PROGRESSIVE ARCHITECTURE

client critique: schools

7

july 1953

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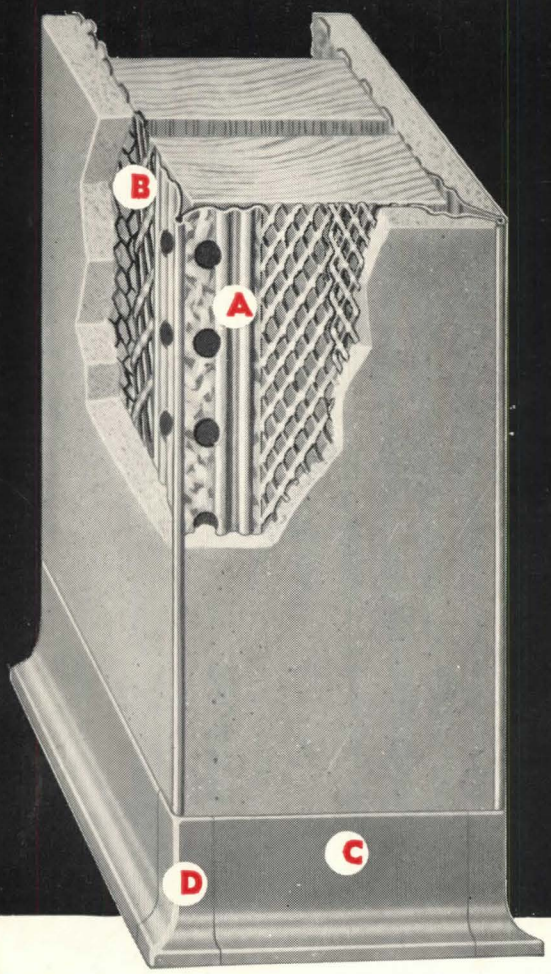

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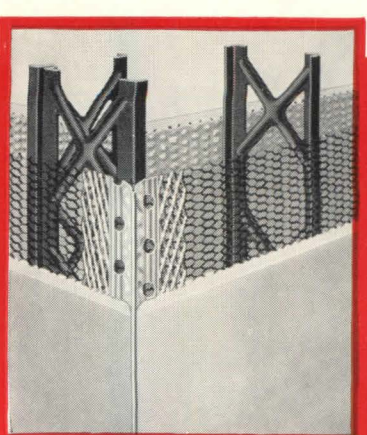
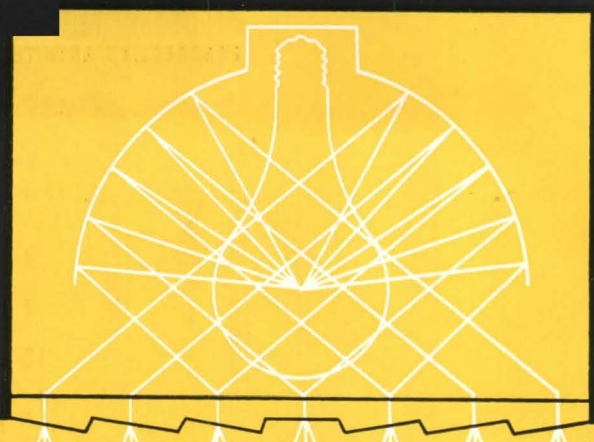


PROGRESSIVE ARCHITECTURE

July 1953



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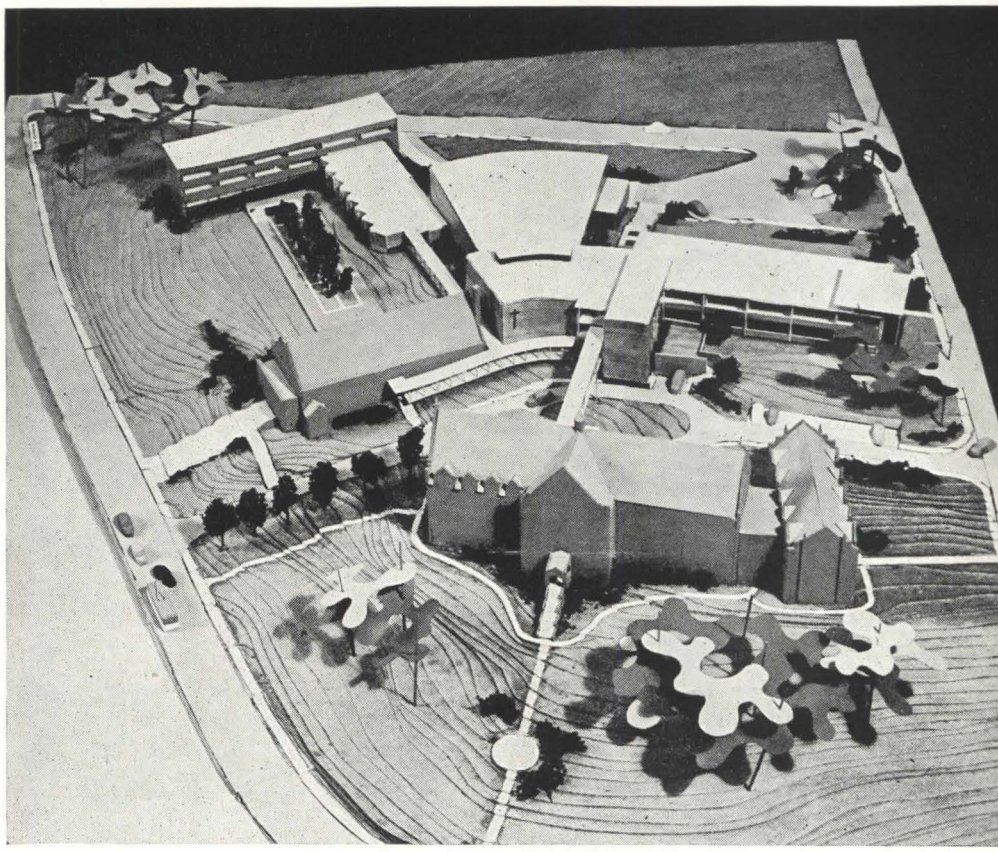
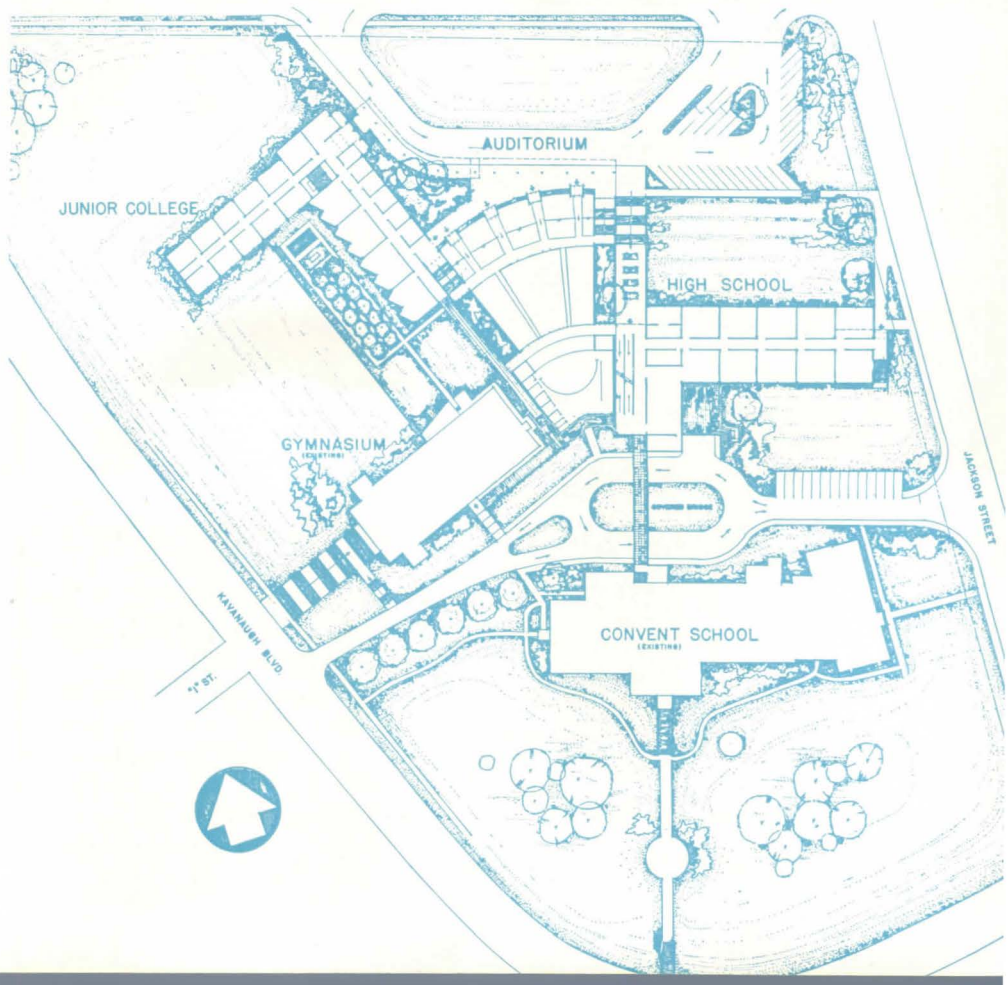
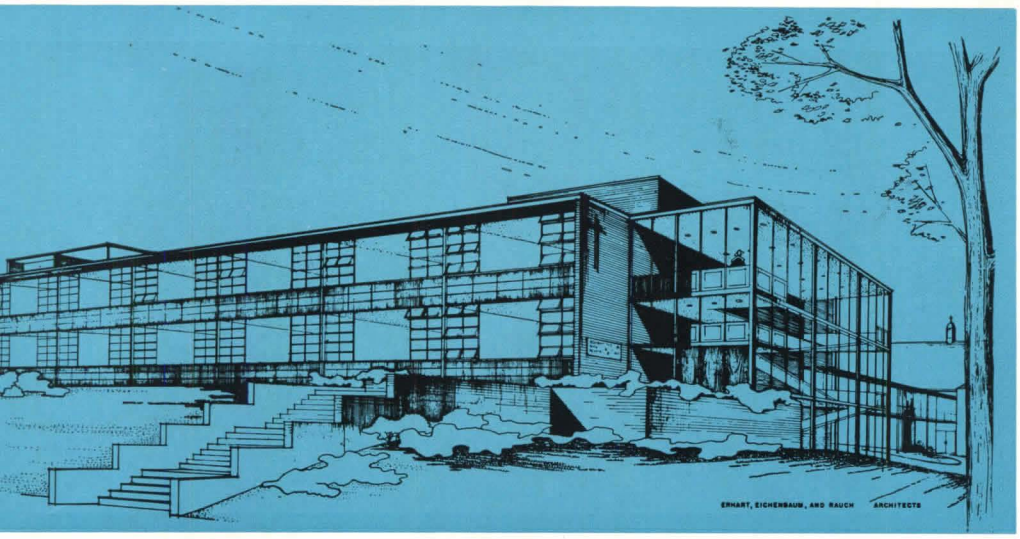


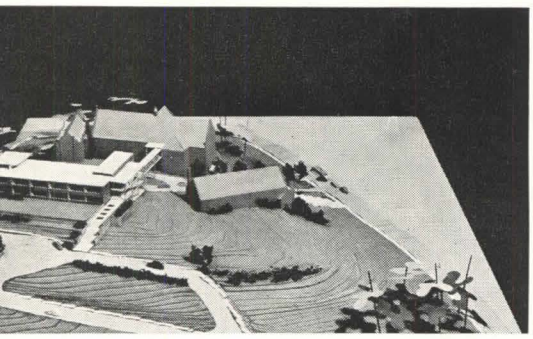


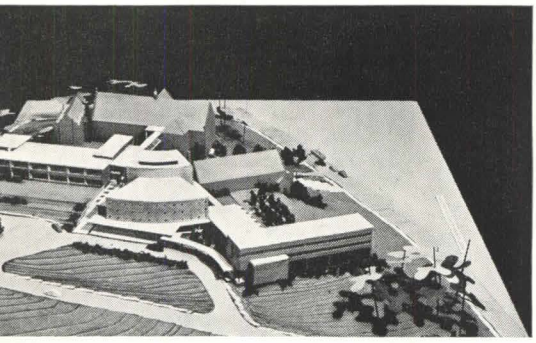
Expansion of the facilities of Mount St. Mary's Academy, a modified Collegiate Gothic group on a wooded hilltop in a built-up residential section of Little Rock, Arkansas, was the commission handed Erhart, Eichenbaum & Rauch, Little Rock architects, whose program for development of an academy campus is shown here and overpage. Existing structures include a convent building and a gymnasium *(foreground of model photograph at right)*, and it is proposed to construct, successively, a $400,000 high school for 500 girls, an auditorium to seat 1500, and a junior college building.

In developing a program for development of the Academy property, the architects recognized that the Collegiate Gothic structures had established a building line on the curving corner of the site. They plan to add the required additions along the property lines facing both streets, using harmonizing shades of brick for exterior treatment although the design expression of the new buildings will be contemporary. Special attention was paid to the connecting "bridges" between main buildings, as well as the landscaping elements that will unify the entire plan.

An interesting point of planning was the architects' decision to utilize the wedge-shaped auditorium as the core of the new buildings—with the adjacent units spread thereby to align with the streets along the boundaries of the site. Another consideration was to avoid long west fronts (and hot afternoon sun) and use of generous







Planned for immediate construction is the urgently needed high school (sketch at left), *which will be connected to the existing convent buildings* (top photo). *Second stage of development* (middle photo) *will add the auditorium, and the third stage* (bottom photo) *will add the L-shaped junior college building.*

Photos: Leonard Photo Service, Inc.

canopies to shade windows on south façades. Intercommunication was carefully studied: the much-used auditorium being at the center of the site (yet with special access for civic meetings, etc.) and the self-contained junior college building farthest from the main group.

The new high school unit being developed for immediate construction, will be a three-level structure with two floors of classrooms and service units in the ground floor. An enclosed foot-bridge will span the present entrance drive, connecting with the second floor of the existing convent. There will be 20 classrooms plus the usual special-purpose rooms, such as commercial, science, domestic science, and art rooms, a library, study hall, cafeteria, and reception unit.

Due to the nature of the academy as a private school for girls, the buildings will have a warmer, less institutional character.

Construction will be steel, welded-frame with bar-joist system, concrete block and brick. Sash will be steel and ceilings will be of acoustical plaster.

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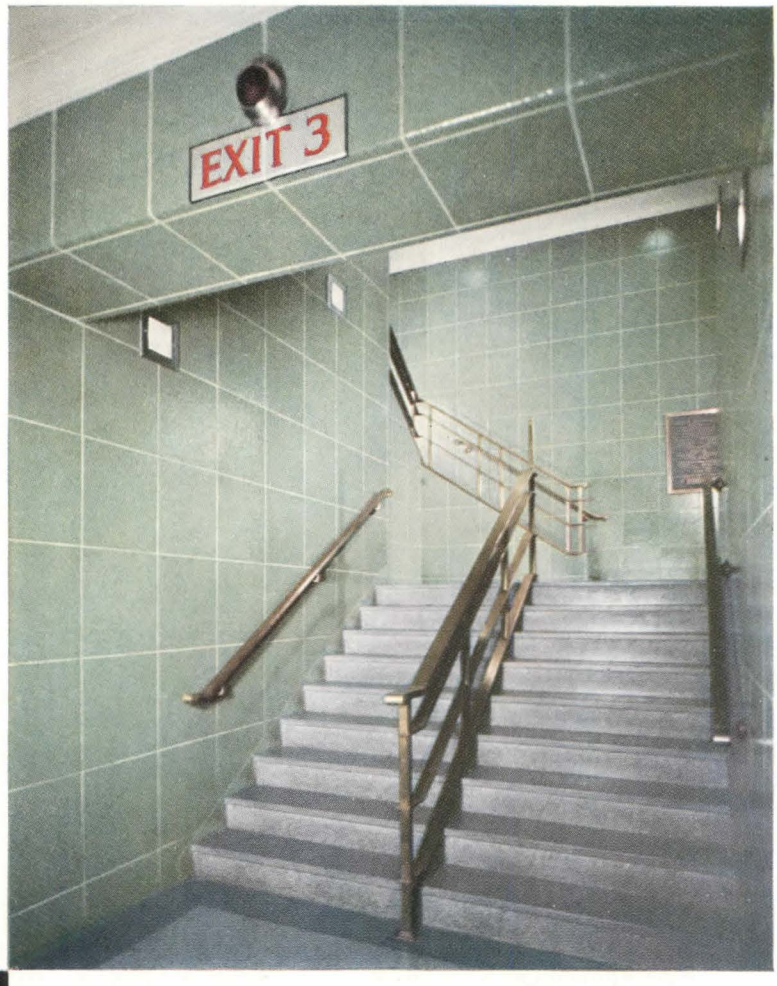

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Eric Kebbon—*Architect*
Caristo Constr. Corp.—*Builders*
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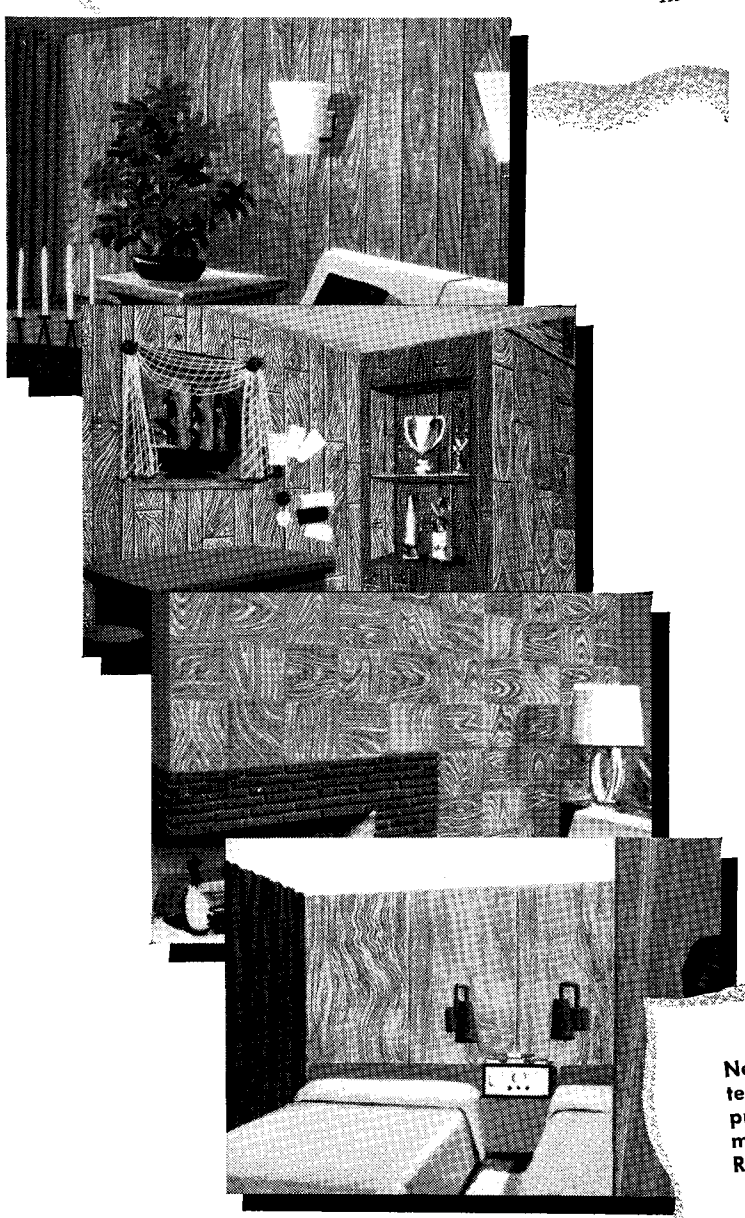

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p/a client critique SCHOOLS

In the following presentation of four schools–two high schools and two elementary schools–P/A adds another dimension to its program of architectural criticism. In the past, we have studied related buildings in a comparative and critical sense ourselves; and we have published a number of the "round robin" critiques, wherein the architects participating criticize each other's work. These features will continue to appear from time to time. In the "client critique," however, we have decided to take editorial cognizance of the fact that architecture is for people. If those for whom a building was designed do not find that the building aids and abets their activities, then (in our opinion) no matter how admirable the scheme appears on paper, how sensible and resourceful the structural system and use of materials, or pleasing its appearance, it is merely a building of passing interest–or maybe a museum piece. It cannot rate as architecture.

So, with each of the following schools, we approached the superintendents, the principals, the teachers, the students, and those indispensable individuals, the custodians or janitors. And we asked them direct questions, aimed at their particular concerns, about ways the building assists their work–or otherwise. We originally selected the schools for publication because we thought them excellent–as far as we could judge. In this new approach, we now test our empirical judgment against the facts of the case; practice against theory. Thus, for the first time, we are able to say with certainty that in all except minor matters, these are indeed excellent schools, and we can tell you exactly why, based on the testimony of those who use them daily. Incidentally–and of great importance–it should not be overlooked that this also means that, in each case, a realistic program had been developed.

After we talked or corresponded with the various school officials, the teaching staffs, the students, and the custodians, we let the originating architects read their comments. This we did for two reasons: (1) so that the architects would have an opportunity to explain things that might not be clear or could resolve conflicting comments and (2) so that we could eliminate from our discussions impertinent material. For example, in one of the schools, some of the testimony indicated that the heating wasn't all that it might be; and this was accurate testimony. But further check revealed that this was the system's first year of operation and that it was going through progressive adjustment (a familiar-enough situation), improving all the time, and that everyone–the school people and the architects–felt certain that in its second year all would be warm.

P/A's sole purpose is to help the profession design better buildings, better in every sense. And if, through client critiques, we can add one more source of information that will help architects work out more successful designs, then the venture will be more than justified. Since this is our first effort in this direction, we'd be pleased to learn your reactions to the feature.

High School: Birmingham, Michigan

Built to serve a fast-growing suburb of Detroit, this huge school plant now has facilities for 1200 students. Planned future expansion, including a large auditorium with full professional stage, anticipates a school body of 1500, up to a maximum (at any one time) of 1800. The 43-acre site, located at the center of the present (and estimated future) school population of Birmingham, allows ample space for the future additions, as well as for parking areas, playfields, etc.

As a study of the plans and aerial photograph *(acrosspage)* reveal, the forward, L-shaped mass, which contains administrative offices, library, cafeteria, and speech theater in addition to classrooms and home and fine arts departments, is (in the main) three stories in height. The single-story connecting element houses music and science classrooms and industrial arts. The gym block, including enclosed space for a future swimming pool, occupies a position at the rear, adjacent to playfields and the sizable parking area.

What do the people who use the school think of it?

the principal

Ross A. Wagner, Principal of the Birmingham High School, pronounces the plan "efficient," and adds that, as an educational tool, he thinks "it compares very favorably with other schools of its size and classification in our area. In fact, I feel that it excels most schools . . . Certainly it has created an environment more conducive to pleasant school experiences than that of most schools." Specifically, he testifies that "the building assists in student response and participation in our program . . . Students are proud of their building." In summing up, he comments that the building "lacks the institutional atmosphere characteristic of so many schools. I consider it to be an attractive, functional building—a building that has achieved beauty and function without expenditure of unnecessary sums of money in an extravagant fashion."

the teachers

From a review of opinions of the heads of the different departments we learn that the teachers find the school generally excellent: "It is roomy and light. Adequate space is available for organizing the work of the school in such a way as to be adaptable to many situations." Some felt that the chalkboards were mounted a little higher than necessary, and there was comment that, in the absence of an auditorium (which *is* to be built later), "adequate facilities for general assemblies are lacking." But design of the classrooms, both in size and shape; location of coat lockers and equipment; all seem good to the teachers. In fact, no specific over-all suggestions for improvement were made, except that "a greater facility for darkening rooms for visual aids would be a help." There was also mention of a certain amount of glare from natural light and the need for adjusting venetian blinds on sunny days: "Rooms with a southern exposure have been uncomfortably warm on some spring and fall days." The architect believes that with more experience with the blinds, adjustment earlier in the day would overcome this tendency toward overheating. Esthetically, the teachers find the building "pleasing both inside and out, and the decorating inside is well done."

the students

Ten past and present officers of the Student Council constitute the group to offer the student reaction to the building. They all like the building: "Its neatness and simplicity are beautiful. It does not present the appearance of the traditional school . . . the use of color is especially good." In the classrooms, "desks are comfortable and of adequate size," though a few feel that more roomy provision should be made for books. "For the most part, though, the rooms are excellent, and sound does not carry from the corridor or from adjoining rooms. The only noisy feature is from the ventilating system which, in a few rooms, provides a distracting influence." Like the teachers, students commented on the amount of sun in south-facing rooms on warm days. Lighting, in general, seems good, and the artificial lighting is "just right." The students testify that "it is easy to study in these rooms, and the ability to arrange the furniture to the convenience of the class is a decided improvement." The two things they isolate as being most distinct improvements over the older school are "the better lighting facilities, and the ample space," however they go on to remark that "the compactness of the old school . . . made it possible for students to see each other more frequently."

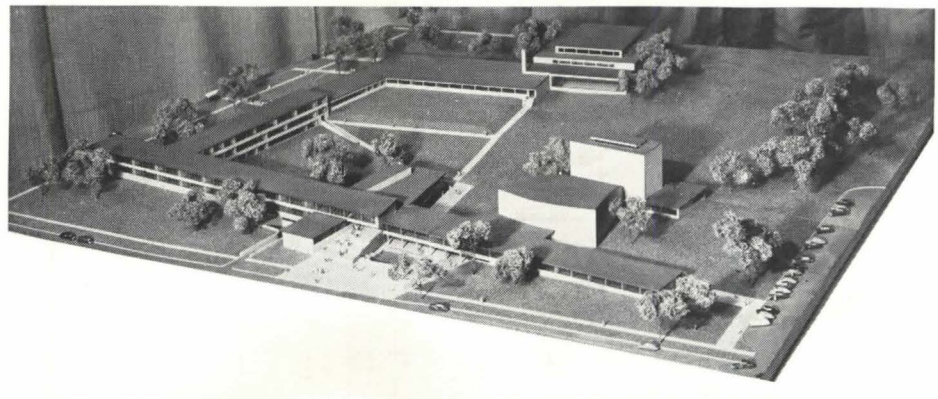
the custodian

"Compared to any older school building in which I have worked," the custodian tells us, "most of this school is a real improvement." He feels the need of a loading dock for bringing materials into the building, and while there is a removable sash in the exterior wall of the boiler room, he wishes there were some more flexible means for bringing heavy materials in. "The building is very easy to heat, and the heating does not require an overamount of maintenance . . . the wiring has given us little trouble," and he informs us that the entrance and corridor floors, window areas, and plain walls "are very easy to clean. The cinder block is much more difficult." Corridor and toilet walls are easily cleaned; the concrete floors are the most difficult—"concrete does not sweep as easily as most other types of floors."

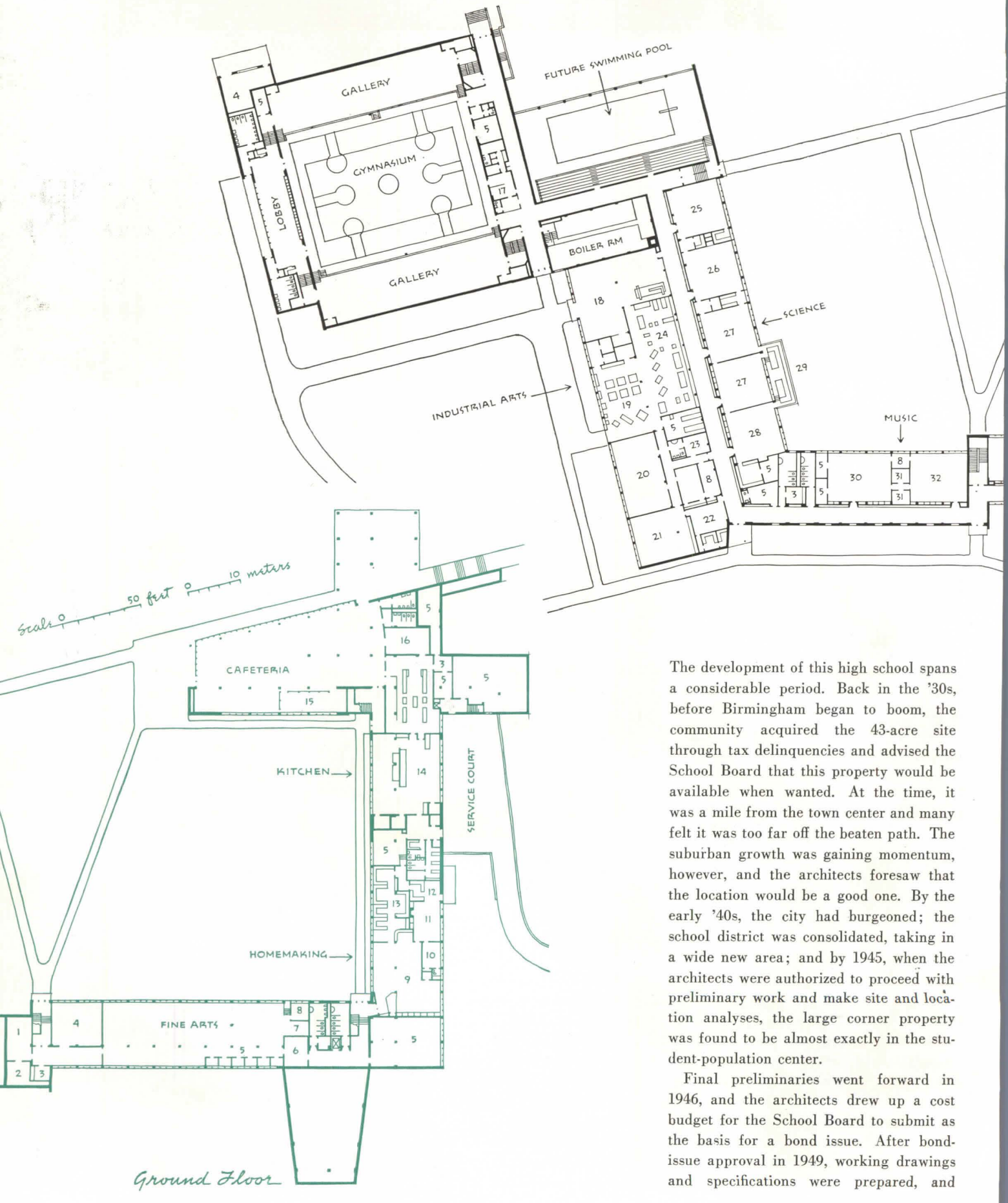
Administrative offices occur in a forward-projecting, one-story wing at the left of the main entrance (above). *To the right of the entrance, future additions* (model photo) *will include a series of classrooms and a large auditorium.* Photos: Richard Shirk

architects	Swanson Associates
structural engineer	Paul S. Calkins
mechanical engineers	Hyde & Bobbio
landscape architects	Wilcox and Laird
general contractor	Cunningham-Limp Co.

Seen from the air (below, right), *the overall scheme is apparent. The parking lot, playfields, and gym are at the rear. Connecting the gym and the L-shaped, three-story mass of classrooms at the front is a one-story area containing industrial arts and science classrooms. In the wedge-shaped wing extending left from the classroom block are the speech theater (ground level) and large study hall (upstairs). The wing in back of the main entrance (right of photo) contains the cafeteria (downstairs) and school library (second floor).*

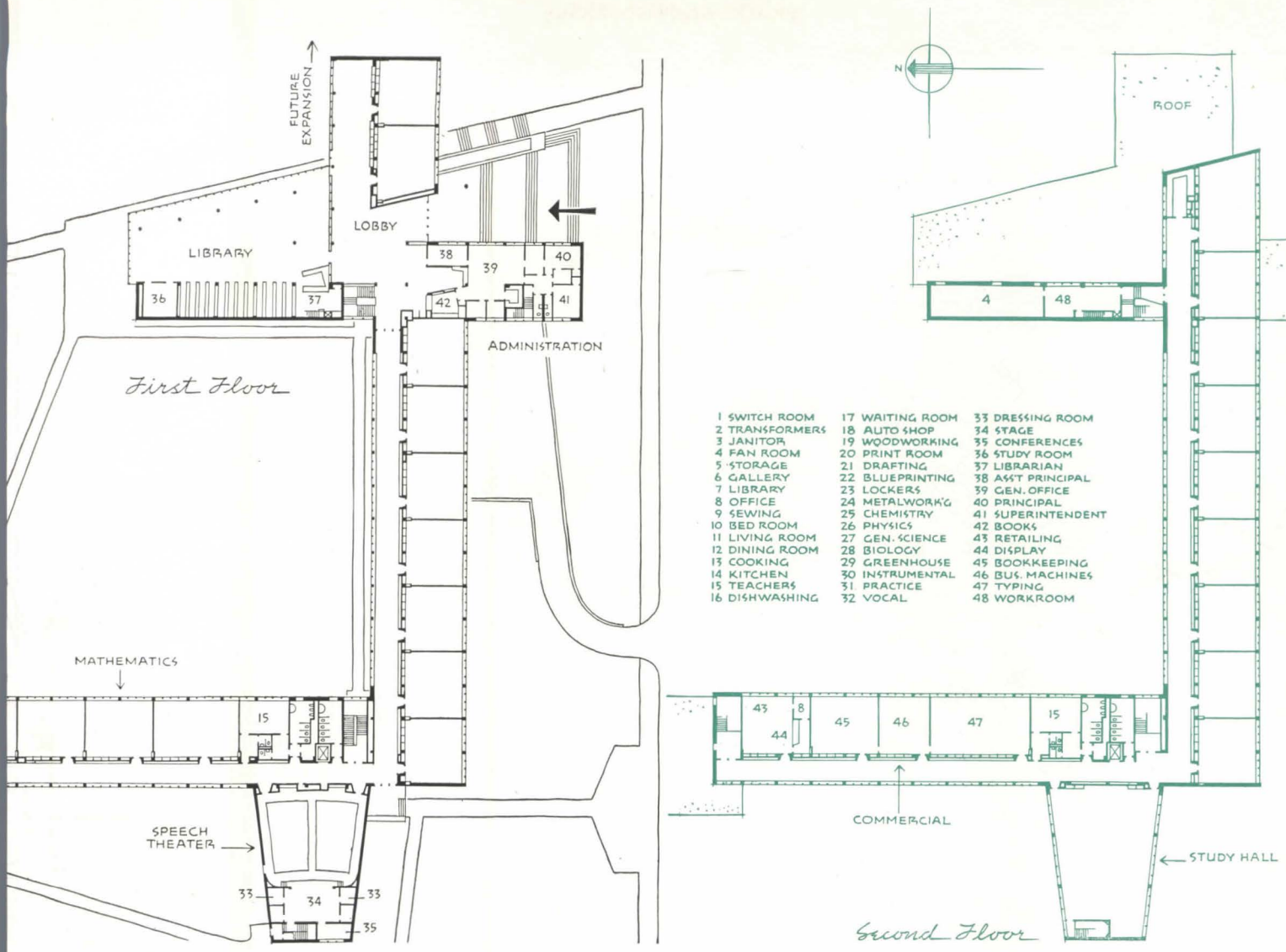


high school: Birmingham, Michigan



The development of this high school spans a considerable period. Back in the '30s, before Birmingham began to boom, the community acquired the 43-acre site through tax delinquencies and advised the School Board that this property would be available when wanted. At the time, it was a mile from the town center and many felt it was too far off the beaten path. The suburban growth was gaining momentum, however, and the architects foresaw that the location would be a good one. By the early '40s, the city had burgeoned; the school district was consolidated, taking in a wide new area; and by 1945, when the architects were authorized to proceed with preliminary work and make site and location analyses, the large corner property was found to be almost exactly in the student-population center.

Final preliminaries went forward in 1946, and the architects drew up a cost budget for the School Board to submit as the basis for a bond issue. After bond-issue approval in 1949, working drawings and specifications were prepared, and



building contracts were let in May 1950. Some students moved into the new school in early 1952, but it wasn't until the fall of '52 that the school in its present stage was completed.

Analysis of school-program requirements led to the decision to construct a building that would eventually accommodate 1500 students, with a possible maximum of 1800. The present capacity is 1200. Before the design was "frozen," the architects made complete detail studies of all departments and models of all classroom types. Members of the School Board traveled to several outlying high schools to check the proposed scheme against comparable facilities.

Since the budget was prepared nearly two years prior to taking figures, and a rising market had intervened, costs had to be carefully watched. Through resourceful structural design and selection of materials, final cost came to 97 cents per cu ft, including site development, equipment, building, and all fees—only excluding cost of the site.

After a review of five types of heating, a split system combining perimeter hot-water radiation with forced air, was selected. Finned-tube units occur under exposed glass areas, and a central air unit supplies tempered air to the main ducts, with a branch duct leading to each classroom; booster heaters are thermostatically controlled in each of the rooms. Where the load is particularly heavy, as in the library and cafeteria, radiant panels were added to the basic system.

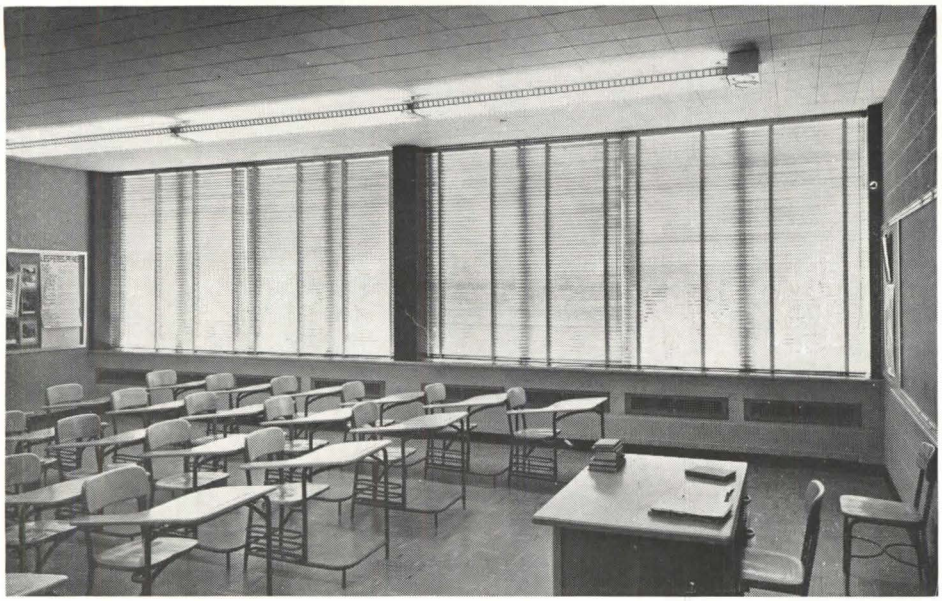
Structurally, the school is steel frame with steel joists. Walls are face brick and concrete block; floors are concrete; and the insulated, concrete-deck roof is surfaced with tar-and-gravel. Inside wall surfaces are of glazed tile, plaster, or painted concrete block. Floors are mainly asphalt tile, though metal-bound wood is used in the gym, and flooring in lobbies and washrooms is terrazzo. Perforated, glass-fiber tile is used on ceilings of classrooms and corridors, while fissured mineral tile surfaces ceilings of lobby and library.

