



"Homespun" Materials Enhance Buildings' Charm

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NORTHWEST ARCHITECT

JANUARY-FEBRUARY 1953

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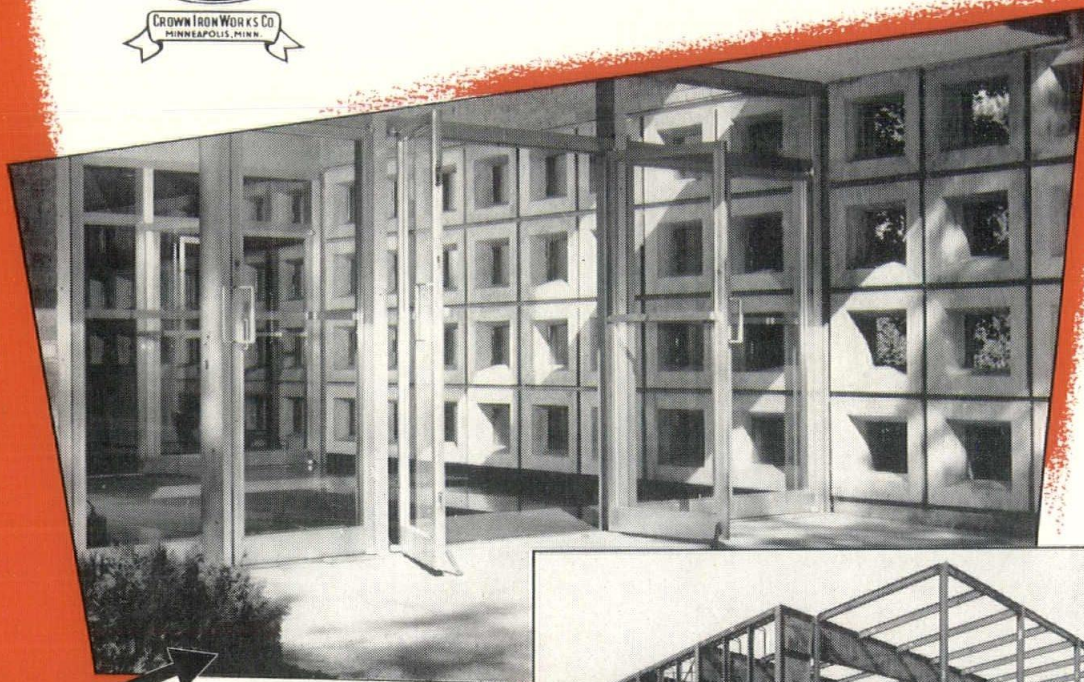
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VOLUME XVII

NUMBER ONE



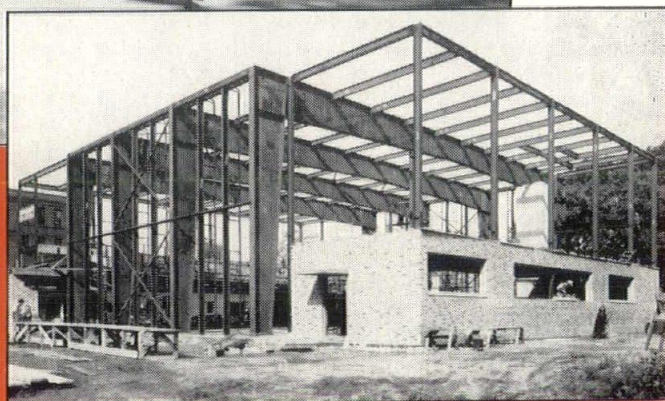
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NORTHWEST ARCHITECT

Official Publication
Minnesota Society of Architects
Reinhold Melander, Duluth, President



THIS CHICAGO OFFICE BUILDING DESIGNED IN 1886, BY HOLABIRD AND ROCHE ARCHITECTS, ERECTED DURING 1887 AND 1888 AND COMPLETED JULY 1 OF THAT YEAR, WAS THE FIRST HIGH BUILDING TO UTILIZE AS THE BASIC PRINCIPLE OF ITS ENTIRE DESIGN THE METHOD KNOWN AS SKELETON CONSTRUCTION. IT WAS A PRIMAL INFLUENCE IN THE GENERAL ACCEPTANCE OF THIS REVOLUTIONARY PRINCIPLE, BY WHICH A METAL STRUCTURE, FABRICATED LIKE A BRIDGE, IS DESIGNED TO CARRY THIN MASONRY WHICH SERVES ONLY AS A NON SUPPORTING ENCLOSING WALL. TACOMA BUILDING, 1888-1929 THUS BECAME THE TRUE FATHER OF THE SKYSCRAPER.

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VOLUME XVII
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FIRST "SKYSCRAPER"

Buildings record the culture patterns of their eras, but past times and the resulting buildings are not always correctly understood. For example, just as the not-so-"Gay 90's" were a decade of hardship following the business "panic" of 1892, so the 1880's, which had recovered from the depression of 1874-1879, were a decade of prosperity and adventure.

And the 1880's produced the skyscraper!

by WILLIAM GRAY PURCELL

IF WE AGREE that the social mind shapes the art of its day, before we examine the American Tall Building as a new and revolutionary economic utility, let's first have a look at its source and origins.

The two major excitements of Chicago in 1888 were the fast elevators and the polished drug store of the "modern" Tacoma Building, opened to the public on July 1. Cigars and "ice cream soda water" led the sales. Unknown were tooth paste and universal laxatives for old people "over the age of 35." It was the entrance to this drug store from the elevator lobby, with full glass panel doors set in an all plate glass wall, which was the startling novelty. People said, "Why, that store has the very latest wrinkles!" The soda water fountain was the most elaborate in town. Not boys, but men "mixed" the "soda water." They had moustaches and were very elegant and important, the first to be seen with starched white coats. No food was sold. The "sundae," of silly spelling, was not to appear until 1894. About that time some "fresh guy" who just wanted to be different, had asked for a crushed strawberry ice-cream-soda without any phizz, and that began it. But fruit-on-ice-cream was on the way. "Crushed fresh strawberry ice-cream-soda," nothing abbreviated, was the most elaborate offering to be had across the rich red African marble counter. The strawberries were ladled into flaring thin glasses out of a thick cut glass bowl sitting on the counter, later to be supplied with a hinged silver cover. I recall my indignation when our gloomy drug clerk in Oak Park served me cooked strawberries for my nickel.

About 1898 hot chocolate from silver urns appeared in October on drug store counter ends and in 1899 an-

other great novelty — milk was let into the phizz valve and out came foam cream to fill up the whole glass — "Creamo" was the word.

The aggressive, objective, psychological sales procedures of 1950 were undreamed of. There was a general customer conservatism still at work and merchants followed the pattern. Business men drifted along or stumbled into something new to sell, and new ways to sell it, with unselfconscious deliberation. The advertisements in any old bound volume of an 1880 magazine show a naive sales world, without benefit of professional advertising counsel. Unfortunately most magazines remaining from those past days are bound without the advertisements, now generally acknowledged to be the most potent part of any publication. There were very few "advertising agencies," Lord and Thomas of Chicago, founded around 1880, being one of the first. They were just commercial "agents" who took orders, placed "ads," collected the price, offered little advice.

Returning to the Tacoma Building, it is interesting that it's name coincides with a tremendous western real estate boom just prior to the bust of 1892, during which Seattle and Tacoma were battling for first place on Puget Sound. Both struggled for and against retaining the name Mt. Tacoma on their big snow-capped mountain, now officially Mt. Rainier. In Chicago every one was investing in Puget Sound real estate "flyers" — "Tacoma the Chicago of the Pacific Coast."

In 1902 the Tacoma Building still had lots of charm for me in novel equipment and lavish architectural detail. In elegance throughout it was still many years ahead of its day. That summer I went "in town" from Oak Park every Saturday noon to take the week's drafting work of Oak Park Architect E. E. Roberts up to the sunny 13th floor for blue prints. There they also

made hectograph prints on large moist clay table tops.

Those fancy Tacoma elevators, with open work iron grille cabs and open shafts, so you could see cars scooting past, down and up, provided a vivid sense of their new high speed. To start the car, elevator "boys" no longer dragged down on speeding, oily, wire control-cables grabbed with a square of leather. Instead, in blue broadcloth with gold braid, professional operators gentled a temperamental nickel-plated shovel handle affair, wigwagging out of the car floor. Expert — and proud of it — they hit the floor level every time.

Men's toilet rooms for the entire building were concentrated five steps above the 13th floor level over in the northeast roof area. They were indeed astonishing, the subject of much codgery humor. They had all marble stalls and walls, with large plate glass mirrors, even larger than the Palmer House Barber Shop. The women were inconvenienced on the 12th floor directly below but, in 1890-96, there were not many women in offices. My father and his two male bookkeepers did their own typing on a Caligraph typewriter, very popular then with a dozen rows of keys and no shift, precursor of the later Smith-Premier, still well liked in Europe. Business letters were brief and copied in a tissue paper copy book with a big iron wheel press. Entering the copied pages in the index at the back was the office boy's daily chore. He finally lost his job to carbon paper and good telephone service. Father had no lady typist until 1898 when sixteen-year-old Mary Dailey with two long braids down her back came to sit beside his desk and continued to serve our family for fifty years.

Such were the people who were ready to be surprised and delighted with the "World's Fair" of 1893 and its Golden Doorway of Transportation. This was a symbol for all, of prosperity in the fabulous West. Then there were the Whaleback Steamships, the Ferris Wheel, Moving Sidewalks and, most marvelous of all, "The Chicago Skyscraper" only five years old.

TWO 1880 BUILDINGS, the Home Insurance Building by Architect W. B. Jenney and The Tacoma Building by Holabird and Roche were demolished in 1929 and 1931. This opened a controversy not yet settled. Here are the facts.

A committee of architects appointed in 1939 by the Estate of Marshall Field, Sr., issued a report, with diagrams and photos, intended to prove that Home Insurance Building, Chicago, by Col. Jenney was the world's first building with a self-sustaining and wall-carrying metal-fabric structure. Even within the report there was too much evidence that this conclusion was not justified. A Civil Engineering Committee later

◆ More about Steel Age Architecture and the man who first recognized the Machine as a part of Building will be found on page 22. ◆

brought in a similar report to the same effect. Not only did neither body prove its case but it appeared to me that there may have been a considerable factor of business and prestige pressure upon these architects and engineers. Marshall Field wanted his new building to stand on the site of the first "skyscraper" and the committees appear to have accommodated their views to his ambition. Letters of the moment written to expedite opinions often drive their points to make meanings come alive. Let me first outline the situation by quoting two letters.

Letter from William G. Purcell
to George Grant Elmslie

Pasadena
May 26, 1939

Dear George:

The muddy thinking characteristic of architectural analysis where it operates under special pressure, professional, business or historical, is well illustrated in that pamphlet on the "Origin of the Skyscraper" to which you refer. I intend to write a review of this pamphlet but here are two points doubtless obvious to you also at first glance.

The engineering concept implementing this building is not that of a metal cage supporting, story by story, enclosing curtain walls of thin masonry. It is plainly solid brick and stone construction with cast and wrought iron reinforcement, improvised as the project grew and constantly presenting new and difficult structural problems which were ingeniously and successfully solved.

Isn't that what you see in those demolition pictures?

Look again, page 32, second column, fourth line, where Major Jenney says, "A cast iron column was *built into* each of the *masonry piers* in the street front." I ask you, was Mr. Jenny only trying to make his *masonry piers* as strong as he could, or was he, as the Marshall Field Committee alleges, hanging protective masonry on a self-supporting and self-braced steel frame? The photographs and the structural details plainly show a masonry structure. Even in December, 1885, with the building completed he did not know what his clever building portended. Today we can see that this construction foreshadowed the inevitable self-supporting steel frame construction but that was neither the engineering intention nor its method of construction.

See the picture on page 21 where a small square cast iron column is seen, during demolition, to be supporting a few cubic feet of brick masonry which clings to it. Well, naturally, George, when they were taking down the building the brick piers ceased to support that which was no longer resting upon them and their reinforcing metal naturally had enough strength to hold up a cubic yard of rubble. This no more proved the building to be steel frame construction than the natural bridge of Virginia is necessarily a true arch; it might easily be two cantilevers.

The more I study this document, the more it appears empty of any sound sense.

Aff., W.G.P.

Excerpt from George G. Elmslie
to Lewis Mumford

Chicago
October 30, 1941

Dear Mr. Mumford:
(In part:)

"Please note this also. It is first hand information. The Auditorium Building as first designed by Sullivan was a very elaborate and sumptuous affair in terra cotta with bay windows

(Continued on Page 34)

*THE ORIGIN OF THE SKYSCRAPER, Architects Committee for Marshall Field Estate 1939. Ralph Fletcher Seymour, Publ. 410 S. Michigan Ave., Chicago. Out of print.



Serviceable comfort keynotes the lounge area of the chapter house.

Alpha Rho Chi

Members Design Fraternity's New Home

By GLYNNE W. SHIFFLET

In 1950 the Alumni Association of Alpha Rho Chi Professional Architectural Fraternity decided to sell the old duplex building being used temporarily as a fraternity house and build on its adjoining property, at Fulton and Ontario Streets, S.E., Minneapolis. The proposed building was to provide living quarters for the architectural student members of the fraternity and also serve as a clubhouse for local architects and allied art groups.

What happens when two hundred men schooled in architecture try to agree on what to build? Every scheme, idea and suggestion, many of which came from members throughout the United States, were studied by a design committee until a majority agreed on a simple, contemporary building, half clubhouse and half living quarters, with provisions for an additional future dormitory wing, as the solution to the problem. The process of arriving at this agreement took until August of 1952 and no job could have had as many critics, for nearly every member was connected with the construction industry. The active chapter, consisting of architectural students who would live in the house, presented many stimulating ideas and the design committee encouraged their interest in every phase of the work as part of their architectural training.

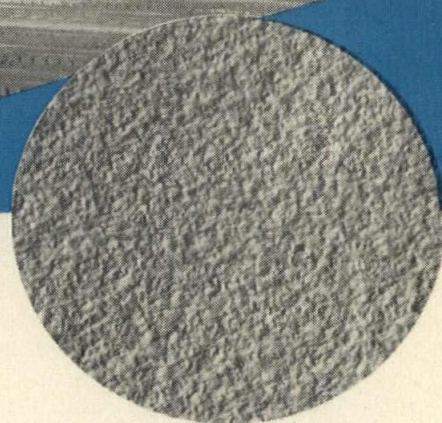
The final plans, prepared under the design committee's supervision, provide for a split-level arrangement consisting of six double sleeping rooms with built-in wardrobes and cases, two bathrooms for men, a guest toilet room, a combined chapter and dining room adjacent to the kitchen, a large lounge with a card room alcove and the entry hall. A masonry wall runs the length of the building on both floors, effectively separat-

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Sound-quieting treatment for schools...



Bloomington School, Bloomington, Minnesota... one of many school buildings constructed with sound-quieting Vercoustic.



Here is what Vercoustic looks like when applied. Notice that it has an even-grained texture.

Another **VERCOUSTIC** application

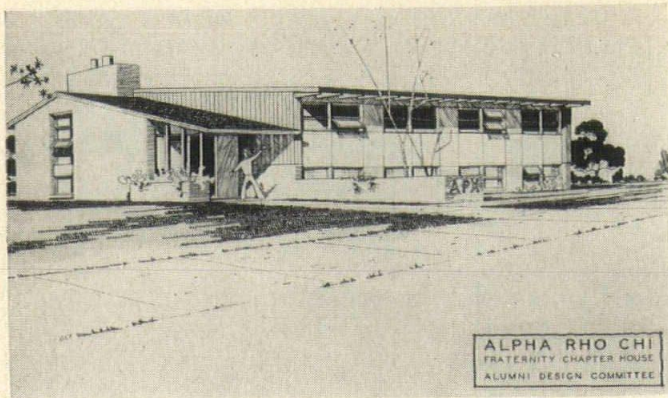
Vercoustic, the vermiculite plastic sound-quieting material, is being applied today in a wide variety of new buildings. Ideal for reducing disturbing noises in schools, hospitals, libraries, offices, and public rooms, Vercoustic is equally effective for improving the acoustics in theaters, auditoriums, and churches. Vercoustic

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ing the quiet dormitory area from the social and service areas. The overall dimensions of the house, exclusive of the future dormitory section, are 57'-0" x 41'-0" and it is built on two floors. Brick walls, natural wood paneling and glass are used extensively throughout the building with an eye to maintenance as well as a pleasing design.

The entrance is at grade level and is on the half level between the lounge floor and chapter room. A large fireplace separates the entrance area from the lounge. Both of these areas have natural finished plank ceilings with exposed wood beams. The lounge area has one complete wall of glass which opens up on a balcony and is planned so as to face on a "Memorial Garden" in the rear yard. This garden and other landscaping are now being planned by Morten Arneson and will be completed this summer.

The fraternity house was constructed by the Dean L. Witcher Construction Co., T. D. Gustafson, plumbing and heating, and Harris Bros., electrical work and fixtures. A list of sub-contractors and manufacturers and the products used in the building will appear in a booklet that will be distributed to the entire membership.

A partial list of suppliers, manufacturers and their products used in the new Alpha Rho Chi fraternity house included:

Twin City Brick, brick and tile.

Pella Products, Folding Doors.

Bartley Sales Co., Pryne & Co. Inc., vent fans and door chimes.

Neal Slate Co., slate hearths and bulletin boards.

The architect's drawing at the left shows how the completed house appears, combining within its walls the ideas of hundreds of architects.

Chamberlin Company, weatherstripping.

Rich-McFarlane Co., cut stone.

Crown Iron Co., iron work and railings.

Palco Company, Palco redwood.

Libbey-Owens-Ford Glass Co., Thermopane double glass.

Anderson Corporation, all windows, both Flexivent and casements.

Insulation Sales Co., Kernerator Incinerator, Good-year Rubber Tile and Tile Tex Asphalt Tile.

Northland Electric Supply Co., Litecraft electric fixtures.

Luedtke Bros., hardwood flooring.

Conroy Bros., plastering.

Rainville-Carlson Co., roofing.

Warner Hardware Co., Schlage finished hardware.

Roycraft Company, American cabinets for kitchen.

John Rysgaard Co., painting and decorating.

Grazzini Bros. & Co., ceramic tile work.

Roland Millwork Co., millwork.

Stewart Lumber Co., lumber.



The picture above shows the windows at the rear of the lounge and demonstrates style and material usage in the structure.

INDUSTRY AND CITIES LINKED IN EMERGENCY PLANNING

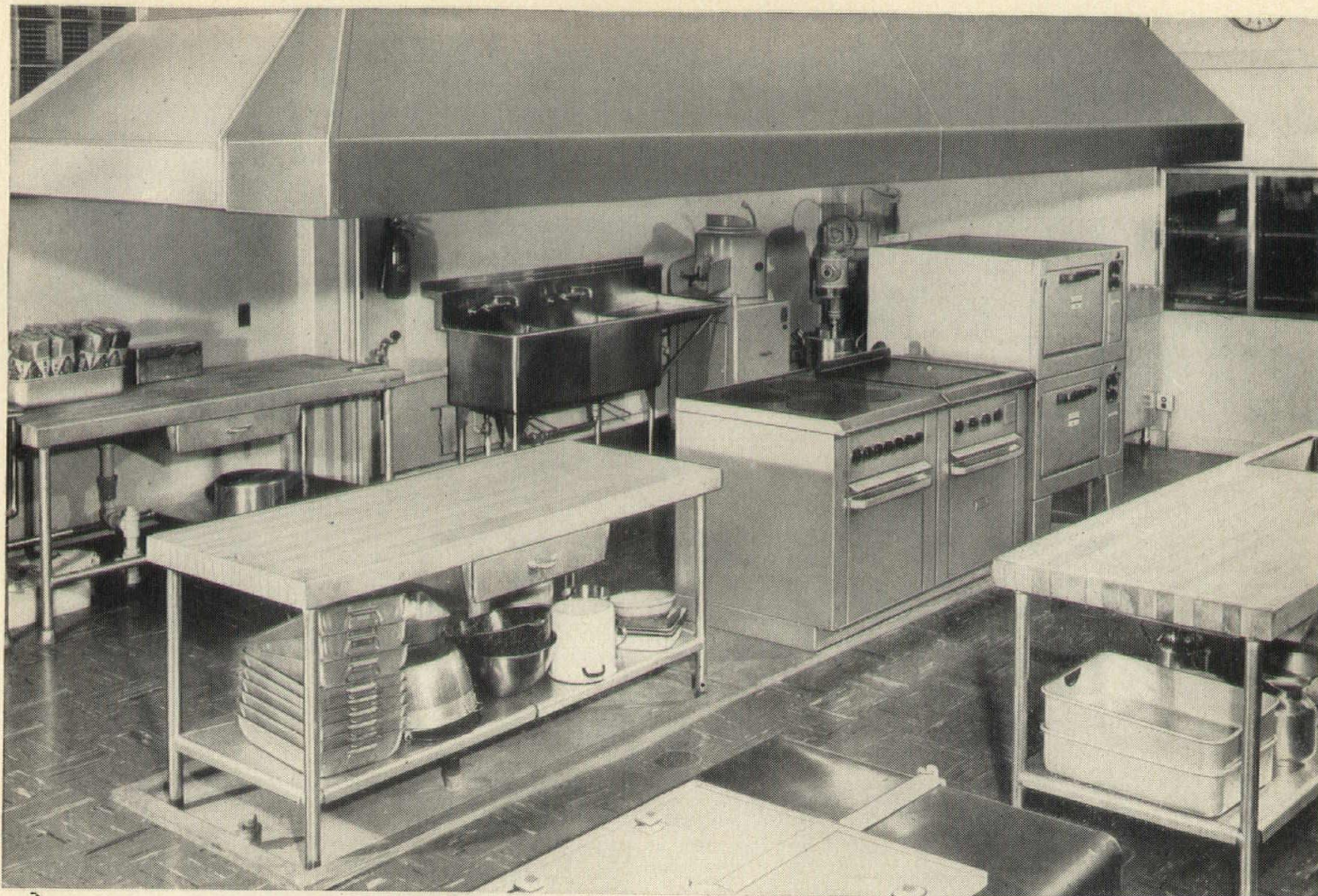
Location of convertible and stand-by defense plants should be where cities already provide manpower, housing, public utilities, transportation, et cetera, K. T. Keller, chairman of the board, Chrysler Corporation, said recently.

