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GORMAN SCHOOL—typical of St. Paul's early schools, it was built in 1887. The WPA removed the steep roof in about 1937 and substituted a flat roof which, although far less attractive, creates no 15-foot icicles.

NORTHWEST ARCHITECT

NOVEMBER-DECEMBER 1952

IN THIS ISSUE:

VOLUME XVI NUMBER SIX

FOUR YEARS LATER

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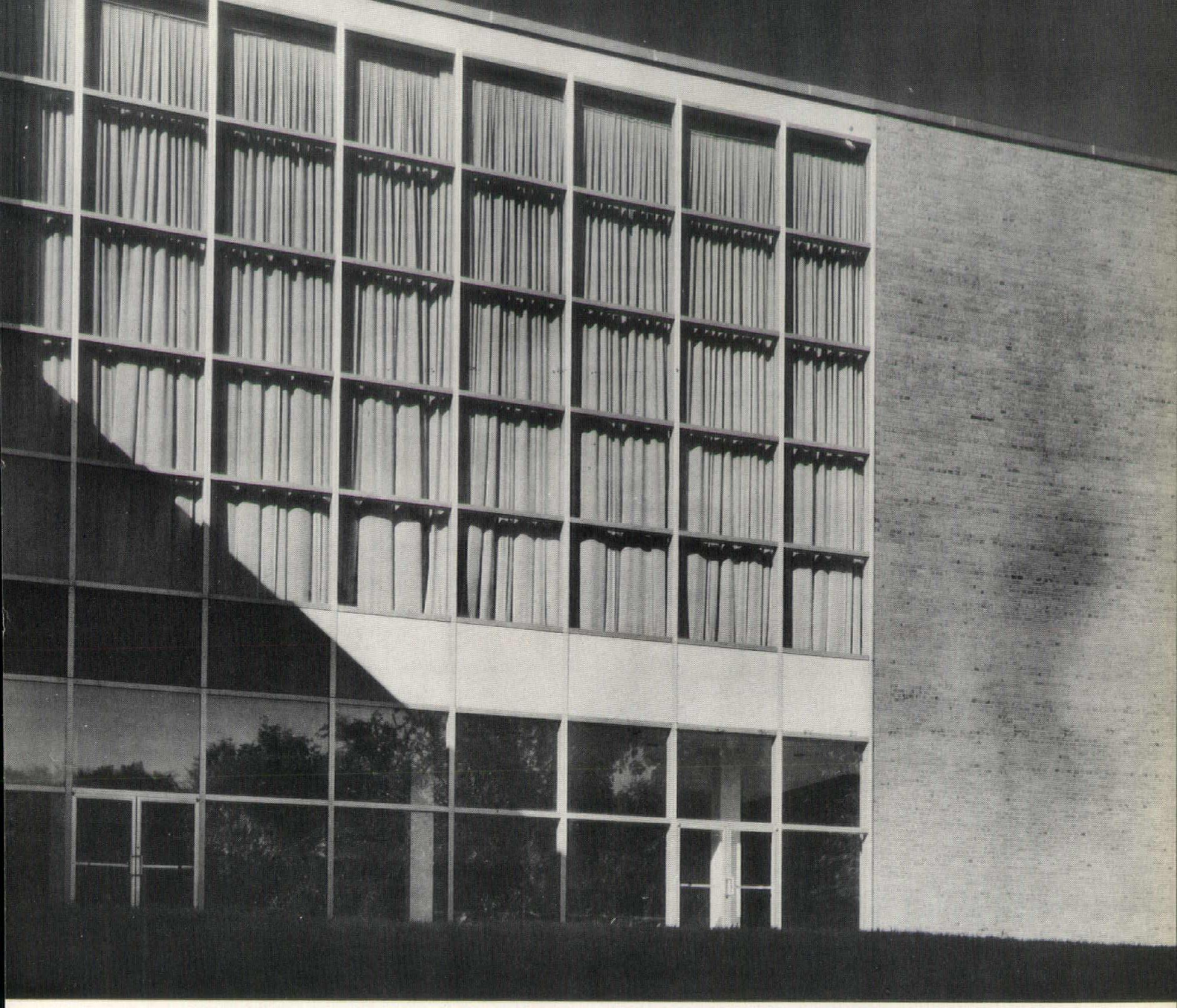

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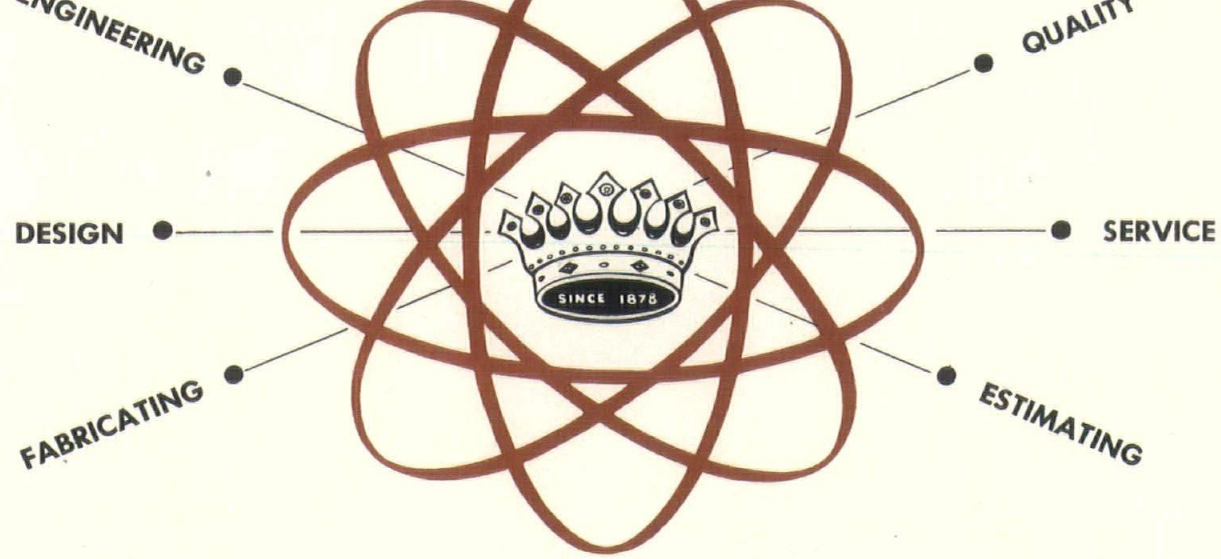

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FRANK LLOYD WRIGHT, ARCHITECT, 1903

Photo. W. G. Purcell, 1906

DWELLING OF MR. AND MRS. E. R. HILLS, FOREST AVE., OAK PARK, ILLINOIS

THIS SELDOM PUBLISHED but significant dwelling has a most interesting history. A brief outline with more pictures is given on page 16. As one reviews the economic, architectural, and human history that centers in this one house out of the fifty-two houses now standing on both sides of this street, it appears really necessary for some one to produce a documentary book or moving picture "FOREST AVENUE — 1850-1950 — THE HEART OF SUBURBIA."

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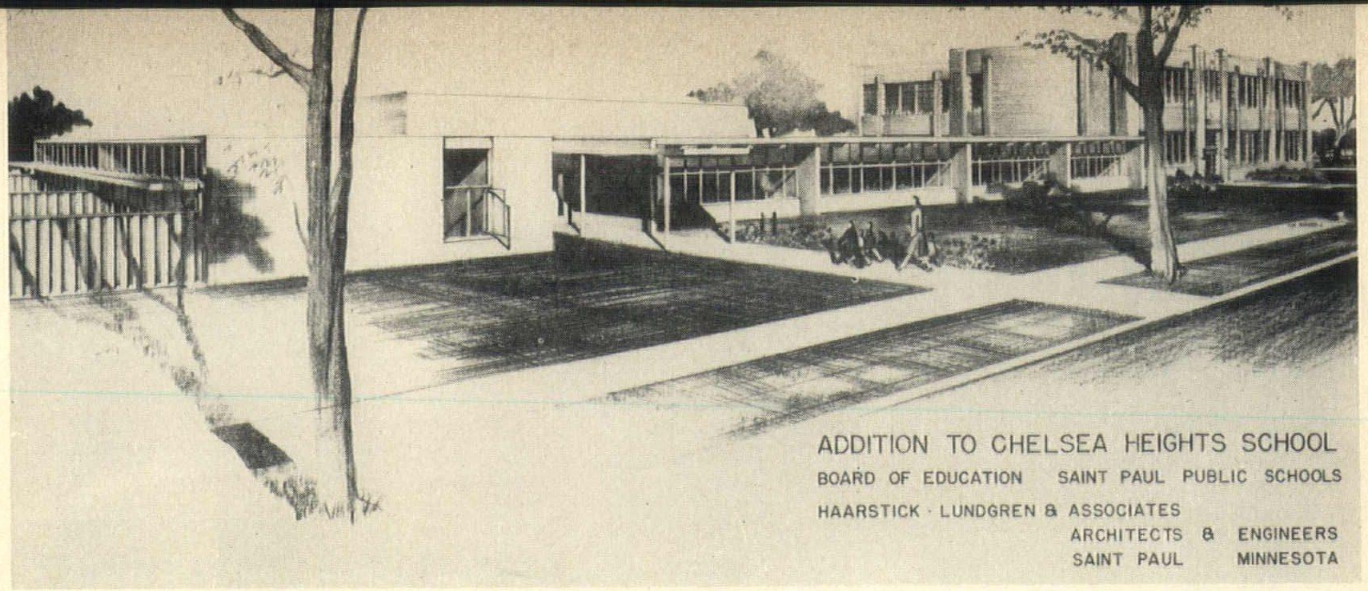


A City Faces Its School Facts as

St. Paul Pushes New Construction and Rehabilitation Program

by Richard F. Hammel
Consulting Architect to the Board of Education

Every architect should be interested in schools and their problems because he will undoubtedly at some time or another design one or more and because he is a citizen of his community with special training of value to those who guide the education of our children—and supervise the plants in which this work is done. This article by Mr. Hammel is of particular importance in this respect because he has been actively at work in one of the most burgeoning school programs in the Northwest and it is with pleasure that we present this article, written exclusively for the "Northwest Architect," for the study of our readers, whether the school system they may deal with is of a city or a rural community. Large and small systems face the same fundamental problems and the same need for finely designed and well-constructed buildings.

IN the fall of 1950, the citizens of Saint Paul passed an amendment to the city charter establishing a board of education to govern its public schools and voted a school bond issue of $9,400,000. Thus Saint Paul became the last city of the first class in the United States but one (Memphis remains) to adopt this form of school leadership and obtained some of the funds necessary to repair its school plant and expand it to accommodate increasing enrollments.

When the board of education took office the following January, it was faced with two immediate problems. New schools were urgently needed to house a public school enrollment which in Saint Paul is increasing by 1,000 students per year. By 1960, enrollment will be an estimated 12,000 larger than the 1950 enrollment of approximately 36,000, or an increase of one-third.

Repairs to existing schools of a major nature were required as practically no funds for maintenance of schools have been available for twenty years. Although the Swiss are successful in obtaining a 300 year life from unpainted wood, we find that Ponderosa pine evaporates in twenty years when used for sash or sills and left unpainted. The two major reasons, then, for the board of education's current program are increasing school population and lack of sufficient funds in the past to maintain Saint Paul's school buildings. The Board of Education took decisive action and in less than twenty months has authorized the expenditure of approximately $3,400,000 for the repair of its seventy-five existing schools, approximately $4,750,000 for the erection of new school plants and $600,000 for the purchase of new school furniture and equipment.

Past School Expansion Programs

In the last seventy years, there have been three somewhat well defined school building programs in Saint Paul. In the 1880's many of its elementary school buildings were built—masonry bearing walls, 3″ by 14″ wood joist floor and ceiling construction, steep-pitched slate roofs with bell towers—almost without exception these schools are still standing and still being used for school purposes, although many have lost their pitched roofs. These buildings, although generally lack-

Typical of St. Paul's new elementary schools is the addition shown on opposite page of an addition to a 1939 addition to a 1933 building Roof overhang, while it creates some shade, is primarily to protect sash which in this school are brought to building face so brick and glass are almost in same plane, eliminating stone sill and lessening chance of moisture penetration.

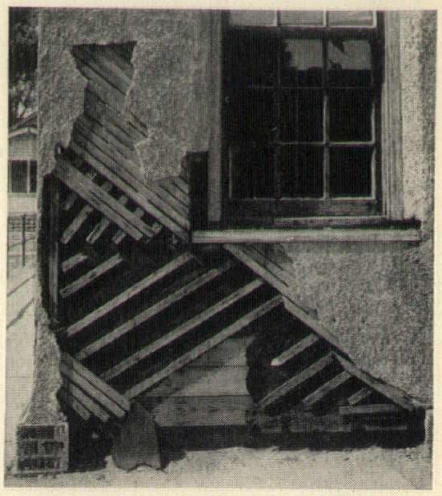
ing such amenities as temperature control, forced ventilation and running water except in the basement, have a quaintness and generousness which make them in many ways more popular with teachers and students than schools forty years younger.

Before World War I, a group of "impressive" schools, including Central and Mechanic Arts high schools, was built. These buildings, largely of masonry and reinforced concrete, have suffered terribly—a parapet wall is not as good an answer, in Minnesota, as the eave. Central's rehabilitation has cost approximately $500,000 or somewhat less than the original building cost in 1910 (C. H. Johnston designed the original structure, Ingemann and Bergstedt were architects for the rehabilitation). In these buildings, architects experimented with many ideas still in the experimental stage today. In Mechanic Arts, the architects, Rankin, Kellogg, and Crane of Philadelphia, experimented with clerestory lighting, as well as the then more conventional gas jets. In another school, concrete structure was daringly exposed and contemptuously attacked and destroyed by the combined action of water and temperature. Light courts were installed at the rate of at last two to a building; we have been devising ways ever since of keeping them clean and drained and, at last, ways of filling them in with useful floor space.

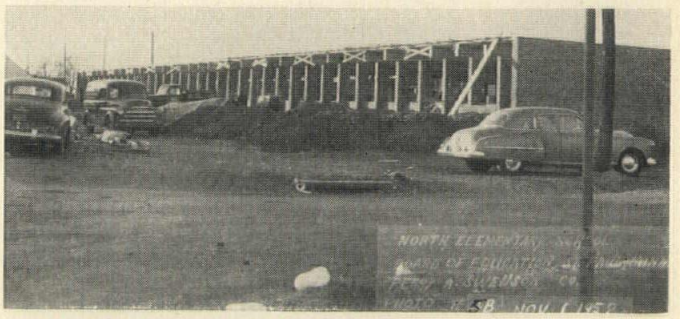
The third and last major group of schools, until the present, was erected in the 1920's; their cost approximated $8,000,000. (Some of the buildings have received but one paint job in their thirty-year lives.) These schools varied considerably in their character and their quality. None was designed by architects engaged in private practice but rather by a bureau of the city. These buildings, faced with cut stone gew-gaws on the front, but naked of even face brick on the ends, filled with small (650-foot) classrooms and narrow corridors, and devoid of the order in plan which is the first step toward architecture, are in many respects our least satisfactory school plants. One building type of this era has been labeled by W. C. Davini, assistant superintendent in charge of business affairs for the St. Paul schools, "three story silos," as they contain two classrooms on each of three floors and stand on their sites as originally erected, lacking even a friendly tree to soften their harshness. Bettenburg, Townsend and Stolte, architects, have successfully met the problem of making an addition to one of these "silos," Eastern Heights School, in the present program which is well worth seeing. Again, in certain buildings of this group, there was a consciously experimental approach to some aspects of school design. Saint Paul's first one-story "cottage style" school buildings were erected in this era, Como Park School and Lafayette Schools being the best examples. Como Park contains perhaps the most "new" ideas. The classrooms were arranged around a large central multi-purpose room from which they were separated by the classroom door alone. Recent experimentation in Texas indicates that this is a fine idea. In Minnesota, however, when money was available again, walls were installed, creating a central room with a corridor separating it from the classrooms, teachers feeling that 30 kids in one room are noisy enough without being forced to listen to 400 others. At Como, in the original school, which has had several and unfortunate additions, classrooms were top lighted by a generous skylight in each. Unfortunately only three

(Continued on Page 19)

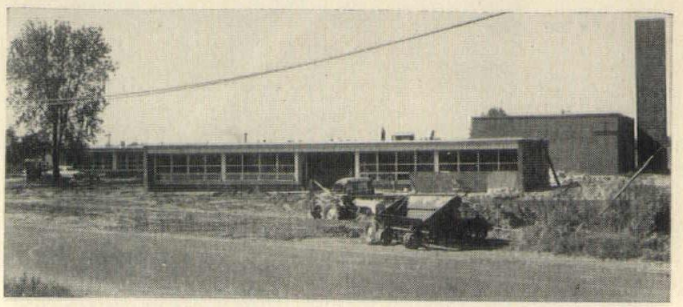
The Errors of the Past and Ideas of Now



Breakup of exterior of Lafayette Elementary School (above) —built in 1923, this 12-classroom school received practically no maintenance until 1952 when the entire exterior stucco was removed and replaced with new brick veneer. All sash, exterior doors and frames were torn out and replaced as they were beyond repair. New sash are steel projected windows, hot dip galvanized after fabrication.