For special uses in the evening, parties, or community meetings, various areas of the building, with independent washroom facilities, can be segregated by means of gates lowered across corridors. For example, the cafeteria is very frequently used for gatherings of one sort or another and can be used entirely independently of other areas. This also is so with the speech theater, seating 300, which is regularly used by community groups.

Aluminum sash are used throughout, with fixed windows in the library. Various types of glazing include double-insulating; polished-plate glass; and crystal DSA. In classrooms, surface-mounted, eight-ft tubular lighting is employed with either two- or four-tube fixtures. Square, recessed fixtures are used in the lobby, and elsewhere are recessed, circular, incandescent fixtures, or (in the stage area) special spotlights.

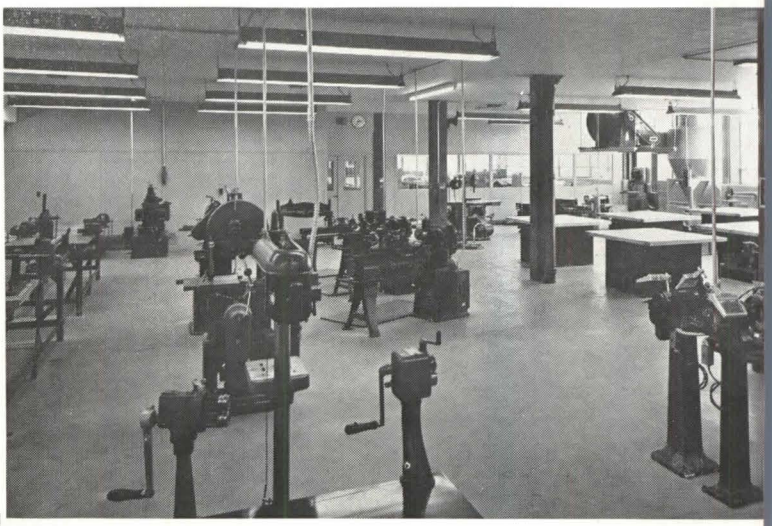
Included in special equipment are a public-address system; intercommunication phones; and a clock-and-program system —all extremely important for the efficient administration of so spread-out a building.

high school: Birmingham, Michigan



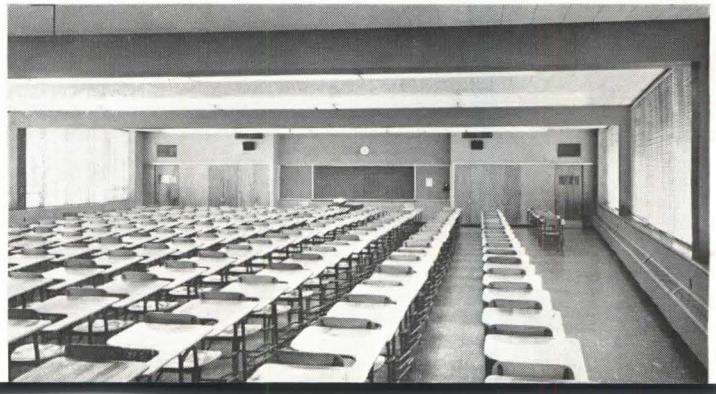
Column-to-column window areas occur in the typical classroom (above), *with concrete-block or plaster walls, acoustic-tile ceilings, and asphalt-tile floors* (SELECTED DETAIL, classroom storage wall, *p. 143*). *Teachers and students remark on the good furniture provided, though some students felt the need for a bit more book-storage space.*

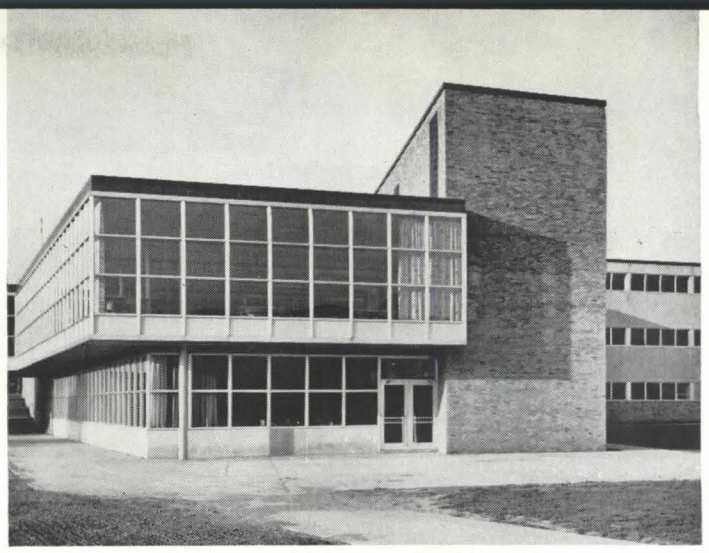
The concrete-floored machine shop in the industrial-arts department (right) *is in the one-story wing next to the gymnasium.*

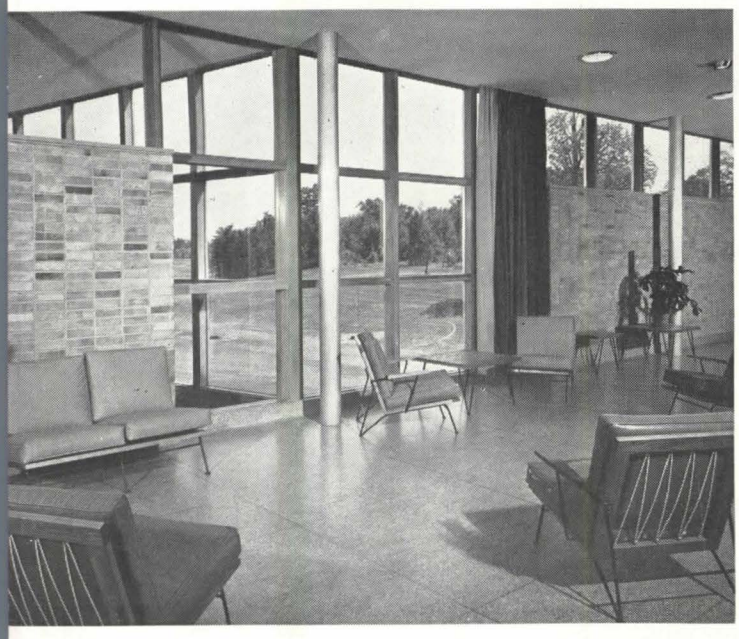


The speech theater (left) *is in a wing of the first floor, near the intersection of the two main classroom wings. Seating 300, it is used widely by the community, as well as for school purposes. Murals at either side of the stage are the work of Martha McClintock.*

Above the speech theater is the large study hall (below), *the windows lining both side walls.*





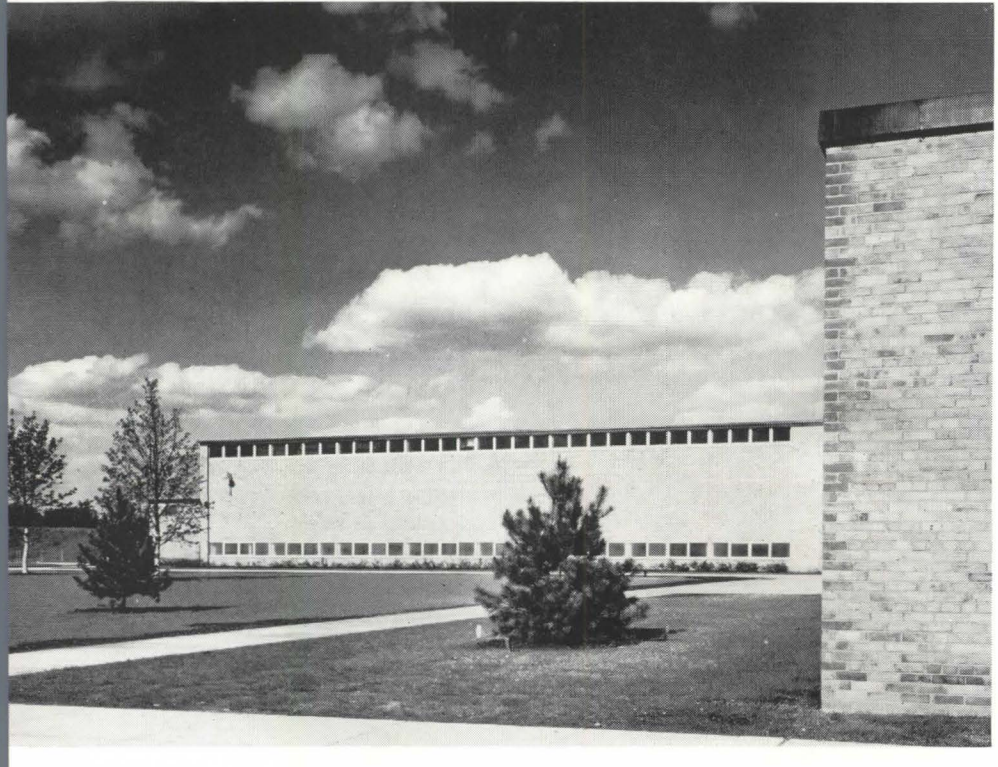


Projecting to the rear of the main classroom block is a many-windowed, two-story wing (above) *with the library on the upper floor* (top photo, below) *and the cafeteria* (bottom photo) *at ground level. Cafeteria chairs may be stacked, tables pushed aside, and the floor cleared for a party.*

Outside the library, the colorful lobby is furnished with pieces upholstered in a plastic fabric, designed by Pipsan Swanson. (SELECTED DETAIL, lobby plant tub and drinking fountain, *p. 141*).

At one side of the cafeteria, acoustic, semi-partitions (below) *set off the eating alcoves for teachers. The panel murals are by Martha McClintock.*

At the far north end of the scheme is the gymnasium facility, adjoining a large parking space (a second parking area is scheduled for the southeast part of the site after the auditorium is built). The glazed, floor-to-ceiling entrance wall faces a wall of trophy cases across the lobby (left). *Stairs at either end lead up to bleacher galleries.*



Collapsible banks of bleachers are along both long sides of the 92' x 120' main gym floor and occupy the bordering galleries. The area is divided into two smaller gyms by a series of six electrically operated, aluminum, roll-down doors that interlock with sliding mullions to form a continuous wall across the entire building. With bleachers telescoped, the galleries can be used for practice and small court games. Lockers occur beneath the side galleries—on the east, for boys; under the west gallery (shown here), *for girls.*

Obscured glazing in the lower window bands along the gym side walls (left) *light the main locker rooms.*

elementary school: Columbus, Georgia

Replacing three obsolete elementary schools that were located from 3 to 15 miles away, this economical building immediately adjoins a recently completed 1000-house development. Future plans for the 26-acre site (*model photo acrosspage*) include both additional elementary classroom wings and a new junior and senior high school, organized in a related campus plan. All basic services were designed to accommodate the future development.

The present school, planned in four north-south oriented classroom wings, also includes an administrative unit, and a cafeteria, which (pending future construction) temporarily doubles as auditorium. All units are joined by covered walkways, and the sheltered space between administrative unit and cafeteria building appears on the working drawings as a "milling area."

Those who use the school appear to be well pleased:

the principal

Principal B. F. Moseley sums up his reactions to the building as being "well planned, well built, and easy to keep clean." Because of the spreadout plan— and especially when new wings are added—he looks forward to the day when an intercom system may be installed; otherwise, "the building serves efficiently the purpose for which it was designed." The facilities for modern teaching, and accessibility in supervision are the two main items he isolates as superior to other schools of the same general type in the area. He feels that student response and participation are actually furthered by the building, particularly by "the comfort and good lighting." In conclusion, he comments: "We have a splendid location and schoolbuilding of which we are justly proud."

the teachers

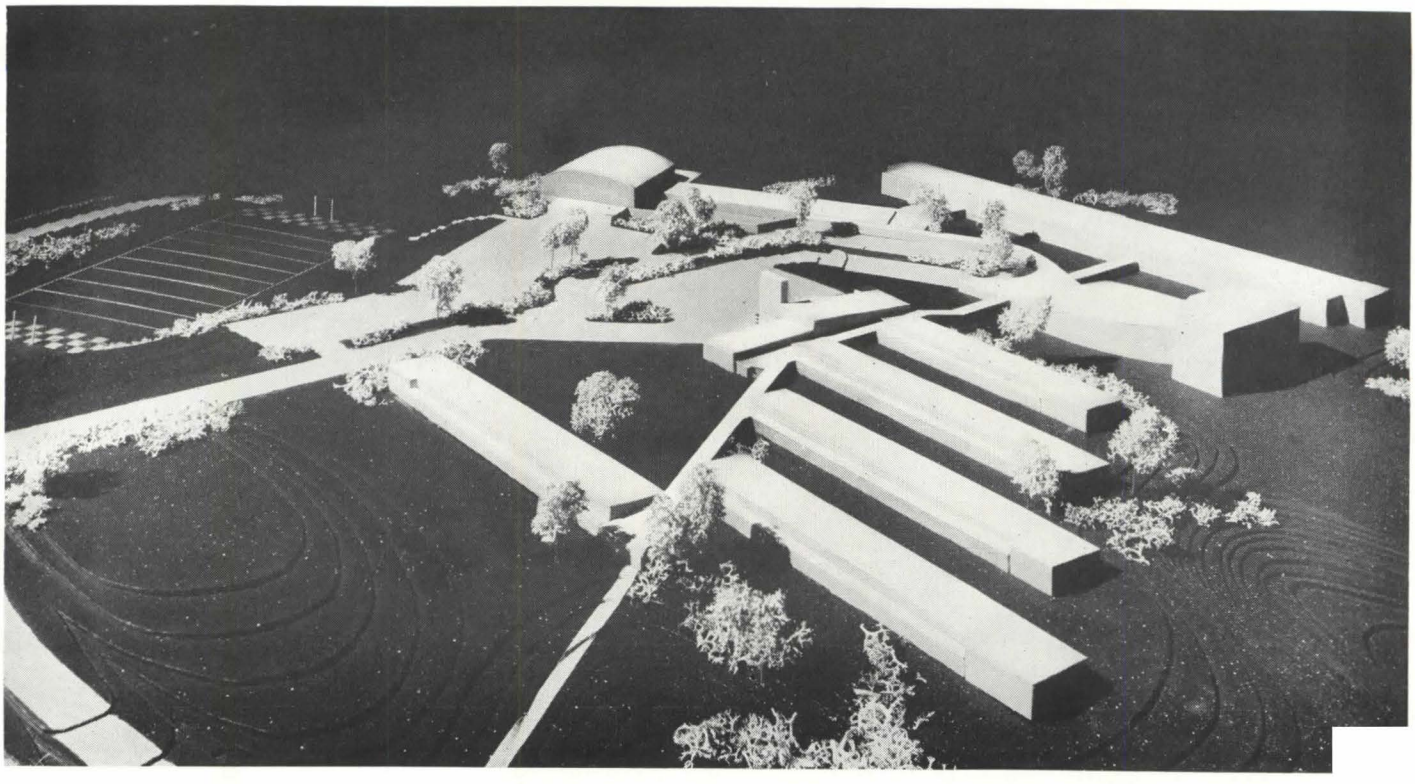
The teachers' over-all impression of the school is "good," with "privacy for each classroom" considered the single most successful element, and the "combination of cafeteria and auditorium," least successful. As mentioned earlier, this combined use is a temporary expedient until the large auditorium is built, as part of the total campus scheme. In the classrooms, desk areas and facilities for teachers are "adequate," though some felt that more chalkboard space and less tackboard might be an improvement. One or two thought it would be better to have cupboards with doors for wraps, instead of the open-front recesses, with shelves, hooks, and hanging rails that were provided. They laud the "pleasing" appearance of the room and the flexible room arrangements that are possible. One commented that "sun is annoying during some periods." The architect states that "on December 22 the sun gets above the sill and onto the floor but not onto the first row of desks adjacent to the south windows. This sun on the floor *does* cause some glare. Except for about three weeks before and after December 22, however, sun does not enter the rooms." The teachers' summary comment is that it is a "very beautiful building; well planned, and providing for expansion.

the students

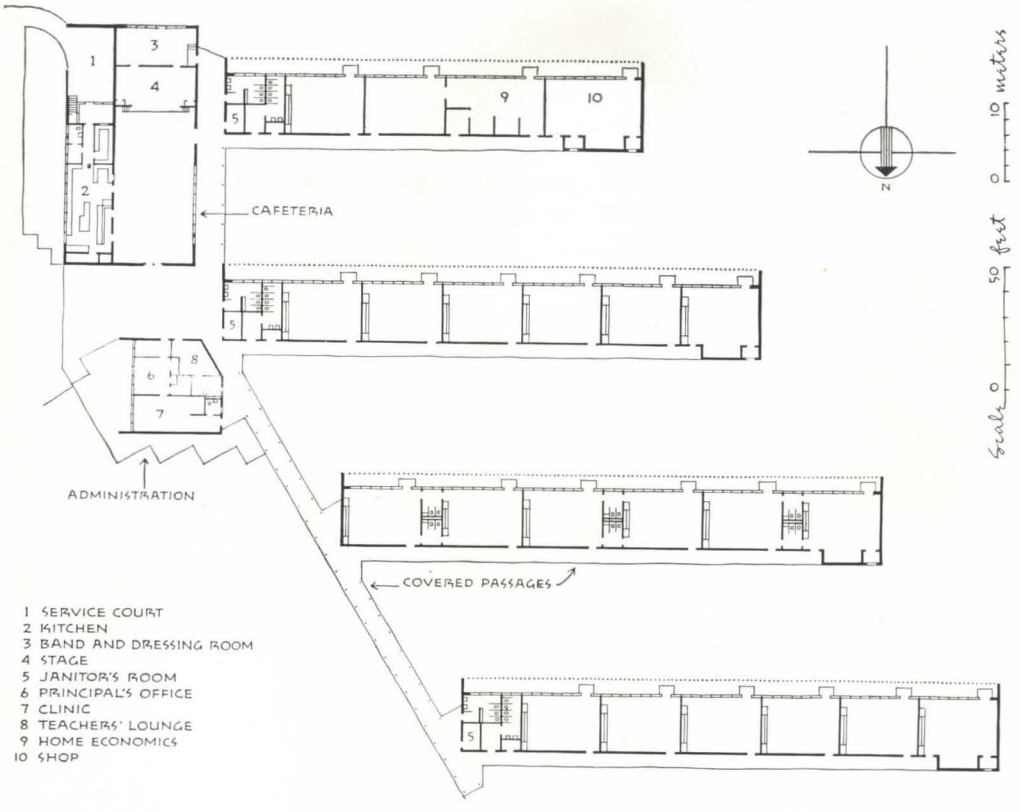
While the students all admire the appearance of the exterior of the building, some mentioned the "sloppy" grounds—again, a temporary condition, awaiting completion of curbs, paving of road, and setting grass when the next additions are constructed. Inside the building, the students praised the "lovely color, many windows, good lights, and surroundings conducive to study." They said they were "proud to be in such a building." In the classrooms, closet space is "adequate"; provisions for the student, "comfortable"; the daylighting "good." Though the rooms seem "noisy at times," hearing is easy. The rooms are always comfortable, and the electric lights, "just right." As compared to older schools that the students had attended, the best things about the new school are the "wash bowls in room; the cafeteria; comfortable seats; good lights; and good heating system; large play area; and plenty of space."

the custodian

"The rooms are easy to work in because of the movable furniture and good natural light," the custodian reports. The heating system is "simple to maintain and operate" and produces comfortable conditions at all times. Electric lighting fixtures are good; "no trouble replacing burnt-out lamps." Window areas are "a good size and no great problem in washing." In fact, the only maintenance difficulty that the custodian ever has are the asphalt-tile floors "in rainy weather." This is because wetness is tracked in from the outside corridors. The architect believes this is a fair criticism and adds that in any future school work, he would like to increase the width of the walks by 1′ 4″ to alleviate this situation.



architects	Aeck Associates
structural engineer	I. E. Morris
electrical engineer	C. F. Howe
heating engineer	L. C. Beland, Jr.
plumbing engineer	G. R. Delay
interiors	Mary Olive Whitehead
general contractors	Murphey Pound Construction Co.



elementary school: Columbus, Georgia

In planning this new school, Richard L. Aeck was the designer, while Frank B. Juden acted as job captain.

Within the area served by the school live about 3500 families and, with the new residential developments being built in the neighborhood, classroom overcrowding became a serious problem—in one case, requiring operating on two shifts. The eventual school plant will also serve as a community center for the adult population. Approximately three miles from downtown Columbus, the hilltop site is 27 acres.

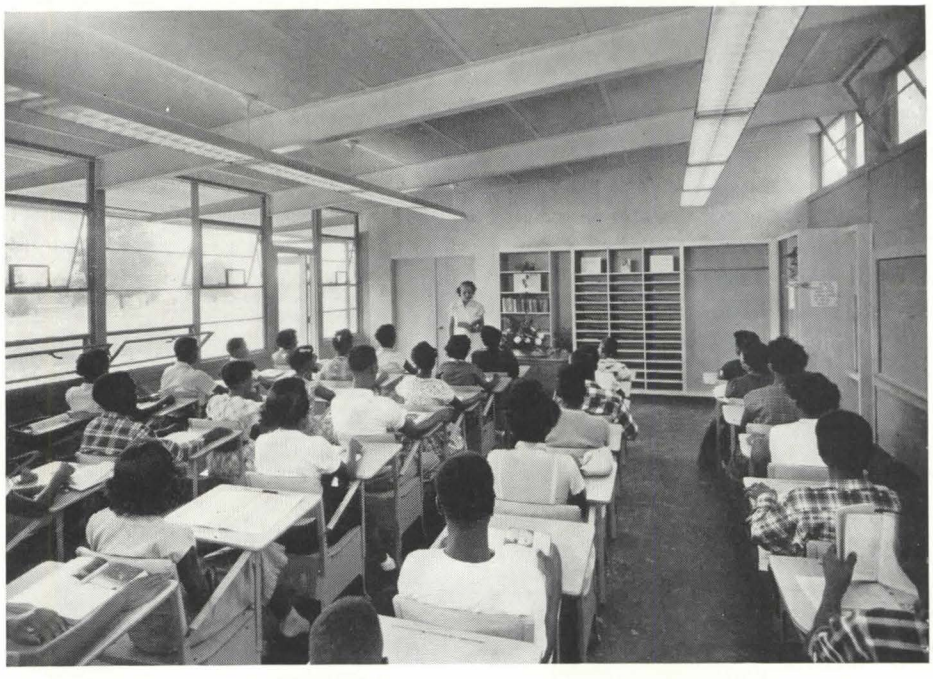
The elementary school shown here forms the nucleus of an ultimate development that will include a high school and auditorium, as well as additional elementary-school facilities. Everything was sized with the future construction in mind. For example, the boiler room is large enough to accommodate two additional boilers that will be needed for the future units; larger water and sewer lines than required for the nucleus unit were installed to obviate ripping out and adding at a later date. Even so, the architects came out with the excellent figure of $9.52 per sq ft, with covered walks and "milling area" figured at one half the cost of enclosed areas. This unit cost includes grading and all fixed equipment.

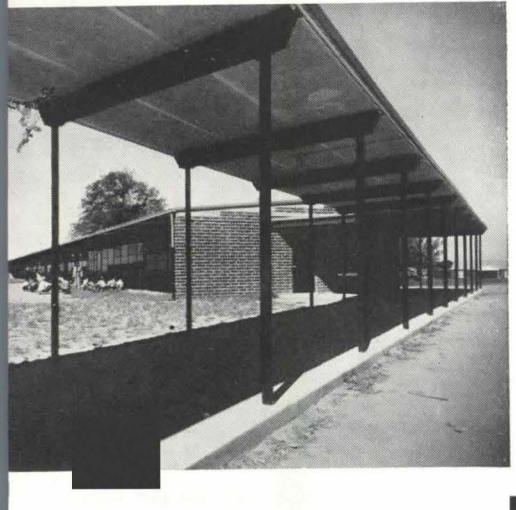
A point that Aeck feels to be of special interest is "the north-south orientation of classrooms, affording maximum control of light, with 6′ 3½″ roof overhang above the south windows calculated to exclude the glare of direct sunlight, without use of blinds." He also notes "the economy of materials," using exposed, rigid-steel frames 8′ oc (*see detailed discussion of this system, August 1953 P/A);* brick curtain walls, exposed inside and out, and the exposed roof decking (chemically treated wood fibers, bonded with cement) that provides, in the one material, structural strength, acoustical properties, and finished ceiling. An advantage to this system, that he emphasizes, is the speed of erection.

Color used in the building is unfortunately not apparent in black-and-white pictures. Most exterior structural steel is painted brick red. The underside of exterior ceilings is yellow; gutters, downspouts, facias, sash, gravel stops, outside door frames, and the cantilevered beams and columns on south elevations are slate gray. Doors opening onto covered corridors are painted Carnival red, while exterior classroom doors along south elevations are variously ivory, Vista green, Focal orange, buff, dark blue, red, dark gray, yellow, and light gray. Inside, classroom ceilings and beams are Seafoam green—and Eye Rest green is used on the walls.

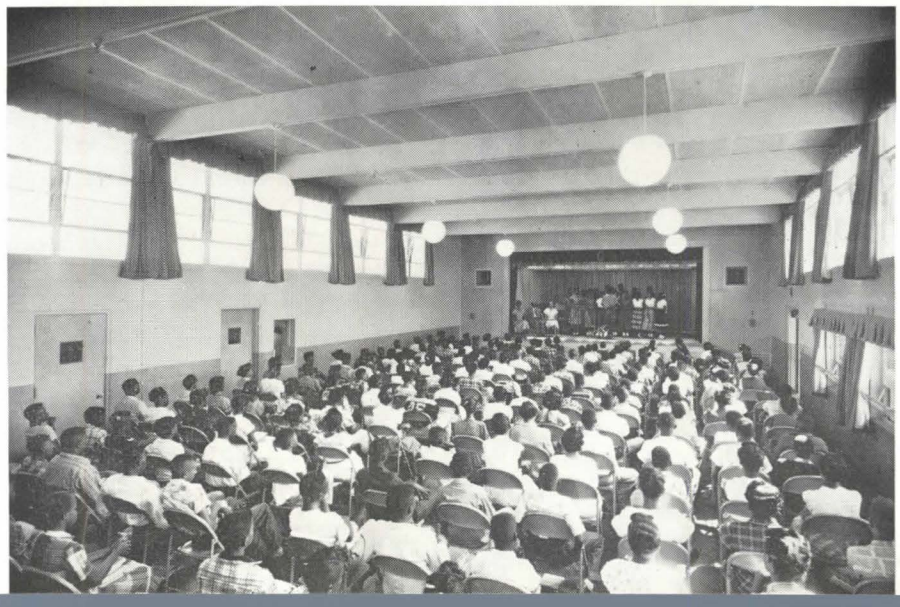
Partitions between classrooms are of plywood. The commercial projected steel sash are glazed with DSB sheet glass; in toilets, obscure glazing is used. In general, lighting is fluorescent, though incandescent fixtures appear in the cafeteria-stage area and in the administrative unit. The building is heated by a two-pipe, low-pressure steam system, fueled with gas; automatic controls. Unit heaters supplement the system in some areas.

In the exterior and interior views of the typical classroom (left and below) *the economical exposed structure is apparent—the steel frames 8′ oc, with cantilevered outriggers along the south windows; exposed structural-acoustical roof decking; plywood partition between rooms.* Photos: Gabriel Benzur





The continuous covered walkway (above) *intersects the stepped-back classroom pavilions at their northeast corners. Opening off the "milling area"* (above right) *is the cafeteria-multi-purpose room that temporarily also serves as the school auditorium* (right).



elementary school: Palm Springs, Calif.

The Katherine Finchy Elementary School, built in the north section of Palm Springs, supplements similar facilities in central and south parts of the community. While the present scheme provides 12 classrooms, plus a kindergarten, the site is large enough to accommodate the anticipated future school of twice this size. As need arises, new classroom wings will be added east of the administration building, eventually forming an almost symmetrical plan, with administration and cafeteria-assembly buildings in the central area.

The school people gave most detailed attention to their commentaries:

the principal

As a facility to administer, Principal Warren Linville reports that the school is "efficient . . . adequate in all areas . . . and unusual in that reserve classrooms are available." He believes the building contributes to student response: "The children quickly become adjusted to the building and seem to enjoy the feeling of adequate rooms and space."

Among the very few things he lists as possible improvements are even sturdier hardware—this, in spite of the fact that a heavy-duty type made by a nationally known firm was used (a common problem?); sound-proofing in the auditorium (a lack that can be rectified when funds allow); and a sink in each room rather than one (in the outside corridor) for each three rooms. The latter, again, was a matter of economy. The architects point out, "too few are better than no sinks at all."

the teachers

In the opinion of those who teach the children, the building is "excellent as a teaching facility . . . there is no disturbance from adjoining rooms . . . the modern architecture is pleasing and functional." They express the wish for doors out to the patios from each classroom. Another refinement they would like is to have separate cooling and heating control for each room, rather than the present system by which one control affects three rooms—"too hard to agree on proper temperature." On the point about patio doors, the architects say that this "appears to be controversial from the many discussions we have had with educators. We have installed many, but none has ever been extensively used. We believe lack of development of the outside classroom is primarily due to the difficulty in obtaining funds for such use." Although the single heating and cooling control for each three rooms operates correctly, the architects agree that due to preference differences, individual room control is desirable and they now use this system exclusively.

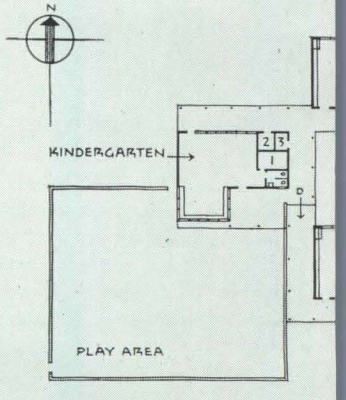
Unanimous applause went to the room size and shape, provisions for the teachers' own use, appearance of rooms, and room lighting, both natural and artificial. Half of the teachers (reporting) desired mobile bulletin boards and units for outdoor work—things that could be provided if the need becomes insistent and if funds allow.

the students

Of the 64 students answering the questionnaire, 50 like the appearance of the outside of the building ("large windows . . . nice color . . . neat and trim . . . shaded porches"). From the 14 with dissenting opinions, we learn that it "looks like a factory . . . looks like a hotel . . . has a bare front." Sixty like the inside of the building: "airy . . . contrast of colors . . . not bright; not dull; just right . . . makes us feel at home." Comments from the four who don't enthuse are "colors not loud enough . . . gets tiresome." The daylight quality; sound condition; room comfort; environment for learning are all things unanimously applauded. And they especially like the "nice covered outdoor walks . . . cool place to play when it is hot . . . nice and wide."

the custodian

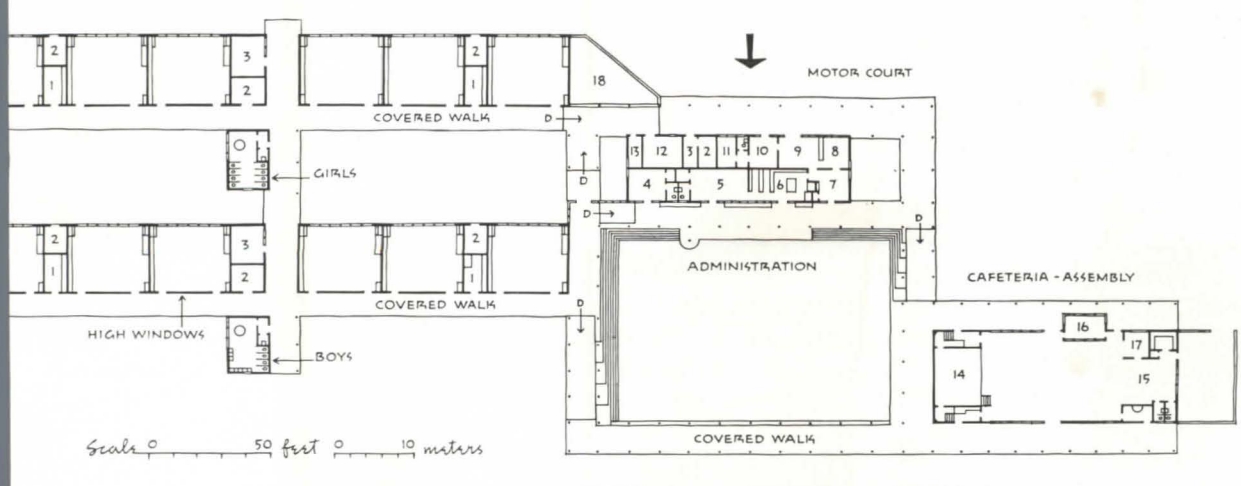
The custodian's special praise goes to the cement floors, which are "easier to clean and require less upkeep" than tile-surfaced floors. The heating system is "simple to maintain and operate"; the lighting has given "no trouble so far"; the water and plumbing installation is "very satisfactory," and cleaning the building is "easy."



A large outdoor assembly area (above) *lies south of the administration building* (right) *and is surrounded with covered walks. Soffits are corrugated aluminum.*

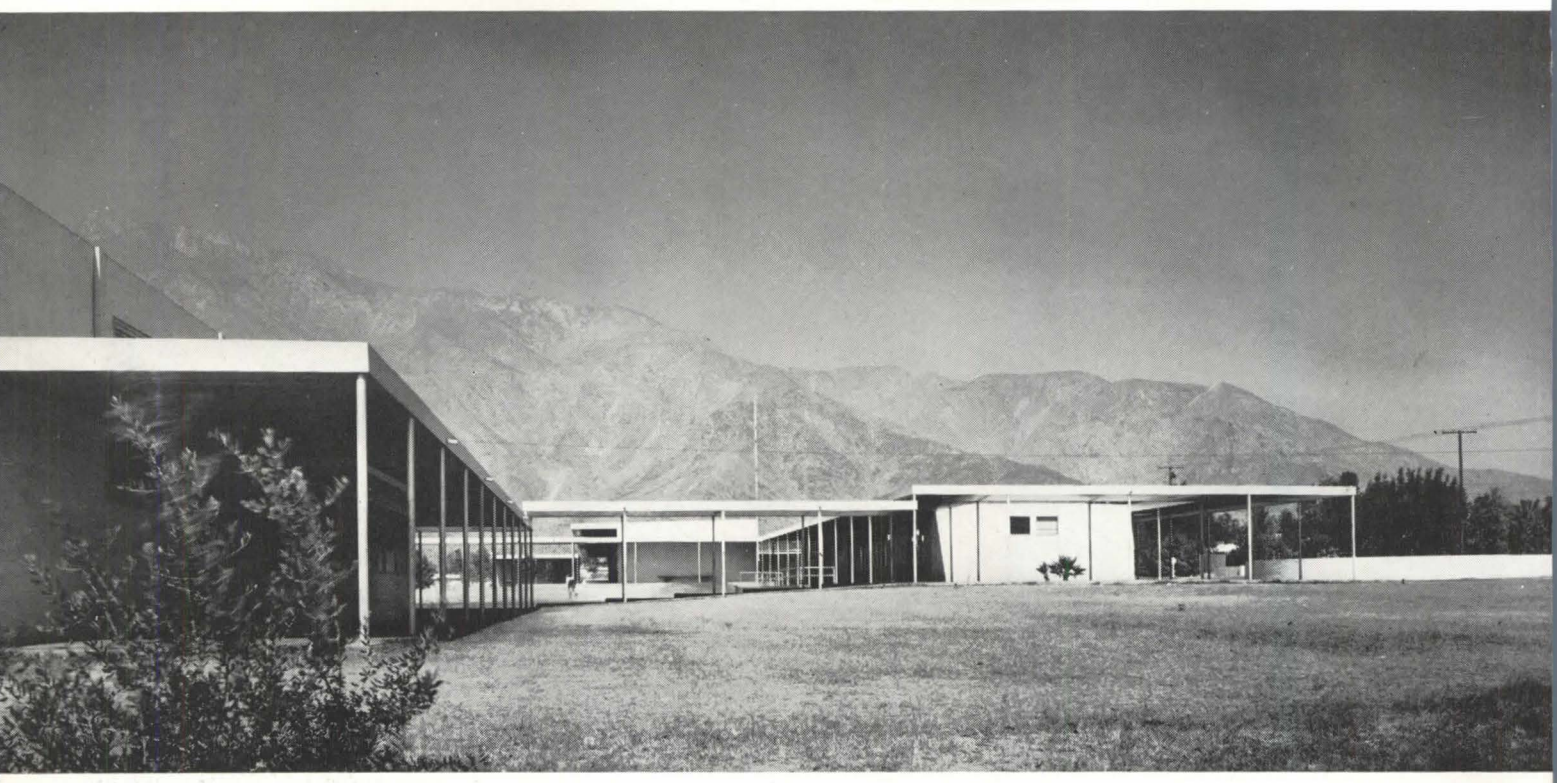
Photos: Julius Shulman

architects	Clark, Frey & Chambers
structural engineer	H. C. Whittlesey
general contractors	H. H. Foster Associates, Inc. George W. Kreimer



1 STORAGE
2 COOLER ROOM
3 HEATER ROOM
4 MEN TEACHERS
5 WOMEN TEACHERS
6 BOOK ROOM
7 PRINCIPAL
8 OFFICE
9 PUBLIC SPACE
10 NURSE'S OFFICE
11 REST ROOM
12 TRANSFORMERS
13 SWITCHBOARD
14 STAGE
15 KITCHEN
16 TEACHERS' DINING RM
17 DISHWASHING
18 PLANTING SPACE

elementary school: Palm Springs, California



Accommodation to the slight slope of the site was handled by ramps in the open-air corridors and passages. Periodic breezes, sometimes strong winds, from the northwest suggested not only the basic arrangement of buildings but also introduction of occasional areas of wire-glass partitioning at strategic points, such as at the northwest corner of the outdoor assembly area, between classroom wings and administration building.

A fundamental program requirement was to keep maintenance costs to a minimum. For comfort during hot weather, at the beginning and toward the end of the school term, shaded outdoor areas and room cooling were desired.

