ESSIVE ARCHITECTURE

6

june 1952

shopping centers

largest architectural circulation in the world

The Bon Marche Store, Northgate Shopping Center, Seattle, Wash. Archt.—John Graham & Co.; Contr.—Howard S. Wright & Co., Inc.—both of Seattle, Wash. Pozzolith Ready-Mixed Concrete supplied by Pioneer Sand & Gravel Co., Seattle, Wash.

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Masterplate produces "iron-clad" con floors with 4-6 times longer life; also sp resistant, non-dusting, less absorbent easy-to-clean. Non-colored and 11 c For new floors and resurfacing.

Section of Masterplate Floor. Note Thickness of Armored Surface

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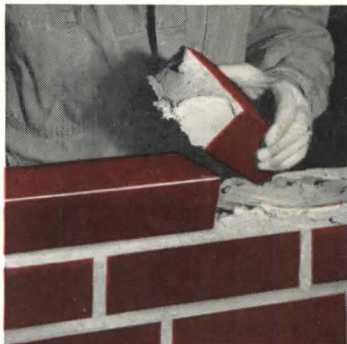
For tight brick walls. Helps over shrinkage in mortar joints, principal cau leaky brickwork, by producing mortar low water content, excellent workal and good bond strength.



Good workmanship and goo bond, with "O.M.", produce tigh brick walls.

the MASTER BUILDERS

CLEVELAND 3, OHIO — Subsidiary of American-Marietta Company — TORONTO, C

PROGRESSIVE ARCHITECTURE

June 1952

see

kwikset's

newest

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* OPTIONAL AT NO EXTRA COST

KNOLL OFFICE PLANNED FURNITURE... a new comprehensive collection of desks, tables, cabinets and molded chairs, designed to provide maximum flexibility in the planning of contemporary office interiors. Illustrating the admirable versatility of this new line is the Knoll Executive Desk. A basic structural unit of metal frame and wood top, it converts into a series of co-ordinated desks with varying drawer arrangements for individual needs. Finished in plasticized, burn-proof, stain-proof walnut or birch; metal base is satin black. Wide range of sizes permits most efficient utilization of available square footage. Full information on request.

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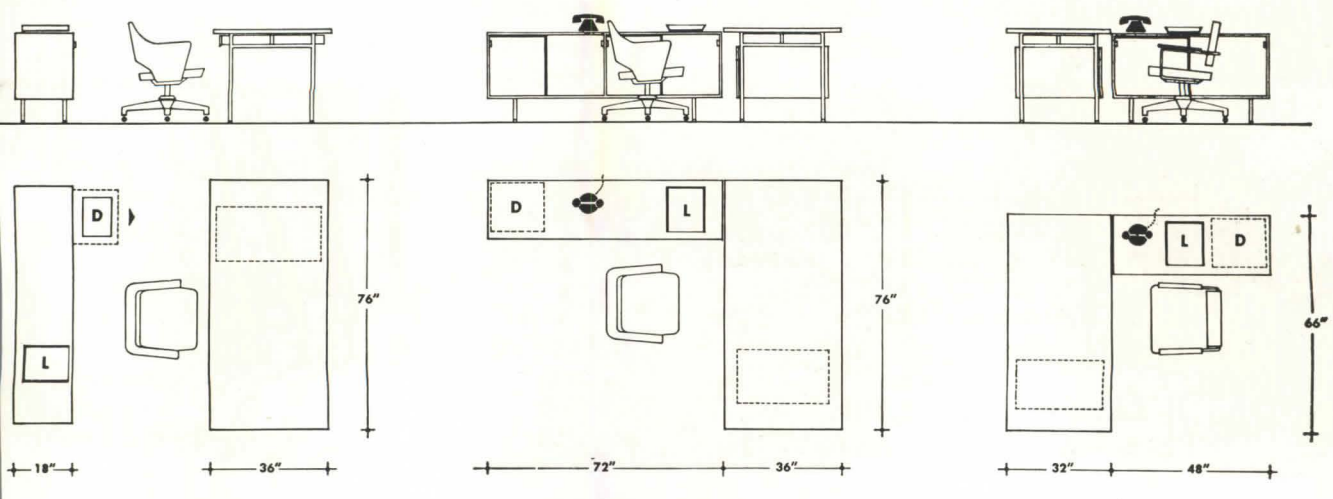
LETTER TRAY
DICTAPHONE SLIDE OUT



More Destructive than Termites

CONDENSATION WILL MAKE PAINT PEEL, PLASTER CRUMBLE, WOOD ROT, AND MASONRY AND MORTAR DETERIORATE.

Ordinary insulation in walls lets water vapor flow through, condense, accumulate and cause damage. Vapor is a gas. It flows through walls from high vapor density areas to low. Cold air can retain less vapor in suspension, and creates a low density area. Vapor pierces plaster, wood, brick, stone, asphalt, building paper, ordinary insulations. Wherever it touches a substance colder than its dew-point, it condenses.

Inside walls, within ordinary insulation, onto and within siding or sheathing, onto inner wall surfaces, vapor flows and condenses if a vapor barrier of **zero** permeability is not provided. Upon condensing, it stimulates fungi and insects which greedily break down wood and cause timber rot. It makes paint peel, plaster crumble, iron rust.

Impervious to vapor, multiple accordion aluminum is also non-condensation-forming. The slight mass of the aluminum sheet on the warm side (1/5 oz. per sq. ft.) approximates the adjacent air's temperature (by conduction) so quickly that it can extract very little heat from it. Therefore the air can retain its vapor content in suspension, without otherwise resulting condensation.

Each aluminum sheet throws back 97% radiation on the warm side, emits but 3% on the cold. On the cold side, each aluminum sheet is slightly warmer than adjacent air, and heats it. Therefore the capacity of the air to retain vapor in suspension is slightly increased, and no dewpoint is ever reached. Nowhere on nor within multiple accordion aluminum does condensation formation occur.

The aluminum and fiber sheets block inner and outer convection. In addition, the air spaces practically eliminate conduction.

Multiple accordion aluminum is commercially available as Infra Insulation, Types 6, 4, and 4 Jr. For a complete discussion of the subject, ask us to send at our expense, Schwartz's "Simplified Physics of Vapor and Thermal Insulation," and the Government booklet, "Insulation and Weather-Proofing" (Div. Farm Bldgs. & Rural Housing).

INFRA WALL HEAT FLOW THERMAL FACTORS

Type 6	**C. 073, R 13.69 = 5⅝" dry Rockwool**
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( ) Please send free literature on how to avoid damage by condensation.
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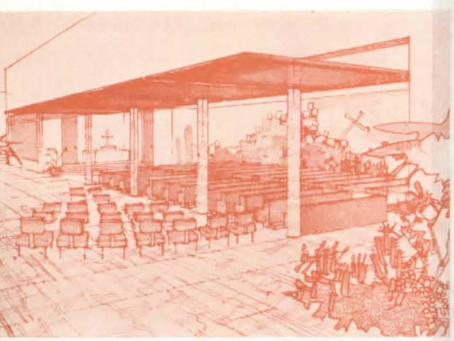
combined sanatorium and university

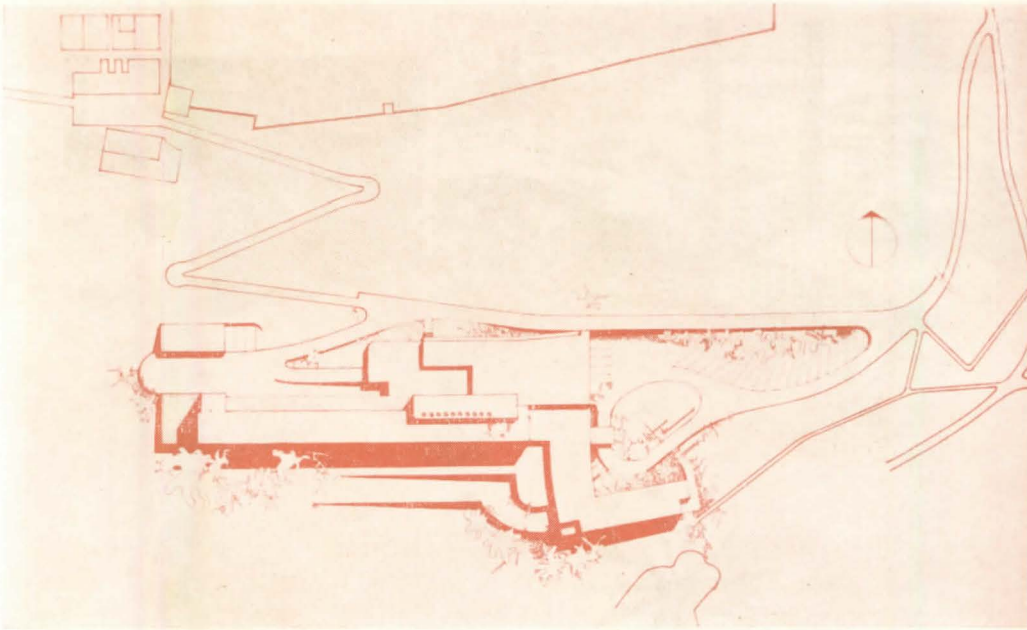
under construction at Agra, Italy. on a slope that commands a superb down across Lake Maggiore and the ›unding ranges of mountains, this is narkable combination of a TB sana- m and university. The architect for complex is Richard J. Neutra of Los eles; his chief collaborators are Dr. ›vico Quaroni, Frederick Reichl, Sid- H. Brisker, Edgardo Contini, and Neutra.

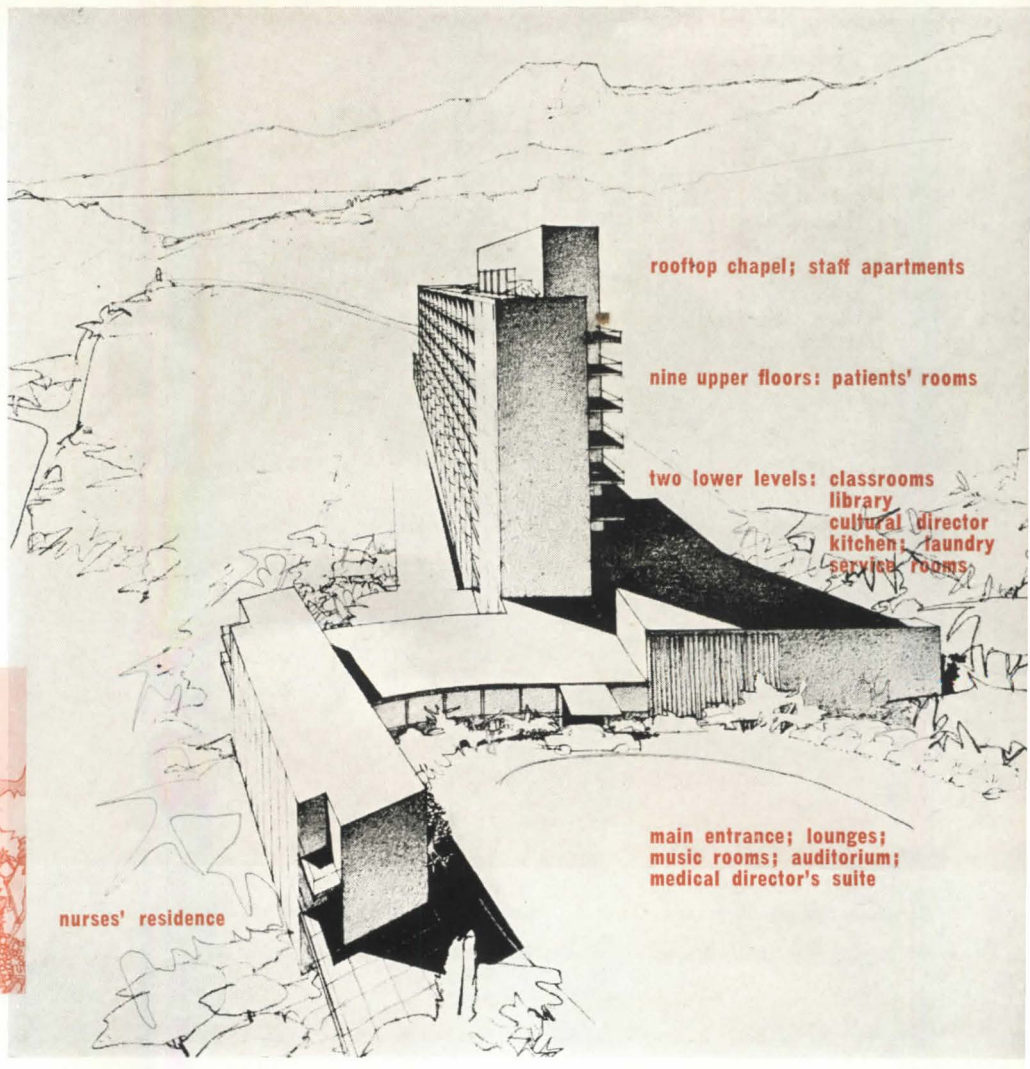
is latter-day "magic mountain" is be- built for the *Associazione Sanatorio ersitario Italiano*, from the last three ls of which the project derives its e of SUI. This organization, headed eading Italian physicians, has cordial ions with the administrations of all an universities and is supported by Ministry of Health of the Republic. ra requests that special credit be n to Dr. Omodei Zorini, SUI's presi- , and Dr. Pietro Buscaglione, the e secretary, for "their untiring efforts the authorities in Rome."

cidence of TB in Italy was consider- aggravated during the war years, the customary disposition of the af- d was to relegate them to compara- inactivity at their homes—a lonely, rating existence that doctors con- ed was a psychosomatic error. The behind the combined sanatorium-



chapel opens to the southern terrace.