Speaking before a group of industrial relators, he placed a finger on some of the vital considerations Americans must watch as they balance their consumer and military economies to be prepared for any emergency while maintaining their record high personal economies.

"Research, development and production facilities for defense must be located physically in those places where

people are at hand who can provide the skills and manpower needed to operate them," he said. "When emergency expansion of pilot and stand-by facilities must take place, it can then occur with a minimum of shifting of people and without totally disrupting the lives of thousands who may be involved.

"Industries which employ very many people need to stay where great numbers of people live. People need water, sewers, light and power, services, amusements, supplies—in short, they need cities and their suburbs. We can't build cities to stand by with stand-by defense plants and we can't move whole populations to man them if the time comes to start them going!"



Clean, compact, efficient—the electric kitchen in the cafeteria of Minnetonka high school near Excelsior, Minn. Haxby, Bissell & Belair, architects.



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raw foods and labor which make up 75% of the total.

Cooks can cut meat shrinkage 5 to 15% by *accurate* slow-roasting, slash crippled runs, cut other food waste. The help is happier in the cooler electric kitchens. The maintenance staff has less cleaning and re-decorating to do.

No wonder schools—or any institutions—like electric kitchens, and architects like designing them. For further details on the latest in institutional cooking, call on our Commercial Cooking Section, Industrial Sales Department, MA. 6251.

Electric Cooking is thrifty and SAFE!

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the HOME of 2004



A new St. Paul rambler has been attracting attention of thousands of persons with its incorporation of latest construction savings ideas into a structure rich with the warmth of natural woods. Latest ideas of well-known architectural research groups and individuals were used to give impressive savings in construction costs while creating a home patterned for the ultimate in comfort and utility.

The ideas of the owner, Donald Lampland of the St. Paul lumber company, evolved over years in his contacts with builders and home owners, were worked into the design of the house by N. Holger Mortenson, AIA, St. Paul.

The house naturally makes great use of woods from the rich exterior siding of Palco redwood to the interior uses of redwood, vertical grain clear fir, knotty cedar, white gum plywood, oak panels, etc., in paneling, floors, etc. It is a most flexible structure, with the interior space patterned for the Lampland family of today. However, the exterior walls carry the roof weight through use of "W" trusses for the roof and so interior spaces can be rearranged with a minimum of work and disruption of house services.

The foundation of the house was given a great deal of thought and when it was laid all the associated services like plumbing, drainage, wiring and heating were provided for at the same time with a considerable saving in money and labor. The foundation is four feet high and there is no basement as such. Instead there is the four-foot crawl space allowing for access at all times to the lines and pipes in that area.

Plumbing was installed before the floor was laid and pipes were routed in straight lines, being thrust up through the floor level before the floor was laid. This made a saving as the flooring was then laid around

Lumberman's Residence Spotlights Latest Building Procedures

the pipes. Wiring and heating ducts were similarly installed before the floor was laid and made further savings in labor. Most of the wiring was brought in under and up through the floor to outlets although some also was run through the attic space and down to switches, etc.

There are no return ducts on the furnace of the home. The gas burning, forced air furnace is in a pit in the center of the crawl space. Straight ducts, which save material and lower heat loss, lead to peripheral louvers in the floor. Warm air is circulated by the fan and returned through central louvers directly to the enclosed crawl space. This air cannot escape, is used again as it is drawn into the furnace.

No basement floor was needed in the crawl space. A vapor barrier of paper was laid on the earth floor. Center posts are the only obstruction in the area.

The floor was laid throughout the entire house before interior walls were placed. This required but a little extra expenditure for flooring, more than offset by the reduction in fitting. This allows for the interior walls being moved later. These are fastened by nails to the floor, exterior walls and ceiling but the nails are not completely driven, allowing enough of each nail to

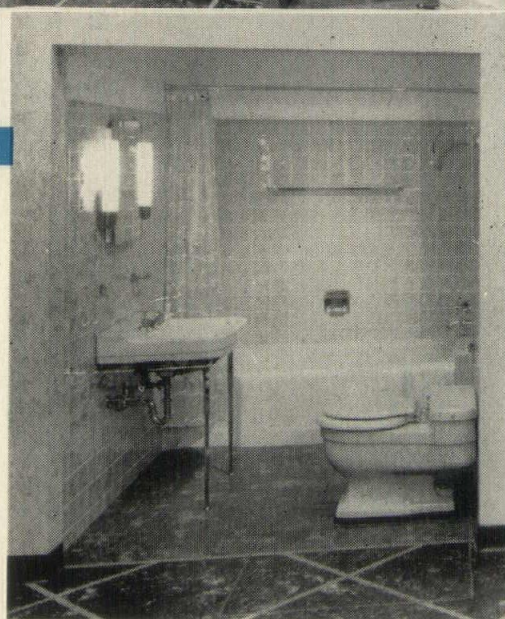
(Continued on Page 13)

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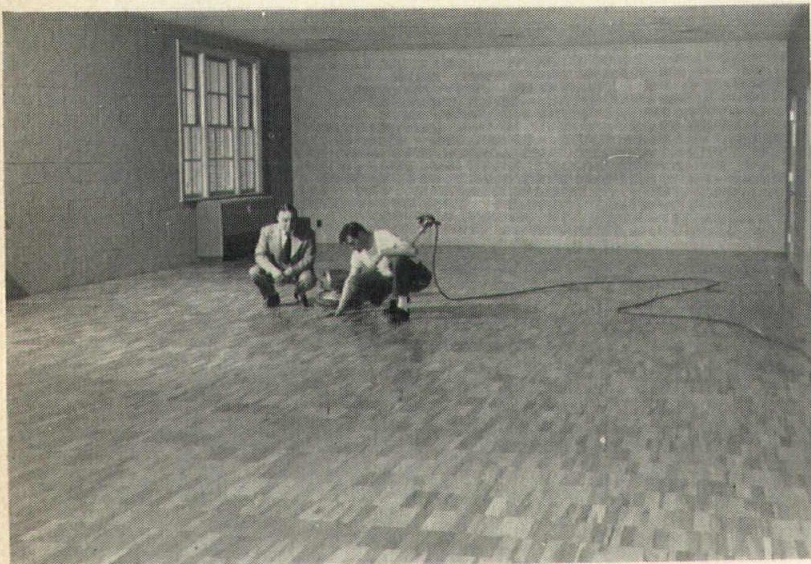
"LAYTITE"

FLOORING

Second Grade Maple Flooring

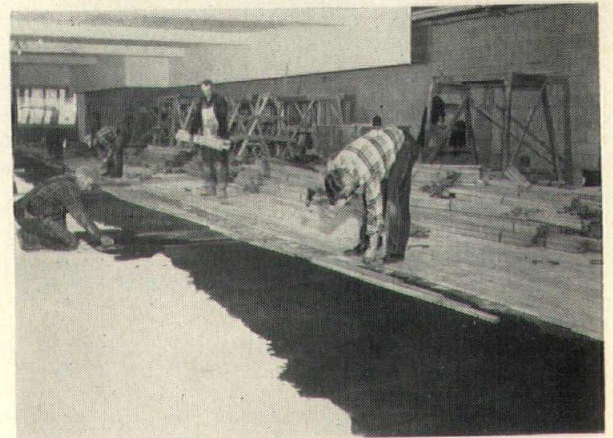
Elgin National Watch Co., Lincoln, Nebraska

"Laytite" regular strip flooring—25/32" ds x 2 1/4". Second grade MFMA used installed over sleepers imbedded in insullite concrete. Sleepers attached to bar joist using welding clips, affording sound nailing screed 12" on center. Second grade flooring nailed in place with 8d Screw-Tite nails. Sanded and finished with two coats of *Gerrard's No. 30 penetrating floor sealer*. Buffed with steel wool machine while wet. All excess sealer buffed into wood for complete penetration, assuring ease of maintenance.



University of North Dakota Field House and Gymnasium

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"Laytite" regular strip flooring 33/32"x 1 1/2" second and better grade, nailed on screeds imbedded flush with concrete fill, smooth trowel. Nailed with 8 penny Screw-Tite nails. Procedure eliminates use of paper and other water-proofing material, as No. 1034 mastic takes care of any water proofing and vapor-barrier. Affords ample sound-proofing as well as water-proofing, with sufficient resiliency, long wear, will not develop squeaks as there is no sub floor. Bearing is not only on the screeds but on mastic between screeds as well.

For the best in Maple Flooring specify "LAYTITE" M.F.M.A. Manufactured by Connor Lumber & Land Co., Marshfield, Wisconsin. Mills at Laona, Wisc., & Connorville, Michigan.

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extend to be grasped by the claw of a hammer. When space rearrangement is desired, the nails are drawn until the wall is freed. The wall is then shifted and the nails redriven. Rewiring is done simply at the same time as the wires can be drawn up or down out of the wall.

The "W" trusses used in the house are of great interest. Data showed that 28.4 per cent less lumber was required than for conventional framing. Building techniques further made a saving by reducing man-hours 36.8 per cent through lap joining instead of butt joining, assembly on the ground before lifting trusses into position, metal shear rings used to join key parts of the truss, saving nailing time, metal brackets to fasten trusses to house. These trusses can be continued on a lateral line indefinitely, providing easy future expansion of the structure.

The house makes good use of grouping principles. Major divisions of the quarters are made into kitchen-utility-playroom, living-dining and sleeping areas. Within these units grouping is continued, for instance, in the kitchen food storage starts a line which passes to the counters, cabinets and equipment used in food preparation, thence to food cooking equipment and then to serving. The utility room also is patterned for line production of efforts. Closet and other storage space is large and integrated with the parts of the house where facilities for those parts are stored.

Other features of the construction continue to indicate the planning—pressure creosoted lumber is used where it touches masonry, the entire frame is securely bolted to the foundation, attic ventilation is of the best, etc. All in all, the house demonstrates how the architect can utilize the latest research information to make definite savings in investment and time while providing his clients with the finest in living facilities.

BUILDING A PERFECT RUIN

Designing, engineering and constructing a "perfect ruin" is one of today's most unusual architectural assignments. It has been done.

The intentional ruin was a rescue training center to be used in training atomic bomb era rescue teams. It is at the Federal Civil Defense Staff College, Olney, Md. The complete street simulates exactly the ruins of stores and buildings, streets with gaping holes, walls seemingly teetering, rubble heaps, dirt, broken glass, concrete masses and all the leftovers from an aerial bombardment. But the whole project is as safe as engineering and planning can make it, so training can be real without dangers of collapse of half blasted walls, etc.

Basis for the planning was a group of destruction studies made in high-level bombardment areas in England and Germany and at the atomic bombing sites of Nagasaki and Hiroshima. Units on the street are typical of buildings found in those parts of the United States which are the most likely bombing targets, especially for A-bombs.

Mild "punishment" is provided where the trainee does not do the right thing and takes the form of a mild electric shock instead of a killing voltage or landslide of smothering rubble.

Enduring Beauty

Tile • Marble • Alberene Stone

"THERE IS NO SUBSTITUTE!"

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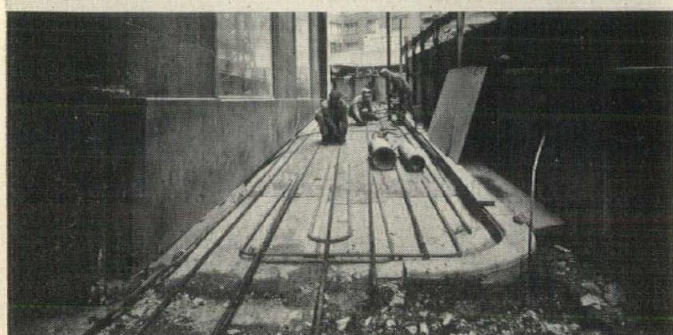
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SNOWMELTER

Rings Entire Hotel

Winter Hazards Out Permanently at William Penn Hotel as Radiant Pipes Condition Walks



Shortly after the Eppley Hotels Co. of Omaha, Neb., purchased the William Penn Hotel in Pittsburgh, Pa., last year, the new management awarded a contract for one of the nation's largest and most interesting snowmelters. The installation cost about \$80,000 and involved between 9,500 and 10,000 square feet of sidewalk, for the hotel occupies an entire block in Pittsburgh's celebrated downtown "Golden Triangle."

The heating system was designed by Theo. F. Rockwell, consulting engineer of Pittsburgh, to furnish 120 BTU's per square foot per hour. There are eleven separate coils, or sections, to reduce the problem of thermal expansion and the total friction of water flowing

through the pipes. The system starts automatically when the sidewalk temperature falls to 37° F., and anti-freeze in the pipes protects them to 20° below zero. The snowmelter was installed by The Trimble Co., well-known general contractors of Pittsburgh.

The first step was to remove the old sidewalk down to the structural slab that forms the sidewalk vaults. New curbing, two feet high and eight inches wide, was then put in. Two plies of roofing felt waterproofed with pitch were placed for a vapor barrier in the sidewalk area.

Vermiculite concrete was used as an insulating base to retard heat loss to the ground and into the building.

Over the vermiculite concrete insulating base of the hotel sidewalk (shown being laid in top picture) was placed waterproof paper and the radiant heat pipes (middle picture). The finished non-skid sidewalk, with the corner compass points shown, is in the bottom picture. Special trowels were used to give the sidewalk a patterned surface.

The mix was 1:4 (1 part Portland cement to 4 parts vermiculite concrete aggregate) and the slab is about 1½" thick. This was covered with building paper on which the piping was laid. Both steel and wrought iron piping were used, each type 1" in diameter spaced about 12" o.c. The sidewalks are not of uniform width.

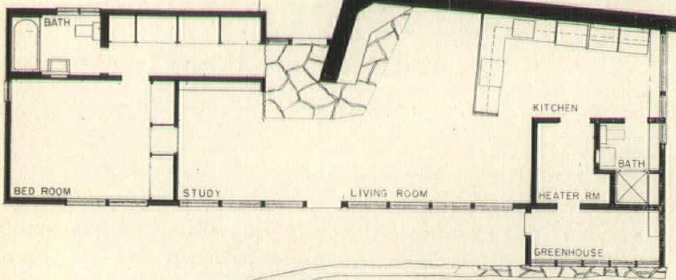
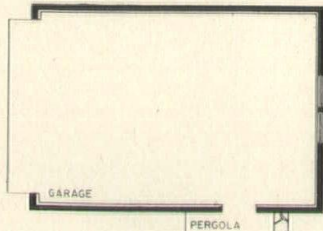
Over the pipes went a 4 x 6 wire mesh, then four inches of regular concrete 1:3:6 mix. One-inch mastic expansion joints were placed every 50 feet in the sidewalk, and about every 20 feet in the curb.

A special non-skidding topping, 1¼" thick, was used for the finish. Colorandum, mixed with the sand and

(Continued on Page 38)

NORTHWEST

Residence of Architect
James A. Brunet
Carver Beach
Route 4, Excelsior

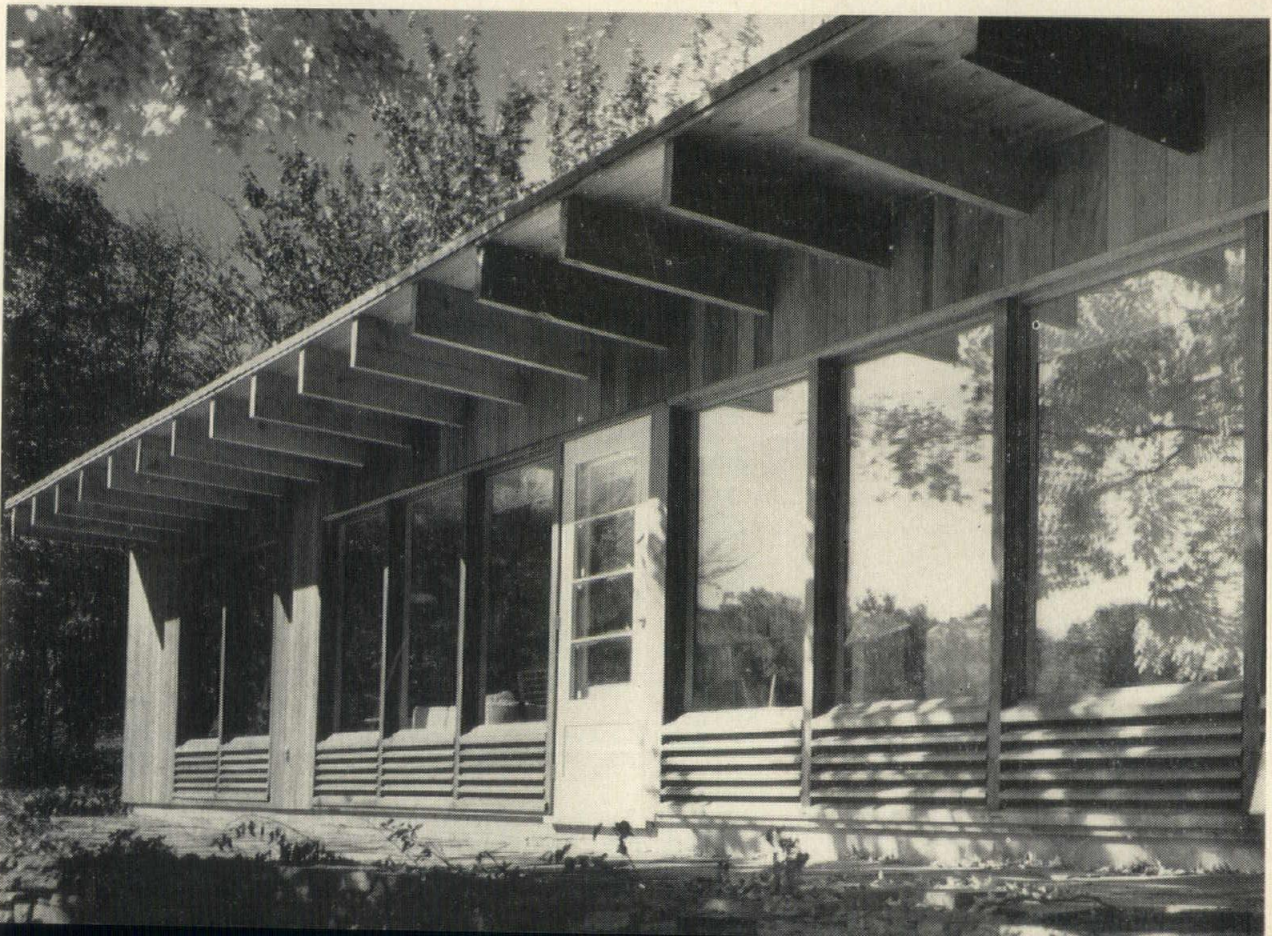


Photos by Merle S. Morris



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Mr. Purcell

PURCELL and ELMSLIE

Works to be Shown in March Exhibit

at the

Walker Art Center



Mr. Elmslie

By DAVID S. GEBHARD

An exhibit of the architectural works and projects of the pioneer American firm of William Gray Purcell and the late George Grant Elmslie will be held from March 7 to April 24 in the Walker Art Center of Minneapolis. The exhibit will cover the works of the firm from the year 1909 to 1922. Photographs, drawings, details, metal work and furniture will form the basis of the exhibit.

The fact that an exhibit such as this is to be held is in itself an encouraging sign. Since the end of the Second World War Americans have slowly come to the realization that an indigenous architecture has existed unnoticed for a number of years. Messrs. Purcell and Elmslie were not only major participants within this

tradition but helped to establish some of its basic standards and concepts.

For us today, the real value of their work is to be found not only in their participation in our American heritage but more essentially in the fact that within their buildings can be found the kernel—the seed—of an architecture which is truly and honestly American in character. Perhaps by experiencing their work we can form a clearer basis for judgment and criticism of our own contemporary architecture.

Mr. Purcell is an associate editor of *NORTHWEST ARCHITECT* and a regular contributor of discerning articles on architecture. A catalog of the Walker exhibit is attached as an insert in this issue of the magazine—see insert between pages 18 and 19.

COLOR HINTS AID HOME DESIGNERS

Value of color design in making modern construction interesting was accented recently by a talk by William S. Pusey of the University of Illinois.

"Color is a powerful force in housing," he said. "It is the first thing a person notices and the thing he remembers longest about any object. In housing, it is color—not roof lines or siding material—that makes one house stand out from another."

Mr. Pusey listed a number of suggestions for designers which would aid in proper color use. He included:

For white houses, don't outline windows in bright color. This use of color produces a choppy appearance. A house with a dark, rich body color is usually improved by the use of white trim, especially if the trim and siding are of different materials. Too many changes of material and color make a house look smaller. No one ever bought a house because it looked smaller than it really was.