In North Elementary School (above) architects used a combination of laminated wood beams resting on masonry bearing wall which on the window wall become brick piers. Construction avoids use of any steel, although cubage costs for this structure equal those for similar schools erected in this program of steel frame.



Kindergartens in foreground of Prosperity Heights School have 9-foot ceilings, depend on recessed fluorescents for illumination. Gymnasium-auditorium in right background is windowless. Stack has been made freestanding. Classroom wing is of exposed beam and slab construction with lightweight concrete block walls.

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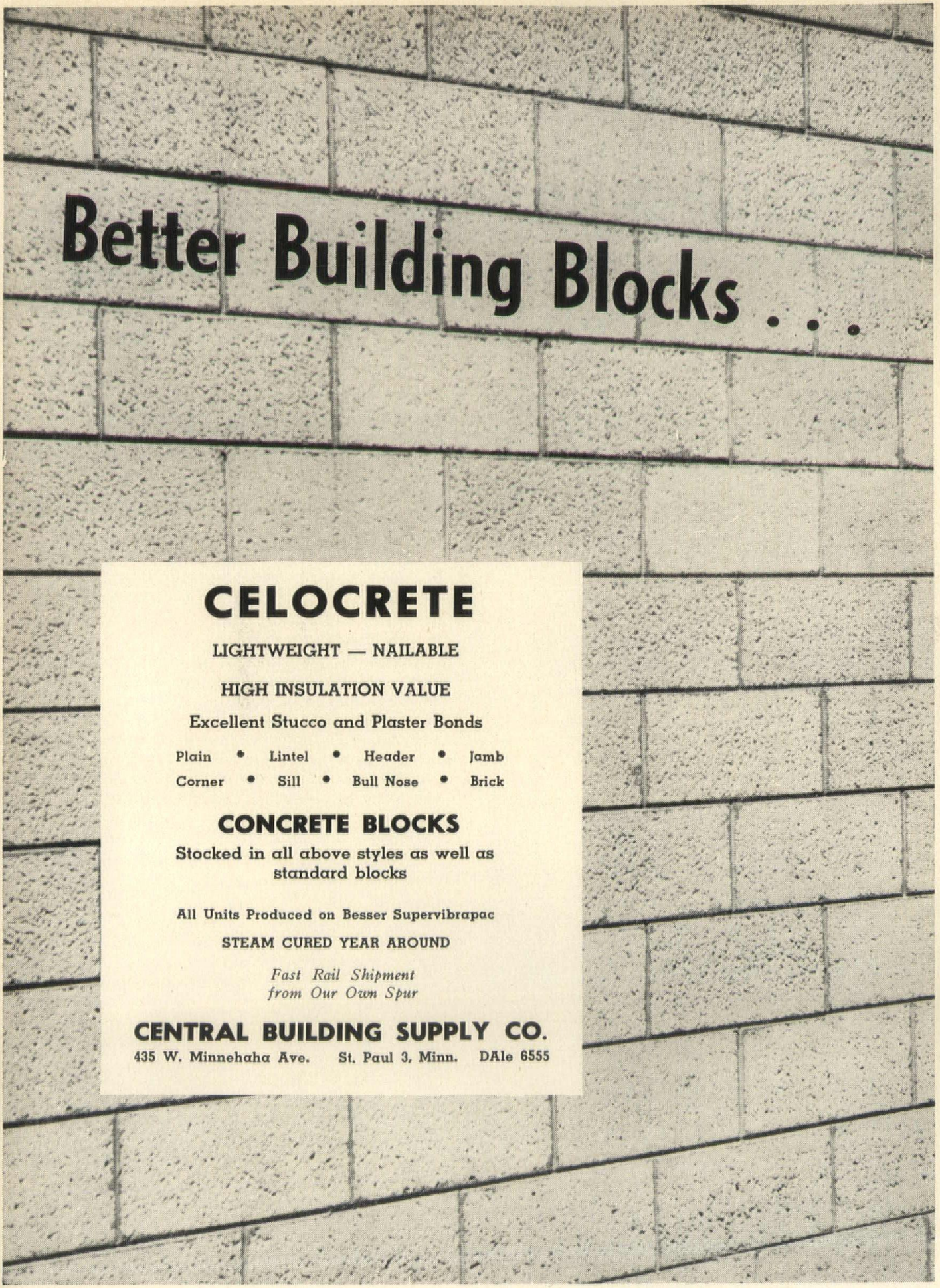
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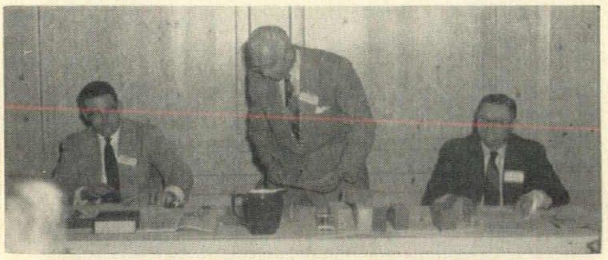
They Lined Up for

NORTH CENTRAL REGIONAL CONFERENCE

Registration was heavy and the line long.

An interim conference on architecture (l-r) Clarence Deutsch (Lion Brand Paints), Harold Spitznagel, Sioux Falls, S. D., and L. B. Perkins, Chicago.



The waterproof masonry seminar brought to the head table (l-r) C. E. Garton (Structural Clay Products), W. H. Tusler, Minneapolis, and C. T. Bridgeman (Des Moines Clay Co.).

Program discussion found together Winston Close and Roy Jones of Minneapolis and Gordon Comb of St. Paul, all AIA.

Timing was the concern of R. S. Bowman, Hal Fridlund, editor of "Northwest Architect", and Bob Olsen, as the question packed sessions ran overtime and interest kept pace.

With some 300 architects and associates from A.I.A.'s North Central Region in attendance, the November conference in St. Paul, Minn., was an outstanding success in bringing together leaders of the field in a series of talks and seminars which covered subjects ranging from dry masonry problems to the architecture of North Africa.

The conference lasted a day and a half, November 7 and 8, and the Minnesota Society of Architects was host to the region. Members of the Producers Council worked hand-in-hand with the A.I.A. members in making the presentation as representative of today's architectural trends as possible.

Meeting in the Hotel St. Paul, the architects' sessions were jammed and during several seminars the SRO sign had to be hung out. Sessions were notable for the part members of the audience took in asking and discussing questions on the pertinent problems raised. Between sessions an exhibit of materials and processes was held under PC auspices and the architects spent much of their free time there. Models and drawings of outstanding projects were on display and were the center of lively discussion groups.

A well-rounded series of pictures, from motion to slide, were shown in connection with the business sessions and talks.

One of the most keenly followed subjects was that of a Friday seminar—"Moisture in Masonry Walls." This was introduced by discussions by C. T. Bridgman, vice president of Des Moines Clay Company, and C. E. Garton, regional director for the Structural Clay Products Institute. Wilbur H. Tusler, A.I.A., Minneapolis, was moderator of the discussions and following question-and-answer sessions.

Following presentation of the opening discussions, the question-and-answer session kept interest keenly alive. To the question "Are the physical properties of brick and mortar related?" the panel replied in the affirmative, the two being related in many ways as

(Continued on Page 12)

Why

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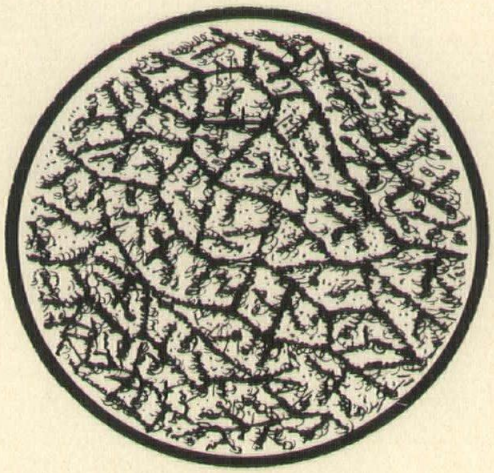

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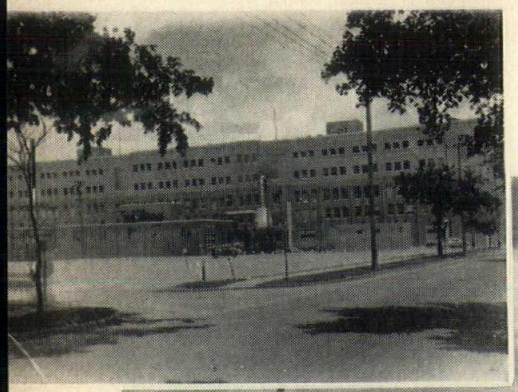

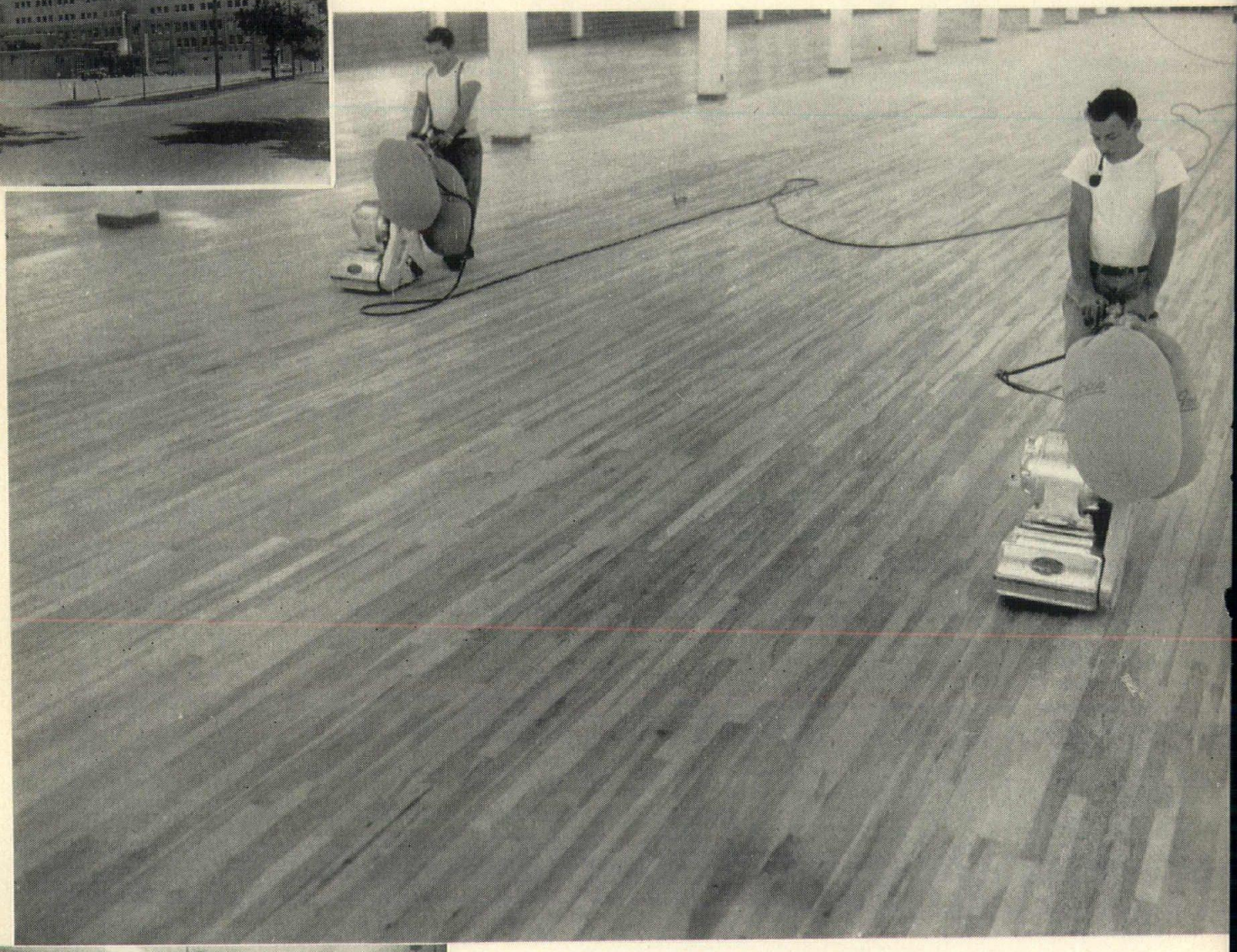

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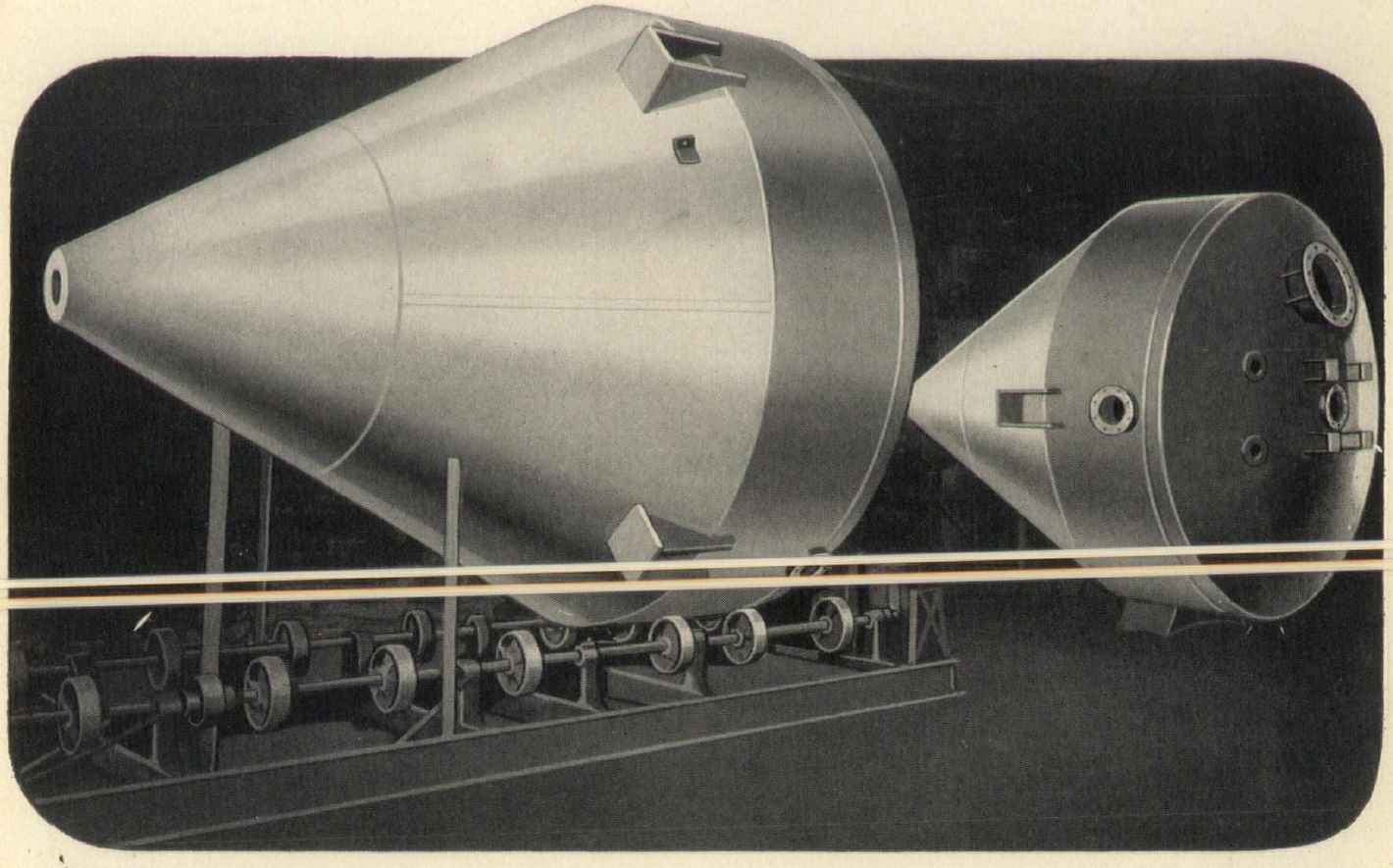

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Spero Daltas (left) describes his researches in North Africa to the luncheon group. Below (l-r) an after-seminar question session found R. A. Taylor (Structural Clay Products Inst.), C. T. Bridgeman (Des Moines Clay), S. E. Haverkamp (Mason City Brick & Tile), George Pass, Mankato, R. S. Pass (Armstrong Constr.) and C. E. Garton (Structural Clay).

in strength factors, the importance of suction rate and related need for prewetting brick.