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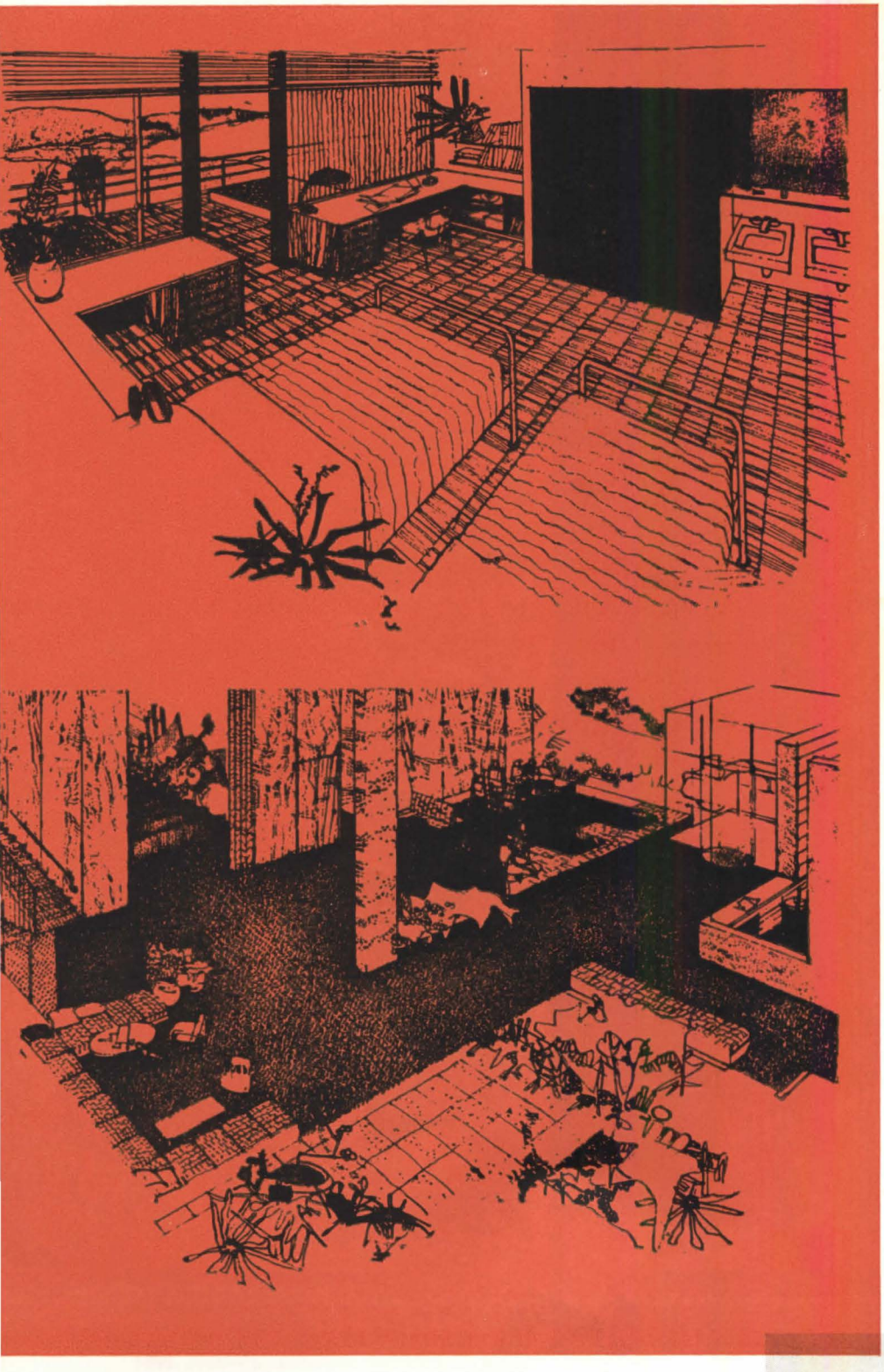
Typical two-patient room, facing south; sun balcony beyond.



university is to set up a health-care
ity in ideal surroundings, where the
patients can stay and receive expert t
ment but where they also will have
educational goal, the stimulation
friends, and the encouragement of
paring for future careers. Thus, i
hoped, the stumbling block of the a
tion may be turned into a stepping st
with the curative process speeded.
educational portion of the group will
college affiliated with all Italian univ
ties, and it will have an accredited te
ing and visiting-lecturers' staff.

In the design of the project, the e
was to avoid an institutional aura as
as possible, with emphasis, both in
and visually, on the cultural aspects—
auditorium, lounges, music rooms, libr
etc.

Each of the nine upper stories of
main block has facilities for 33 pati
in either single or double rooms, with
joining south-facing balconies l
enough to accommodate beds, a di
room, and a living room. On the lo
floors are the college classrooms, libr
cultural director's suite, and main ki
en, laundry, locker rooms, and ser
rooms. The chapel is on the roof of
main block, with southern walls that
be fully opened to a roof terrace; al
this are two small apartments for s
members.

At the front of the group is a two-l
curved element with the main entra
lounges, smoking room, billiard ro
music rooms and auditorium; as wel
laboratories, medical director's offices,
amination rooms, etc. At the south
corner is a multi-story residence
nurses.

In dealing with his client at long-
tance, Neutra went into the analysis

(Continued on page

Entrance lounge, with music-assembly room through folding door at left.

Lake Maggiore, as seen from the sanatorium-university site.

SHOPPING CENTERS

the new building type

a study

written and arranged

by

or Gruen, Architect and Lawrence P. Smith, Real Estate Consultant

&

Mr. Gruen's Associates:

R. L. Baumfeld
Karl O. Van Leuven, Jr.
Edgardo Contini
Ben Southland
Fred G. Stickel
Joseph B. Olivieri

Mr. Smith's Associates:

Frank A. Orrico
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Frederick C. Ample

This issue of PROGRESSIVE ARCHITECTURE, devoted to a study of the planning of shopping centers, was prepared very much in the same manner in which shopping centers are created—by team work. An architect and a real-estate economist are responsible for the basic concept. Much of the writing and the co-ordination of the material was also done by them. However, their associates have contributed materially, by writing chapters, by preparing drawings and sketches, and by taking part in round-table discussions held on many occasions over many months.

The cumulative experience of the contributors is tremendous. Since he came to New York, in 1939, Victor Gruen, architect with offices in Los Angeles, Detroit, and New York, has been active in store design. In this field he has been a pioneer; many aspects of modern store design have been introduced by him in projects which range all the way from intimate shops to department stores. Gruen early turned to shopping center design as a potentially new field of architectural expression, and in recent years he has designed many neighborhood centers, suburban centers, and regional centers. Larry Smith, real-estate economist and consultant, has a background of real-estate experience going back to 1917, as well as private business experience; working in recent years in a professional capacity as consultant for shopping center projects, for investment companies, insurance companies, department store organizations, and private investors. He is regarded as one of the outstanding authorities in the shopping center field.

what is a shopping center?

A shopping center must be more than a mere collection of stores and shops.

A shopping center must be even more than its name implies—a center for shopping.

The regional shopping center must, besides performing its commercial function, fill the vacuum created e absence of social, cultural, and civic crystallization points in our vast suburban areas.

The centers of our big cities are shrinking, not only as far as the size of their populations is concerned, nuch more in their importance to the social life of the metropolitan inhabitants.

During working hours, the downtown centers still represent great concentrations of trade, banking, ffice work activities. For 40 hours a week, most of them teem with life.

But for the 128 hours a week over which the metropolite is master of his fate—the 128 hours a which are devoted to his or her private life, those 128 hours and the many hundreds of hours a year g which holidays unchain him from his duties—the core areas of our cities are deserted and might as not exist.

This is true for the working part of the population. For the non-working part, downtown is even less tant. Our children, our youth, the aged, and the housewives are groups which together represent a ity of the population. For them, a trip "downtown" occurs sometimes only once or twice a year and e a trip into another city or country.

True, there are exceptions. Manhattan, Chicago, San Francisco, and a few other cities still have attrac- of sufficient magnetic power to draw the suburbanite into the downtown area from time to time. But there, magnetism decreases as the centrifugal forces grow.

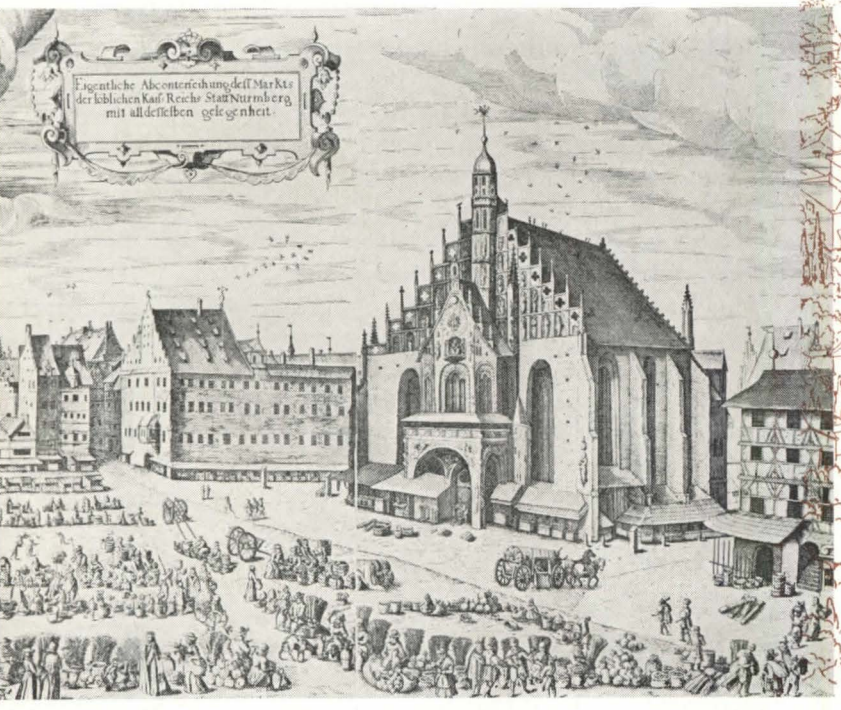
The reasons for this phenomenon are many-fold. The mass migration from the country to the city took place in the past has now been reversed by a new, still more powerful wave of migration from ity to the suburbs.

The automobile has made this migration possible. And now the metropolite finds himself in the on of the Sorcerer's Apprentice—the spirits he conjured up he cannot exorcise. The millions of gaso- riven "spirits" get into each others' way and choke the highways, roads, and parking areas.

The metropolite is willing to find his way into town in order to make a living, but he protests nently against the idea of repeating this nerve-racking routine for purposes of pleasure, relaxation, al enrichment, or education.

This condition will exist, and become even worse, as long as the pressures to which downtown are exposed are not lightened, and as long as the ring of blighted and slum areas which surrounds

Nuremberg market place, from a 1599 engraving by Lorenz Strauch, shows the shops around the square under arcades; the temporary stalls in the center of the square. Commercial activity is integrated with the town center—churches, municipal buildings, and stores are together.



The Greek Agora was the market place and, at the same time, center of city life. Here, in the Agora of Assos, one sees the stoa (market hall) set against the mountain, with a promenade before it. Opposite is

Credits for all illustrations on page 160.

so many of our downtown districts is not broken. Movements are underway to do something about both slum clearance and rehabilitation sections of the Housing Act of 1949 might very well open the wa eliminate the slums which choke the downtown areas; and large regional shopping centers will absorb en of the buying power of the suburban areas to ease traffic and parking conditions downtown.

If and when this happens, downtown will again be able to serve satisfactorily its original trade functioning for the size of city for which it was originally built; and in addition it will become more desi as a principal center for social and cultural activities.

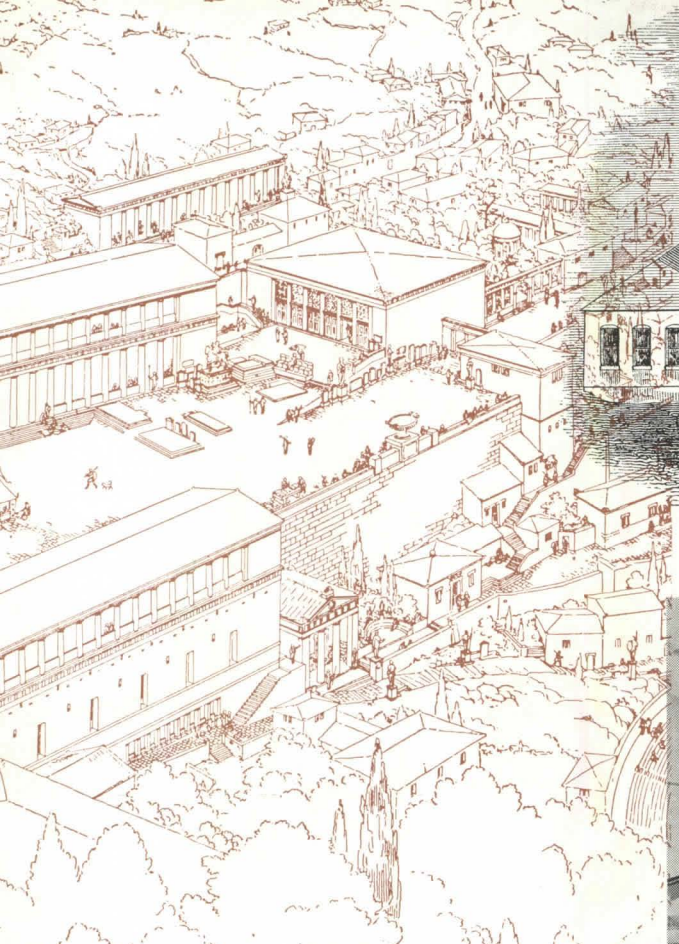
Regional shopping centers may well be regarded as satellite downtown areas, offering muc what the metropolitan centers give and adding the decisive advantage that, if they are designed corr and scientifically, they will take care of today's needs and today's living. They will welcome the hord automobiles which approach them, providing easy access and ample free parking space. They will restfulness, safety, and esthetic values. They can become places where suburbanites will visit for a shopping trip, and also centers where they will want to congregate for many hours—both days and ever

●

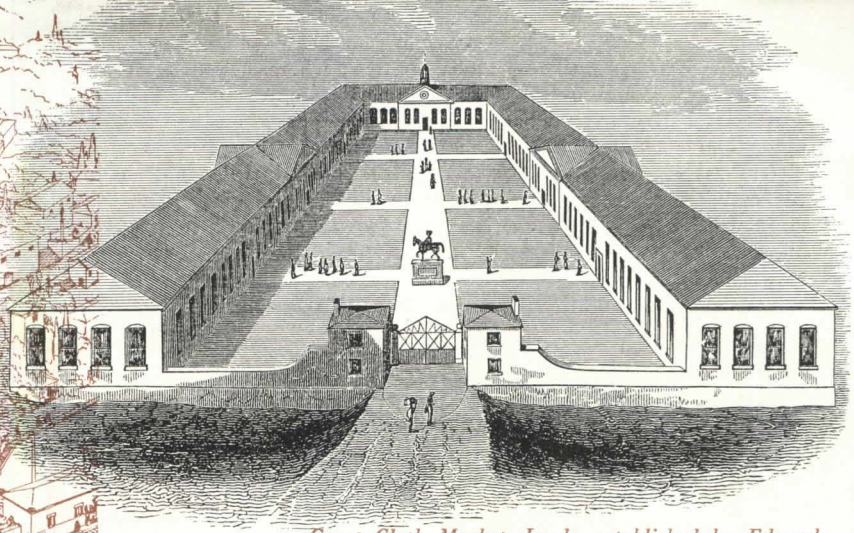
The need for social and cultural activity has by no means disappeared in our times. It has been artifi stifled by the price tag attached—a price tag that spells exhaustion, loss of time, high transportatio parking costs—all efforts out of proportion to the gain.