A tall house can stand to be broken up by the use of colored panels which cut down the apparent height and improve the proportions of the house.

When color is being selected for a development, individual houses should look as if they belong with the

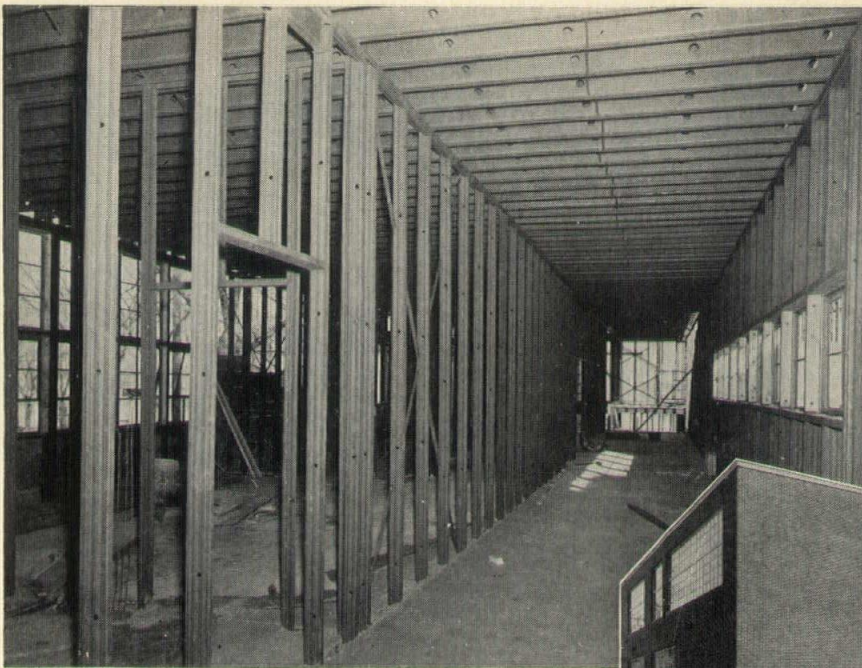
others. The colors may either harmonize or contrast, but they shouldn't clash.

Use your site plan in selecting color for all your houses. Take colored wooden blocks to represent houses, and move them around on the plan until you have a color arrangement that looks good.

Color on the inside of the house is just as important to the prospective buyer as exterior color. Various shades of grays, eggshells, sand tones and off-whites can form backgrounds for any color of furniture and draperies that the buyer can find. Large areas of white kitchen cabinets and equipment look best when backed by vermillion, yellow, brown or maroon walls. These are warm colors and they will make the cabinets seem less cold.

If you want a wall to recede, paint it a cool color—either light or dark.

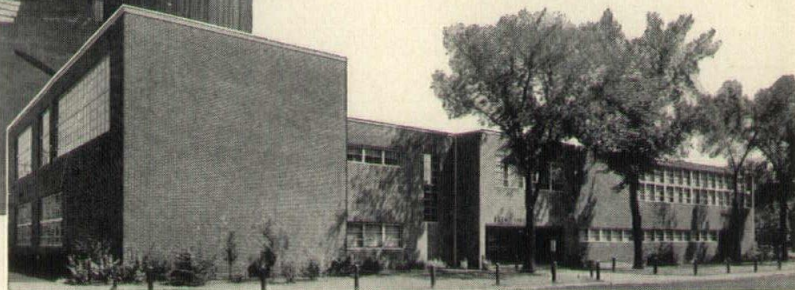
If a room seems too long for its width, bring a wall forward by painting it a warm color. When a room is on the north with little natural light, paint it in bright colors. Cool, dark color is best for a wall that receives direct sunlight. Ceilings appear to be higher and the room better lighted, if ceilings are painted white."



Drew Fine Arts Building, Hamline University.

Architect—Herbert B. Crommett.

Contractor—Geo. J. Grant Construction Co.



FRED MURNANE

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FRED MURNANE

Geo. J. Grant Construction Co.

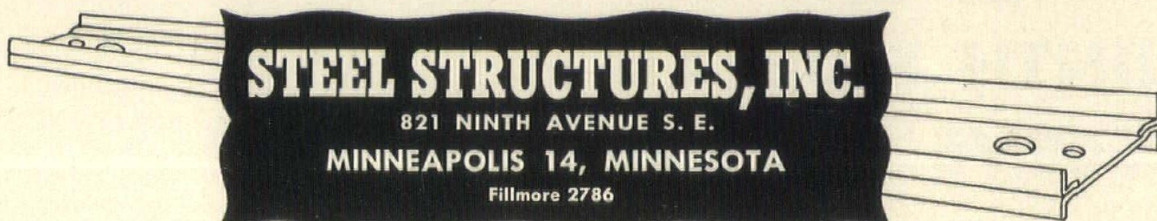
Stran-Steel consists of pre-fabricated steel joists, studs and plates pre-cut to exact lengths and factory-punched for pipes, wiring conduits, and screws. With conventional materials it is necessary to hold up construction at various stages so plumbers, and electricians can get their pipe and conduit in. With *Stran-Steel* the entire building can be framed and closed in without delay. Plumbers, electricians and other tradesmen may then start and complete their work without costly interruptions.

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An area's building industry depends directly on the economic expansion and development of that area. Realizing this, architects of the Northwest, which is covered by the federal government's Ninth Federal Reserve District, try to keep abreast of the new resource developments occurring in the region so they can plan ahead in step with expansion of their areas of operation. We are pleased, therefore, to present here some notes prepared by Oscar F. Litterer, business economist of the ninth, following a recent discussion of "what lies ahead" at an Institute of Technology meeting presided over by Walter Wheeler of Smooth Ceiling System, representing the sponsoring group. Also taking part in the discussion were Oliver Powell, president of the reserve district, and Clarence W. Nelson, assistant economist. We hope to be able to present further material on the burgeoning taconite and oil industries in one of our early 1953 issues . . . the editors.

An Area Only Goes Forward If It Has a Good Background for Its Progress

NATURAL RESOURCES OF THE NINTH FEDERAL RESERVE DISTRICT

In a discussion of natural resources, I shall discuss some economic phases of the utilization of natural resources in this region. At the Federal Reserve Bank we are interested in the volume of business transacted in this district and the volume of business transacted depends, in a large measure, on the level of employment in our basic industries. In the final analysis, economic factors govern the growth of our basic industries. The relationship between the costs involved in extracting or processing natural resources on the one hand and the market prices of these finished products where they will be used on the other hand determines the expansion in the basic industries.

In the past 15 years the economy of this district has expanded but at a smaller rate than in other regions of the United States. We have had a large supply of labor seeking employment but insufficient opportunities for employment.

A few words on the nature of our economy. Agriculture is the major industry in this district. In manufacturing, the largest single industry is meat packing—that is, processing of an agricultural product, namely, livestock. Flour milling was an important industry but in the 1947 Census of Manufacturers it was down to 8th place. Printing and publishing is now in 2nd place. The economic trend has been away from agriculture toward more manufacturing. It is not that agriculture is less important now than it was 15 years ago—more food is being produced now—but manufacturing has expanded more.

In the last 15 years, this district has witnessed a revolution in agriculture. Farming operations have been mechanized. Tractor power and rural electrification have made possible the mechanization of farming operations. As a result of the mechanization of farming operations, farmers raise an increasing quantity of food with less labor. In this district, there are now close to 20 per cent fewer individuals employed on farms than there were in 1940 and, at the same time, farmers are raising more food than ever before. The employment in the basic industry sets the level of activity in the supplementary industries, such as wholesaling, retailing and services. With a decline in rural population, there has also been a decline in the opportunities for employment in the smaller towns serving farmers.

Farm-City Migration Sets Record

The labor moving from farms and small towns has resulted in one of the largest interstate migrations ever recorded in history. This migration was from farms and small towns to the industrial centers. There was some migration to the industrial centers of this district but the greatest migration was to the industrial centers outside of this district.

This district has had an expansion in manufacturing since 1940. In comparison with other Federal Reserve Districts, the expansion in manufacturing has been at a smaller rate. The expansion is found in costs and the geographic location of markets. The concentration of population in the southwestern and western parts of the

Purcell and Elmslie, Architects

by David S. Gebhard

American architecture has always seemed outwardly derivative or eclectic. But there have been periods and areas that have manifested what seemed to be some peculiarly American or regional characteristics, that might be the basis for an American tradition. This would seem to be what lies behind the architecture of the middlewest.

In the mid-eighteen nineties this direction found a congenial medium of expression in the hands of Louis Sullivan and later in the works of Frank Lloyd Wright, Walter Bury Griffen, George Maher, William Drummond, Robert Spencer, Charles White, and in the Minneapolis partnership of William Gray Purcell and George Grant Elmslie. Perhaps even more than any of the mid-western architects, Purcell and Elmslie understood the American spirit and attempted to express it in all of their buildings. Through them they aimed at serving the American democratic tradition. Within this tradition no attempt was made to diminish the individual by the gigantic and the monumental. Instead, an effort was made to bind the structure and man into close unity. In harmony with this democratic tradition forms honestly expressed the structure and its purpose.

The democratic objects of Purcell and Elmslie were also manifested in their methods. They always held that the task of building was not that of a lone genius, but the coordinated effort of a number of men. Their partnership was not that usual arrangement of businessman and draftsman. Both the partners contributed, in every sense of the word, to the completed building. The men who intervened between the architects and the completed projects were permitted to contribute not only their respective skills but with their artistic sensibilities.

George Grant Elmslie had worked sixteen years with Sullivan, first under the Adler and Sullivan firm, and then with Sullivan alone until 1909. This experience was for Elmslie a period of assimilation and preparation for his later development. In his last years of collaboration with Sullivan he made his own significant contribution in such works as the Babson house at Riverside, Illinois (1907), the bank at Owatonna, Minnesota (1907-08), and the Bradley house at Madison, Wisconsin (1909). Early in his apprenticeship Elmslie mastered the technique and spirit of Sullivan's ornament, and much of the later ornamentation, such as that on the Carson-Pirie-Scott store in Chicago (1899-1904) was from his hand.

While this ornament of Elmslie is without question both unique and original, it was by no means his major

contribution either in his work with Sullivan or later with Purcell. As a superb draftsman, probably unequalled by any of his contemporaries, Elmslie was able to work out wonderfully imaginative floor plans and elevations. His method was not that of a preconceived exterior pattern to which the floor plans were adjusted; he worked from the plan to the elevation. It is for this reason that most Purcell and Elmslie buildings were successful functional buildings and still are today.

William Gray Purcell received his formal architectural training at Cornell University, but his real architectural education started much earlier, with his residence near Frank Lloyd Wright in Oak Park. His schooling was a training in technique; his underlying architectural philosophy—his artistic character—had already been formed. Although he worked for only a short period of time in Sullivan's office (1903), he came to know and understand the master and to form a close and lasting friendship with both him and George Elmslie, his future partner. Purcell learned to design with a sure grace and ease during these years, but always in the background there was his concern with the mission and the needs of the structure. Along with his concern for the function of the building was his ability to relate a structure carefully to its site, through its plan and by a masterful handling of materials.

Purcell's partnership with his friend George Feick, Jr. in Minneapolis begun in 1907, was in actuality a threefold partnership. The correspondence during these years between Purcell and Elmslie shows the interplay of ideas and criticisms which was to dominate a good share of their productive lives. The formation of their firm in 1909 was only a legal recognition of a partnership already long established.

While it is possible to discern the dominant influence of one or another of the partners in every building they did, the works produced were nonetheless the result of a cooperative venture. This was true not only in the case of the two partners (Feick left in 1913) but also included the other members of the firm, such as Fridrick Strauel, Lawrence Fournier, and Marian Parker, and utilized the criticism and contributions of John Jager.

When Sullivan said that the neo-classicism of the *Chicago World's Fair* (of 1893) would capture the American interest for a number of generations he spoke prophetically. Considering the subsequent expansion of this new wave of pseudo-classicism, it is surprising and gratifying to observe that businessmen and especially

bankers were willing to entrust the designing of their buildings to Purcell and Elmslie. This departure from the conventional form was due partially to a new feeling of independence then prevalent, especially in the Middle West. In addition there was the fact that Purcell and Elmslie offered buildings which were dignified, functional, and comparatively inexpensive. The banking buildings the firm produced form one of its unique contributions to American architecture. Their concept of the small town bank goes back directly to Louis Sullivan and the Owatonna bank. The banks they built at Grand Meadow, Winona, Le Roy, Hector, Adams, Mitchell, and elsewhere in Minnesota were the result of an attempt to break down the characteristic prison-like formality, a stricture which persists in most banks even today. Their largest bank, The Merchants Bank of Winona (1911) was, perhaps, the fullest expression of their ideas. Roman brick was used both inside and out. The central banking rooms were flooded with light by two large glass window-walls and a partially glass ceiling. In some of their smaller banks, like that at Le Roy, Minnesota (1914), they were able to design what is in effect a small jewel box, beautifully proportioned and honest in construction.

Purcell and Elmslie's efforts in church architecture were not so successful as those in banking architecture, for few of their projects ever came into being. The one church built before Elmslie entered the firm was the Stewart Memorial Church of Minneapolis, built in 1909. This building displays a close kinship with Frank Lloyd Wright's Unity Temple, completed three years before in Oak Park. A comparison between the two buildings reveals, however, the basic difference between Wright and the Purcell and Elmslie firm. The Stewart church conveys a feeling of intimacy with God, while the Unity Temple symbolizes his cold monumentality. Their unaccepted project for St. Paul's Church in Cedar Rapids, Iowa (1910-12), was a significant step forward in church design. It was probably a more vital solution to the problem than Sullivan's original design, and the compromised Sullivan building which was finally erected is a poor commentary upon the judgment of the church committee.

The Woodbury County Court House in Sioux City, Iowa (1917), which was built with William Steele, is the only large government building constructed in the United States by the Midwestern "progressive" group. The Court House is dignified and, to a certain extent, powerfully emblematic of its authority and yet does not overawe the citizen. The court rooms with their walls and ceilings of glass and their warm-textured materials of wood, brick, and stone produce an effect of simplicity.

In its business and factory plans, the firm was able to realize only a few of its projects. Nevertheless, in the International Leather and Belting Company buildings (1917), two of which were actually built, they anticipated by a number of years the glass-walled factories

of the twenties and thirties. The Edison Shop building of Chicago (1911), was a direct and successful outcome of the Sullivan skyscraper designs of the nineties and the early nineteen-hundreds.

Purcell and Elmslie's most numerous realized successes were with dwellings. In a number of them they carried on the Sullivan tradition, and these houses display a close kinship with the Babson house and the first Bradley residence. The Bradley bungalow on the Crane Estate at Woods Hole, Massachusetts (1911), the Decker residence at Lake Minnetonka, Minnesota (1913), and the Hoyt house at Red Wing, Minnesota (1913), fall directly into this tradition. They are solid and dignified, and are enlivened here and there by light and whimsical features. Although these houses are similar in many ways, each represents an effort to adjust to the needs of each family and the individual character of its location. The wood and terra cotta ornament, the leaded glass windows, and other features were a part of the whole composition; that is, they were in no sense "applied ornament."

The firm also developed a simple basically rectilinear plan which was aesthetically sound, fitted the needs of its owners, and was within the financial means of the average person. The Hiline house (1910), the Owre residence (1911), and the Bachus house (1915), all in Minneapolis, are a variation on this general theme. While the Owre house is the most elegant example, the Bachus residence was certainly the most successful financial solution, costing less than three thousand dollars.

The Lockwood cottage, built at Lake Court d'Oreille, Wisconsin in 1913, provided one of the earliest experiments with modular design and construction, and has one of the first car ports ever built. In the Thomas cottage at Lake Minnetonka, Minnesota (1913), and in Purcell's own cottage at Rose Valley, Pennsylvania (1918), they experimented with and successfully solved the problem of large sliding glass walls, thus anticipating by a number of years the present concern with the close relationship between the interior of the house and its surrounding space.

The most outstanding house done by the firm was Purcell's own in Minneapolis, built in 1913. If one were to search for a significant example of modern domestic architecture, he would surely find it in this house, with the artful flow of space, its superbly proportioned great room, its raised dining room, and even its little known "peek-a-boo" windows.

The works of Purcell and Elmslie are a significant manifestation of the democratic tradition in midwestern architecture; only by actually experiencing the buildings themselves can one encompass the variety of their solutions and the range of their spirit. Their solution of aesthetic problems was an attempt to relate organically the building and man; they never descended to "style" solutions but developed a unified and organized expression of their ideas.



WILLIAM GRAY PURCELL

PURCELL was born in the heart of the American Midwest—in Chicago in 1880. He lived with his parents in Oak Park near the home of Frank Lloyd Wright. In 1899 he entered Cornell University and after graduation he worked for a short period in the office of Louis Sullivan. In 1906 he joined with his friend, George Fieck, and established an architectural office in Minneapolis. George Elmslie entered the firm in 1909, and two offices were established, one in Minneapolis, and one in Chicago. In 1917, while still practicing architecture, he became advertising manager for Alexander Brothers, Philadelphia. He held this position until 1920 when he moved to Portland, Oregon and established an architectural office. He continued to practice during the 20's, but with the onset of tuberculosis he was forced to retire from most activities for a number of years. In the later 30's and 40's, while still designing, he devoted his major efforts to architectural philosophy and criticism. Purcell now lives in Pasadena, California.



GEORGE GRANT ELMSLIE

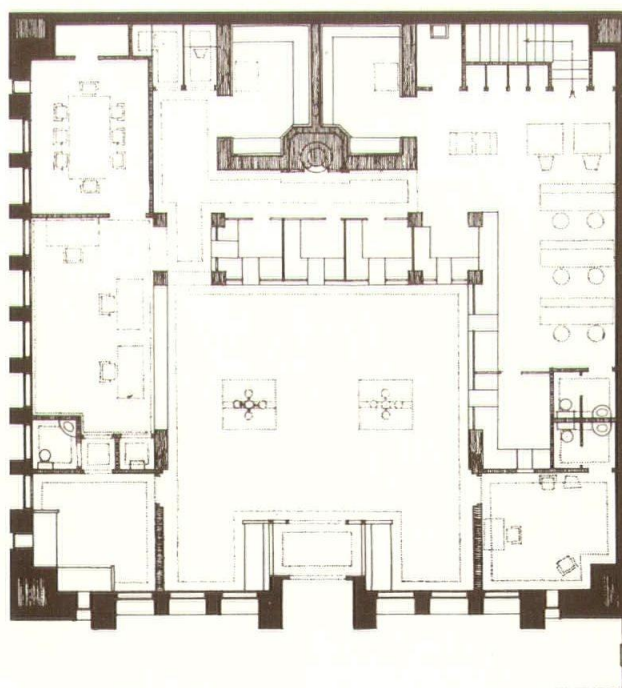
ELMSLIE was born in Huntly, Scotland in 1871, and came to America in the early 1880's with his parents. He was first employed as a draftsman by Silsbee, one of Chicago's outstanding Queen Anne architects. Later at the suggestion of Frank Lloyd Wright, he joined the firm of Adler and Sullivan and remained on with Sullivan until 1909. In 1909 he entered into partnership with his friend, William Gray Purcell, and George Fieck in Minneapolis; and after Fieck left he continued in partnership with Purcell until 1921. In that year he established his own office in Chicago and continued to design until the late 30's. In 1946 the *American Institute of Architects' Gold Medal*, awarded posthumously to Louis Sullivan, was presented to him. Before his death in 1952, he was made a fellow of the American Institute of Architects.

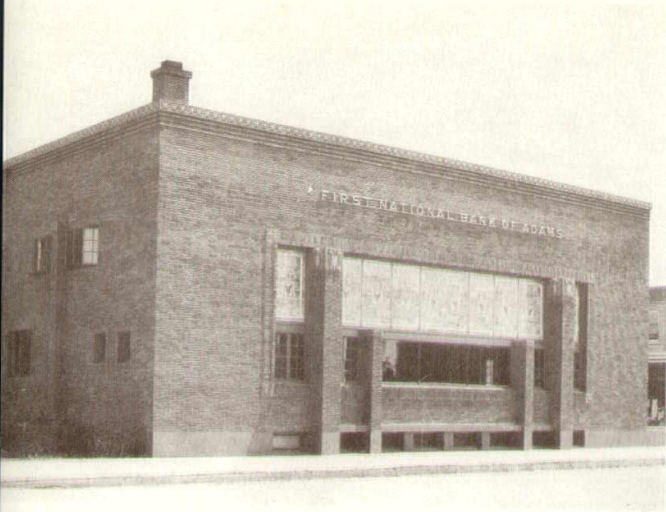


THE MERCHANTS BANK OF WINONA, WINONA, MINNESOTA. 1911

An interesting and early use of the glass-curtain wall, and large unbroken brick surfaces, molded into a warm symmetrical pattern.

Below: The symmetry of the plan has been forced to serve the function of the building, not the reverse.





