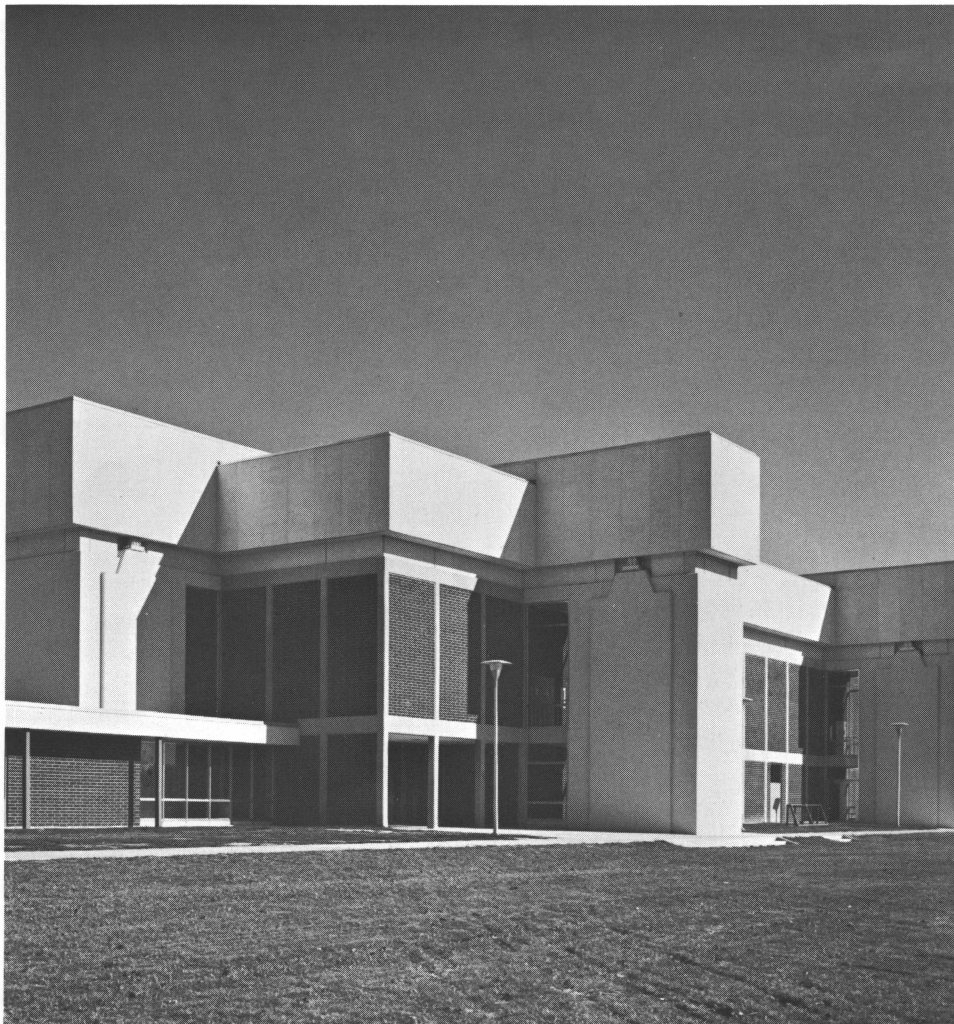


Figure (5)





MODEL CITY PROGRAM: WHAT IS IT?

Model cities "may turn out to be the most important single program in urban history," says HUD Secretary Robert C. Weaver. But many others complain they can't even figure out what it really is.

HUD has spelled out many times what it thinks model cities is in terms of its goals, methods and operating standards. Its aim is to "rebuild entire slum neighborhoods by concentrating on both human and physical needs," Weaver says. Its method is not to tell localities what to do, but to get them to understand their own problems, and work towards solving them within HUD guidelines. These require that the city involve ghetto, labor, city, business and community leaders, employ ghetto workers and use existing funding and planning programs in new and creative ways. Its standards are high because competition is high and the need is great: The city that gets money gets it because it proves to HUD it can and will comply.

The theory behind the program, says Weaver, is that brick-and-mortar urban renewal has demonstrated it cannot solve ghetto problems. The President, in this year's special message on the cities, said the new program would help cities to "develop and carry out a total strategy to meet the human and physical problems left in the rubble of a neighborhood's decay."

This means that only part of the millions that will pour out of Washington into the model cities will be used for the traditional renewal project.

The mayor is the man in charge, but he must act through a separate agency with its own full-time director. And the poor people must have a say in any planning city hall does for them.