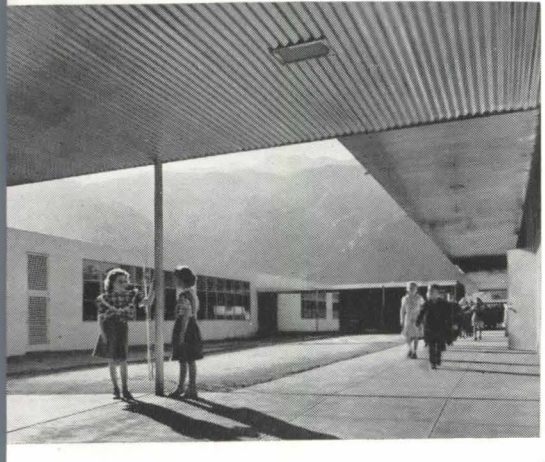
Design and orientation of the bilaterally lighted classrooms were conditioned by the brilliant sunshine in the desert area and the wish to avoid glare. It is worth more than passing notice that, though natural light conditions are extreme in Palm Springs, all those who use the school say the daylighting is first rate—and this, without extraordinary devices such as louvers, directional glass block, etc.

The wood-framed structure is built on concrete foundations; pipe-column supports and cement floors were used for economy; the aluminum roof flashing and corrugated aluminum soffits also contribute to economy, in that they do not have to be painted. Mineral-type insulation between the joists of all room ceilings assists thermal control. The sash are architectural projected steel; doors are wood. Exterior plaster wall surfaces are painted light buff except for the administration unit where the walls are terra cotta. Doors, window frames, and pipe columns are light gray—"a practical color," the architects suggest, "for surfaces that are handled much." Interior classroom colors are medium-light tones, selected for adequate light reflection and distribution. Alternate rooms are Sage green, Grapefruit yellow, and Dusty rose.

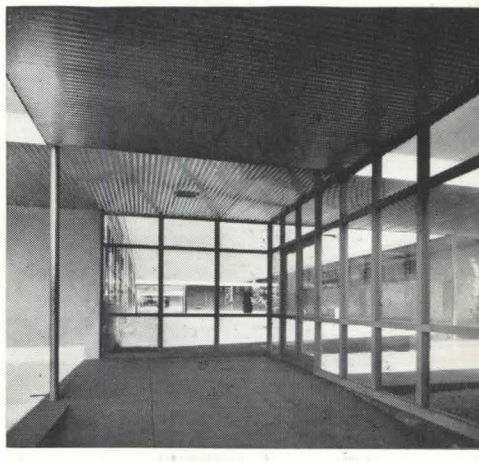
Heating of the plant consists of a forced air system, distributed through overhead ducts, with natural gas furnaces supplying the heat. Cooling is accomplished by water-evaporative blower units, a portion of the cost for these being defrayed by reduction in vent openings in windows that would otherwise have been necessary.

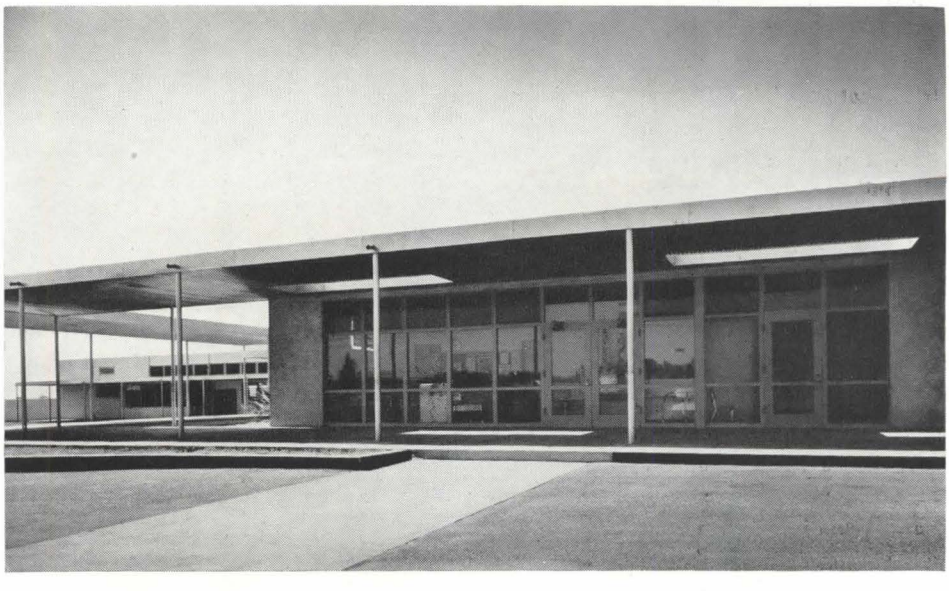
The school, finished in early 1950, was built at a cost of $9.50 per sq ft of floor area, with open corridors and passages figured at half area.

Windows of typical classrooms are architectural, projected steel; the music-practice room (right) *is at the end of the south classroom block.*



Patios between classroom wings (left) *have wide, open corridors, with aluminum surfaced soffits deep enough to keep the sun out of the high bands of windows on south walls of rooms. At intersection of the walk west of the administration building and south classroom wing* (right) *wire-glass partitions shield the outdoor assembly area from the northwest wind.*





The terra-cotta painted administration building (right) *lies east of the classroom wings and (when the total school is built) will be in the center of the group.*

junior high school: Darien, Connecticut

This extensive addition to the Darien, Connecticut, Junior High School was one of the five top award winners in this year's Better School Design Competition sponsored by the magazine, *The School Executive*. An uncompromisingly modern concept, it is joined to an existing, multistory, Colonial-style older building. Use of white trim and the same red brick effects a visual harmony between the new and the old.

Two single-story pavilions, joined by an enclosed corridor, house the 13 new classrooms. The centrally located unit that connects the new addition and the old building includes the main entrance lobby and administrative offices. In the wing that leads back to the two-story mass (gym, one-half flight up; lockers, arts, crafts, and homemaking departments, one-half flight down and at grade, due to the site slope) is a large, south-lighted, cafeteria, multipurpose room. For detailed discussion of the over-all design problem, the building site, and the materials and equipment used in construction, see subsequent pages.

Let us now turn to those who work and study in the building daily, to learn their individual reactions to the school and to see how it affects their various tasks:

the principal

"All told, I consider this not only an efficient building to administer," comments Principal Norman R. Hunt, "but from what knowledge I have of comparable junior-high-school buildings, I consider this one of the best." He particularly applauds the provisions for special subjects—science, art, crafts, home arts, and physical education—which he terms "superior." The central location of the administrative offices, he tells us, "assists efficient administration." Pupils are "very enthusiastic" about the building, and "while there may be citizens who don't like the building, if so, they haven't expressed themselves to me."

the teachers

A committee of twelve teachers compiled a group reaction:

"On the whole, we feel that the school provides excellent teaching facilities," they state. The most successful elements are "the library, the science room, the gymnasium and its relation to the locker rooms and showers." While they find no elements lacking, some express the wish that the fabrics and foods rooms (in the home-arts area) might have been somewhat larger. The architects agree that a larger space would not be wasteful, but add that "the area as built is larger than the area originally requested."

Specifics the teachers cite as greatest improvements over the older building are "the light, sunny, airy corridors, and the good acoustical treatment." The classrooms are "good in size and shape." A minor point that some find a trifle awkward is the part of the cupboard-like chalkboard enclosure with hinged doors that swing out into the room. They questioned if all sliding doors might not have served the same purpose better. Also, for certain types of instruction, a few teachers felt the chalkboard space to be rather restricted. Since the closed cupboard doors have a tackboard surface, the architects comment that the swinging doors (unlike sliding ones) provide desirable additional tackboard space. And, if it proves that certain rooms actually need more chalkboard space, they point out that chalk panels could readily be applied to the backs of the swinging doors.

The louvered window areas meet with general approval, although some teachers questioned whether it might be even better if the corridor louvers above the coat lockers were moved to the exterior walls of the corridors. The architects have been testing this very scheme and may adopt it.

the students

The architects' ears should burn over the opinions expressed by the Student Council, which includes members from each of the grades. General enthusiasm particularly mentions the modernity, abundance of glass, streamlined appearance, and color.

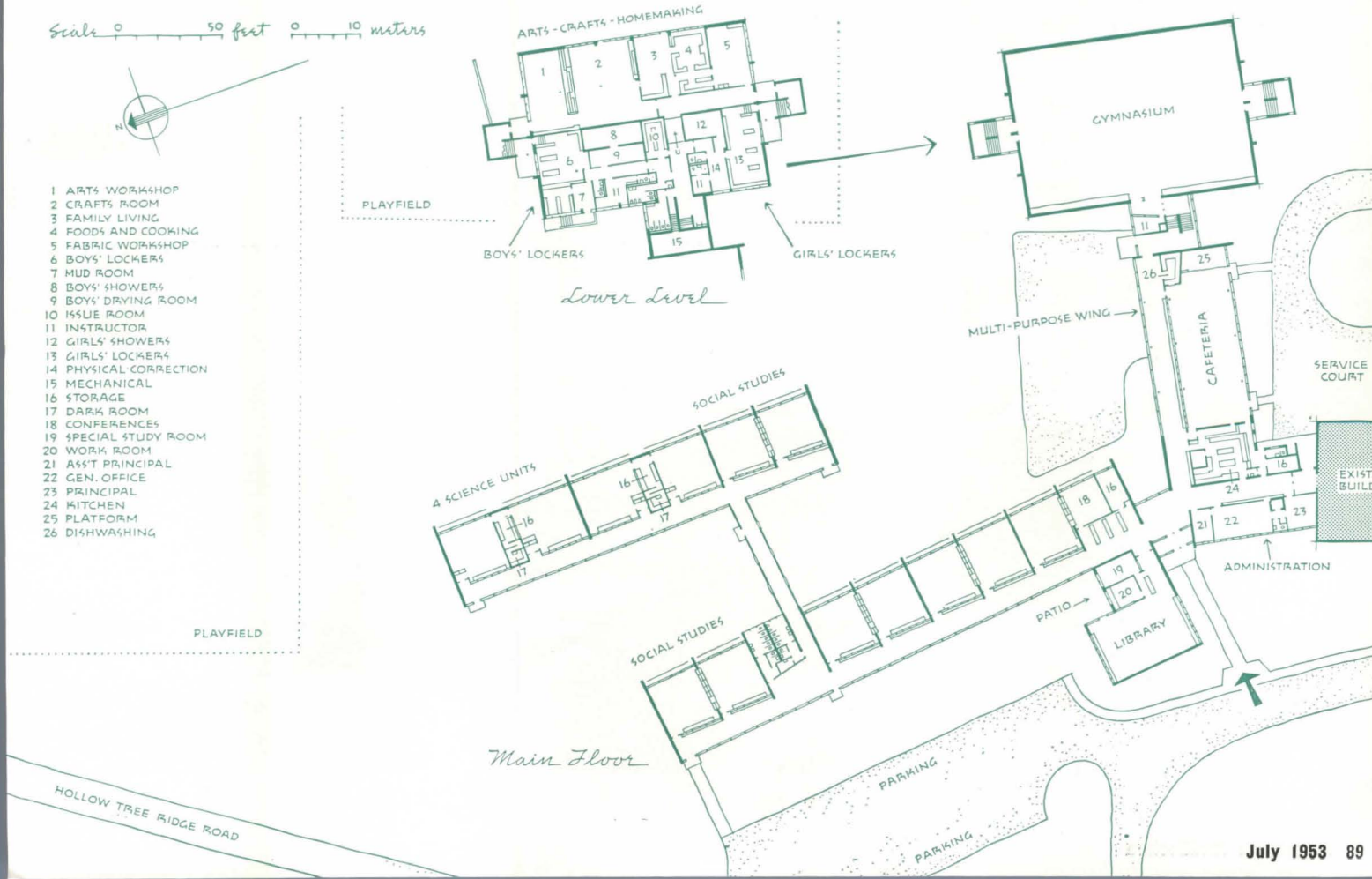
In the classrooms, they applaud the "light, modern, movable furniture." And they note the absence of glare. "The chalkboard is easy to see, and the rooms are much quieter than the rooms in the old building," they testify. They like "the even distribution of heat; the corridors; the fact that there are no stairs; and the walking distances." In fact, except for mentioning occasional glare in the cafeteria, where there are no louvers, their reaction is exuberant.

the custodian

The main things the custodian enjoys about the new building are that there are "no stairways to go up and down many times a day, sweeping of same two and three times daily, dusting of handrails, washing bannisters, etc." Now that the heating system has been adjusted, "an even heat is maintained," and "I do not anticipate much maintenance or repairs." With the inevitable complexity of a modern, automatic system, he comments on the numerous gages, thermometer controls, valve settings, motors, pumps, and converters that require constant check. The classroom lighting he finds "generally OK." For servicing the high-mounted lamps in the gym, either a tall scaffold or an 18-ft safety platform stepladder is required, and "this calls for two men to do the job." He suggested that a better scheme might be to have an installation "similar to that used in theaters and larger auditoriums" wherein the fixtures could be lowered or raised by a rope or chain.

In general, the building seems to be relatively easy to keep clean, and "the window areas are preferable to the small-pane type found in the older building." Though light conditions *in the rooms* are excellent (see technical discussion, page 94), the custodian adds that dusting of the louvers requires a good deal of time. He admires the masonry walls of the classrooms, as "they save many hours weekly in washing painted walls and they don't have to be repainted every three to four years." As to the building's appearance, it is "all right both inside and out."

architects	Ketchum, Gina & Sharp
staff architect-in-charge	Robert D. MacKinnon, Jr.
consulting architects	Moore & Hutchins
structural engineers	Severud-Elstad-Krueger
general contractor	James Romeo & Associates



junior high school: Darien, Connecticut

The suburban Town of Darien, Connecticut, 40 miles northeast of New York, has grown prodigiously in recent years. Among the most pressing resulting needs were additional school facilities. The junior high school was typical. In 1936, the old junior high was built to accommodate 350 students. By 1950, enrollment stood at 494, and estimated enrollment for 1958 is 760.

A citizens' School Building Needs Committee surveyed the problem. The 1949 Town Meeting appointed a Building Committee, whose chief functions were to engage architects, determine the site, and act as client during preparation of preliminary plans. The thoroughgoing manner in which this group chose the architects—originally reaching out to as many as 41 firms and finally selecting a firm that, though distinguished in other fields, had never designed a school—was described in August 1951 P/A.

The program required an increase in classroom capacity from 350 to 750 students—if possible, by adding to the existing building, which was well located and in good structural condition. An early decision was to plan the addition as a one-story wing or series of wings, which, the architects argued convincingly, would be both more in scale with the schoolchildren than a two-story structure and less expensive to build, since it would not require costly fireproofing or stairways.

Numerous preliminary studies indicated the desirability of purchasing two neighboring properties, even though these would not be cheap. The cost was justified, however, by the fact that this would form a total parcel of 26 acres—large enough to accommodate a future new elementary school as well as the junior-high addition.

After deciding which elements should remain in the existing building and which had best be in the addition, requirements for the latter consisted of administrative offices, library, thirteen classrooms, cafeteria, arts, crafts, and homemaking departments, and gymnasium.

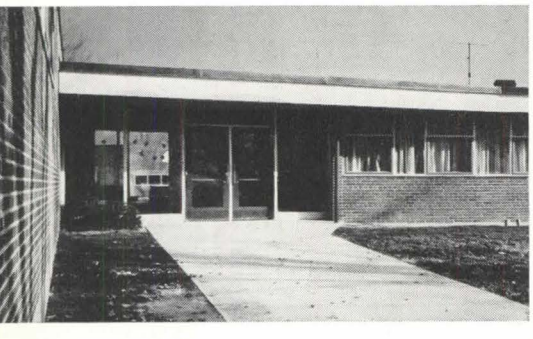
The bilaterally lighted, 28′ x 28′ classrooms are arranged in two wings, served by west-facing corridors. Main classroom window walls face east; high window strips on the west walls of the rooms borrow light from the corridors. Quality of the room lighting is conditioned by metal louvers installed 2′ 2″ outside the east window walls and by louver strips (on the corridor side) on the window bands above the coat lockers. For full discussion of the daylighting system, see page 94.

Beneath the high window bands, the nonstructural classroom-corridor walls consist of furniture units—lockers on the corridor side; a counter-height storage cabinet and work counter, with tackboard above, on the classroom side. In plan, these walls are at an angle inward, forming a sawtooth-pattern that increases the apparent corridor width, assists acoustics, and provides an out-of-traffic reveal to receive opened classroom doors.

Partitions between classrooms are brick-surfaced masonry, with a central portion (extending to the ceiling) made up of cabinet units, one type consisting of chalkboard compartment and tackboard panels (SELECTED DETAIL, page 139), while alternating units combine a diversity of storage elements. In both types of cabinets, when units are closed, the exposed surface, covered with colorful, plastic-base fabric, serves as tackboard area.

Only the gym block is a two-level structure, with the gym on the upper floor; lockers, and arts, crafts, and homemaking rooms, downstairs. Because the site slopes at this point, lower-level rooms are at grade.

Structurally, the classroom wings combine pipe-column framing with steel joists. Spanning the 82-ft depth of the steel-framed gym are 36″ WF steel beams—largest of their type manufactured. Exterior walls are brick. Interior wall surfaces include natural brick, painted and natural plywood, and ceramic tile. Flooring, except in toilets, washrooms, and shower rooms (where ceramic tile is used) is asphalt tile. Steel sash are fitted with ¼″-plate glass; plastic-bubble domes skylight the central area of the library. Artificial lighting is incandescent throughout. An oil-fueled boiler serves the floor-panel, radiant-heating system.

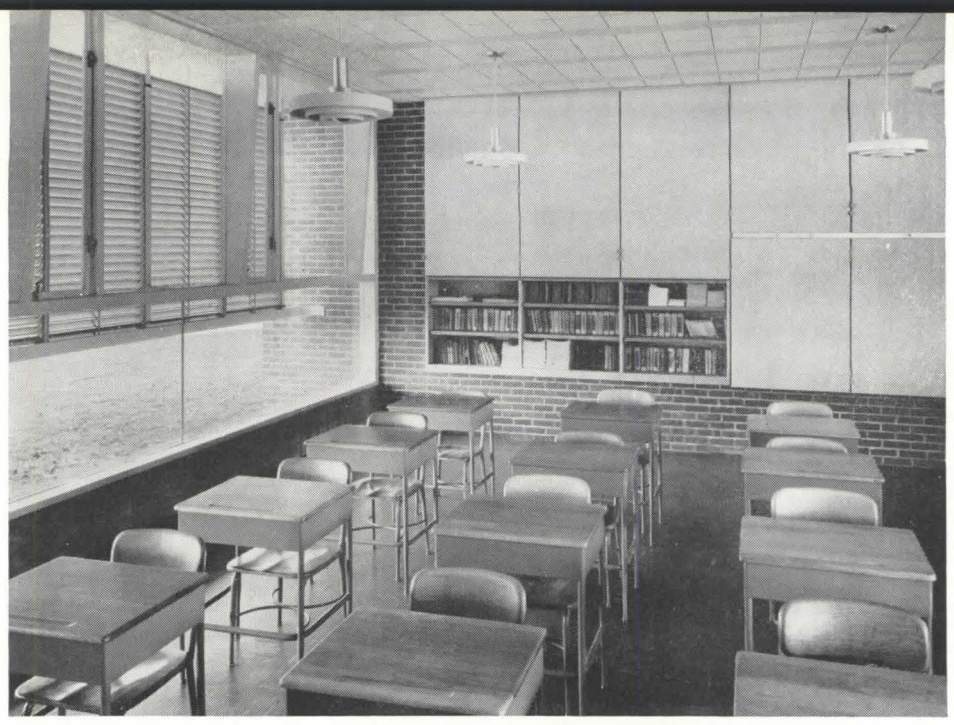


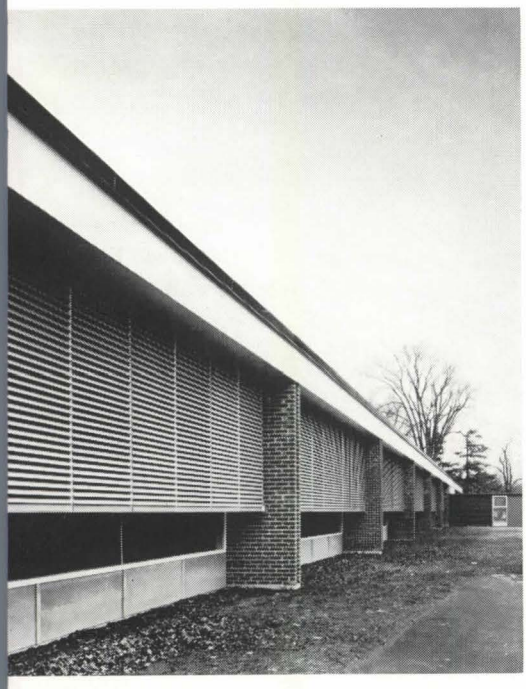
The new main entrance (above) *is in a one-story, central unit that connects the classroom wings and the old schoolbuilding; administrative offices are at right of the entrance lobby.*

The west (corridor) walls of the two classroom wings (right) *are made up of glass areas set in wood frames, with base panels of asbestos cement and a band of 1″ x 6″ vertical wood siding surfacing the cantilevered superstructure.*

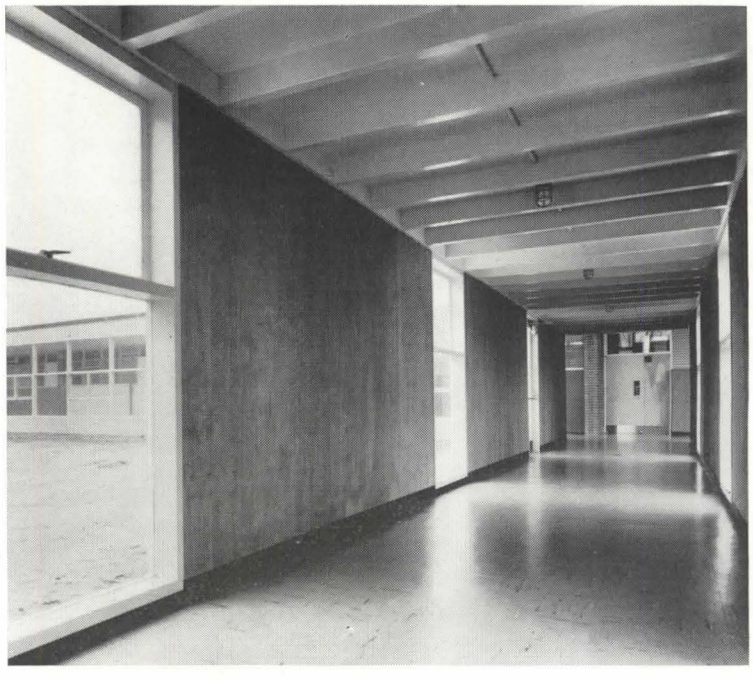
Photos: Lionel Freedman

The three photographs at the top of this page document the devices used for classroom light control—exterior metal louvers outside the big east windows (right and below, left) *and the corridor louvers across the bottom portion of the window strip above coat lockers* (below, right). *Notice the sawtooth arrangement of the classroom side of the corridor and the architect-designed door hardware that combines handle, vision panel, push plate, and lock in a single unit.*





Joining the two classroom wings is a wood-framed, enclosed passage (right and above), *with full-height window and door openings alternating with plywood wall areas that may be used for student art exhibits. Top panels of the window units swing out; bottom panels are fixed.*

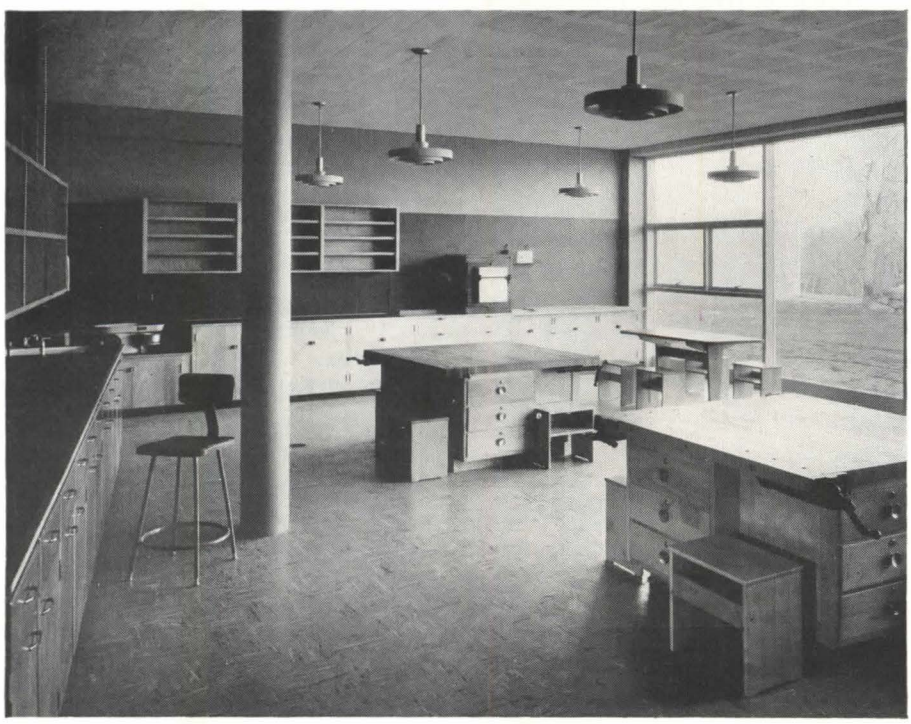


The library is centrally located, immediately to the left of the new main entrance. Instead of one large room, it consists of main reading room, work room and central control point (background, center of photo), *a room for special studies and reference* (behind workroom), *and a lounge corner* (left of photo) *from which a door opens onto a small patio. To daylight the interior portion of the main room, three plastic-bubble domes are aligned in the center of the acoustic-tile ceiling.*

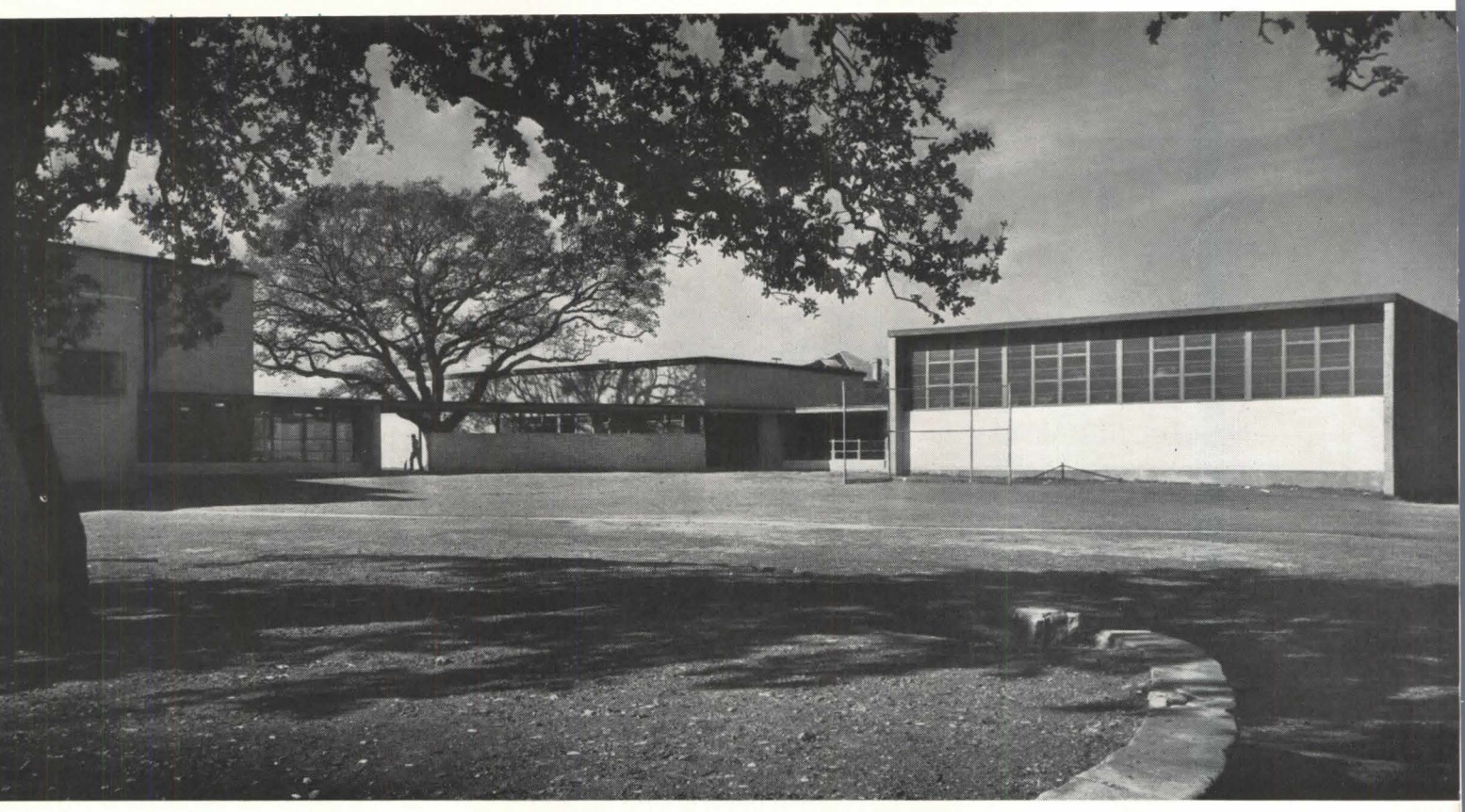
The south-facing cafeteria-multipurpose room borders the corridor leading back to the gym. A plan refinement that speeds operations and reduces collisions to a minimum is location of the tray-return room at opposite end of room (background of photo) *from the serving kitchen; the curtained platform at this same end of the room is for the teachers' dining or it may be used as a small stage for speeches, audio-visual teaching, etc.*

The science classroom (left) *is one of four that occur in the east classroom wing.*

The John Goddard Belcher Gymnasium was named in memory of the late publisher of P/A, who was Chairman of the Building Committee when the school was designed. Bands of directional glass block line the tops of side walls; roll-out bleachers seat 600. Note the 36" WF beams that span the 82-ft width.



On the floor below the gym, in addition to shower and locker rooms, are the home-making department, art workshop, and crafts room (left).



location	Austin, Texas
architects	Fehr & Granger
structural engineers	Wilson & Cottingham
mechanical engineer	George R. Rhine
general contractor	R. P. Farnsworth Co.

school cafeteria, gymnasium and auditorium

Texas is a land of Midas and no dimension. With its racial and linguistic differences, its farflung population, its abundance and areas of desolation, obstacles to education are indigenous. But from the day of the Spanish padres, who taught the Indians, Texans have set in motion a vigorous program of education.

In Austin, the old 16-classroom Becker Elementary School sprawls over an entire block, with only a makeshift dining hall and token play areas. New buildings had been sketched. New footings were in place. But to build on an already overcrowded site would only add to existing confusion and further limit green areas. The project was effected, however, after the Austin Zoning Board gave permission to extend frontage restrictions of the site.

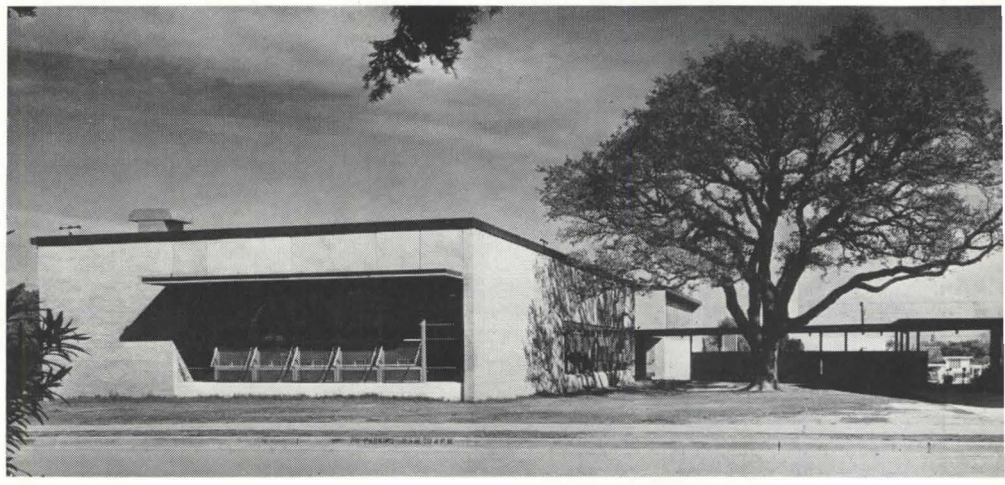
Occupying the south and west sides, the additions group the gymnasium and auditorium about a playing field. A cafeteria unit is developed with an interior court about a massive oak, the most striking element of the site. Kitchen, storage, and delivery facilities, all upon the service side of the building, open a large dining area on a garden. And together with the gymnasium, the cafeteria is linked to the auditorium by a simple roof plane bordered by a stone wall.

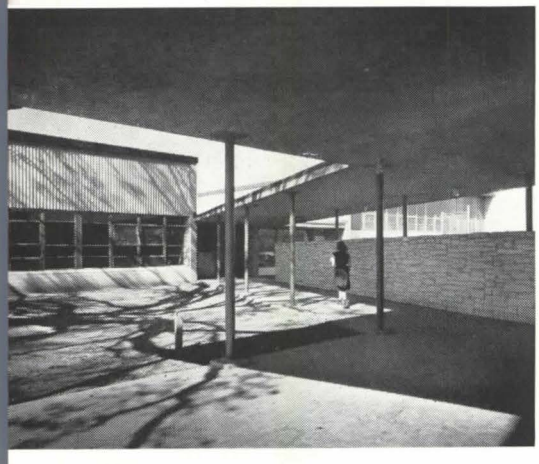
A condition in the school requiring special emphasis was presence of students from substandard areas. For their use, showers were placed near the Health Room of the gymnasium, and supervision with privacy was permitted by one-way glass panels. No lockers or dressing rooms were necessary, since the gymnasium serves largely as a playroom with limited activities and no major athletics.

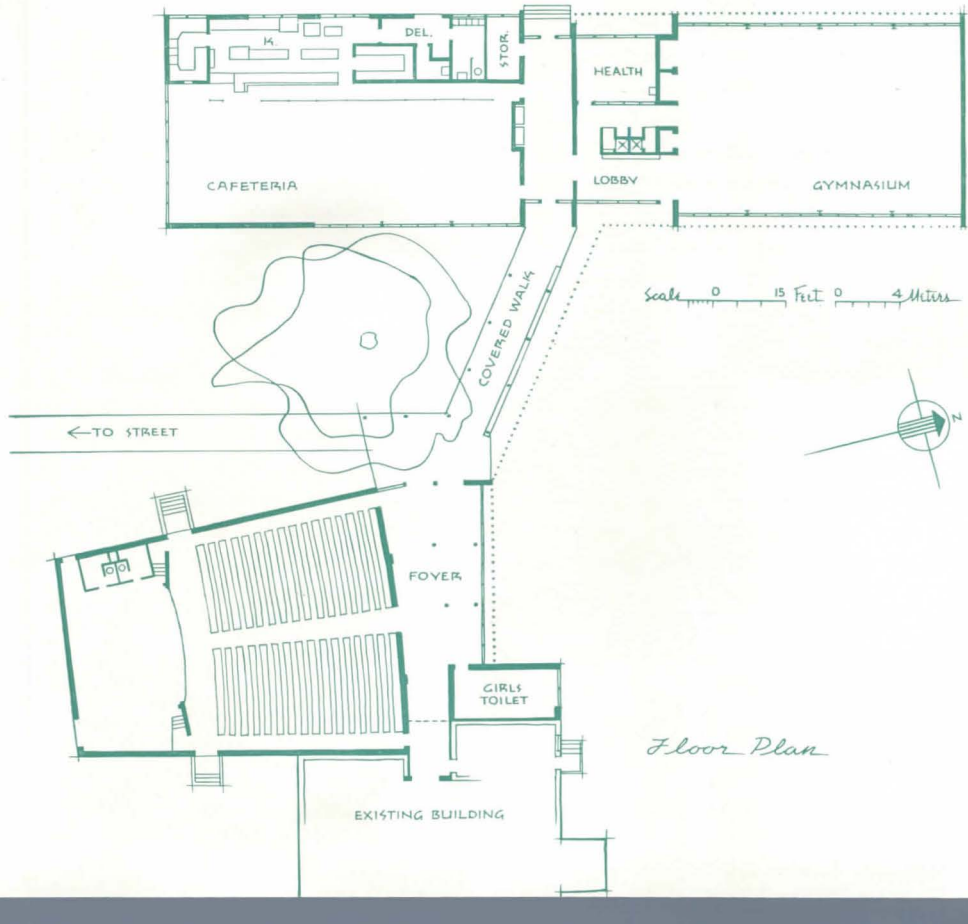
Structurally, units are framed with steel, their walls of brick and hollow tile. Precast concrete decks have composition roofs over 2″ vermiculite insulation. And floors, on reinforced slabs cast at the site, are terrazzo, cement, and wood (for gymnasium and the auditorium stage). A color pattern is set by finishes within, similar to the exterior on which the orange-red of the brick and cream of the tiles contrast with the spray-green trim. A centrally located natural-gas-fired boiler supplies heat to coils in slabs of the gymnasium-cafeteria unit and the forced-air system of the auditorium. Noise is conditioned by acoustic tile and plaster. At present, metal trusses are exposed, but a ceiling will be hung to offset the cacophony of the cafeteria concerto.

On entering the school, and from within the dining area, children view the giant oak in a garden created between cafeteria and auditorium. In the distance, the gymnasium borders on the playing field (right).