Asked whether there was a relation between use of lime and the absorption rate of brick, panel members said that lime, a slow setting material, should be watched and not overused.

To a question about back-plastering, the answer warned that too often back-plastering is done too soon after erection of the wall and that the masonry's mortar should be allowed to set before the plastering is done.

As to whether absorption rates applied to all kinds of materials like cinder blocks, etc., the brick and clay experts told of an easy on-the-job test in which a grease pencilled circle is drawn on the material and 20 drops of water laid inside. If the water drops are gone in a minute and a half or less, the brick or other material should be wet down.

Asked about doing tuckpointing on original work, the panel said some architects specify that new work shall be broken out and tuckpointed with specifically listed materials but this is costly. Most do not follow this method.

A laugh was brought out by the question as to whether the brick "in the good old days" was different, perhaps better, than that made today for it seemed this question never arose in those days. The panel pointed out that brick walls of the old days were thicker than is the case today and so had more absorption volume to take care of the water.

Representation from all states of the region was good, registration figures showed. A good group from Wisconsin was on hand, including the state secretary and editor of the Wisconsin chapter's magazine. From North Dakota came a group of 25 members of the student chapter of A.I.A. at North Dakota State College. The group was in the cities for a week of study and visiting of Twin City offices and building sites. Attendance at the regional was a natural.

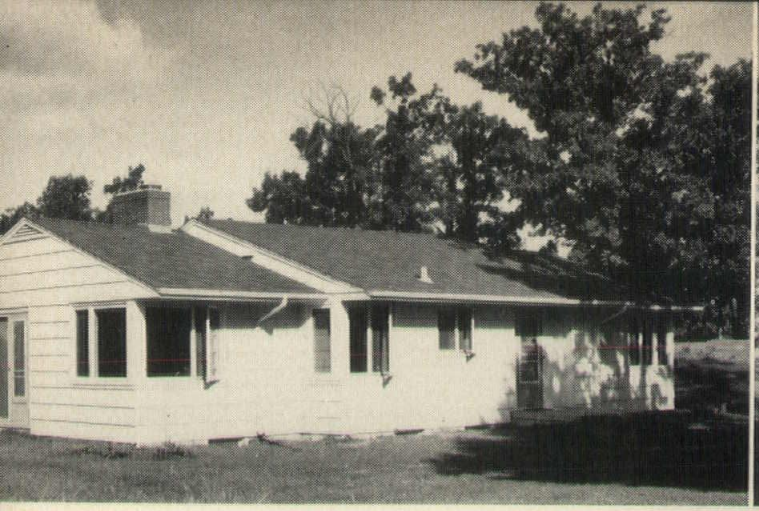
A former Minnesotan, Spero Paul Daltas, now of Bloomfield Hills, Mich., told the luncheon group on Friday of his experiences during travels as a Rome Scholarship winner. He showed one of the most brilliant and exciting series of color slides many of those attending had ever seen and proved himself tops as a color photographer as well as an architect of note. His talk and slides covered the Mediterranean area from the earliest work in North Africa through to the refined work in Spain and Italy.

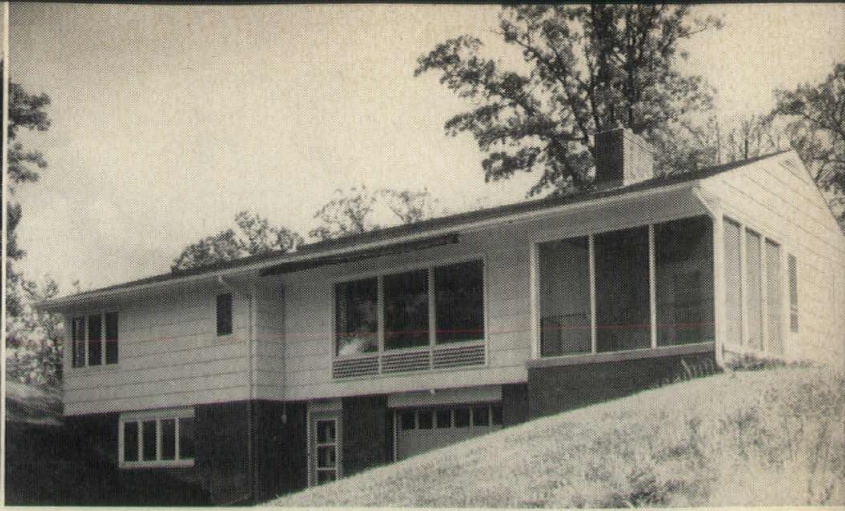
Future of the Duluth Campus of the University of Minnesota was outlined by the university's advisory architect, Winston A. Close, A.I.A., Minneapolis. He said the first building on the new site of the Duluth Campus proved the site was adaptable. The studies associated with this first building brought out the peculiarities of the site and helped crystallize the future major outlines of development.

Mr. Close said the committee handling the campus development had made several general recommendations —1, the plan must provide for orderly development to present a pleasing appearance at all times; 2, it must be based on probable enrollment in the future and a study was made in this connection of school preferences of prospective students; 3, the circulation pattern of persons and utilities must be compact; 4, the student union is the center of any campus' activities and, therefore, this should be the center of the pattern; 5, food center should be properly located; 6, visitors' business should be oriented to the periphery of the

(Continued on Page 18)

Discussions spilled over the formal sessions into impromptu groups. At left above are Sam Dittenhoeffer (Kimble Glass), Austin H. Lange, Minneapolis, and Carl Fogelberg (Reynolds Metals). In right pi cture are John P. Damberg, University of Minnesota, Paul S. Damberg, Virginia, and Edwin Larson, St. Paul, AIA's.

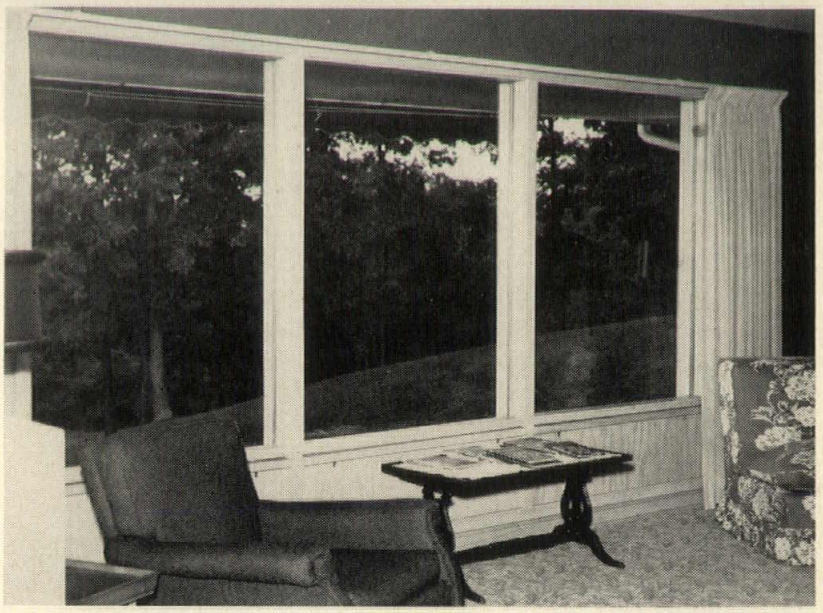




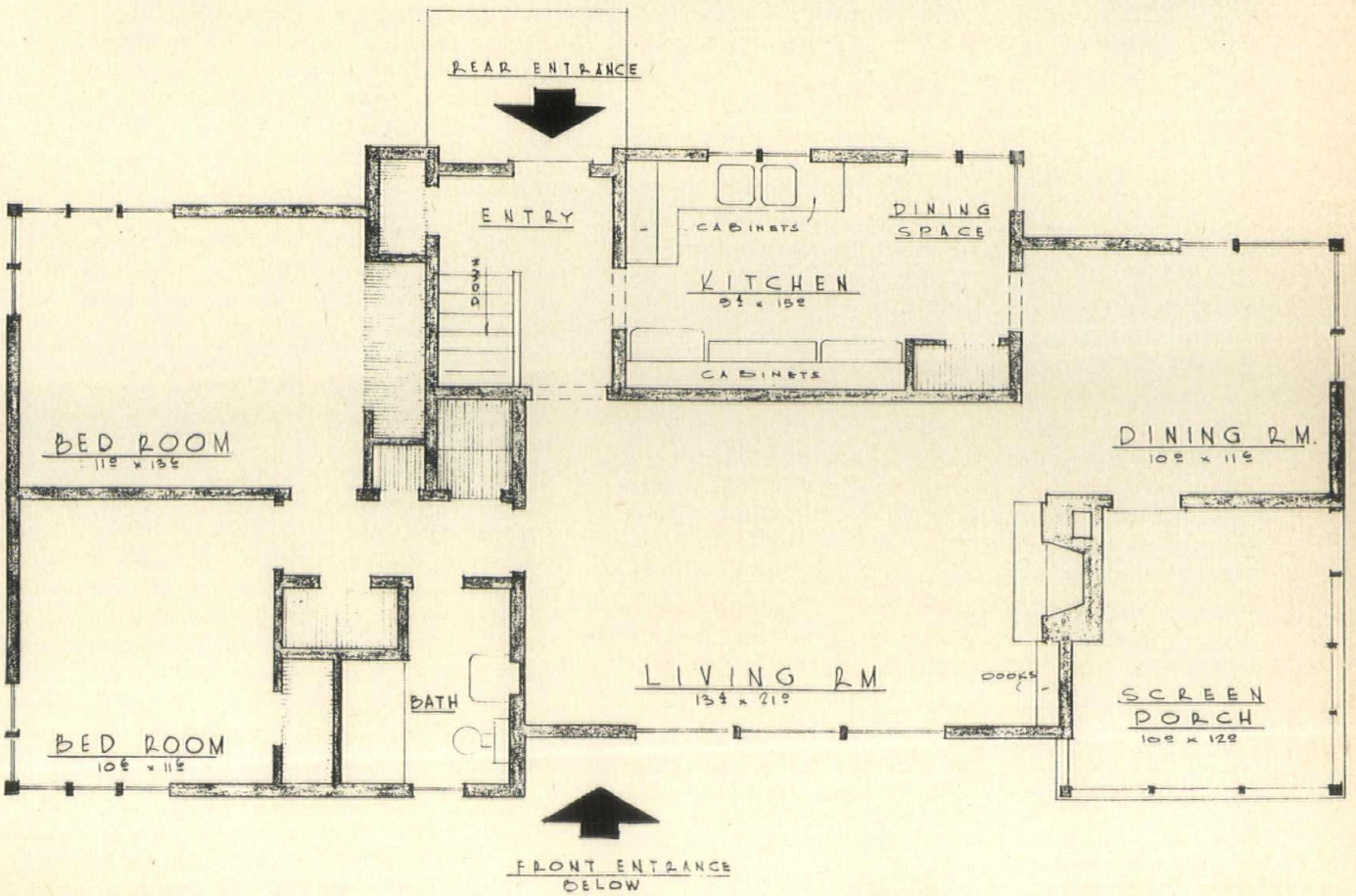
Earl H. Wesley, residence
3538 Siems Court
St. Paul, Minnesota

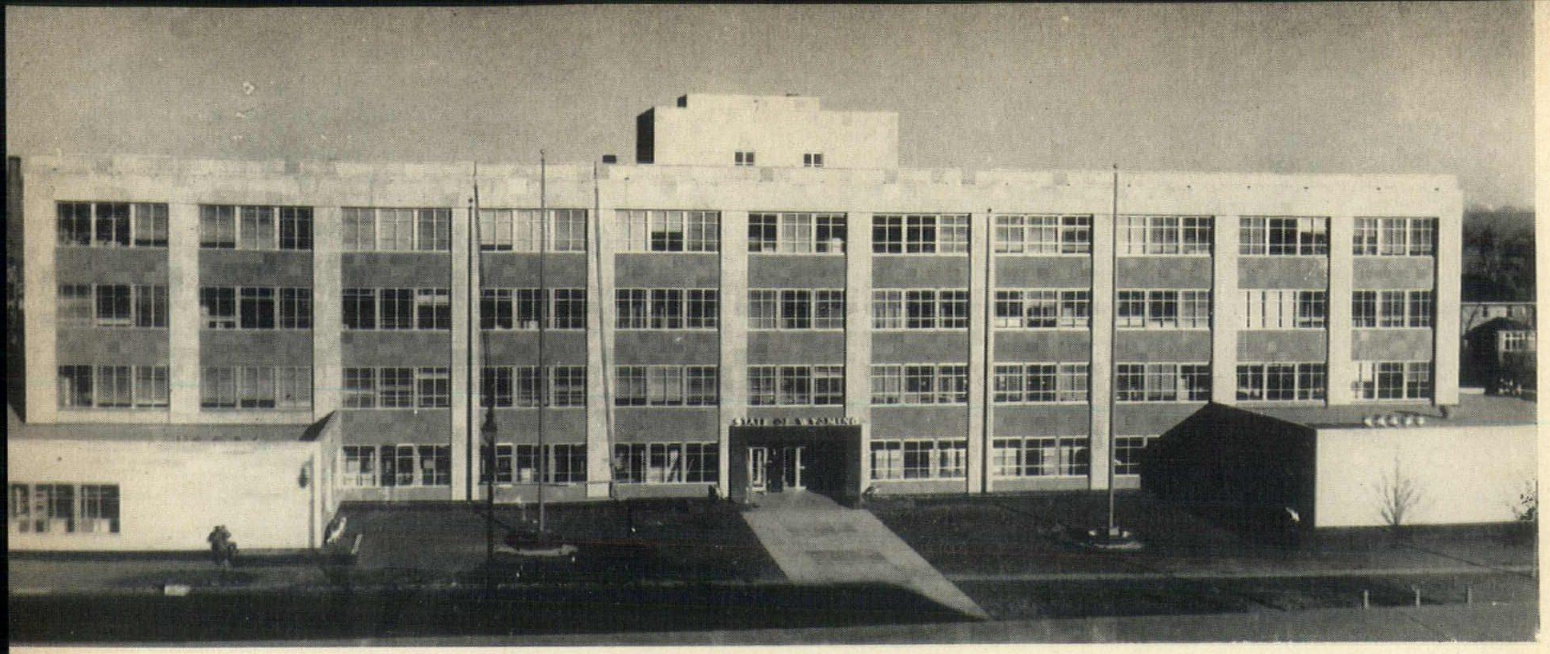
Since the property is oriented between two streets, direct access to the living room from front and rear was a problem. This was accomplished by planning the two entrances at different elevations to meet at a common foyer.

Designed by Earl H. Wesley
Architectural Job Captain
Ellerbe & Co., St. Paul, Minnesota



Photos by Merle S. Morris





Cheyenne STATE OFFICE BUILDING BRINGS STATE DEPARTMENTS UNDER ONE ROOF

The handsome new $1,200,000 State Office Building, recently completed in Cheyenne, is Wyoming's largest building and the first major structure the state has erected in 14 years. It houses the departments of health, welfare, game and fish, highway, highway patrol and the state museum.

This is probably the only office building in the world that has a pent house and a spacious open air exercise yard on the roof for experimental animals. The pent house, 40 feet square, performs two additional services. It masks the chimney of the heating plant and contains the elevator machinery.

Architects were Porter & Bradley, A.I.A., and associate architects, Kellogg & Kellogg, A.I.A. General contractors were Riedesel-Lowe Co. All are of Cheyenne.