To many, this sounds like another bureaucratic screen inserted in the already clogged channel between city hall and Secretary Weaver. And it is. Nevertheless some 250 cities, large and small, have fought to get a relatively small planning grant that—once in hand—entitles them to go hunting for a chunk of the $1.2 billion that Congress authorized for a three-year program back in 1966.

There were 75 cities chosen in the first stage of competition—HUD announced 63 last November, 12 more in March. About 80 of the losers are among the 163 cities competing for second-round selection. About 75 will get planning grants.

● **Money and politics talk**—The lure for city hall is money. Renewal costs money and the hard pressed cities can't do it themselves, so they work hard to get some share of the limited federal funds available. Model cities get a bigger helping of federal aid—maybe.

Model cities legislation authorized HUD to pay 80% of the planning and administrative cost of approved programs. When the grant money is passed out for construction and other programs, the federal government, besides taking on its usual share, will take on 80% of the city's share of the costs. That is, if a model cities grant were to total $29,750,000, the local share would be $10 million or 33% of the total. But with model cities aid, its share would be only $2 million or 6.6%—a tremendous saving. Instead of getting $2 for every $1 of local money, model cities get $14 from the federal government for every $1 of their own.

These percentages vary considerably, depending on the mix of programs making up a model city program. But besides money, the prize is a political plum for a mayor who wins Administration approval and the congressman who represents that city.

The actual planning funds HUD passes out are modest. Many HUD watchers point out that model city funding is almost a magic act, now you see it, now you don't. First-round winners got $10,250,000 in bundles ranging from $50,000 for small cities to $239,000. Second-round winners will cut up $12 million in similar slices.

The mayor of a model city can be fairly certain his final plans will be approved and that he'll eventually get his share, once Congress appropriates it. For one thing, HUD has assigned regional officials to work with mayors to be sure they shape their plans to win Washington approval.

The cry of pork barrel is common, however, and first-round cities did little to soften it. The smallest town, Smithville, Tenn., is the home of Rep. Joe L. Evins, Democratic chairman of the appropriations committee that funds HUD. Another included Texarkana, Tex., home of Rep. Wright Patman, a Democrat who heads the House Banking and Currency Committee, which authorized the program. Pikeville, Ky., is also on the list. It is in the district of Carl D. Perkins, Demo-

(Continued on page 16)

NON-ARCHITECTURAL CONTRIBUTORS

The North Carolina Design Foundation has reported that in addition to a contribution from the architectural profession through the North Carolina Architectural Foundation, the following individuals and/or firms also made contributions from 1 September 1967 through 31 August 1968:

Adams Concrete Products Co.
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Durham

Asheboro Concrete Products Co.
Asheboro

Atlantic Glass Co.
Wilmington

Barger Construction Co.
Mooresville

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Boyette-Trotter Floor
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Greensboro

Budd-Piper Roofing Co.
Durham

Builders Supplies Co.
Goldsboro

The Burlington Industries Found.
Greensboro
(Matching Funds for Henry A.
Foscue Contribution)

Cape Fear Construction Co., Inc.
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Carolina Builders Corp.
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Carolinas Roofing & Sheet Metal
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Greensboro

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Charlotte

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Charlotte

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North State Pyrophyllite Co., Inc.
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Peden Steel Co.
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Piedmont Construction Co.
Winston-Salem

Pritchard Paint & Glass Co.
Charlotte

The Producers' Council, Inc.
Charlotte

Salisbury Lumber & Supply Co.
Salisbury

Alan H. Shaw Co.
Asheville

Snow Lumber Co.
High Point

Southern Photo Print
& Supply Co.
Greensboro

Spartan Equipment Co.
Charlotte

Standard Mineral Co., Inc.
Robbins

Statesville Concrete Products,
Inc.
Statesville

R. K. Stewart & Son
High Point

Superior Tile, Marble
& Terrazzo Corp.
Charlotte

Nello L. Teer Co.
Durham

Trout & Riggs Construction Co.
Durham

(Continued on page 17)

MINGES COLISEUM

(Continued from page 12)

weeks, the contractor did not make the initial lift with the planned equipment. The rent for the down time on this equipment and personnel was prohibitive.

Some modifications were made at the lift points of the truss ends although these modifications were nominal but time consuming. The time involved to make the modifications and the coordination required between the several contractors delayed the lift about one month. During this time, however, the metal roof deck was applied to the roof. The stone fascia was not applied after the initial lift because the stone fabricator elected to come on the job when the lift was completed. This material could have been lifted without taxing the lifting equipment.