ADAMS BANK, ADAMS, MINNESOTA. COMPLETED 1924



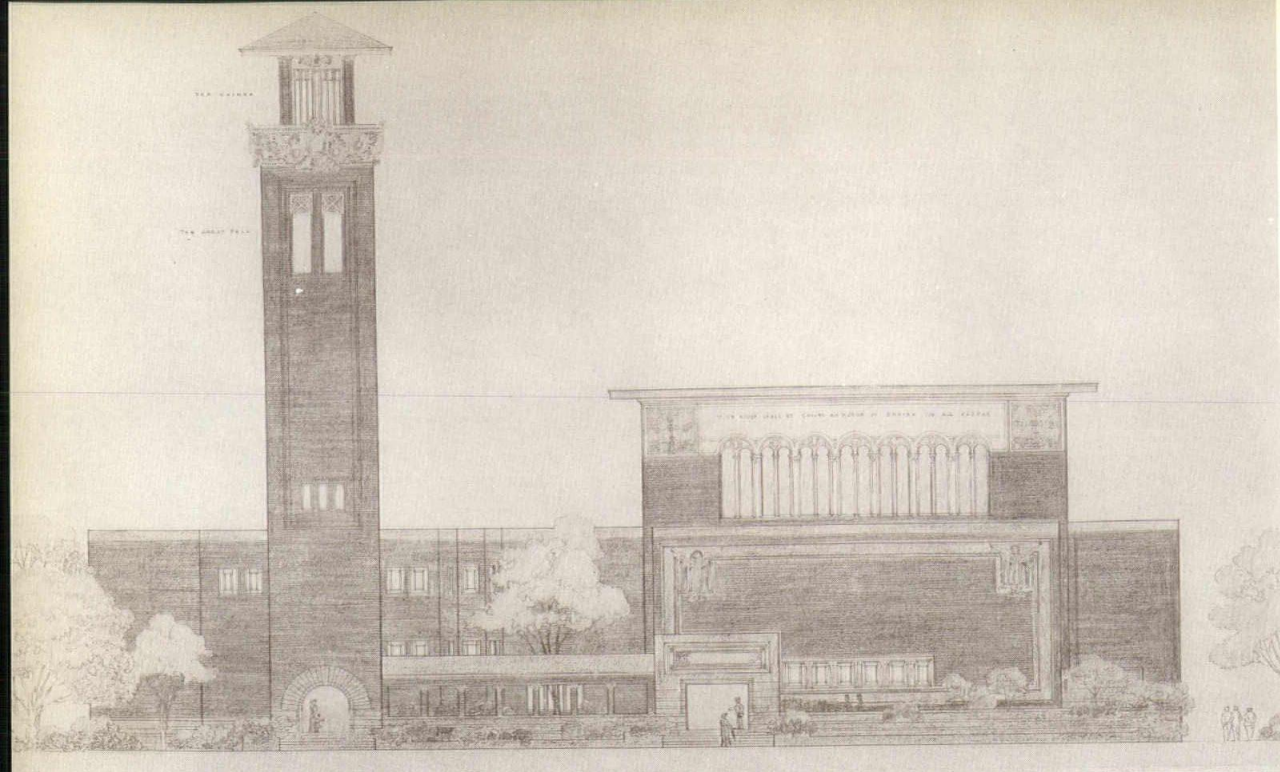
MADISON STATE BANK, MADISON, MINNESOTA. 1913

The various problems posed by banks in the small prairie towns formed a major concern of the firm.

THE EDISON SHOP, CHICAGO. 1912

The Edison Shop of Chicago constitutes a direct link with the Sullivan Tradition as expressed in the office building. As a design solution the building is well proportioned with large areas of glass on all floors.





PROJECT: ST. PAULS CHURCH, CEDAR RAPIDS, IOWA. 1910

The drawing of the Cedar Rapids church illustrates the rendering technique of the firm. As a design it was a refreshing solution to the prevalent eclecticism of the period.



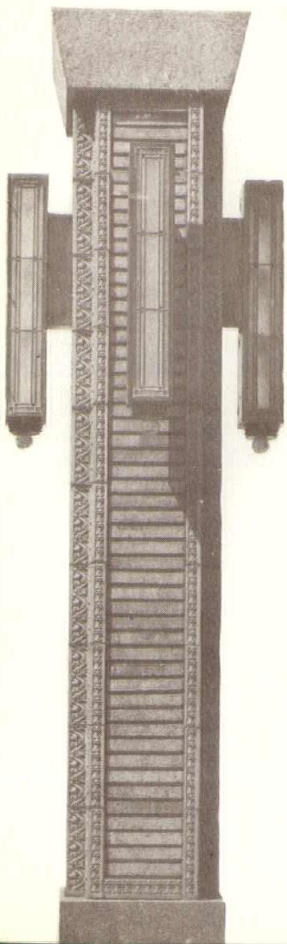
INTERNATIONAL LEATHER AND BELTING CORPORATION, NEW HAVEN AND CHICAGO. 1917

Two identical units were built. These were to have been the first sections of two large factory buildings. The use of the two side walls of glass is perhaps the most extensive use of the material before this date in American Industrial Architecture.



WOODBURY COUNTY COURT HOUSE, SIOUX CITY, IOWA. 1917

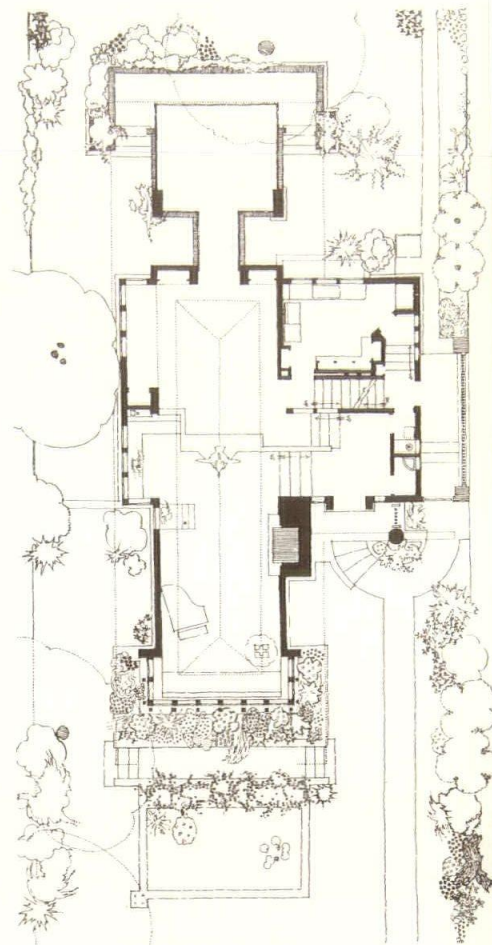
The Woodbury County Court House is the only large example of a government building built by the midwest progressive group in these years. Its plan is an excellent solution to the problem of circulation in a large public building.



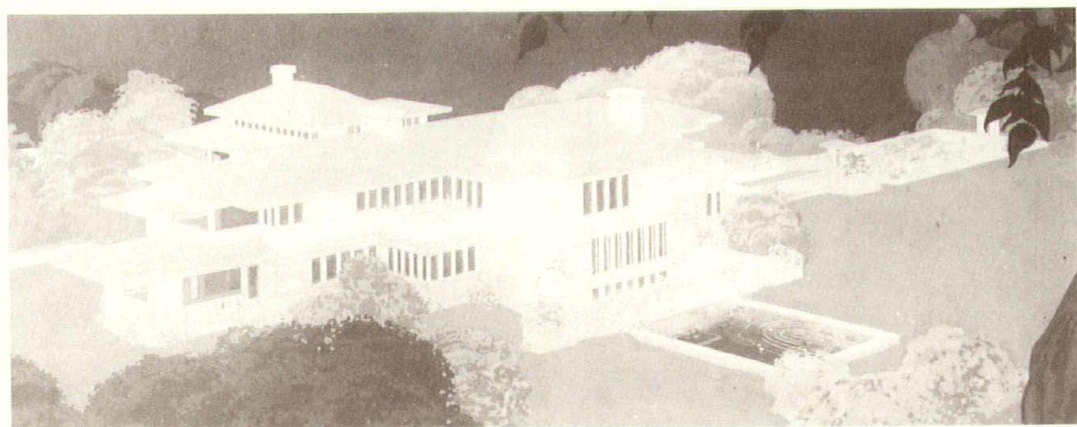


PURCELL HOUSE, MINNEAPOLIS, MINNESOTA. 1913

Purcell's own house is perhaps the most mature expression of the ideas of the firm in domestic architecture. The house affords an excellent example of the open plan and the complete designing of all surfaces and walls both in and out.



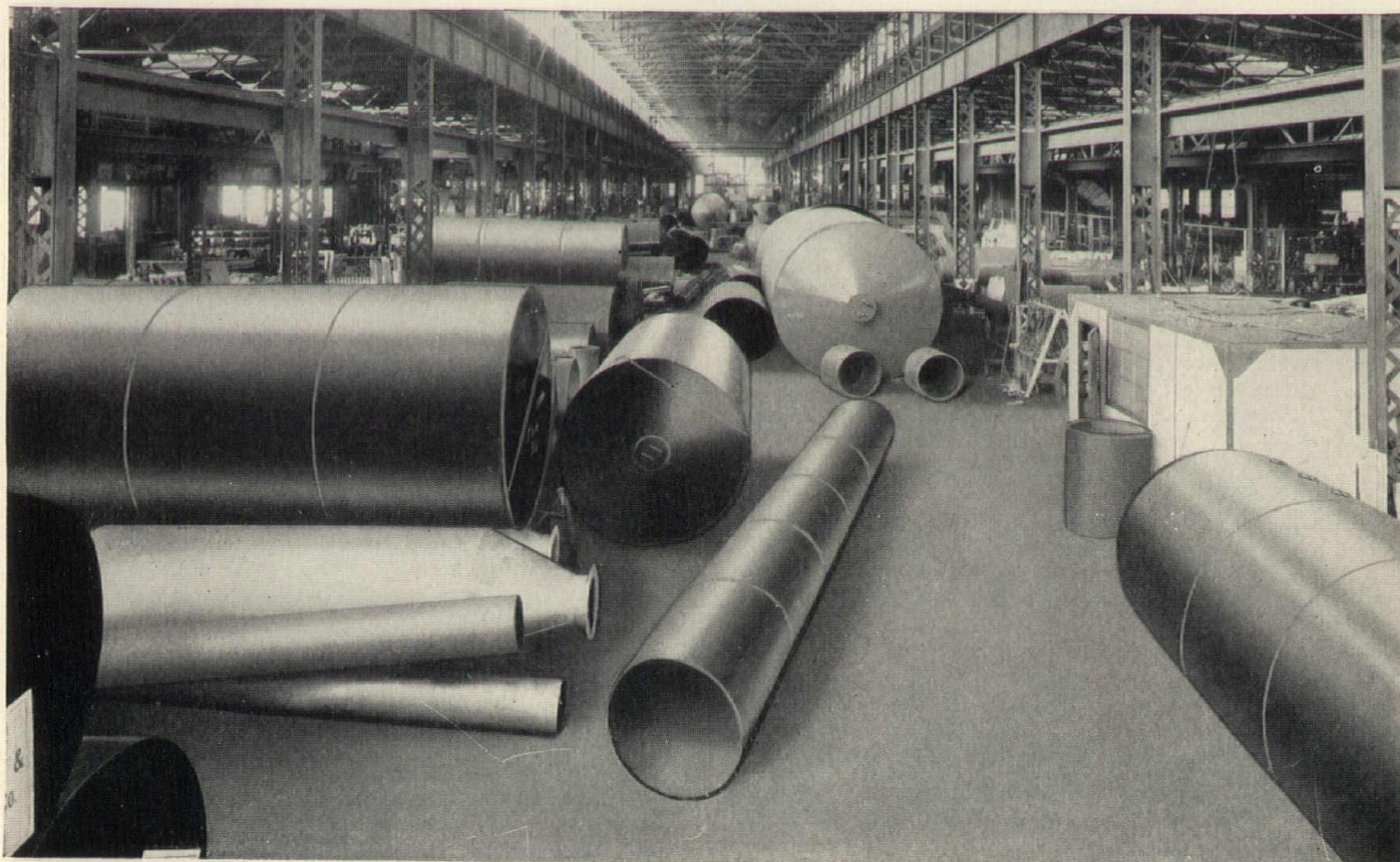
THE ALEXANDER RESIDENCE, PHILADELPHIA. 1915





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U. S. has moved the markets even farther away from this region than formerly when the population was concentrated in the eastern states and transportation costs have put this area at a disadvantage. This region has also been a high fuel cost region.

In Montana, North and South Dakota, and western Minnesota the movement was to the industrial centers of the West Coast. In eastern Minnesota, northwestern Wisconsin and the Upper Peninsula of Michigan the movement has been more in the direction of Detroit, Chicago and Milwaukee.

Population figures reveal the extent of this interstate migration during the decade of the '40s. U. S. population increased by 14.5 per cent from 1940 to 1950. In this district, which covers Montana, North and South Dakota, Minnesota, 26 northwestern counties of Wisconsin and the Upper Peninsula of Michigan, the population increased by 3.4 per cent. During the decade of the '40s, the Ninth District lost over 600,000 people through migration. In the San Francisco District, which includes the states of California, Oregon, Washington, Utah, Nevada and part of Arizona, the population increase between 1940 and 1950 was 46 per cent. There population increased by almost half, while our population increased by 3.4 per cent.

The population migration out of this district has slowed down in recent years but we are still losing people. Since the end of World War II, we have had a substantial expansion in industrial plants and equipment. Sizing up the current business picture, I came to the conclusion that the expansion in industrial plants and equipment is tapering off. In discussing this observation with another individual who is well informed on business conditions he made the comment that "It is unfortunate that the expansion is tapering off since we still do not have enough industrial capacity for our growing labor force."

Future Has Bright Spots

From a longer point of view, the future appears bright in that there are several new developments on the horizon. These developments will add to the opportunities for employment.

The copper mining industry on the Upper Peninsula of Michigan and in Montana is turning to the mining and beneficiation of low-grade copper bearing ore. One of the largest deposits of low-grade copper ores on the North American continent is on the Upper Peninsula. The iron ore industry is turning to the mining and beneficiation of low-grade ores. Oil was discovered in western North Dakota and in eastern Montana. A petroleum refining industry is springing up in this region. The Missouri Basin Development Program is moving steadily ahead.

I shall describe briefly the Missouri Basin Development Program which has become known as the Pick-Sloan Plan and was authorized by Congress in December 1944.

In the original plan, there were 105 dams and reservoirs. Since the end of World War II a substantial

number of additional projects have been added. As a result, the development work undertaken in the Missouri Basin is often referred to as a Basin Development Program. It is the largest program of its kind that has ever been undertaken.

Disasters caused by floods, drouth and dust storms have led to the initiation of this program, the primary objective of which is to control the flood waters of the Missouri and its tributaries and turn them into productive uses.

The cost of the program has risen as more projects have been included in the program and as the price level has increased. The original program was estimated to cost over \$1½ billion.

Last October at a meeting in Bismarck, North Dakota, the total cost of the program was estimated in excess of \$16¼ billion. Of that amount about two-thirds will be financed from the federal treasury. The increase reflects substantial additions to the program as well as a rise in prices. Some phases added to the program have not been authorized by Congress. The largest addition made is a watershed program outlined by the U. S. Department of Agriculture. It consists largely of a soil and water conservation program and the stabilization of small streams to reduce erosion and silt.

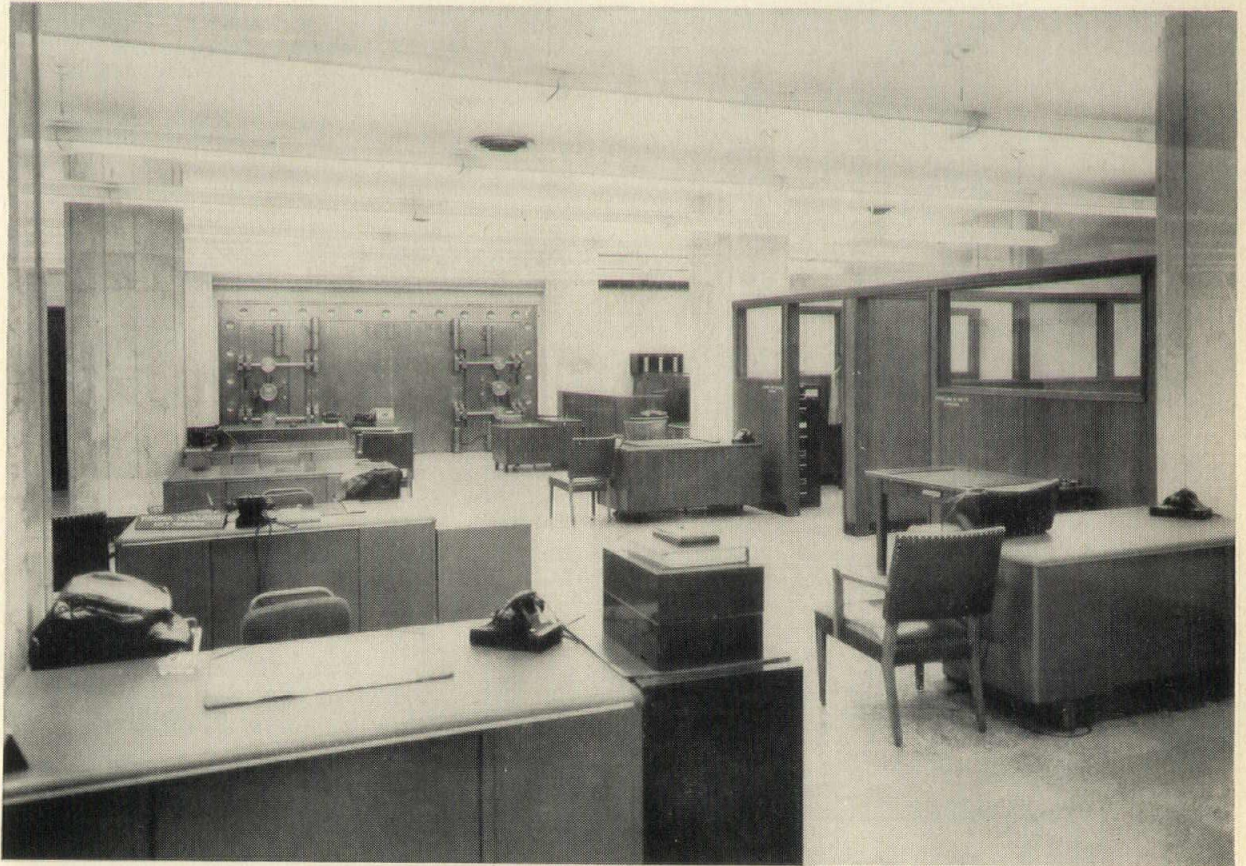
The Missouri Basin is the second largest river basin in the U. S. The land area is about one-sixth of the total in the continental United States and it includes all or portions of ten states. A large number of the smaller projects in the western part of the basin can be described as consisting of a water pumping plant, main irrigation canals and laterals from these canals. The larger projects consist of a dam, reservoir and canal diverting water from the reservoir or a pumping station. The dam is built to control flood waters and to conserve water for irrigation. If a sufficient head of water prevails at the dam, a power plant is built to generate electrical energy. Irrigation as it is now developed in many areas is dependent upon cheap power to pump water from the stream or from a reservoir created by a dam.

The large units are on the main stem of the Missouri River. Near the source of the Missouri River there is a multiple-purpose project under construction. It is known as the Canyon Ferry Dam. The site of the dam is 50 miles downstream from where the Gallatin, Madison and Jefferson rivers join to form the Missouri and about 17 miles northeast of Helena, Montana. The reservoir formed by the dam will control annual spring flood waters. It will have a capacity of 2,050,000 acre feet. The conservation of these waters will make possible the irrigation of 310,000 acres of new land and provide supplemental water for about 196,000 acres now inadequately supplied. Three generating units with a capacity of 50,000 kilowatts will be installed in a power plant. The energy generated will provide low cost power for irrigation pumping and for general farm, residential, commercial and industrial uses in the areas.

The Fort Peck Dam and reservoir is located near Glasgow, Montana, and was essentially completed in

(Continued on Page 40)

Lighting for Seeing



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ELECTRICAL CONTRACTOR: AMERICAN ELECTRIC CO.

FIXTURES: GARCY 50-50

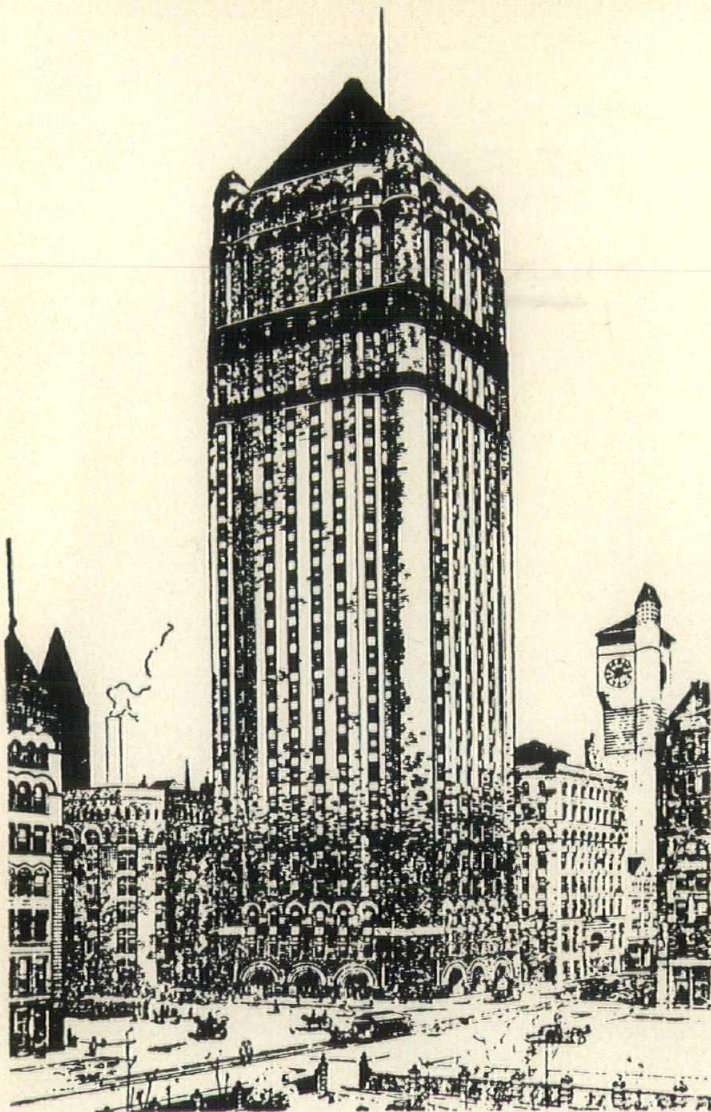
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Information compiled by Lighting Service Section

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First Project for a Skyscraper

This was the design which Buffington gave to the public in 1887 when he applied for his basic patent on the "skyscraper" principle of construction; that is to say, a wholly-framed metal structure, load-carrying throughout, with exterior masonry curtain walls the same thickness for all stories — and no masonry supporting walls.