With the advent of the large shopping center there will be a new outlet for that primary h instinct to mingle with other humans—to have social meetings, to relax together, to enjoy art, music, activities, the theater, films, good food, and entertainment in the company of others.

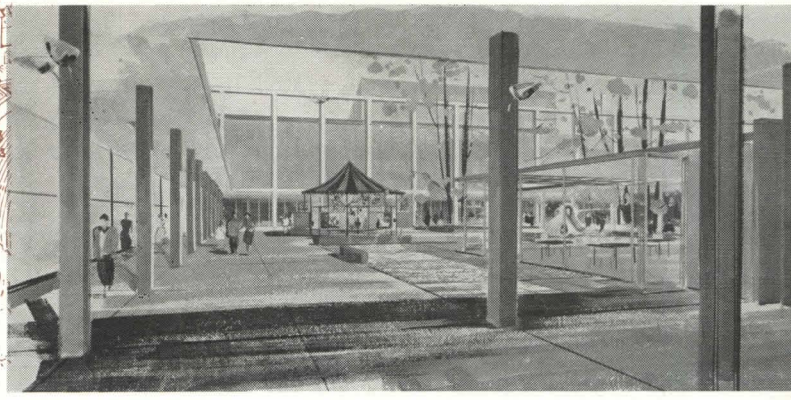
What are the requisites to the fulfillment of this function of a social and cultural center? Fi all, to include, from the inception of the general plan, attributes which go beyond the commercial n



the three-story bazaar, with storage space below. Temple, council house, and theater complete the center. In the center of the mall are temporary shopping facilities under a tent.



Great Cloth Market, Leeds, established by Edward III (1312-1377 A.D.) was another mall-type center.



Proposal by Victor Gruen for a contemporary mall, keeping the amenities and the facilities of old.

auditoriums lecture rooms exhibit rooms reading rooms
theaters restaurants of many types club rooms community centers
libraries children's day nurseries boy and girl scout dens

Second, to take advantage of the existence of public areas—such as garden courts, malls, arcades, ces, covered walkways—for relaxation and amusement. If such areas are properly planned, they will opportunities for outdoor activities. There will be greenhouses, play areas, band shells, outdoor theaters, or fashion shows, miniature zoos, outdoor shows of painting and sculpture, flower shows, picnic grounds.

Third, to realize an architectural concept and treatment which offer variety without confusion, colorful arance without garishness, gaiety without vulgarity; a concept which creates an atmosphere in which the of shopping becomes restful and fun; an architectural treatment which, by application of scientific design, nates what appears as an ugly rash on the body of our cities—the countless smoke stacks, telephone , power poles, dangling wires, air conditioning and ventilating ducts—treatment which pays design atten- to that ugly duckling of our urban civilization called "street furniture." The myriad warning signs, posts, bus-stop signs, directional signs, hydrants, waste baskets, letter boxes—all must be redesigned, dinated, and brought into a disciplined pattern.

Here, at least, is an opportunity for contemporary art to find a place as part of a new architectural pt. Here is space for sculptures, murals, fountains, mosaics on floors, and mosaics on walls.

That this is a thoroughly practical concept becomes obvious if one considers that a shopping center is a civic, cultural, and social center will develop magnetic powers to attract more people and hold them longer time than if it were only a commercial center. More people—for more hours—mean cash ringing more often and for longer periods.

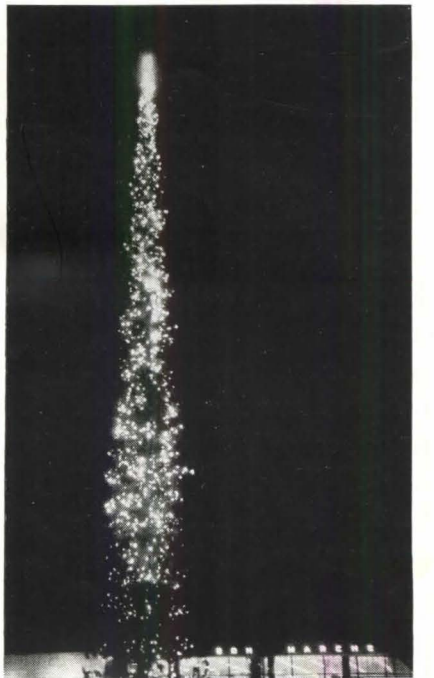
In the anarchistic wilderness of our cities there have existed up to now only a few cases of orga architectural development: civic centers, public parks, college campuses, industrial centers. Now a new o tunity for the creation of co-ordinated, planned, and spirited architectural units exists in the large sho centers. This new architectural design category is different in one very important aspect from the othe is neither publicly owned nor completely controlled by one institution.

The shopping center is a conscious and conscientious co-operative effort by many private comm enterprises to achieve a specific purpose: more and better business. This co-operation, in order to be effe must be enlightened and wholehearted. Individual wishes and needs must be secondary to the needs requirements of the center as a whole. This *does not* mean subjugation of individual wishes and disr for the individual needs of the tenant stores. The design problem of the shopping center is the *co-ordinati* these needs and wishes with each other, and with the whole. Conformity, but not uniformity, must be the In addition, if it is planned to integrate with the community, the new shopping center can be a boon, r than a threat to the privacy and the stability of residential areas.

The achievement of complete co-ordination becomes the mainspring of the architect's work. It influ his work through the entire project, from the moment the search for a site starts, through the stages of usage planning, traffic planning, merchandising of the center, to the selection of colors and materials.

In creating this new architectural design category, we will be wise to observe what has been do the past and in other parts of the world. During many ages and in many lands, such combinations of cul social, and trade centers have existed. Today's shopping center has an opportunity to give us again desirable gathering place, planned in a co-ordinated fashion, for the automobile age. In the first excit of the industrial revolution we temporarily lost our feeling for planning, organization, and architec beauty. The modern shopping center is a clear expression of the desire to regain these advantages, transl past experiments into forms suitable for our mechanized life.

Because shopping-center planning is in our era a young and new category, it is impossible to judgment or make final statements about any phase of the subject. The contributors to this issue have w actively for many years on problems of shopping-center planning. This experience has had a sobering on us; we have learned enough to realize how little we know. Therefore we decided early in the discussion this issue of PROGRESSIVE ARCHITECTURE would not be a recipe for cooking up the shopping center. It wi be a complete history of shopping centers, nor a critical review of existing or projected ones, nor a hand of procedures. It will, rather, attempt to present and spotlight the problems involved. It will mention and means that have been found practical, without any claims that they are necessarily the best ones. A will, we hope, provoke thinking and discussion.



Northgate, at Seattle, Washingon—de signed by John Graham & Co., archi tects and engineers—recognizes commu nity needs by providing a children' playground with a carnival atmosphere It fosters community pride with "th largest Christmas tree in the region," thus emphasizing the fact that commerce thrives where social gathering is mad easy and pleasant.

the definitions

A shopping center is different things to different people. To the customer it means a group of stores with e parking, no traffic worries, minimum walking distances, variety of merchandise, and a pleasant atmos- in which to shop.

To the merchant it means a business location with adequate parking, tremendous drawing power, all ble customer conveniences, protection against irresponsible competition, stable rental value, efficient ce facilities, flexibility in floor space, substantial and well-designed buildings, landscaping—in short, a ion wherein all merchants band together to furnish services none could afford singly and, in turn, to receive ces and trade which could not be given to them singly.

Modern shopping centers are relatively new, the concepts are changing, new solutions are constantly it, new problems arise. There is no tradition for the auto-age regional shopping center, no set of rules, et concepts, and a great deal of misunderstanding and misinterpretation, due mainly to the lack of a ion shopping-center language. In the interest of clarifying some of the most commonly misunderstood , our interpretation follows:

the center

Neighborhood Shopping Center: Serves 10,000 to 20,000 people. Has a core of foods and drugs. Sells mostly convenience goods.

District or Suburban Center: Serves 20,000 to 100,000 people. Has a core of large supermarket or small department store. In addition to convenience goods, sells apparel, hardware. Adds depth to merchandise.

Regional Shopping Center: Serves a population of 100,000 or more. Has one or more major department stores as a core. Has great depth and variety in merchandise.

the building areas

Gross Area: Total floor space of all buildings in a project. This figure should be the basis for quoting building costs.

Rentable Areas: That part of gross area within buildings which is used exclusively by individual tenants, and on which rent can be obtained, usually the difference between gross area and common areas within buildings.

Common Areas: Areas, such as the mall, corridors, tunnels, public stairs and elevators, ducts, truck routes, loading docks, public and employee rest rooms not in individual stores. These are not rentable but their maintenance charges are levied *pro rata* against tenants.

Sales Area: Rentable area minus storage space.

Service Areas: Part of common areas used for servicing, such as truck tunnels, delivery docks, access corridors, etc.

the site areas

Building Area: The ground area of the enclosed building or buildings.

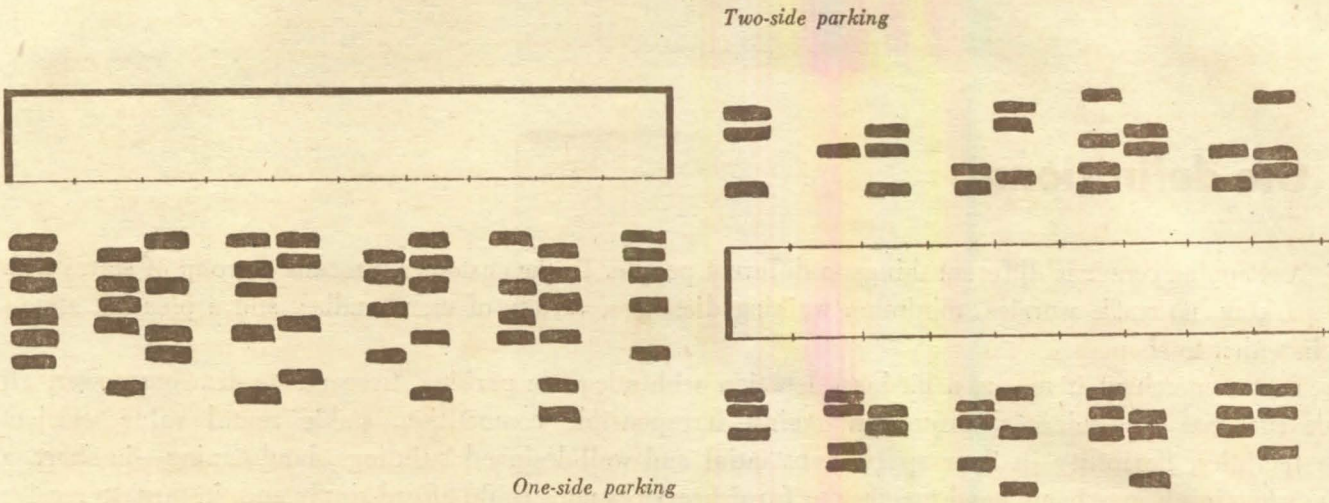
Covered Area: The ground area of the enclosed buildings plus all roofed areas, such as covered walks, shelters, etc.

Road Area: The area of all main private roads not directly serving parking stalls. Road area includes all feeder roads, perimeter roads, truck roads, ramps, etc., but does not include parking aisles or public streets.

Service Yard: The area devoted to servicing the center which is not enclosed or roofed. It includes rubbish collection and disposal stations, truck-loading spaces, maintenance yards, etc.

Parking Area: All space devoted to parking, including aisles, minor walks, islands, minor landscaping, and other features incidental to parking. Parking area is sometimes subdivided into customer parking, employee parking, and overflow or reserve parking.

Reserve Area: Area undeveloped or temporarily developed, intended for future use coincident with the shopping center. Such use may be expansion of buildings, parking, or both.



Two-side parking

One-side parking

parking

Parking Ratio: The relationship of *parking area* to *gross area.*

Single-Level Parking: All parking on grade and at the same level. Ordinarily this level coincides with the major shopping level.

Landscaped and Incidental Area: Major landscaped areas, such as courts, groves, park strips, and buffer areas. Incidental areas include major walks, free playgrounds, and other recreational features of the shopping center.

Site Area: The gross area of the property. Includes all space within the property lines.

Split-Level Parking: All parking on grade, but at two levels. Ordinarily used with two sales floors, each level of parking coinciding with a shopping level.

Double-Deck Parking: Two levels of parking with one level at grade, the other elevated or depressed. Used where area is insufficient for single-level parking.

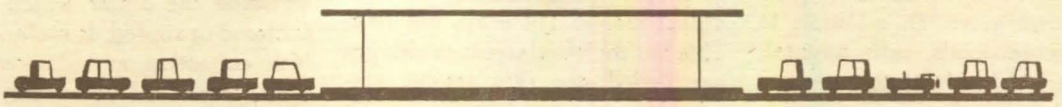
One-SideParking: Peripheral parking on one side of the building, single or split-level or double-deck.

Two-SideParking: Parking on both sides, as used with a single-store depth. Either single, or split-level, or double-deck.

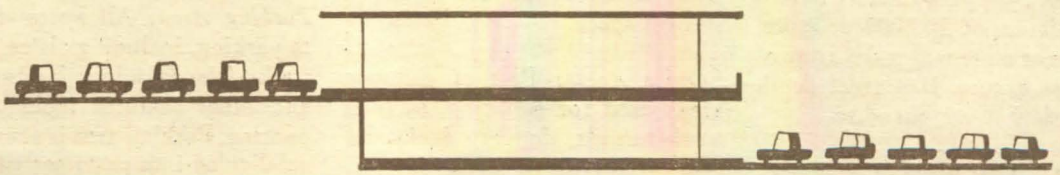
economics

Economic Analysis: The process of analyzing and interpreting all economic data relating to the shopping center, including patronage expected, volume of business, expense of operation, probable rents by stores, net income of the project, financing requirements, and economic feasibility in general.