The lift proper was anticlimatic. Lift slab jacking equipment was used to raise the roof. Two jacks were used at each end of the eight trusses. The total of thirty-two jacks were operated by two consoles on the roof controlling sixteen jacks each. So carefully was movement of the huge structure controlled that at no time during the lift was there more than a quarter inch difference in elevation between any two points in the assembly. Two and a half days were required to raise the approximately four hundred fifty ton steel framework to a height of thirty-five feet above grade. This included one day for positioning the jacks.

The steelwork was lifted to an elevation three quarters of an inch above its final position. Permanent welded steel framework bents, previously assembled, were tilted into place on either side of the jacking towers and secured with anchor bolts and horizontal bracing. This operation required an additional day and a half.

With the permanent steel supporting framework in place, the roof was lowered three quarters of an inch into final position atop the supports, and jacking towers were disassembled and removed. As an aside, the structure was field assembled in August and September. The top chord at midday was quite hot whereas the bottom chord, shaded by the roof deck, was cool. To offset the temperature differential it was decided to lower the truss onto the elastomeric bearing pads at daybreak of the morning following the lift. The general contractor then began construction of floors, walls, etc., protected from the weather by an acre of roof.

MODEL CITY

(Continued from page 14)

cratic chairman of the House Education and Labor Committee, which handles antipoverty bills.

● **HUD explains** — Cities — conspicuously Cincinnati and Los Angeles—lost because HUD said they did not show sufficient awareness of their problems or how they could solve them. One rejected city, for example, proposed leveling its slums and building an industrial park in its place—with no regard for the people that the park would displace.

But then, people ask, how many slums does a town with a 6,000 population have? One city assigned to the In-city program had so little slum housing, it was proposed that model city funds be used to hire lawyers to clear title to land and eventually help residents get FHA mortgages.

Congress is opening the money faucet, though not as widely as the Administration hoped. It authorized $400 million for fiscal 1968, ending June 30, plus $100 million for the so-called urban addon. This is specifically marked for urban renewal.

For fiscal 1969, the Administration asked Congress for another $1 billion—half for supplemental grants, half for urban renewal. On May 8, the House did provide $500 million of the $650 million already authorized under existing law. The Senate, toward the end of May, authorized $1 billion for the model cities program in fiscal 1970 as part of the omnibus housing bill.

The first grants to finance model cities programs are expected to be made late this year.

● **Controversy continues** — But questions still persist despite the money action. Model cities money goes directly to planning, but cities wanting to build a project must find the money in the agencies that already exist to handle the specific plan. For example, a city deciding it needs a hospital, would go to the Department of Health, Education and Welfare.

Also, HUD is now, more than ever, emphasizing action. Weaver summed up the new attitude in a speech he made in Buffalo last week: "There is no longer much question that we as a nation are committed to move ahead on our urban problems. But the question is still unanswered whether or not the cities themselves can put together the people they need, and find the ways to make them work together. Potentially conflicting interests are going to have to learn to work together—it is the law."

INCIDENTALLY . . .

North Carolina Architect was judged one of the five finalists in competition at the Octagon, on November 12. The jury felt that it showed considerable imagination in selection of editorial material and the simplicity and consistency of the graphics. . . . Daniel G. Winklosky, AIA, established practice as an architect and city planner. His office is at 215 South Elm Street, High Point, N. C. . . . Following have been named to AIA National Committees: F. Carter Williams, FAIA, of Raleigh as the Chairman of the National Judicial Board, James C. Hemphill, Jr., FAIA, of Charlotte as a Contributing Member of the Document Review Committee, and Paul C. Hardy, AIA, of Charlotte as a Member of the Administrative Office Practice.

CONTRIBUTORS

(Continued from page 15)

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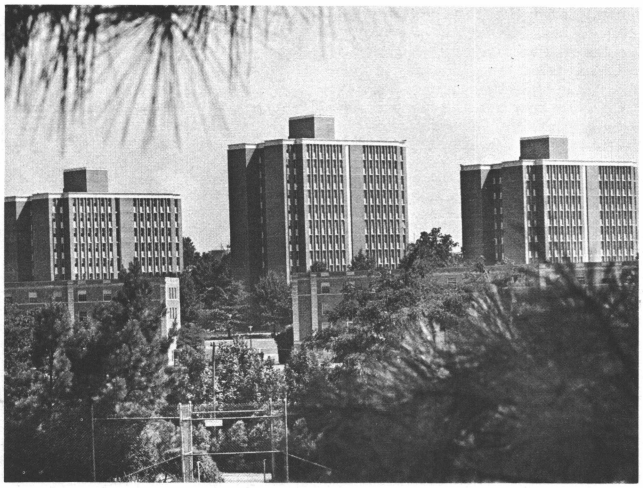


HIGH RISE DORMITORY COMPLEX COMPLETED

A complex of three high rise dormitories to house more than 1,100 students recently has been completed at N. C. State University in Raleigh. Jesse M. Page & Associates were architects, Ezra Meir & Associates, structural engineers, and T. C. Cook, P.E., the plumbing, heating and electrical engineer, all of Raleigh. General contractor, T. A. Loving Co. of Goldsboro, approximately $2,700,000. Project superintendent was T. C. Bland of Harrell's, N. C.