It is a four-story and basement structure designed so that two more stories can be added at some future time. The main portion is 60 feet by 220 feet, with an over-all height of 53 feet above ground. The one-story wings at each end are 63 feet by 135 feet. One is occupied by the state museum, the other by the testing laboratory of the highway and health departments. A third one-story wing in the rear contains gas-fired high pressure boilers, which also serve the capitol to the north and the supreme court building directly across the street by means of underground steam lines. Total floor area is 80,000 square feet.

This is steel frame construction with floors of cellular steel topped with lightweight concrete. The steel is fireproofed with suspended ceilings of vermiculite plaster 5/8-inch thick on expanded metal lath, plus a 1/2-inch thickness of vermiculite acoustical plastic. This economical combination received an official 4-hour fire rating in November of 1950. The roof construction is lightweight concrete covered with a built-up roof of pitch and gravel.

Exterior walls are Indiana limestone and sage green terra cotta with a backup of hollow tile. The trim is red Minnesota granite. Except in the museum, which has no windows and uses only artificial light, there is a tremendous amount of glass area set in aluminum sash. Windows are jalousie-type.

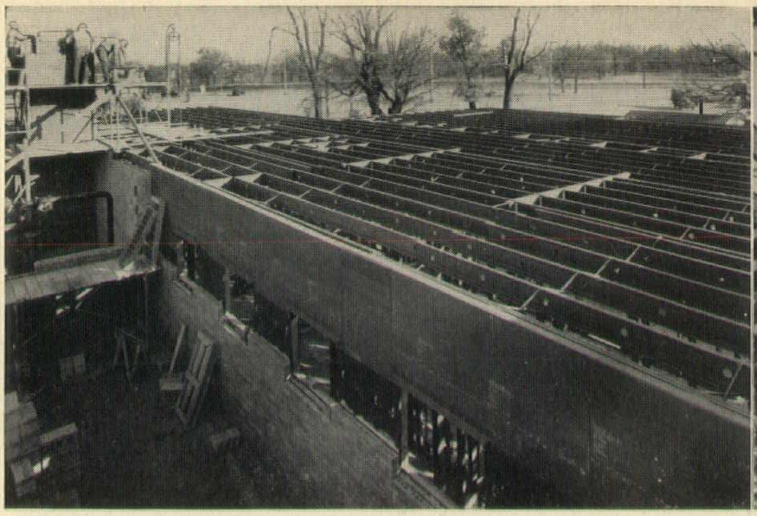
Interior walls and permanent partitions are plastered with the new vermiculite plaster finish. It was used for several reasons. The state was anxious to move into the building and plastering time could be appreciably reduced. The color of the material, which is tan, gave a finished appearance to certain rooms that were not painted. The surface of the finish is exceptionally hard and smooth, and gypsum-to-gypsum application assures a strong bond.

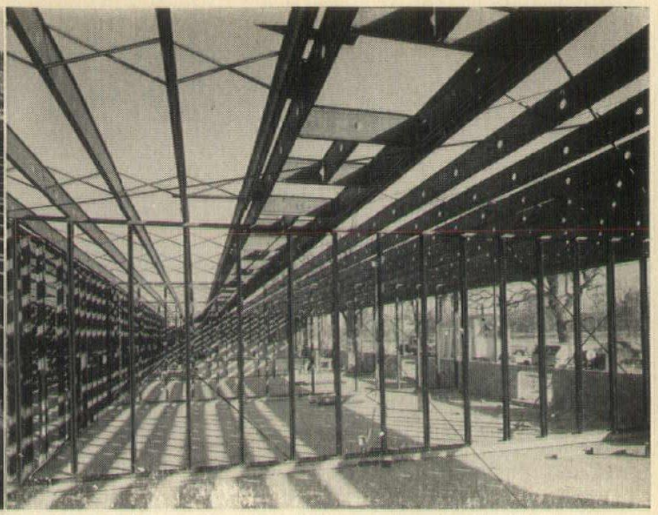
Extensive use was made of movable metal and glass partitions to achieve flexibility as departments expand or contract. By consulting in advance with each department head, the architects secured extremely efficient integration and space allotments tailored to individual requirements.

Storage vaults were provided in the basement for archives and records that cannot be destroyed. Four rooms in the pent house are used by the health department for housing 100 guinea pigs, 50 rabbits and five goats, all used for making laboratory tests. There is also a feed room. The rabbits and guinea pigs are kept in wire cages, the goats in a box stall. An outdoor yard, enclosed with a wire grill, gives these larger animals a chance to get needed exercise. Lighting throughout the building is fluorescent.

The floor covering is asphalt tile, except for the main lobby and corridors, which are terrazzo. There is no exposed piping anywhere. All steam risers, returns, plumbing lines and electrical wiring are concealed. At present there is one passenger elevator, with provision

(Continued on Page 35)





Another School

Shows How

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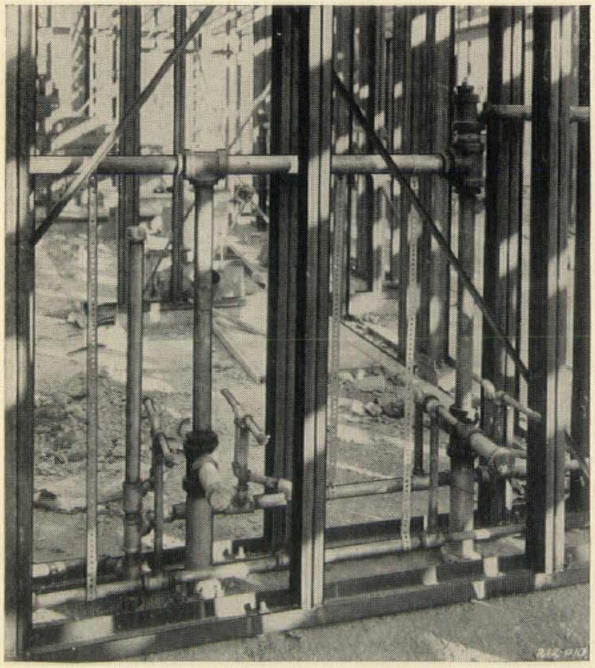

The above pictures are of the addition to Independent School District 48, Circle Pines, Lexington, Minn.

Architect — H. B. Crommett

General Contractor — Adolphson & Peterson

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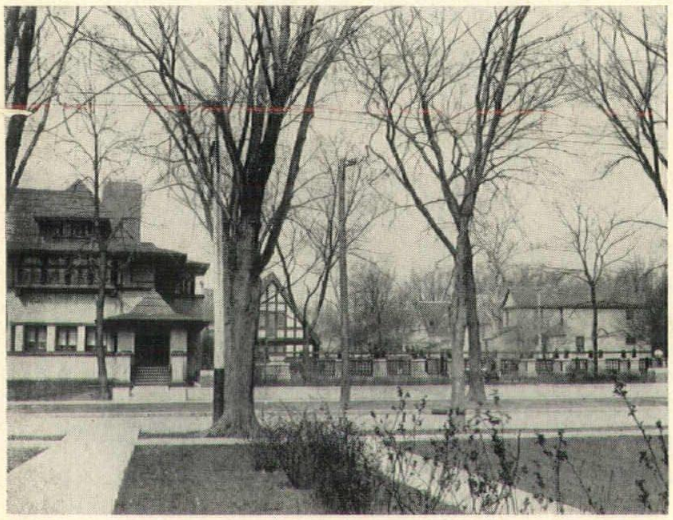
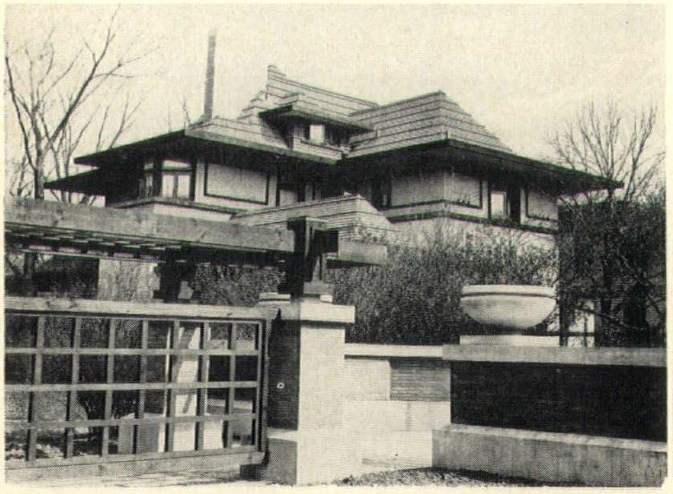
That Haunted House

In NORTHWEST ARCHITECT of March, 1951 we said: "We will explain how 1883 became 1903."

TO THE RIGHT IS THE DWELLING OF MY UNCLE FRANK S. GRAY DESIGNED IN 1883 BY CHARLES C. MILLER, ARCHITECT. IT WAS MOVED 200 FT. SOUTH IN 1903 AND TURNED 90° TOWARD THE STREET. REMODELED BY FRANK LLOYD WRIGHT, AS YOU SEE IT PICTURED ON THE EDITORIAL PAGE AND BELOW, IT WAS GIVEN AS A WEDDING PRESENT BY NATHAN G. MOORE, TO HIS DAUGHTER MARY MOORE HILLS, WHO IS STILL LIVING THERE IN 1952.



MOORE HOUSE OUT OF PICTURE AT RIGHT; HORSE STABLE AND GARDEN FENCE AT REAR.



REAR OF HILLS HOUSE FROM NORTHWEST PRIVATE GARDEN ENCLOSURE OF MOORE.

THIS little picture story shows how a considerable cast of characters were united by circumstances, over a period of sixty years, to make a contribution of happiness to a very large audience. Not only those of us who lived on Forest Avenue and in Oak Park, but hundreds of students who come every year are delighted and encouraged by what is to be seen, of the meaning of America, in three blocks of this now most famous street of dwellings in America.

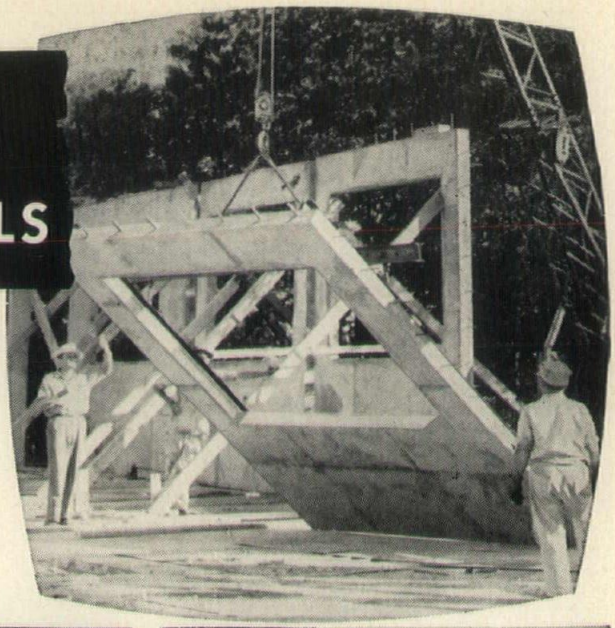
My uncle and my father began the self conscious architectural era on Forest Avenue by employing Architect Charles C. Miller to produce houses which were new and exciting when built. Beginning in 1874, Miller, who died in 1903, must have produced a dozen large houses in Oak Park, perhaps many more, if they could be identified. They were very good and original types of their time in the lively 1880's and there was much talk about the new fashions in architecture.

But it was in 1893 when Wright built his own home on Forest and Chicago Avenues and began, year after year, to build houses up and down the street that Oak Park's days of fame were assured. About the year 1902 I can recall my father sitting down before the evening steak and remarking, "If that Wright don't quit he'll have our street ruined." As I was by then a great admirer of Sullivan I did not share my father's views.

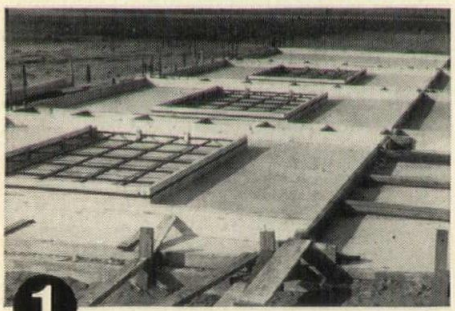
Nathan G. Moore contributed more to the beauty of Forest Avenue than any one. Moore employed the newly married Wright to design his own home, one of Wright's very first commissions. In 1902 Moore demolished the McDaniels (1869) and Seabury (1872) houses to make possible the very broad expanse of lawn and garden to the south of this now famous architectural landmark.

The pictures to the left (1906) show this fine

How to build economical CONCRETE TILT-UP WALLS



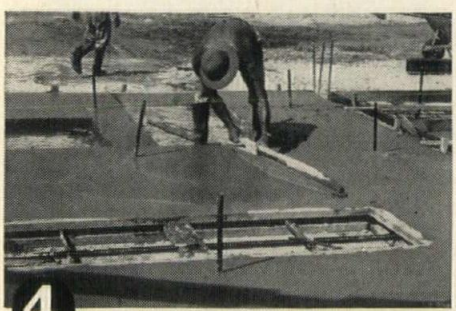
Tilt-up construction is a tested and proven method of building with reinforced concrete. It saves time, money and materials in erecting standard or individually designed buildings of one story or more. Tilt-up construction is easy and simple and eliminates most form-building and form-handling problems. Tilt-up structures are firesafe, decayproof, good looking, long lasting, easy to maintain. Here's how to build by the economical tilt-up method:



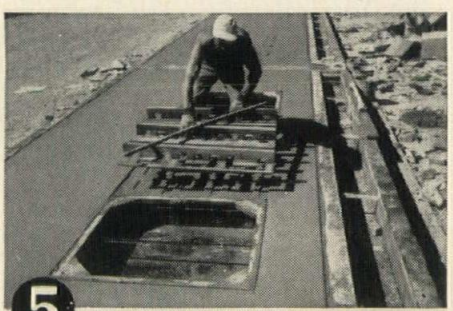
1 After concrete floor is constructed, position edge forms and frames or forms for openings. Apply bond-preventative to floor.

2 Place the required amount of reinforcing in the panel and be sure to provide suitable means to hold it in the proper position.

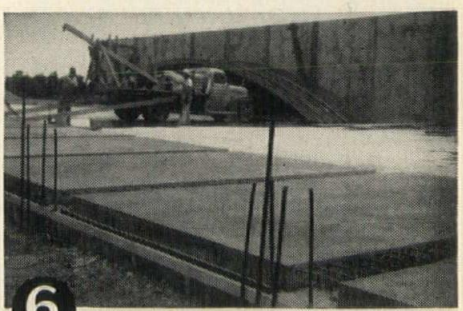
3 Place concrete, using quality mix yielding durable walls. Use care to prevent honeycombing, especially along bottom edge.



4 When concrete has partially hardened, trowel, float or brush the surface to obtain the kind of smooth or textured finish desired.

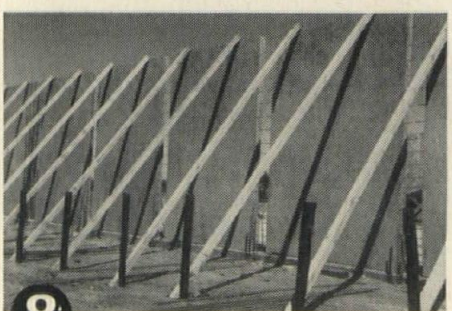


5 Incorporate decorative designs before the concrete hardens. The illustration above shows workman adding a low-relief design.

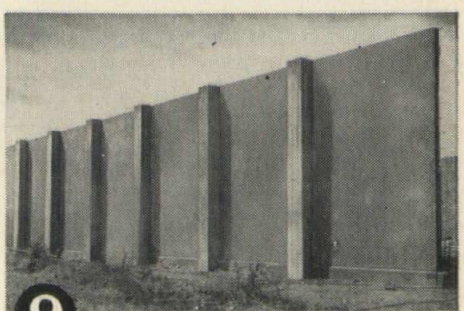


6 Cure the panels until concrete has attained the desired strength. Then carefully remove all the edge and opening forms.

7 With crane or hoist tilt the panels into position in wall. Grout joint between the wall and the floor to make it weathertight.



8 Temporarily brace wall panels as shown before adding reinforcing and forms for the columns that will tie the wall together.



9 Place the concrete in the column forms and allow it to cure properly. Then remove the forms and braces. Wall is now completed.