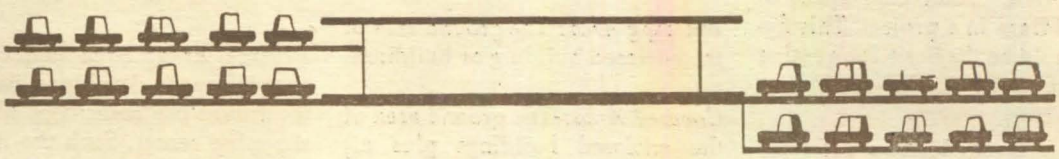
Trade-Area Pattern: The final delineation of the boundaries of the trade area as affected by distance, arterial highways, obstructions caused by extensive land use by large institutions, golf courses, etc., and the limitations placed by relationship to rivers, railroads, and the downtown area itself.



Single-level parking



Split-level parking



Double-deck parking

Gross Population: The total population of the trade area.

Net Population: The population which can be expected to trade in the proposed project after discounting for distance and other factors, such as access, character of the center, nature of the population, etc., all of which can affect the degree of patronage.

Primary and Secondary Trade Areas: The primary area is the more immediate area within which the center can expect to do a substantial proportion of the volume of food and drug business. The secondary trade area is the more remote area whose patronage of the center will be largely for apparel, furniture, general department store sales, etc.

Trade Habits: The existing pattern of trade, prior to the establishment of the center, that has developed over a period of years, and is influenced by the location of existing stores, including the effectiveness of leading downtown department stores.

Disposable Income: Same as Department of Commerce definition.

Consumption Expenditures: Same as Department of Commerce definition.

Retail Expenditures: The portion of disposable income which is spent in retail stores.

Gross Potential Sales: Total retail sales made to all residents in the trade area, regardless of where the purchase was made.

Net Potential Sales: Total retail sales that could be expected to be made to the net population tributary to the proposed shopping center.

Per Capita Retail Sales: Total retail sales in a given area, divided by the population of that area.

Store Integration (Pre-merchandising): Analysis of the proper relationship of stores of various categories, with the purpose of developing their highest volume of sales.

team: architect and economist

Fallacy: "The buildings are incidental; only the trade potential counts."

When Victor Gruen and Larry Smith started to work on this issue, the members of their organiza- were asked the question: who is more important and who, therefore, should co-ordinate all work for ing center planning—the economist or the architect?

One of the economists answered, "The ultimate goal of the owner is to build a satisfactory financial ient—and, only incidentally, some buildings. Therefore, the economist should be in full charge."

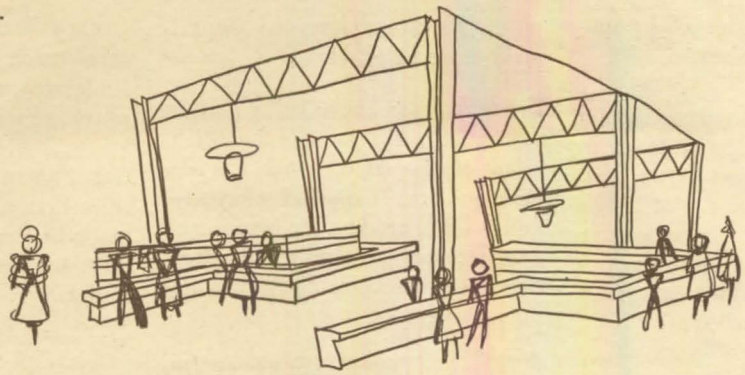
One of the architects answered: "A poorly planned center, uninviting in appearance, erected in lance with no matter how brilliant an economic analysis, would be a failure. Therefore, the over-all nsibility should be the architect's."

They both have a point. It is unquestionable, as the economist has stated, that the primary aim of mercial project is realized profit. To arrive at such realization, two factors must be present: the market ial and the correct tapping device. The analyst will detect, forecast, evaluate the potential. The archi- ill design the most efficient organic and economically sound environment for marketing—the most effec- pping device he can achieve for the given potential.

A competently designed group of buildings located in an area of poor economic potential will much a failure as an oil well sunk where no oil-bearing strata exist; and no amount of architectural will save it. On the other hand, once the potential is established, a poor handling of the architectural m will represent an economic waste, bring lower profits and will, in time, hasten failure against the tition.

So there is no single point where analysis can be divorced from design. Analysis without design is,

Fallacy: "The decisive factor in design is the structural system."



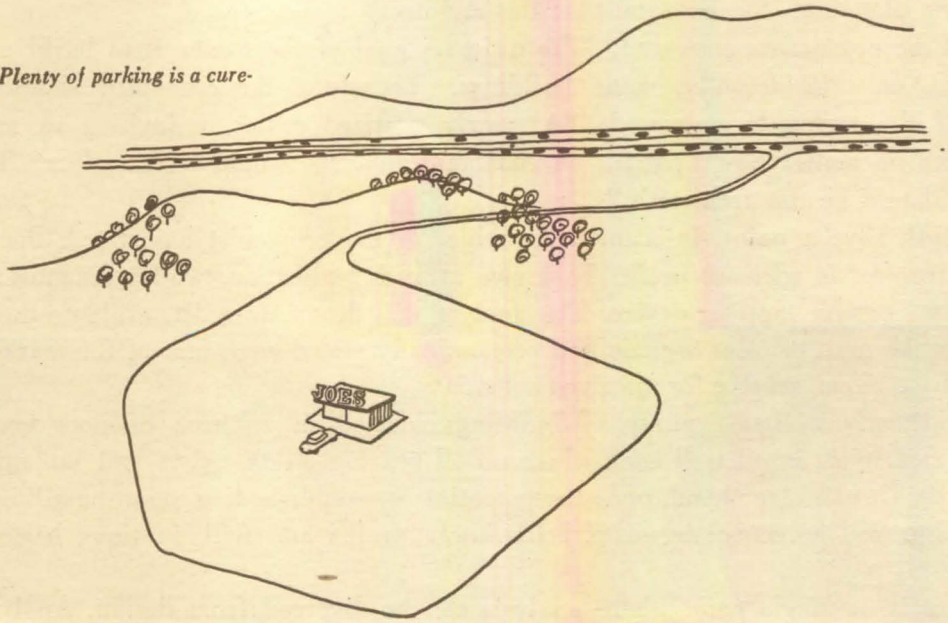
at best, a theoretical exercise. Design without analysis is altogether unrealistic. A building constructe either basis alone faces intolerable risks.

Since analysis cannot be separated from design, it is useless to argue who and which is more impor Shopping-center design is teamwork and the ideal team consists of the architect who is fully aware of the of our economy, and who has wide knowledge of city planning and the problems of the retail trade; an economist who is fully aware of the tenets of contemporary architectural and structural design, whose ex ence with problems of financing, analysis of trade potentials and merchandising is great, and who enough imagination to project into future trends his charts and statistics drawn from the past.

These two central figures of the team should be associated with a large number of teammates: structural, mechanical, and electrical engineers; traffic planners; merchandising analysts; landscape desig leasing experts, and many more. All these team members must exhibit infinite patience, straightfor thinking, and comprehensive understanding in co-operating with each other, with the owner, with city and authorities, financing institutions, highway commissions and, last but not least, with the tenants.

Such a team should be able to avoid the human but dangerous tendencies to overestimate the impor of certain links in the chain of analysis and design. It will never subscribe, for instance, to any of the per dogmas which are illustrated here by Karl Van Leuven's cartoons. It will recognize that the process of pla a shopping center is one of fitting together, co-ordinating, revising, judging ideas, views, prejudices, stati and facts. The problems will stem from all the individuals involved in the design, in the financing, the up and the maintenance of the completed center. The solutions will come from teamwork, with the architec the economist acting closely together as co-ordinators.

Fallacy: "Plenty of parking is a cure-all."



PHOTOGRAPHS of shopping
s shown on this and the following
as well as the illustrations else-
in this issue, have been selected
e authors and the editors to illus-
pecific points made in the articles;
ire not intended to represent the
' or the "most beautiful" examples
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aping in achieving the integration
and the benefit to a community
well-planned shopping center can
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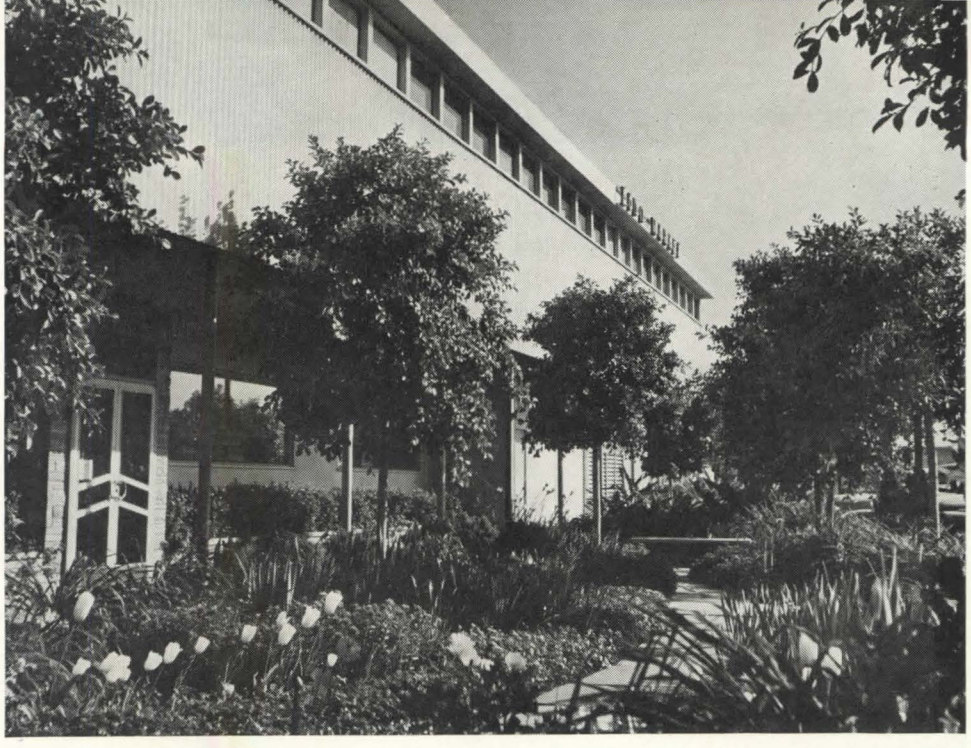


landscaping

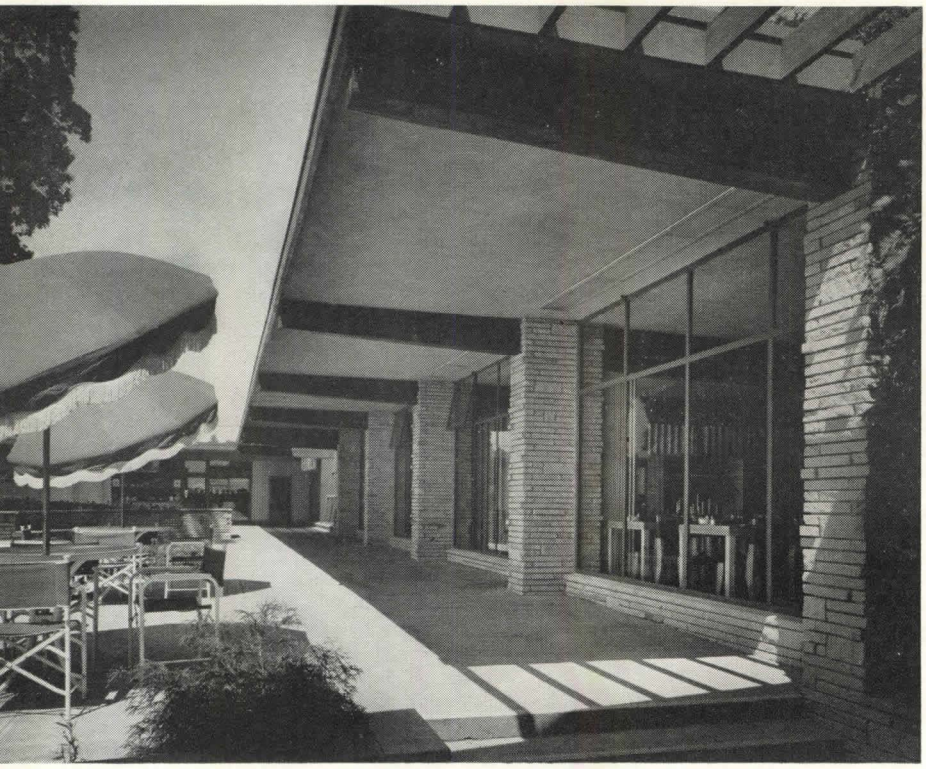
Lido Shops (above), Newport Harbor, California, designed by Dwight Gibbs, architect. Entrance to the super-market is inviting because of its rich planting.

Bullock's Pasadena (left), California, Wurdeman & Becket, architects. Landscaping within parking-area dividers is both functional and attractive.

& Country Center (right), Palm
gs, California, by A. Quincy Jones,
rchitect. Landscaping and build-
ave been planned together to draw
ners to first- and second-floor shops.

Baldwin Hills Shopping Center, Los Angeles, California, by Robert E. Alexander, architect. This project is an excellent example of the point made by the authors in the opening section that shopping centers offer a new opportunity for unified design and planned architectural organization. It also illustrates the point (stressed later in the section on Storefronts and Signs) that the basic architectural concept must be strong—and capably handled—to achieve that unity within the competitive economy that controls merchandising. Here, show-window lines, roof lines, canopy lines, carry through a sense of scale and co-ordination, without limiting use of materials or display techniques.

unified desig

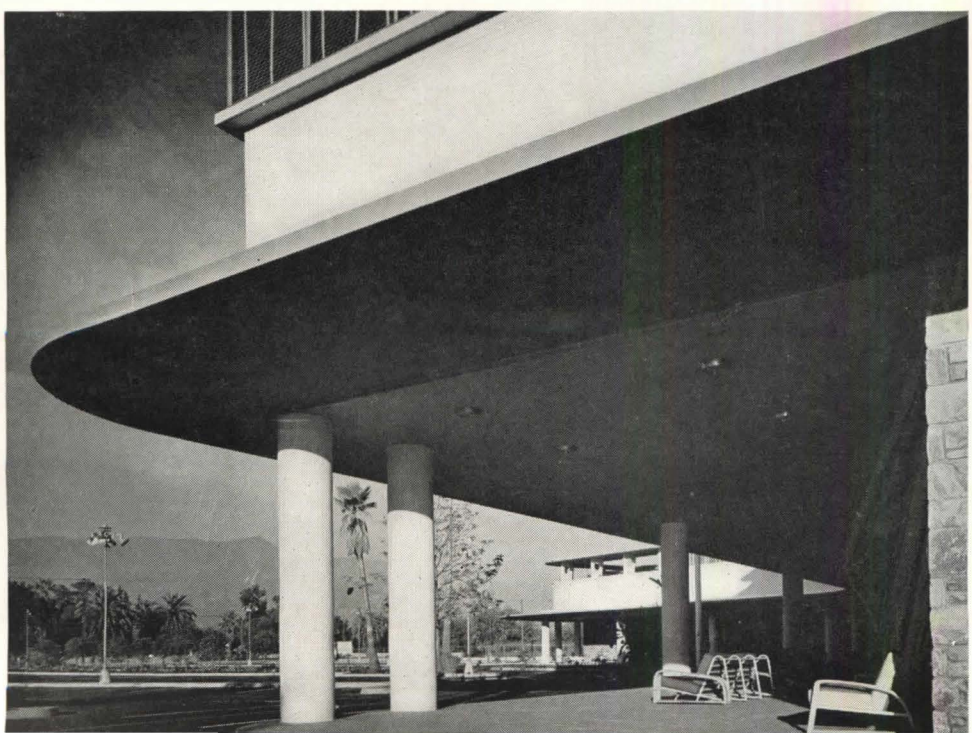


"arcades"

The earliest examples and the most recent, in our own time, have made use of the age-old device of an arcade or one of its modern equivalents to protect shoppers and shelter store fronts. Bellevue Shopping Square (above), Bellevue, Washington; Bliss Moore, Jr. & Associates, architects: overhang shading walk past the restaurant. Colonnaded walk at shop center (left), Greenhills, Ohio; planned by the U. S. Resettlement Administration in 1939.