This first skyscraper design of his, pictured above, was a true solution for such a construction system and, except for the Tacoma Building discussed in this issue and the generality of Louis Sullivan's many organic solutions of this new design problem, fifty-seven years were to pass before any other architect — the world around — would offer a candid, valid and successful tall building design, as did Saarinen, at long last, in the *Second Prize* design for the *Chicago Tribune Tower*.

It is surprising that the original firm of Holabird and Roche, architects, having produced so good a building

in 1888 as the immediately popular Tacoma Building, should have turned to the French Manner in 1889, when the bozart designing of the Columbian Exposition of 1892 was going forward, and have done no further work which appears significant to historians of 1953.

It is more likely that the engineer from Sullivan's office, to whom Mr. Elmslie refers in his letter, took with him some of Sullivan's honest thinking and enthusiasm. Tacoma construction being a new venture in a hitherto untested construction, where failure would be a disaster, this engineer would have had the authority of experience taking precedence over the wishes of aesthetic designers in the Holabird and Roche office. In such a "new-business-world" relation, style-forms could be expected to have minimum attention where the really critical issue was to make this very fragile contraption stay together. Thin brick walls and hollow terra cotta blocks, sitting-on and wired-to a sort of iron bridge on end, must have seemed *very* precarious to a world which was still living and looking with eyes conditioned to solid masonry.

When the system had proved itself, the silk-hats could take over again, put the engineers in their places and re-establish the reign of "Applique." This would seem about what happened to Holabird and Roche, enjoying a success which spoiled their fair start. Buffington stuck to his principles and *his* fair start stuck on the old rock of patent protection which has wrecked so many ingenious men.

LeRoy Sunderland Buffington was born in Cincinnati, Ohio, in 1847. At seventeen he graduated from high school, which in those days was nearly the equivalent of a liberal arts college course today, and entered the architectural office of Edwin Anderson and Samuel Hannaford at seventeen. He remained with them five years to become a qualified architect and married

MINNEAPOLIS - 1887

**Le Roy S. Buffington, A.I.A.
Architect**

Mary Ellen DePew in 1869. For the next two years he worked as a draftsman for various architectural firms in Ohio and was elected to a membership in the American Institute of Architects. In 1871 the young Buffington, then only twenty-four, moved to St. Paul, Minnesota, and formed a partnership with A. M. Radcliffe which soon became favorably known.

In 1874 he established an independent office in Minneapolis. During the late 1880's his practice grew steadily until he was one of the midwest's busiest archi-

NORTHWEST

fects. His clients included the business and civic leaders of the day. On May 22, 1888, he was granted a patent, filed the previous November, for a system of iron skeleton construction for high buildings which received wide publicity at that time and in subsequent years. In 1890 he made many excellent designs for Chicago Fair Buildings but secured no commissions.

The business depression of 1892 broke him and he organized the "Iron Building Company" to further his patent. Two years later, alleging patent infringements, he began a series of unsuccessful lawsuits against architects and owners of other skyscrapers. The best known recognition of his patent claims occurred forty years later when, in 1929, Rufus Rand paid him a royalty of \$1,200 upon completion of the Rand Tower, a Minneapolis skyscraper designed by Holabird and Root (not Roche), a second generation partnership in architecture combining two famous old Chicago firms. The last years of his life were spent still working at his drafting board, even though he had no clients, and in writing his "Memories," an account of his invention of the skyscraper and of the controversies which resulted. He died in 1931 in Minneapolis at the age of 83.

W.G.P.

We are indebted for this biographical information to the introduction by Miss Muriel Christison of her edition of Buffington's "Memories." This was her M.A. thesis at the University of Minnesota in 1941 and a



Buffington, grand old man with a youthful vision, at work at his drawing board.

revision of it was published in the Art Bulletin, March, 1944, the same issue that carried Dr. Demetrios Tselos's article on Buffington. Our thanks are also due to Miss Eileen Manning, art librarian, University of Minnesota, for her helpful assistance.

◆ **More about Steel Age Architecture and the man who first recognized the Machine as a part of Building, see page 4.** ◆

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F.Y.I. (For Your Information)

MINNEAPOLIS AND ST. PAUL AIA CHAPTERS ORGANIZE SPEAKERS' BUREAU

Speakers are being made available for talks before interested groups on the place of the architect and his work in the nation's pattern. Speak-

ers are provided through a joint venture of the Minneapolis and St. Paul Chapters of the American Institute of Architects.

In keeping with the A.I.A. policy of advancing professional standards of architecture, work of the bureau is aimed at bringing architectural

information of all kinds to civic, school, business, professional and other organizations.

There will be no charge of speakers, the bureau's leaders reported, and subject of the talk can be selected by the group requesting the speaker. Speaking appointments will be handled by Kerker-Peterson and Associates, Minneapolis firm which handles the chapters' public relations.

MAGNEY, TUSLER & SETTER HOSPITAL HONORED

The Meeker County Memorial Hospital, Litchfield, Minn., for which Magney, Tusler & Setter of Minneapolis acted as architects and engineers, has been selected as a forthcoming "Hospital of the Month" by *Modern Hospital* magazine. The hospital will be featured in a special article in the magazine later this year.

HOME BUILDERS VISUALIZE MILLION UNITS

Continued defense production and the new administration's belief that there is need to encourage continued prosperity, which is based in some part on a healthy building industry, were cited recently by the National Association of Home Builders as the group predicted a million units for 1953.

The group pointed out that the link between economic health of the nation and home building is close and those connected with the industry should keep up with trends in their localities when planning future projects.

CAST IRON SOIL PIPE STANDARDS BEING UNIFIED

A new cast iron soil pipe specification is in its final form and is being circulated before introduction by the U. S. Department of Commerce. The new specification, which aims



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to eliminate sub-standard material and permit greater interchangeability, recommends a commercial standard for service weight pipe and fittings—dimensions, weights and tolerances and requirements for marking, coating, threading, inspecting and testing.

'53 CONSTRUCTION DOLLAR VOLUME SEEN EQUAL TO '52

Dollar volume of construction during this year was seen as about equal to that achieved in the booming months of 1952, according to a year's beginning report from the F. W. Dodge Corporation, construction statistical firm.

While the total volume will remain practically the same, the firm's report said, there will be changes within certain categories of construction. Non-residential building is expected to go up 8 per cent, residential construction down 11 per cent and public works and utilities up 8 per cent.

"There is a continuing heavy demand for community improvement projects of every sort," the report said, "including schools, highways, water supply and various other categories. The major limitation on the volume of such projects is the extent to which financing can be made available."

ARCHITECTS AND THE ENGINEERING STUDENT SHORTAGE

Prospective architectural students are watching with interest the reports of the dangerous shortage of engineering students throughout the nation—with only some 19,000 June, 1953, graduates in sight to fill about 40,000 jobs industry reports it needs engineers to handle.

Where the architect group fits into this shortage picture is not definitely clear although school officials report that graduates are quickly absorbed by the profession despite a rise in architectural school enrollment well above the over-all rate of rise in college and university enrollments. A special committee of the American Institute of Architects has been studying the problem as it relates to the particular field of architecture but no final report has yet been submitted.

Drop in enrollments below visualized needs is in part traced to the low birth rate during the 1930's depression years.

Many groups are taking active steps to improve their particular prospects for getting the new blood needed in the coming years. Typical and among recent announcements was that of the American Society for Metals, which set up a Foundation for Education and Research and transferred an initial grant of \$650,000 to the foundation, income from

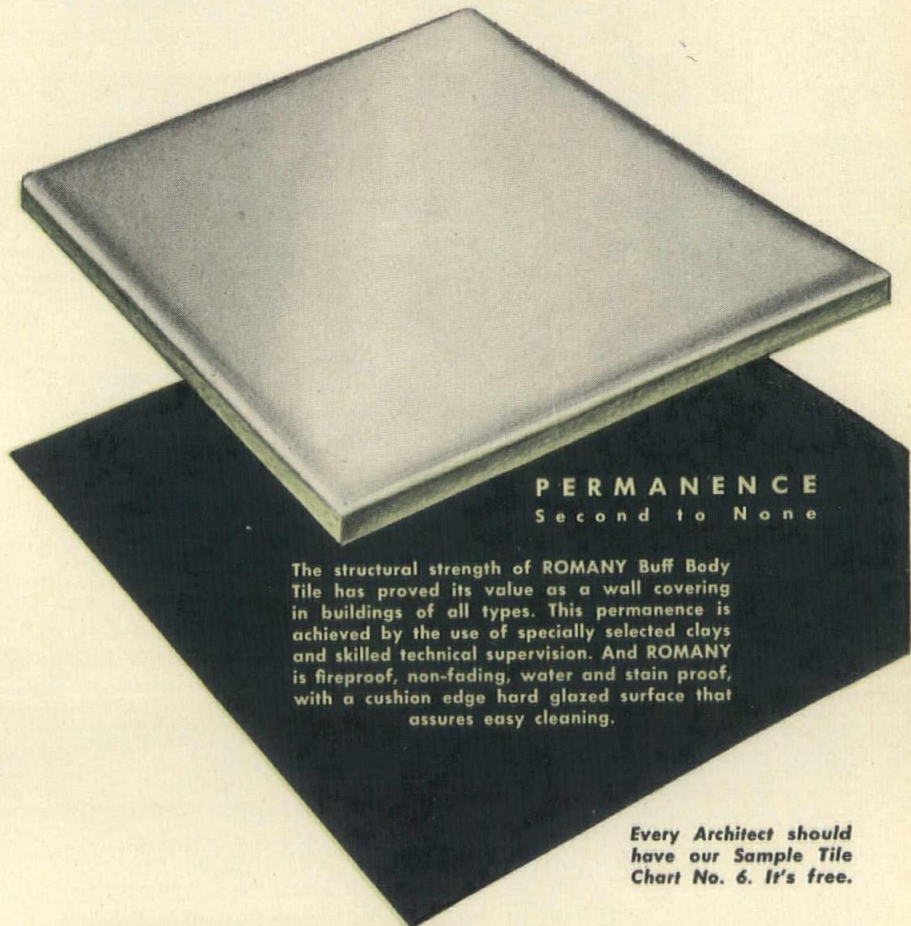
which will be used to help improve the situation.

GROUP REPORTS ON CITY PLANNING AND URBAN DEVELOPMENT

Realistic city planning and the parts played by business and architectural men in the work are among the many features brought to the reader of "City Planning and Urban Development," published by the Chamber of Commerce of the United States as a report of the work of

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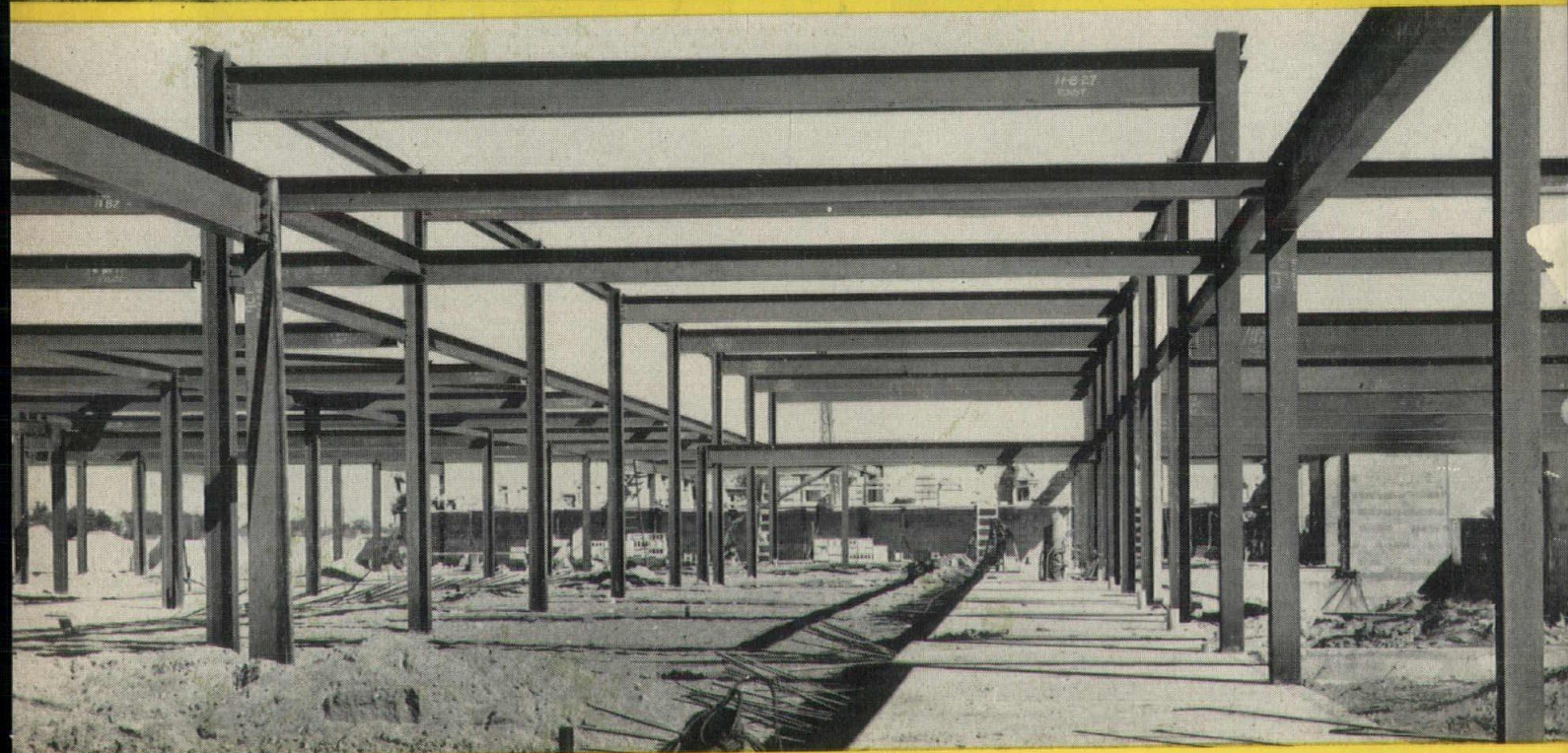
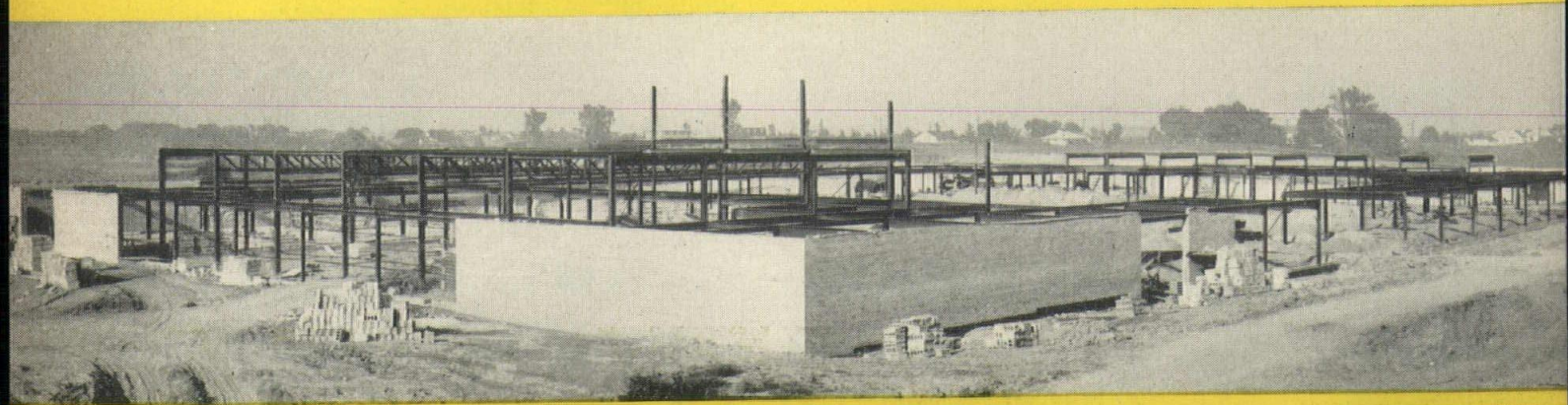
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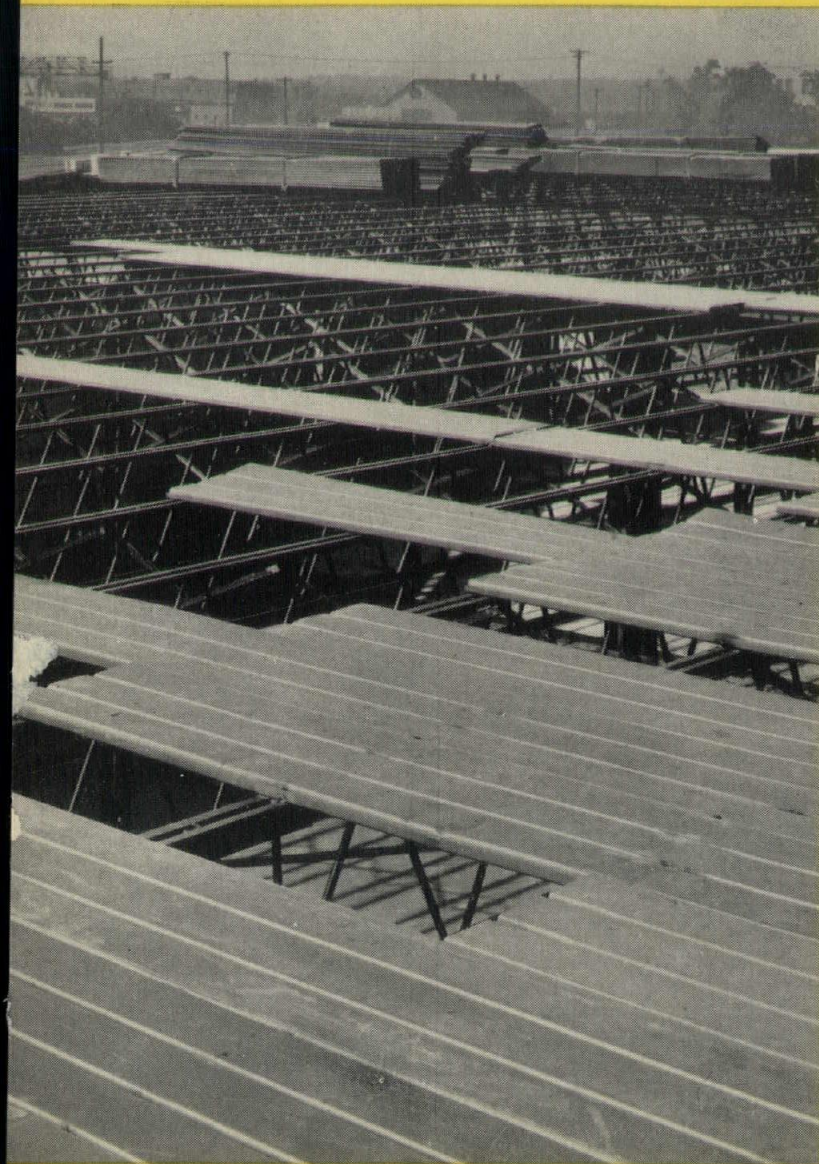


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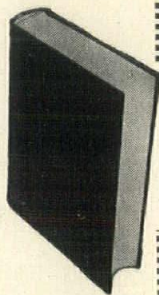
An engineer-lawyer reviews 83 special problems

Here is another handy guide to legal problems that contractors, architects, and engineers often face. It gives the same sort of concise review of typical problems arising out of construction contracts that made Mr. Werbin's previous book on this subject so popular.

LEGAL GUIDE FOR CONTRACTORS, ARCHITECTS, and ENGINEERS

By I. Vernon Werbin

Member of the New York Bar
Licensed Professional
Engineer



Just
Out!

374 pp., \$4.75

This clearly written book describes 83 situations—in the breaching and changing of contracts, and so on—situations of the sort that frequently lead to litigation, and tells how the courts viewed each case.

It is not intended to take the place of necessary legal services, but will serve to forewarn you of common pitfalls in your field—help you to take precautions to avoid costly lawsuits.

The book is written to be easily understood by laymen as well as attorneys. It gives the facts and contract provisions involved in each situation, and cites cases to sustain the principles of law set forth.

Samples of the 83 problems covered:

- Contracts for furnishing labor and materials where the contract is silent as to the amount to be paid therefor
- Uncompleted work of deceased architect
- A contract provision that is repugnant to a right created therein is void
- Interpretation of subcontracts

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The mechanics of a city planning commission, what can be accomplished by constructive planning, decentralization, extra-territorial controls, the modern shopping center, industrial dispersion, traffic and off-street parking, public transportation and other modern problems of the city are dealt with in the booklet.

