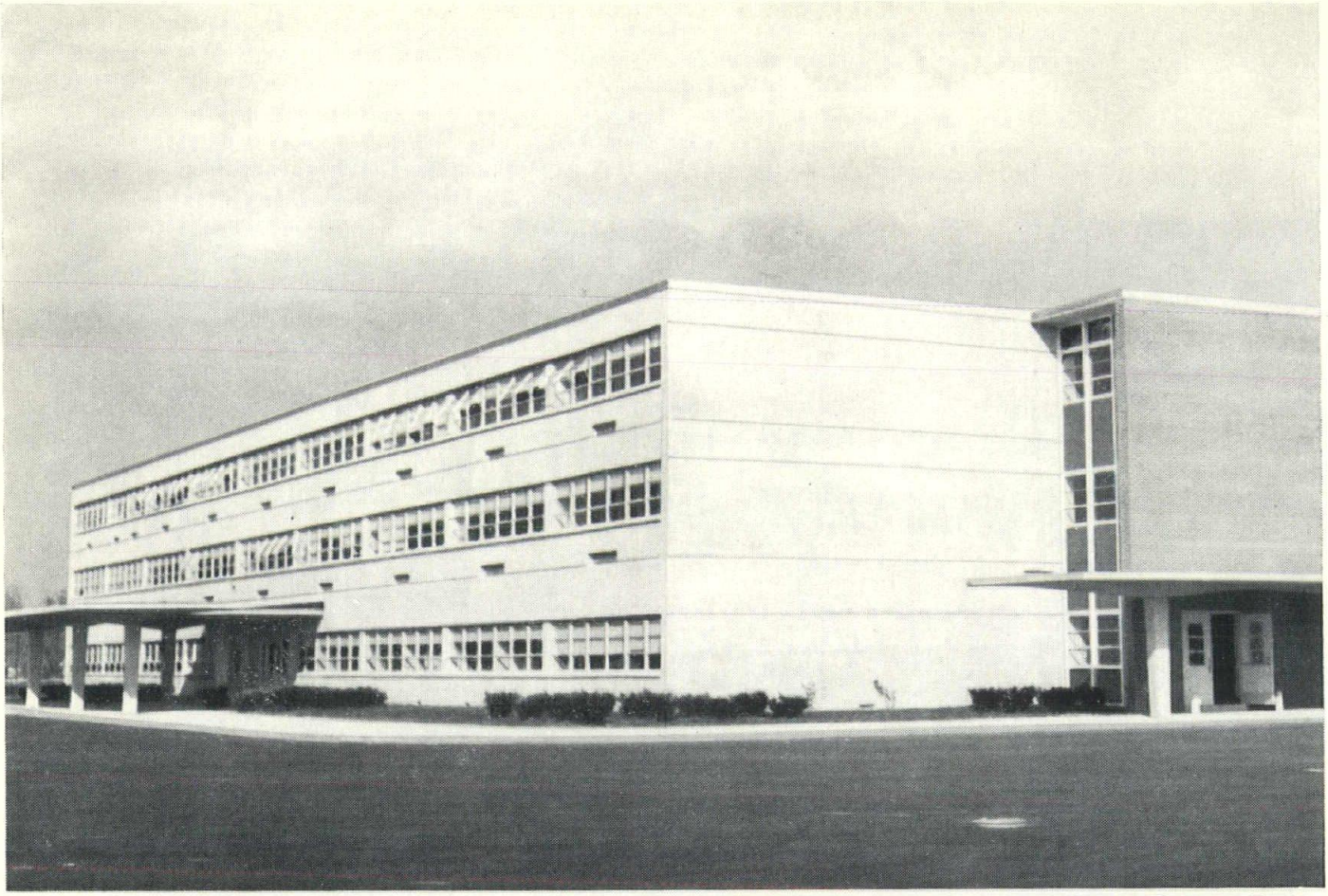
APRIL, 1963

ka

The Kentucky Architect

NEW MEN'S DORMITORY – MOREHEAD STATE COLLEGE



Western High School, Jefferson County, Kentucky. Architects: Hartstern, Louis and Henry, Louisville. General Contractor: Wehr Constructors, Inc., Louisville.

Fire safety comes first—economy's a bonus in these low-cost concrete schools

Fire protection is a vital consideration when building a school. This is one reason architects Hartstern, Louis and Henry have chosen concrete construction for Jefferson County, Kentucky, schools.

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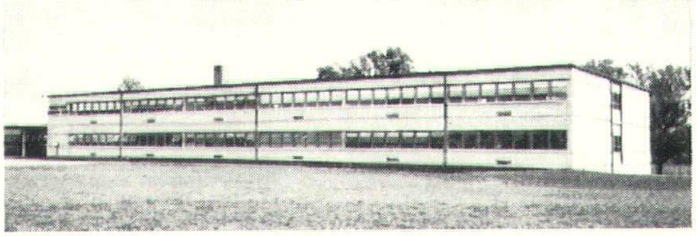
*Western High School: cost per sq. ft., $11.25; cost per pupil, $925.00. Bashford Manor Elementary School: cost per sq. ft., $10.68; cost per pupil, $498.00. These costs are for construction only; they do not include site improvements nor furniture. However, costs for Western High School include air-conditioning.



Bashford Manor Elementary School, Jefferson County, Kentucky. Architects: Hartstern, Louis and Henry, Louisville. General Contractor: Wehr Constructors, Inc., Louisville. Fire-resistant features of concrete allowed the architect to deviate from the conventional one-story design in elementary schools, thereby saving taxpayers' money.

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MODERN
concrete

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A national organization to improve and extend the uses of concrete

The Kentucky Architect

is the monthly official magazine of the East Kentucky Chapter, Inc., and the West Kentucky Chapter, Inc., of the American Institute of Architects, Inc. Opinions expressed herein are not necessarily those of the Chapters or the Institute.

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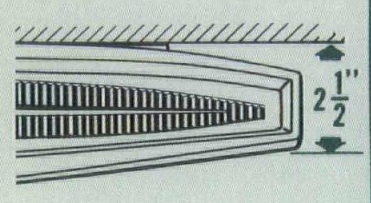
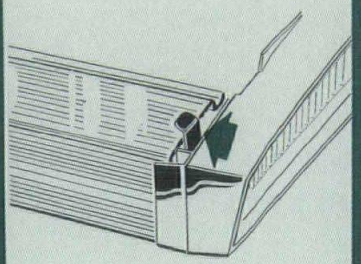
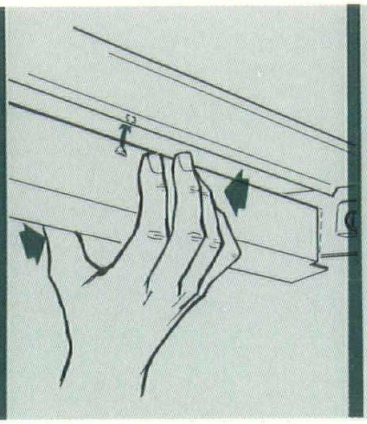


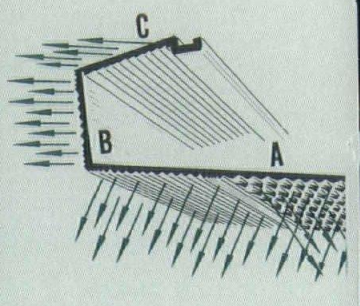
Note the clean lines and simple design, in tough, injection molded plastic. Only 2½" apparent depth.



A simple finger-touch latch release allows diffuser to swing down from either side.