Write for free, 32-page bulletin entitled "*Tilt-Up Construction.*" Distributed only in the U.S. and Canada. Address Dept. 9-57.

PORTLAND CEMENT ASSOCIATION

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spread and how Wright related the homes of father and daughter with architectural garden enclosing features. The Moore house was burned in 1922 and restored to a greater beauty in a fine example of restrained remodeling under Wright's hand. The refreshed design conserved the special personal qualities with which twenty-eight years of good American family life had endowed the original Wright thesis, with twenty-six more to come before Nathan Moore's death in 1948 at the age of 95.

"To have great architects you must have great clients, too." W.G.P.

NORTH CENTRAL CONFERENCE

(Continued from Page 12)

campus pattern so their comings and goings would not interfere with classes.

Department heads on the campus projected their needs to the probable peak in 1970 and basic plans were shaped in accordance with this. The effects of interdepartmental flow and of intermural activities was taken into consideration.

Previously there was cross traffic on the site but this was stopped and parking areas were located at each

A product discussion brought together Rollin Child (U. S. Quarry Tile), Donald Haarstick and Dick Hammel, St. Paul AIA.

side. There was no through, and consequently heavy, traffic on the campus. Residences and recreational buildings were located above the campus to enhance the building of student and faculty friendship circles. The arrangement was informal.

Other projects keenly followed by those who attended were presented by Lawrence B. Perkins of Chicago and Eero Saarinen of Bloomfield Hills, Mich. "The Architect and the Building Process" was discussed for the dinner group by Serge Chermayeff of Chicago.

The Saturday morning session was filled with a panel discussion under direction of Robert Cerny, A.I.A., Minneapolis. Panel members were Messrs. Perkins, Saarinen, Chermayeff and L. Morgan Yost of Kenilworth, Ill.

Many attended the Minnesota-Purdue football game in the afternoon, following close of the sessions.

Details of the highly successful conference were handled by a Minnesota chapter committee of Chairman Donald Haarstick, William Berget, Brooks Cavin, Gordon Comb and Richard Hammel.

ST. PAUL SCHOOLS

(Continued from Page 5)

regular 3'-6" wide double-hung windows were provided, and now that the skylights have gone the way of skylights (either removed or roofed over), the rooms are not cheerful places in which to teach. One truly courageous move was the provision of a swimming pool in this elementary school, the validity of the idea remaining even though the pool has been floored over and the room now used for a classroom.

These three groups of school buildings have provided valuable lessons for the architects commissioned by the board of education to design its new schools for they vary greatly in their character, their durability and their fitness for school use.

Board Commissions Architects

The board of education has entrusted the planning of its new buildings and the rehabilitation work in its older schools entirely to Saint Paul architects and the board has now under contract twenty-three of these architectural firms. Their work is co-ordinated and programmed by the author, who has been retained by the board of education for this purpose. He is in turn furnished with the information necessary to determine school location, size, character, et cetera, from the

schools' professional staff led by Dr. F. E. Conner, superintendent of schools.

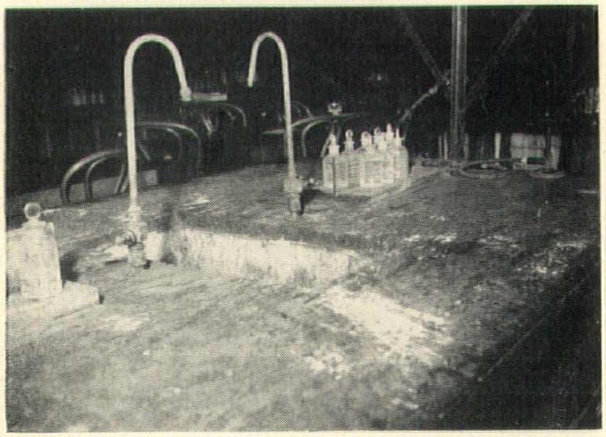
Invaluable to the successful execution of the program has been the aid of the Bureau of Field Studies and Survey of the University of Minnesota, which has furnished to the board of education in the past two years thirteen volumes of technical reports on the Saint Paul school system. These reports evaluated the present school plant and presented a long range program for the future, from 1950 to 1965, divided into three phases, with Phase I, the current, continuing from 1950 to 1954. The bureau report indicates that approximately $26,000,000 will be required in the next eleven years for plant expansion and improvements if Saint Paul public school children are to be provided with adequate housing. It is this program which has served as a guide to the board of education in its current construction program.

Change for Better:

This new chemistry lab . . .

. . . replaced this fuming horror . . .

. . . with this kind of table top.



New Construction

All buildings erected so far are elementary schools, although a junior high is on the boards at Ellerbe and Company. Although the new schools vary considerably in appearance because each is designed by a different architect for a different site, they are all syntheses of similar basic elements. Classrooms, grades 1 through 6, are approximately 900 square feet in area, generally 24 feet wide by 36 feet long, and have ceilings varying from 9′-0″ (some kindergartens) to 10′-6″ in height, the latter being the usual case. Each has a considerable amount of built-in furniture which includes a work or storage counter with flat rim sink along the rear wall, open bookshelves under the windows and a large double closet for the teacher.

Kindergartens total 1,200 to 1,300 square feet in area and are the only rooms equipped with their own toilet room and coat alcove. Although a coat alcove is the preferred solution to the coat storage problem by the majority of teachers, when faced with the choice of deducting this space from classroom area or providing full length lockers in the corridor, the latter was the almost unanimous choice. Gymnasiums and auditoriums are combined into one room approximately 40 feet by 60 feet plus a stage about 15 feet deep and 40 feet wide. Corridors are always double loaded.

Other rooms in the typical new elementary school include a community room, offices for the principal, clerk and nurse, bookroom, conference room, staff room and receiving room. These are the rooms for which Saint Paul, as well as many other communities, has not usually provided, yet they are invaluable aids to a school.

Various heating and ventilating systems are being tried. Ellerbe and Company, in the Prosperity Heights School, Eugene Corwin in the Highland Park School and Slifer and Cone in the North School (Gausman and Moore, consulting engineers, for the latter two) used a central fan system, forcing warm air into peripheral tunnel ducts, then into classrooms through slots in the slab edge where the air then passes over a finned tube. This radiation is on the room thermostat. Walter Butler Company, architects for Mississippi School, used univents with no supplementary radiation, relying on double glazing in Pella casement sash to minimize downdrafts at windows. In all schools kindergarten floors are warmed. Oil is being used as a fuel in all new schools, with burners designed to permit changeover to natural gas when it is made available for such use.

Electrical systems are possibly unique in two respects —classroom and stage-lighting. In classrooms, the sun is not relied upon as a source of illumination. That it cannot be so relied on is a fact which is continually ignored by those who create elaborate devices to let sunlight into classrooms at the expense, usually, of adequate and reliable artificial illumination. Yet weather records for Minnesota show that during the *school year,* 25% of days are totally overcast, 50% partially overcast and only 25% clear! There are also two contra-indications to classroom types relying in the major part upon natural light for illumination: glare from the sky and from snow covered ground, and difficulty in darken-

ing rooms to permit the use of visual aids easily in the classroom where they belong.

The use of the window—for its psychological value—as a place to look out of—as the area which lets the inside out—but not primarily for the admittance of light has made possible a reduction in ceiling heights and the elimination of such tricky lighting schemes as the clerestory or skylights. Classrooms are lighted by the relatively new "baffle-type" lighting providing approximately 35 foot-candles of well diffused high quality lighting. This type of fixture is easily maintained as the custodian can relamp without touching any part of the fixture except the lamp. Costs, considering all aspects of lighting, are not appreciably, if any, higher than other types. In gymnasiums windows are eliminated entirely as our experience shows that the windows in the typical existing school gymnasium in Saint Paul are covered inside and outside with woven wire guards to protect them from damage and inside with a dark shade which is kept almost continually closed.

Jed Davis, assistant professor of speech at Macalester College, has assisted in the design of stage-auditorium lighting and his booklet "Stage Lighting Equipment for High Schools" is recommended as a guide for such planning. Elementary schools are being equipped with spots at the beam and bridge position and a strip light at the bridge position; lights in every instance are on separate circuits arranged so that they can be plugged into a dimmer, normally of 6,000 watt capacity. House lights can be dimmed in part, usually one or two rows of an installation of 6 rows of 500 watt incandescents.

Improved Domesticity

Central High School's beautifully designed domestic science room (above) is a welcome change from the old (below).

Materials and finishes for new schools are being selected to assure easiest possible maintenance. Walls of corridors, toilet rooms, gymnasiums and other public spaces are glazed structural facing tile to at least 6 feet, although experience shows that it is no more costly to run it to ceiling height in normal spaces. Lightweight concrete block has been used extensively for interior partitions. Flat paint has not proved satisfactory; although it is without glare and we infer from Harmon that this is important, we feel that a dirty wall is a more uncomfortable picture than a clean but somewhat glossy wall and are therefore using semi-gloss paints and enamels wherever possible. Floors are generally asphalt tile because of its low first cost combined with ease of maintenance and durability, except in toilet rooms, janitors' closets and similar places where a ceramic material is used. Haarstick, Lundgren, and Associates, in the addition to Chelsea Heights School, paved the entire corridor with a large brick paver, thus eliminating slab topping and asphalt tile. In all cases, a quarry tile has been used at entrances. Flush metal floor gratings over sunken removable galvanized pans catch shoe scrapings at exterior doors. These are, in the opinion of our maintenance department, far more satisfactory than the usual ½-inch sinkage and rubber mat. One of the most successful stair types consists of quarry tile riser and tread, the latter with integral abrasive, with adjoining walls of glazed structural tile. Stair treads, in a period of 30 to 40 years, dish under the constant grinding of passing classes, whether made of wood, granite or terrazzo, and even the most careful staff is apt to drop a heavy desk or similar object on a tread. These factors make the use of a replaceable material imperative.

Costs

Information regarding costs of school buildings is usually misleading and the following is probably no exception, as no two buildings are really comparable. For this reason, rather than quoting costs for specific buildings, rough averages for those under construction will be used. Saint Paul's typical new elementary school has cost about 98 cents a cubic foot (cubage figured according to A.I.A. recommendations), or about $13.00 a square foot. This cost includes the building and necessary site work, such as grading, seeding, sodding, service drives and public walks but not architects' fees at 6 per cent or movable equipment and furniture. This is significantly higher than some costs reported for schools in 1951 and 1952 but represents the cheapest structure we can afford to build, with the evidence of past neglect still not erased and pointing the need for durable materials and construction capable of withstanding future neglect, if such misfortune should again come to the public schools of Saint Paul.

W. L. HALL COMPANY MOVES

The W. L. Hall Company, Minneapolis, has moved its offices to new quarters at 2818 Dupont Ave. So., according to word from officials.

The company represents the Cupples Aluminum Window Corporation, Aetna Steel Products Corporation and Crittall Steel Window Company. The new phone number for the company is Gibson 2839.

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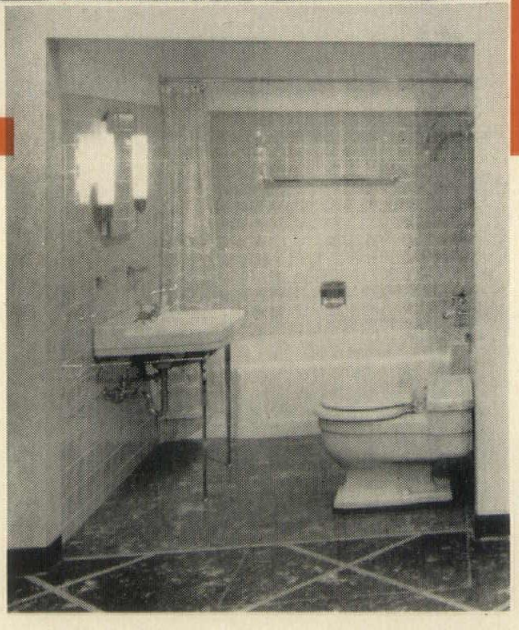

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WATERTIGHT MASONRY CONSTRUCTION

C. T. BRIDGMAN[1] and
C. E. GARTON[2]

Presented at the North Central Regional Conference

INTRODUCTION

Because of the interest and concern shown by architects throughout the mid-west in the subject of watertight masonry walls the authors have prepared this paper. The material is largely a summary of the most pertinent information and research data available on the subject. The paper is in the form of general recommendations covering five phases of building techniques and construction which directly affect watertightness of masonry walls. In some cases alternate procedures have been presented without final evaluations, it being the authors' belief that further study of field experience is desirable in this area.

It is hoped that the recommendations in this paper will form a basis for discussions and studies of the problem involved. Comments and criticism will be welcomed.

I. DESIGN

Proper architectural design is an important factor in obtaining watertight masonry walls. Some modern designers have used completely flush exterior surfaces, eliminating in some cases proper sill, cap and coping details. Such eliminations have often resulted in leaky walls.

A few simple check points for proper construction practice in design will assure protection for vulnerable points in the building.

A. Copings
B. Parapet walls
C. Spandrel beams
D. Window heads and sills
E. Roof flashing
F. Pilasters and projections
G. Dampproofing
H. Mortar joints and caulking

Most of the unprotected points in a wall assemblage require flashing. Normally flashing should be installed under copings (thru-wall type), at roof intersections with parapet walls, over heads of windows, especially over long groupings, under sills and at spandrel beams. Proper wicking or weep holes should be provided to permit trapped water to escape to the outside of the wall. To completely cover each specific case would consume more time than is presently available. However, a paper on "Flashing Structural Clay Masonry" prepared by Structural Clay Products Institute has been made available for those interested.

[1] *Vice President and General Manager, Des Moines Clay Company, Des Moines, Iowa, formerly Asst. Director, Engineering and Research, S.C.P.I., Washington, D. C.*

[2] *Regional Director, Structural Clay Products Institute, Region 6, Ames, Iowa.*

Provide proper protective coverings for masonry walls, such as copings, caps and sills, to provide drainage of moisture away from the masonry itself. All such coverings should be provided with suitable drips to eliminate moisture running back onto the walls.

While the matter of mortar joints could undoubtedly be covered in another portion of this discussion, the joints themselves are often a definite part of the architectural design.

The method of finishing the exposed mortar joint has much to do with the resistance of the joint to water penetration. Tooled joints such as the concave or "V" joints which compress the mortar tightly against the masonry units, produce the best resistance to rain penetration. Struck and raked joints are not recommended for use in exterior walls since their weather resistant qualities are distinctly inferior to the other types mentioned.

Dimensional stability is extremely important. Designers should think in terms of wall stability itself as well as the relationship of the wall to other component parts of the structure Adequate provision should be made for the movement of slabs and other structural members.

II. MATERIALS

All construction materials should meet requirements of the proper specifications indicated in the outline below. Competent testing laboratories, familiar with A.S.T.M. testing procedures, are located throughout the area. Tests are relatively simple and inexpensive. In view of past experiences the small cost of necessary tests is fully justified.