Merchants have learned that amer will "attract more people and hold for a longer time," which means, pointed out in the opening sec "cash registers ringing more often for longer periods." Here (left) *resting place at the sheltered entr to Halle Brothers branch store in Shaker Square shopping center, C land, Ohio. Robert A. Little and rad, Hays, Simpson & Ruth, archi*

resting spots



At Bullock's-Pasadena, near Los geles, California, a spot is provid the entrance portico for chairs s comfortable and agreeable surr ings. Architects Wurdeman & B planned here a two-level parking s the upper section of which is adj to this resting spot.

THE STEPS IN SHOPPING CENTER PLANNING

The planning procedure for a shopping center will go through the following stages:

1. *Economic Analysis.* Planning must start with an economic analysis of the prospective trade area, based the seven points which are discussed in the section which follows:

2. *Decision on Site.* In most instances, the builder is already in possession of a piece of property which considers adaptable for shopping-center purposes. If the economic study was undertaken for the purpose selecting a shopping-center site, then the actual purchase of the property should be the next step. This sub- is discussed on page 80.

3. *Preliminary Architectural Studies.* Certain architectural work should proceed before the economic analy- is complete. As soon as a site of proper location and adequate size is available, preliminary architectural dies should be undertaken simultaneously with the economic investigations such as: soil tests; study of drain- conditions; study of such site problems as contours, shape, improvements of adjoining property; preliminary gineering and traffic studies. As soon as the site is approved, the architect should proceed with land-use dies and develop a land-usage plan that is adaptable to the site and that is capable of accommodating a oject that can fully exploit the potential of the trade area (*see chart at right*).

4. *Joint Study and Agreement upon Land-Usage and rchandising Plan and Traffic Planning.* At this point, the d-usage plan (discussed on page 84) should be the sub- t of a joint study by (a) the owner, (b) the economic nsultant and the architect, (c) the prospective major ant, (d) the mortgagee or finance source. It should be dified to whatever extent necessary to bring about a meet- of the minds, at which point detailed architectural plans uld proceed.

5. *Detailed Architectural and Engineering Studies.* chitectural, mechanical, and engineering design should y go ahead, along with traffic planning (see page 87), und-use and site planning, utilities planning, the plan- g for services.

6. *Tenant Selection.* Determination of the ideal tenants the type of center decided upon and the preparation of s material for examination by those tenants.

7. *Major Department Store.* At this point, it is highly irable to complete negotiations with the major depart- nt store tenant. The result of such negotiations will have important bearing on the success of subsequent negotia- s with other major tenants and financial institutions.

8. *Other Major Tenants.* Active lease negotiations for r major tenants can be undertaken at any point, either he project manager in the employment of the owner, or brokers, or by a combination of both.

9. *Financing.* Application for mortgage financing uld be made during the initial stages, in order to secure stance and guidance from these institutions. At this e, negotiations should have progressed to the point re at least a conditional financing commitment can be ined.

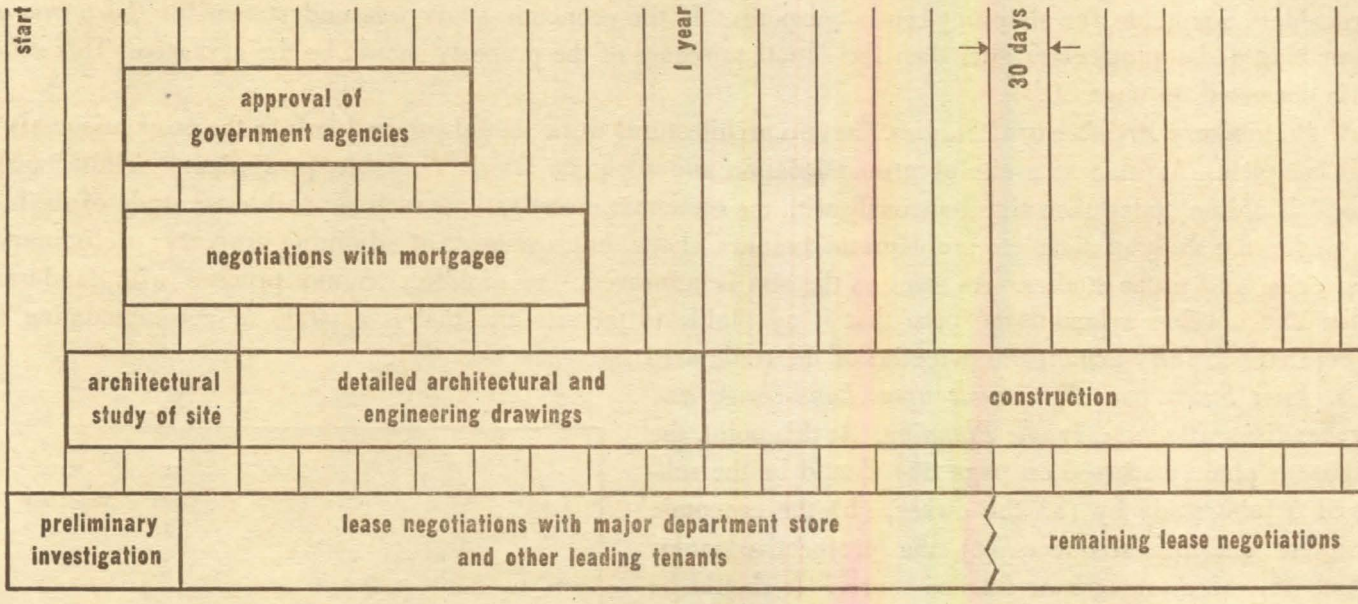
	% Class	% Sub-Class
1. Parking	10	
Size		4
Location in Relation to Stores		3
Access to Parking Lot		3
2. Store Accessibility	8	
To Pedestrian Traffic		1
To Parking Lot		6
To Public Transportation		1
3. Pedestrian Traffic	8	
Induced by Project		3
Exposure of Stores		3
Lack of Interruption		2
4. Advertising Value	7	
Individual Stores		3
Project as a Whole		4
5. Location of Tenants	8	
By Type of Store		4
By Class of Store		4
6. Efficient Layout of Stores	6	6
7. Flexibility	10	
For Individual Stores		5
For Project as a Whole		5
8. Comfort & Convenience of Customers	5	5
9. Economy of Operation for Tenants	6	
Interior		2
Deliveries		4
10. Efficient Use of Ground	7	7
11. Maximum Rents	15	15
12. Minimum Cost	10	
Capital		6
Operating		4
	100%	100%

Chart (right) *for point-by-point evaluation of land usage, at time land-use plan is made. Percentages assigned may vary from project to project depending on specific conditions.*

10. *Public Agencies.* Approval by public agencies, such as planning commissions, zoning commissi city and county engineering staffs, and the city council will be required at different stages of the developm The actual circumstances in each case will dictate the timing.

11. *Construction.* When the above ten steps have been taken, actual construction can begin.

The time table indicates the approximate amount of time that should be allowed for various stages of w It assumes the most favorable circumstances.



the economic study

If one were asked to point to the most important economic aspects of a shopping center, he would certainly name the following:

(a) Single ownership, which gives to the owners a measure of control not enjoyed in any other type of retail-store grouping.

(b) Co-ordinated planning, which makes it possible to plan all aspects of the center, including architectural and engineering design, economic studies, traffic, finance, etc.

(c) Complete representation of all stores and services in a single integrated area allowing for one-stop shopping.

There are many other distinguishing features of a shopping center but the above three points, in the opinion of the authors, represent the basic factors that distinguish a planned shopping center from an ordinary group of retail stores.

Two factors, characteristic of modern urban areas, tend to favor the success of regional centers:

1. *Population Growth.* One of the outstanding features of population growth during the last decade is the continued concentration of people in large metropolitan areas and the strong tendency for that population to disperse into the suburban sections of these areas. Generally speaking, the growth of retail trade facilities has not kept pace with this growth.

2. *Existing Facilities Unsatisfactory.* The effect of the automobile is just beginning to hit us with full force. It is forcing a complete rearrangement of arterial patterns. It is forcing a redevelopment of downtown areas, and also forcing a complete redesigning of merchandising techniques. The one-stop regional shopping center appears to be one of the principal results of increased automobile use and, by comparison, existing facilities now appear to the customer to be completely inadequate and unsatisfactory. As a result, new shopping centers have not experienced too much difficulty in transferring the allegiance of customers from the use of inconvenient retail facilities to the new, streamlined shopping center.

economic dangers

In spite of the inherent advantages that tend to favor decentralization of facilities generally, there is ample opportunity serious mistakes on the part of the ov Here are some of the penalties if he to plan his center to fit the exact r of his trade area:

(a) If he builds his center too large construction costs and operating costs blot out his rental returns. He will a poor investment opportunity on hands, making financing difficult if impossible.

(b) If, on the other hand, he build center too small, he will be inviting petition which, if it takes the form competitive shopping center as is likely, will be most destructive.

(c) If he fails to diagnose accu the character of the trade area, and fore the character of the shopping c that should be built to serve that ar will find himself in possession of a that never exactly clicks; and his sel of inappropriate tenants will pr years of low rents before the situatio be remedied.

(d) If his stores are not skillful ranged in order to capitalize on pec ties of pedestrian traffic by the

agement of small shops in relation to stores, he can easily lose the top to 50% of his bonus rent potential.) If he has not made a proper allon of operating costs, parking mainnce, utility expenses, etc., he may be ving the burden of any increase in ating expenses that will eliminate any rtunity for surplus rent.

here are many other pitfalls in the of a project of this size, but those tioned above are the most serious and, matter of fact, the most typical. Most ping centers, because of weaknesses might have been avoided in the plan- process, will have to be satisfied with 60% to 90% of the full potential of location. The ability of the project arn the last 10% to 40% of potential me distinguishes the well planned cenrom the ordinary, and the added value comes from careful planning can y amount to several times the cost of planning process.

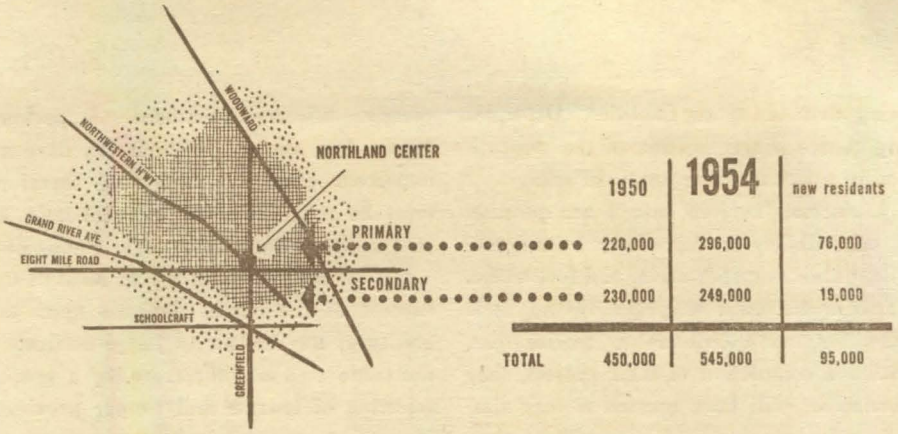
economic analysis

beginning of the planning process is economic analysis. It must be based seven points of study, some of which purely market analysis, and others ch call for a background of architecand land planning with a knowledge ne relationship between these physical rs and merchandising.

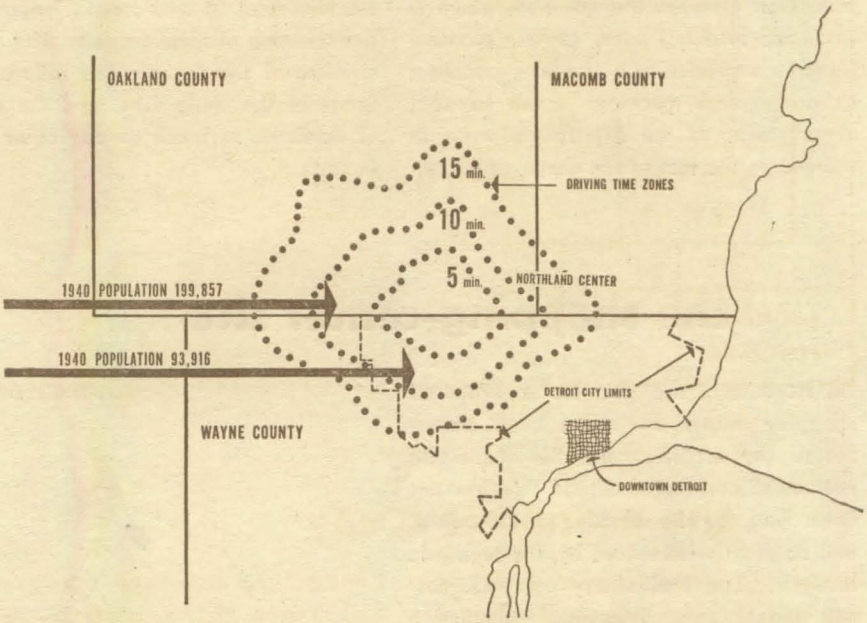
Population. Standard procedure based he use of the Bureau of Census data, en down by small enumeration dis, so that groups of population can be ed in relationship to physical factors. data must be secured for a broad that can later be curtailed as the f the trade area is gradually evolved.