Covered passageway (below), *connecting the attached cafeteria-gymnasium to the auditorium, supported by lally columns and having a cement-plaster soffit, is screened by a masonry wall.* Photos: Ulric Meisel



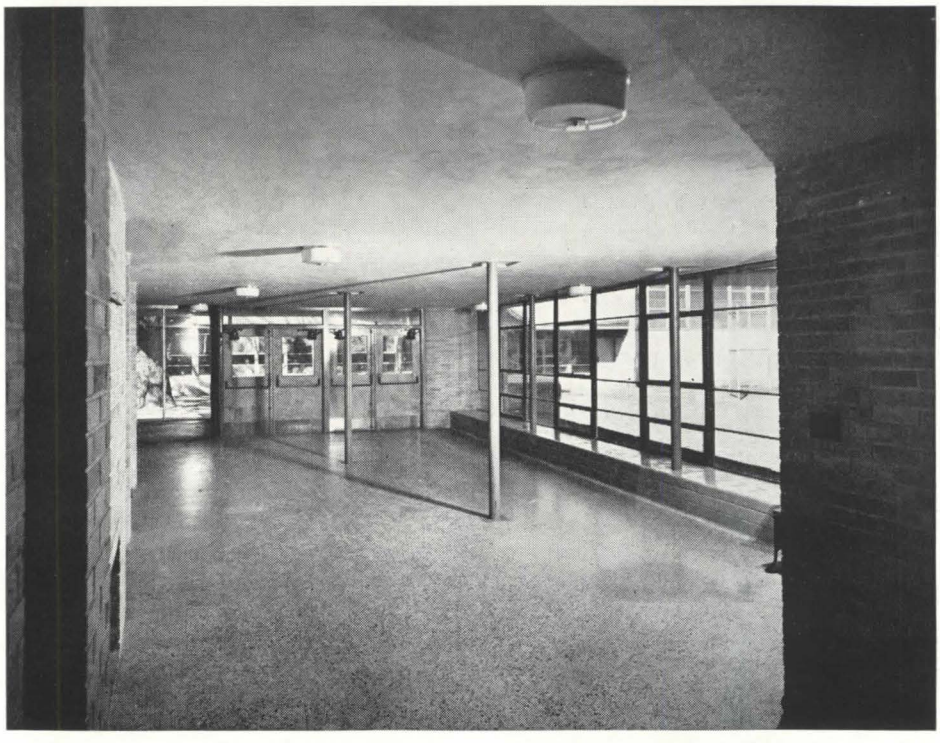




Floor Plan

Light-diffusing glass from gymnasium windows above eye level offset skyglare (acrosspage).

Entrance to auditorium, from the covered passageway linking units, opens upon the playing field of the school (right).



In the auditorium, catwalks are installed above a suspended ceiling to change lighting easily. Acoustic tile is a soundproof measure; lighting, by cove and recessed fixtures (acrosspage).

A window wall facing the street helps ventilate and add light to the service end of the cafeteria. Floors are terrazzo; structural-steel trusses and lighting are seen temporarily exposed (right).

humidity control for schools

A valid point supporting the installation of humidification equipment in school buildings was provided by the publication of a research report by Drs. Theodore T. Puck and Edward W. Dunkin,[1-2] in which it was announced that air with a relative humidity of 50 percent will actually kill bacteria spread by coughs and sneezes. This discovery is particularly important today when so many American schools are critically overcrowded and there is a greater danger of the spread of contagious diseases.

According to the Puck-Dunkin report, and also experiments of Dr. William Lester, Jr., air with 50-percent relative humidity has its maximum lethal effect upon cold germs, bacteria causing sore throats and other respiratory irritations, scarlet fever, and certain types of pneumonia germs. For example, in experiments made with air of middle-range humidity, the influenza virus was found to lose almost four-fifths of its infection power. These reports are also substantiated by information released by the U. S. Public Health Service (*Chart I*).

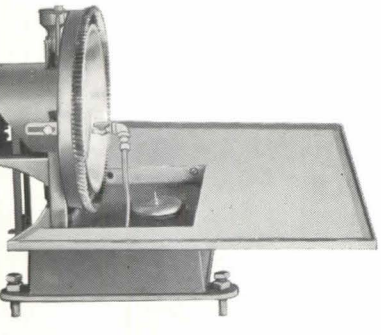
Biologically, the reason for the germ-killing property of air at a certain percent relative humidity is explained by the fact that a moderate rate of dehydration of saliva globules causes the salt content of the saliva to become concentrated into an antiseptic solution which, due to the slow evaporation of the moisture, remains in contact with the germs long enough to kill them. In the case of very dry air, these same germs are preserved in a harmless state but when inhaled they become reactivated on contact with the moist lining of the lungs, throat, and nasal passages. If there is excessive moisture in the air, on the other hand, bacteria remain constantly active.

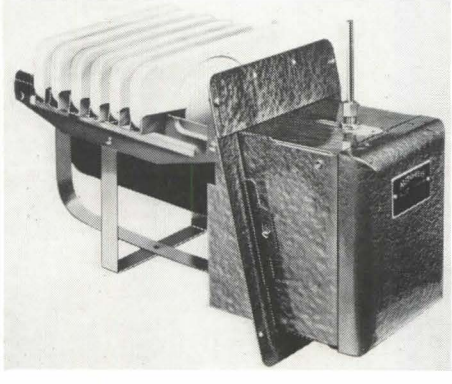
In school buildings which have central-heating systems, the installation of humidification controls is comparatively simple. Those equipped with unit ventilators operating from a boiler, however, are not suited to the addition of most types of humidification controls because of the installation problems involved and the prohibitive expense.

At present, there are two types of available humidity-control equipment. The elec-

[1] *Published in the* Journal of Experimental Medicine, *February 28, 1948.*

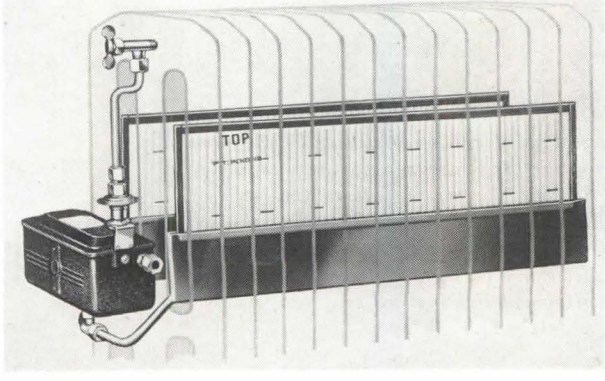
[2] *Similar conclusions were published by Dr. Watt W. Eagle in "Specific and Rational Therapy in Otolaryngology,"* Southern Medical Journal, *Vol. 45, No. 8, August 1952.*





"*Atomist*" (left) *designed for forced-warm-air heating and ventilating systems, creates mist in air stream between blower and heat exchanger so that water particles will be vaporized in passing over heat exchanger. Plate-type humidifier with ceramic evaporator plates* (right) *maintains water supply by balance system.*

Photos: American Foundry & Furnace Co.
Auto-Flo Corp.



Compressed-air-operated spray humidifier (above) *designed for manual or automatic control. Twin troughs* (right) *are inserted between sections of hot water or steam radiators. Water supply is maintained by float-controlled valve.*

Photos: Maid-O'-Mist, Inc.

by Morris Margolis*

trical type operates through moisture expanding or contracting a human hair or a metallic grid embossed on a plastic base; the movement of either the hair or the grid will activate the switching mechanism.

In the case of the pneumatic type of control, the installation is either on the duct work itself with the sensing element extending into the duct or directly in the path of the normal air circulation. In these instances, the amount of air escaping from the nozzle controls the increased or decreased amount of humidity.

Any one of three types of moisture-introducing units may be attached to the controller mechanism, depending upon the type of heating unit installed. In forced-air heating, a mechanical mist generator located in front of the blower breaks water into very fine particles without the use of heat. This mist, blown past the warm-air heater, is immediately absorbed by the warm air and transmitted through the pipes to individual rooms. A stream of water is forced against a metal comb at high velocity by a small centrifugal pump. Governing the rate of mist generation is the controller mechanism which increases or decreases the flow of the water according to the humidity content of the air.

With installations of central-fan heating, humidifiers of the pan or injector type are used. The pan variety is applicable to steam-pressure systems of five pounds or more. The pan, constructed of heavy copper, tinned on the inside, holds the water to be evaporated. Water level is controlled by a copper float activated by a controller mechanism. Fitted into the pan above the water level are steam coils which supply heat to speed the process of evaporation in the pan. In order to insure the best results, it is recommended that this type of humidifier be installed between the tempering coil and the fan.

The injector type of humidifier is most suitable when the heating system is low-pressure steam. If this type is selected, clean live steam must be used since it is sprayed directly into the air.

Controlled experiments demonstrating the advantages of proper humidity, the continued development of improved humidification products (*see illustrations*), and the increased number of such products indicate there undoubtedly will be a wider consideration of humidity controls for school installation in the future.

* *Assistant Secretary, The Humidifier Association.*

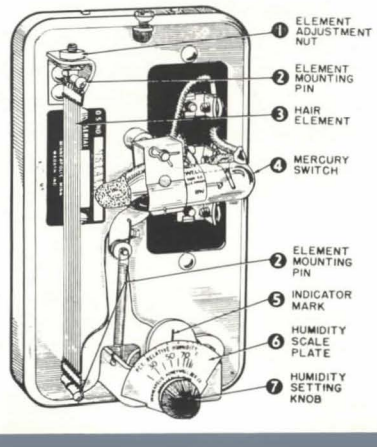
Chart I—Degree of correlation between periods of lowest relative humidity and periods of highest rate of respiratory disease.*

Month	Average indoor relative humidity (percent)			Total number of cases of respiratory disease per 1000 population
July	59			17
August	56			20
		High	Good	
September	51	humidity	health	23
October	40			29
November	20			40
December	12			58
January	12			92
		Low	Poor	
February	14	humidity	health	102
March	18			89
April	25			55
May	35			35
		High	Good	
June	57	humidity	health	22

* Source: U. S. Public Health Service

Suspended from ceiling, these humidifiers (below) *can be installed singly for small spaces or in any multiple for large rooms; plug-in operation.*

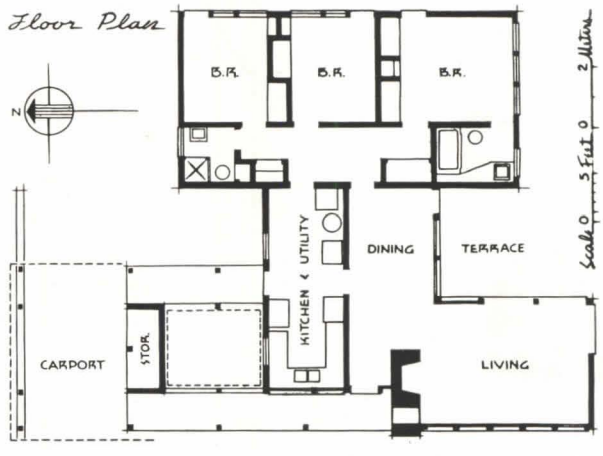
Photos: Walton Laboratories, Inc.
Bahnson Co.



This humidity controller should be installed on wall of space to be humidified, except when used with central-fan heating or air-conditioning. In the latter cases it should be mounted in return-air duct.

Photo: Minneapolis-Honeywell

location	Macon, Georgia
architects	League, Warren & Riley
general contractor	H. L. Freeman



HOUSE

To Georgia farmers, the ubiquitous plantation field shed with its tin roof white in a summer sun and its thin stilts supporting sharply-angled planes, has a humble familiarity. To the critic or designer, it is a humility nearing eloquence.

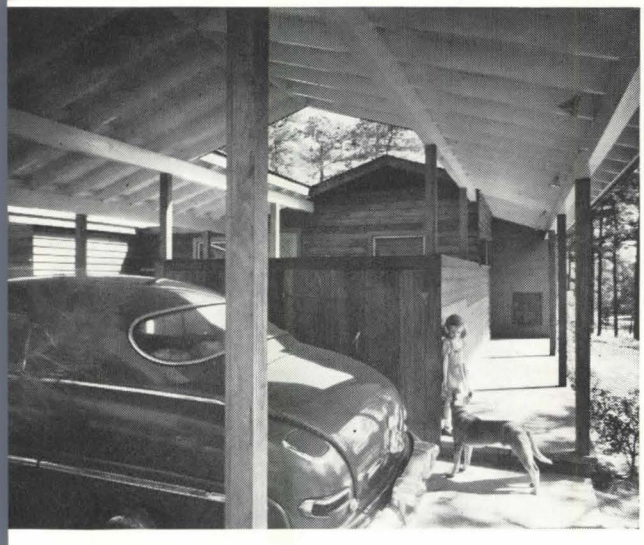
Set deep among longleafed pines, this suburban Macon house faces west, on a site sloping to the south. It was planned for a budgeting, servantless couple with two children, who sought utility and privacy. They wanted a design suitable to the area—one devoid of pretense and display. To do this, the architects closed the street side of the house and grouped rooms around an interior terrace. Then two entrances were planned about a sheltered service court, linking the carport to the living areas. With its broad roof penetration, more light was admitted to the kitchen, and the sense of an expanding volume was intensified. A wide bedroom hall, doubling as a play area, made all the rooms accessible to the kitchen.

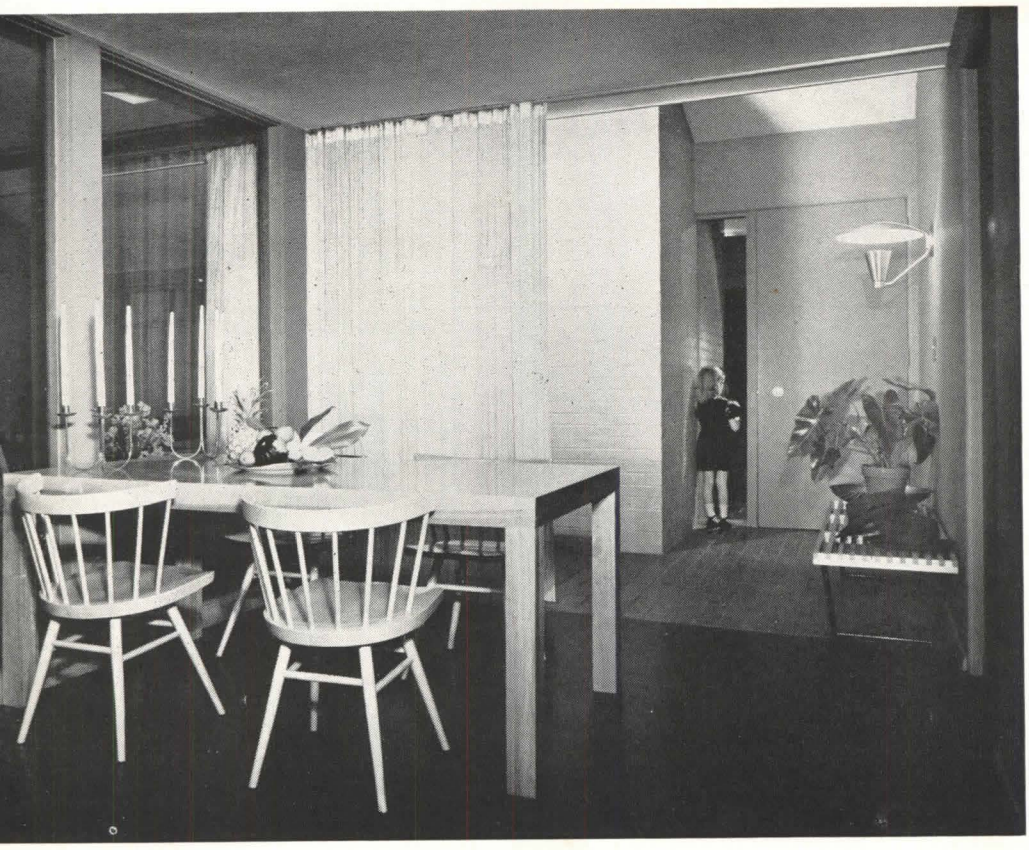
Materials and colors were chosen as a relief from the faded red brick of neighborhood homes. Redwood siding contrasts with oyster-white asbestos shingles, recalling the infinity of shining roofs atop gnarled-plank farm sheds. Within its limitations of convention, there seemed to follow a solution consistently sympathetic.

Redwood screen around drying yard, with storage closets adjacent to carport, leads to living room and kitchen entrances (below). *Essentially a frame structure with a steel ridge and flat steel bracing, the house rests on a concrete slab over hollow tile. Floors are finished with brick and asphalt tile; walls, painted plaster on lath. Insulation is 4" wool-type bats; forced air, warmed by a gas burner, supplies heat.*

Living room (right) *opening on an interior terrace has high windows (giving cross ventilation) on the street side, for privacy.*

Photos: Richard Garrison





Self-contained dining area, opening on terrace, may be separated from the living room by a drapery. As an extension of color within the house, brick masonry is painted oyster-white, while beiges and terra cottas contrast with yellow-and-black asphalt tiles (left and below).

Affording adequate space for meals, laundry, and hobbies, the utility area and kitchen (below left) *are interconnected.*

accounting for architects, part 1

*by Claire Trieb Slote**

Like professional men everywhere, architects often tend to regard professional accounting with indifference if not outright neglect. But since the architect, like the corner grocer or the president of a steel company, is in business to make money, he can hardly afford to ignore this essential profit tool, especially with the competitive situation what it is today.

Large business, and more recently small enterprise too, realizes the need for objective accounting guidance in such vital business problems as:

How to make legitimate tax savings.
How to insure accurate, revealing records.
How to detect financial disaster warnings.

Working as he does in dozens of industries, the certified public accountant can bring to the architect the benefit of his diversified experience with all. Don't mistake him for a glorified bookkeeper. While he does deal with your books, it is to act as a channel of communications between you and your profits.

Following are a few examples of the ways in which objective accounting practice has aided architectural firms.

are you overtaxing yourself?

Taxes are high enough as it is, but (surprisingly) many businessmen add to the burden by overpaying. According to the experts, there are two common causes of mistakes—ignorance of legitimate allowances and failure to plan ahead for the tax implications of year-round transactions.

Typical is the New York architect who summoned an accountant for a routine check and was amazed to learn that the government owed him $500. Why? This man's wife had been working in his office for three years at $60 a week: her husband paid federal social security and federal and state unemployment insurance taxes on her salary.

"You aren't supposed to pay those taxes on a wife, nor should she have been making employe contributions," the C.P.A. pointed out. Since these amounted to 5% of her salary for 1949 and 6% for 1950 and 1951, the couple had made unnecessary contributions of more than $500 to Washington and Albany. The accountant promised to drop around with refund applications next morning.

Tax considerations should enter into every business move. It's the only way to avoid head-holding on March 15. Take the case of Architect John Smith who decided to give his place a much-needed face-lifting:

He called in a contractor for prices on the following work: repairing a few bad spots on the roof; replacing the coal furnace with oil; relocating steam pipes; installing a modern electrical wiring system; mending broken plaster; painting the walls and ceilings; building new shelves; and remodeling the office lobby. Smith assumed that he could deduct all of this on his tax return under the heading of "repairs." Had he done so, he would have forfeited a $6000 deduction.

Luckily, he checked first and learned that repairs are deductible but improvements are not. The U. S. Treasury regards as repairs any measures taken to keep the property in reasonably good condition without adding appreciably to its value. In this instance, the Treasury would consider as repairs only the roof-mending, the relocation of steam pipes, the painting, and the mending of broken plaster—which came to $6000. Everything else would come under "improvements," which are simply depreciable.

If repairs are made at the same time as improvements and a separate itemized record of them is *not* kept, the repairs may be considered improvements—and no deduction allowed on the whole works!

* This article was prepared with the co-operation of the American Institute of Accountants, national professional society of certified public accountants.

As a result, Smith had two separate contracts drawn up with the builder: one for repairs, the other for improvements. He was able to deduct his $6000 repair bill when tax time came around.

An unexpected by-product of this experience was the advice he was able to pass on to a client contemplating similar work. Often it's as important for an architect to know about tax laws as about building codes.

records reveal all

Unfortunately, it often isn't until the businessman has been spurned on important bank loans that he comes to appreciate the vital link between his diminishing working capital and his record-keeping system.

When called in on such situations the C.P.A. tries to uncover basic causes of difficulty, many of them traceable to faulty record-keeping. As a survey of 408 bankrupt businesses revealed, 53 percent of the casualties kept no adequate records.

To cite only a few common symptoms of financial troubles in architectural offices:

1. One architect who was disturbed because year-end profits seemed lower than he had reason to expect—considering the satisfactory volume of business—made this discovery after completion of a thorough accounting check: his office was spending too much time on each job. True, the draftsmen kept timesheets on each project, but the system had bogged down. For one thing, the architect had never arrived at a method for translating these records into realistic dollars-and-cents costs, in terms of accurately allocating overhead to each job. Moreover, by the time the timesheets were tallied up, it was too late to do anything about *preventing* too much time lost in checking of shopdrawings and large-scale details for ornamental work. Because of this lag in information, this architect was continuing to set his fees on new jobs as unrealistically as on the existing ones.

2. Another architect, who decided on a record audit to explain his financial troubles, discovered that one drain on his profits was due ultimately to inadequate supervision. It seems his staff was turning out contract drawings rapidly enough—in fact, too quickly. Most of them required extensive rechecking, a wasteful practice that was cutting heavily into his profits. One senior draftsman assigned to supervise all drawings, he decided, would be a worthwhile investment in the long run.

3. On the other hand, there's the case of the architect who found that eliminating a top job was the solution to his hidden costs headache. Accustomed to doing small homes, this man was getting his toe into industrial plant work. He'd hired a full-time structural engineer to work on these jobs. However, a careful check of his records revealed that actually this new volume wasn't adequate to justify the engineer's services. As a result, he realized that it would be more economical in this particular case to "farm out" this work, as needed, to an outside engineering firm.

disaster warnings

No one but the business owner himself can —or should—make the decisions affecting his business. But, by the same token, the decision-maker should arm himself with the best available information on which to base his moves. Accounting supplies this data, and supplies it objectively.

For the average small firm, a C.P.A. can set up a record-keeping system to be administered by the owner himself, with only monthly or quarterly audits. An added *plus* is the fact that the accountant familiar with the business is then available for consultation on the accounting aspects of insurance, credit, and legal questions. He's also the man whose opinion is respected when banks request facts concerning a business.

Use his services according to your firm's particular needs. But at the start of any relationship with him there are some basic questions which all businessmen should ask. Here is a list suggested by the American Institute of Accountants:

Am I taking advantage—especially through advance planning—of legitimate tax savings?

Are there any overhead or other costs I haven't included in my pricing?

Are my finances under control?

Have I missed any logical places to shave costs and expenses?

Do I seem to have adequate insurance coverage?

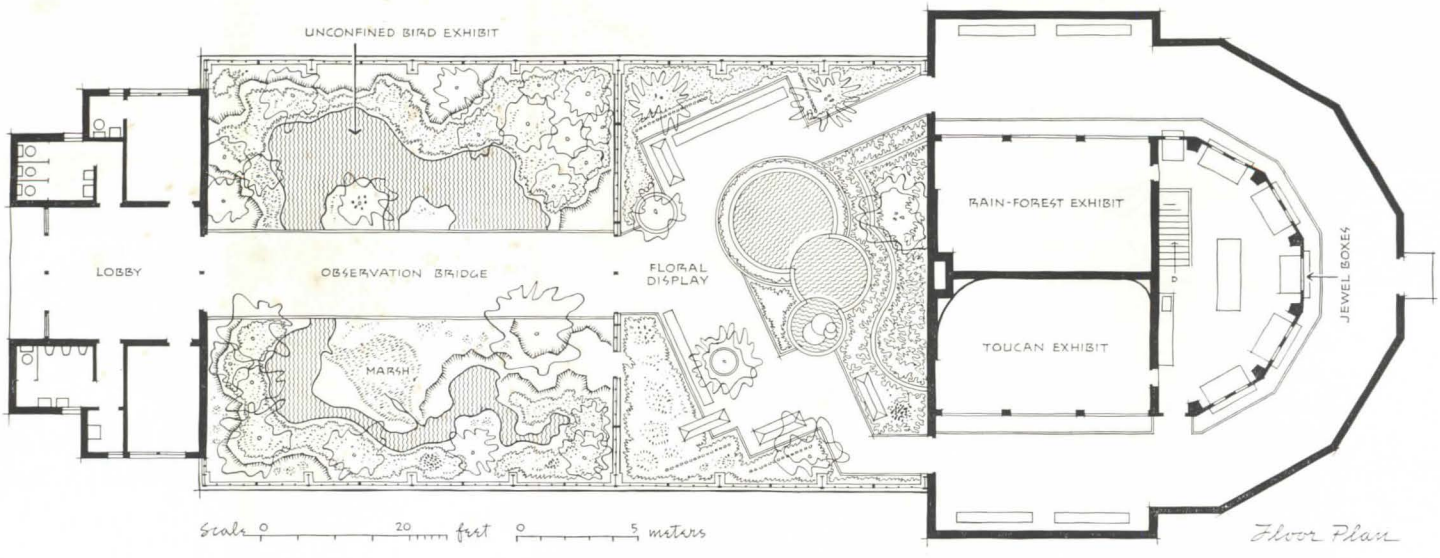
Generally, do you think my business is in good health?

No businessman in his right mind would consider building a new structure without an architect and a plan. Oddly enough, the planning concept so essential in *constructing* a place of business is ignored when it comes to *conducting* the business.

Scientific accounting serves as the architecture of business. It can prevent losses by raising danger signals of structural weakness far enough in advance to avoid some major crises.

location	West Park, Pittsburgh, Pa.
architects	Button & McLean
structural engineer	R. A. Zern
landscape architects	Simonds & Simonds
general contractor	Branna Construction Corp.

conservatory - aviary



Floor Plan

Passing through the doors of the new Conservatory-Aviary is a challenging experience for visitors, who find themselves amid the lush foliage of a tropical jungle and who may, at any moment, see the flash of a ratchet-tailed drongo, hear the beguiling notes of the mimicking myna bird, or suffer the lunacies of West Park's arch-buffoon, the toucan. One instant, the air may be heavy with an impending silence: the next may transform it into a shrill and festive patchwork of life.

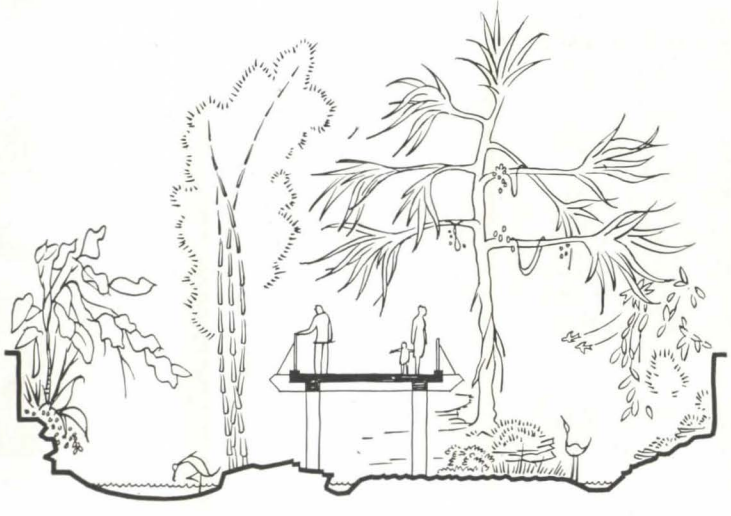
In seeking to "house exotic birds and plants in their natural habitat," Lamont Button, the designer, created a glass shell within which birds move unconfined. All tastes are satisfied, for displays include humming birds poised in their "jewel box" cages, a rain-forest exhibit with birds flying through thin spray mists, and in subdued contrast, the floral display room. Within the free-flight area, with its hundred species, visitors may cross a bridge to find a marsh, a lagoon, or a miniature waterfall—an ever-changing and colorful panorama.

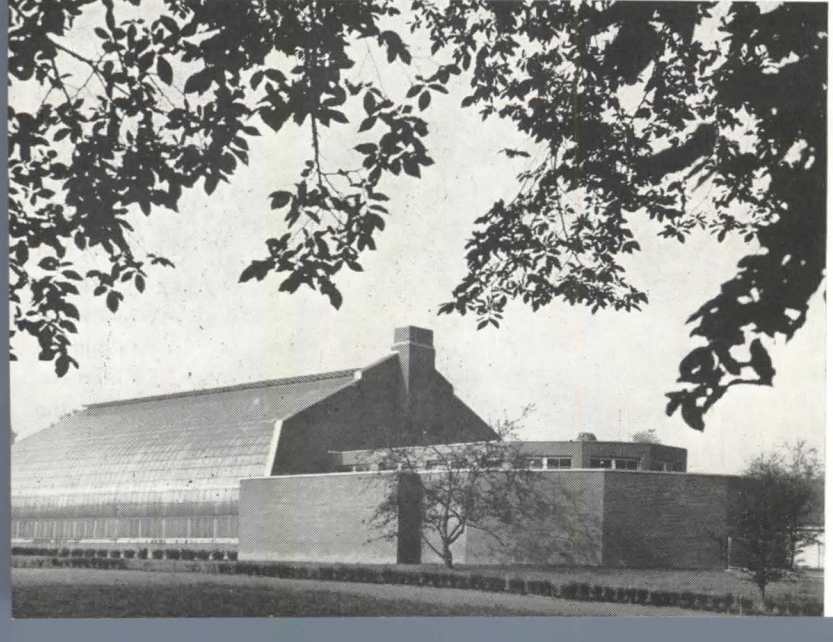
It is in this free-flight room, though, that the imagination is stirred. For while visitors stand amid fiddle-leaf fig trees, canes, bananas, and papayas the tanagers and honey creepers swing in flight overhead. And as the visitors stare at birds they can see, they search eagerly for other hidden ones they can hear. In this dreamlike setting, filled with rare plants and birds, the people are literally intruders.

A bridge extends the entire length of the unconfined bird exhibit, which accents motion and sound in every way possible and focuses interest upon the tropical setting and the bird colors (right).

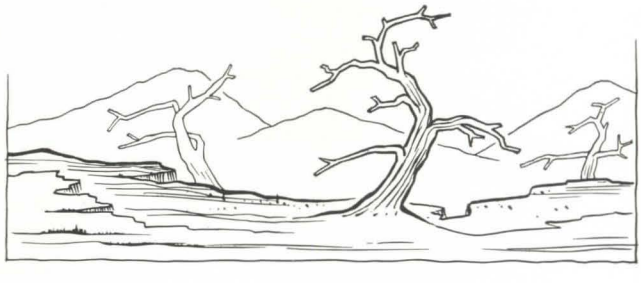
Within the floral display room (above), *a marked contrast to the free flight area, the lushness of vegetation is subdued.*

Photos: Neuman-Schmidt Studios





Northeast elevation shows the two structural systems employed in the Conservatory-Aviary. Brick masonry walls house the toucan, rainforest, and "jewel box" exhibits; steel ribs and glass frame the unconfined bird area.



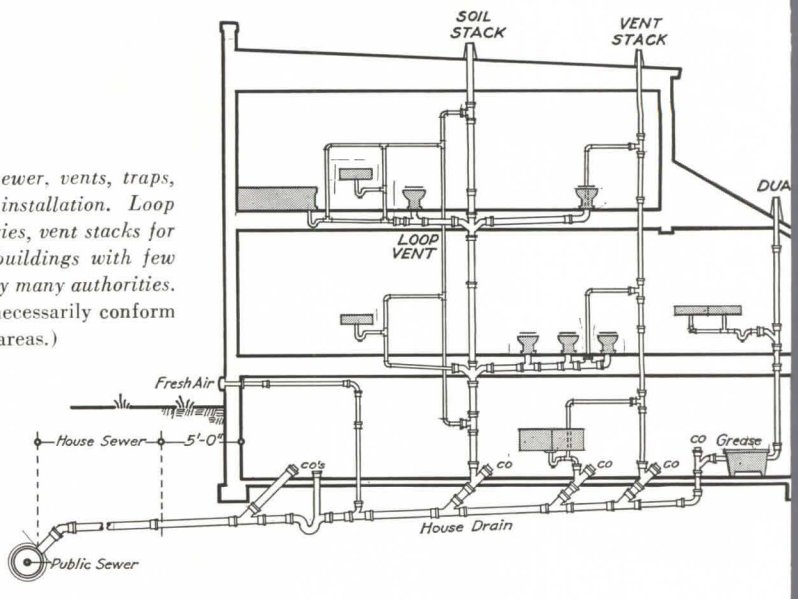


Figure 1—stacks, house drain, building sewer, vents, traps, and clean-outs are shown for a typical installation. Loop venting is used for buildings up to six stories, vent stacks for taller buildings. Venting for one-story buildings with few fixtures on one floor is not recommended by many authorities. (Drawing is diagrammatic and does not necessarily conform with local codes or trade practice in all areas.)

cast-iron soil pipe

by Don Graf*

Three reasons for a condensed review of cast-iron soil pipe at this time are: (1) There has been no shortage of the material and none is anticipated in the foreseeable future—contrary to the opinions of some. (2) Instead of the three weights formerly available, i.e. standard, medium, and extra-heavy, there are now only two types and these do not agree in dimensions and weight with any of the three that were superseded. (3) Good practice demands the use of cast-iron pipe under many conditions. Building laws recognize this fact as cast iron is the only material that is nowhere prohibited for use underground or inside the building in its waste system.

waste drainage system

The high point in a building waste-drainage system is the top of the stack above the roof; the nether point is the connection to the public sewer or private septic tank (*Figure 1*). Between these extremities there are three divisions of piping that carry away the building wastes. Including the vents, traps, and cleanouts required, the extent of each of the three parts is fixed by the following typical specification paragraphs:

(1) "Run the house sewer (also called building sewer) from the connection with the house drain to discharge into the street sewer (septic tank)."

(2) "Run the house drain (also called house sewer) from a point 5'-0" outside the inner face of the building wall to connect with the vertical stacks."

(3) "Properly connect stacks to the house drain and up full size through the roof."

current sizes and weights

According to Federal Specification WWP-401 and Amendment 3, cast-iron soil pipe is being manufactured in service and extra-heavy weights. Dimensions for the various sizes and weights of these two types are shown (*Figure 2*) to the nearest 32nd of an inch in common fractions. The size of pipe is its inside diameter; weights are for single-hub pipe (*as illustrated*). Pipe with hubs on both ends is known as double-hub pipe and is somewhat heavier per length. It is used to piece out fractions of full lengths by cutting. Lengths of all pipe are so designed as to give a laying length of 5'-0". Fittings for any change of direction are illustrated (*Figure 3*).

use of different weights[1]

Where is service or extra-heavy weight cast-iron pipe suitable for use? About 40 years ago, the Subcommittee on Plumbing of the Building Code Committee, U. S. Department of Commerce, stated: ". . . the A.S.T.M. Standard Specifications for Cast-Iron Soil Pipe and Fittings . . . call for the so-called extra-heavy pipe . . . based on a wall thickness of ¼-in. . . . so-called standard-pipe based on a thickness of only ⅛-in. The committee is of the opinion that extra-heavy pipe is unnecessarily heavy, but that standard-pipe is too light for the great majority of plumbing uses."

This report further states: "The committee favors the idea that the manufacturers of soil pipe, in co-operation with the A.S.T.M., should investigate . . . reducing the wall thickness . . . to between ⅛-in. and ¼-in. . . . to take the place of the extra-heavy and standard-pipe now in common use." Sometime after this recommendation was made, a medium-weight pipe was added to the old Standards and had a wall thickness of 3/16-in. The obvious advantage of two weights of pipe, instead of three, led the National Association of Master Plumbers to ask the manufacturers of cast-iron soil pipe to co-operate in devising a uniform specification for a weight of pipe lighter than extra-heavy. This co-operative study resulted in the current specifications for service-weight pipe.

A hint to the suitable choice of weights is found in *Farmer's Bulletin 1426*, issued

* *Ossining, N. Y.*

[1] *Service weight spigots will fit extra-heavy hubs, but not vice versa.*

by the Department of Agriculture, entitled "Farm Plumbing." It says: "Extra-heavy cast-iron soil pipe is generally used for soil stacks and all underground lines except the house sewer . . . Standard-weight is sometimes used on farms." It will be seen in the following text that extra-heavy is also unsurpassed for use as the house sewer. "Standard-weight" (now replaced by heavier service-weight) "is sometimes used on farms, but because of its lightness is more likely to be broken during shipment, handling, cutting, and calking."

Joseph E. Taggart, in *Plumbing Questions and Answers*, says: "The house drain and its branches must be of extra-heavy cast iron . . . except where light pipe is used for the drainage system and the house drain is above ground, when light pipe may be used."

In the HOLC's *Master Specifications* ultimate simplicity is reached: "Cast-iron soil pipe and fittings shall be extra-heavy cast iron or as otherwise specified."

In final analysis, the choice of service or extra-heavy-weight soil pipe for any particular installation depends upon the requirements of local or state plumbing ordinances. Where none exists, it is suggested that the Recommended National Plumbing Code be used.

life expectancy

No one will gainsay the premise that the drainage system should perform as long as the building lasts. The 'hooker' is that when a building is being built, nobody can foretell how many years it will continue to be useful. There are abundant examples of cast-iron pipe in use after 100 years. There are instances of cast-iron pipe outlasting the original building in which it was installed, then being salvaged and laid in another—to outlast that one as well.

The secret of this longevity seems to lie largely in the composition of the pig, and the position of cast iron in the electrochemical series. There are three kinds of cast iron: gray, semisteel, and white. Casting made from gray iron are known to the trade as cast iron. An appreciable fraction of carbon and small amounts of silicon are present in the pig. Particles of the iron are protected by the carbon, somewhat as portland cement coats the aggregate in a concrete mix. As a result, cast iron never corrodes more than "skin deep." The skin that forms prevents the metal beneath from rusting. If the thin coating is scraped off, bright metal will be exposed.

When two dissimilar metals are in contact in water containing hydrogen ions (having an acid reaction, i.e. an alkalinity factor "pH" less than 7), the metal higher in the electrochemical series will be corroded—the one lower protected. The series for commercial metals in ordinary use is thus: magnesium, aluminum, manganese, zinc (galvanizing), chromium, iron, nickel, tin, lead, copper. Zinc protects iron in a galvanized pipe, the zinc itself corroding. An iron plug in a brass-hot-water line will disintegrate completely in a few years. Water having had its hydrogen ion concentration increased by the use of alum (sulphate of alumina) in filtration may increase galvanic corrosion.

Theoretically, iron is liable to these forms of corrosion, but being midway in the series, the degree of such corrosion is so slight that it permits long-life records to be commonplace. Cast iron resists all acid or alkali wastes usually encountered in buildings; however, for strong chemical wastes, cast-iron pipe made especially for the purpose should be specified.

Some codes require a bituminous coating to be applied to both inside and outside of pipe, while others forbid its use. The erosion of the inside coating by flow soon removes it; it conceals possible defects in the pipe; it adds to the cost; besides, cast iron doesn't need it.