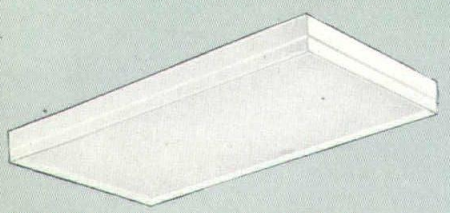


New snap-in wiring channel cover allows fixture installation and wiring to be completed in a matter of minutes.



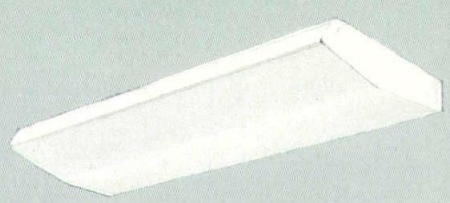
Note how L-120 lens **(A)** diffuses light while linear refractors **(B)** direct light out of glare zone and **(C)** bend light across ceiling, eliminating "hot spots."

Here's the new line of Benjamin lighting classics for 1962



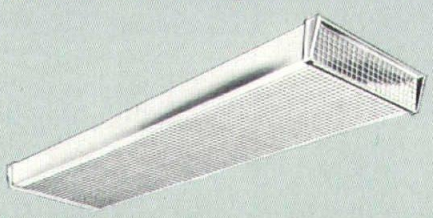
CLIPPER — Classic New Modular

CUTLASS — New "Light-Frame" Troffers



CARAVEL — Dual-Lens Wrap-Around

CORONADO — With 3-in-1 Diffuser



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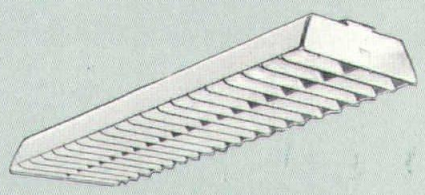

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After this article was written the A.I.A. published its PRECAST ARCHITECTURAL CONCRETE SPECIFICATION WORKSHOP, A.I.A. Document #K206, December 1962 Edition, to which this author contributed a number of comments and recommendations.

Assuring the Future of

PRECAST EXPOSED AGGREGATE CONCRETE

PART 1 OF A 2 PART SERIES

BY LOUIS J. BURNS, JR.
Assistant to the President, Indiana Limestone Company, Inc. Producer of Gemset Architectural Concrete.

NO ONE knows exactly how much precast exposed aggregate concrete is now being used in the United States.

It is clear, however, that the material is experiencing a tidal wave of popularity. Since 1958 national production capacity has increased at least seven-fold, and it still lags behind demand!

The probable reasons for such enthusiastic architectural acceptance have been widely discussed. Form plasticity, color and texture variety, all rigidly controlled in the fabrication of a durable material having remarkable structural characteristics, combine to produce a design freedom which virtually defies total or ultimate exploitation. Here is a material which can be truly distinctive.

Lest this judgment seem fatuously sweeping consider the vast difference between I. M. Pei's Denver Hilton Hotel and Minoru Yamasaki's Science Pavillion at the Seattle Fair, or Emery Roth's Pan-Am Building in New York, or Vincent J. Kling's American Baptist Convention Offices at Valley Forge.

In Kentucky one can compare: Hartstern, Louis and Henry's Louisville Presbyterian Theological Seminary; Frankel, Curtis and Coleman's Spindletop Administration Building in Lexington; Brock and Johnson's Men's Dormitories No. 2 and No. 3 at Eastern Kentucky State College in Richmond; McCullough and Bickel's Southern Motor Freight Office in Louisville; and W. S. Arrasmith's Highway Department District Office Building in Louisville. Only in the narrowest technical sense could the precast units on these buildings be said to be alike.

CAUSES FOR CONCERN

In spite of this "success story," the future of this material is far from assured.

The problem arises, as this writer sees it, from the combined effect of an industry's growing pains and the seemingly unbridled character of much architectural enthusiasm for its product.

That growing pains should exist at all in the exposed aggregate concrete industry is ironical. Many decades have passed since men like John J. Earley in Virginia, Perry Wells in Iowa, and Otto Buehner in Utah produced this material for buildings which today pay high tribute to their craftsmanship and the material's durability.

As recently as 1957, however, there were still fewer than thirty established producers in this country. Today there may be as many as three hundred bidding for this kind of work, and several of these have capacities approximating the entire industry's only ten years ago.

This recent explosive growth has produced a variegated industry. It primarily consists of highly independent, relatively small businesses which vary considerably in capacity and capability. For this reason, and because it lacks a well-developed technology, the industry cannot act and react the way other well-established producers of architectural building materials customarily have.

For example, from 1905 to the present there has been no true industry-wide agreement or association on any aspect of material's fabrication and use. The Mo-Sai Institute, set up originally by two producers in the East, came closest to achieving this and thereby rendered a valuable service. However, there have always been important producers outside the Institute; and there have been important opinion differences both within and outside its membership.

As late as 1960, when this writer first entered the field, there were no industry-wide and industry-accepted specifications that came even close to giving an architect as much control over this material as he had over concrete pavements and footings. The closest to it was a cast stone specification prepared many years ago by a committee of the American Concrete Institute; but, according to one of this document's authors, this specification is all but irrelevant to today's use of the material.

*Both the A.I.A. and the A.C.I. are now preparing specification drafts which will help fill this need. Nonetheless, precast exposed aggregate concrete remains almost unique among major building materials in that no comprehensive, authoritative reference covering its technology exists.

It is up to each producer to determine his own standards, and to decide whether or not they are acceptable. Too often, in the past, both have been guided by faith and hope rather than a serious examination of technical requirements.

One predictable result in this situation, because it eventually makes price the sole basis for contract awards, is to reduce the number of producers who can afford to set high standards for their work, and upon whose competence and capacity important future projects must depend. It also increases the number of architects whose enthusiasm for the material is dampened by disappointing jobs. This pattern has been experienced by

(Continued on page 10)

CHAPTER REPORTS

WEST KENTUCKY CHAPTER

The West Kentucky Chapter, A.I.A., held its last meeting on March 28. The program, sponsored by the Kentucky Society for Crippled Children, was on the subject of "Architectural Barriers and the Handicapped". Thomas A. Stein, Ph.D., director of the project for the national society, was speaker.

A concerted effort will be made this year by the chapter to effect better public relations. One phase of this program is well underway. The chapter has organized a speakers' bureau, which is composed of member architects who are available to speak to organizations on various architectural subjects. They are: W. S. Arrasmith, Keith Ashby, Quintin Biagi, J. D. Farley, Bergman S. Letzer, A. B. McCulloch, A. B. Ryan, Lloyd Schleicher, Arthur G. Tafel, Jr. and William Welch.

Some of the subjects they will present are: "Planning a Place of Worship – Religious Architecture;" "The Birth of the American Skyscraper;" "The New Image of Industry;" "A.I.A., What It Is, What It Does;" "Designing a Family Fall Out Shelter;" "Who Is Your Architect?" "The Trouble With Houses;" "Architecture That Sells;" "Planning Tommorrow's School Buildings;" and "Architecture, U.S.A."

Other subjects, which will be illustrated by movies or slides on architectural education are, "European Architecture;" "Ancient Architecture of Japan;" "U.S. Architecture" and "Frank Lloyd Wright Architecture."

U of K Press Seminar

The Schools of Architecture and Journalism, U. of K. are sponsoring a press seminar and workshop on "Journalism and the Architecture of Cities". This seminar is under the auspices of A.I.A. and is a working conference for representatives of the press from southern Ohio, southern Indiana, West Virginia, Tennessee and Kentucky.

It will be held at the UK Conference Center in Lexington, on April 19 and 20.