A. Brick

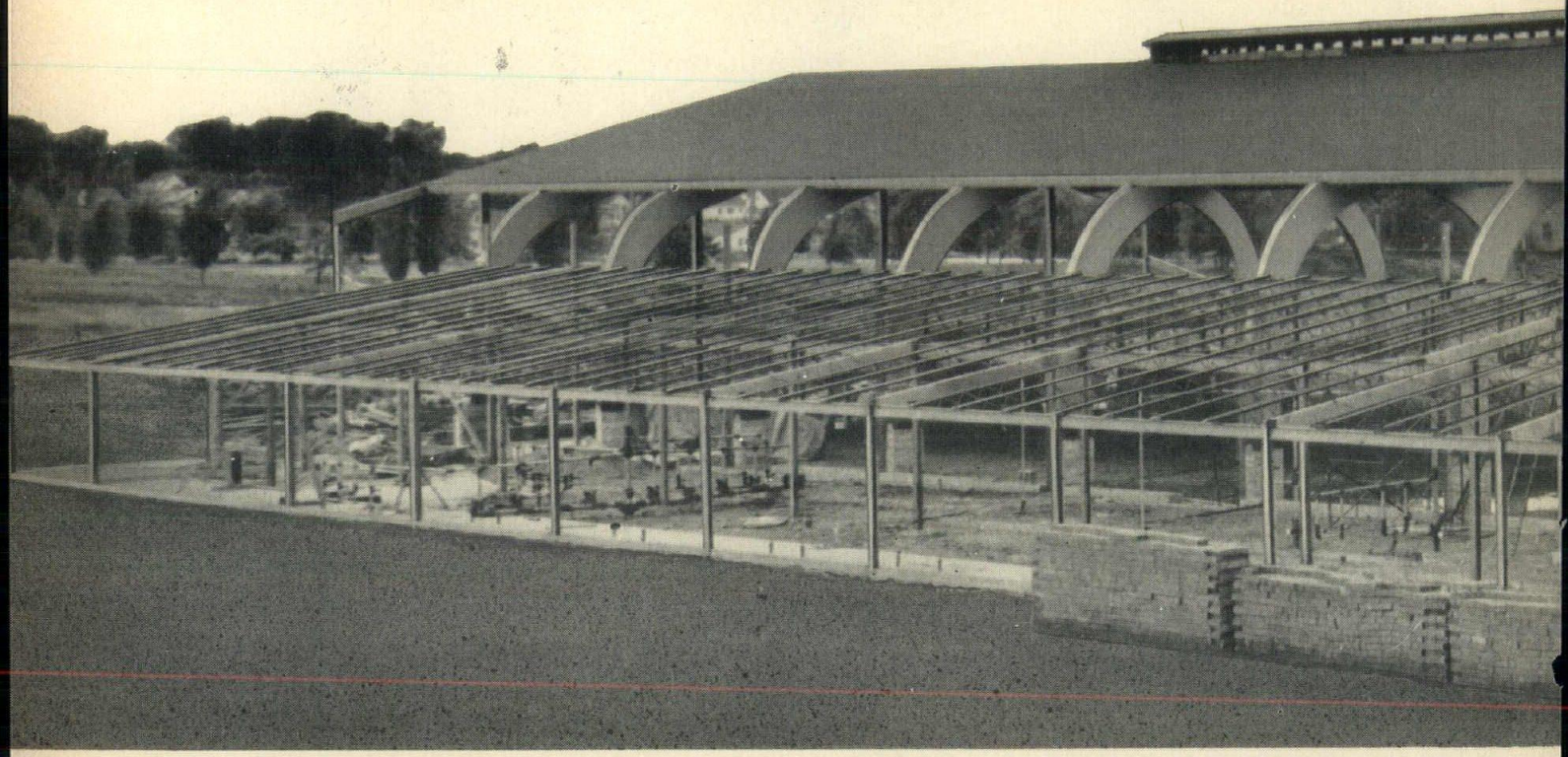
1. Building Brick A.S.T.M. Specification C62 — Grade SW for all walls exposed to weathering.

2. Facing Brick A.S.T.M. Specification C216 — Grade SW for severe weathering conditions and type FBX for smooth brick where a high degree of mechanical perfection is required. For textured red brick use type FBS.

3. Preparation of Brick. Absorption and suction rates of facing brick in this area are low and brick usually does not need wetting. Wet brick with absorption rate in excess of

(Continued on Page 28)

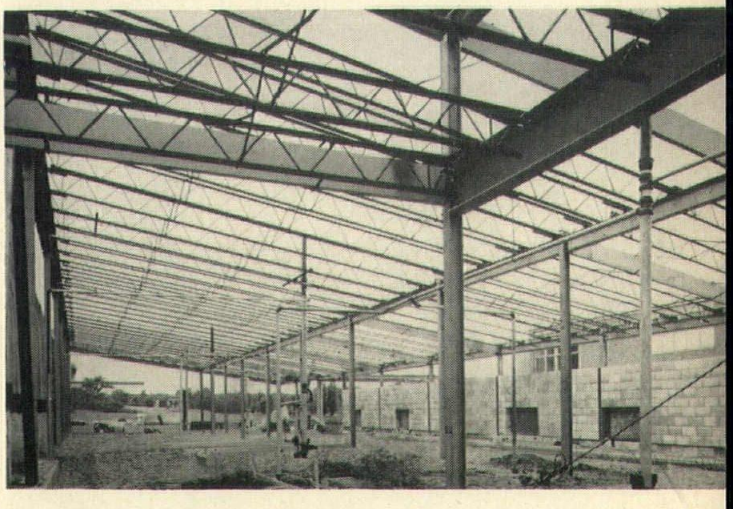
PACAL



Used Throughout New, Million-Dollar High School Addition at West St. Paul, Minn.

330 TONS of reinforcing steel, bar joists and structural steel were needed to construct this ultra-modern, campus type high school. The three new units and connecting corridors extend 1,000 feet in length and contain all necessary high school facilities plus offices for the superintendent of the school district.

Thorshov and Cerny, Architects and Engineers, Wm. Baumeister Construction Co., General Contractor and Steel Erector.



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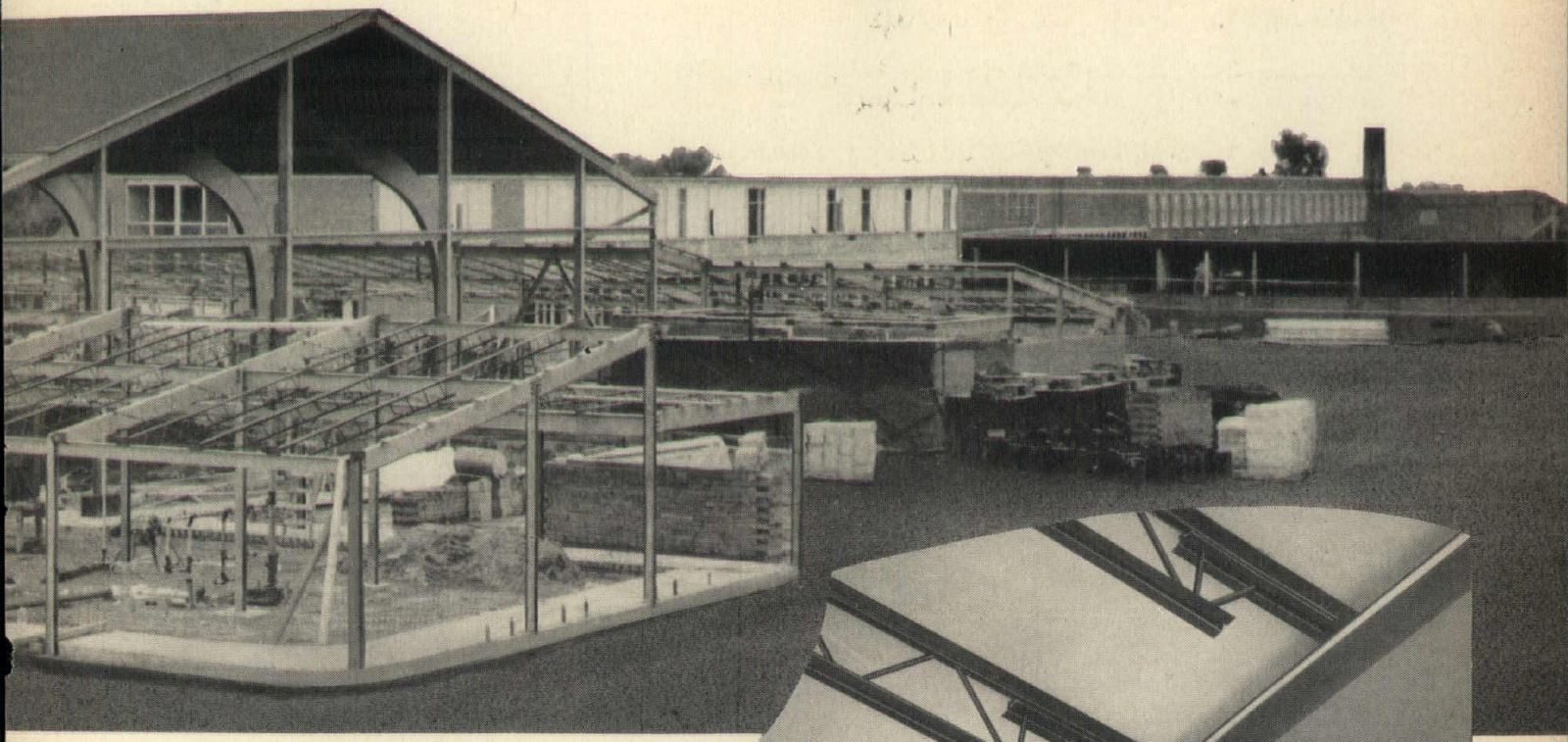
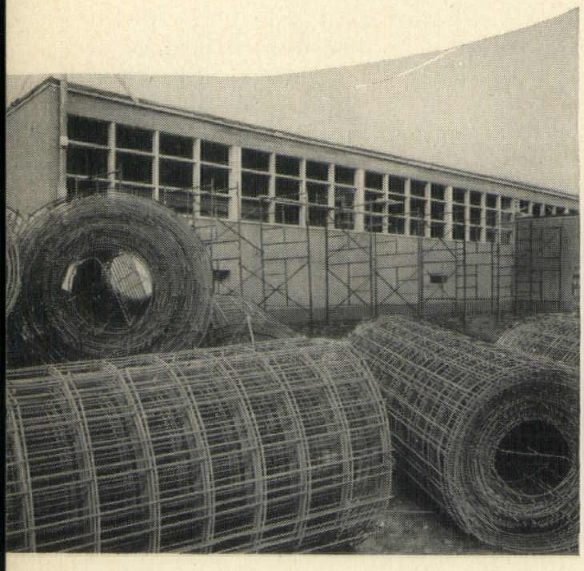
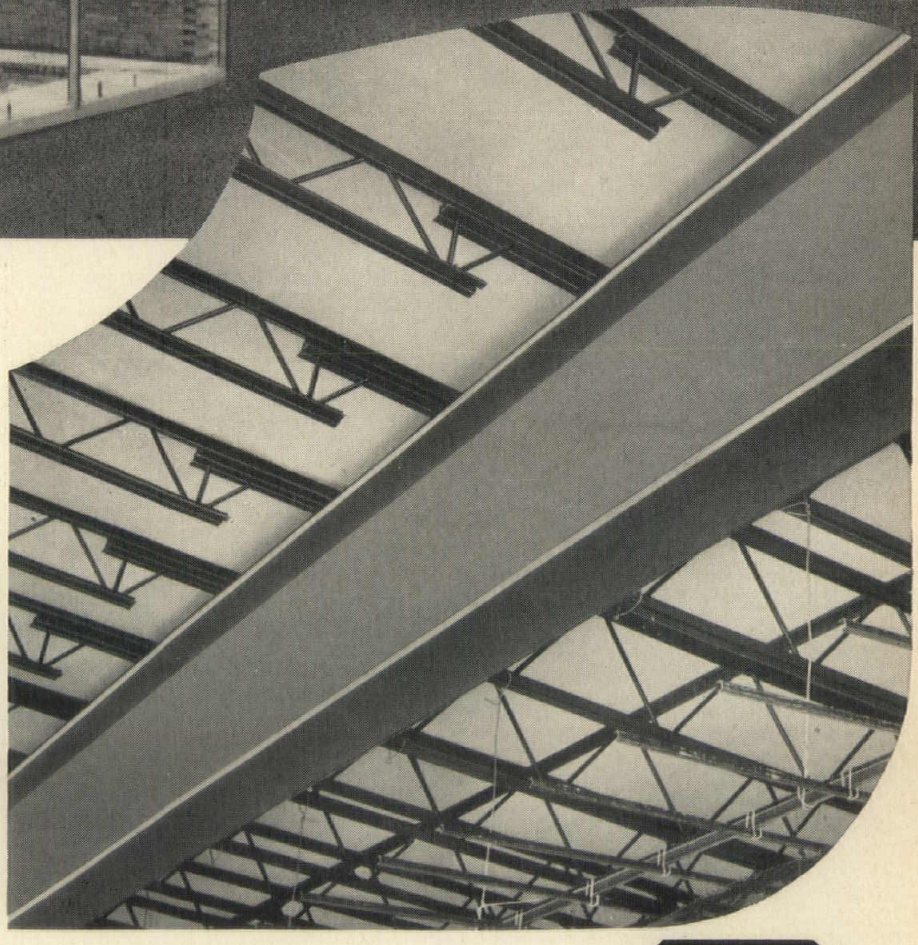
STEEL







***All Steel was Supplied and Fabricated by* Paper, Calmenson & Co.**

20 gms. (0.7 oz.) per minute. The absorption and suction rate of some of the facing brick being sold in this area are as follows:

	24 Cold Water Absorption	Suction Rate
Brick No. 1	4.9%	4.5 gm/min.
Brick No. 2	4.8%	6.3 gm/min.
Brick No. 3	4.9%	8.2 gm/min.
Brick No. 4	7.7%	15.5 gm/min.

A simple field test to determine if brick requires wetting before laying is to draw a circle on the bed of the brick (the side in contact with the mortar) with a wax crayon, using a twenty-five-cent piece as a guide. With a medicine dropper place 20 drops of water inside this circle. Note the time required for the water to be absorbed. If the time is less than one and one-half minutes the units should be wetted.

B. Structural Clay Tile.

1. A.S.T.M. C-34. Structural Clay Loadbearing Wall Tile. Use Grade L BX where exposed to severe weathering or soil.

2. A.S.T.M. C-212. Structural Clay Facing Tile. Specify size, type, color and texture.

C. Concrete Block

1. A.S.T.M. C-90. Check materials delivered. Protect units on job.

D. Protection of Work

1. Protect masonry from excessive water during construction. Always cover unfinished work with tarps or waterproof building paper. Protection should extend two feet below top of unfinished wall. Failure to provide proper protection may result in damage to joints, efflorescence or freezing damage.

2. Protect Masonry from Freezing. Structural Clay Products Institute recommends the following:

a. No masonry shall be laid when the temperature of the outside air is below 40° F. unless suitable means are provided to heat the masonry materials and protect the completed work from freezing.

b. Protection shall consist of heating the masonry materials to at least 40° F. and maintaining an air temperature of 40° F. on both sides of the masonry for a period of at least 48 hours if Type A mortar is used and 72 hours if Types B or C. mortars are used. These periods may be reduced to 24 and 48 hours, respectively, if high-early-strength

cement is used. These recommendations have been considered too rigid by some architects and contractors in this area. A comprehensive study is beng made at this time.

III. MORTARS

All mortar ingredients should comply with the requirements of their respective A.S.T.M. specifications. Two alternate specifications for mortar are recommended by Structural Clay Products Institute.

PROPERTY SPECIFICATIONS—The acceptability of mortar under property requirements is determined by laboratory tests and is based upon (1) the properties of the ingredients mixed within a specified range of ratio of aggregate to cementitious materials and (2) properties (water retention and compressive strength) of mortar mixed in the testing laboratory of the same materials and in the same proportion, except water, that will be used in construction. For important work and large jobs it is recommended that the property specifications be used.

Mortar Properties: (1) Water Retention—Mortar of the materials and proportions, except water, used in the construction shall have a flow after suction of not less than 70 per cent.

(2) Compressive Strength. The average compressive strength of 3 2-inch cubes of mortar shall be not less than the strength shown in Table I for each mortar type specified.

Table I. Compressive Strength of Mortar

Mortar Type	Average Compression Strength, p.s.i. at 7 days	at 28 days
A	1,500	2,500
B	550	900
C	200	350

Water retentitivity and compressive strength of mortar shall be determined in accordance with the test procedure described in Specifications for Masonry Cement. A.S.T.M. Designation C91.

PROPORTION SPECIFICATIONS—The acceptability of mortar under the proportion requirements is determined by the proportions of the dry mix and is based

Table II. Mortar Proportions by Volume

Mortar Type	Cement Bags (Cu. Ft.)	Clay Mortar Mix (Cu. Ft.)		Hydrated Lime Bags (50 lb.)		Lime Putty (Cu. Ft.)	Aggregate Damp Loose (Cu. Ft.) Not more than
A	1 (Portland)	¼	or	¼	or	¼	3
B	1 (Portland)			1	or	1	6
B	1 (Masonry Type II)						3
C	1 (Portland)			2	or	2	9
C	1 (Masonry Type I)						3

upon the properties of the ingredients and limitations on the proportions of cementitious materials and aggregate. The proportion specification is the one most commonly used and it is believed that this specification will produce satisfactory mortar.

MORTAR PROPORTIONS

1. Mortars shall be proportioned by volume for the type specified within the limits prescribed in Table II.

Recommended Uses for Mortar—Recommendations are in general applicable to exposures and construction practices prevailing in this area.

Type (A) Mortar: type (A) mortar is a high strength mortar suitable for general use and recommended specifically for reinforced brick masonry and plain masonry below grade and in contact with earth, such as foundations, retaining walls, walks, sewers, manholes and catch basins.