The three buildings are of different heights. Bowen, men's dormitory is nine stories, Carroll, women's dormitory is ten, with Metcalf, men's dormitory located between them with twelve stories. The buildings are reinforced concrete, pan slab construction, with exteriors of red face brick with precast stone window panels and coating. Concrete block backs up the six-inch partition walls. Construction began about two years ago.

EASTERN SECTION NCAIA ELECTS OFFICERS

William J. Boney, AIA, of Wilmington was elected President of the Eastern Section of the North Carolina Chapter of the American Institute of Architects at a meeting Friday night in New Bern.

Other officers elected are William L. Laslett, AIA, of Fayetteville, Vice-President; William H. Dove, AIA, of Rocky Mount, Secretary-Treasurer; and Charles E. Woodall, AIA, of Greenville, Director.

PRESIDENTIAL REVIEWING STAND COMPETITION WINNER

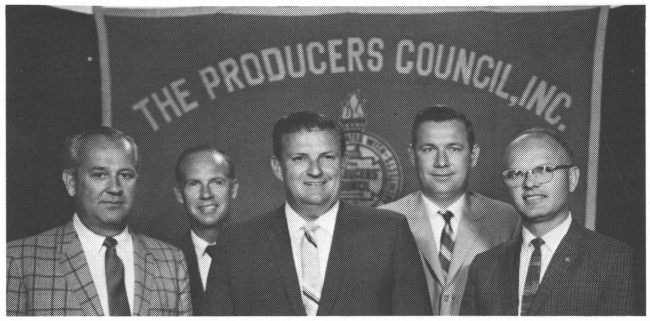
William C. Suit, AIA, Washington, D.C., with John A. White, Falls Church, Va., and Ronald L. Johnson, Alexandria, Va., submitted the winning design for the Presidential Reviewing Stand for the 1969 Inaugural Parade in the competition sponsored by the Washington-Metropolitan Chapter, AIA. Also, a Certificate of Merit will be awarded to Arthur E. Hald, Jr., AIA, with R. Bruce Burgess, designer, both of Richmond, Va. The jury selected the winner from 38 entries. Mr. Suite will receive an award of $1,000. The stand will be constructed on the south side of Pennsylvania Avenue on the principal axis of the White House.

WAKE COUNTY HISTORY ANNOUNCED

Mrs. James W. Reid of Raleigh has been selected to write the bicentennial history of Wake County, Wake County Historical Society president T. W. Mitchell has announced.

Since there is no up-to-date history of Wake County, the Wake County Historical Society has long planned to publish such a volume during the bicentennial year. As now projected, the history will cover the period from the earliest days until about 1940. Publication is expected during 1971.

Preparation of the Wake County history will be supervised for the Wake County Historical Society by an advisory committee consisting of Harry Gatton, chairman; Dr. Christopher Crittenden, vice-chairman; Miss Clyde Smith, Mrs. Memory F. Mitchell, Dr. Harold J. Dudley, Sam Ragan, Charles A. Poe, Richard Walser, Charles R. Holloman, and W. Hal Trentman of Raleigh; Miss Catherine Paschal, Wake Forest; Miss Ruth Johnson, Fuquay-Varina; and J. Bourke Bilisoly, Wendell.



PRODUCERS COUNCIL INSTALLS OFFICERS

Left to Right: W. R. Mills, 1st V-President; W. S. Buchanan, Secretary; James F. Traylor, President; James A. Davis, Treasurer; Bruce Laing, 2nd V-President.

Charles Goldstein & Sons, Miami, Florida, Owner and General Contractor; **Harvey J. Ehrlich,** Miami, Florida, Architect; **Bliss & Nyitray,** Miami Beach, Florida, Engineer; **Lehigh Portland Cement Co.,** Miami, Florida, Masonry Units and Ready Mix Supplier

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CALENDAR OF EVENTS

Jan. 1: Charlotte Section, NCAIA, Charlottetown Mall Community Hall, 12:30 P.M., Sherman Pardue, AIA, President.

Jan. 2: Raleigh Council of Architects, YMCA, 12:15 P.M., Horace Taylor, AIA, President.