The public relations committee of the institute will hold its annual meeting concurrent with the seminar.

Regional Council Meeting

An East-Central Regional Council meeting was held on March 23 at the Concordia Senior College, Ft. Wayne, Ind. A conducted tour of the campus was made by those attending. This campus was designed by Eero Saarinen and Associates.

A nominating committee was appointed to name a new regional director to be elected on June 29.

The proposed regional by-laws were revised and will be voted on at the next meeting. This will be held in Lexington, Ky. on November 19, following the Kentucky Society of Architects convention which begins November 18.

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A.I.A. MEDALS

Medals which will be presented at the A.I.A. national convention May 5-9 in Miami were recently awarded to the following persons:

Isamu Noguchi of Long Island City, New York, was awarded the A.I.A. Fine Arts Medal "for the strength and clarity of his work and his appreciation of architectural form, resulting in a sense of harmony and appropriateness in which his work and the architect's work are each clearly defined but each complements the other to the total enrichment of the project."

He was born in Los Angeles in 1904 and was an apprentice of Onorio Ruotolo, director of the Leonardo da Vinci Art School. Among his special interests are gardens and playgrounds, which he considers within the realm of sculpture.

R. Buckminster Fuller of Carbondale, Illinois, was awarded the A.I.A. Allied Professions Medal "for his untiring life search and achievements in structural systems and because this search has brought forth the 'Fuller Domes' in all their manifold forms and proliferations."

Fuller's domes, based on the geodesic structural system which he developed, have been employed around the world in a wide variety of building types. Today there are over a thousand geodesic domes in use in 21 countries – most of them air delivered – and over a hundred major industrial corporations are

(Continued on page 9)

A.I.A. MEDALS

(Continued from page 8)

licensed to manufacture and erect Fuller's structures.

Paolo Soleri of Paradise Valley, Arizona, was awarded the A.I.A. Craftsmanship Medal "for his excitingly conceived and executed concrete house and workshop constructed with his own hands in the Arizona desert, as well as his other works which demonstrate the remarkable scope and creativity of this young Italian architect.

Soleri is currently developing a plan for an ideal "City on a Mesa," a visionary city of some two million people on 55,000 acres of land about 13½ miles long and six miles wide at its widest point. The awards committee, in nominating Soleri, noted: "In his work is an example of that historic figure, the master builder, bringing to this tradition a fresh, new meaning entirely contemporary and making use of new materials and techniques in the age old tradition of the human hand as the first tool of man."

G. E. Kidder Smith, F.A.I.A. of New York City, was awarded the A.I.A. Architectural Photography Medal. "In addition to being an unusually gifted photographer," the committee noted, "he has brought to architectural photography an understanding of architecture, both historic and modern, that is unique. His technique of small sequential photographs of an architectural subject which he has used so successfully in his many books, has created a new form of exposition of world architecture. The scholarly writing which accompanies these photographs enhances and enriches our understanding of these buildings as well as the land in which they occur."

AGGREGATE CONCRETE

(Continued from page 5)

other materials; it is now beginning to happen to precast exposed aggregate concrete!

RESPONSIBILITY UPON ARCHITECTS

Another result of the present situation is that the burden of getting quality products rests exclusively and squarely upon the shoulders of the architect. They are his specifications and his drawings; as contract documents they comprise the total and exclusive obligation of the producer. He will find little support anywhere else for what he wants, and little defense if he is disappointed.

It is easy to under estimate the significance of this situation because the material and its application appear basically simple. A more realistic appraisal, however, would consider two facts:

1. To fabricate high quality precast exposed aggregate several critical refinements must be made in normal reinforced concrete practices.
2. Not all precast exposed aggregate concrete is made the same, looks the same, or performs the same.

Consideration of these facts, and the absence of substantial references, have led several architectural firms to undertake extensive—and expensive!—research programs before using precast exposed aggregate concrete. Their resulting bidding documents, and specification enforcement procedures, are among our best available technical references.

Though intensive research may be impractical for most firms, there is a way it can beneficially be approximated: The architect can generally inform himself about those properities of the material which affect appearance and durability. He will then be in a position to appraise the technical and cost significance of what he is attempting to do, and to evaluate the advice he receives from other architects or producers.

This recommendation may make little sense in view of the previous statement that no basic technical reference for this material exists. However, it has never been said that no one has ideas in this area, inadequate though their claim to definitiveness might be. It is these ideas, from as many sources as possible, that architects can and should study. They will thereby develop a judgment capacity which can approximate the practical benefits of extensive research.

To give such study a convenient place to begin, a discussion of quality factors follows. This discussion is primarily "one man's opinion;" and the author quickly grants his own technical limitations. It includes points which others will undoubtedly debate or possibly deny; moreover, in the interest of reasonable brevity, it omits much relevant detail. Despite these qualifications, however, it

(Continued on page 16)

EASTERN KENTUCKY STATE COLLEGE

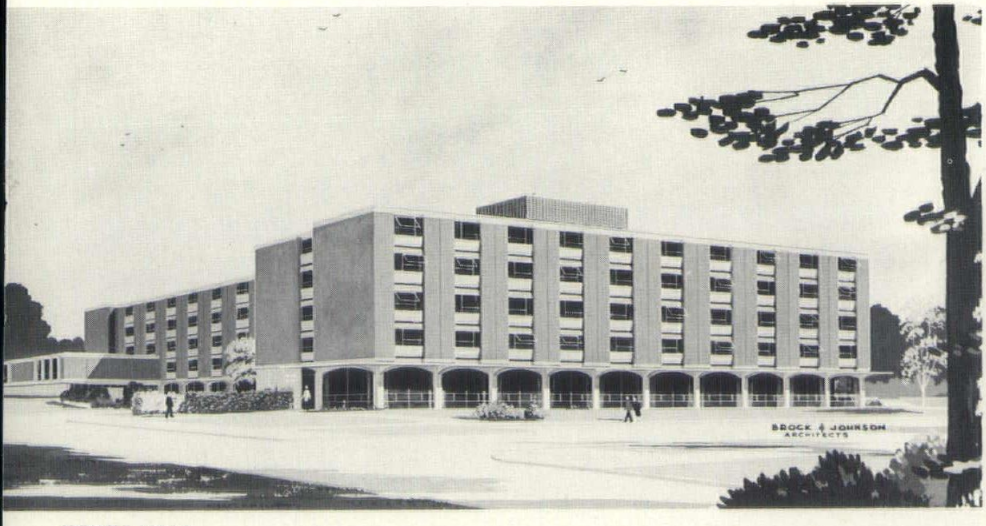
New Men's Dormitories

ARCHITECT: Brock and Johnson, A.I.A.
Lexington, Kentucky

GEN. CONTRACTOR: Hargett Construction Company

Two new men's dormitories are in the early construction stages at Eastern Kentucky State College. These are Dupree Hall and Todd Hall, and will be the tallest dormitories in the state. They are each twelve stories high and will house 720 students, 360 in each tower. Bids were received on February 28, with the low bid of $2,556,878 by Hargett Construction Co. The construction will be a reinforced concrete structural system with masonry walls and with precast concrete panels. All bedrooms will have built-in furniture. Porter J. White is the structural engineer and Staggs and Fisher are the mechanical and electrical engineers.

THE TOWERS



COMBS HALL

Combs Hall, also at Eastern Kentucky State College, is another men's dormitory presently under construction. It will house 238 students. Construction, also by Hargett Construction Co., is a reinforced concrete structural system with masonry walls. Porter J. White is structural engineer and Staggs and Fisher are mechanical and electrical engineers. As in the two dormitories mentioned above, all bedrooms will have built-in furniture. This work will be completed in April at a total construction cost of approximately $1,007,500.