The publication can be obtained from the chamber, 1615 H. Street, NW., Washington 6, D. C., for 30 cents.

GERRY BUILDING COMBINES OFFICES AND PLANTS ON SAME FLOOR

The nine story and basement Gerry Building is one of the unique and interesting buildings in that rapidly growing city.

It is a combination loft and office building, occupied by firms that are engaged in light manufacturing of various kinds who have their offices in the front of the building and their shops back of the elevator lobby on each floor. The elevators are located so the offices are entered from one end of the lobby and the factory space from the other end.

The "Smooth Ceilings" System of flat slab construction invented by Walter H. Wheeler of Minneapolis was used in the construction of the building. As required by the city building code of Los Angeles, the structure is designed to resist earthquakes. The Los Angeles code also limits the height of all buildings to 12 stories, although there are two or three buildings in that city which are higher than that, including the city hall, because they were built before the 12-story limit was established.

Laurence J. Waller, member of the American Society Civil Engineers, was the structural engineer of the job. The building is now fully occupied and is apparently a successful financial venture.

ADJUSTABLE STAIRWAY SPEEDS CONSTRUCTION, IMPROVES SAFETY

An adjustable stairway which can be installed as soon as the stairwell has been constructed has been introduced for construction work by



Above is the adjustable stair setup, showing how it can be used with early completion of a stairwell.

the Adjustable Stair & Mfg. Co., Rockford, Ill.

Made of steel stringers and wooden treads, the stairway eliminates sidesway, can be adjusted to fit most stairwells and provide safe, easy stairs for workmen during construction. Through patented design features, the stringers adjust to heights from 7 feet, 6 inches to 8 feet, 6 inches and pitch-and-run from 7 feet, 9 inches, to 8 feet, 9 inches.

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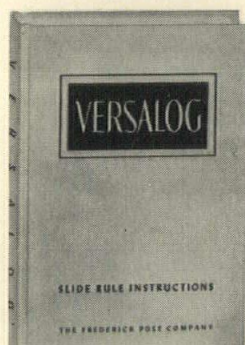
Treads can be cut to any width of stair up to 4 feet. They are easily leveled and secured by two bolts against each stringer. Use of the stairs, the company pointed out, removes dangers of the temporary ladder or stairway roughed up on the job. Added information can be had from the company, address Box 936, Rockford.

BETTENBURG RETURNS FROM ARMY

Philip C. Bettenburg of St. Paul has returned to civilian life and his membership in the firm of Bettenburg, Townsend & Stolte after service as a brigadier general with the Viking National Guard Division from Minnesota. Mr. Bettenburg was assistant commander of the division.

NEW SLIDE RULE TEXT

Special application of the slide rule to problems in civil, mechanical and electrical engineering are covered by the three major sections of



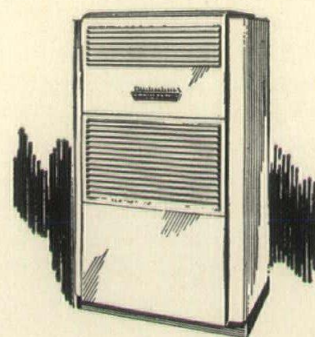
the new Versalog Slide Rule Instructions published by the Frederick Post Co., Dept. TX, 3650 N. Avondale Ave., Chicago 18, Illinois. Details of the book can be obtained from the company.

PREFAB INDUSTRY LEVELS OFF

Present position of the prefab industry is of vital interest to architects and in connection with growth of this industry a recent report by the Housing Research Center of Cornell University contains some facts worth reporting.

Although the prefab makers have utilized the opportunities of the

ARCHITECT



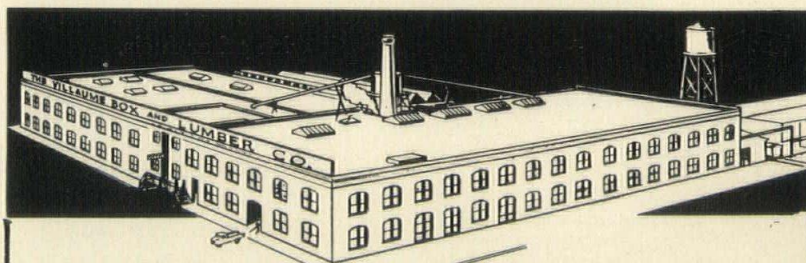
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housing shortage to gain a good foothold in the home field, the report said, they must do a better job of "selling" if they are to continue to gain ground. A study of their operations showed the average prefabber has done little or no market research, maintains a minimum sales force and advertises below normal.

"Except for isolated cases, there has been little planning of a marketing program among the existing manufacturers," the study said, and "there are already indications of changing market conditions and it is

important the industry look at its future."

The typical prefab purchaser is a skilled or semi-skilled worker with a young family.

"The percentage of professional, managerial and self-employed workers among purchasers of prefabricated houses is especially low when compared with the percentage of these groups among purchasers of conventional houses." Most of the homes were sold in the "prefab belt" of Illinois, Indiana, Ohio and Pennsylvania with fringes in Michigan, Wisconsin, Kentucky and New York.

ELECTRICAL RADIANT PANEL CEMENTS TO CEILING

An electrical radiant heating panel has been announced by United States Rubber Company which can be cemented to a ceiling like wallpaper.

The new panel is a sheet of conductive rubber sandwiched between layers of thin plastic and aluminum foil. The panels, called Uskon, weigh only 6 ounces per square foot and are reportedly of most value to heat added space in houses. They can be used to heat a single room or an entire house.

Touching on cost of operation, the maker said that where electricity is available at 1½ cents a kilowatt, or less, the cost of operation compares well with other fuels.

LOADING OF FLOORS STUDIED

Data of value to the designer of buildings is included in a new National Bureau of Standards summary report on live loads on building floors. Based on a study started in 1947, the report covers material on various kinds of occupancies and their resulting live loads, including residential, business, mercantile, assembly, industrial and storage.

How the loading can vary widely even within certain zones of a single occupancy is discussed and the aspects of this problem relating to design considered. The report points out that "actual loading may differ from the values given but in practice most buildings are probably designed at the minimum values. It is thus important that these values represent the worst conditions for which it is reasonable to provide."

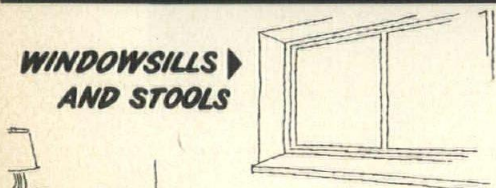
The material in Building Research Summary Report 87 of the Bureau, Washington 25, D. C.

NEW SHADES OF ACOUSTIC TILES OFFERED

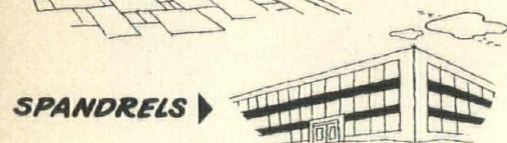
Four new shades of tan, to combine with the white of earlier tiles, have been announced for the Nu-Wood Acoustical Tile line by its makers. The varied colored tiles have all the regular features of the line's acoustical tile—high sound ab-

How can I use structural slate?

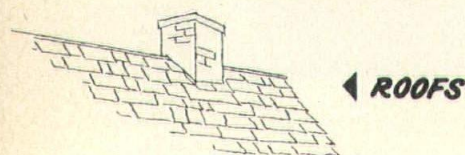
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FLOORS



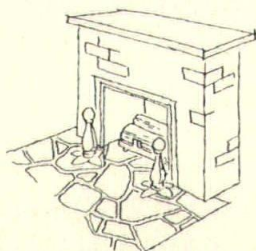
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sorption, non-fade colors and easy application.

The new tiles have tongue and groove edges, pencil-thin shadow line bevel and are made in 12 x 12-inch tiles, 1/2-inch thick.

RECENT BOOK OF PARTICULAR INTEREST TO ARCHITECTS

Living Space

Edited by George Nelson

That the illustrations and short descriptions of this volume bring to the architect the finest work in interior space design is evidenced by glancing at several of the designers' names—The Architects Collaborative, Marcel Breuer, Gordon Drake, Walter Gropius, Richard J. Neutra, to name but a few.

The volume has been designed both for professional and popular reading. It gathers into a 150-page book examples of outstanding interiors. The room patterns, configuration of fittings and the play of light and shadow build up excellent, thought-provoking illustrations. Mr. Nelson's comments draw focus on the essential problems at once.

Both inspiration and practical, the volume is a ready reference for many interior problems and can well take its place on any architect's shelves.

Published by Whitney Publications, Inc., 18 East 50th St., New York 22, N. Y. Price: \$7.50.

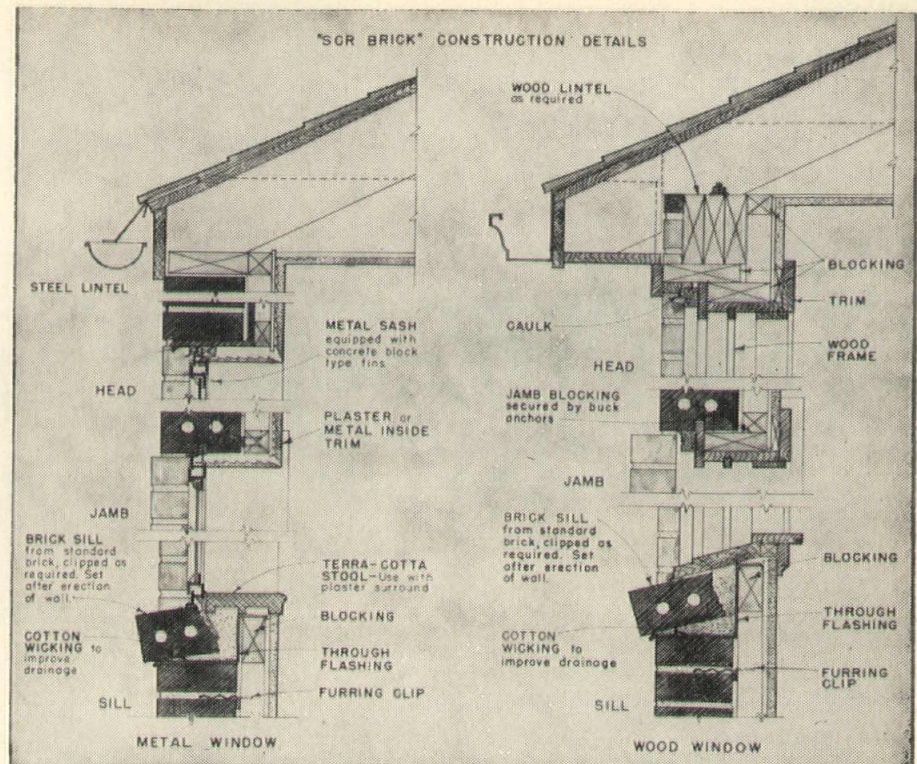
ADHESIVE FIXED WEATHER-STRIP REPORTED TIME SAVER

A bronze weatherstrip which is placed with an adhesive and so saves installation time has been announced by Kunkel Products, Inc. The adhesive, makers reported, is guaranteed to last indefinitely. The strips can be placed against either wooden or metal frames.

The cut pieces for a door are merely prepared by removing a paper covering from the adhesive strip and the section pressed firmly into place. A door can be stripped, it was reported, in about 20 minutes and a contractor who used the units reported a 50 per cent saving in total installation time.

The new product is named Kelleez and details can be had from company at 217 Ash St., Akron, Ohio.

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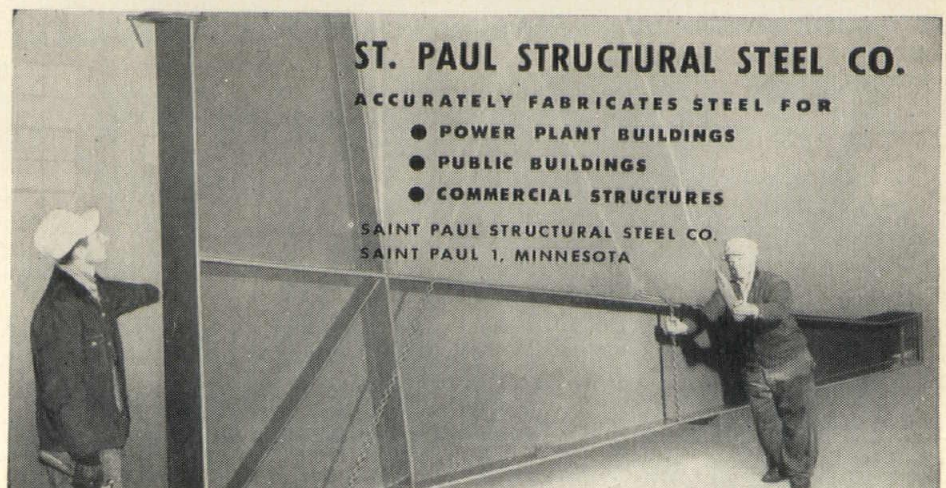
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Structural Clay Products Institute

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A.I.A.'s and Producers' Council Members Get Together for Annual Party



The annual mid-winter party of the combined fun forces of the American Institute of Architects' Minnesota chapters and the Producers' Council, held recently, brought out architects and suppliers in force. We snapped a few pictures at the affair and present them here. In each case identifications are made left to right in the pictures, starting with the top.

These three helped along the details—Rev. Arthur Fretheim of the Camden Covenant Church, Curtis Johnson of Rolscreen Co., president of the Minnesota-Dakota chapter of PC, and Master-of-Ceremonies Charles Petillon.

Orin Hartwig, Jack Homme, G. O. Mattson, L. B. Abbott and Cecil Tammen.

Gerald Buetow, Earl Beddow and Bob Cerny.

Rollin Child of U. S. Quarry Tile, Cy Bissell and Larry Bakken of Peelle Co.

Bill Bielke, L. H. Stansfield, Alex J. Newcomer and Keith Heunager, all of Wick & Stansfield, Mankato.

Bob Olson of Northern States Power Co., Al Meinecke, George Townsend, Clair Armstrong and C. L. Ammerman of C. L. Ammerman Co.

Dan Sullivan, E. Meier, W. W. Haldeman of Hamilton Mfg. Co., and Jim Niemeyer.

On opposite page are shown—

C. L. and Tom Ammerman of the C. L. Ammerman Co., and E. E. Meier of Schuett-Meier Co.

John Davies of Truscon Steel, Gordy Matson and J. F. McEachen, Johns-Manville.

Charles Petillon, E. L. Thompson of Chamberlain Co., and Andy Alberts of Crown Iron Works.

Louis Pinault, past president of the Minnesota Society of Architects, W. G. Witherspoon and Walt Seibert, Truscon Steel.

J. W. Hayes of Great Northern Railroad, Al Fischer of Overly Mfg. Co., L. B. Curtiss of Northern Pacific Railroad, Brooks Cavin and H. S. Loeffler, Great Northern.

Larry Bakken, R. V. McCann, Ray Bush, T. A. Vecchi, R. A. Feltnault, Richard Whiteman and William Miller.

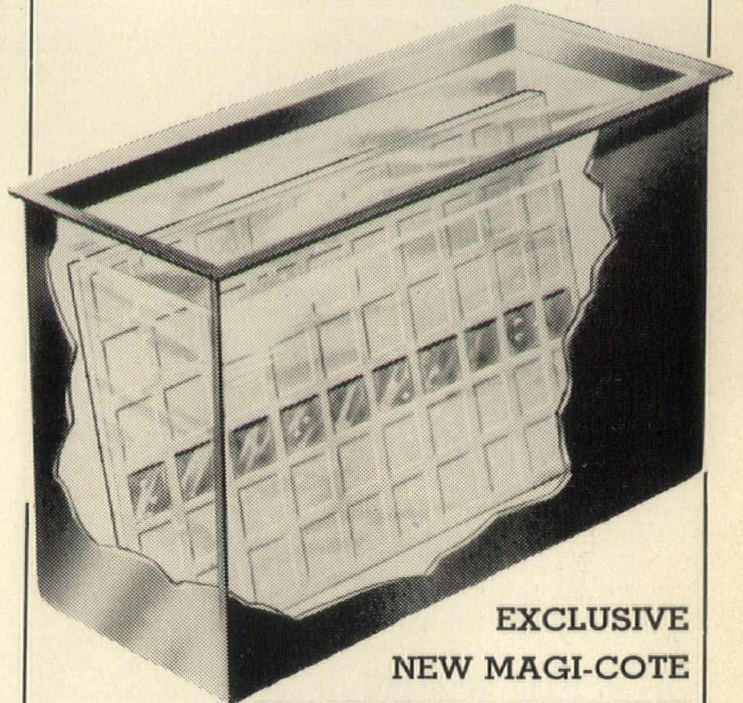


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Wood sections shall have stiles and rails of vertical grain Douglas Fir, hardwood dowelled and steel pinned, waterproofed glued. Rails to extend full width of door. Panels to be of three (3) ply laminated fir $\frac{1}{4}$ " exterior plywood manufactured by the hot plate process with phenolic resin glue.

HARDWARE

Hardware shall include safety torsion springs on a continuous shaft across full width of door, rustproofed aircraft type cable (chain not permitted), rollers having a minimum of ten (10) ball bearings $\frac{1}{4}$ " diameter with both inner and outer races of hardened steel (use of roller shaft as inner race will not be permitted), bottom corner brackets mortised under bottom of door and of sufficient height to be secured across both rail and stile. Doors over 12'6" wide shall be additionally reinforced with suitable horizontal trusses to prevent sagging when open. Doors over 16'0" wide shall have suitable support to prevent sagging when closed.

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FIRST SKYSCRAPER

(Continued from Page 5)

all supported on a steel frame except at the girder bearings. The engineer who aided in this system of construction was an employe of Adler and Sullivan and subsequently went to Holabird and Roche where he added columns at the girder bearings in the Tacoma Building, completing the system. Paul Mueller was Adler and Sullivan's head man at the period and knows all about it. He, this engineer, and Fritz Wagner of the North Western Terra Cotta Company worked it all out. The idea

was in the air and probably, truly, a creation of no one in particular. Sometime if you want to know I will tell you why the design was changed."

Very Sincerely,

George G. Elmslie

It is well within the range of possibility that Sullivan's engineers, working on the aspects of the Auditorium Building, which because it was not a particularly high building were eventually confined entirely to the interior, may also actually have been one of the original impulses in the invention of the skyscraper, since his engineer, working with the manufacturer of lightweight masonry (i.e., terra cotta) enabled Holabird and Roche to accomplish a successful self-supporting metal cage structure.

With these circumstances clearly before you let me refer for verification data to the book, "CHANGING THE SKYLINE" by Paul Starrett, McGraw-Hill Book Co., Inc., New York, N. Y., 1938. Here is indeed long experienced, and disinterested, opinion.

Paul Starrett had been an architect, saw the Home Insurance Building erected, knew the world of high buildings from all viewpoints. Up to 1930 he had built 80% of all buildings over 15 stories that had been erected any place — \$380,000,000 worth, an all-time record.

Let us see what he says:

Paul Starrett—

"About this time Jenney, the architect in whose office both Burnham and Root had had much of their training, designed the ten-story Chicago office building for the Home Insurance Company of New York. Into his design for this building Jenney put the cast-iron column-and-beam system described above. For the first time, the outer (masonry) walls carried only themselves, nothing else, and therefore could be scaled down in thickness considerably."

W.G.P.:

Note that Paul says that exterior walls "carried themselves." He is right (except the later-added top four floors, of 1890). But the brick masonry piers, above those of the first three floors, which were granite, had to have considerable metal reinforcement to even be self supporting, scaled down in size as they were.

Paul Starrett—

"This Home Insurance Building has enjoyed the reputation of being the first of the "cage type" (i.e., interior metal frame throughout). It was followed, shortly after, by Holabird & Roche with their Tacoma Building, completed July 1, 1888, where for the first time the masonry covering of the outside walls themselves was actually carried on beams, transferring the entire load to the cast-iron exterior wall columns.

W.G.P.:

Tacoma Building, torn down in 1929, was found in perfect structural condition; metal structure was un-

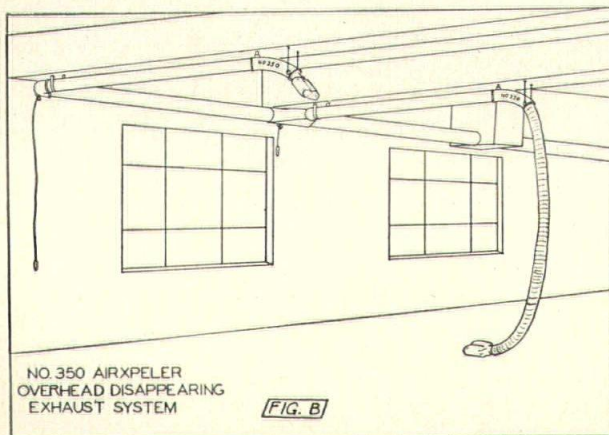
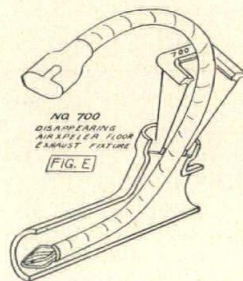
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rusted at any point. "One La Salle Building" now occupies the site.