Jan. 21: Winston-Salem Council of Architects, Twin City Club, 12:15 P.M., L. Ray Troxell, AIA, President.

Jan. 27-28: 1969 Critical Path Method Seminar, Sheraton Motor Inn, Interstate 40 at the Knollwood exit, Winston-Salem.

Jan. 29-30: Critical Path Method Seminar, Sheraton-Sir Walter Hotel, Raleigh, N. C.

Feb. 6-8: Annual Winter Convention, N. C. Chapter AIA, Carolina Hotel, Pinehurst, N. C.

Feb. 18-19: Critical Path Method Seminar, Battery Park Hotel, Asheville.

Feb. 20: N. C. Association of Professions Annual Meeting, 3:00 P.M., Velvet Cloak Inn, Raleigh.

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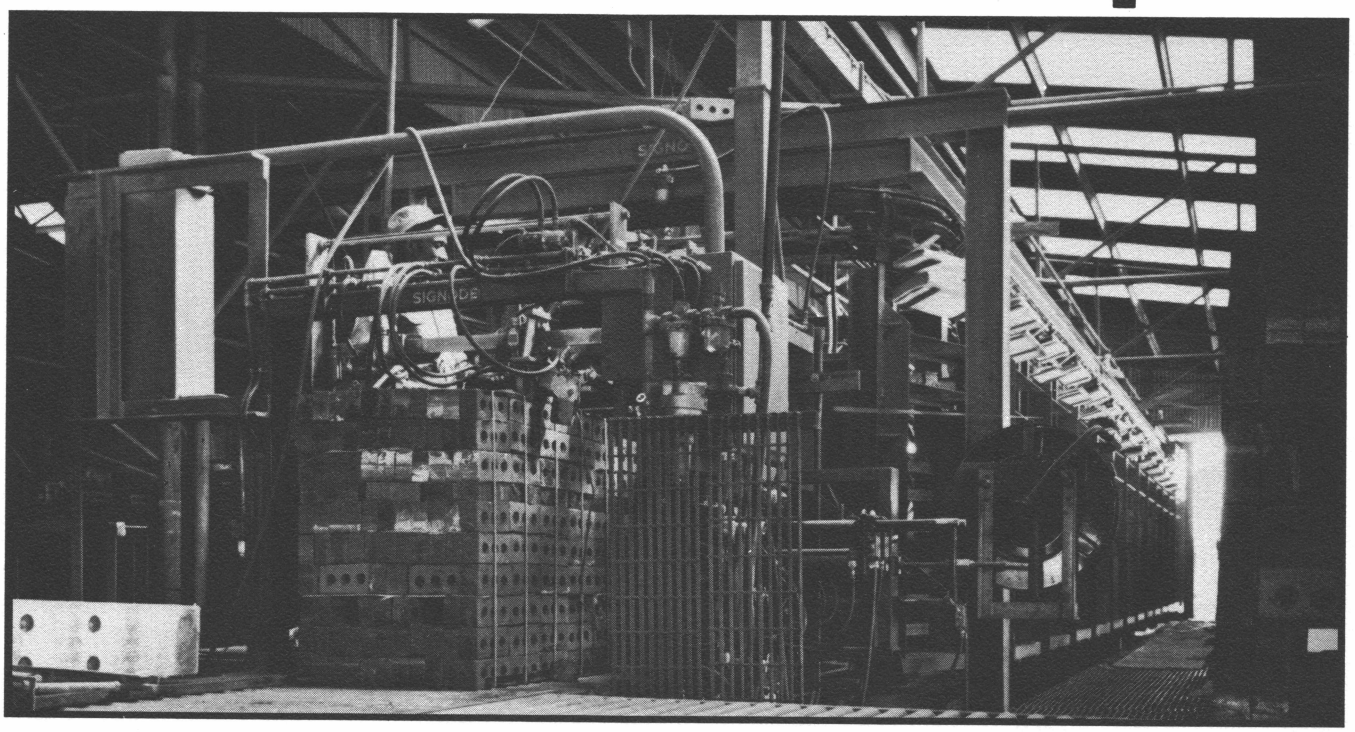

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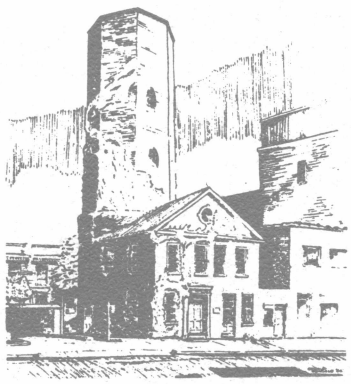

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