UNIVERSITY OF LOUISVILLE

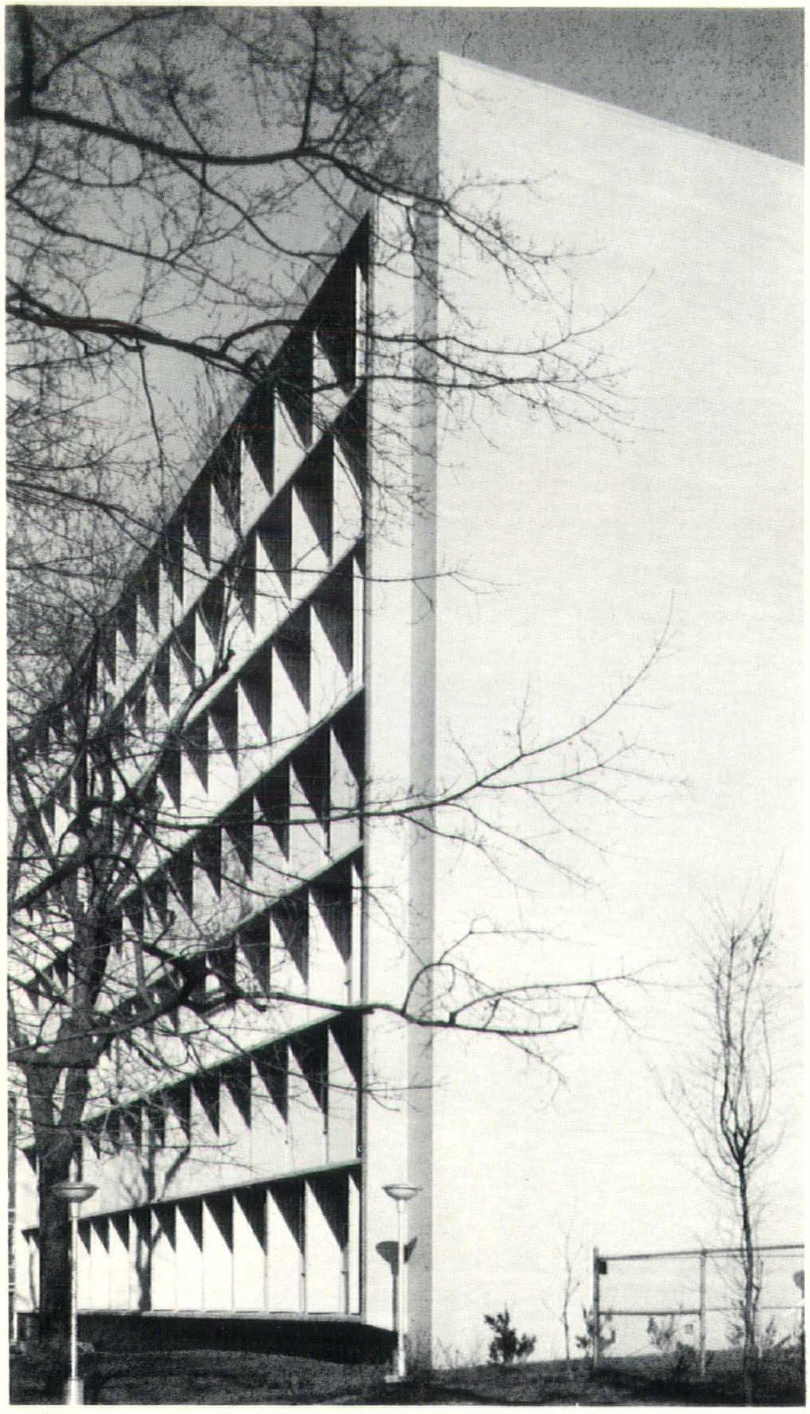
Medical Dental Apartments

ARCHITECT: W. S. Arrasmith, A.I.A.
Louisville, Kentucky

DESIGNER and JOB CAPTAIN: Lloyd G. Schleicher, A.I.A.

MECHANICAL CONSULTANTS: Carr-Roy & Associates

GEN. CONTRACTOR: Sullivan and Cozart



The Medical Dental Apartments at Preston and Gray Streets in Louisville were completed in time for the opening of the 1962 fall term. This combination apartment-dormitory for medical and dental students was financed through H.H.F.A. Its central location is one block from Louisville General Hospital, three blocks from the School of Dentistry and four blocks from the School of Medicine.

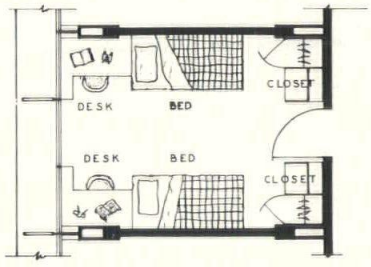
The seven story apartment wing faces the south to reduce the air conditioning load. Pastel colored vertical fins 2'-0" wide were constructed on each facade. These were designed so that in conjuction with the horizontal projection of the floor slab the south apartments are in shade from 10 a.m. to 4 p.m. during the summer months. The four story dormitory's west elevation, in addition to the vertical and horizontal fins, has gray heat absorbing laminated glass in the double hung aluminum windows.

There are seventy-four apartments and twenty-eight double rooms. Apartments are furnished, except for linens, table wear and utensils. Each apartment has a hide-a-bed sofa in the living room. Blankets and linens are furnished in the dormitory rooms. There is a free parking lot adjacent, and a recreation room in the basement. Also there is a children's playground.

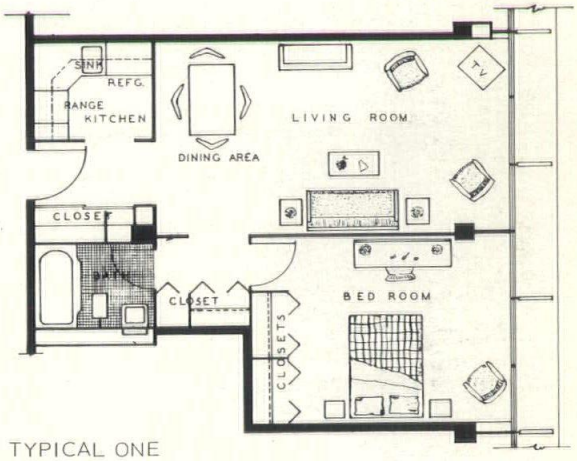
In the basement is a 4,500 sq. ft. recreation room which will be equipped for the use of the tenants and their guests. This area may also be used as a fall-out shelter should this facility be required.