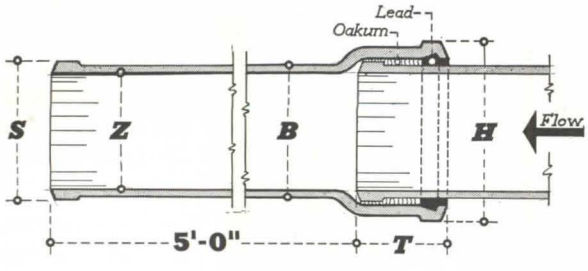


Figure 2—Service-Weight Cast-Iron Soil Pipe

Size (Z)	Weight per 5′ length lbs	Outside barrel diameter (B)	Outside spigot diameter (S)	Outside hub diameter (H)	Telescoping length (T)
2	20	2 1/4	2 5/8	3 5/8	2 1/2
3	30	3 1/4	3 5/8	4 11/16	2 3/4
4	40	4 1/4	4 5/8	5 11/16	3
5	52	5 1/4	5 5/8	6 11/16	3
6	65	6 1/4	6 5/8	7 11/16	3
8	100	8 3/8	8 3/4	10 1/8	3 1/2
10	145	10 1/2	10 7/8	12 7/16	3 1/2
12	190	12 1/2	12 7/8	14 9/16	4 1/4
15	255	15 5/8	16	17 29/32	4 1/4

Extra-Heavy Cast-Iron Soil Pipe

Size (Z)	Weight per 5′ length lbs	Outside barrel diameter (B)	Outside spigot diameter (S)	Outside hub diameter (H)	Telescoping length (T)
2	25	2 3/8	2 3/4	3 13/16	2 1/2
3	45	3 1/2	3 7/8	5 1/16	2 3/4
4	60	4 1/2	4 7/8	6 1/16	3
5	75	5 1/2	5 7/8	7 1/16	3
6	95	6 1/2	6 7/8	8 1/16	3
8	150	8 5/8	9	10 11/16	3 1/2
10	215	10 3/4	11 1/8	12 15/16	3 1/2
12	270	12 3/4	13 1/8	15 1/16	4 1/4
15	375	15 7/8	16 1/4	18 7/16	4 1/4

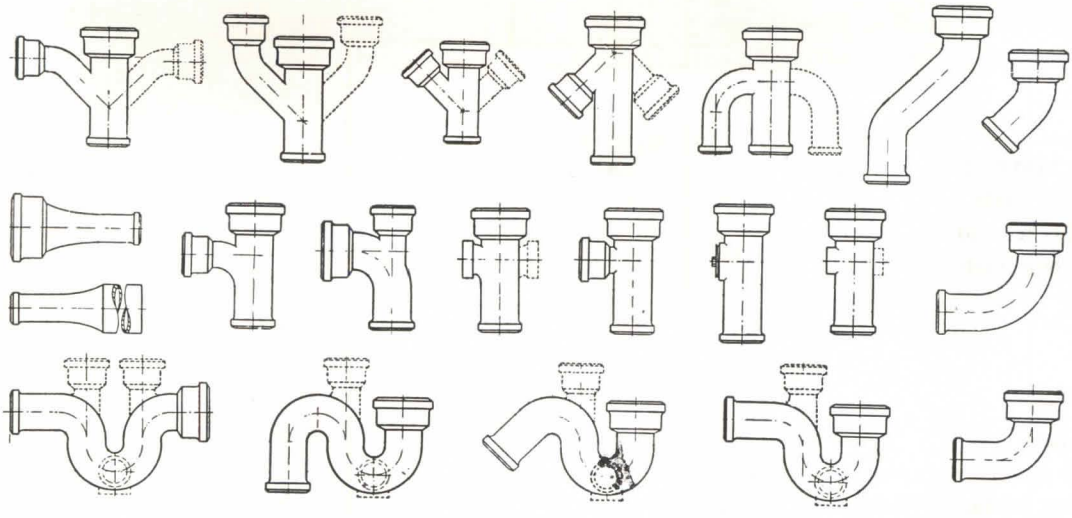


Figure 3—the many fittings available in cast iron can accommodate almost any conceivable change of direction or size as well as provide connection to threaded or calked pipe. All fittings are made in both weights of pipe. (Fittings of pipe made from other metals or nonmetallic materials do not have the same dimensions as those above. In replacing any of these with cast iron this difference may cause problems.)

drainage pipe failure

Three kinds of trouble are possible with the plumbing drainage system: (1) a stoppage; (2) failure of the joints; (3) punctures or breakage of the shell. No matter what the cause, it can mean inconvenience and expense. If there is no drainage during repairs, it means no water may be used in the building. If there are leaks outside the building lines, the digging of a trench may mean destruction of paved terraces, lawn, driveways, planting, and is particularly difficult in freezing weather. If leaks occur inside the building, it probably will be necessary to tear out walls, floors, and ceilings. Elements such as wallpaper, glass, and finish hardware are easy to repair, being easy to get at—their failure does not render the building unusable. But the failure of hidden parts very often does, and here lies the reason for a margin of safety in the waste system for plumbing, structural as well as functional.

Stoppage

If children or even grownups use the toilet as a disposal unit for things that have no business in the waste line, there may be a stoppage. Compressed air will sometimes be required to dislodge the obstruction; however, a plumbers' snake augur will almost always clear a stopped-up pipe. There is no danger of punctures from the sharp cutting head of the augur with cast-iron pipe. Tree roots, it should be noted, cannot clog cast-iron pipe with properly calked joints.

Leaky Joints

The jointing between lengths of cast-iron pipe consists of a yarning or packing with oakum between the spigot and hub to within one inch of the bell end. (*See drawing in Figure 2.*) The inch space is filled with molten lead. (Patented compositions and lead wool for calking are not unanimously approved by authorities.) As a depression inside the hub forms a lock for the molten lead, the resulting joint is strong, tight, resilient, and permanent.

A leaky joint encourages stoppage from root growth of trees or planting. The saturation of the soil with what is essentially liquid manure promotes the development of rootlets and leads them to the source of the fertilizing moisture.

Leaky joints permit the escape of sewer gas which is generated from the decomposition of the waste matter in the sewer. The whole system of traps and venting, designed to prevent sewer gas from entering the building, can be defeated by a leaking joint. The escape of liquid waste from such a joint can also damage interior finishes and decoration.

The odor of sewer gas (or sewer air for the more fastidious) is offensive. But according to public health authorities, sewer gas is not dangerous or detrimental to the health unless present in great concentration and/or continuously over a protracted length of time. Precautions to prevent sewer gas in a building are actually more to avert a nuisance condition than to protect the health, contrary to what many believe.

However, a leaky joint permitting the escape of liquid waste outside the house can be a health menace. Seepage into springs, wells, or cisterns can cause typhoid, dysentery, and cholera. Pollution of the water supply can occur when a fresh water pipe also has a leak and the pressure in the pipe drops to below atmospheric, sucking the liquid waste from the leaking sewer pipe into the water line. These dangers rarely occur, but they can and do happen.

Either liquid waste or sewer gas can attack pipes carrying fuel gas, creating an explosion hazard.

The strength and resilience of cast-iron pipe joints of oakum and lead allows for ordinary earth movement without damage. For horizontal runs, two or more lengths of pipe can be joined in a vertical position. These joined lengths minimize the number that have to be calked in the trench. The joints are so strong that the joined lengths are safely carried from the place of assem-

bly to their final position as if they were a solid length.

In one test on joint strength, two 5-ft lengths were joined in the conventional manner and supported at each end as a simple beam. A 1000-lb load applied at the center caused a slight deflection—but no leak. This ability to yield slightly under loading explains how cast-iron pipe can withstand pressure transmitted through the earth cover above as well as ordinary settlement or heaving of the earth on which it rests.

Crushing or Puncture

These types of damage hold the same dangers as leaking joints. But cast-iron sewer lines from building to street are not liable to injury from sharp stones in the trench backfill, crowbars used in probing to locate pipe lines, or heavy loads passing over the trench backfill. A loaded 5-ton truck can pass over pipe buried as little as 12″ below grade without damage.

Sewer lines, however, are generally below frost and there are several reasons why. In a trench carrying other services, the sewer is the lowest with the others 12″ apart, bringing the sewer some feet below grade. In the case of stoppages during freezing weather, some of the house sewer could fill with liquid and freeze if too close to grade. There is the possibility that without a grease trap for kitchen wastes, a shallow-buried sewer would be more likely to congeal grease on the pipe walls, thus reducing the effective internal diameter.

estimating pipe sizes

Waste and vent-pipe diameters are based on the number of fixture units to be served. As a rule, the local code gives these data. Bureau of Standards *BMS Report 65* outlines the sizing procedure.

framing

Second only to the modest fame of some plumbers for forgetting tools is that of cutting framing to smithereens for pipe lines. Studs must be of size to accept the hubs of cast-iron pipes. Lines in the floors and walls should be planned so that framing will not be weakened by cutting for piping.

vents

The Co-ordinating Committee for a National Plumbing Code, of the U. S. Department of Commerce and the HHFA, allows vent piping made of cast iron, galvanized wrought-iron, galvanized steel and ferrous alloys, lead, brass, or copper pipe or tubing. It would seem that some of the nonferrous materials allowed would be short-lived because of electrochemical action. Vents of 2″ diameter or larger, and particularly if underground, may be of cast iron. Galvanized ferrous-pipe is probably most frequently used for above-ground vent pipe.

tests

(1) At the completion of the roughing-in a water test is applied to the waste and vent piping. All openings are tightly plugged and the system is filled with water at the roof stacks.

(2) In freezing weather an air-pressure test may be used at 5 psf for at least 15 minutes.

(3) After all fixtures have been permanently connected and traps filled with water, a penetrating smoke from a smoke machine is introduced under pressure. The smoke will reveal the presence of leaks.

(4) A peppermint test may be substituted for the smoke test. Oil of peppermint in water can be poured into the roof stack opening which is then sealed. Oil of peppermint has a very penetrating odor, easily revealing lack of tightness. If there is more than one leak, however, the odor from the one that is first detected makes it difficult to find any others.

cost of cast iron

The original materials and labor cost plus the maintenance cost of cast iron over its potential life will compare favorably or be less per year than that of any other material that can be used for the waste system.

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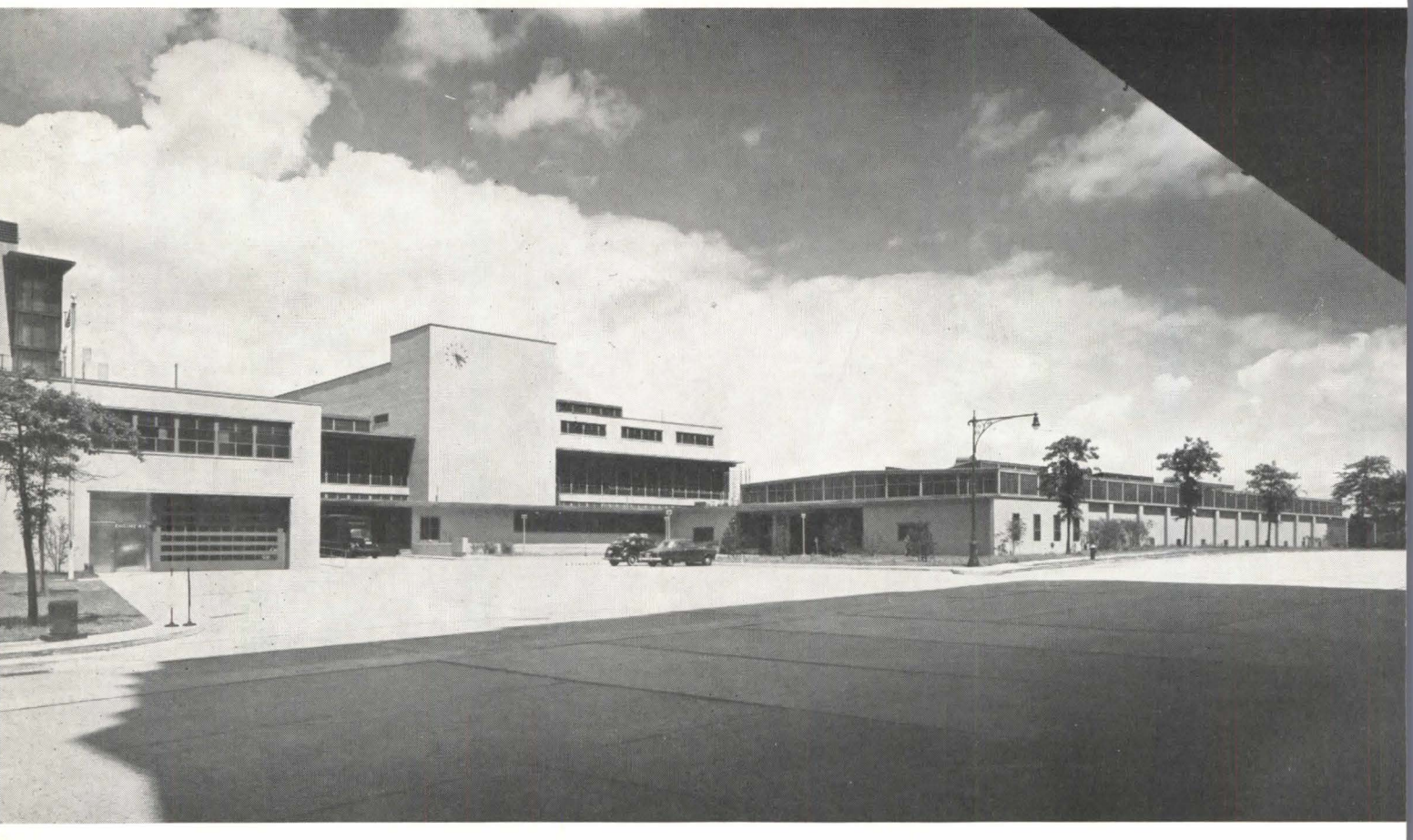


service buildings

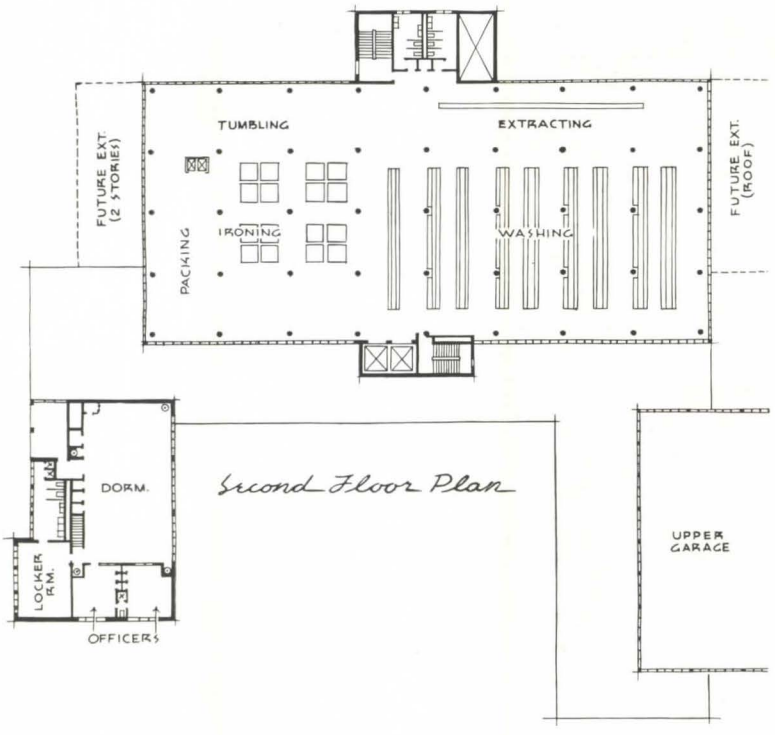
Replacing an antiquated laundry and converted stable of a former era, the new service buildings of Welfare Island (city-owned land in Manhattan's East River) supplement existing hospital facilities on a site just north of the connecting Queensboro Bridge. The architects grouped laundry, fire house, and garage about a common entrance court.

The laundry, designed on a three-story, gravity-flow principle, is a virtual wonder building. Infinite precautions are taken to isolate contaminated articles. And its varied activities include everything from blanket washing and rug cleaning to feather sterilization and soap manufacture. Within a structural framework of reinforced concrete, blue translucent glass affords thermal control and diffuses the light. A projected figure of 11,000 tons processed annually is fast becoming a reality, largely due to the planning of areas for future expansion.

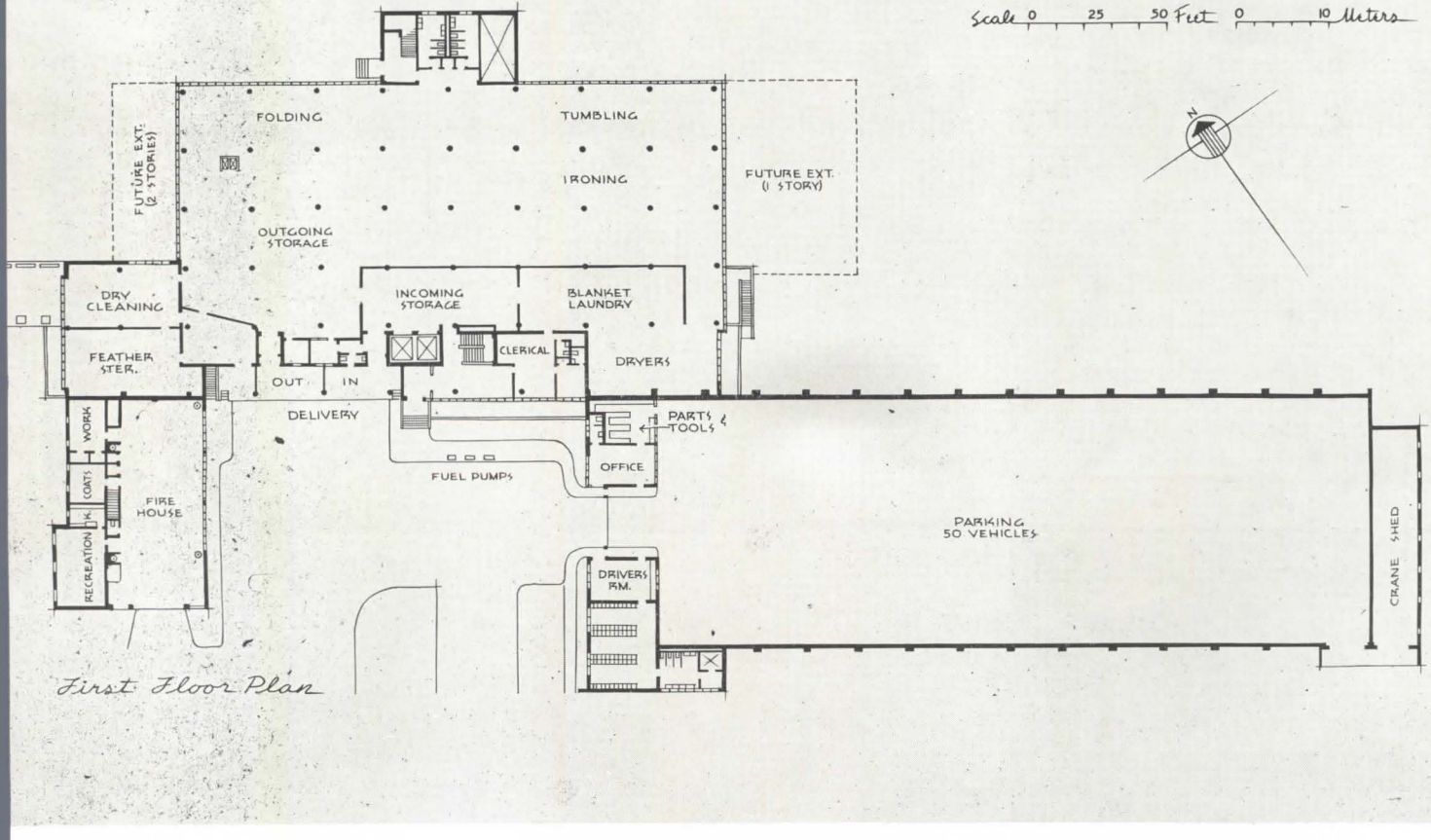
Since vehicles on the island include cars, trucks, busses, and special equipment, the architects considered the primary requirement of the garage to be an unobstructed floor area. To accomplish this, they employed light-steel trusses with a span great enough to include the turning radius of a bus. Between masonry piers, cinder-block cavity walls are faced on the exterior with brick.

The fire house, its hose-drying tower a thin shaft of brick and glass capped by louvers, is a sharp contrast to the more massive surrounding elements. Termed by the firemen ". . . *the* most wonderful structure of its type . . . ," it expands a stringent municipal program by including a lounge terrace facing the river, recreational facilities, a large, well-lit bunkroom, and generous locker and washroom facilities. Enclosed by wire glass in a structural steel frame, its access spaces are bathed in a bluish-gray light.

client	Department of Public Works, City of New York
location	Welfare Island, N. Y.
architects	Moore & Hutchins and Percival Goodman
structural engineer	Fred N. Severud
mechanical engineer	Fred L. Moesel
general contractors	T. H. K. Construction, Inc., and Harry Jereski, Inc.



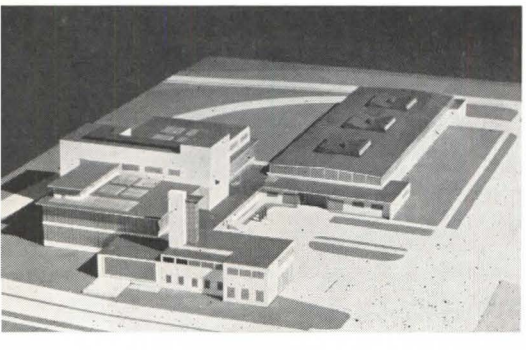
Second Floor Plan



First Floor Plan

Service buildings have continuous windows with operable sash, supplemented by skylights, for natural illumination. Much of the window area is blue-green translucent glass for light diffusion and thermal control.

Model (below) *indicates the unified structural system of reinforced concrete and cavity walls faced on the exterior with a sand-colored brick. Reduced bay areas of the laundry was one of the means used to evolve an economical solution.* Photos: Alexandre Georges



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Electrical Engineering in the Hospital. C. E. Daniel, July '51.

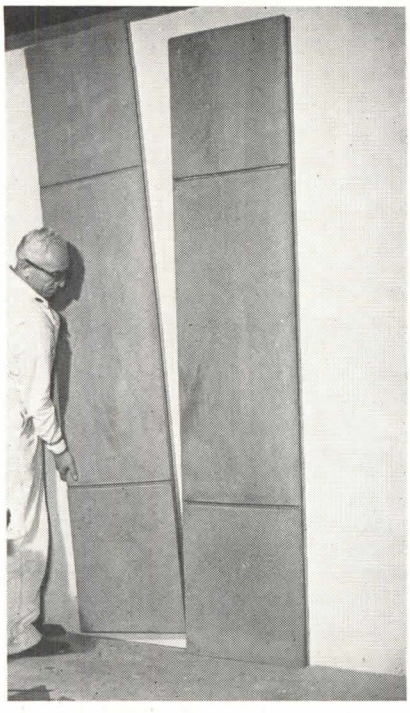
Design Procedure for a Solar House. George S. Sharon, Mar. '52.

Stanford School Planning Laboratory. C. A. Winkelhake, Sept. '52.

Heat Transfer Calculations: Graphic Method. E. W. Jerger, Dec. '52.

Design/Techniques 1953: Engineering Forecast. Jan. '53.

combines perimeter, radiant, baseboard heating



Primarily intended for use in multiple-story homes, either in new systems or for replacement of outmoded equipment, the Perim-A-Base heating system combines perimeter, radiant, and baseboard heating. The system is adapted for any or all phases of air conditioning without expensive additions or alterations.

In the Perim-A-Base system, convected heat is introduced into rooms at the baseboard level through panels which extend the full length (and width, if necessary) of the room. The forced-air unit, using gas, coal, or oil, may be any style or model and the ductwork may be either standard-sized or small-pipe. Heat travels through the pipes into an entrance panel or into a stack, if it is being extended to the second floor. Vanes in the entrance panel divert the air both to the left and right into the Perim-A-Base panels where expanded areas cause both the pressure and velocity of the air to drop. The return air is taken from the ceiling, or at a near-ceiling level on an inside wall, through oversize grills; it then travels through ductwork to the return plenum.

In the cooling cycle of the system, a reverse procedure is used—the cooled air flows through the high-wall or ceiling diffusers into the rooms. The baseboard panels exhaust the cooled air from the floor level and themselves become cool; thus the panels act as secondary cooling surfaces within the room. Exhausted to the cooling chamber of the unit, the return air will be cooled (and if desired, mixed with fresh outside air) and then discharged into the plenum for return to the rooms.

Fully automatic with no possibility of water leaks, the maintenance cost of the system is low. Berger Furnace Manufacturing Company, 5920 Center Avenue, Pittsburgh, Pa.

foamed-in-place core material

Corfoam No. 114, a new high-strength material which combines a liquid phenolic resin with foaming and accelerator agents, has been developed for structural core applications. This resin will foam to approximately 5½ times its volume without the application of either heat or pressure and will harden at room temperature. Having a compressive strength of approximately 500 psi, this honeycomb-core material may be foamed in place or removed when hard and fabricated into shapes. The foaming action is relatively slow. Although this material will harden in one hour, maximum physical properties are not attained for one week—a density of 14 lb per cu ft should be obtained in the finished product. It will adhere to wood, paper, or metal; will not support combustion; and has low moisture absorption. Corfoam is sold in units comprised of individually-packaged propor-

air and temperature control

Blend-Air Conditioning: two types of year-round air-conditioning systems for old or new residential construction. One has self-contained summer cooling and dehumidifying system mounted beside Blend-Air furnace, or conventional forced warm-air heating system. Other consists of Blend-Air furnace with cooling section on top and remotely-located evaporative compressor-condenser package for saving of interior living space and saving of water. Coleman Co., 2 and St. Francis Sts., Wichita, Kan.

construction

GPX Green: new medium-density, plastic-faced plywood engineered to be painted and to save labor cost in erection, finishing, and maintenance of building construction. Varied interior and exterior uses. Smooth green cellulose-fiber surface sheet covers both sides. Cellulose fibers and phenolic formaldehyde resin bonded together by intermolecular forces. Standard panel sizes: 3′ x 8′ and 4′ x 8′ with thicknesses ranging from 5/16″ to 1⅝″. Georgia-Pacific Plywood Co., 270 Park Ave., New York, N. Y.

Korelock: prefab, prefinished ceiling and wall panels primarily designed for commercial interiors. Constructed with interlocking wood core between two sheets of Masonite Duolux; face has baked finish, back is sealed and baked. Tongue and groove system with V joints provides accurate fitting. Available in two sizes: 24″ x 48″, 24″ x 96″; cream, white, and wood patterns. Marsh Wall Products, Inc., Dover, Ohio.

Steel Support Channels: available for 24″ and 48″ spans, steel support channels are designed to simplify installation of sound system speakers in suspended ceilings. Channels may be used in either new or existing ceilings. In new installations, channels are secured between ceiling supports at desired locations before ceiling material is applied. Where ceiling has already been installed, a hole can be cut for slip fit of speaker enclosures or a ceiling panel can be removed. Lowell Mfg. Co., 3030 Laclede Station Rd., St. Louis, Mo.

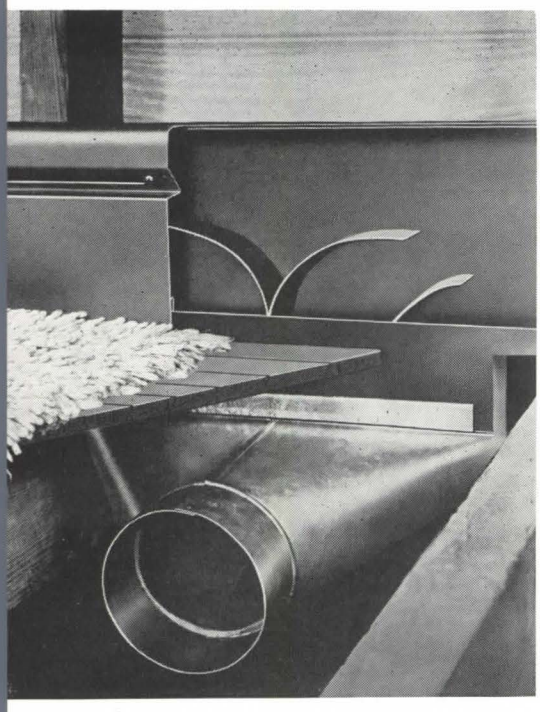
doors and windows

Aluminum Windows: acid-dipped aluminum windows sprayed with clear lacquer available at standard prices. Problem of plaster stains and excessive steelwool cleaning after installation are eliminated. Also, new Series "54" window available with optional balance bar operator for large installations which operates through frame sections, allowing standard type screens to be used. Screens and storm sash interchangeable. Miami Window Corp., 5200 N. W. 37 Ave, Miami, Fla.

Dual Arm Roto Operator: new equipment for ventilators in modern panel windows provides both top and bottom ventilation and is controlled by single self-locking crank. Two operating arms are attached to bottom of panel ventilator by hinged guide channel. Sliding action of arms across channel provides balanced control and prevents twisting and racking. Pair of pivot hinges and two side-control balance arms eliminate sagging. Standard-Thomson Corp., Dayton 2, Ohio.

Steelcraft Casement Windows: new steel casement windows especially adapted for installations of standard air-conditioning units. Need for removing any window parts, cutting, or welding is eliminated. Manufactured in four standard sizes with adjustable members to accommodate individual air-conditioning units. The Steelcraft Mfg. Co., 9017 Blue Ash Rd., Rossmoyne, Ohio.

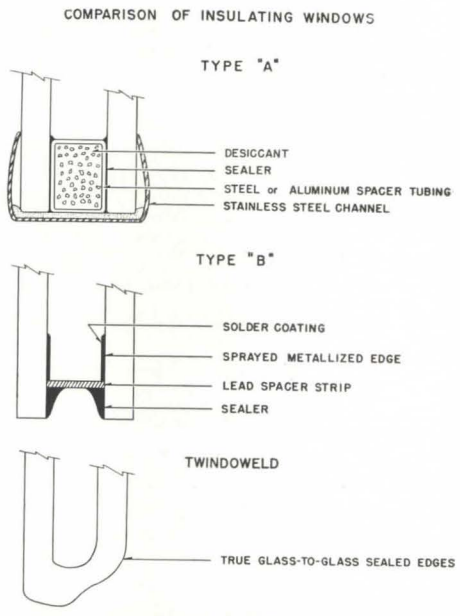
all-glass insulating window

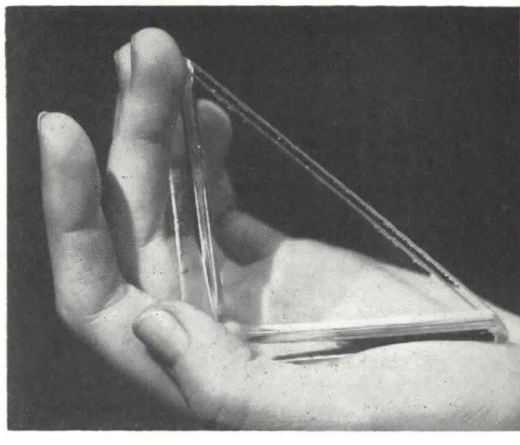


No metals, bonding materials, or other assembled parts are to be found in Pittsburgh Plate Glass Company's first all-glass double-glazed insulating window now being manufactured. Edges are electrically fused to provide all of the advantages of the assembled double-glazed units now on the market, plus the permanency of true glass-to-glass sealed edges.

Called Twindoweld, these units consist of two layers of 1/8"-thick glass separated by a 3/16" air space—the air between the two panes being removed in the manufacturing process and replaced with specially dried air. Heat transfer properties are the same as for standard assembled insulating windows. Under average conditions the new units will reduce the amount of heat transfer by about one-half of the normal amount transferred through an equivalent area of conventional single-glazed windows. As no metal is required, edge conducitvity is eliminated.

This new product is specifically designed for residential glazing, apartments, schools, and all other building applications where large quantities of relatively small insulating units may be utilized. Twindoweld, available in sizes up to 50" x 62", is expected to retail at about the same price as the assembled doubled-glazed insulating window. Pittsburgh Plate Glass Company, 632 Duquesne Way, Pittsburgh, Pa.





tional amounts of resin, accelerator, and foaming agent. Other resins which will produce lighter foams are also being developed by the manufacturer. One has a density of 7 lb per cu ft and a compressive strength of 225 psi. Rezolin, Inc., 5736 W. 96th St., Los Angeles, Calif.

electrical equipment, lighting

Peer-Lite: new lighting fixture with simple lines to permit freedom in pattern planning. Also allows use of wide range of louvers and diffusers. 20% uplight, 80% downlight; top plates for 100% downlight also available. Luminous side panels; available with 2, 3, or 4 lamps; 4′ or 8′ lengths. The Edwin F. Guth Co., 2615 Washington Ave., St. Louis 3, Mo.

Electric Generating Plant: new model, primarily intended for emergency stand-by service, has 10 kw capacity; available either with electric starting or supplied with controls which automatically start plant when regular power fails. Four-cylinder air-cooled gasoline engine. Furnished for single-phase or three-phase service, at either standard or special voltages. Universal Motor Co., 494 Universal Dr., Oshkosh, Wis.

insulation (thermal, acoustic)

Lexsuco Insulation Clips: mechanical fasteners with positive-locking action for anchoring rigid and semi-rigid insulation to steel roof decks and sheet metal. Clips pierce metal easily and lock insulation in place with special locking tongue. High pull resistance of tongue prevents loosening of insulation regardless of position or pitch of surface. Four to six clips required for each 2′ x 4′ roof insulation sheet or one per sq ft of duct insulation. The Lexington Supply Co., 4815 Lexington Ave., Cleveland 3, Ohio.

sanitation, plumbing, water supply

Sanimaster: new storage-type water heater simultaneously provides hot water of two different temperatures from single tank. Designed primarily for commercial kitchens, heater provides water at 180 F for dishwashers and general purpose water at 140 F for sinks, customer lavatories, and other uses. Will boost 200 gal per hour of 140 F up to 180 F. Ruud Mfg. Co., Pittsburgh, Pa.

specialized equipment

Drafting Stamp: new draftsman's stamp of transparent Plexiglas for stamping conventional symbols on engineering drawings. Stamp permits user to orient a symbol, embossed on stamp, with existing lines on drawings. Available in 124 engineering symbols, designed in accordance with ASA standards. Each stamp 1-1/4" sq and 5/16" thick. John Griffin Co., St. Paul, Minn.

Econ-O-Flex Salesmaker: new addition to line of metal merchandising equipment which provides a greater area of selling space. Light-weight shelving of Novoply laminated wood with metal pricing channel to accommodate 7/8" price tickets, tubular steel legs. Reflector-Hardware Corp., Western Ave. at 22 Pl., Chicago 8, Ill.

Draftmaster Drafting Table: new model available in 4 sizes with standard 37" height. Built with all-steel base and smooth-finish kiln-dried soft wood top. Top can be adjusted to any desired working angle by two raising devices which slide into table leg. Auxiliary 2-drawer unit fits under tool drawer for extra storage and filing space. Stacor Equipment Co., 768-778 E. New York Ave., Brooklyn 3, N. Y.

Kitchen Appliances: line of washers, ironers, and dryers has been expanded to include freezers, refrigerators, and electric ranges. Look-alike theme carried out in design. Three refrigerator models: 8.7 cu ft, 10 cu ft, and 10 cu ft deluxe. Upright freezer: 11 cu ft. Thor Corp., 2115 S. 54 St., Cicero 50, Ill.

p/a manufacturers' literature

Editor's Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.

air and temperature control

1-19. Choose Your Own Weather (S-401), 16-p. catalog of heating, cooling and ventilating systems for commercial, school, public, residential, and industrial installations. Photos of various installations and applicable equipment; description of air-conditioning systems, special applications. The Trane Co., 2020 Cameron Ave., La Crosse, Wisc.

1-20. Acme Products (SC-1), 4-p. booklet describing a line of air conditioning and refrigeration equipment. Included in the line are water chillers, Freon and ammonia condensers, water-chiller units, industrial unit coolers, evaporative condensers, cooling towers, heat exchangers, oil separators, liquid receivers, and pipe coils. Each type of equipment illustrated with photo. Acme Industries, Inc., Jackson, Mich.

1-21. Units for High Velocity Air Conditioning Systems (HV Manual 48), 12-p. brochure with engineering data on the selection, layout, and installation of high-velocity air-conditioning units and diffusers. Information given on duct design, sizing of ducts, types of systems and balancing of units, how metal and space savings are achieved. Photos, charts, and drawings. Anemostat Corp. of America, 10 E. 39 St., New York 16, N. Y.

1-22. The Latest Design Development for Electronic Air Cleaning (400), 8-p. bulletin describing a new filter for use with all types of ventilating systems. Dust, smoke, soot, and microscopic particles are electrostatically charged and attracted to and held by negatively charged collector plates. Ionizing and collecting chambers in one unit. Test results, cutaway drawing, photos, specifications. Dollinger Corp., 11 Centre Pk., Rochester 3, N. Y.

★ **1-23. Johnson Control — Radiant Heating** (H), 20-p. brochure containing a discussion of radiant heating systems with particular reference to methods of control. Types of radiant heating systems, systems using weather-compensated control, primary controls for radiant heating, room thermostat control, recommendations of pipe and tubing manufacturers, ratio of weather compensation. Diagrammatic drawings showing control methods. Johnson Service Co., 507 E. Michigan St., Milwaukee 2, Wis.

1-24. Facts on Airfoil Air Conditioning Outlets, A.I.A. 30-J, 96-p. catalog with information on the construction, performance, selection, and specification of air conditioning outlets: registers and grills, volume controllers, return-air registers and grills, frames, and accessories. Detailed engineering data, photos, drawings, price list. Titus Mfg. Corp., Waterloo, Iowa.

★ **1-25. Industrial Centrifugal Fan Heaters** (1510), 32-p. catalog describing standard and heavy-duty centrifugal fan heaters for industrial purposes. Information given on where to use the heaters, at what circulating capacities and temperatures, and how to place them. Typical specifications and examples; tables and graphs of performance data; outline dimensions of the units; construction features, accessories, and instructions for installation. Photos, drawings, charts. Westinghouse Electric Corp., Sturtevant Div., Hyde Park, Boston 36, Mass.

construction

2-28. Asbestos Flexboard for Commerce and Industry (FLX-3A), 16-p. booklet showing various commercial and industrial installations of an asbestos-cement building board. Material is fire- and rot-proof. Illustrated are uses for curved or flat surfaces, exteriors or interiors, protection against fire, surfaces exposed to heavy wear and tear, remodeling or repairing. Photos and drawings. Johns-Manville, 22 E. 40 St., New York 16, N. Y.

★ **2-29. Modern Construction with Engineered Timbers,** A.I.A. 19-B-3 (TSG-10), 12-p. bulletin in color discussing applications of glued laminated beams, arches, and trusses. Technical data includes sizes and properties of glued laminated beams, typical purlin sizes, standard thicknesses of laminations and limiting curvatures, arch section dimensions for various roof slopes, spans and loadings, and dimensions and weights of bowstring and parallel chord trusses. Timber Structures, Inc., P. O. Box 3782, Portland 8, Ore.