Income and Purchasing Power. This of information still has to be secured ly on the basis of observation in the or through the medium of special es. Data from the 1950 Census are eadily available and, for most proj- the information is not sufficiently ed to be adequate.

Competition. Here again it is necesto depend on studies of the particular since census information is rarely in n that is capable of being adjusted for any particular trade area. Furore, the purpose of the study of tition in any trade area is more to ine the capacity of existing facilirather than the amount of business



Study indicating that rapid anticipated growth is greatest in the primary trade area for J. L. Hudson's Northland project near Detroit, planned by Victor Gruen Associated Architects & Engineers, with Larry Smith as economist.



Study showing that proposed Northland Center will tap rapidly growing section of city, and even more rapidly growing suburban area.

retail expenditures of trade area residents

	per capita	expenditures of 1954 population 545,000	expenditures of 1950 population 450,000	1950-1954 population increase 95,000	sales planned for northland
		(000's)	(000's)	(000's)	(000's)
food	$315	$171,700	$141,800	$29,900	$ 5,000
department	180	98,100	81,000	17,100	27,000
variety	35	19,000	15,700	3,300	1,750
apparel	88	47,900	39,600	8,300	12,400
furniture	68	37,000	30,600	6,400	2,900
hardware	75	40,900	33,800	7,100	600
drug	48	26,200	21,600	4,600	1,600
eating & drinking	93	50,700	41,800	8,900	1,750
other	115	62,700	51,700	11,000	2,750
TOTAL	$1,017	$554,200	$457,600	$96,600	$55,750

Estimate of increasing retail expenditures due to population growth, based on statistics obtained for present per capita spending.

The nature of the competition is also important.

being done in those facilities. Of equal importance is the location of the competition in relation to the proposed site.

4. *Access.* Involved here is the question of accessibility to the center by automobile, public transportation, and foot traffic. (This is discussed on pages 87-89.) It is hard for many builders to realize that, with the completion of their project, they themselves will have created a very sizable traffic problem which should be completely visualized and planned for from the beginning.

5. *Physical Characteristics.* This is primarily an architectural question, which is discussed in detail later. Certain physical features may dictate a two-level structure or double-deck parking, or an unusual arrangement of the department store in relation to the rest of the shops, or a completely different treatment of parking areas. Any and all of these can have an important effect on sales and therefore must be regarded from the economic, as well as from the architectural standpoint.

6. *Character of the Project.* Most of the success of the center depends upon the ability of the builder to judge accurately the trade area and therefore, by a proper selection of tenants and proper provision of services, to exploit fully his merchandising potential.

7. *Tenant Selection.* There are very few things that are more important in the establishment of a successful center than the selection of ideal tenants. The aggressiveness of the tenants can influence the limits of the trade area, and the volume of business, as much as any other single factor.

It is important to recognize the basic ferences that distinguish the planning a shopping center from ordinary com cial construction. Ordinarily, the const tion of a single store building repres a small addition to the total retail space of the business community. In n cases, it means no addition at all simply a replacement. As a result, sales activity of the new tenant br about little or no disturbance to the e ing equilibrium.

A shopping center, on the other han equivalent to adding the retail space small city to existing facilities which, sumably, were fairly adequate up to opening date of the new project. In a situation, new facilities must be located, well planned, and well timed

the shopping-center site

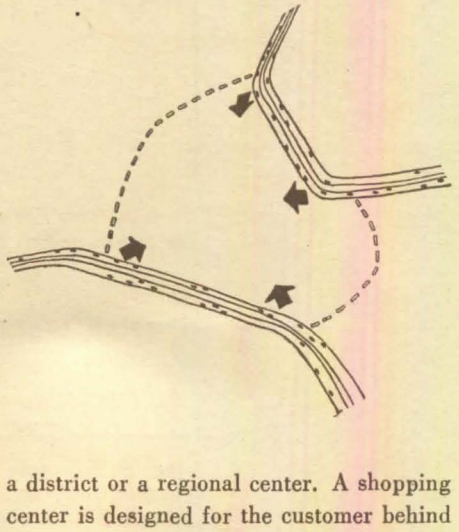
Unfortunately, the site for a proposed shopping center has often been chosen before the architect and the real-estate economist are consulted. If this has not been done, the site selection should follow, and be greatly influenced by, the economic analysis. The preliminary economic survey should have determined whether a demand for additional shopping facilities exists, the extent of that demand and its nature, the areas of most rapid growth, the areas of greatest future expansion, and the nature and extent of existing competitive facilities. On these findings, architect and economist will make recommendations.

From the dollar-volume estimate of demand, the architect and economist can determine in a preliminary way the store types and the approximate square footage of building necessary. Parking and traffic needs can also be determined (by methods discussed in a later section). With the number of cars and the total store area established, the architect is able to project the approximate total area required for the center, and the search for the site can begin.

What are we to look for in selecting a shopping-center site? In an effort to answer this question, the essential features and characteristics of the ideal site are listed in the order of their importance:

Accessibility. This is, in our opinion, the most important consideration for either a district or a regional center. A shopping center is designed for the customer behind the wheel and, if free and easy access from the highways to the perimeter roadways and into the parking lots is not achieved, most of the convenience advantages the center can offer are lost. To achieve this maximum convenience, the site should be at, near, or readily accessible to at least two major highways. These highways and access roads should have considerable reserve capacity, over and above their present and projected needs, because the traffic movement to and from a regional shopping district (parking 5000 to 10,000 cars, and increasing previous traffic two or three times) will completely alter the existing traffic pattern.

. . . *easily accessible*

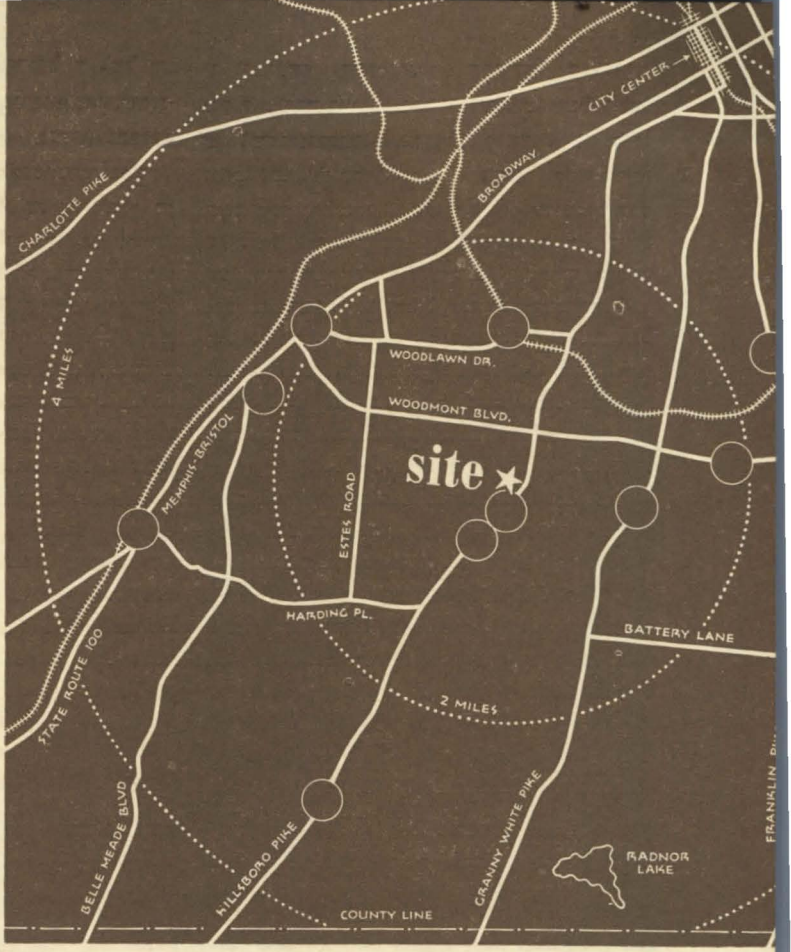


When considering accessibility, it mus borne in mind that the old concept of "hot spot" location is not necess valid for a shopping center. If the trances and exits to the parking lot ar near a major intersection, the interfer of through traffic can cause a major gestion problem.

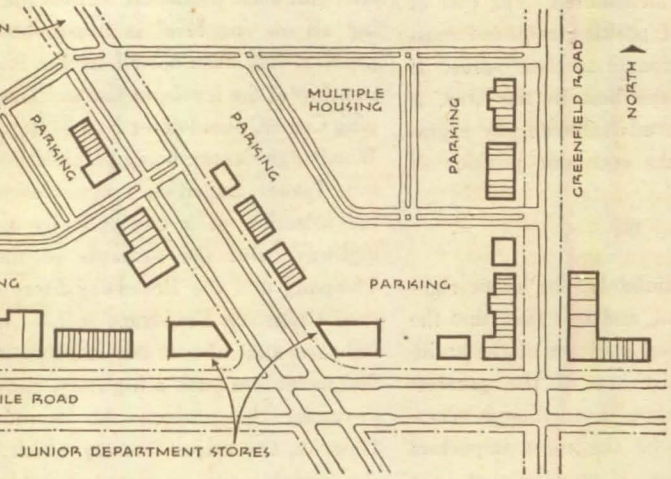
Sufficient Size. The shopping-center should have not less than the mini acreage that the architect and the e mist have estimated as necessary to adequately the potential of the area. incomplete shopping center invites development of competitive centers ne and the pirating of its parking fac by fringe promotional activities or

. . . *all in or*

Analysis of a proposed center in Tennessee by Larry Smith & Company shows the location of present retail stores. A study of their capacities will help evaluate the nature of the competition to be expected in the area of the site under consideration.



Typical uncontrolled strip commercial development: proper zoning could cure this.



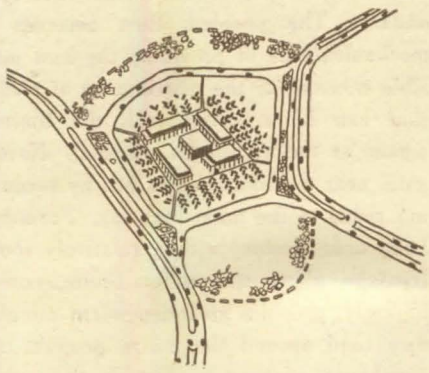
ty immediately surrounding it—and d in a congested, disorganized, un- lled commercial slum.

site under consideration should be one piece, and not divided by major n minor highways that cannot be ed or rerouted. Nor should it be pieces, subject to subdivision con- which would make replatting diffi- force artificial divisions or restric- n the development of the center.

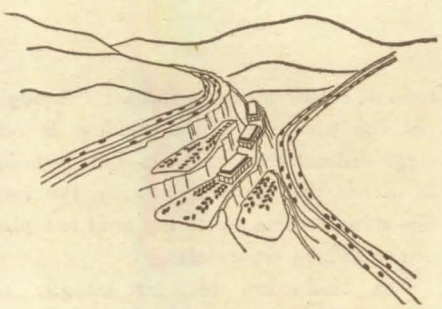
ddition to the minimum acreage ed for the shopping center itself, nt land should be readily available the center so that buffer zones and uses can be introduced to protect rrounding property and prevent un- economic development of the areas ne center. This buffer space, which devoted to landscaping, parkways, ary non-commercial uses, or multi- sing, will not only give the shop- enter the opportunity to expand the present shopping requirements o protect the values of the residen- a which now, or will in the future, or the project.

ing Area Possibilities. The site have no physical characteristics make the development of large g areas costly. The act of parking must be simple, trouble-free, re- ittle or no attendant direction, and ed the customer at no cost to him.

. . . room for expansion, buffer areas



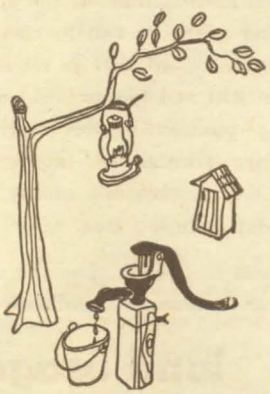
Multi-level parking, by its very nature, is not simple nor trouble-free and, because it is more costly to provide, will have to be charged to the customer in some form or other.



. . . no grading complications

Nearness to Utilities. Usually the only large parcels of undeveloped land available or desirable for shopping-center projects are on the fringe of the city where water, power, and sewers are limited or non-existent. The power requirements for a shopping center are heavy and (in addition to the normal sewerage requirements) the large areas of impervious material

. . . near adequate utilities



necessary to provide adequate parking create a new storm drainage problem. Hence the architect must be satisfied that, if these utilities are not on hand, the program for their development is sufficiently advanced to guarantee their availability by the time construction is completed.

Favorable Zoning Conditions. In gen-

eral, sites suitable for shopping centers do not occur in areas already commercially zoned. Usually they are undeveloped farmland, ripe for residential development, or areas which have been reserved for speculative purposes and are already surrounded by well built-up, protected, residential sections. Present city planning sets aside large areas of organized space for potential commercial development but, in the past, the practice has been to zone for commerce in strip fashion along the highways or streets.

Because of the unfortunate history and experiences of extensive strip-commercial developments in residential areas, any attempts to re-zone usually encounter intense local opposition which must be met by a carefully organized educational program. The owner must be warned to weigh the political temper in the area before he embarks on an extensive program which may not be realized because of community opposition. A new zoning category for planned shopping centers is possible, and has been adopted in some instances. If it is carefully drawn, it will grant certain new rights and impose certain new restrictions.

Comparative Excellence. It is essential that the project be in an impregnable economic position; hence the site must be, from all points of view, the *best* in the entire area. It must be impossible for another project similar in size and scope, but better located, more convenient, and protected, to be introduced and, because of its improved services, to compete successfully with the center. A few minutes additional driving time, or the acquisition of another piece or two to complete the parcel, may be all that is required; but the economist and the architect must take a strong position in this matter, since the future success or failure depends largely on the center's ability to completely dominate the area.

Nearness to Homes. The site should be in or near an already established and well developed residential area or in an area so ripe for development that, by the time the shopping center is constructed, the residential growth around the center will be well advanced. Certain types of activities necessary to make a complete and well rounded one-stop shopping center, such as drug and food stores, need for their healthy growth the day-to-day pull of neighborhood shopping requirements.