CLOSET

KITCHEN

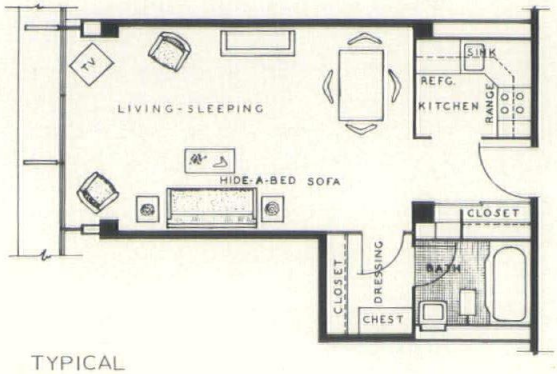


TYPICAL
DORMITORY ROOM

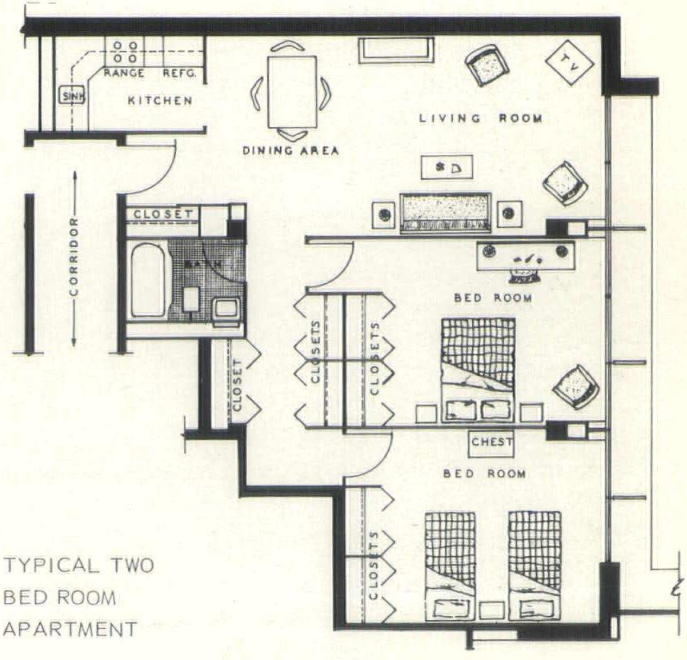


TYPICAL ONE
BED ROOM APARTMENT

SCALE 0 1 2 3 4 5



TYPICAL
EFFICIENCY APARTMENT



TYPICAL TWO
BED ROOM
APARTMENT

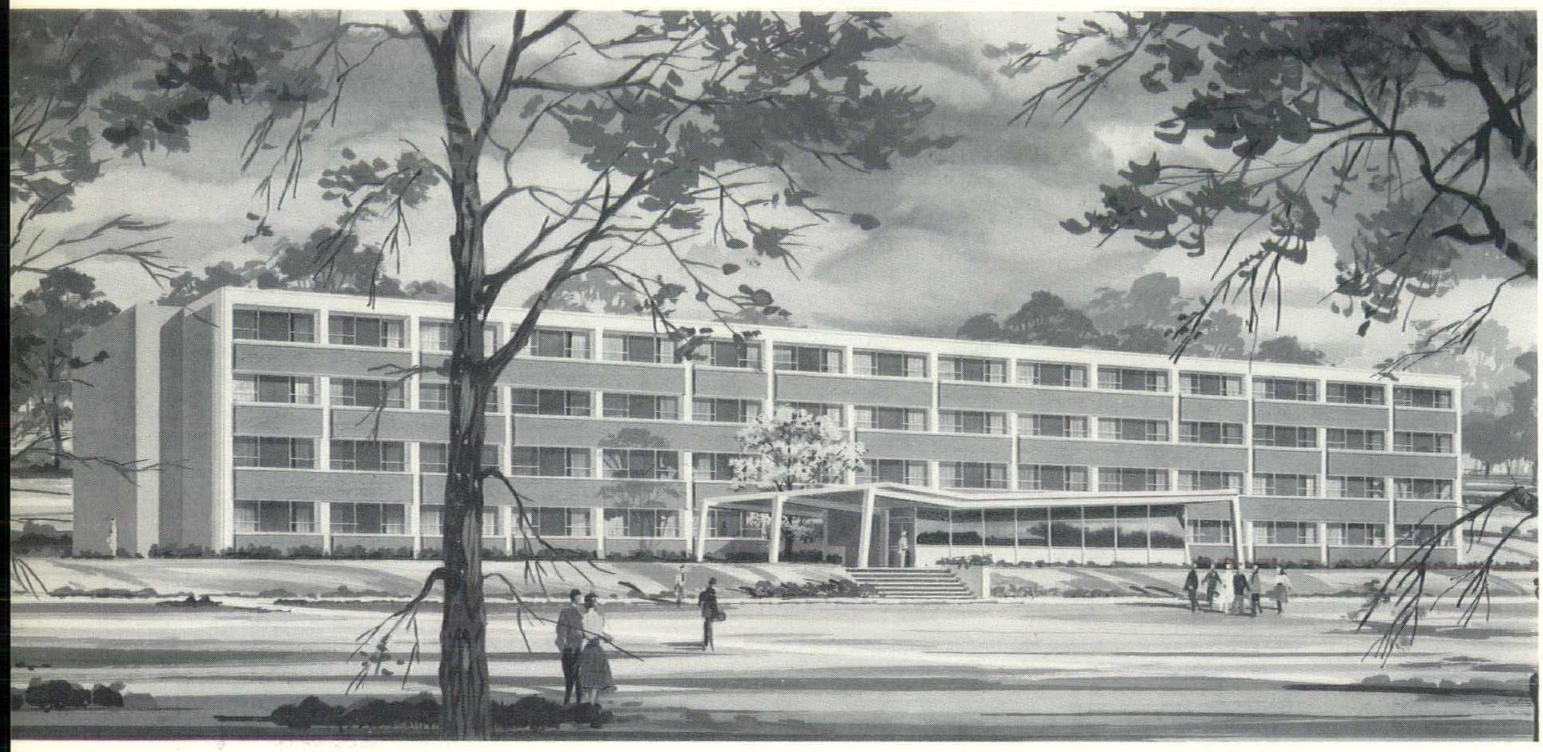
MOREHEAD STATE COLLEGE

Men's Dormitory No. 3

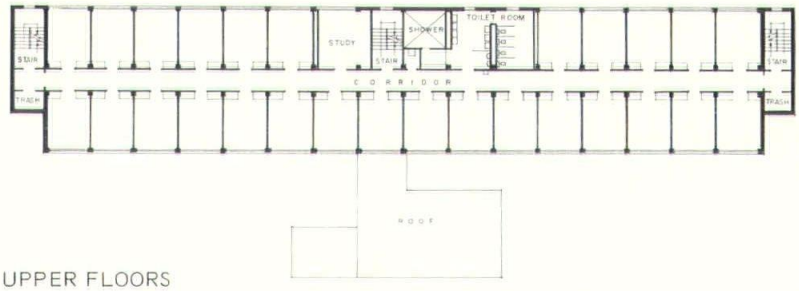
ARCHITECT: Sweet and Judd
Louisville, Kentucky

MECHANICAL ENGINEER: E. R. Ronald & Associates

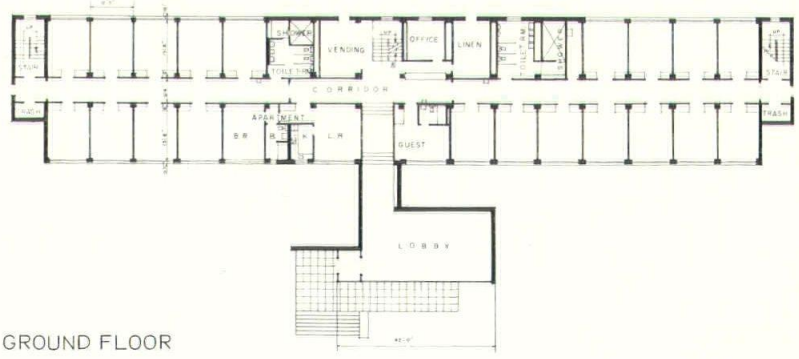
GEN. CONTRACTOR: Pickens and Bond



The Men's Dormitory No. 3 at Morehead State College houses 200 students on a site which is the proposed area of a new dormitory quadrangle for over 1,600 men students. The lobby entrance is a separate wing projecting from the main structure like a glass cage with a butterfly roof. The dormitory is built of a reinforced concrete frame faced with brick. The rhythm of exposed vertical columns is relieved with a horizontal ribbon of brick below the bedroom windows. This ribbon of brick breaks up the repititious accent of the vertical columns by concealing some and exposing some of the columns, thus creating a playful basketweave pattern.