Type (B) Mortar: type (B) mortar is a medium strength mortar for general use in exposed masonry above grade and recommended specifically for parapet walls, chimneys and exterior walls subjected to severe exposures and for exposed and loadbearing structural clay tile construction.

Type (C) Mortar: type (C) mortar is a low strength mortar suitable for non-loadbearing walls of solid masonry units, for interior non-loadbearing partitions of structural clay tile and for loadbearing walls of solid units in which the compressive stresses developed do not exceed 100 p.s.i. and where exposures are not severe; that is, where the masonry will not be subjected to freezing and thawing in the presence of excessive moisture.

Mortar for Tuck-Pointing: Prehydrated mortar is recommended for tuck-pointing of masonry walls. For best results the pointing mortar should not be denser than the original mortar. Rich mixes should be avoided to eliminate excessive shrinkage and volume changes after hardening. In the absence of information on density and proportioning of the original mortar, prehydrated Type (B) mortar is recommended.

Mortar shall be prehydrated by mixing the dry ingredients (cementitious materials and aggregate) only sufficient water to produce a damp mass of such consistency that it will retain its form when pressed into a ball with the hands but will not flow under the trowel. The mortar should then be allowed to

stand for a period of not less than one hour nor more than two hours, after which it should be remixed with the addition of sufficient water to produce satisfactory workability.

Mortar Properties Especially Affecting Water Tightness

Workability and water retentivity, which to a degree is a measure of workability, are essential properties of mortar for all types of masonry in which impermeability to moisture is an important consideration. Recommended specifications for Types (A), (B) and (C) mortars contain the requirement that flow after suction for one minute shall be greater than 70 per cent of the initial flow. Flow after suction is a measure of water retentivity and the requirement included in the specifications is a minimum requirement.

Bond between mortar and brick is affected by the water retentivity of the mortar, the rate of suction of the brick when laid, the consistency (flow) of the mortar and the technique of forming the mortar joint.

For maximum bond strength, the water retentivity of the mortar should be high (flow after suction exceeding 70 per cent of the initial flow); the flow of the mortar should be the maximum consistent with workability (use of maximum water possible); the suction rate of the brick when laid should be 20 grams (.7 oz.) per minute or lesss; and the forming of the mortar joint should be accompanied by pressure to insure intimate contact between mortar and the masonry unit.

Durability—for relatively dry masonry which resists the penetration of excessive moisture, the resistance of mortar to alternate freezing and thawing does not appear to be a serious problem. For masonry subject to severe exposure (alternate freezing and thawing in the presence of excessive moisture), the minimum strength requirements specified for Type (B) mortar are recommended.

Strength of mortar, as determined by 2-inch cubes, affects both the lateral and compressive strength of masonry. Cube strength may be taken as a measure of durability of hydraulic mortars, although this does not hold for feebly hydraulic mortars, non-hydraulic mortars or for mortars containing grinding aids or water repellents. Compressive strength of mortar cubes may also be used as a convenient acceptance test for mortar. Specific recommendations as to strength requirements are included in the recommended specifications.

Special Problems Encountered with Some Mortars—from time to time there have been reports of cracking and leaky masonry walls due to expansion of mortars. Fortunately there have been few reports of this type failure. In one case in Iowa samples of mortar as used on the job expanded 46 per cent when subjected to an autoclave expansion test.

To be absolutely safe in specifying masonry cements and limes, accept for use only those which do not exceed 0.5 per cent increase in length when tested for expansion according to the A.S.T.M. standard method of test for autoclave expansion of Portland cement (C151-49). The test bars for lime for use in a cement-lime mortar shall be composed

of a mixture of lime and Portland cement in the proportions specified for use on the job. In the absence of tests, lime should be restricted to a Type S hydrate or to putty made from high-calcium quicklime.

IV. WORKMANSHIP

Results of laboratory tests at the National Bureau of Standards are summarized below.

1. The observations show that when walls leaked the water passed through openings or imperfections in the joints rather than through the solid materials.

2. In general, the methods for laying brick which resulted in walls highly resistant to water leakage were those providing either solidly filled head and bed joints or a barrier consisting of a continuous plaster coating of mortar within the interior of the wall.

3. Irrespective of the kind of brick, mortar or workmanship (provided the joints were reasonably well filled), the resistance of the walls to moisture penetration increased with a decrease in the suction rate of the brick at time of laying.

4. The essential qualities of mortars were found to be workability and water retentivity.

Recommended workmanship specifications are as follows:

1. All masonry shall be laid plumb and true to line.

2. Brick masonry shall be laid with full mortar joints. Mortar beds shall be spread smooth or only slightly furrowed. The ends of brick shall be buttered with sufficient mortar to fill the end joint.

3. Parging—parge and dampproof exterior walls contacting earth. Three suggested methods of improving moisture resistance of exterior walls are listed:

(a) Parging the back of the face brick. If parging is applied before initial set of mortar takes place (approximately two hours) great care should be taken in the application of the parging to avoid any movement of the green wall which could result in breaking the bond between the brick and mortar.

(b) Parging the face of the backup material. Some authorities recommend parging the face of the backup material because the units are larger and heavier and there is less chance of disturbing the mortar joints. National Bureau of Standards tests indicate that both types of parging improve resistance to moisture penetration where workmanship on the facing brick is questionable.

(c) Recent field experience indicates that improved moisture resistance can be obtained by tooling the joints on the back of the facing material. Certain contractors have stated that they are getting well filled joints where tooling of the back side of the facing material is required.

V. INSPECTION

Proper inspection includes responsibility for compliance of all materials with the specification requirements. One of the best general construction inspection recommendations has been advanced by Morton O. Withey, dean, College of Engineering, University of Wisconsin. Excerpts from a recent paper are listed below:

1. The determination of the source and type of the sand, cement, lime, admixture if any and brick.

2. Determinations of the weights of the materials used in batching mortars.

3. From a sample of mortar taken at the job the following tests are made: (a) flow and retentivity; (b) briquettes and cubes for strength tests of the mortar at 7, 38, and 365 days; (c) prisms for autoclave tests to test the expansion of the mortar; (d) sieve and moisture tests on the sand; (e) tension bond tests of the mortar and brick.

The inspection of workmanship of exterior walls should be adequate to insure the filling of all head and bed joints and the proper tooling of the exposed mortar joints. The inspector should also require strict adherence to all specified construction details.

An effective method for making spot checks on workmanship is to periodically remove one or two freshly laid brick from the top of the wall. This check quickly shows whether head and bed joints are full and whether intimate contact between units and mortar has been made.

SUMMARY

Watertight masonry walls can be obtained by proper adherence to good design and construction principles.

I. Attention to a few simple points of structural design and construction details will help eliminate leaky walls.

II. Proper mortars can be obtained by careful specification and test requirements.

III. Masonry materials now used in construction have been tested over a period of years both in the laboratory and in the field. If they conform to the specifications recommended their satisfactory performance can be predicted with reasonable certainty.

IV. Competent craftsmen can build watertight masonry walls. However, their strict adherence to good workmanship principles is necessary.

V. Responsible inspection integrates good design, materials and workmanship into finished, long lasting, watertight masonry walls.

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Seen on the Scene of the Regional

A corner conference brought together for a moment John Lindstrom, G. R. Magney, John Magney, Stowell D. Leach and Don Setter, all well known Minneapolis architects.

Wisconsin sent a good representation, including Karel Yasko, Wausau, George Narovec, Appleton, Leonard Schober, Green Bay, E. F. Klingler, Eau Claire, and Leigh Hunt, Milwaukee.

A. L. Manion of St. Paul talks structures with T. R. Hedding (Twin City Brick & Tile Co.).

North Dakota's State College School of Architecture's students included (rear) Frank J. Richard, Cecil Lerow, John Rosequist and (front) James Zimmerman, James Gross, Robert Wright and Cy Stadsvold.

A group gathers to smile for the camera—C. W. Peterson and C. P. Erickson, St. Paul, E. H. Schmidt, Mankato, and Rudy Selzer, St. Paul.

E. F. Klingler of Eau Claire and Ralph Shimer of Minneapolis talk about session's progress.

Above are J. V. Hirsch, St. Paul, Carl Graffunder, Minneapolis, Robert Sandberg and Tony Hren, both of Hibbing. At left are W. B. Berget of Minneapolis, talking structures with Robert Deegan (H. H. Robertson Co.).

SOUTH DAKOTA CHAPTER PICKS WALTER DIXON AS PRESIDENT

Walter J. Dixon of Mitchell, S. D., was elected president of the South Dakota Chapter of the A.I.A., recently.

Mr. Dixon was selected during the chapter's annual meeting in Mitchell. Elected to serve the chapter with him during 1952-53 were: W. F. Blatherwick, Sioux Falls, vice president; Earl McLaughlin of Sioux Falls, re-elected secretary-treasurer, and Adrian Forrette of Rapid City, named to the board of directors.

Among speakers on the program was Richard F. Hammel of the Minnesota Chapter.

CHEYENNE OFFICE BUILDING

(Continued from Page 14)

for a second when two more floors are added. There is also a freight elevator.

The site, part of a projected Civic Center, covers two city blocks that were formerly a park. None of the fine old trees were destroyed. Those located at each end remain. Others that were in the building area were removed to a park on the south side of town and some were given to Cheyenne residents. The entire grounds area has its own sprinkler system.

There are attractive plantings at all four corners of the building. The main entrance walk is flanked by 50-foot flagpoles, flying the national and state flags, set into octagonal granite bases. The building is floodlighted at night.

FLOUR CITY IRON FUND OUTSTANDING IN AID TO ARCHITECTURAL EDUCATION

One of the outstanding funds donated to the University of Minnesota School of Architecture to advance the school's training of our future architects has been that of the Flour City Ornamental Iron Company, which has been used for many purposes.

Established in 1945 with an original donation of $2,000, the fund has received $8,000 in six years. From this fund expenditures are authorized for financial aid to able students who need it, for the annual Melcher Prize of $100 for designs dealing with ornamental metal and for general uses benefiting the school. All the awards made from the fund are subject to approval of a committee of three members of the school faculty and the presidents of the Minneapolis and St. Paul A.I.A. chapters.

Interesting uses recently of the fund have been to help pay the salary of Thomas Schmid, brilliant young Swiss architect who was a visiting member of the school's staff during 1950-51, and the sending last October of Lloyd Williams to the Pan-American Congress of Architectural Students held in conjunction with Pan-American Congress of Architects in Mexico City. A report on this will be made early next year.

W. B. Carlson, St. Paul, Clair Armstrong and Horace Matson, Minneapolis, at the regional conference in St. Paul.

The Melcher Prize, named for George B. Melcher, Flour City designer, has been awarded six times, sometimes being split so that 15 students have shared in it.

Aid to needy students of promise has not been large because many of the immediate post-war students were veterans and so eligible for GI grants. This use of the fund is expected to grow now that GI grants have for the most part been used up.

Establishment and continued support of this fund, as is also the case with other scholarship and prize funds given the school, indicates a keen and vital interest in the training of the future architects by firms already in the field of building. Such work serves to create a direct tie between the practicing architect and the industrial firm and the architect in training and where design problems are involved it gives a practical basis to the student's work as it acquaints him with what is desired by the companies in his field.

MacARTHUR COMPANY, ST. PAUL, ELECTED TO PERLITE INSTITUTE

The MacArthur Company, St. Paul, has been voted a member of the Perlite Institute, action having been taken during the group's recent annual meeting in Minneapolis.

Thirty-five Perlite producers from 20 states took part in the meeting, which elected Lewis Lloyd of New Orleans president, succeeding J. John Brouk of St. Louis.

Naming of the MacArthur company brings to 46 the active members of the institute.

MILLION HOMES PREDICTED FOR 1953

Production of at least 1,000,000 new homes during 1953 has been predicted by Frank W. Cortright, executive vice president of the National Association of Home Builders.

Although we shall have a new Congress, a new executive branch and new administrative officials in the higher echelons of the government Mr. Cortright said he is confident the government will continue to encourage a high volume of construction, with a high volume of employment in the building trades, both among on-site workers and in manufacturing and distribution fields.

SHEETROCK NOW AVAILABLE IN PANEL FORMS

The well-known finishing material, Sheetrock, is now available in interesting new 16-inch panels, according to an announcement of U. S. Gypsum.

These panels offer all the usual qualities of Sheetrock, plus certain decorative features of value to the designer. They are designed to require no joint treatment, the joints forming panel patterns valuable to design. The sheets are available in plain, knotty pine and neutral toned striated finishes and are 8, 9 and 10 feet long. They are placed rapidly over any other level surface and can be finished with any decoration material.

The sheets are affixed with adhesive.

LOCAL SCHOOL BOARD HAS NO AUTHORITY TO DESIGNATE BONDING AGENCY, ATTORNEY GENERAL SAYS

A recent opinion of the Minnesota Attorney General of interest to all architects points out that no local school board has authority to specify in bids for work that the successful bidder must buy his surety bonds through local agents.

So all architects and associated contractual workers can be fully informed, we reprint the opinion:

BIDS AND CONTRACTS—SCHOOL BUILDING

Requirement that performance bonds should be purchased locally is not permissible in contracts for schools. MS 1949, Sec. 125.18, sd. 2,

August 18, 1952

Mr. Dean M. Schweickhard
Commissioner of Education
State Office Building

Dear Sir:

Your letter addressed to Attorney General J. A. A. Burnquist has been referred to the undersigned.

You have inquired as to the following communication received by you from the school board.

"We are advertising for bids for the construction of a new school building at Warren and we are requested by local interests to specify in the bids that the successful bidder buy his bonds through local agents. The construction companies and our architect tell us this is illegal. As we are not able to find any reference to such a question in our laws pertaining to schools, we wonder if you could give us an opinion on this matter.

"The local agents, of course, are interested in the commission and I assume the construction companies have their regular bonding agents."

Question

Would such a specification be legal?

Answer

The only statutory provision on the awarding of contracts relating to bonds for the faithful performance of contracts to repair or construct schools is contained in MS 1949, Sec. 125.18, Subd. 2, which provides as follows:

"Every such contract shall be awarded to the lowest responsible bidder, duly executed in writing, and the

Producers Council at Regional

Refreshments were enjoyed (above) by Burto I. Petri, Wayzata, E. L. Thompson (Chamberlain Co.) and Tom Connelly (Northern States Power). At upper right are George Rafferty, St. Paul, Curt Johnson (Pella Products), and George Darrell and Charles E. Jones, St. Paul. Robert F. Feltault, Minneapolis, talks with Andy Albert (Crown Iron Works) at right.

person to whom the same is awarded shall give a sufficient bond to the board for its faithful performance, and otherwise conditioned as required by sections 574.26, 574.28, 574.29, and 574.30. If no satisfactory bid is received, the board may readvertise."

No authority is therein given to the school board to specify from whom the bidder must obtain his bond.

It is therefore our opinion that the school board in question does not have the authority to specify in the bids that the successful bidder must buy his bonds through local agents.

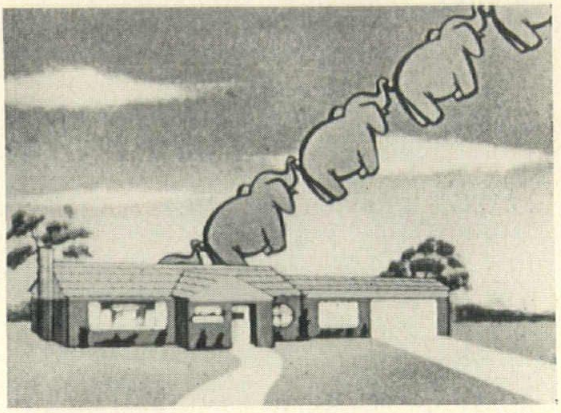
Yours very truly,
J. A. A. Burnquist, Atty. Gen.
Irving M. Frisch, Special Asst. Atty. Gen.

A.I.A. SEES WEIGHT SAVING PICTURES

Featured on the program of the recent A.I.A. North Central Regional Conference was a new color motion picture, "Lightweight Champion," shown for the first time in the Twin Cities. It was presented by C. A. Pratt, vice president of Western Mineral Products Co. and president of the Vermiculite Institute of Chicago.

This 20-minute movie demonstrates the tremendous weight and cost savings that can be made with vermiculite plaster fireproofing and vermiculite acoustical plastic. When used in combination as ceiling fireproofing, these materials have an official 4-hour fire rating and reduce noise by 65%.