Reasonableness of Price. This factor must be carefully considered. The cost of the large areas of parking required must not be disproportionate to their value. If the site is truly the best in the area, it may sometimes be advisable to pay a premium to secure the economic position of the project.

●

Sometimes, unfortunately, the exact right spot can't be found, and it is then that the reports, studies, and analyses of the architect and economist are of the greatest value and importance. Even though accessibility seems to be the most important single consideration, it may be that in a particular site all of the other factors are so importantly solved and satisfied that the considerations of accessibility are secondary. The problem then becomes a mechanical one of providing the best possible scheme for the distribution of traffic that can be achieved with the limited means at the architect's disposal. Northgate, near Seattle, reaches out by secondary roads to the main highway. Framingham, near Boston, with a relatively short frontage along the major limited-access highway, provides an independent circulatory road around the entire project. At Northland, planned for Detroit, the center was pushed well back from the two major highways which intersect at one of its corners, and divided road systems were introduced within the site to tap and increase the importance of the secondary roads which surround the area.

There are many cases where the only available site has been smaller than the economic survey indicated necessa because it was good in other way selected by the owner. At Ba planned for Oakland, California, the lem of limited space was solved by level shopping, making space availab split-level parking. At Skokie, pl for Chicago, the problem of ext shopping facilities on a limited sit been solved by multi-level parking.

Sometimes it is necessary to sel site with such a difficult terrain that ing all on one level is impossible. problem has been solved by the inte tionship of the levels, at Canoe Plaza ping Center, planned for New Jersey, a Woodridge Center, being planned for ton, Texas. Expediency might even the selection of a site split by a highway. But the example of the Company and the Broadway Store c near Crenshaw Boulevard in Los An indicates that almost any expense is fied to reroute such a highway, either or under the project. At Montcla Houston, the major freeway which b the property will be rerouted overhe serve the extensive roof-deck parking which the irregularities of the site made necessary.

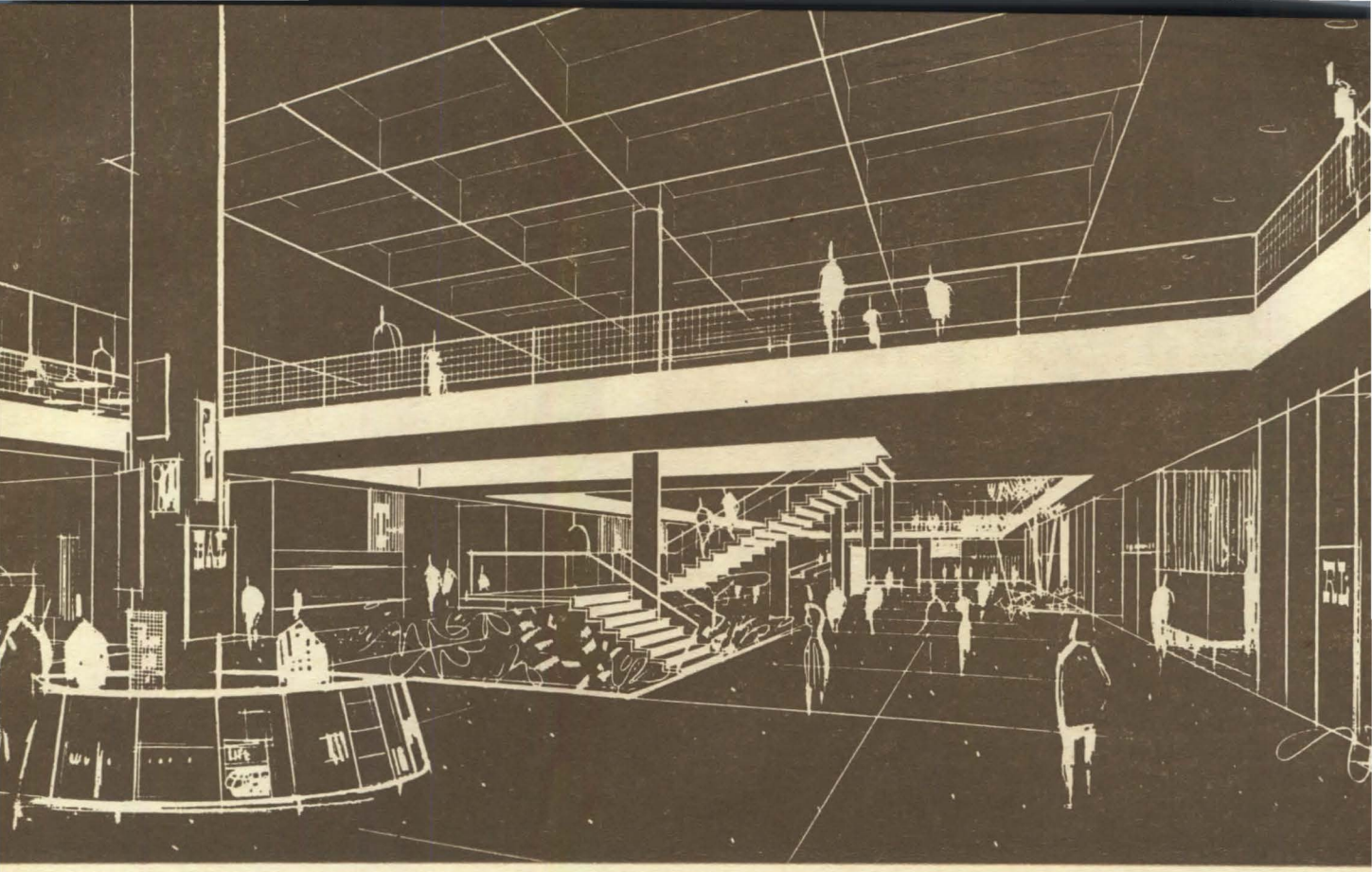
Sometimes (too often!) the archit confronted by a site optioned or purc by the owner without the benefit of or survey. In this case, the architect insist, for his own and the owner's p tion, that a proper review is under by a competent economic analyst bef accepts the project and prepares any for the site.

In attempting to approach as as possible to the ideal site, we fe architect, the economist, and the should always remember that the tomer in the automobile is the el around which the entire concept of a ping center has grown; that it difficult to persuade her to drive a farther if this will lead to shopping atmosphere of maximum convenience fort, and uncomplicated surrounding

land usage

The site planning of a regional shopping center must be done by the architect, with the closest collaboration of the economic consultant. At each stage of its development, the site plan picks up additional attributes, solves additional problems, and creates new ones which must be solved again. The planning stage is a fluid one, and no plan can be frozen until the multitude of requirements is fulfiled. Throughout the planning phase, seldom is one stage distinct from another. But, in order to clarify the planning process, the various steps leading up to the final site plan are explained separately.

The land-usage plan is actually an assignment of land to the various activities which take place in a shopping center. The required rental area is obtaine the economic analysis; the necessa vice and public areas are added requirement; minimum parking r ments are estimated; space is assig roads, landscaping; and other incid Then, working with the special cha istics which every site has, pla blocked out to fit the land require



Two-level merchandising (above), *combined with split-level parking, allows high land coverage at a center planned by Victor Gruen architect. A roofed-over mall permits some concessions to be planned without store fronts—true "open-front" shops.*

schemes are tried and discarded in
arch for the one meeting most of the
ples of good shopping-center plan-

store group which can be merchan-
to provide the greatest interplay
en stores.

Minimum walking distances, both
the parking areas to the stores and
ithin the store group itself.

limination of *all* poor store locations
ifficult or isolated parking locations.

Separation of foot and auto traffic,
n elimination of all service facilities
the public consciousness.

center efficient to operate.

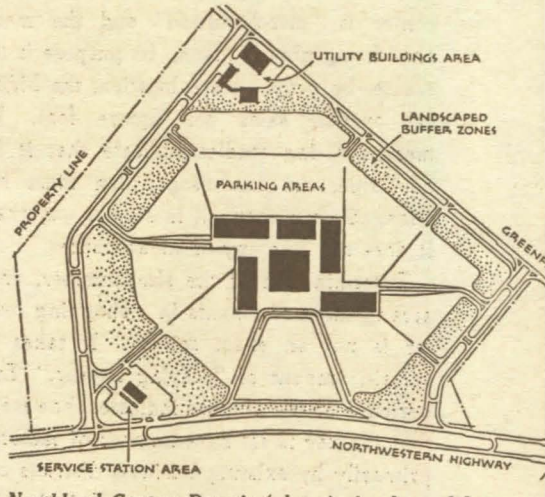
unified building group which will
ke a shopping center, *not* an assem-
of miscellaneous stores.

nd all this must be beautiful, invit-
omfortable—have a "shopping at-
ere."

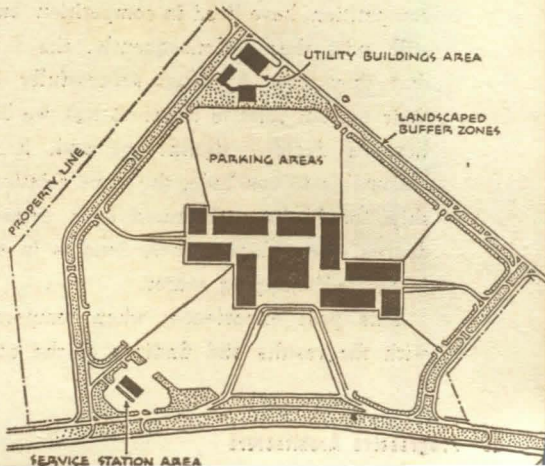
●

often the land available is not suffi-
:o meet the ground requirement for
le-level center. In such a case, it
e necessary to double-use parts or
the site, with double-deck parking,
or two-level merchandising, or perhaps both. A site which requires intensive use of the land can lead to very interesting solutions, once the obstacles of double-level planning—vertical circulation and parking accessibility at each level—are solved. Two centers now on the boards required a very high coverage of the land —too high to allow single-level planning. Double-deck parking was considered and discarded in favor of two-level merchandising. Both sites were nearly level but, by grading, split-level parking was introduced, which made parking directly available to each sales level. Vertical circulation is by ramps, stairs, and escalators.

In other cases, the site is more than ample for the shopping center proper. This is true of the J. L. Hudson Northland Center where it was possible to provide adequate buffers, place land in reserve for future expansion of buildings and parking, and devote other land to high income subsidiary uses, both commercial and residential,—a city in itself with all land planned for its highest use, providing the most pleasant and efficient living, shopping, and business surroundings possible.



Northland Center, Detroit (above), *is planned by Victor Gruen's firm with buffer strips which can shrink as the parking areas expand* (below).



Open-air mart in Mexico City . . . elementary merchandising.

merchandising

After the economic analysis has been made and the land-usage plan developed, the center is "merchandised" and the merchandising plan is made. Its purpose is to create, by proper store location, the highest *over-all* sales per square foot. If merchandising studies indicate that it is advisable, the land-usage plan must be changed—but changed in such a way that it does not lose any of its attributes.

Determination of the size, number, and arrangement of tenants in a shopping center is not an exact science. It takes a certain amount of "playing by ear." Experience of the authors indicates, however, that the key is set by a number of factors, primarily by existing business districts on conventional street patterns. This is because existing business districts are the result of competition. They were born in competition, have lived in competition, and still exist there. Consequently, the fact that they have operated successfully in their present relative locations has, we believe, a decided significance and, it is reasonable to conclude, the same relationship should be maintained to a certain degree when placing these tenants in an integrated shopping center.

This past experience, when tempered with the results and findings of the economic analysis, provides the basis for establishing the size, number, and type of tenants for a shopping center.

the traffic generators

Assuming that the size and number of stores have been determined previously, the arrangement of those stores in a plan becomes first an architectural problem. The architectural design must lend itself to the arrangement of stores in such a manner as to locate "traffic generators"—which are the major department stores, food stores, and other major tenants—in such a manner as to direct the flow of traffic by the doorways of smaller tenants. The importance of creating traffic for the smaller tenants is pointed up when a study is made of the rents per square foot which can be realized from small tenants, in comparison with the larger tenants.

For instance, we know of no case in recent years where a major department store has executed a shopping-center lease to pay a percentage in excess of 4% of its sales. When that percentage rent is applied to what is considered a good merchandising job, namely sales of $60 to $70 per square foot of gross building area, it indicates that the maximum department store rent will be approximately $2.50 per square foot. For a good market in a location, a good lease with a tena strong credit may call for a rent of 2 sales, and a top operator will reach of from $100 to $150 per square fo gross area, which indicates a max rent of somewhere between $2 and $ square foot.

the small shops are of equal import

Small shops, besides paying exc rents, add interest for the customer shopping center and actually cont to higher sales by the major tenants. not uncommon for shops for candy, hosiery, millinery, etc., whose area re ments in most cases do not exceed 1 1500 square feet per store, to e: 10% leases and, even if their sales $30 per square foot, they would pa as high as that paid by the major te In most cases, the sales of those approach $70 or $80 per square which would indicate a rental ret over $7 per square foot. Betwee small stores and the big stores, the whole range of others whose impo should not be lost due to the fact th are not so-called "name" tenants.

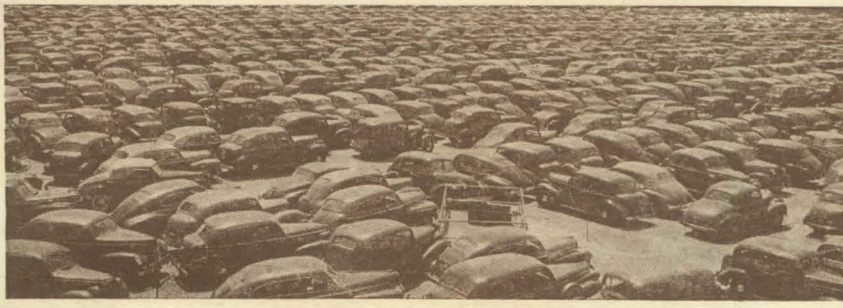
If the owner expects to receive t 15% to 20% rental return in his sh

we believe he cannot overempha- importance of placing the small in a location that will allow them talize on the pedestrian traffic cre- the major tenants. We believe is impossible for a regional center rive without a major department- nant and other major tenants, such variety stores, food stores, etc. It dvertising effort of these large ten- hich generates the customer accep- f the center and actually establishes its of the trade area.

portance of balance

therefore, our conclusion that a center of all "big names" may be successful, but will fall short of obtaining the last 15% or 20% of revenue possible from a shopping-center development. Likewise, a center consisting of all small stores with high-rent-paying capacity might fail, due to the lack of sufficient traffic which would be provided by the larger tenants. Consequently, a proper balance is necessary between traffic generators and the high-rent-paying smaller tenants. An architectural plan capable of placing the small tenants in the path of the pedestrian traffic generated by the larger tenants is of utmost importance.