2-30. Design Manual for Welded Wire Fabric (GF-20), 30-p. manual describing welded wire fabric for prefab concrete reinforcement. Applications, stress-strain curves of concrete reinforcing materials, standard styles of welded fabric, information on wire gages used in welded wire fabric, standard specifications, and other data. Photos, tables. Wire Reinforcement Institute, Inc., National Press Bldg., Washington 4, D. C.

doors and windows

Two 8-p. folders, one describing steel sliding doors and the other containing information on steel residential casement windows. Specifications, detailed drawings, photos and drawings of hardware used, and installation details. Modular residential casement standards. Michel & Pfeffer Iron Works, Inc., S. Linden and Tanforan Aves., So. San Francisco, Calif.:

3-32. Steel Arislide Doors, A.I.A. 16-E-1

3-33. Steel Residence Casements, A.I.A. 16-E-1

3-34. Stainless Steels for Store Fronts and Building Entrances, A.I.A. 26-D, 40-p. booklet analyzing the use of stainless steel in a variety of store fronts and entrances. Functions of an entrance, economical stainless steel designs, functional components, standard stainless steel products, specification guide. Detail drawings, photos. Committee of Stainless Steel Producers, American Iron and Steel Institute, 350 5 Ave., New York 1, N. Y.

3-35. Buyer's Guide: Sliding Door Hardware, A.I.A. 27-A (153), 22-p. catalog with specifications and installation data on sliding door hardware. Available for kitchen cabinet and other short-length by-passing doors, wardrobe by-passing doors, and open- and closed-pocket doors; frames for closed-pocket installations, accessories. Methods of installation, detailed drawings, drawings of parts. Kennatrack Corp., Elkhart, Ind.

3-36. Engineered All-Weather Windows, A.I.A. 16-L, 14-p. folio describing window units which combine stationary double-glazed pane with louvered sections which may be placed at top, bottom, or sides of pane. Design possibilities, cross section of unit, photos of installations. Architectural details of units with 5-¼" jamb. Solar Air-Flo, Inc., Elkhart, Ind.

electrical equipment, lighting

4-18. Fluorescent Fixtures, 48-p. catalog showing line of fluorescent fixtures for commercial and industrial use. Individual, surface, louver, pendant, and continuous row mountings. Luminaires, slimlines (for single- or bi-pin lamps), striplites, and industrial types. Photos of fixtures, construction and mounting details, dimensions, charts of models. Gibson Mfg. Co., 1919 Piedmont Circle, N.E., Atlanta, Ga.

Two 4-p. folders describing an adjustable light transformer for use in place of on-off wall switches. Allows selection of light desired from *blackout* to full brightness, handles any number of lamps up to 360 w at 120 volts. May be installed by any standard method suitable for a double-size wall box. Detailed drawing, drawings showing possible applications. The Superior Electric Co., Bristol, Conn.

4-19. The Wallbox Dimmer, Bulletin D253WBC

4-20. The Wallbox Dimmer, A.I.A. 31-F-25, Bulletin D1052WBT

4-21. Wilsons' Luve-Tile, 16-p. booklet describing 1-ft sq louvered panel of molded

styrene plastic for illuminated ceiling installations. Basic elements of panels, step-by-step guide for installation, recommended types of lighting units for use with panels, typical layout problem, photos of installations. J. A. Wilson Lighting & Display Inc., 995 Main St., Buffalo 3, N. Y.

insulation (thermal, acoustic)

6-10. Sound Conditioning for Schools and Colleges (5119-C), 12-p. brochure discussing the use of an acoustical tile in corridors, auditoriums, cafeterias and lunchrooms, classrooms, typewriting rooms, libraries, music rooms, gymnasiums, and business offices of schools and colleges. Illustrated by photos of installations. Perforated or fissure tiles available. The Celotex Corp., 120 S. LaSalle St., Chicago 3, Ill.

6-11. Insulations for Light Construction, A.I.A. 37-C, 20-p. booklet giving design and application data on glass-fiber roll blankets, batt blankets, pouring wool, perimeter insulation, and utility batts. Also information on general insulation design considerations. Photos illustrate approved methods for installing glass fiber insulation in dwellings, prefab metal buildings, and other structures classed in the category of light construction. Owens-Corning Fiberglas Corp., Nicholas Bldg., Toledo, Ohio.

sanitation, water supply, plumbing

7-6. Disposall (5-42), 6-p. folder describing food waste disposal unit for installation in kitchen sinks. Explanation of 3-step operation, advantages of unit, cutaway drawing, installation data, description of parts. General Electric Co., Major Appliance Div., Louisville 2, Ky.

7-7. McDonnell Condensed Catalog (C-49), 8-p. catalog covering line of boiler water feeders, low-water fuel cut-offs, pump controls, and relief valves (including new temperature relief valves and combination temperature and pressure relief valves in regular and dip tube models). Information arranged to simplify selection of proper equipment with price list and discount sheets. Photos and tables. McDonnell & Miller, Inc., 3500 N. Spaulding Ave., Chicago 18, Ill.

7-8. Thrush Water Circulators (HC-352), 6-p. circular giving information on line of horizontal and vertical water circulators for new or conversion of hot-water heating systems. Performance charts, capacity tables, dimensions, drawings illustrating various applications of water circulators on hot-water heating systems and domestic hot-water supply systems. Also other special or unusual applications. H. A. Thrush & Co., Peru, Ind.

specialized equipment

8-15. Movable Cabinets for the Self-Contained Classroom, A.I.A. 35-S (WJK), 8-p. booklet describing adjustable storage units in various models, portable craft benches, reading benches and tables, and clothing cubicles. Information on dimensions, materials; drawings and photos of units. Adjustable Cabinets, Inc., 400 Scajaquada St., Buffalo 11, N. Y.

8-16. Medart Telescopic Gym Seats, A.I.A. 35-F-11, 20-p. catalog of folding gym seats, including wall-attached, movable, high-row, recessed, and two-level types. Features of design and construction illustrated with drawings; typical construction detail, accessories for gym seats, typical specifications, and list of installations. Also descriptions of locker room equipment, gymnasium apparatus, and other equipment. Fred Medart Products, Inc., 3535 De Kalb St., St. Louis 18, Mo.

8-17. Mitchell Portable Folding Platforms (FS-1), 4-p. folder describing portable folding units for use as temporary stages, speakers platforms, runways, and stands. Various heights available with 4′ x 8′ top. Specifications, photos showing setting up and storage of units. Mitchell Mfg. Co., Milwaukee 46, Wis.

8-18. The Outdoor Plastic for Signs (PL-84A), 24-p. brochure with photos and description of outdoor signs made of Plexiglas acrylic plastic, including solid-color quantity, painted quantity, custom, letter, and spectacular types. Advantages in use of Plexiglas. Rohm & Haas Co., Washington Sq., Philadelphia 5, Pa.

8-19. Armorply Chalkboard, A.I.A. 35-B-1 (1184A), 6-p. folder describing porcelain-enameled steel-faced chalkboard panel. Core material: ¼″ Weldwood fir plywood; aluminum backing sheet. Explanation of features, installation instructions, recommended specifications, list of installations. Photos and details. U. S. Plywood Corp., 55 W. 44 St., New York 36, N. Y.

surfacing materials

9-8. Vinylized Azphlex, 4-p. booklet containing information on greaseproof vinyl floor-tile with marbleized pattern. Standard sizes: 9″ x 9″, 6″ x 12″, and 12″ x 12″; thicknesses: ⅛″ and 3/16″. Feature strips available in 24″ lengths. Color chart, features of flooring material, drawings. Uvalde Rock Asphalt Co., P. O. Box 531, San Antonio 6, Tex.

9-9. Gold Seal Catalog, A.I.A. 23-J (B-462), 26-p. catalog in color covering line of linoleum (plain, inlaid, and static-conductive), and vinyl-plastic, asphalt, and rubber tile products. Gage and federal specification data, color charts, installation and product specifications. Photos and charts. Congoleum-Nairn, Inc., 195 Belgrove Dr., Kearny, N. J.

(To obtain literature, coupon must be used by 9/1/53.)

(We request students to send their inquiries directly to the manufacturers.)

PROGRESSIVE ARCHITECTURE, 330 West 42nd Street, New York 36, N. Y.
I should like a copy of each piece of Manufacturers' Literature circled below.

1-19	1-20	1-21	1-22	1-23	1-24	1-25	2-28
2-29	2-30	3-32	3-33	3-34	3-35	3-36	4-18
4-19	4-20	4-21	6-10	6-11	7-6	7-7	7-8
8-15	8-16	8-17	8-18	8-19	9-8	9-9	

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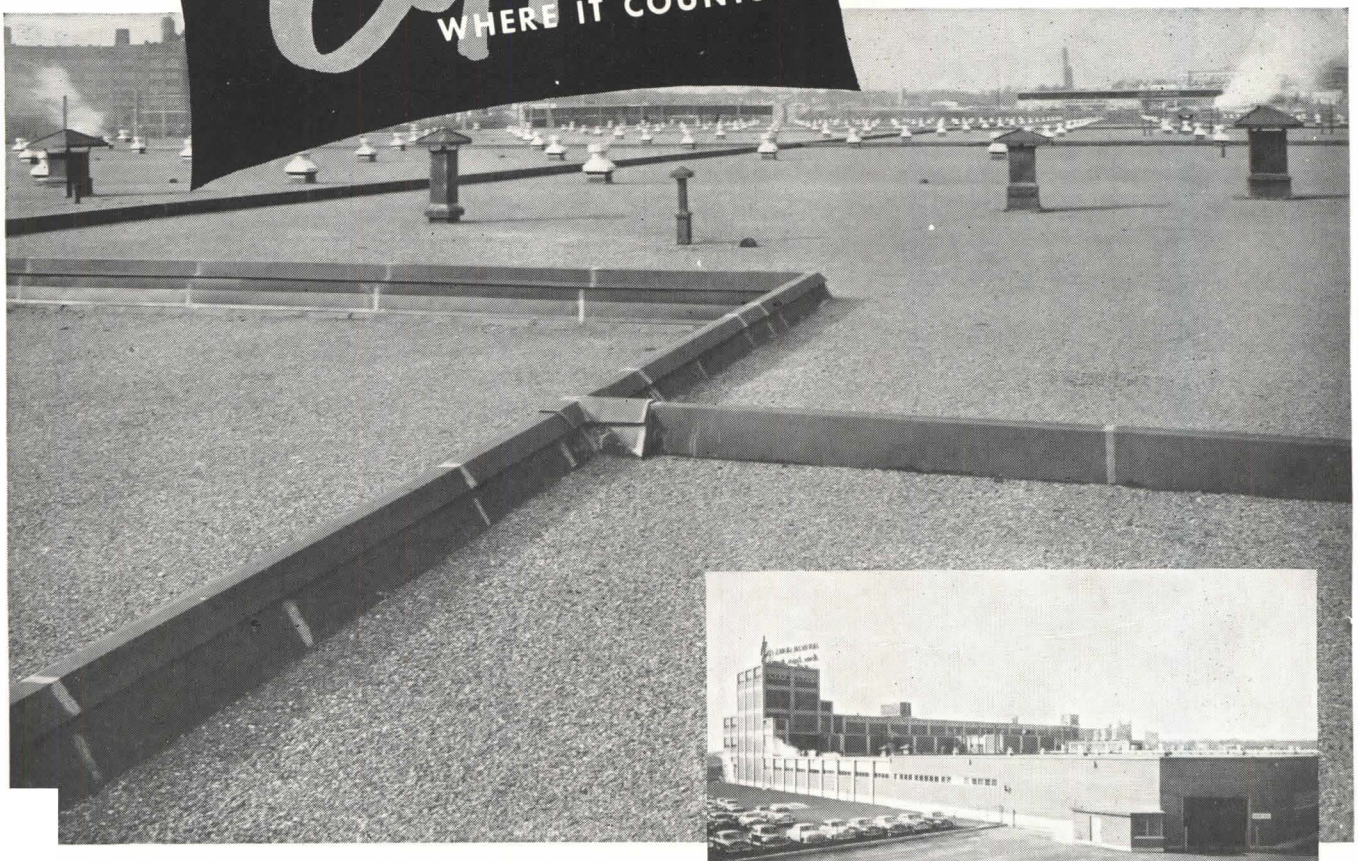
Copper

WHERE IT COUNTS

AMERICAN STORES BAKERY AND WAREHOUSE, PHILADELPHIA, PA.

22 TONS OF REVERE COPPER USED FOR EXPANSION JOINTS, FLASHING, FASCIA, AND VENTILATOR HOODS



ACRES AND ACRES of roof with 4,000 ft. of 4 ft. girth, 20-oz. Revere Copper expansion joints guarding against an invasion by weather. Non-rusting, enduring Revere Copper was also used for the fascia, ventilators and for flashing around the rising walls.

ARCHITECTS FOR THIS collosal flat roof were Ganteaume & McMullen, Boston, Mass. Roofing and Sheet Metal Work—Warren-Ehret Co., and L. William Ewing Company. Hughes-Foulkrod Company was general contractor, while the Revere Distributor was Merchant & Evans . . . all of Philadelphia.

When you have 8,000 squares of flat roofing, you have yourself a roof. That's what was involved in this Acme Market's roof that covers their bakery and warehouse. It stretches for 5 city blocks. And in Philadelphia the blocks are long! The vastness and very nature of the construction of this roof dictated copper in the vital spots. For this roof must endure for many years, require the absolute minimum in maintenance and do a thoroughly efficient job of protecting the foodstuffs stored beneath it. On top of that, with 4,000 ft. of expansion joints, the material used had to be rugged enough to withstand abuse yet readily workable and economical to install. Also it had to be able to shrug off year after year of contraction and expansion. Copper dovetailed into this pattern perfectly.

Actually, copper fits perfectly into many patterns. There is not another single metal or alloy that has all the outstanding construction characteristics of copper. Its endurance has been proven over centuries of use. It is readily worked into any desired shape. It solders to perfection. It requires no painting. And it can't rot or rust.

The end use restrictions on copper a while back did more to point up its importance in building construction than anything that we might print about it. Architects, builders and contractors told us at that time that there are places in building where there just is no substitute for copper.

Now, with restrictions on the use of copper ended there isn't any reason why your next job can't have the many benefits of Revere Copper. See the Revere Distributor nearest you about Revere Sheet, Strip or Roll Copper for flashing. Particularly ask him about the money-saving advantages of Revere Keystone Thru-Wall Flashing*. And, if you have technical problems, he will put you in touch with Revere's Technical Advisory Service.

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by Ben John Small

spec small talk

sister act

I am more than certain you will doubt this story, but I swear on a stack of P/A's it's true. It happened during my second visit to Greenland last winter. My colleague and I were riding in a jeep toward the ice cap, studying the surrounding real estate, when we sighted two teams of dogs each drawn by an Eskimo youngster who appeared to be about 18 to 20 years old. They were obviously brothers. As they approached, we stopped to have a conversation which consisted of much gesturing and smiling. We lavishly admired their dogs, furs, kamiks, sledges, and sealskin thongs and, still gesturing, offered to trade. I tried to interest them in my small pocket knife and made much of a demonstration of its nail file, cuticle pusher, knife blade, and miniature scissors. They laughed until tears came to their eyes and then showed me a large hand-fashioned bone knife with a neatly carved polar bear handle. They indicated no swap, no deal. Finally we said goodbye and one lad replied "Goodbye"; the first English word either Eskimo had spoken. I said "Hello," and he answered in kind. Then pointing simultaneously to each I asked, "brothers?" To which one shook his head violently and said very clearly "sisters." We laughed and so did they. Further "conversation" brought forth no additional words other than the name of one brother, Knut. With regard to the real estate, I might say it was most fruitful in providing for our project crushed, medium-grained diorite, glacial gravel, quartzite, schists, and broken shale. We have been designing structures for subzero areas for some time now and have accumulated considerable know-how. So what happens? We get a job in a hot, humid climate. Sit tight, if you can, for forthcoming columns on tropic-proofing.

catalytic nickel generation

Every once in a while a technological development comes along which packs a real wallop in its scope of application. As an example, the General American Transportation Corporation, in picking up where the Bureau of Standards left off, perfected a nickel plating process described as Kanigen (short for catalytic nickel generation). The process is expected to serve more than one hundred industries including building trades such as plumbing, heating, electric, as well as the metal working fields. The interesting part of the process is that nickel can now be chemically deposited with uniformity controlled to within ten percent of the plating thickness (usual variant is from a few to several hundred percent) regardless of size or contour of the object being plated. Economy is possible since only from one-half to two-thirds of the nickel normally required for plating is employed. It is claimed that Kanigen plate is nonporous with a tolerance of one pore per square foot, and has a hardness of 600 Vickers and can be used on brass, copper, monel metal, stainless steel, aluminum, glass, plastics, ceramics. Further, the plating can be less than one-half mil in thickness which, by the way, is an ideal thickness for a set of contract specifications.

mink container

A specification writer writes: "Leave my name out of this but here is one typographical spec error that might give you a giggle. It reads like so: All tools necessary for the proper operation and maintenance of the Boiler House equipment shall be installed in the Boiler Room in a manner acceptable to the Engineer. Tools shall include one complete set of high grade *wenches* for fans and other equipment; they shall be furnished in a suitable container." Such as mink, maybe?

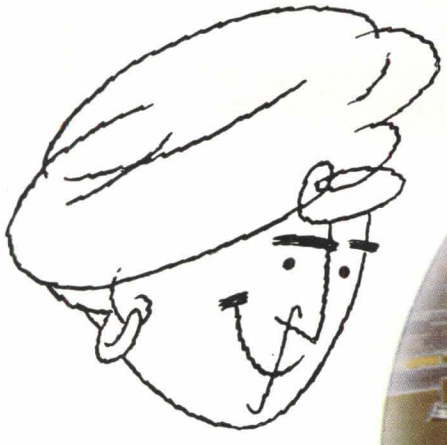
slag a la mode

A.I.S.I. tells us about blast-furnace slag which was once a waste and disposal problem. Today blast-furnace slag has a wide variety of uses despite the fact that it contains the unwanted elements of iron-making. Of 39 million tons produced in 1951 about 29 million tons were processed and sold by 43 companies engaged in processing slag. The primary processed variety is used in concrete construction. It is the principal source of raw material in the manufacture of mineral wool. It helps to protect the public health through its use as a filter medium in sewage disposal plants. And it contributes to the public welfare through its use as a soil conditioner. Small tonnages serve as a solid base to which young oysters, or spats, attach themselves. I just knew you could hardly wait to receive this earth-shaking intelligence.

roller derby

My wife haunted me for what seemed like years to paint the ceiling of our entrance hall. I kept putting it off and putting it off, until one day in the middle of a psychiatric examination it was pointed out that I was frightened by a barber pole at the age of two and one-half. Since my arm invariably looks like a barber pole while painting ceilings with a brush, it was determined that I had a mental block and was unconsciously fighting the thing. I was destined to go through life barely looking up. One day I discovered the paint roller and today my eyes are proudly raised heavenward without fear of resin emulsion, cement water, rubber base, alkyd resin, or any other ceiling paint. I am a painting fool now. The chemical director of Devoe & Reynolds Company tells me that the paint roller is admirably adapted to the painting of cinder or concrete masonry units as well as any smooth surface. In many cases painters object to using it or, in some cases, ask a special rate but nevertheless, he says, the time saved is amazing One coat is usually adequate on blocks be cause the roller applies a very heavy coat and forces the paint down into the pores so that there is a minimum tendency for the block color to show through the paint color. About the only exception, where you do not get solid coverage with first quality paints over cinder concrete masonry units, is the bright yellow. The hiding power of bright yellows is deficient and there is not much the paint manufacturer can do about it; since the intrinsic hiding power is lacking, two coats are needed. For most other colors an application by paint roller will do a good job in one coat, that not only looks well but injures to a minimum the acoustical features. Supposing you are not interested in the acoustics of the units and wish to obtain a smooth surface and one that is at least reasonably washable. Gather around and listen, for no other magazine features such gems of information. Apply one coat of wall-primer sealer and one coat of a finish-coat flat that has a low angular sheen but is not as flat as the flat desired for acoustical features. If the wall is very porous, stir into the primer sealer four pounds of fine dry white sand and then apply this thick mixture to the wall either with an old stub brush or a scrubbing brush or our newly found friend the paint roller. It should be applied very heavily and the spreading rate probably will average one hundred square feet to the gallon, because you are filling up the pores and holes. After this is dry, apply a finish coat of a flat which is a tight flat and which has a little angular sheen in the interest of washability.

I had better stop now before my wife gets any more notions for her little old home craftsman.



Handsome checkout counters are faced with easy-to-clean Formica in yellow Skylark pattern.

Prediction:

More FORMICA in "Store" for Supermarkets

Supermarkets for grocery selling are leading the stampede toward self-service merchandising in all phases of retailing.

Formica is a growing part of this revolution.

Elimination of personal contact between salesperson and customer puts greater emphasis on color, beauty and rugged wearing quality of the sales setting.

Formica radiates a warm invitation to masses of people and, having attracted them, is "wear conditioned" against careless use.

For more Formica information see Sweets File $\frac{13a}{FO}$ or write:

FORMICA 4633 Spring Grove Ave., Cincinnati 32, Ohio

In Canada: Arnold Banfield & Co., Ltd., Oakville, Ontario

Illustrated Store: Steinberg's Ltd. at Henry Morgan and Co., Montreal, Canada

Color keyed with Formica. The green counters are for regular use—the yellow are express counters.

Terra Cotta Skylark Formica is used on this entire wall which includes the service counter and elevators.

Beauty Bonded FORMICA Reg. U. S. Pat. Off.

Pays in Performance

Guaranteed by Good Housekeeping

school spaces

School systems have so increased their extracurricular activities in recent years that space to house them has become a paramount problem. In newer buildings, designers of the interiors definitely plan as a part of the structure those accommodations especially for many varied activities. Even so, space is still at a premium, and areas can seldom be created to be used only short periods of time for only one activity. The obvious answer—and an economic necessity—is the multi-purpose extracurricular area. Resulting problems in actual use may be many, if the interior designer has not undertaken thorough research of the activities contemplated. Nothing is accomplished when a room is designed to handle 10 different activities if, for instance, a band is trying to practice while a basketball game is going on, with no physical separation and no acoustical control. Nor does audible clatter of dishes in a cafeteria enhance the latest dramatic presentation in the connecting auditorium. As one considers extracurricular activities one realizes that practically all of them involve *noise*—e.g. dramatics, music practice, sports, dances, class meetings, and parties. (The quiet activities seldom require special spaces and may be pursued in regular classrooms.)

Having accomplished space distribution and sound control, a really workable setup is possible. But making the (practicable) space attractive for all activities is a problem in itself. As an example, if a space is used for a gymnasium, a cafeteria, and an auditorium, in many cases it looks like a gymnasium all the time, because the normal budget is a restricting consideration, and gymnasium surfaces must be chosen to take punishment. Eye-appeal can be satisfied if one of the least expensive of design elements, *color,* is used effectively. It can transform the otherwise routine space.

Assuming that an area is capable of handling a number of functions and that it is attractive in all of its phases, the interior designer still must answer another question before he has come as near perfection as possible. How easily and quickly does the room adjust to its many uses? In most cases, the changes must be effected with minimum labor and time. Movable partitions and furnishings that can be easily stored when not in use, or are light enough to be moved about for various arrangements, are invaluable. In fact, these are necessary. In the following section are three examples that merit careful scrutiny on all the above points.

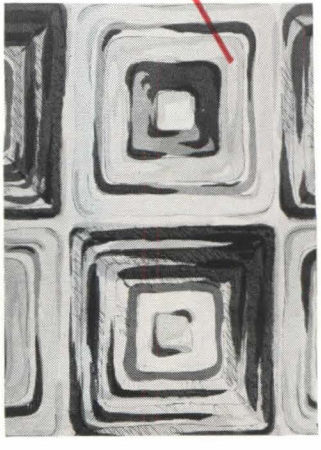
p/a interior design data

school spaces

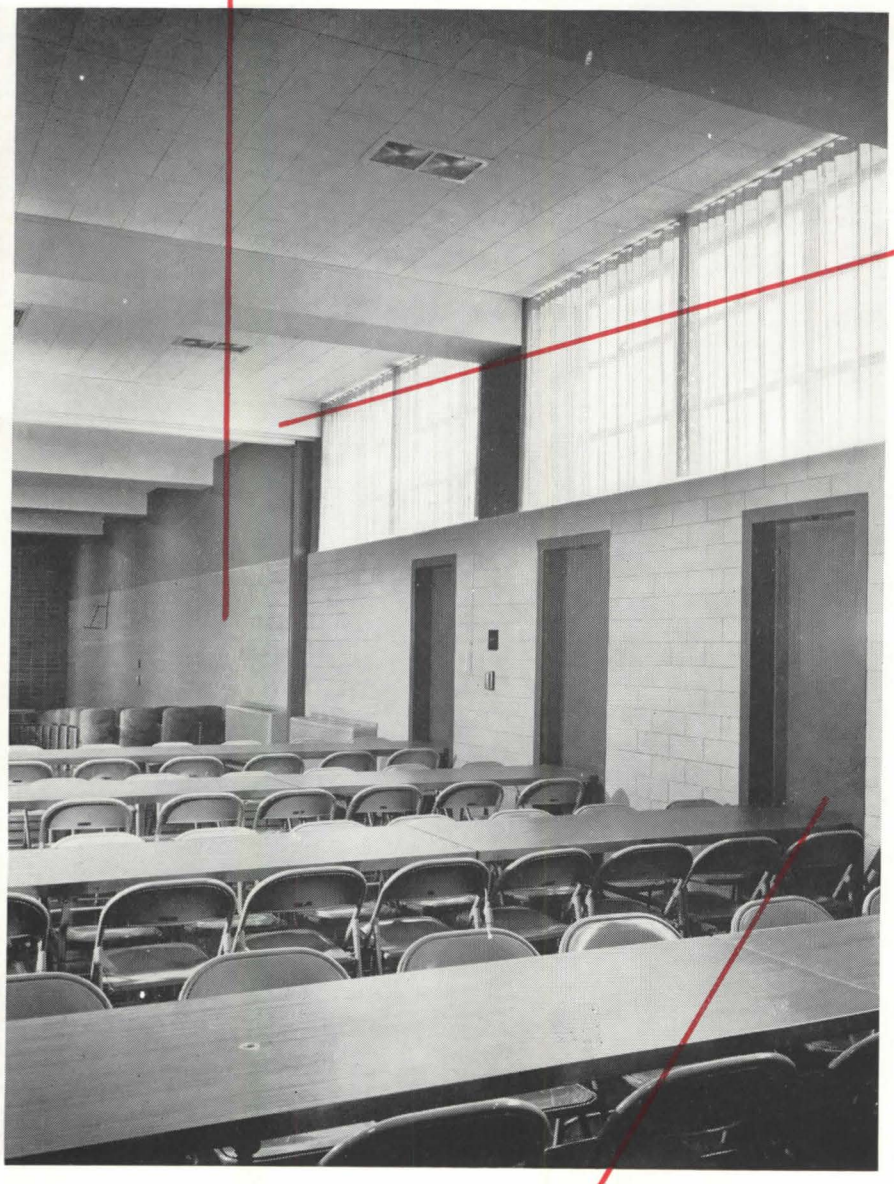
area	meeting room, cafeteria-gymnasium
building	Roslyn East Hills Elementary School
location	Roslyn East Hills, Long Island, N. Y.
architects	Moore & Hutchins
interior designers	Ann Hathaway Associates

A combination meeting room, gymnasium, and cafeteria is a large order for an interior designer, if he is to make it work efficiently and still be eye-pleasing. Here is the perfect solution. The small auditorium has a sloping floor and a stage to permit instruction in dramatics, music, and speech, and to be used as a meeting room. When there is an overflow, a motorized, folding partition opens up the cafeteria-gymnasium room. Folding tables and adjacent storage make for quick changes with maximum ease. Food preparation and kitchen activity are divorced from the cafeteria enough so that when the room becomes a gymnasium, the functions do not interfere with each other. Nothing has been sacrificed to the multi-purpose uses of this area. ***Photos: Gottscho-Schleisner***

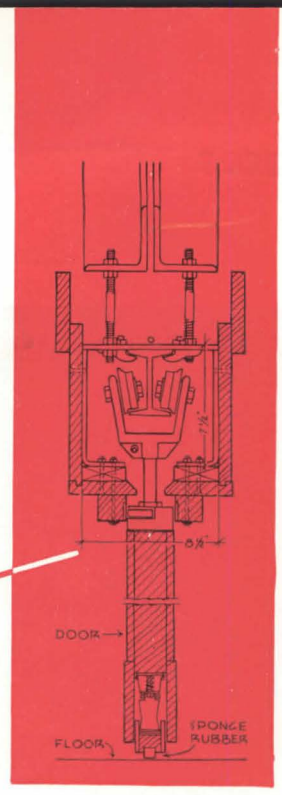
hand-printed cotton



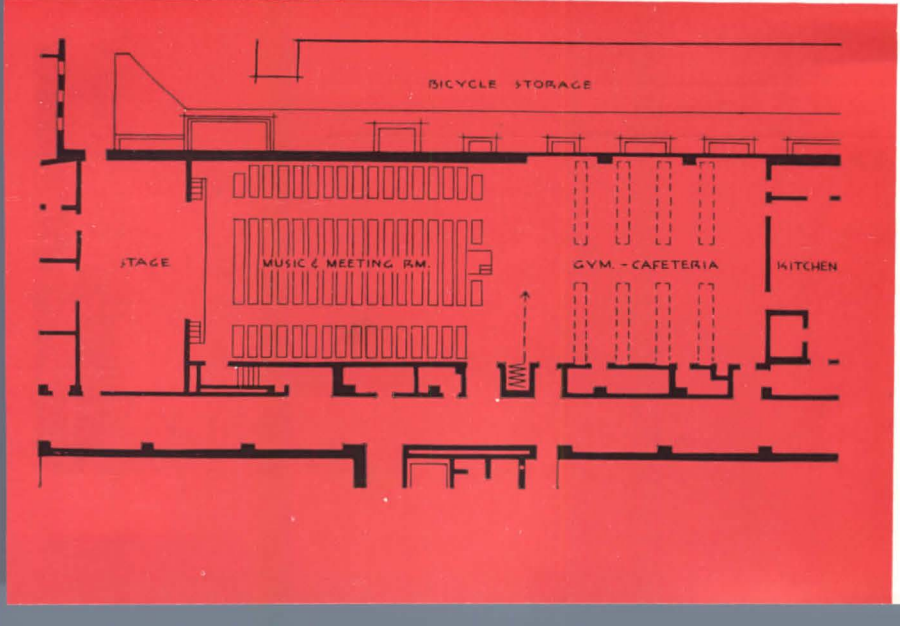
glazed-tile wainscot



folding partition



in-folding tables



data

doors and windows

Doors: flush wood, maple, natural finish/ Hardwood Products Corp., Neenah, Wis.; metal doors and frames/ National Kalamein Co., 420 Lexington Ave., Brooklyn, N. Y.

Door Hardware: satin-chrome finish/ Schlage Lock Co., 2201 Bayshore Blvd., San Francisco, Calif.

Windows: steel sash/ Hope's Windows, Inc., Jamestown, N. Y.; clear sheet glass, "Pennvernon," tempered glass, "Herculite"/ Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa.; obscure glass, "Luxite"/ Mississippi Glass Co., 88 Angelica St., St. Louis 7, Mo.

Window Blinds: vertical "Bambino"/ painted/ Holland Shade Co., 999 3 Ave., New York, N. Y.

furnishings and fabrics

Seats: natural-wood seat and back/ American Seating Co., 901 Broadway, N. W., Grand Rapids 4, Mich.

Chairs: metal folding/ gray finish/ Samson Div., Shwayder Bros., Inc., 4270 High St., Ecorse Station, Detroit, Mich.

Tables: in-wall folding/ tan Jaspe linoleum tops/ Schieber Mfg. Co., Brightmoor Station, Detroit 23, Mich.

Stage Curtain: proscenium/ #26696 cotton print/ J. H. Thorp & Co., Inc., 250 Park Ave., New York, N. Y.; cyclorama: #H-61 Heathertone/ Konwiser, Inc., 1 E. 53 St., New York, N.Y.

lighting

Recessed Fixtures: flush/ baked-enamel finish/ Gruber Lighting, Inc., 125 S. 1 St., Brooklyn, N. Y.

walls, ceiling, flooring

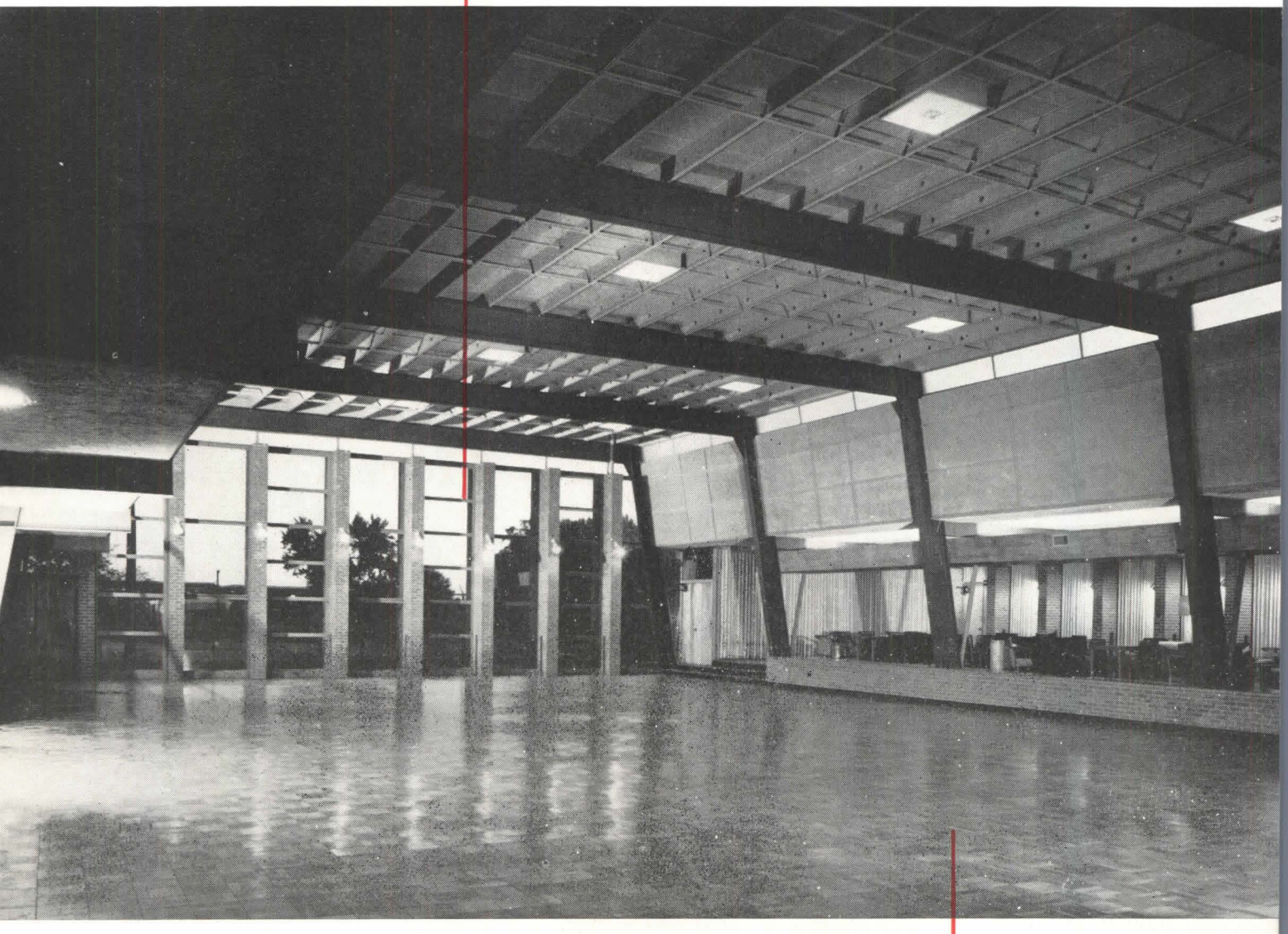
Walls: plaster/ painted custom-color/ Sherwin-Williams Co., 101 Prospect Ave., Cleveland, Ohio; glazed-tile wainscots/ #C33L light-green, luster finish/ Claycroft Co., Toledo, Ohio.

Folding Partition: motorized operation/ Horn Brothers Co., Ft. Dodge, Iowa.

Ceiling: mineral "Softone"/ 12" sq. acoustical tile/ American Acoustics, Inc., 101 Prospect Ave., Cleveland, Ohio.

school spaces

steel-frame windows

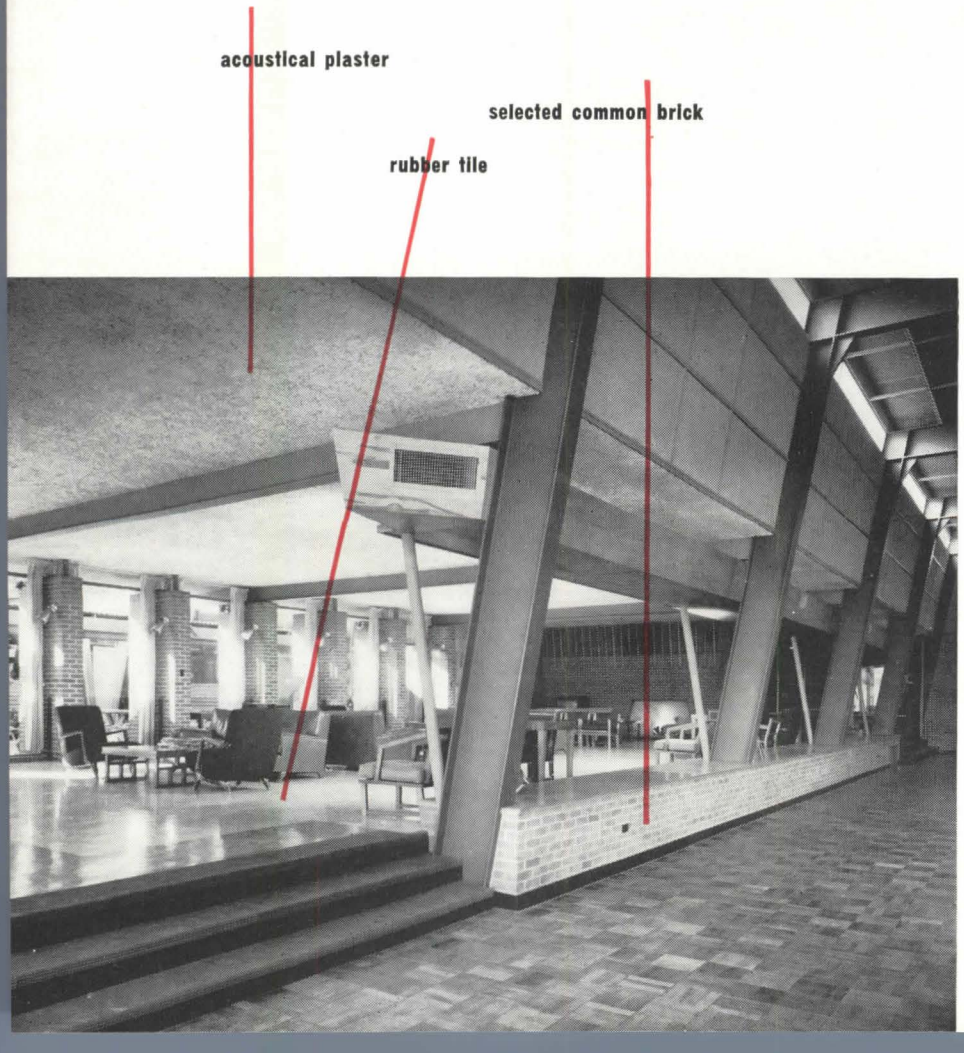


oak parquet

area	lounge and ballroom
location	Student Union, Central State College, Edmond, Okla.
architects	Conner & Pojezny

An eye-appealing space contrast is achieved by the raised floor and lowered ceiling of the lounge, beside the ballroom. To accentuate this effect, there is an obvious texture contrast in the two areas. A much more intimate atmosphere is obvious in the lounge area. The exposed steel beams, columns, and rigid frame were proportioned on an analytical basis, but are an integral part of the interior design. Wood and brick are in natural colors, and exposed steel is painted gray-green, complemented by a lighter shade on the other painted areas. The ballroom was planned to accommodate 300 persons and the lounge takes an overflow or may be used alone for group meetings and other gatherings.