UPPER FLOORS



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PROVEN by thousands of well-known BAYLEY INSTALLATIONS from Coast to Coast.

WINDOWS – steel or aluminum for all purposes – standard and special.

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FOR – schools, offices, hospitals, churches, dormitories, apartments, factories, correctional and mental institutions.

TWO MORE OUTSTANDING BAYLEY INSTALLATIONS

1.

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MEN'S DORMITORIES #5 & #6

TODD HALL
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EASTERN KENTUCKY STATE COLLEGE
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2.

MEN'S DORMITORY #4

EARL COOMBS HALL

EASTERN KENTUCKY STATE COLLEGE
RICHMOND, KY.

For Both:

ARCHITECT: Brock & Johnson
Lexington, Kentucky

CONTRACTOR: Hargett Construction Co.
Lexington, Kentucky

REPRESENTED BY

Whalen Erecting Company
Lexington – Louisville

THE WILLIAM BAYLEY COMPANY

Springfield, Ohio

AGGREGATE CONCRETE

(Continued from page 10)

offers some substantial ideas which can be compared with those from other sources; and it suggests an organization of the subject matter which could facilitate these comparisons.

Before attempting this analysis, one point must be made: precast exposed aggregate concrete is a man-made product; to a large extent it is even hand-made! Under production conditions its achievement of perfection is infrequent. It is a rare project that is absolutely free of all problems no matter how competent the producer may be. Quality is relative.

QUALITY FACTORS

Most architects and producers would probably agree that acceptable precast exposed aggregate concrete should be attractive, durable and dimensionally accurate. An examination of quality factor, therefore, might conveniently be structured around these three characteristics.

No one seriously challenges the *durability* of ordinary reinforced concrete, or regards its achievement as much of a problem. Making precast exposed aggregate so it will be equally durable, however, is a different matter.

Most reinforced concrete uses require more or less massive sections; exposed aggregate is often cast into units a few inches thick and covering areas in excess of one hundred square feet. The surface condition of ordinary reinforced concrete is not usually important; the surface of exposed aggregate must meet critical standards. Rarely is the normal movement of reinforced concrete considered serious; marked dimensional instability of exposed aggregate can cause problems of a most serious nature. In short, acceptable precast exposed aggregate concrete must have properties not required of reinforced concrete which is perfectly satisfactory for other applications.

To meet unusual durability requirements three things must be done to precast exposed aggregate concrete: 1) a highly dense, virtually inert surface must be achieved; 2) the concrete must be extremely dense throughout; 3) the reinforcing must be specially designed of special materials.

To achieve surface and integral density two different concretes are used, a high density facing mixture which meets the same test requirements but is composed of less expensive ingredients. Both are placed before either has set, so the performance characteristics of a monolithic pour are achieved. If the unit's dimensions and profile require it, the facing mixture is used throughout.

The facing mix aggregate to be exposed should be inert to air-borne acids and alkalis, virtually non-absorptive, and contain no minerals which could stain or change dimensions as a result of exposure

to weathering. Quartz, granite, some quartzites and a few other natural materials meet these requirements best. Unfortunately for one producer, who has one of these materials in abundance, limestone (except very few marbles) and dolomite are unacceptable for exterior uses in freeze-thaw areas.

Other requirements, too detailed to recount here, must also be met in order to get both surface and through-panel density. Some are obvious, such as uniform aggregate-cement ratios in both facing and back-up mixes. Others are more subtle, such as using an aggregate in the back-up mix which has the same water absorption characteristics as the facing aggregate. All together they result in a dense concrete (above 5,000 lbs. per square foot in compressive strength) which, without additives, has a water absorption which decreases as it ages from an initial 5% by weight.

"Grossly overdesigned" is usually one's first reaction to the reinforcing in precast exposed aggregate concrete. Often overlooked are the stresses to which "green" units are subjected by plant handling, and the stability required of thin sections.

Reinforcing also appears unnecessarily expensive, since much is galvanized as insurance against rusting if water ever seeps into the unit. On this point it is interesting to note that the very few failures observed in one excellent forty year old precast exposed aggregate job were due to the frequent use, before 1930, of black steel reinforcing.

Regarding *appearance,* the second quality factor, most architects would probably agree that the exposed aggregate surface should uniformly resemble the preselected finish, and age "gracefully" in a building.

Here are a few illustrations of color and texture effects which *may* evidence substantial problems and, therefore, should be specified or accepted only after investigation:

1. *Finish Shows Only Large (1" Diameter And Up) Stones.*

This identifies a weak concrete mix, or a non-concrete surface consisting of large stones set in mortar. In either case reinforcing is substantially further from the surface than good practice recommends. The material does not have the proven durability of high density concrete.

2. *Matrix Is Very Deeply Etched.*

When any particle of aggregate is "pasted" to the matrix rather than "clutched" by it, a potential shedding condition exists. A minimal amount of this is unavoidable because of the occasional incidence of "fines" in facing aggregates. However, if the etching has been deep enough to cause much "undercutting" of facing aggregate, severe shedding can result from freezing and thawing conditions. This condition may also identify a surface consisting of aggregate placed in mortar rather than the more durable high density facing concrete.

3. *Non-uniform Consolidation Of Aggregate.*

This may signify non-uniform compaction of the wet concrete, and a consequent non-uniformity in density and absorption characteristics. It may also signify an attempt to use an "ordinary" con-

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AGGREGATE CONCRETE

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crete design mix to get the generally accepted exposed aggregate finish. Usually this effect results from imperfect placement, inadequately controlled vibration, or poor aggregate gradation.

4. *High Ratio Of Matrix Area To Exposed Aggregate Area.*

Because the exposed aggregate (if properly selected) absorbs less water than the matrix, it is desirable to minimize the surface area of matrix. How much is shown depends upon the design mix, efficiency of consolidation, and extent of etching. If extensive etching still shows a high matrix to exposed aggregate ratio, a weak design mix may be indicated along with a high water absorption factor and possibly poor consolidation.

5. *Wide Variations In Color.*

These can result from poor aggregate gradation, a design mix change during production, the use of gray cement instead of white, difficulty in controlling pigment additives, changes in casting methods, and non-uniform curing.

Dimensional accuracy, the third quality factor, is affected by a series of inter-related conditions: accuracy of casting, the design mixes, innate dimensional characteristics of concrete, plant and field handling techniques, installation methods and systems, building conditions, climatic conditions.

Given any such list it is obvious we are not dealing with a material capable of achieving and holding machine-tool tolerances. On the contrary, a dimensional control problem always exists and must be dealt with straightforwardly by both designer and producer.

For his part, the architect can require unit sizes and shapes which are known to be more stable; can require the necessary design mixes; can detail connections which restrain deflection; can allow sufficient tolerances; and can locate the units so they will not be subjected to excessive stresses.

The problem confronting the producer is more complex. Form materials, for example, can move during casting and change dimensions after repeated use; this is one reason the Indiana Limestone Company uses cut limestone molds when it can, and holds a 1/16" tolerance on all wood, steel and concrete forms. Steel location and design can affect dimensional responses to temperature and moisture conditions, as can inadequate or improper curing. Plant handling of "green" units can exaggerate a flat panel's unavoidable bowing tendencies. Differences in facing and backup concrete mix design–especially if highly absorptive coarse aggregate is used in the back-up concrete–can have the same effect.