Mr. Pratt said a saving of $12,500 was made with this vermiculite combination in the 3-story office building of the Alameda County-East Bay Title Insurance Co.,



The line of elephants leaving the building represents the weight saved by Vermiculite's use in the picture AIA members saw recently.

Oakland, Cal., although only 25,000 feet of sound control were required. An additional saving of $15,000 was made by eliminating 60 tons of structural steel with lightweight plaster and concrete, and $7,000 more was saved in the cost of foundations, which could be reduced in size because they carry less weight.

This was the first Class A building erected in Oakland in which the beams were not individually wrapped and fireproofed. When the attention of city officials was called to the fire ratings of vermiculite protection, permission was given to hang the lath to the edge of the bottom flange of the beams and fireproof with the vermiculite plaster-acoustical plastic combination. With beams 15 feet o.c., this represented a large additional economy.

Mr. Pratt stated that a study made by the Gypsum Assn. of Chicago of typical 3-story buildings indicates that savings in structural steel and cost reductions up to $4.00 per square foot are possible with light steel framing fireproofed with vermiculite-gypsum plaster. Other advantages include quicker erection and closing-in of the building against the elements, minimum time loss because of weather interruptions and less form work and scaffolding.

He also said that at the annual convention of the Contracting Plasterers International Association held in Denver in October, a committee was appointed to work with representatives of the journeymen and manufacturers in promoting wider use of plaster. The program will include stressing good workmanship, improved service, and better co-operation with the architect, general contractor, and other trades.

PLASTIC LAMINATE VALUED ALSO AS WALL COVERING

Continued widening of uses for plastic laminates has brought into the market a new ⅛-inch ready-to-install material named Lamidall, made by the Woodall Industries, Skokie, Ill.

The laminate, bonded to Tempered Presdwood, can be worked in all usual manners and can be installed in sheets as large as 4 by 12 feet. The material, its makers pointed out, has particular value in surfacing walls where the ease of maintenance and decorative features of the laminates are desired.

Lamidall is furnished in natural wood grain finishes and also in colorful patterns. It resists heat, moisture, stains and ordinary abuse, features which have won a place for laminates in working surface finishing. These characteristics, applied to wall surfaces, enhance utilitarian features of a laminate installation.

Matching Lamidall and extruded aluminum mouldings are available for use with the new material. Details can be obtained from the company, whose address is 3500 Oakton St., Skokie, Ill.

EXTRA BATHS WANTED

Home buyers of today definitely want extra bath facilities, according to an experience in selling a development project of 132 houses. Of purchasers who chose from among six models, the majority wanted bath-and-a-half or two-bath homes. Of the 132 houses now building, 103 were extra-bath units.

Rewinding Our Line To Cast Again

WALT WHITMAN WROTE:

A noiseless patient spider,
I mark'd where on a little promontory it stood isolated,
Mark'd how to explore the vacant vast surrounding,
It launch'd forth filament, filament, filament, out of itself.
Ever unreeling them, ever tirelessly speeding them.

And you O my soul where you stand,

Surrounded, detached, in measureless oceans of space,
Ceaselessly musing, venturing, throwing, seeking the spheres to connect them,
Till the bridge you will need be form'd, till the ductile anchor hold,
Till the gossamer thread you fling catch somewhere, O my soul.

By William Gray Purcell

THE MOST OBVIOUS fact in history is that people overlook the important events of their own times and they always will. If distant pastures look greener, pastures remembered in nostalgia picture age old sun flowers as spreading chestnut trees.

For the past year or so I have seen in the "remainder" offerings of many book stores East and West the following advertisement:

> **E-131 NORMAN ROCKWELL: ILLUSTRATOR, by Arthur L. Guptill. 515 reproductions, 50 in full color. A mammoth biography of the beloved "painter to America's millions." 9x12". (Macys, N. Y.)**
>
> **Orig. pub. at 10.00 SALE 5.98**

Having studied this work with some care (and greatly enjoying it) I am now prepared to risk my "82.3%" record as a critic in the Grandma Moses area of creative art, and in many another area. I believe this book on "painting" by Norman Rockwell to be a sound philosophy of art and his pictures to be distinguished creative works from any viewpoint.

Now all regular artists of high art, both sanitary, "traditional," and unsanitary, "modern," agree that art *about* something or that tells a story, or reports facts, or history, is not art at all and beneath the notice of cultured people. But when you come to think of it the really great "classic" art of the ages—Orient and Occident alike—does exactly that. It records the high story and the portraits of the Saints, Martyrs and Heroes —shows you the Gods and their battles, the Poor and their troubles.

So how, all of a sudden, does it now happen that he who paints pictures of the way we live today, for the people of 2452 A.D., is set down for a silly fellow. Even museum directors are grateful for Giotto and Hokusai, for Praxitiles and the unknown Indian cave-painters of Ajanta, the mosaic bible stories of Ravenna, the daily lives in Chartres glass—all of it "telling stories" the very best way past artists knew how. I believe those who come after us will thank God for Norman Rockwell and we ought to be very happy to have our heirs have pictures showing so much good about us. If you think I may be right, buy this book for great entertainment, potent know-how ideas, and reliable historical record. This book in twenty years will be out of print and a collector's item, cherished in every art school library—where it is now laughed at.

—

♦ "APERTURE" ♦

The New Photographic Magazine

EQUALLY in photography and in painting "still life" must be organic with respect to how the objects "happened" to get into that particular arrangement at the imminent moment of *"time*-as-an-occasion-for-seeing." Still Life Art — that is to say, highly selective pictures of small scale objects — is like insouciant handwriting or great drafting; it must represent impersonal forces in momentary pause. Move any of the things chosen by one finger-push and the whole is no longer impersonal. It is no longer "still life," it is a portrait of "Kilroy was here." The true record of a *particular,* critical moment of the life process has evaporated. Truth has been tampered with.

The artist seeking symbols to express his ideas, feelings and skills must *find* still life and and *use it as he finds it.* His must be a "still hunt." What really happens is not that the still life is really still, but the artist, under pressure of Time, necessarily captures "in still" only an instantaneous cross section of the great Continuity of Life which in another instant will be some-

thing else. That is why honest creative photography has set new standards for still life painting to meet.

The *artist* is the only still in still life art. Even his art record is not "still." All beholders will eye-travel its surface by different paths. Even the shadow of the artist at work, occasional shadows or reflections from his person change the objects — together with the earth sliding around under the sun at 17 miles per second.

Still life isn't still. If you don't agree, just try to photograph objects in SEEMING repose.

—

♦ "NOISE AS MUSIC" ♦

And poetry as an art for the ear

PEOPLE CONTINUE to write us about our study of cathedrals as makers and shapers of sound towards beauty. One sends the following clipping—

"Music rots when it gets too far from the dance.
Poetry atrophies when it gets too far from music.
There are three kinds of poetry to be heard with satisfaction and health—

Verse made to sing
Verse made for speaking
Verse made to chant"

Very good, but don't leave it there as just a clever analysis. Sing more songs, read more poetry aloud and go to church (even if your church has no chants in beauty).

—

♦ "INTERNATIONAL TEPEE" ♦

blew its top

WHAT the U. N. buildings look like is now the theme of most comments. Now, all debates about what pleases Jill or does not please Jack, A.I.A. simply has no end. You may not have noted that in our analysis recently we carefully avoided talking about the look-of-the-thing, except where the humor was too choice to be detoured. In buildings, as with people, significant appearance is a result. Whatever any man or building looks like today, it, and he, will look wholly different tomorrow. The looks do not change, but *you* do: 1920 never-used automobiles in a museum, wowed 'em then, look funny to us now.

The quality of the thought-in-action must be the object of any useful examination. Never mind if our architectural specimen looks like a cage, a *cookie,* or an *electric sign.* Will it work? Does it speak, meet our needs, first needs first, all our needs in due course? Does it offer reasonable hope, confirm our courage, clear our fear, rally a practical confidence in people: all kinds of people. Well, something like that was in our mind when we wrote this six months ago.

Now comes the Assembly Hall, domed (not "doomed," we hope!) under a "blister" (Architect Harrison's own word for his insipration! — have they lost their sense of humor?). He gave them a Hall for Spectacles with fans in the bleachers, instead of a Chamber for Conference with the world sitting in.

U. N. Architect Wallace Harrison's idea in using the universally known and unique form of the American Indian "medicine talk" teepee for his Assembly Hall *interior* design was an inspiration but it's obvious de-

sign resolution, up and through the roof to the exterior, was certainly not a "blister" in the form of a copper pot-lid!

Carl Sandberg's "The People," for whom this building should have been built, look for and find meanings, health filled or festering, in all that they see. Above the roof of this Shed of Assembly *the age old cone of the teepee* should be speaking the silent but potent Word — yes, with a comforting smoke token of the PEACE PIPE, rising to the World Sky from the AGELESS CAMPFIRE within.

Said Louis Sullivan, "When you have made your thunder don't get scared and run away." You should have stayed with it, Wallace K.

♦ "KEATS" ♦

Wrote this about Wordsworth

"We find that what he says is true as far as we have experienced — and we can judge no farther but by larger experience. For axioms in philosophy are not axioms until they are proved upon our pulses. We read fine things, but never feel them to the full until we have gone the same steps as the author."

I cannot write poetry but I have known Nature as he has not, at least my experience of nature is not in his poetry, and my experience was both full, unique and inner.

WALT WHITMAN WROTE:

When I heard the learn'd astronomer,
When the proofs, the figures, were ranged in columns before me,
When I was shown the charts and diagrams, to add, to divide, and measure them,
When I sitting heard the astronomer where he lectured with much applause in the lecture-room

How soon unaccountable I became tired and sick,
Till rising and gliding out I wander'd off by myself,
In the mystical moist night-air, and from time to time,
Look'd up in perfect silence at the stars.

Home Entertainment

REMEMBER that $60 word in our July-August issue, "Swedish Empiricism?" Perhaps now that the national "voteathon" is over, it has become safe to use a ten-letter word, 'stead of half that (or less!). So we will report that "Empirical" laboratory exercises have now taken over the well known *home* talkathon—the one with the "full length, life size, twenty-minute pitcher."

Just now in Pasadena it's "the thing" for people gathered round the social fireside to play an amusing game, with some astonishing psychosomatic results (. . . well, everybody knows about the various phychos — even in jokes). Anyway, while one of the company is talking — just casually you know — the others, instead of allowing themselves to feel frustrated while squirming to wedge in their own pet arguments and not hearing one word in ten; in his game THEY ARE SUPPOSED TO REALLY LISTEN! . . . and is *that* novel? It is if you can do it.

If one sincerely listens, cancelling (not suppressing) all desire to express his flow of idea responses, something very surprising happens to him. He feels different all over, becomes "contented." This procedure would ordinarily seem to be supplying free gas to the marathon talker but of course there have to be ground rules. The automatic self-starting conversers also have to give up and take their treatment! Wonderful? . . . we'll say it is. (My wife laughed when she read this.)

To one of these talk try-outs The Professor brought this from Walter Lipmann's corner:

> "While the right to talk may be the beginning of freedom, the necessity of listening is what makes that right important"

And I brought out a funny old book that Dorothy had found in the attic, THE GREAT CONVERSERS by William Mathews, LL.D., University of Chicago, S. C. Griggs and Company, Publishers, 1874. I found it's content wasn't so quaint as were its baize green cover and velour black fly leaves. There is nothing new in the wish for good conversation, although very rare these days and getting rarer around television's unending flicker.

Creative listening was the natural method of confer-

ence both for the American Indian and the Spartan Greek. The Spartans did not debate issues in public assemblies. They heard the issue, thought in silence, then voted. We recommend for Washington, D. C., "Vote as you choose but vote." That is what you demanded, Mr. Politician. We did it for you, 7,000,000 more of us. Now it's your turn to come through. Do this job we are paying you $80,000 per annum (plus tips, etc.!) to do for us. Stop talking. Get voting!

3M CERAMIC TILE ADHESIVE SPEEDS WORK

A new adhesive for use with ceramic tiles which gives a waterproof membrane and provides for speedy installation has been announced by the Minnesota Mining & Mfg. Co., St. Paul.

The Ceramic Tile Adhesive No. 10 is fully discussed in a folder available from the company. The material can be applied with a float or can be buttered. It is a pink, synthetic rubber compound of soft, buttery consistency. With it tile can be installed over plasterboard, brown coat plaster, finish coat plaster, oil base paints, plywood, wallboard, concrete, metal or any other sound base.

The adhesive has a shear strength of more than 2,000 pounds and its waterproof quality makes it particularly valuable for tiling where excess water is a consideration. Grouting for finish is done in the usual way.

The new descriptive material can be obtained from the company.

Regional's Relaxation:

H. B. McElndowney, University of Illinois, and Gordon O. Matson, Minneapolis, (pictured left) Mary Mykolyk, Medicine Lake, and Wolfgang Gerson, University of Manitoba, Winnipeg (above) relax in a hospitality room.

S. M. Hockman and Pete Bosch (both of Hebron Brick Co.) discuss supplier's problems during "time out."

Pete Bosch, Warren T. Mosman, Hopkins, Edwin Larson and J. R. Corwin, St. Paul, take advantage of relaxation offered during the regional.

EASTMAN BOOK HELPS X-RAY PLANNING

The planning of x-ray facilities has been given an expert assist for the architect through publication by the Eastman Kodak Company of "Planning the X-Ray Processing Facilities and Equipment," a fact and drawing packed 90-page publication worth much to any designer whose work deals with hospitals or medical building of any sort.

Based on the Eastman background of serving x-ray workers for many years, the booklet sums up the latest information on the subject. It gives plans for room layout, showing certain basic plans found valuable through experience. It discusses construction of light-tight entrances, electrical wiring requirements for the special machines used in x-ray work and outlines the best use of floor space.

Other facts covered include ventilation, floor coverings, wall coverings, illumination, work spaces, processing equipment, plumbing and all related details for laying out the best possible facility.

This booklet can be obtained by writing the Medical X-Ray Sales Division, Eastman Kodak Co., 343 Bay St., Rochester 4, N. Y.

"OUTSIDE" STONE MATERIALS HAVE COME INDOORS

What was merely an experiment a year or two ago has now become one of the most important trends in architecture and interior house design. This is the use inside the house of what are ordinarily considered "outside" materials.

Proof of the public's acceptance of this development lies in its great growth. One aspect is the economy in house construction when the outside wall continues right through to the interior, as in the case of the cut stone exterior wall which turns into a fireplace wall indoors.

Another influence along this line stems from the desire for small, easy-to-care-for homes that still seem spacious. Architects and designers are achieving this effect by utilizing the grounds around the house for living areas in such a way that they become integral parts of the home.

For example, a flagstone terrace will not stop at the door, but continues into the hallway or foyer, with smooth waxed stone replacing the more irregular flags for the interior. An indoor dining room may have stone flooring that is repeated for an outdoor dining terrace. This technique, coupled with the use of large window areas, often seems to double the size of a room.

Starting with this, a great revival in the use of natural stone indoors is forecast by those in the industry. Stone is available in so many colors and textures that home planners are finding it a constant source of inspiration. And since modern heating methods remove the onus of "cold" floors, stone will appear more and more to add beauty, fire resistance, and permanence.

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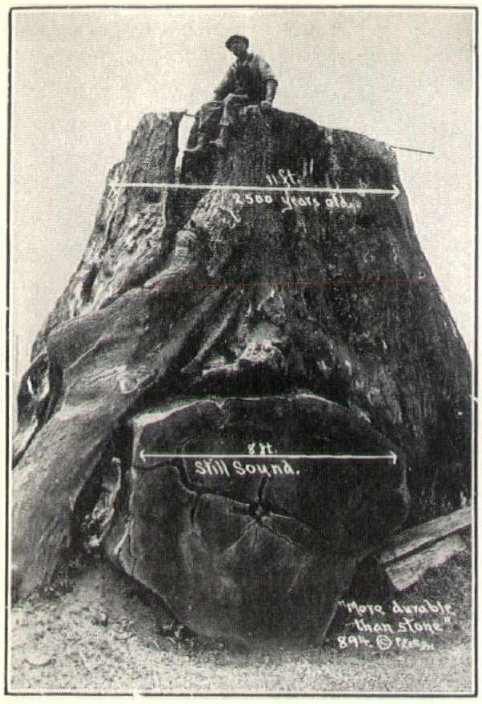

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