Photos: Julius Shulman



data

furnishings and fabrics

Chairs, Sofas, Tables: Brown-Saltman, 2570 Tweedy St., Southgate, Calif.; Buckstaff Co., Oshkosh, Wis.; Danby Co., 227 E. 47 St., New York, N. Y.; Dunbar Furniture Co., Berne, Ind.; Leathercraft Furniture Mfg. Co., 3045 E. 11 St., Los Angeles, Calif.

Upholstery Fabrics: Goodall Fabrics, Inc., 525 Madison Ave., New York, N. Y.; J. H. Thorp & Co., Inc., 250 Park Ave., New York, N. Y.

Drapery Fabrics: J. H. Thorp & Co., Inc.

lighting

Ballroom Ceiling Fixtures: #53-300, "Skylike"/ Silvray Lighting Co., RKO Bldg., New York, N. Y.

Fixtures (under balcony): #1313/ Kirlin Co., 3437 E. Jefferson at Ivan, Detroit, Mich.

Bracket Lights (on columns): #602A/ Litecraft Mfg. Co., 8 E. 36 St., New York, N. Y.

Exit Lights: #3010/ Daybrite Lighting, Inc., 5434 Bulwer Ave., St. Louis 7, Mo.

walls, ceiling, flooring

Walls: lower portion, selected common brick/ Acme Brick Co., 2500 N. W. 10 St., Oklahoma City, Okla.; gum plywood/ U. S. Plywod Corp., 55 W. 44 St., New York, N. Y.; upper portion, "Insulrock"/ Insulrock Corp., E. Linden Ave., Linden, N. J.; perforated asbestos cement/ Keasby & Mattison, Ambler, Pa.

Ceiling: ballroom, "Insulrock"/ Insulrock Corp.; lounge, "Thermacoustic"/ National Gypsum Co., 325 Delaware Ave., Buffalo 2, N. Y.

Flooring: ballroom, oak parquet/ E. L. Bruce Co., Memphis, Tenn.; lounge, rubber tile/ Armstrong Cork Co., Lancaster, Pa.

Stair Treads: alundum-bearing rubber/ Servicised Products Corp., 6051 W. 65 St., Chicago 8, Ill.

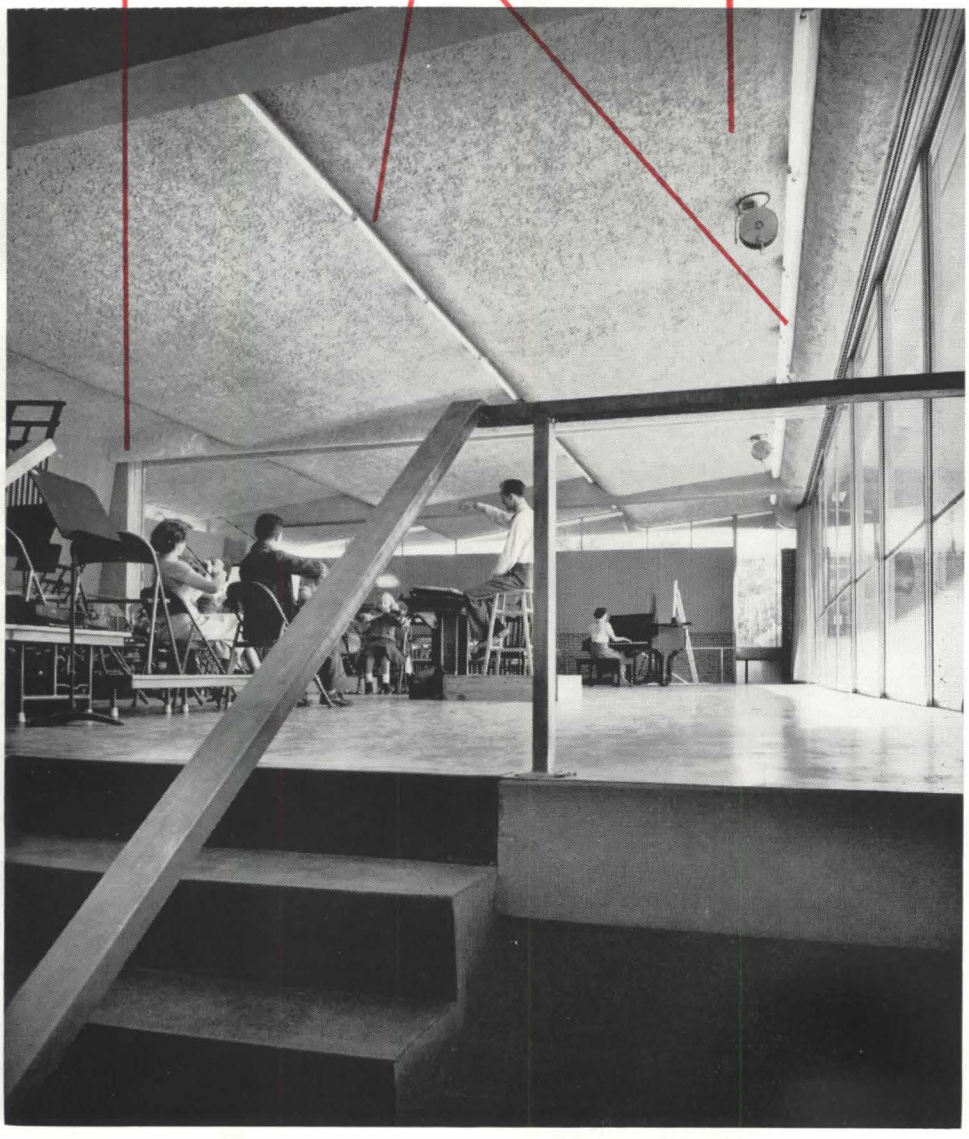
windows

Ballroom Windows: Donovan type/ Truscon Steel Co., 1315 Albert St., Youngstown, Ohio; 1/4" Solex plate/ Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa.; 1/8" "Coolite" glare-reducing glass/ Mississippi Glass Co., 88 Angelica St., St. Louis, Mo.

Lounge Windows: architectural projected/ Truscon Steel Co.; 1/4" plate glass/ Pittsburgh Plate Glass Co.; light troughs, 1/8" "Reglex"/ Mississippi Glass Co.

school spaces

area	band and choral rooms, indoor-outdoor stage
location	Fine Arts Building, Central State College, Edmond, Okla.
architects	Conner & Pojezny



Immediately obvious is the facility provided for open-air performances. The 7′ x 12′ doors slide to open the stage to the amphitheater. Inside, portable panels separate practicing band and choral groups, or may be moved to accommodate joint rehearsals. Especially tricky was the problem of having proper acoustics. As designed, a person may be heard from the rear of the amphitheater without any electrical amplification or reinforcement. In all, an unbelievable number of activities may be conducted here, either individually or jointly. *Photos: Julius Shulman*

data

cabinetwork

Instrument Storage Cabinets: Walton Manufacturing Co., Oklahoma City, Okla.

Hardware: Stanley Works, New Britain, Conn.

doors and windows

Doors: aluminum, sliding, glazed/ Glide Windows, Inc., 7463 Varna Ave., North Hollywood, Calif.

Glass: ¼" plate glass/ Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa.; ¼" plate, glare- reducing/ Mississippi Glass Co., 88 Angelica St., St. Louis 7, Mo.

equipment

Radio Broadcasting Equipment: Radio Corporation of America, Front & Cooper Sts., Camden, N. J.

furnishings and fabrics

Chairs: Heywood-Wakefield Co., Gardner, Mass.

Risers: Mitchell Manufacturing Co., 2525 Clybourn Ave., Chicago, Ill.

Drapery Fabric: "Monterrey" casement, beige-and-gold/ J. H. Thorp & Co., Inc., 250 Park Ave., New York, N. Y.

lighting

Ceiling Fixtures: #430MA slimline/ T12 strips/ Sylvania Electric Products, Inc., 1740 Broadway, New York, N. Y.

Footlights: #5-300/ on condulets/ "Steberlite"/ Steber Manufacturing Co., 2700 Roosevelt Rd., Broadview, Ill.

walls, ceiling, flooring

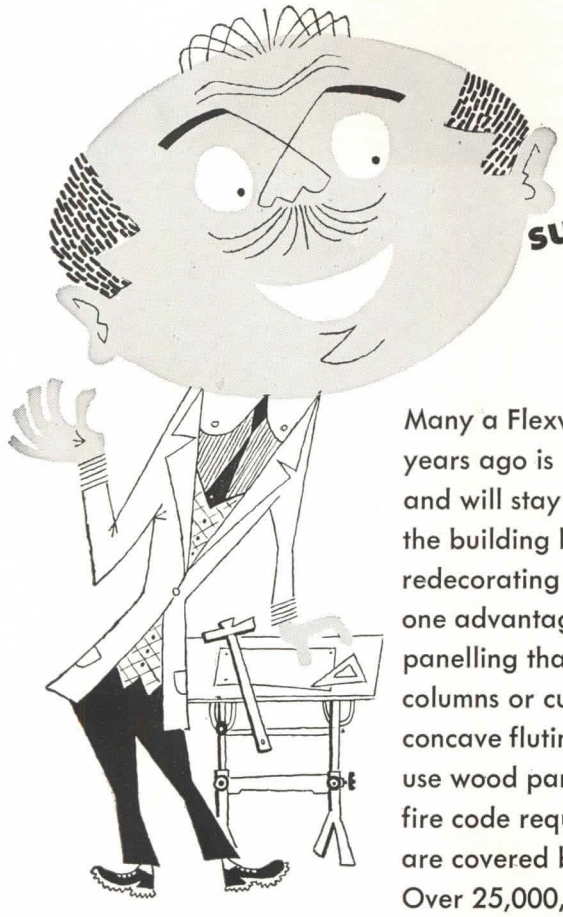
Walls: selected common brick/ United Brick Co., Oklahoma City, Okla.; striated plywood/ U. S. Plywood Corp., Louisville, Ky.

Sound-Insulated Panels: covering, "Fabrikona"/ H. B. Wiggins Co., Arch St., Bloomfield, N. J.; Walton Manufacturing Co.; Oklahoma City, Okla.

Ceiling: "Thermacoustic"/ National Gypsum Co., 325 Delaware Ave., Buffalo, N. Y.

Flooring: asphalt tile/ "Azrock"/ Uvalde Rock Asphalt Co., P. O. Box 531, San Antonio, Tex.

Stair Treads: alundum-bearing rubber/ Servicised Products Corp., 6051 W. 65 St., Chicago 8, Ill.



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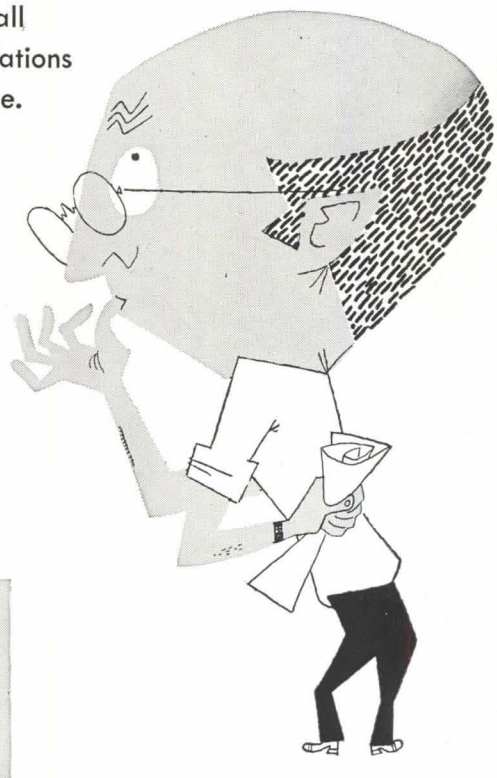

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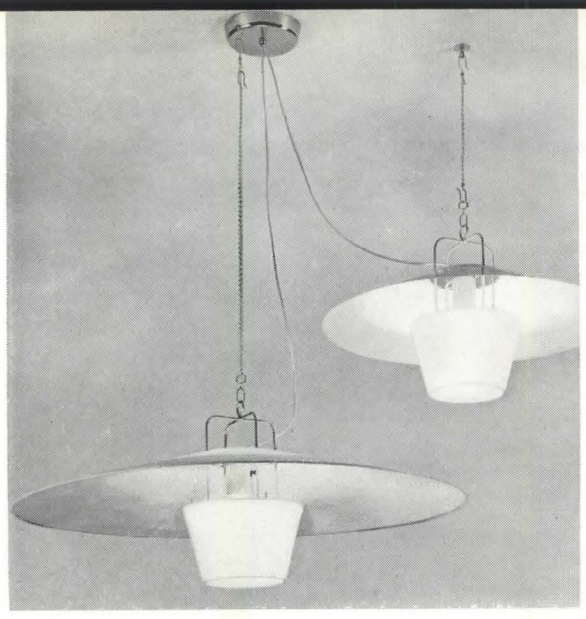
Company	Year Installed	Company	Year Installed
Aluminum Co. of America, Detroit, Mich.	1935	International Business Mach. Co., Washington, D. C.	1942
N. W. Ayer Co., Phila., Pa..	1946	Eli Lilly Co., Indianapolis, Ind.	1934
Bethlehem Steel Co., Bethlehem, Pa.	1943	McDonnel Aircraft Corp., St. Louis, Mo.	1949
Wm. H. Block Co., Indianapolis, Ind.	1936	Pittsburgh Post Gazette, Pittsburgh, Pa.	1937
General Motors, Chevrolet Motor Div., Detroit, Mich	1935	Temple U., Phila., Pa. (Dean's Office)	1944
D'Arcy Adv. Co., St. Louis, Mo.	1948	Toledo Public Library, Toledo, O.	1935
Ethyl Corp., Detroit, Mich.	1935	University Club, San Fran., Cal.	1937
J. L. Hudson Co., Detroit, Mich.	1935	Zurich Accident & Liability Ins. Co., Chicago, Ill.	1935
Illinois Bell Tel. Co., Chicago, Ill.	1938		

United States Plywood Corporation **Dept. FW-53**
55 West 44th Street, N. Y. 36, N. Y.
In Canada: Paul Collet & Co., Ltd., Montreal

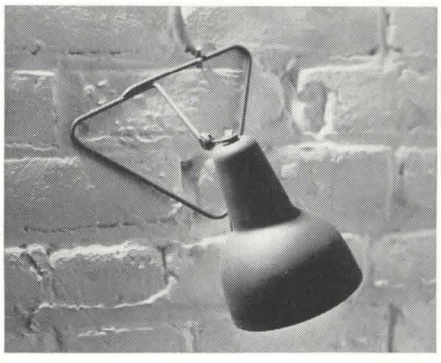
Flexwood is manufactured and marketed jointly by United States Plywood Corporation and The Mengel Company.

p/a interior design products

Articles on this page are from a design competition at the Akron Art Institute, created to encourage the young designer who is making a contribution to the design field but is not yet recognized nationally. Particularly interesting is the concentration on design for younger people—a simplification of design which permits economy in production and thereby more reasonable prices for the products.

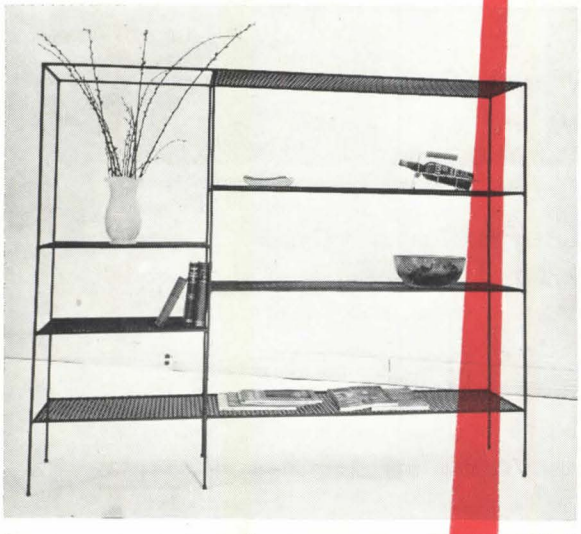


Ceiling Fixtures: 34¼" diameter Fiberglas shade or 24" diameter white-metal shade/ white lumerith baffle/ adjustable height/ **retails:** $65 and $58, $10 additional for frame and canopy in brass finish/ **Douglass Bennett Designs, 1021 Northern Life Tower, Seattle, Wash.**



Portable Swivel Lamp: # 50/ spun-aluminum reflector/ 3/16" steel-rod base/ hangs on wall, stands, or clips to a shelf/ dull, baked-enamel finish in black, pewter, coral, yellow, or teal/ **retail:** $7/ **Gross Wood & Co., 230 Natonia St., San Francisco, Calif.**

Expanded Metal Furniture: # TM23 Room Divider/ 6' x 5' x 14"/ **retail:** $130/ # TM28 Coffee Table/ 20" x 48" x 15" high/ **retail:** $25/ designed by Archie Kaplan/ **New Dimensions Furniture, Inc., 26 W. 23 St., New York 10, N. Y.**



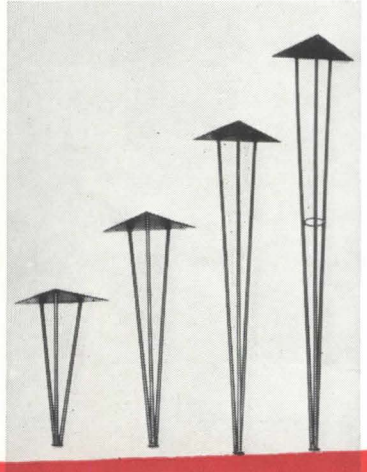
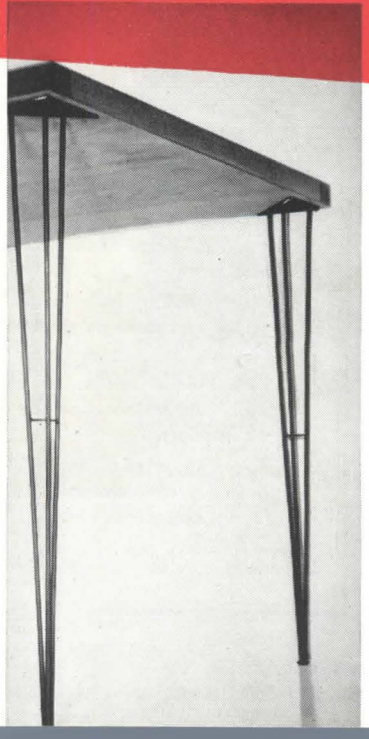
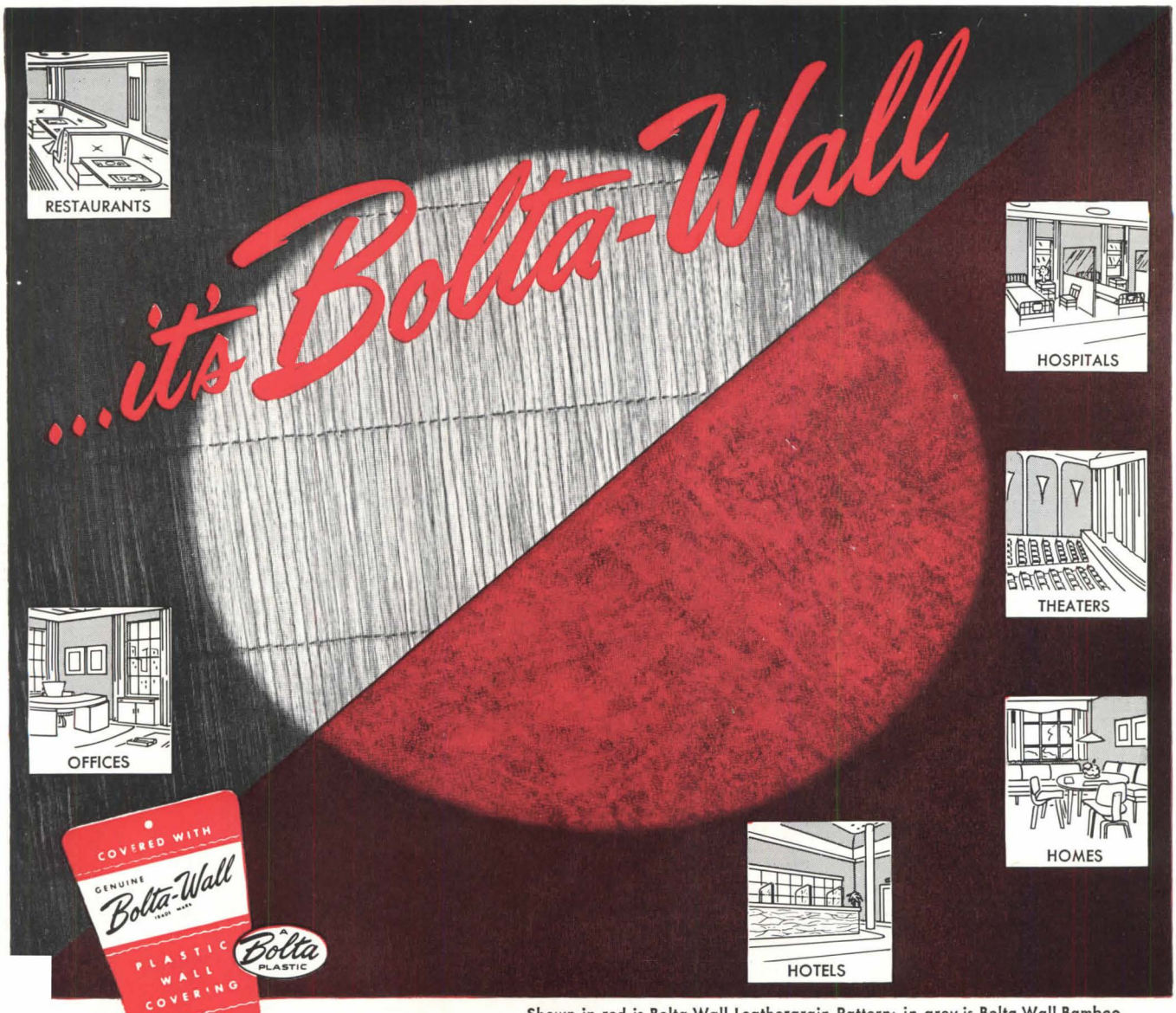


Table Legs: #'S 9L, 14L, 21L, 28L/9" high for bed, sofa, chest; 14" high for coffee table; 21" high for end table; 28" high for dining table or desk/ **retails:** $8, $10, $12, $15, respectively, for set of four/ **Gross Wood & Co., 230 Natonia St., San Francisco, Calif.**





Shown in red is Bolta-Wall Leathergrain Pattern; in grey is Bolta-Wall Bamboo.

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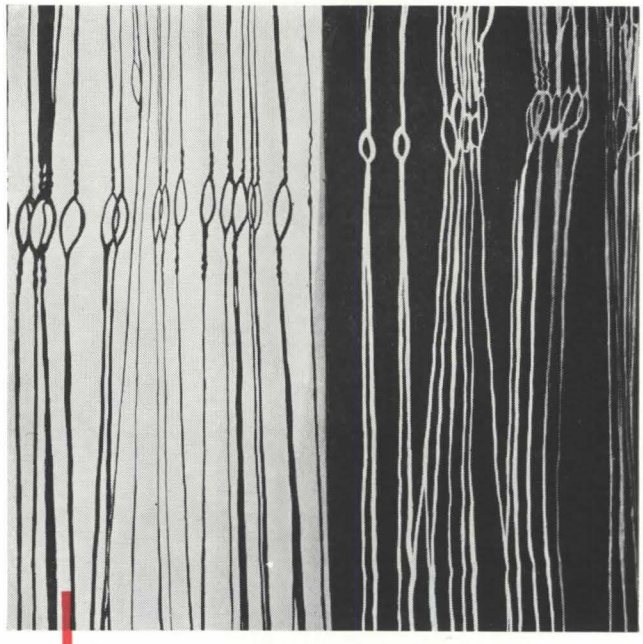
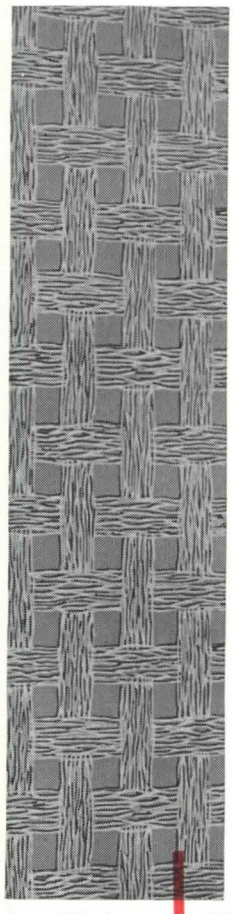
p/a interior design products

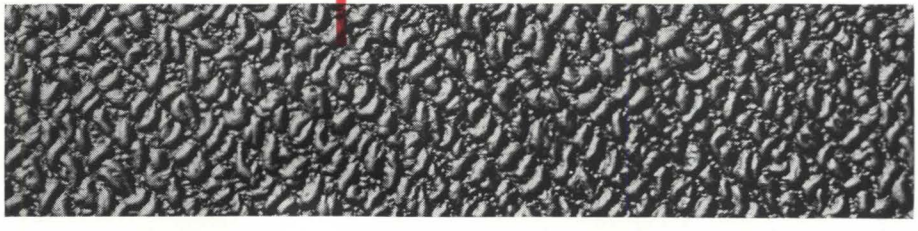


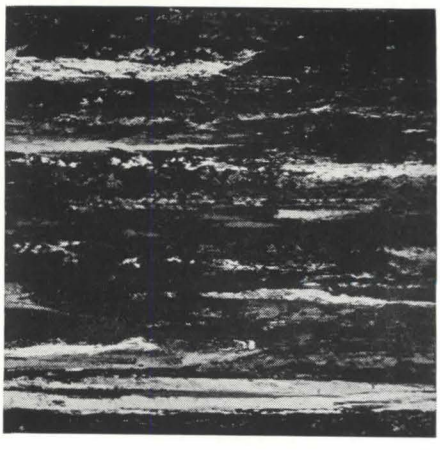
Hand-Printed Fabric: "Fibra"/ linen/ design taken from the heddle of a loom/ available in black on natural; white on natural; blue, orange, white, and black on natural; black on white; white on black; navy, royal, turquoise and green on blue; red, orange, pink on orange/ pattern repeat, 36", 50" wide/ designed by Eszter Haraszty/ **retail:** $5.40 a yd/ **Knoll Textiles, Inc., 575 Madison Ave., New York, N. Y.**



Stainproof Wall Covering: "Basket weave"/ available in backgrounds of gray or sage green/ **retail:** $.12½ a sq ft/ Varlar/ **United Wallpaper, Inc., Merchandise Mart, Chicago 54, Ill**

Textured Plastic Upholstery: "Canyon Tweed"/ available in eight colors—parchmont, coral, yellow, red, spring green, aqua, beige, and dark green/ 54" wide/ 20-gage sheeting/ **Bolta Products Sales, Inc., Lawrence, Mass.**





Flooring: "Kenflex" vinyl-asbestos tile/ 9" square in standard and 1/8" thickness/ available in 14 colors/ greaseproof, alkali-proof, fire-resistant/ **retail:** $.17 a tile/ "Kenrubber" rubber tile/ Standard Gage/ 9" square/ available in 13 colors/ **retail:** $.19 a tile/ **Kentile, Inc., 58 Second Ave., Brooklyn, N. Y.**

TRANSLUCENT WINDOW WALL

...brings in daylight

...provides privacy

...and decorates

Municipal Building, Boulder, Colorado. Architect: James M. Hunter; Associate Architect: Hobart D. Wagener, Boulder.

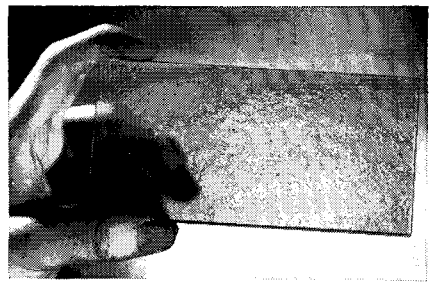
This wall of Blue Ridge *Patterned Glass* does all three—and does them beautifully. It is an excellent example of how you can combine function and downright beauty with this versatile glass. These panels of glass are Velvex pattern—with *Satinol** finish to increase light diffusion and add a luxurious look.

One of the nice things about working with Blue Ridge Glass is that it decorates on both sides. And it calls for no further finishing—keeps its new appearance for good.

Blue Ridge Glass comes in a wide range of designs—linear patterns to accentuate height or length—plus over-all patterns. And you can choose from plain, textured and *Satinol* finishes. Your imagination dictates, not the material.

Your L·O·F Glass Distributor or Dealer can show you samples and give you estimates. He's listed in the yellow pages of phone directories of many cities. Mail the coupon for our helpful idea books.

*®



Velvex pattern Blue Ridge Glass, *Satinol* finish.

BLUE RIDGE Patterned GLASS L·O·F GLASS

Libbey·Owens·Ford Glass Company
Patterned and Wire Glass Sales
B-973 Nicholas Building, Toledo 3, O.

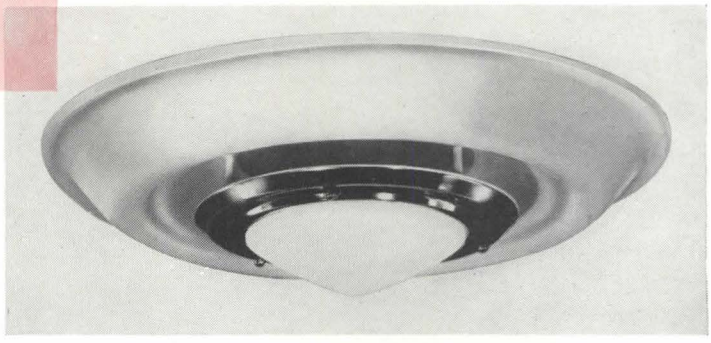
Please send me your two idea books:
Patterned Glass for Modernization in commercial buildings;
New Adventures in Decorating for residences.

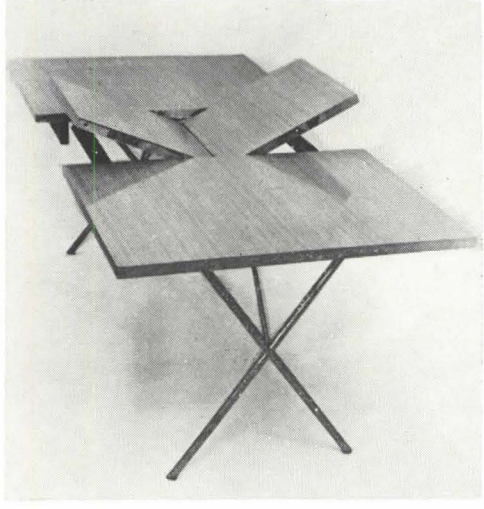
Name (please print)_____

Street_____

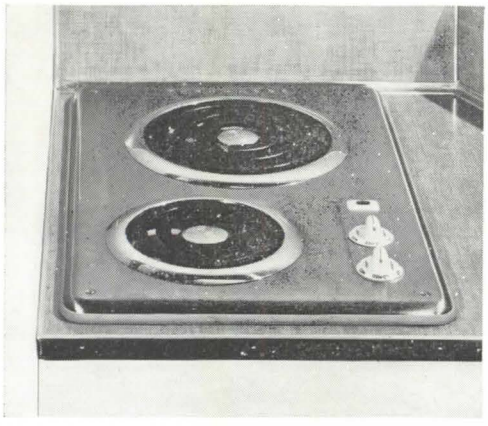
City_____ Zone_____ State_____

Air Diffuser and Light Fixture: # KH-L recessed/ conical lens/ 6" diffuser/ made in neck diameters to accommodate 100 to 200 watt bulbs/ heating capacity, 7000 to 23,000 Btu per hour/ cooling of air from 80 cu ft to 320 cu ft per minute/ **Conner Engineering Corp., Danbury, Conn.**



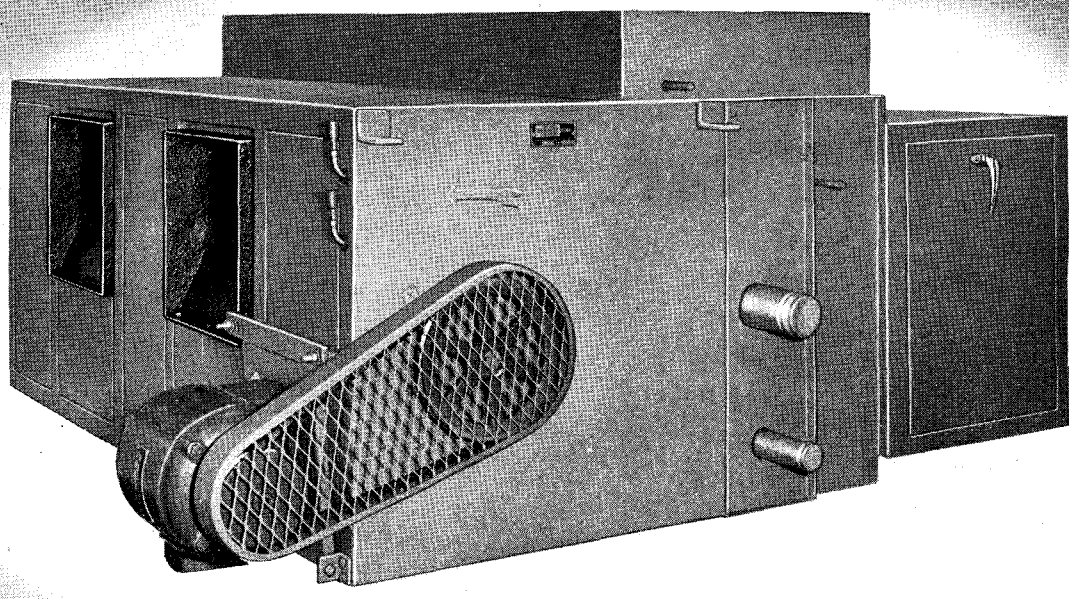


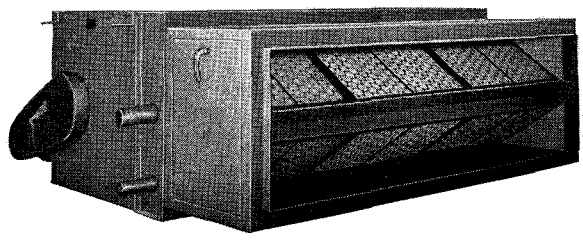
Extension Dining Table: # 5260/ seats six or eight/ folding leaf is concealed beneath top/ X-legs available in white, black, or chrome finish/ 36" x 54", extends to 72"/ designed by George Nelson/ **retail:** $182 in rosewood, $167 in oak and walnut/ **Herman Miller Furniture Co., Zeeland, Mich.**



Cooking Unit: "Built-in Range"/ two units to be used for limited space/ combination of any number may be used for larger areas/ stainless steel/ 13½" x 20¾"/ **Thermador Electrical Mfg. Co., 5119 District Blvd., Los Angeles 22, Calif.**

KENNARD *Engineered*





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Pre-heat and Re-heat Coils - 1.1 to 32.5 sq. ft. face.

Moderate tip speeds and outlet velocities

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Mixing Box and Dampers • Face and By-pass Dampers • Throwaway, Cleanable or High Velocity Filters • Target, Grid or Pan Humidifiers.

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Write for name of nearest representative and complete information on Air Conditioning Blower Units— Finned Coils — Evaporative Condensers — Cooling Towers — Sprayed Coil Dehumidifiers.