Thorough engineering and controlled production can minimize the effect of all these, so that an initial dimensional tolerance of +/– 1/8", and bowing limitation of 1/360 of a supported span (1/240 of an unsupported span), are feasible.

There is one more important dimentional requirement: the faithful

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AGGREGATE CONCRETE

(Continued from page 18)

reproduction of designed shapes. In this regard an architect has the right to expect precise results so long as the shapes can be cast and removed from forms. The sign of high quality in this area is uniformity of reproduced shapes, a result achievable only by strictest production control.

(CONTINUED NEXT ISSUE)

— A.G.C. —

THE NATIONAL ORGANIZATION OF GENERAL CONTRACTORS

The Associated General Contractors of America, is the only national organization of general contractors in America. It was organized in 1918 as the result of a direct suggestion by the President of the United States, Woodrow Wilson. The government's experience with construction problems in the First World War led President Wilson to point out the need for a national organization of general contractors through which the government could have direct contacts with the construction industry in times of emergency.

Many general contractors themselves were already realizing the ever increasing need for a national organization to represent them, not only in times of war or emergency but in their normal peacetime operations as well.

Starting with 97 members in 1918, the A.G.C. has grown to a membership in 1963 of more than 7400 contracting firms.

The A.G.C. has chapters and branches throughout the United States, totaling 127 in 1963, whose member firms are members of the National Association. While the chapters and branches are affiliated with the national association they are autonomous organizations with their own officers and executive staffs. The chapters and branches and the national association, through coordination and the interchange of information, have developed a system of complete representation and service for general contractors at the local, state and national levels.

The activities of A.G.C. are manifold, involving the broad spectrum of industry interests and problems. It is the construction industry's representative and spokesman in governmental circles. It stands for the industry in matters of public concern and guides its members in the areas of labor relations, legislation, costs, credit structure, contracts, bid procedures and similar matters.

Along with the owner and architect, the A.G.C. general contractor forms one of the cornerstones in America's high construction industry. In this industry, there is no "typical" contractor. He may be small . . . operating a family-owned business with a handful of workers. Or he may be large . . . directing a huge public corporation with thousands of employees and millions of dollars invested in equipment and plant. But regardless of size, the function of the general contractor on any project is well established. In other words, it is he who organ-

izes and directs the activities of a score of different construction craftsmen to see that the structure gets built. Whether it be an office, a school, a factory, a highway, a bridge, a dam or tunnel, the general contractor is the guiding and coordinating force behind the successful conclusion of the job.

Whatever phases of A.G.C.'s work are studied, the enormity and complexity of the construction industry are apparent. The problems of apprenticeship training, equipment expense, ethics and trade practices, market development, public relations, cost accounting, financial responsibilities assumed by A.G.C. to serve the interests of its members. Operating on the principle of benefit from discussion of mutual problems, A.G.C. has developed cooperative relations, in the form of joint committees, with many national associations. A.G.C., for instance, works closely with highway officials, architects, engineers, casualty companies, construction machinery manufacturers, equipment distributors, aviation officials, material producers and bonding companies.

A.G.C. represents an industry that accounts for over 17% of the gross national product and construction ranks first in the contributions to the nation's pocketbook, having surpassed agriculture as the largest producer more than a decade ago. It holds that economic history shows that when construction is at a low ebb, the national economy is sick and that when the economy is healthy there is a parallel high level of construction.

A.G.C. expresses confidence in the nation's future as it points to a population growth of over 8,000 per day and views this as an inexorable pressure which will explode in demands for the greatest construction effort in our history. New homes, schools, churches, hospitals, factories and commercial buildings, new roads by the hundreds of thousands of miles . . . this is the view of A.G.C. . . . an annual volume of new construction by 1965 to the tune of over 70 billion dollars.

PRODUCT INFORMATION

U.S. PLYWOOD OFFERS 15-YEAR GUARANTEED "NO PAINT" SIDINGS

A prefinished residential plywood siding surfaced with DuPont's new Tedlar film has been developed by United States Plywood Corporation.

The two companies devoted more than seven years to joint research to the development of this siding which "is so exceptional U. S. Plywood is guaranteeing it won't need painting for a minimum of 15 years," according to president Gene C. Brewer.

Tedlar, a PVF (polyvinyl fluoride) film, has demonstrated in 15 years of actual weather testing and in long-range accelerated laboratory cycles, characteristics which promise a virtually maintenance-free exterior material, said Mr. Brewer.

The company expects to market Weldwood siding surfaced with Tedlar by mid-1963. Siding will be available initially in four fade-resistant colors – white, gray, green and yellow. Horizontal lap and vertical sidings and flat panels surfaced with Tedlar will be produced in standard siding lengths and widths for time-and-labor-saving installation.

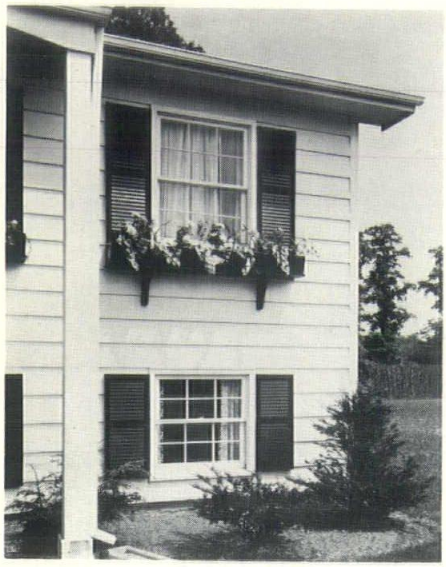
"We are holding our 'no painting' guarantee on new Tedlar-surfaced Weldwood siding to 15 years at the moment; as additional experience is obtained the time period may be extended," said Mr. Brewer. "Accelerated laboratory tests indicate this siding is the most durable exterior for houses ever marketed and may last much longer without painting."

The lap siding is installed with a unique system which affords extensive labor savings over conventional sidings, yet eliminates any visible fastenings.

The new siding will provide not

(Continued on next Page)

only maintenance-free exteriors but also qualities common to all plywood sidings including superior strength, dent resistance, and insulation against temperature and electrical hazards.



"No-Paint" Weldwood sidings, surfaced with Tedlar, a PVF film are being introduced by U. S. Plywood after more than seven years of joint research with DuPont.

Houses featuring horizontal Tedlar lap siding were erected in seven locations throughout the United States during the test period to determine the weathering characteristics of the material in various climates and under varying atmospheric conditions.

The most recent test house is a two-story Colonial structure designed by Herman H. York, A.I.A.

Mr. Leonard L. Frank of Stackler & Frank, Long Island, is current president of the National Association of Home Builders, a lifetime director of that organization and a national director for more than 10 years. His partner, Walter G. Stackler, is treasurer of the New York State Home Builders Association.

"Weldwood siding surfaced with Tedlar was installed quickly, easily and economically," says Mr. Frank. "It is easily cleaned and presents a beautiful appearance."

Field and laboratory tests of the Weldwood siding showed marked superiority over any known organic exterior finishing system even under extreme Florida climatic conditions, U. S. Plywood reports.

Properties of new Weldwood Tedlar siding include:

Unprecedented resistance to sunlight and other exterior weathering factors.

(Tough Tedlar surfaces held up in temperatures from below freezing to 300 degrees F.; were practically unaffected on the near-ultra violet and visible and near-infra red regions of the spectrum; showed excellent resistance to photochemical and oxidative breakdown.)

Abrasion resistance three to five times superior to lacquer or enamel, and chip resistance 25 to 50 per cent higher than any other siding finish tested.

High resistance to wind-borne abrasives and destructive chemical fumes.