Paul Starrett—

"The Tacoma Building was the first true skyscraper in the modern sense. The metal framework on the street fronts supported the *entire structure, outer walls and all floors*. Instead of having the outer walls support themselves from the foundation up, as had always been done, the architects fastened shelves around the metal framework, on the outside, at each floor level. The terra cotta and brick walls were hung on these shelves and anchored to the constructional frame. The outer wall was merely a skin, *no thicker at the bottom than at the top*."

W.G.P.:

And in architectural design this "Tacoma Building," where my father had his office, was good architectural design. The terra cotta had the *feel* of an envelope but not self consciously so, it was not an "explanation." The pressure of the facts and the truth of the structural system had their say. The Beaux Arts system had not reduced the architectural lie to a fine art.

Paul Starrett—

"This idea of the masonry *exterior walls being carried* by the steel structure is a very ordinary idea today. In the history of building, it was revolutionary. But sometimes you have to get a perspective on a revolution to realize that it was one. As I look back, I can't remember that the Tacoma Building excited any special comment."

W.G.P.:

Yes—I think it did, among the public. I heard plenty of talk, it made an impression which is still with



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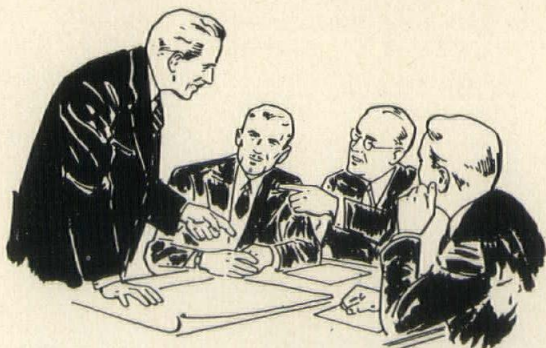
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me today. The building had prestige and my father was quick to lease an office on the 10th floor (1007). There were 12 rental floors, some incidental space and utilities on the 13th, reached by stairs. My first visit to his office was very exciting. He had a corner with double bay windows, overlooking both La Salle and Madison. I recall reporting at home how far down it looked to the ground and how very small the people and horses seemed to be.

Paul Starrett—

"Tacoma Building was merely the logical conclusion toward which the wide-awake architects of Chicago had been moving, pushed by necessity and led by opportunity."

W.G.P.:

It seems to me plain that Paul Starrett deals with facts as he knew them from personal experience and as the profession generally viewed them, prior to the report of the 1939 committees. He also draws his conclusions as a competent building expert, speaking out of lived history rather than as an ex-post-facto researcher.

But the most cogent evidence bearing on the issue is Major Jenney's own opinion, as reported by his business heir Mr. Elmer Jensen (Major Jenney died in 1909 in Pasadena), quote: "... Major Jenney never made any claim that he had originated the skyscraper principle."

Now, let us grant that Major Jenney was an exceptionally modest man. As such he watched the amazing development of tall buildings and the varied uses of cast iron and steel framing all during his twenty most active years, 1880-1900. He knew that the system had completely revolutionized the entire concept of worldwide building production at all levels.

Let the reader say whether it is within reason that even a very modest man would not have at least acknowledged himself to have been the original source of the basic implementing idea, if he had believed—or humanly could have made himself believe—that such was the case. Had Major Jenney fathered this principle, or stumbled upon it by accident, he surely would have acknowledged his part in the vast consequences of its universal application. Even if the possibilities and force of the idea had not been fully recognized until later, the current history of "his?" novel building method would surely have been discussed with him by newspaper reporters.

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It only remains to relate Holabird and Roche's actual production of the Tacoma Building to the thinking of Buffington and Harvey Ellis, whose ideas were in active discussion and general publication in the architectural press for at least two years before the type of construction to be used in the Tacoma Building was decided upon in 1886.

On the basis of the above facts correct appraisal appears to me uncomplicated. The diagrams and photographs made from the partially demolished *internal* cage columns shown in the 1939 committee reports prove nothing more than the presence of heavy cast iron reinforcement, supplying a needed additional *compression* factor for the pier cross-section area, which was reduced to secure larger windows. The hollow square cast iron pier reinforcement elements were themselves filled solid with cement grout so that when it hardened the metal occupied less than 5% of the 1,000-square-inch cross section area of the typical outside wall piers. Here was no masonry skin resting upon and affording fire protection for an all metal "building" but a hard working masonry pier helped by reinforcement.

The facts can be found in the photographs and working drawings of the committee's reports but it requires no extended study to see that correct conclusions were not reached. As Paul Starrett says and as Major Jenney tacitly admits in his description of his building in

the *Inland Architect* of December, 1885 — The Home Insurance Building was in no sense the first building of "skyscraper" construction.

HOLABIRD AND ROCHE IN THEIR TACOMA BUILDING WERE FIRST TO PRODUCE AN ACTUAL BUILDING ON THE METAL FRAME PRINCIPLE, invented by Architect L. S. Buffington of Minneapolis in 1884 and for which after much delay he secured a patent May 22, 1888, just 38 days before the completion of the Tacoma Building.

Let us give honor as honor is due to this competent and adventurous Minneapolis architect and his brilliant associate, Harvey Ellis.

W.G.P.

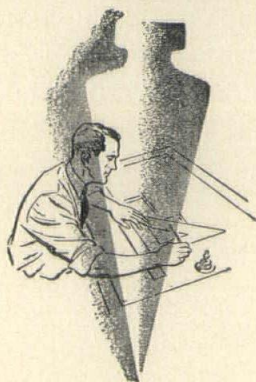
LABORATORY PLANNING GIVEN LIFT BY EQUIPMENT MAKERS

Aid for the architect who has to plan laboratory facilities has been gathered and published by the Scientific Apparatus Makers Association in a free booklet which covers labs from high school chem layouts to advanced college and research laboratories.

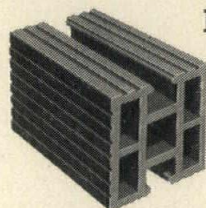
Including many illustrative drawings and photographs which help visualize what is being discussed, the booklet deals with many types of plan for many uses. Included in the book are suggestions on specification sheets and bidding.

Copies can be obtained by writing the association at 20 N. Wacker Drive, Chicago 6, Ill.

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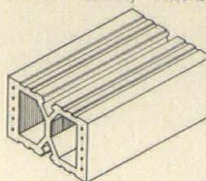


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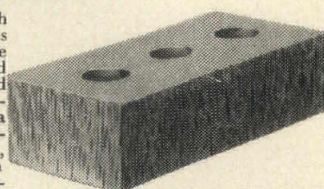


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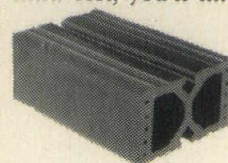


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OUR COVER PIC . . .

No matter where this fine store building was erected, it would draw attention. Typical of modern use of materials to enhance the theme of the building in which they are used, this department store is built of Pink Kasota Veine Ashlar. The texture of the limestone, coupled with the patterns in which it was set, have given relief from monotony in the wide wall expanses of this huge building.

Architects in the Northwest have at their disposal many intriguing and valuable quarry stones, patterns of brick and woods with which to evolve well designed buildings with a regional flavor brought about by use

of these materials obtained from the area itself. Minnesota is one of the nation's leading producers of limestones, granites and other quarried rocks. These stones are used with striking results in homes as well as major buildings.

Woods are always a rich material. Their uses have become enlarged as technical development broadens applications even to huge arches made possible through lamination. The facility of wood is brought into sharp focus by the feature elsewhere in this issue of NORTHWEST ARCHITECT telling of the "Home of 2004."

The cover picture shows the Foley department store in Houston, whose architect was Kenneth Franzheim.

SNOWMELTER

(Continued from Page 14)

shot gravel, gives the finish in both sidewalk and curb an attractive gunmetal color. The main areas are scored in a smart checkerboard pattern with a three-panel chevron design at the two main entrances. Special trowels were made up to secure these effects. Additional ornamentation was obtained by setting into the sidewalk a large brass compass at each corner of the hotel.

Steam is furnished by the Allegheny County Steam Heating Co., to two converters in the hotel basement. Besides saving labor for snow removal, the hotel is benefiting from public goodwill since the sidewalks are always ice-free, dry and clean. Further labor economies are also being made inside the hotel because entrance corridors and lobbies stay cleaner on snowy and slushy days.

PORCELAINED STEEL USED FOR CHURCH STEEPLE

A new avenue of building decoration was opened when the Central Park Baptist Church in Birmingham, Ala., was fitted with a 147-foot porcelain enamel steel steeple.

The 910 pieces were made from full scale patterns or mockups at the factory of the Bettinger Corporation, then assembled on the site. Interesting comment by makers of the steeple was that the porcelain for the facing weighed only three pounds per square foot, so it was possible to construct a less expensive base structure. Channels were also porcelainized to prevent rusting.

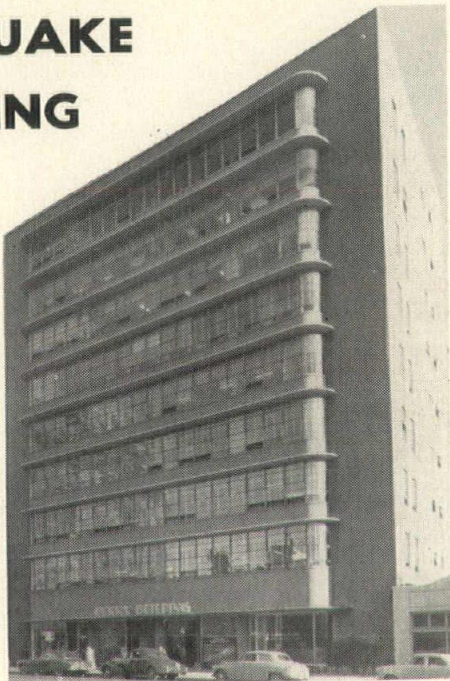
The church's air-conditioning unit was placed in the steeple where it could obtain air through the louvered design at the base of the structure.

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ATOMIC WARFARE SHADOWS APPEAR IN BUILDING DESIGN

For the architect and builder who works with the shadow of the need for protection against atomic blast in the back of his mind, two recent publications form valued background material.

Results of collaboration of outstanding engineers and architects appear in the 164 pages of "Windowless Structures—A Study in Blast-Resistant Design." A Federal Civil Defense Administration publication, the volume is jammed with interpretations and original data in the form of graphs and charts and formulae for design of structures which stand the best possible chance of surviving these heavy blasts.

The book is priced at \$1.00 and is obtainable from the Superintendent of Document's office.

Other information is contained in an interim guide to design of buildings exposed to atomic blast. This work shows resistance of various types of structure and outlines results of atomic blasts both during the last war and in experiments under controlled circumstances.

ARCHITECTS ARE PLANNERS—

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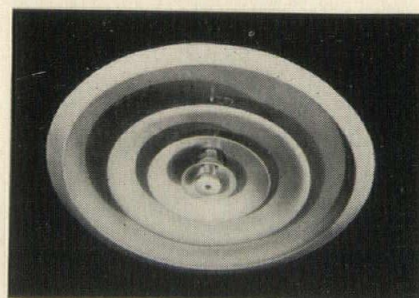
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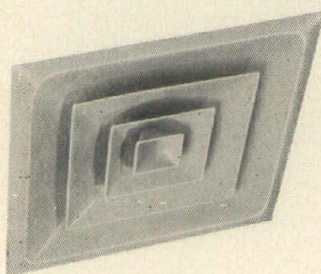
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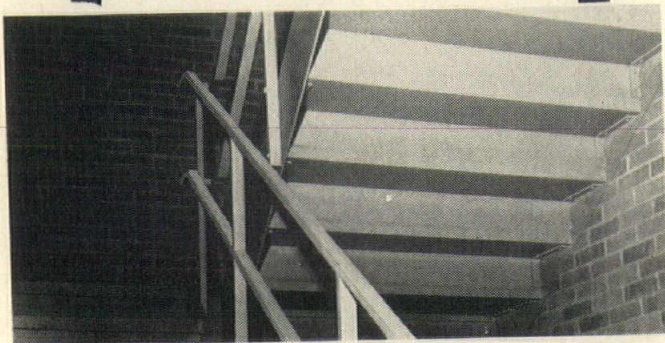
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GOSTA EDBERG NAMED TO MIAMI UNIVERSITY

Gösta Edberg, whose story on "Swedish Empiricism" in our July-August, 1952, issue created a great deal of comment, has been named professor of design at Miami University in Coral Gables, Fla., after officials of that school learned of his work through the story in NORTHWEST ARCHITECT.

Mr. Brack of the board of trustees of the university saw a copy of our publication and was so favorably impressed with what Mr. Edberg had to say and the way he said it that the university opened negotiations with the Swedish designer.

Mr. Edberg, who had maintained offices in Los Angeles, left for Florida on February 1 to assume his new duties. In preparing the story of Swedish architecture, he supplied both information and the pictures which so well illustrated today's trends in that country's architecture.

NINTH NATURAL RESOURCES

(Continued from Page 20)

1939. This dam was constructed for the purpose of controlling flood waters and to aid in maintaining a six-foot channel below Sioux City, Iowa, for navigation purposes.

In 1938, Congress authorized the construction of a power plant. Three generating units have been installed with a capacity of 85,000 kilowatts. Current plans are for the installation of two more units with 80,000 kilowatts which will give the plant an ultimate capacity of 165,000 kilowatts.

The Missouri Diversion Unit, seven miles downstream from the Fort Peck Dam, is ready for construction. This unit will consist of a diversion dam and irrigation canals. This is the first phase of the plan to divert water from the Missouri River eastward across northern North Dakota to the Red River. The Garrison Dam is located about 70 miles north of Bismarck. The closure in the river will be made next spring. This dam is located



below the mouth of the Yellowstone River. The reservoir formed by this dam will control the flood waters of the Missouri, Yellowstone and a number of other small tributaries. The generation of electrical power is an important part of this project. The generating capacity of 400,000 kilowatts will be installed in this power plant. Water can be taken out of the Garrison reservoir for the irrigation of the Souris Project in North Dakota instead of at the Diversion Dam below Fort Peck. The Oahe Dam is located a few miles north of Pierre, S. D. This project is in the early stages of construction. The reservoir by this dam will be used to control flood waters, to provide a supply of water for irrigation in South Dakota and to generate electric power. The generating capacity schedule for installation at this dam totals 425,000 kilowatts.

The Fort Randall Dam is located near Wheeler, S. D., northwest of Yankton. It is nearing completion and the closure in the river was made this year. The primary purpose of the dam is flood control and hydroelectric power.

The Gavins Point Dam is near Yankton, S. D. This project is in the early stages of construction. The dam is referred to as a leveling dam. It will be used to maintain a stable stream and 9-foot channel below Sioux City, Iowa. Some electrical energy will be generated at this dam.

Electric power transmission lines are under construction along the Missouri River to tie together the hydroelectric plants at the dams and to deliver the energy to

centers of consumption.

Last October Bureau of Reclamation men stated that it now appears they will not have solid tracts of irrigated land. Irrigated farms will be interspersed among dry land farms. They still plan to irrigate about as many acres of land as were in the original plan.

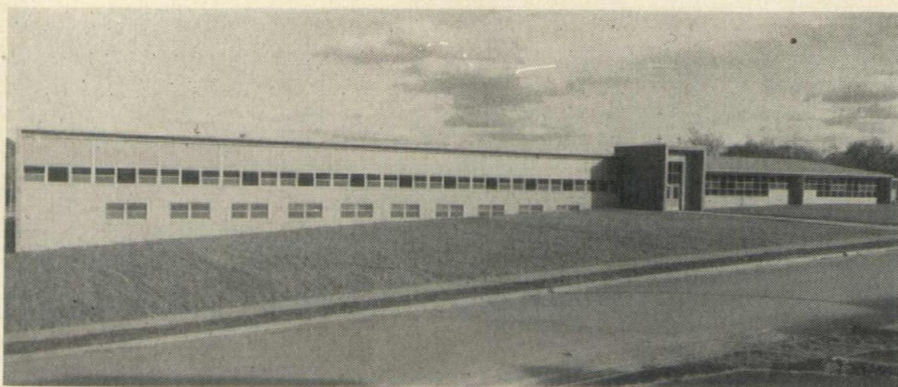
Flood control is the primary objective sought through the Missouri Basin Development Program. The Corps of Engineers drew up a plan for the multiple-purpose dams and levees below Sioux City, Iowa, to cope with all conceivable floods. Controversy has arisen over the method of controlling floods. One method consists of the multiple-purpose reservoir on the upper reaches of the rivers and levees on the lower part. The other method consists of flood control in gullies and small streams from the basin divide to the primary river at the bottom of the valley with a land and water conservation program—Watershed Management Plan.

Watershed Plans not Final Answer

Of those recognizing the importance of a watershed management plan for the basin, there is a growing consensus that watershed practices will not control floods on large rivers where large cities are located. The multiple-purpose reservoir and levee method is under construction. The question remains—how much of the watershed management plan will be needed for complete flood protection?

Secondary objectives in the plan are the utilization of stored flood waters to develop resources in the basin. In the Pick-Sloan plan, the provisions were made for the

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irrigation of 4,760,400 acres of new land and to provide an additional supply of water to 547,300 acres of land now under irrigation. The plan would benefit a total of 5,307,700 acres. Some of the original tracts of land have been abandoned as unsuitable for irrigation and

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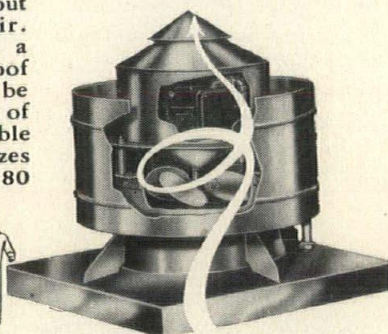
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other tracts are being investigated. In some parts of the district, farmers turned to irrigation as units were completed. In others, farmers have turned down the irrigation projects.

Before the disastrous floods occurred this spring, many inhabitants of the Upper Basin lost sight of the primary objective of flood control and stressed the importance of hydroelectric power. The installed capacity at federal hydroelectric plants now totals 158,400 kilowatts in the Missouri Basin. The capacity under construction at the present time totals 1,395,550 kilowatts. Another 1,090,300 kilowatts are scheduled for construction. How much of this power will be firm—available every season of the year—is a moot question.

Sioux City's Nine-Foot Channel

Provisions for a 9-foot channel from Sioux City, Iowa, to the mouth are included in the plan. Supporters have sought to justify it in the following manner. The cost involved may not be justifiable now but it will be in the future. South Dakota has a large deposit of low-grade manganese ore and North Dakota has large reserves of lignite and petroleum. It is healthy for railroads to have competition in their rates. Railroads cannot provide adequate transportation during peak shipping seasons. During the harvest season there is often a shortage of boxcars and as a result, grain spoils.

The largest negative factor in the plan is the inundation of river bottom land along the Missouri. A total of 2,463,000 acres will be inundated by the reservoirs of the several dams. Approximately 5,100 farm families are living on these reservoir sites. The loss in production was estimated about 5 per cent of the gains expected from the proposed irrigation.

The projects completed and those under construction are bound to have an influence on the volume of business transacted in this region. Many phases of the program are still in the blueprint stage. No doubt many of them will be constructed in the future but the American people can still vote on these blue print stage projects. We're going to have to live with the big projects though, for they're there already!

SEES 4,200,000 NEW HOMES IN NEXT FIVE YEARS

Average building of 840,000 new dwellings each year for the next five years was visualized by Donald E. Ryan, vice president in charge of the mortgage department of Investors Diversified Services, Minneapolis.

"The building of 4,000,000 new houses during the past three years has made a substantial dent in the record postwar demand for new housing," he said "but several factors will continue to operate to keep demand at fairly high and stable levels for the next five years."

The habit of home ownership, improving circumstances of newly formed families, migrations to housing-short areas and the growing need for "retirement homes" would act to support the continued rate of house construction.

PRESPLY IS NEW CONCRETE-FORMING MATERIAL

A concrete form material combining sheathing and lining in one unit is the newly introduced Presply of the Masonite Corporation. The 4-by 8-foot panels have a core of plywood and faces of specially tempered Presdwood and are designed for long use in concrete work.

The forming material gives concrete an unusually smooth finish requiring no hand rubbing. The panels are easy to handle and their surfaces won't split, crack or splinter, the maker pointed out. The sheets can be used a number of times without deterioration.

RADIANT HEATING RUBBER MATS PLACED ON MARKET

Useful for those cold points in buildings where added, perhaps mobile, heat can be used is the new radiant-heating rubber mats announced by the U. S. Rubber Company.

First uses for the mats were to provide added warmth for workers whose jobs took them into mines,

storage yards, to work on cold building equipment and the like. But now makers have announced that theaters, information booths, phone booths, etc., can be made more comfortable through planned installation of the mats.

HOUSING REFERENCE BOOK GOOD BACKGROUND MATERIAL

A concise summary of today's situation in "Housing—U.S.A." is well presented for the architect and engineer in a publication of that same name issued by the National Association of Home Builders.

Designed to crystallize thinking among those of the building industry, the book's ten chapters cover the main issues of the housing troubles today, the importance of mortgage credits, slum clearance and rehabilitation, co-ops, defense housing, etc.

Distribution of the books is through local building associations but interested architects undoubtedly also can obtain copies from the association's headquarters at 1028 Connecticut Ave., N.W., Washington 6, D. C.

ROOF SNOW LOADS COVERED BY NEW PUBLICATION

Design of roofs in relation to snow loads they will be called upon to support is vital in the northern areas of the country and for architects in Minnesota and similar areas, states a new issue of *Housing Research*.