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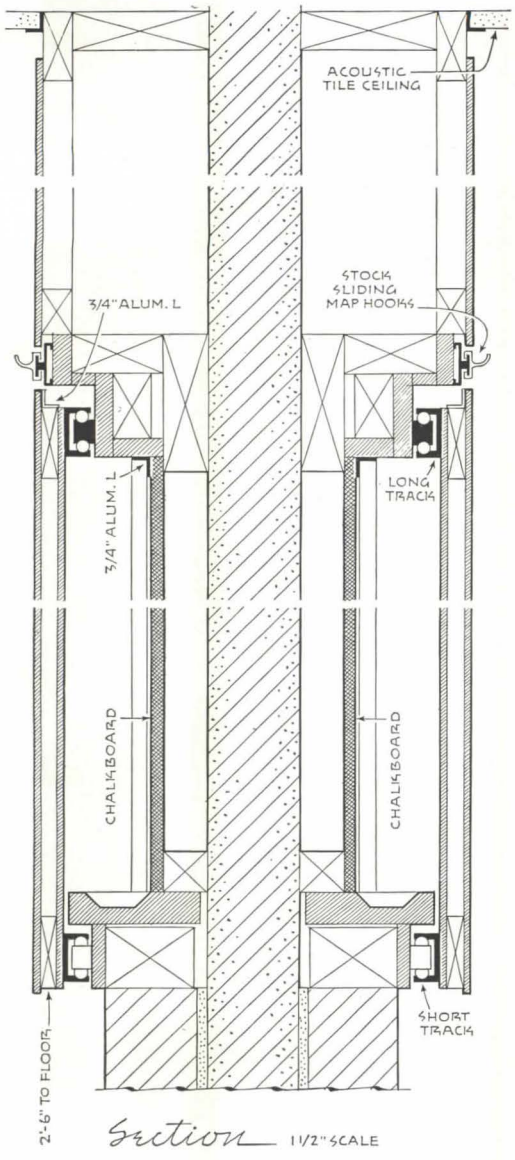
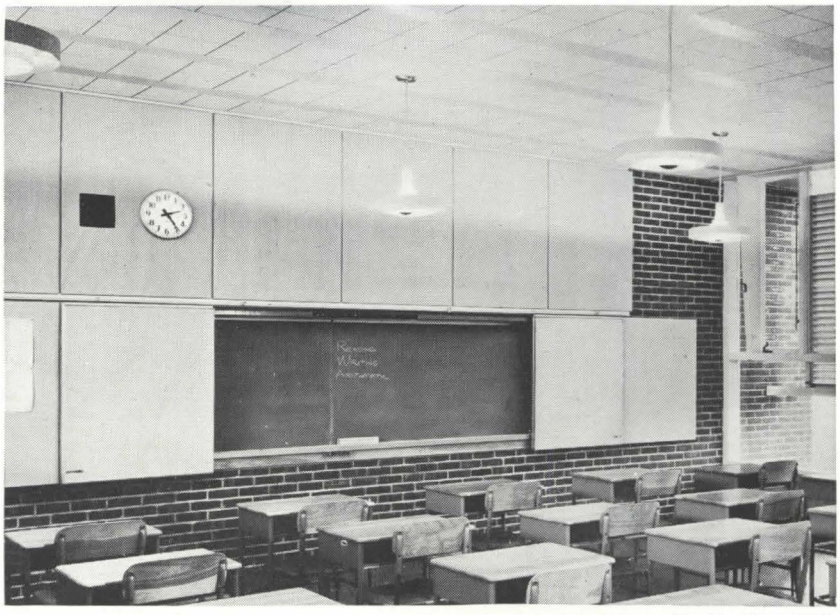
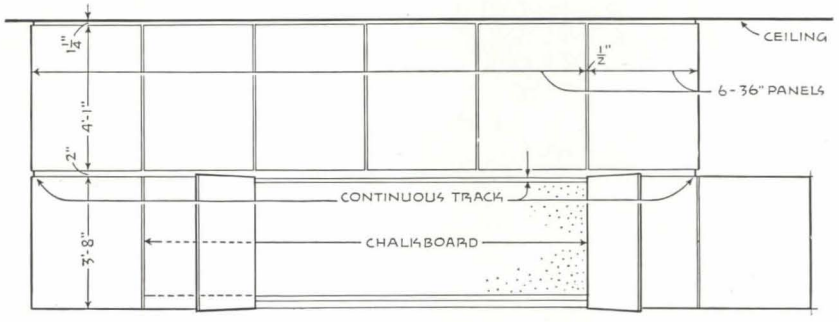


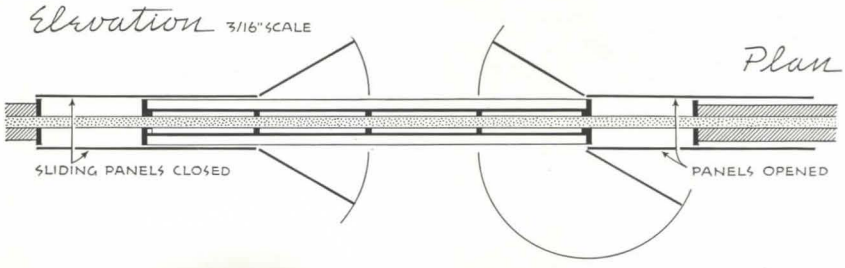
Section 1 1/2" SCALE



LIONEL FREEDMAN

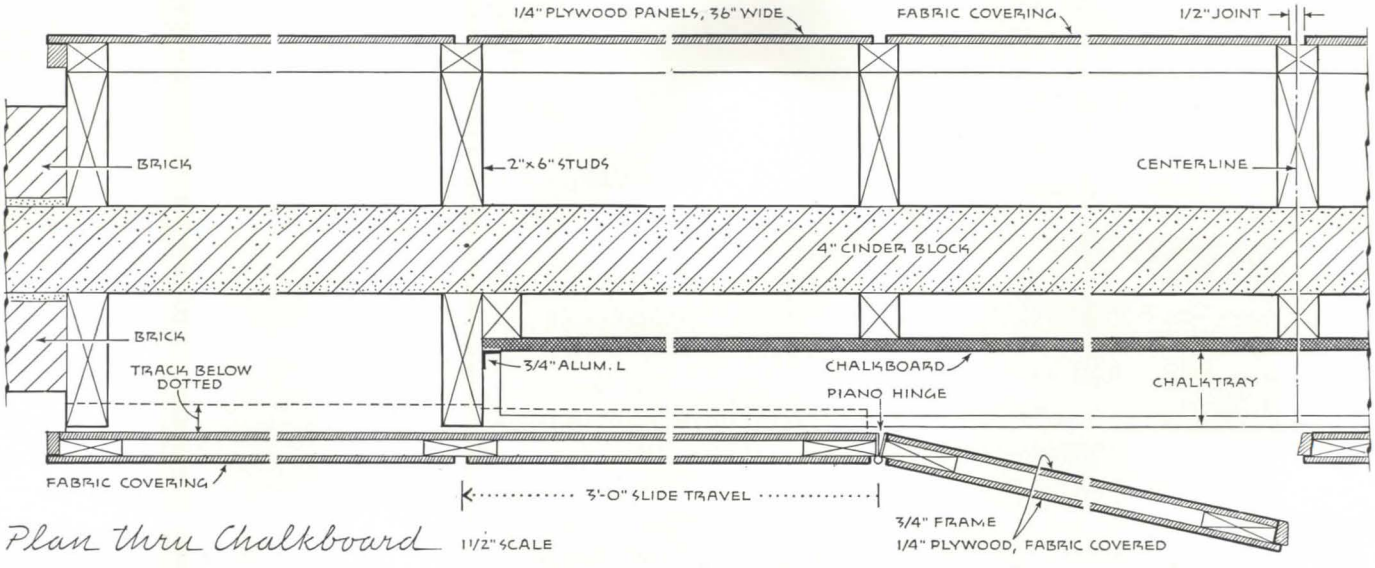


Elevation 3/16" SCALE



Plan

Plan over Chalkboard

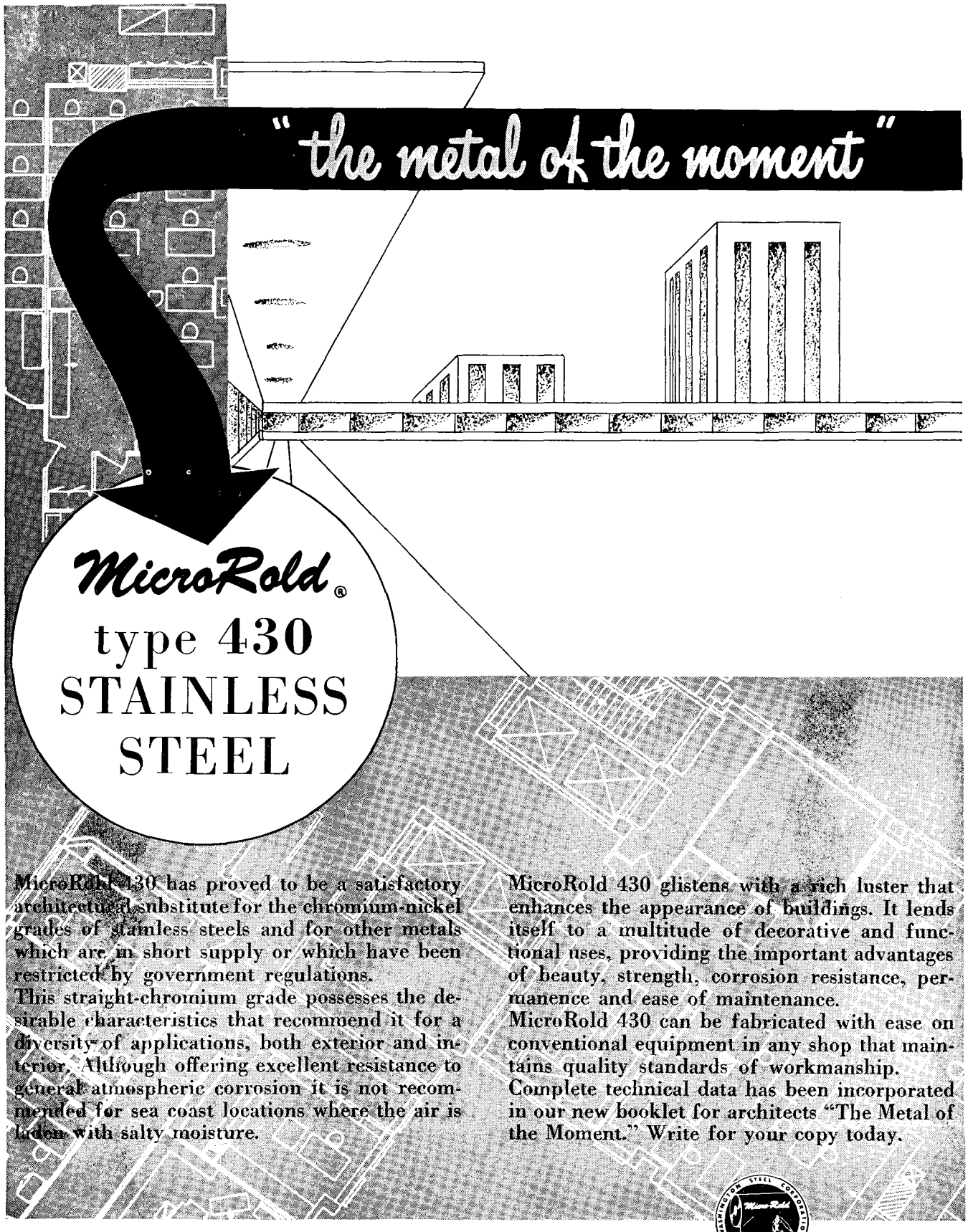


Plan thru Chalkboard 1 1/2" SCALE

DARIEN JUNIOR HIGH SCHOOL, Darien, Conn.

Ketchum, Giná & Sharp, Architects

Moore and Hutchins, Consulting Architects



MicroRold 430 has proved to be a satisfactory architectural substitute for the chromium-nickel grades of stainless steels and for other metals which are in short supply or which have been restricted by government regulations.

This straight-chromium grade possesses the desirable characteristics that recommend it for a diversity of applications, both exterior and interior. Although offering excellent resistance to general atmospheric corrosion it is not recommended for sea coast locations where the air is laden with salty moisture.

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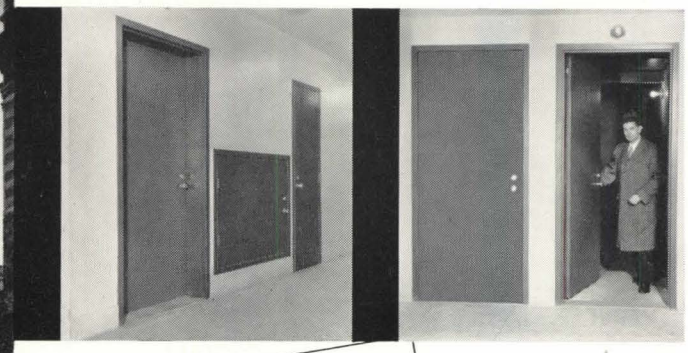
BRUCE **E. L. BRUCE CO., MEMPHIS 1, TENN.**

Hedrich-Blessing Photo

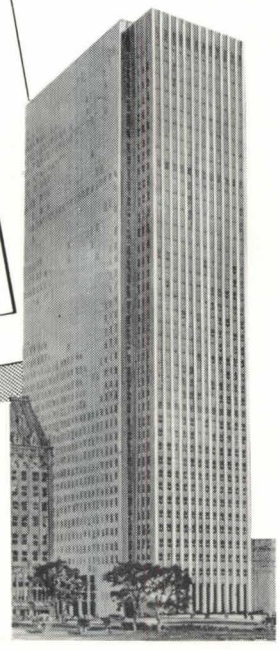


In Pittsburgh's New

GATEWAY CENTER

and

525 Wm. PENN PLACE



• 525 Wm. Penn Place

USF Hevi-Duty Commercial Doors and Frames Used Throughout

Yes, in the three gleaming stainless steel towers of Pittsburgh's new Gateway Center office building project, USF Hevi-Duty Commercial Hollow Steel Doors and Frames were used throughout the entire building core. Yes, in Pittsburgh's new 525 Wm. Penn Place Building, USF Doors and Frames were used, too. The reasons: initial economy, clean design and workmanship, low cost installation and completely dependable durability. Why not investigate?

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- **Famous Inner-Weld *Door Construction***
- **1½-Hour UL-Label**
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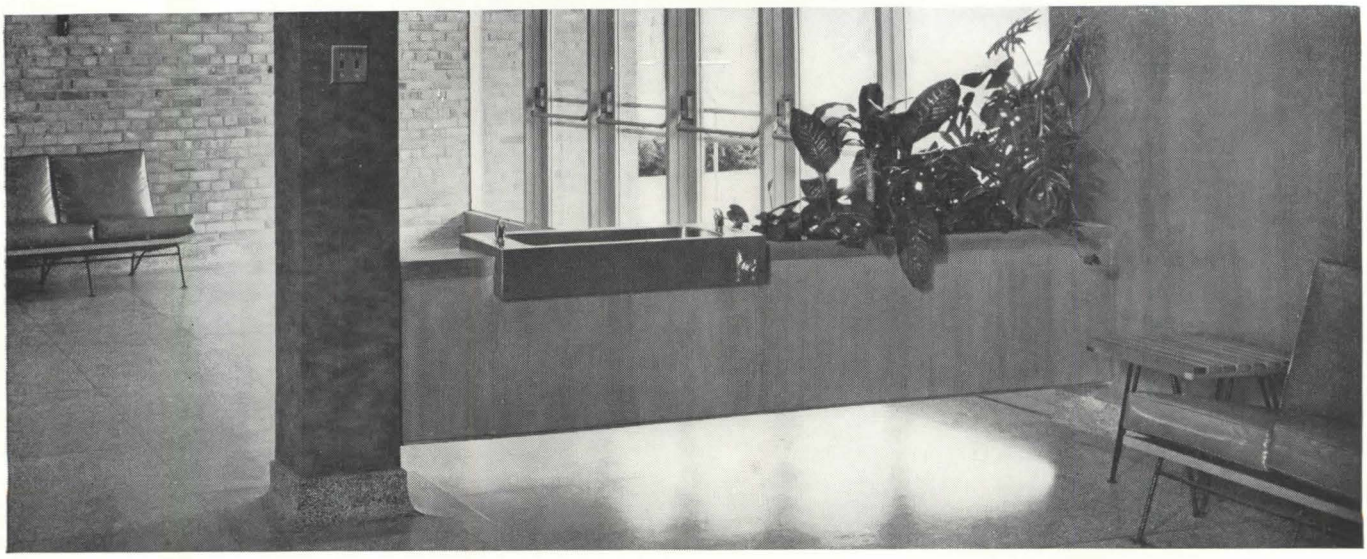
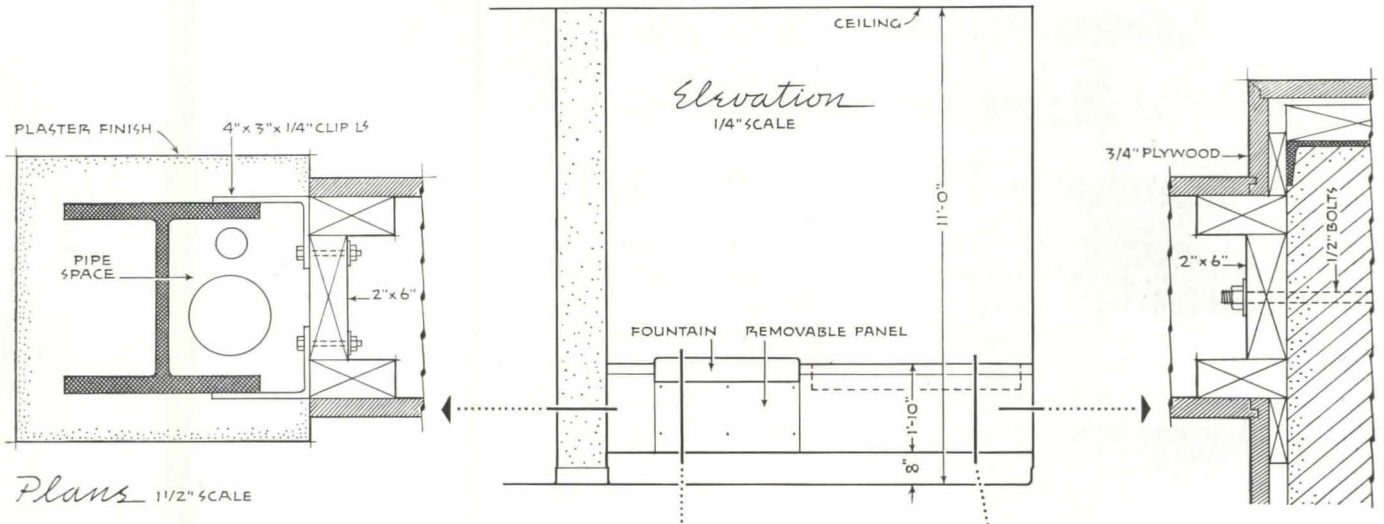
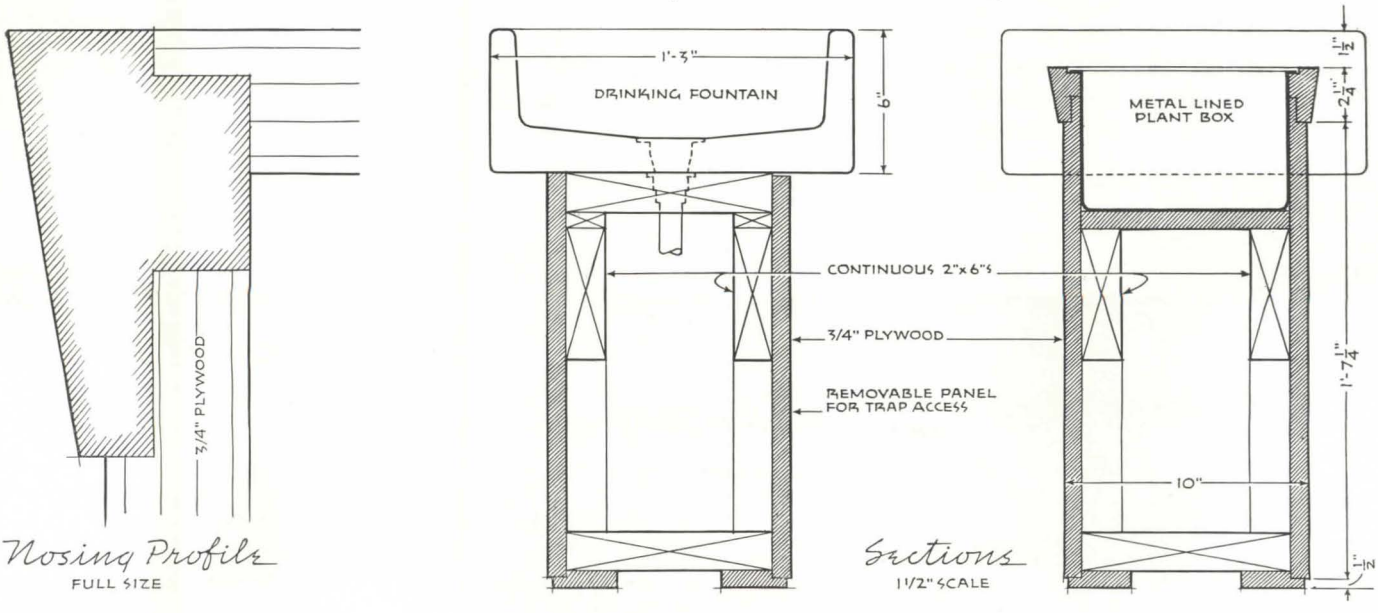
WOOSTER, OHIO

school: drinking fountain-plant box



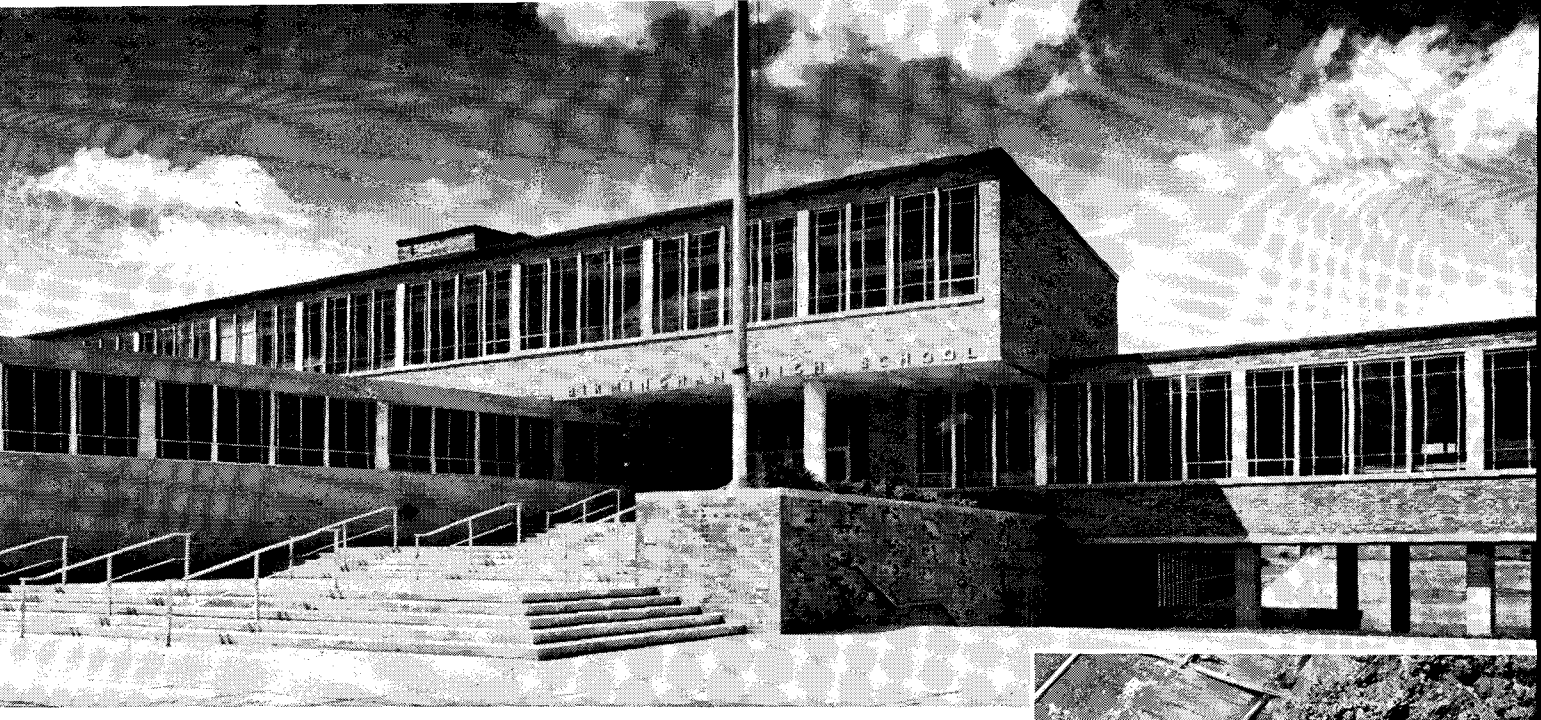
RICHARD SHIRK





BIRMINGHAM HIGH SCHOOL, Birmingham, Mich.

Swanson Associates, Architects



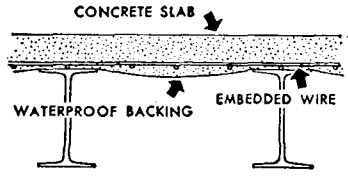
Broad decks of this modern function-engineered school poured over STEELTEX FLOOR LATH

When architect J. Robert F. Swanson and his staff at Swanson Associates in Bloomfield Hills, Michigan, set out to design the splendid new Birmingham, Michigan, Senior High School, they did far more than simply construct a handsome structure to house a specified number of students. For two years they joined in study with Birmingham school officials to exactly determine local educational philosophy and objectives, and crystalized their thinking with an on-the-spot survey of the best school facilities throughout the free world. The result was a low, wide-spread campus-type of structure, requiring many thousands of feet of concrete decks.

The architects specified that the concrete be poured over Steeltex Floor Lath, and they did so for very good reasons. The strong welded-wire mesh added great strength to the slab, while the tough water-proof backing permitted work on the floor below and assisted in proper curing of the concrete. These inherent virtues tended to allow greater latitude in deck design.

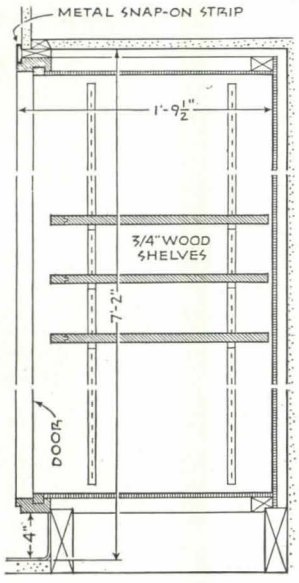
If you are not completely familiar with the use of Steeltex in concrete floor construction, it may well be of profit to you to contact us or consult our catalog data in Sweet's before designing your next structure. For details, write for Catalog D.S. 133, Dept. PA, Pittsburgh Steel Products Company, Grant Bldg., Pittsburgh 30, Pa.

Note, in the cross-section and close-up that th weight of the wet concrete forces the backin away, which permits the galvanized welded wir mesh to assume its proper position in the slab Steeltex Floor Lath also performs two othe functions. It permits work on the floor belo while pouring is in progress and retains moistur to assist proper curing.



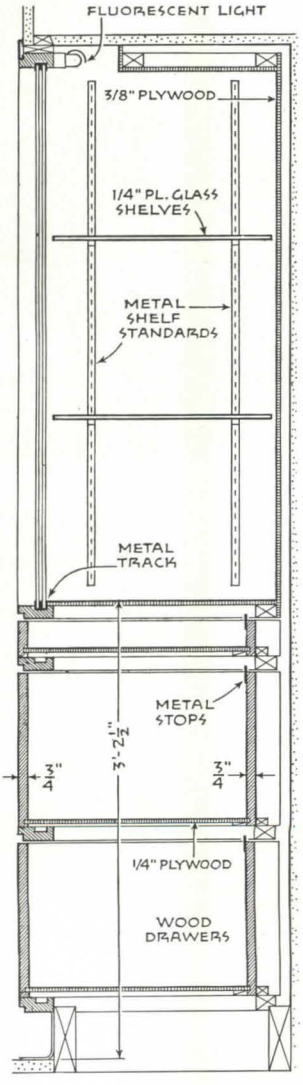
Pittsburgh Steel Products Company

A Subsidiary of Pittsburgh Steel Company

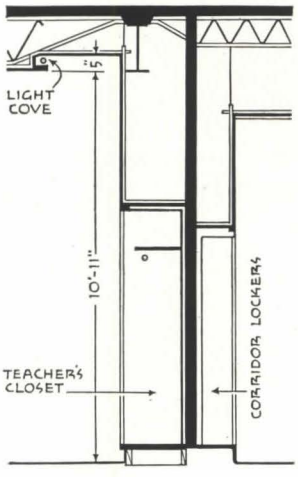


Section C 3/4" SCALE

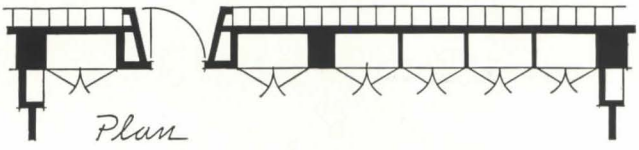
RICHARD SHIRK



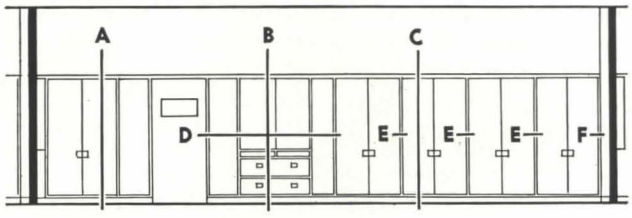
Section B 3/4" SCALE



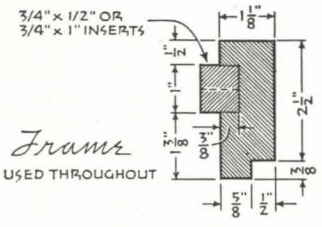
Section A 3/16" SCALE



Plan



Elevation 3/32" SCALE



Frame
USED THROUGHOUT

Plans 3/4" SCALE

BIRMINGHAM HIGH SCHOOL, Birmingham, Mich.

Swanson Associates, Architects

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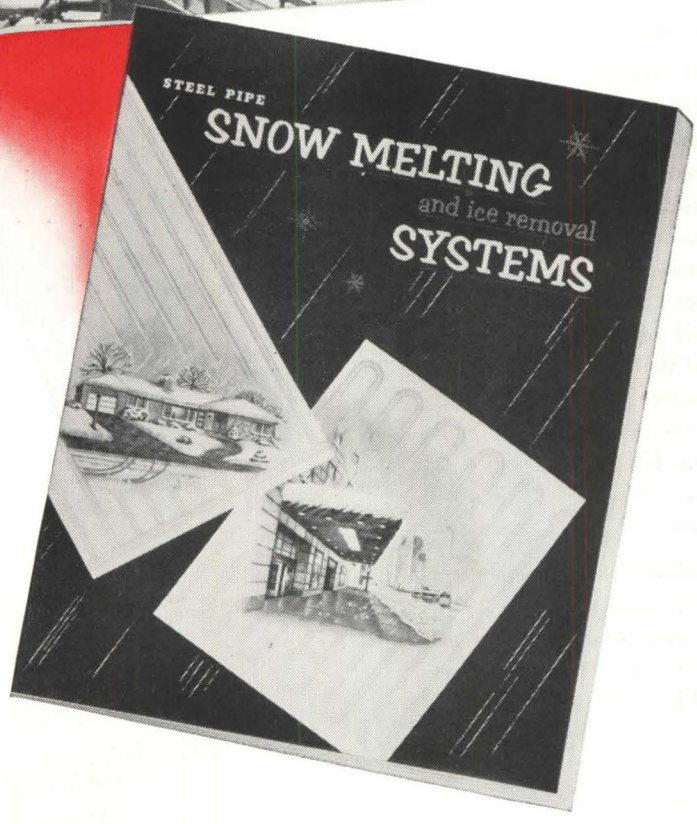

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This month we continue reporting the case summaries and other matters of interest supplemental to Tomson's *Architectural and Engineering Law* (Reinhold 1950), begun on this page in our May issue.

RIGHT TO COMPENSATION

An architect or engineer is entitled to compensation for preparing plans and specifications and supervising construction of a project where he is employed in such capacity and substantially performs his duties under the contract.

Mississippi. *Greco v. Lutrich*, 55 S. 2nd, 139 (1951). An architect agreed to furnish plans and specifications for the erecting of a commercial building to be used by defendant, who under the agreement paid a retainer fee which was to be credited upon total charge of three percent of the lowest and best contractor's bid received for the actual construction of the building. Plaintiff was permitted to bring an action within a reasonable time to recover three percent of the lowest bid less allowance already paid to him where the defendant did not let the contract at the bid stated or at any bid.

AMOUNT OF COMPENSATION

The amount of the architect's or engineer's compensation is measured by the terms of his contract with the owner. Where the contract does not make provision for compensation, the owner is liable for the reasonable value of the services properly rendered by the architect or engineer.

U. S. (Ct. of App.) *Wildermuth et al. v. U. S.*, 195 F 2nd 18 (1952). Plaintiff brought an action under the Tucker Act to recover additional compensation for architectural services rendered under a contract with the Federal Works Administrator. The contract provided that all disputes arising under the contract should be decided by an administrator whose decision should be final and conclusive on the parties. Upon the abandonment of the project the Commissioner of the Bureau of Community Facilities, who had taken over the functions of administrator, determined that the architects were entitled to a certain amount of compensation under the contract. The Court held in the absence and failure to allege or prove fraud on the part of the Commissioner, the architects were not entitled to additional compensation.

●

Illinois. *Alden v. Stromsen*, 347 Ill. App. 439, 106 N.E. 2nd 837 (1952). In a suit for engineering fees the defendant relying upon plaintiff's estimate as to the total cost of the engineering services rendered, which was approximately $1,175, the Court in upholding a verdict for $4,746.82 declared it was within the province of the jury to determine whether or not additional services were involved and authorized and the nature, extent and value thereof.

●

Washington. *Batcheller et al. v. Town of Westport*, 235 P. 2nd 471 (1951). A consulting engineer sued a municipality to recover for engineering services rendered upon a contract of employment. Under a statute requiring the passage of municipal ordinance containing a plan or system for construction of a water system and the estimate of cost and method of payment; where such ordinance is passed on the advice of an architect or engineer, specifying the amount of funds to be made available for the payment of the project, the Court declared that it becomes a part of the contract of employment and thus fixes the limits within which an architect or engineer must perform. The municipality was under no obligation to change the plan or system ordinance to comply with the shortcomings in his performance.

While the plaintiffs failed to perform their contract, they did perform valuable services which resulted in tangible benefits to the municipality so that plaintiffs were permitted to recover the reasonable value of their services.

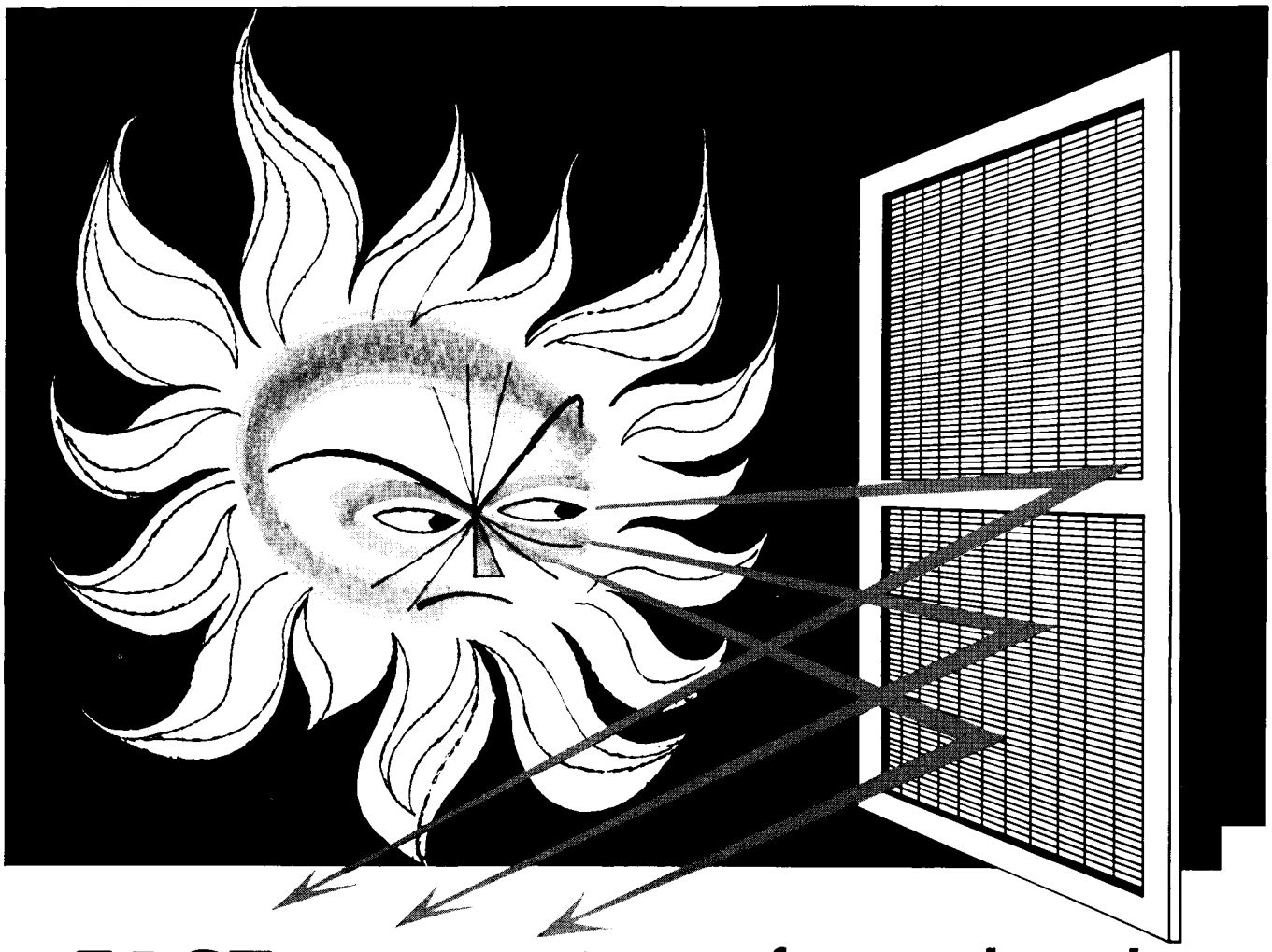
EFFECT OF COST LIMITATION ON COMPENSATION

Where an architect or engineer undertakes to prepare plans for a structure not to cost more than a specified sum, he is not entitled to compensation unless the structure can be erected for the stipulated sum. However, where there is no agreement as to cost, or where the architect or engineer merely furnishes an estimate of the cost, his right to compensation is not affected if the actual cost exceeds the estimate or the amount the owner expects, or is willing to pay.

Michigan. *Zannoth v. Booth Radio Station*, 333 Mich. 233, 52 N.W. 2nd 678 (1952). The plaintiff architect was retained to draw plans for a radio studio and transmitter building. A cost limitation was imposed by the owner after the execution of the contract. The architect was held to be precluded from recovery for services in connection with the contract as there was a breach of his duty to make full disclosure to the owner when he proceeded to draw plans which he knew would far exceed the defendant's ability and willingness to pay and with knowledge that it was not within the owner's contemplation to erect such an expensive building.

The architect was entitled to compensation for his services prior to the imposition of cost limitation even though the contract was subsequently breached by his failure to stay within the cost limitation.

Plaintiff could not recover on *quantum meruit* for work done after the cost limitation was set, for the defendant received no benefit from work done during any of that time as the plans were drawn contrary to defendant's instructions and could not be used.



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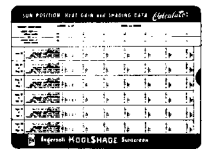

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