Absence of chalking, crazing or erosion, even after long exposure tests.

Easy maintenance with water and detergent.

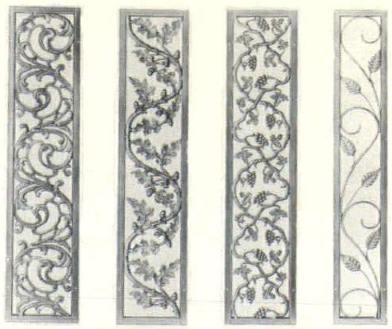
(Tedlar surfaces won't support bacteria or microorganisms.)

The company developed a special laminating adhesive system to bond Tedlar film permanently to plywood and thus create a product capable of long-term, all-weather exposure.

NEW LOGAN CO. RAILINGS AND THREE OTHER PRODUCTS

New 42-in. high ornamental iron railings, designed to meet codes for commercial buildings, top a list of four new products now available in the Logan "standard size" line.

The new commercial railings, come in prefabricated lengths of 6 ft. and 10 ft. These are cut to fit, with hacksaw, and attached to assorted posts and supports by setscrews. Railings for steps easily adjust to any pitch from 3 in. per ft. to 9 in. per ft. A large selection of wrought and cast iron ornaments fasten to the pickets. Price of $26.80 for 10-ft. section of porch railing is listed for the East. Step railings list slightly higher. Prices are slightly higher in the far West.



New Ornamental Iron Shutters.

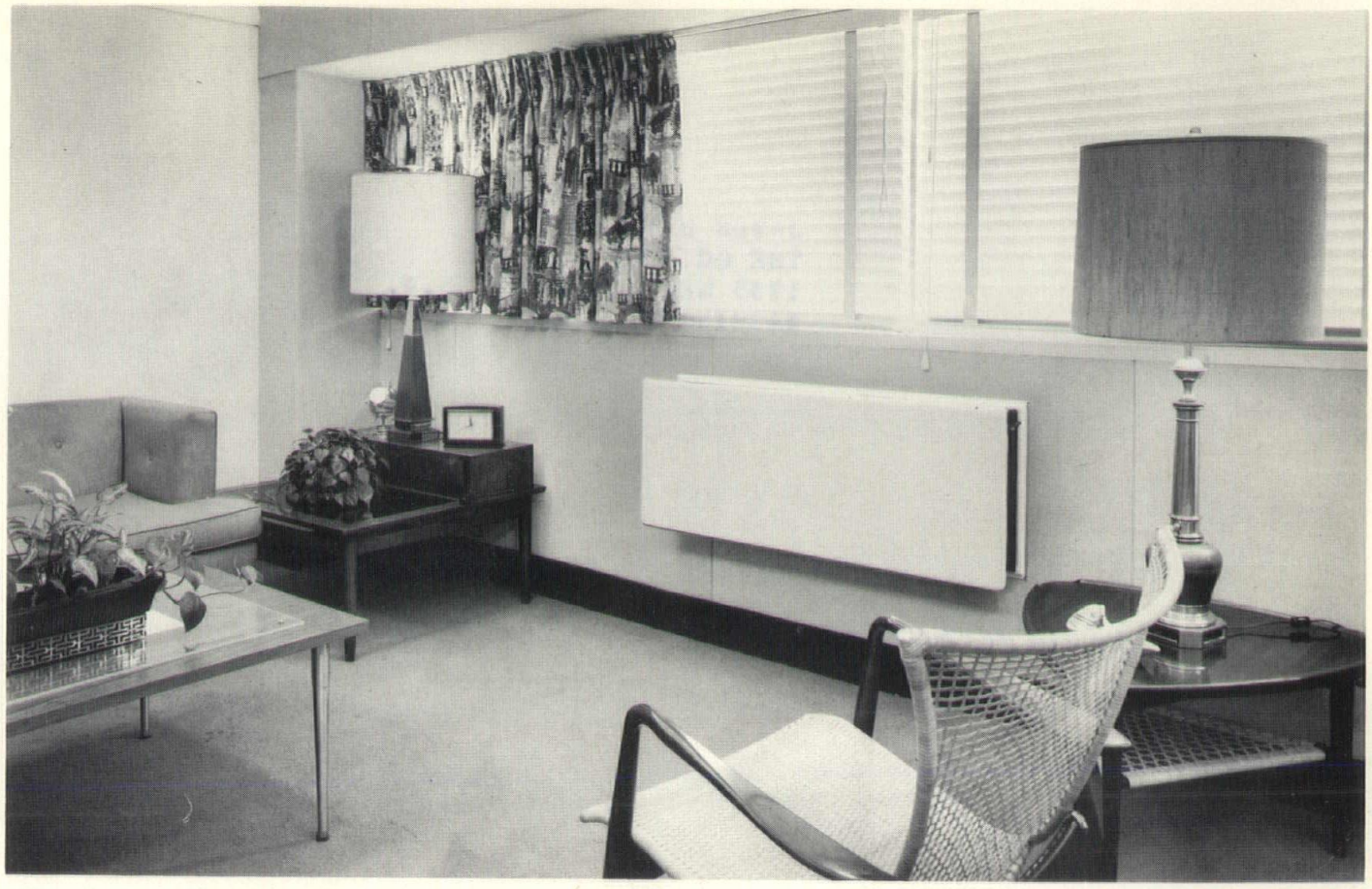
The new grip rail system features contoured rail in five standard lengths, cut to required length on site. Adjustable sliding brackets and slip-fit end caps for rail simplify installation. New modern taper-shape extension posts are setscrew adjusted for perfect alignment. Base coat of grip rail is bonderized, rust-inhibiting. Eastern list price for a 20-ft. rail section is $9.60.

Logan's newly improved entrance railings feature four sizes, fitting most stoops without cutting. A handsome new top rail of heavy 1-3/4" x 5/8" contour iron moulding is an additional luxury feature included with no increase in price. Entrance railings come complete with post and wall bracket, fabricated and ready to install. Eastern list prices start at $8.45 for a 2-ft. 8-in. railing.

Four patterns of new Colonel Logan ornamental iron shutters match existing column patterns. Now available 9 in. and 12 in. wide, in four heights, 39 in. to 55 in., shutters for exterior decoration. Eastern list prices begin at $8.65 per pair of shutters.

To permit complete freedom of finish color choice, all Colonel Logan products come primed in blue gray. Both pastel and bold decorator colors are often applied as the final coat. The line is manufactured by Logan Co., 200 Cabel Street, Louisville, Kentucky.

New Commercial Railings.



GENERAL ELECTRIC INTRODUCES . . .

Significant new approach to heating and air conditioning

Here is a years-ahead heating and air conditioning concept for apartments, hotels, motels, offices or homes, developed by General Electric:

ZONELINE '42' — self-contained air conditioners . . . cooling only

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Now you can select from a full range of individual unit capacities or combinations to cool or heat any type of structure. These handsome new units feature remarkably low operating sound levels—the result of a deliberately oversized plenum chamber, coupled with an advanced design blower and acoustically insulated interior baffle. Here are some of the important advantages of General Electric's zonal air conditioning system:

1. INITIAL INVESTMENT ECONOMY. No costly central plant system compressors, chillers or towers are required.

2. INDIVIDUAL COMFORT CONTROL. Tenants can select exact comfort levels to fit their individual requirements.

3. OPERATING ECONOMY. Individual rooms or zones can be shut off permitting operational savings.

4. EASIER TO SPECIFY. Complicated duct and piping design is not required. All units fit one standard case size . . . number of units, BTU capacity and electrical service are all that have to be specified.

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