The material is in No. 3 of the publication and can be obtained for 30 cents from the Superintendent of Documents, Washington 25. The information on which the article is based was gathered by the U. S. Weather Bureau from all parts of the country.

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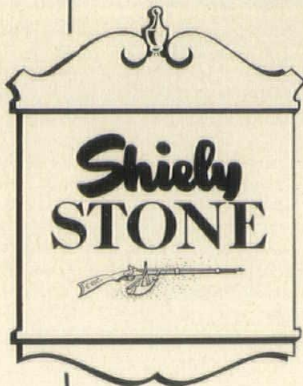
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THEY SAID IT

Edited by William Gray Purcell

◆ TWO WAY STREET IN 1891 ◆ *Is Science Scientific?*

“SCIENTIFIC KNOWLEDGE, even in the most modest persons, has, mingled with it, a something which partakes of insolence. Absolute, peremptory facts are bullies, and those who keep company with them are apt to get a bullying habit of mind—not of manners perhaps, they may be soft and smooth, but the smile they carry has a quiet assertion in it, such as the Champion of the Heavy Weights—commonly the best natured, but not the most diffident of men—wears upon what he very inelegantly calls his mug.

“So it is with those who deal with the palpable and often unmistakable facts of external nature; only in a less degree. Every probability—and most of our working beliefs are probabilities—is provided with *buffers* at both ends, which break the force of opposite opinions clashing against it: but scientific certainty

has no spring in it, no courtesy, no possibility of yielding. All this must react on the minds which handle these forms of truth.

“But mark this which I am going to say once for all: If I had not force enough to project a principle full in the face of the half dozen most obvious facts which seem to contradict it, I would be thinking only in single file from this day forward.”

“Autocrat of the Breakfast Table,” pp. 55
OLIVER WENDELL HOLMES

◆ COLOR OF THINKING ◆ *AT TWO A.M.*

I WISH to report my observations on the difference between closed-eye thinking and open-eye thinking. If one has a certain train of thought while thinking with his eyes closed (going to sleep or when wakeful) this thinking will have certain qualities. Open your eyes, even if it be quite dark and continue thinking about the same things. The character, quality, atmosphere of the thoughts and the ideas thought about will at once change.

◆ DOING SOME THINKING ◆

I judge greatness not by what a man has said or written. I want to know what he has done.

Clemenceau, 1929

As quoted by
Pierre van Paassen
in “THE DAYS OF OUR YEARS.”
The Dial Press, Inc., page 176.
Garden City Edition, 1940

◆ “NOISE AS MUSIC” ◆

Brings a letter from Goose Lane,
East Pembroke, Massachusetts

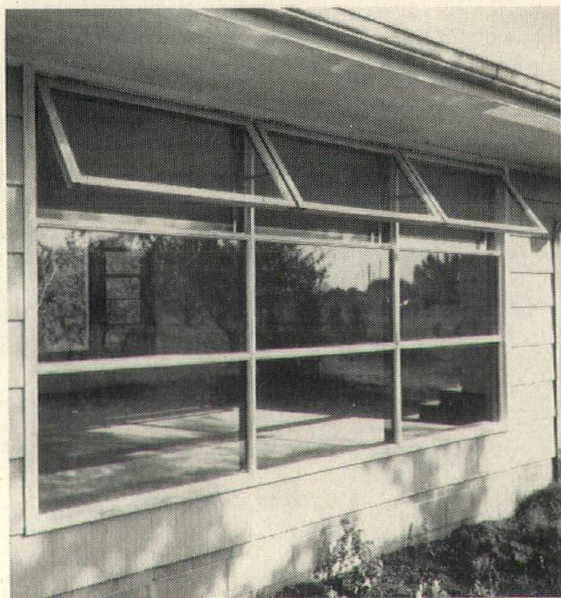
Dear W. G. P.:

When Ben finished reading your music number he went to the bookshelves and read us this paragraph from Washington Irving’s “Westminster Abbey.” Here it is for you:

“Suddenly the notes of the deep-laboring organ burst upon the ear, falling with doubled and redoubled intensity, and rolling, as it were, huge billows of sound. How well do their volume and grandeur accord with this mighty building! With what pomp do they swell through its vast vaults, and breathe their awful harmony through these caves of death, and make the silent sepulchre vocal! And now they rise in triumphant acclamation, heaving higher and higher their accordant notes, and piling sound on sound. And now they pause, and the soft voices of the choir break out into sweet gushes of melody; they soar aloft, and warble along the roof, and seem to play about these lofty vaults like the pure airs of heaven. Again the pealing organ heaves its thrilling thunders, compressing air into music, and rolling it forth upon the soul. What long-drawn cadences! What solemn sweeping concords! It grows more and more dense and powerful—it fills the vast pile, and seems to jar the very walls—the ear is stunned—the senses are overwhelmed. And now it is winding up in full jubilee—it is rising from the earth to heaven—the very soul seems rapt away and floated upwards on the swelling tide of harmony!

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"A FEW BUTTONS MISSING" is the autobiography of Dr. James T. Fisher, M.D., a well-known Los Angeles physician, faithful public servant, and pioneer in better treatment for the mentally ill.

In speaking of research methods as currently applied to people who are mentally ill from physical disease or physically ill from mental upsets, he writes on page 19:

"I learned that some of the untruths had come from the laboratory, while some of the truths had been handed down by the medicine-men of an earlier savage era. The task each morning was to forget three-fourths of what had been learned the day before and had subsequently been disproved and the task each night was to remember half of what had been purposely forgotten in the morning, because the theories which disproved these things had themselves been disproved."

(Good examples, perhaps, are the emergency anti-penicillin "shots" for the body, and professional agreement among psychologists to discredit their own 1908 slogan—"Don't rock the baby.")

In Dr. Fisher's book you will meet a charming friend, overflowing with wise humor and love for people sick and well. The chapter heading quotations are remarkable. Reading this book will surely improve your health, in mind and/or body.

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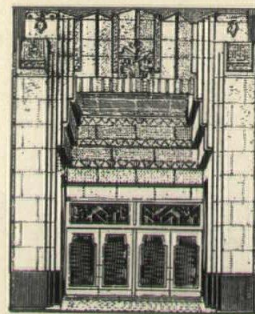
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More A.I.A.-P.C. Pictures



We couldn't resist the picture at the top of Architect Roy Thorshov with his plate! We leave it to our readers to decide whether he is still hungry or is so well satisfied he beams. Other pictures (in sequence from top to bottom, identifications in the usual l-r order) show—

Roy Thorshov, Duke Johnson, Robert Steel of Northern States Power and A. A. Melius of Northern Pacific Railroad.

Don Nelson, R. P. McLean, Don Wright, Don Zafke, all of Ellerbe & Co., St. Paul.

George B. Melcher, Ken Fullerton and Kerm Johnson, Crown Iron Works.

E. L. Thompson of Chamberlain Co., John Magney, Bob Deegan of H. H. Robertson Co., Stowell Leach, Austin Lange and W. C. Hamilton of Chamberlain Co.

Merchandising Facts Important in

DESIGNING THE SMALLER STORE

The small retail store has blossomed out in the past decade like Cinderella at the ball and the architect who is commissioned to design a small shop or shopping center has definite need for information on the latest thoughts and ideas in the merchandising world, the world of the client who wants him to lay out his shop.

Basic in today's burgeoning of the trade world is the creation of traffic into, through and out of a store with the creation in each customer who helps build that traffic of the urge to buy while he's in the store not just buy any old item or what he wants at the moment but things on which the merchant makes the most money, that's why he's in business. The architect's layout has a definite relation to this phase of the business.

First thought of the smart merchant intent on designing or redesigning his store is to have it beckon the passing customer, old or new. In today's store this means that the front of the store should be "open," so the entire store is on display. Gone are the old window backgrounds with their posters and store-obscurance. Now the windows are wide and tall and even the door is of glass so all the enticing merchandise can reach for the interest of the split-second passing of the customer. Displays in the very front of the store are kept low or are massed to the sides, like the wings of a stage. Bulkheads seldom exceed 18 inches in height. Frequently the

first fixtures inside the store are well back from the windows so the "upstage" is free for special displays or for traffic flow.

As an aside in connection with the appeal which must be designed into the modern store is the fact that more and more women are buyers today, even in what was once man's realm, the hardware store, etc. These customers from the distaff side have been taught to look for cleanliness and surveys show this is a prime consideration in their selection of stores in which to shop. So the architect must keep constantly in mind the need for making it easy to keep his client's building clean and presentable.

The building housing today's smaller shops is usually of fireproof materials, concrete, brick, tile, with structural glass used to accent the front. Although this material's choice is left pretty much to the architect's judgment, it should enhance the over-all feeling of neat attractiveness for the store, draw attention to it and help hold it.

Inside merchandising has definite dictates. Modern merchandise displays require flexibility in layout and, where self service stores are being considered, certain facilities must be provided for certain parts of the selling areas.

Aisles should be adequate to handle traffic so that

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even if several persons are shopping at opposing counters, there is still space for others to pass. Main aisles, of course, should run from front to rear but cross aisles must also be adequate so that any part of the store can be reached without difficulty. Floor coverings must first of all be serviceable and easy to maintain and in this the architect has many modern products from which to choose. Color of floor should be such that it doesn't show dirt too easily, harmonize with colors in fixtures, display backgrounds and other parts of the store.

Fixtures Are Special Field

Fixtures are a special field and many companies and associations are active in designing and distributing them. Where possible, the building's architect should know whose designs are to be purchased so the fixtures will be properly scaled and laid out. Many merchants' associations have departments devoted to advice to merchants on store layout and some even build their own "association planned" fixtures.

Light has come into its own in the modern store and fluorescents, sometimes used in continuous rows, seem to have the upper hand. Used in front-to-back rows to deepen a shallow store or in cross rows to widen the narrow, layout desired is such that every bit of merchandise on counters and islands below and every extra stock storage bin under counters will have unshadowed, adequate light. Placement of spots and other auxiliary lights to allow for highlighting special displays is desired. Many shops leave certain lights on after closing so the store continues to attract customers' attention

even at night. They are closed off when outside traffic dwindles by time switches.

Today's merchant is color conscious and will go along well with progressive ideas. The clean white of the meat market is often blended with pastel backgrounds on walls and the gamut of colors is run in permanent fixtures backgrounds from greens, orchids and pale blues to cinnamon, strong yellows and shades of brick. Natural woods are coming to the fore and the brilliancy of the wood against the colored background is often used in design.

Associated sales are much sought by merchants and the architect, in designing layouts, must provide space for merchandise that logically goes together—major laundry appliances like washers, ironers, dryers, etc., bear a family relationship to smaller merchandise, like irons, dampening bottles, ironing boards, soap containers and the like. This fact is especially stressed in a self service store where the need for one item and its being placed on the customer's list takes him to a certain spot in the store. Once there, the merchant demands that all sorts of other merchandise be at hand to make logical though silent suggestions to the self-shopping customer to add to his purchases.

In self service stores traffic flow is controlled by the spotting of departments which draw the most customers into the store in the back of the store or toward the exit so the shopper will be exposed to a great deal of other merchandise as he enters and leaves. In this vein, the meat department of a food store is usually in back, as is the nail counter and paint department of the hardware store and so on.

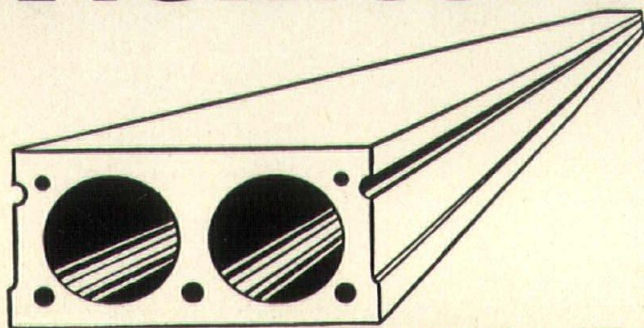
At the cash center, where purchases are wrapped and payments rung up, the merchant wants facilities for showing "impulse items," those high profit margin items which can be picked up on impulse while the customer waits for his package. This cash and wrap center frequently is at the back of the store although it should be convenient to every department in the store. Impulse items are shown at the check-out counters of self service stores with through-and-out traffic plans.

Kill Out the Dead Corners

Designing out dead corners is asked of every architect by his merchant customer. Corners where square contour, intruding supports, inadequate light or similar factors kill off the merchandising appeal of items on display are definitely taboo in today's merchandising picture.

Although the customer sees only the selling areas of the store, today's high speed selling requires well-planned supply areas. The merchant wants his extra stock handy so orders can be filled promptly and when display stock is gone, the display can be replenished with a minimum of time and effort spent. Receiving, warehousing and marking areas of the store are usually at the rear although sometimes, where structural factors allow or even demand, service rooms can run along both sides of the selling area, connected with it by properly spaced doorways. Easy unloading, adequate unpacking and marking space and prompt and effortless movement into stock or display are requirements "backstage."

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Office space in the small store sometimes is walled off, frequently is merely behind a rail. But it should provide privacy for personal conversations about credit, etc., keep store records from the eyes of customers. If the store is one where the owner is alone to serve trade during the noon hour while clerks take their time out, the office usually has clear vision in all directions of the selling floor so customers will not be unnoticed even though the owner is working there.

Provision of parking facilities, where the site permits, and easy exit to the parking area should be part of the store design. In the ever more popular outlying store, design of the parking space becomes almost an integral part of the store building itself.

While these suggestions give some of the things merchants want in a merchandising way out of the store designs, the architect seeking to build additional merchandising background for small store design can obtain it from many of the larger national companies dealing in fixture and merchandising equipment. Many of the stock suppliers of the various types of stores also have materials for use of store owners which will add to the fund of merchandising twists useful in designing the small shop.

MILE-LONG RAILROAD STATION IN ITALY WITH AMERICAN FUNDS

A mile-long railroad station is being constructed in Rome, with considerable American financial aid through "counterpart funds," which will be larger than the combined Pennsylvania and Grand Central stations of New York, Cleveland's Union Station and all the stations in Chicago.

This is part of the \$72,000,000,000 in foreign aid our country has poured out since 1940. The 72-billion is more than was spent by all our presidents from Washington to Harding, including the costs of the Revolutionary War, War of 1812, Mexican War, War Between the States, Spanish-American War, World War I and the numerous Indian wars.

THE MODULE IS BORN

Today's healthy move toward complete modular coordination was traced to its origin recently by W. T. Chevalier in a speech before a group of builders in Chicago.

"Because the cost of construction has gone up we have had to build smaller buildings and fewer buildings," he said, "We are not providing adequate shelter which people can afford. This is a fundamental loss because it concerns one of man's basic necessities. And it has come about because we have not applied our American ingenuity to raising our efficiency in the constructions of buildings as we have in the production of other goods. . . .

"In the 1900's, with the increasing variety of mate-

rials and equipment which the architect had to incorporate in his design, the need for systematic coordination of unit sizes with building dimensions had become steadily more acute. Pioneer research on dimensional coordination was carried out in the '20's and '30's by a successful manufacturer and engineer, the late Albert Bemis. . . . In the final volume of 'The Evolving House' he said:

"The urgency of the need for better homes, built with less waste of human effort (has been) clearly apparent. . . . The best way to meet that need is through the natural forces of evolution—through improvement in the physical technique of providing shelter and the broad co-operative use of that technique by all concerned. This book suggests an improvement in such technique—the cubical modular method. . . ."

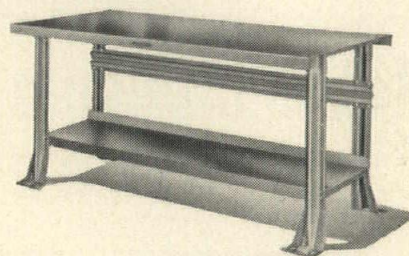
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JANUARY PERMITS IN ST. PAUL TRIPLE SAME MONTH IN 1952

Building permits in St. Paul during January, 1953, set the building industry afluttering as they tripled the total permit values of the same month in 1952. The January permits issued were for \$2,568,161, compared with the 1952 figure of \$933,320. Several large projects helped materially in boosting the totals although there were a myriad of smaller jobs entered.

TRUCKS TO BE AVAILABLE ON LEASE BASIS

Of interest to builders who dislike maintaining their own truck fleets is the new business of renting trucks the same as cars are now made available on lease. Announcement of the new service, to be coast-to-coast, was made by Reo Trucks Leasing, Inc., a subsidiary of Reo Motors.

The first leasing activities will be centered in 11 key cities, including St. Paul for this area.

Regular, standard leasing, according to Reo officials, is the basis of the operation, which allows the user of trucks to "buy miles instead of trucks." The leasing agency will lease the trucks on a periodic basis and they will be maintained on a seven-day-a-week schedule, assuring they will always be in top operating and presentation condition.

As an aside, it was pointed out the leasing costs are tax deductible.

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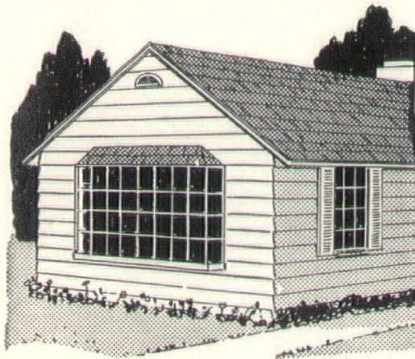
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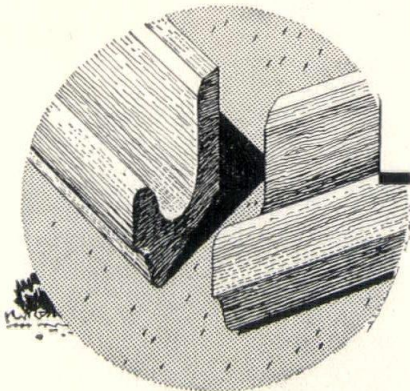


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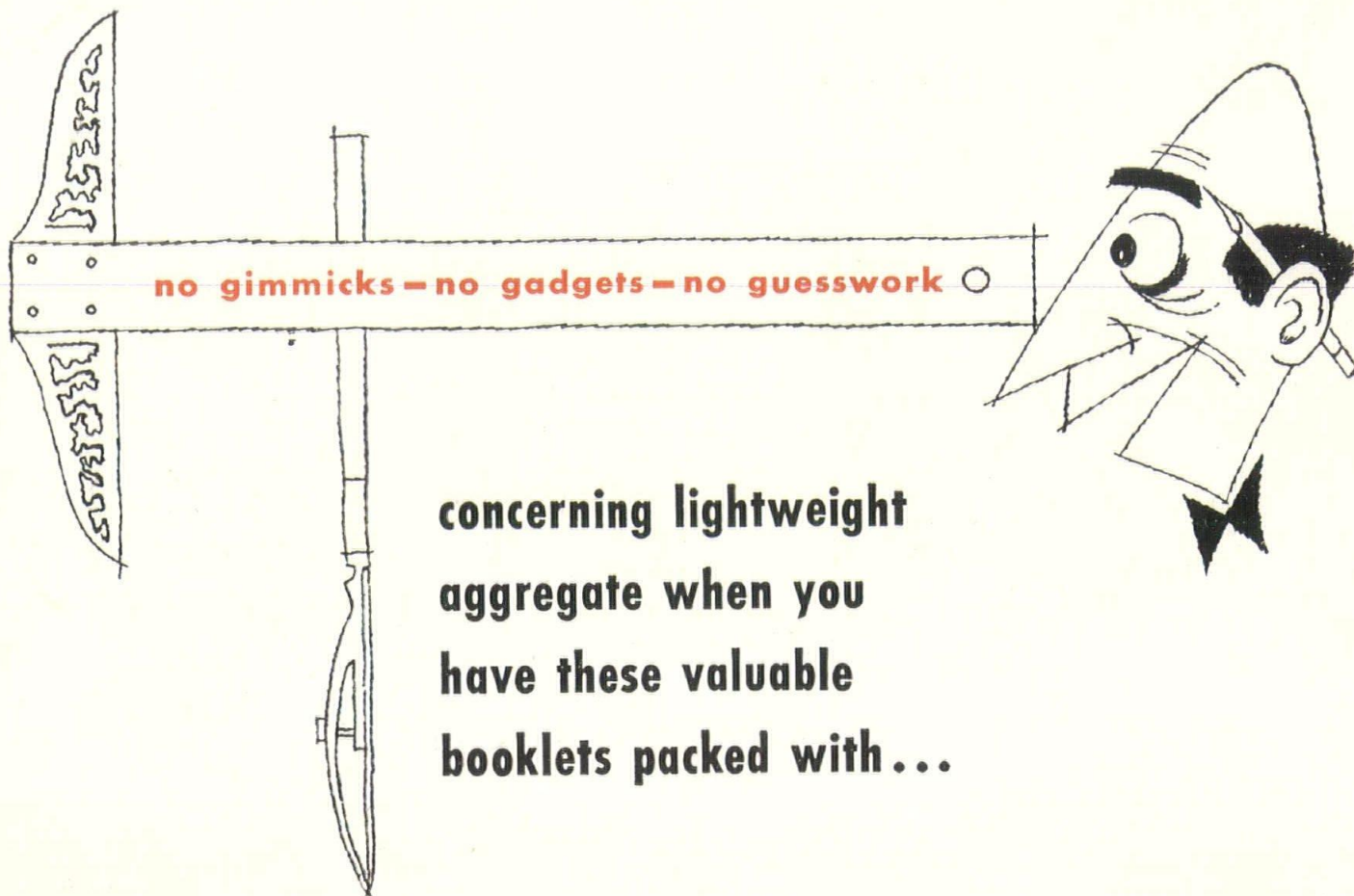
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