It might be taken from the above argument that the ideal center would be one having just enough "name" traffic generators to bring customers to the center, with the rest of the project devoted to high-rent-paying small tenants. This is very far from the truth, since there is one more condition which must be fulfiled and that is completeness. In addition to traffic generators and high rent producers, there must be an adequate selection of tenants who do not, themselves, generate traffic or pay high rent but who do provide the necessary facilities to insure a complete selection of merchandise and make the center a true "one-stop" shopping center. In this category, we would include furniture stores, hardware and applianee stores, and stores for miscellaneous services.



traffic and parking

affic-and-parking plan must define a flow of traffic into and out of the t must balance parking demand parking facilities. It must answer quirements of land usage and mer- sing. To do all these things, it e based on a thorough analysis of ticular traffic and parking situation. ably, there is no more controversial olicized aspect of shopping-center g than the matter of parking. Just ortant, but generally overlooked, is g-center *traffic*. Together, these nctions pose the twin problems: any parking spaces will be required given shopping center? and what cilities will be required to handle w of traffic to and from these

answers to these questions are gov- by a set of factors which varies for hopping center and most of these are indeterminate in the planning The various ratios 1:1, 2:1, 3:1 are approximate to apply to a project of a regional shopping center and, they were exact, they apply only to , leaving the traffic problem un-

al years ago, the Smith and Gruen decided to undertake a series of tions of existing regional centers, hoping that a pattern of operations might exist between centers on which the operations of a proposed center might be predicted. Three such surveys were conducted of different sized centers in different locations. The number of cars in, out, and parked was tabulated each half-hour for a full shopping week. Also observed were passengers per car, truck traffic, and boundary road conditions.

The statistics were reduced to a common denominator—the number of cars performing a given operation per 1000 sq. ft. of rentable area—and curves were then constructed from the three sets of figures. These curves proved that, although shopping centers do vary in their parking and traffic requirements, there is an amazing similarity as to volumes, peak hours, and the general pattern of operations. From the three curves, it was possible to construct a mean curve, representing the operations of a hypothetical shopping center, which could be used as a norm with which to compare proposed shopping centers.

Eventually, a technique was evolved for estimating not only the parking needs, but traffic requirements as well. Whereas this technique by no means results in a down-to-the-last-car prediction, based as it is on actual operations, the chance for error is reduced to the minimum. Mainly, such possibility of error as does exist is limited to the estimate of expected trade, and this estimate is probably the most carefully considered figure in the entire shopping-center analysis.

In order to project the figures obtained by observation to the operations of an unbuilt shopping center, a comparison must first be made. Will the proposed center do more or less business than those observed? Are the trade-area economic levels and car registrations similar? Are they comparable in size? Is public transportation of the same or similar quality? Once these questions are answered, the observed operations are adjusted up or down and applied to the proposed center. For example, assume that a regional shopping center of 800,000 sq. ft. of rental area is being planned for a medium income area, in a city with a high ratio of cars per capita. It is compared with an observed center of 650,000 sq. ft., located in a similar area, and doing a moderate volume of business.

The economic analysis indicates the proposed center has an excellent net potential—nearly 20% greater than that of the operating center. Other considerations being equal or nearly so, we judge that the proposed center will enjoy a 20%

	Store Hours	Cars per 1000 sq. ft. rental area
Monday	12:30 - 9:30	17.27
Tuesday	9:30 - 5:30	9.86
Wednesday	9:30 - 5:30	10.27
Thursday	9:30 - 5:30	11.46
Friday	12:30 - 9:30	19.04
Saturday	9:30 - 5:30	16.06

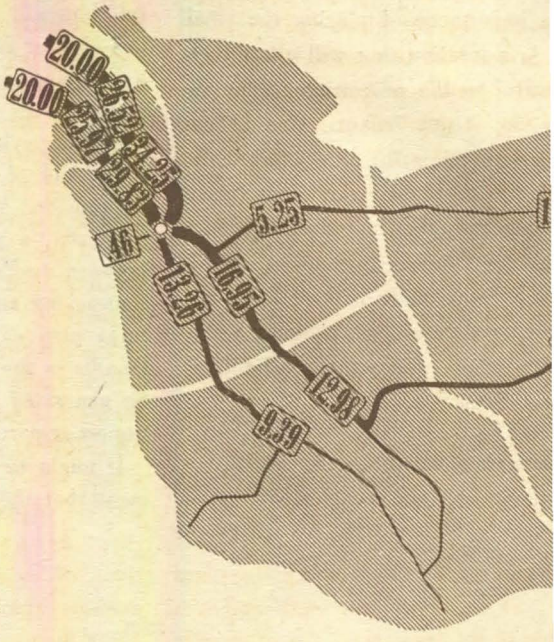
Table 1. Observed traffic volume in existing center.

Table 2. Estimated volume for 800,000 sq. ft. center with assumed 20% greater business than existing one.

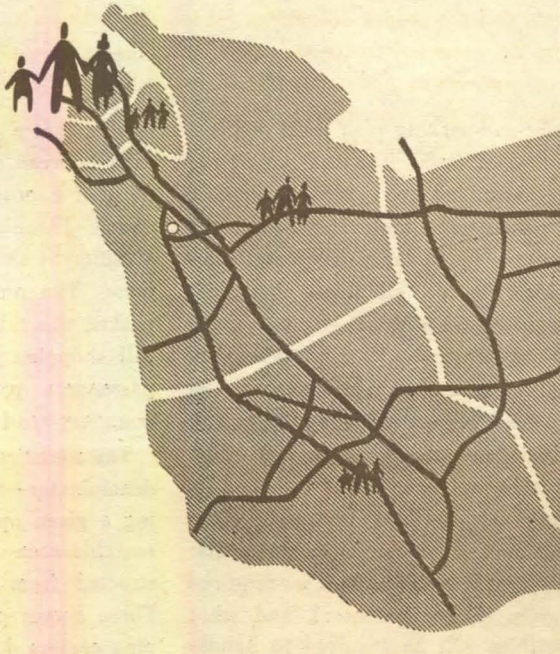
	Store Hours	Cars
Monday	12:30 - 9:30	16,580
Tuesday	9:30 - 5:30	9460
Wednesday	9:30 - 5:30	9850
Thursday	9:30 - 5:30	11,000
Friday	12:30 - 9:30	18,280
Saturday	9:30 - 5:30	15,420

Time	Cars in	Cars out	Cars parked
Before opening	1164	...	1164
Noon - 12:30	842	384	1622
12:30 - 1	765	476	1911
1 - 1:30	723	586	2048
1:30 - 2	769	655	2162
2 - 2:30	750	695	2217
2:30 - 3	714	710	2221
3 - 3:30	769	805	2185
3:30 - 4	681	750	2116
4 - 4:30	677	856	1937
4:30 - 5	699	985	1651
5 - 5:30	769	860	1560
5:30 - 6	878	860	1578
6 - 6:30	741	686	1633
6:30 - 7	1071	622	2082
7 - 7:30	1500	641	2941
7:30 - 8	1912	966	3887
8 - 8:30	1354	1199	4042
8:30 - 9	809	1647	3204
9 - 9:30	439	1949	1694
9:30 - 10	274	1373	595
After closing		595	
TOTAL	18,300	18,300	

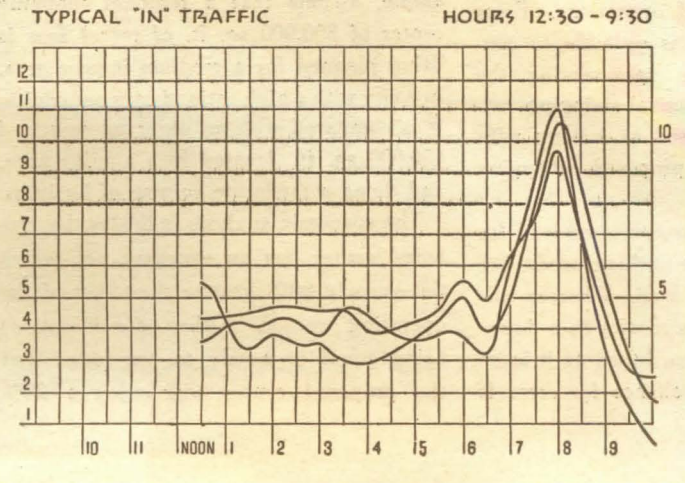
Table 3. Hourly traffic estimate for a Friday in proposed center, based on collated observations.

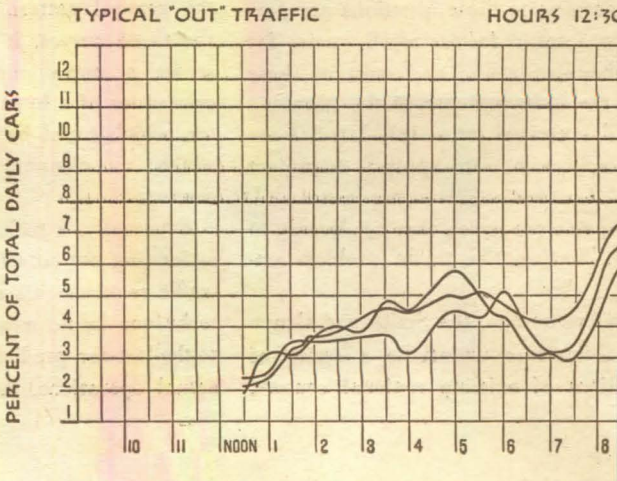


Car count of existing traffic on roads leading to s center, showing relation to size of adjacent po centers.



Traffic observations at three shopping centers sho similarity (charts below).





r volume of business per square foot
he existing one whose operations we
Armed with this estimated overage,
next possible to consider shopping
from its point of origin to its des-
n, and back again—incoming traffic,
g, and outgoing traffic.

existing center was observed to
the weekly volume (*Table 1*).

estimated 20% increase for the
ed 800,000 sq. ft. center results in
ekly volume (*Table 2*).

e the daily over-all volumes have
stimated, in order to determine the
distribution on the major access
and the time and intensity of the
periods, the following analysis is

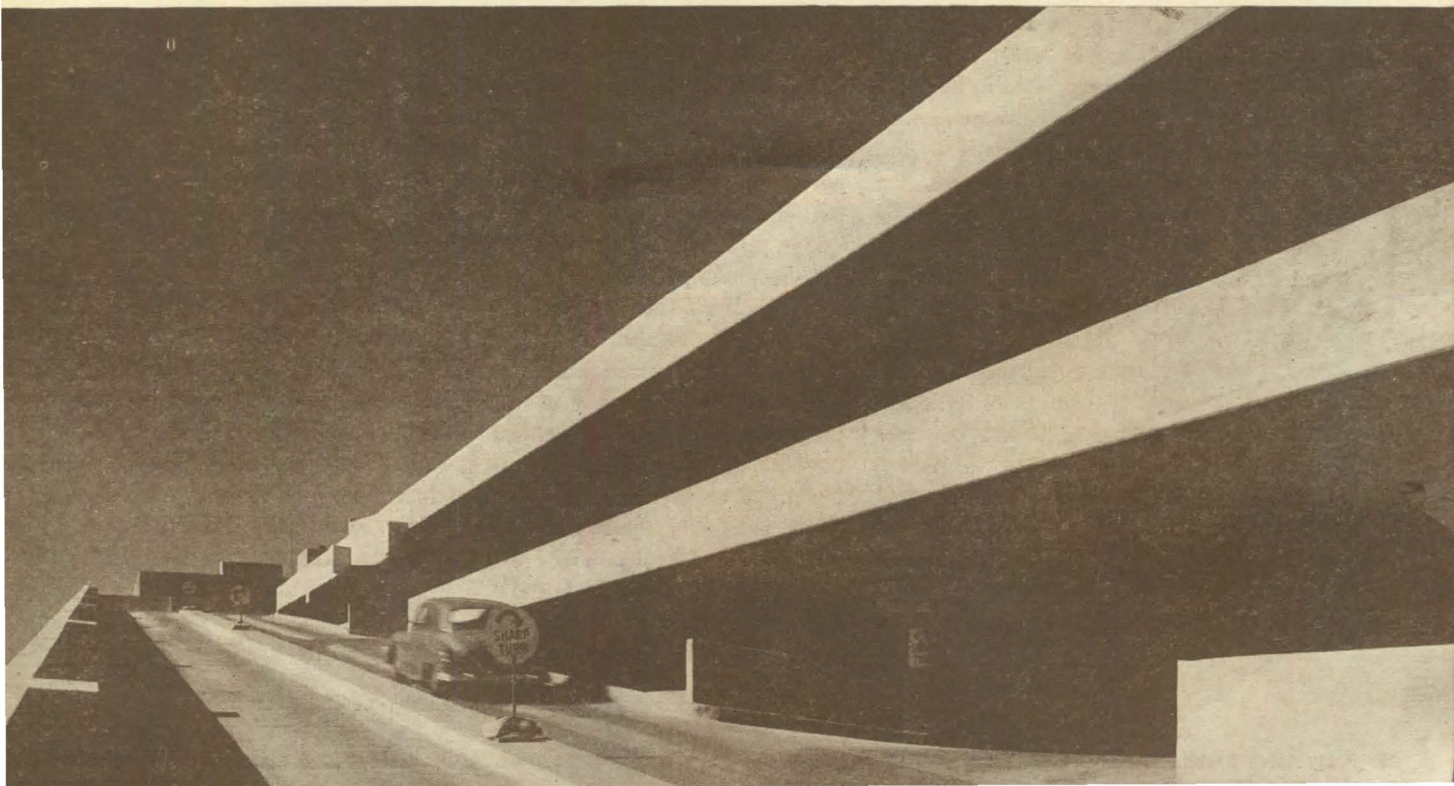
Origin of Trade. The number and
n of expected customers and the
ion of the trade area, can ordinarily
tained from the economic analysis.
actors which tend to reduce auto
—such as walk-in trade and trade
blic transit systems—should be in-
ted and the proper deductions made
he net expected customers to arrive
net auto-borne population. It some-
simplifies the procedure if the vari-
oupings of net auto-borne population
nverted to percentages of the total.
Traffic Volumes. The net auto-borne
ers can now be traced to the center over the most logical trade routes. The figures used can be either percentages of the total net trade, or these percentages can be converted to actual cars per day by applying them to the expected total cars for any given day. Traffic volumes are computed by distributing the population among the various roads and then, starting at the outer limits of the trade area, totaling them cumulatively until the site is reached.

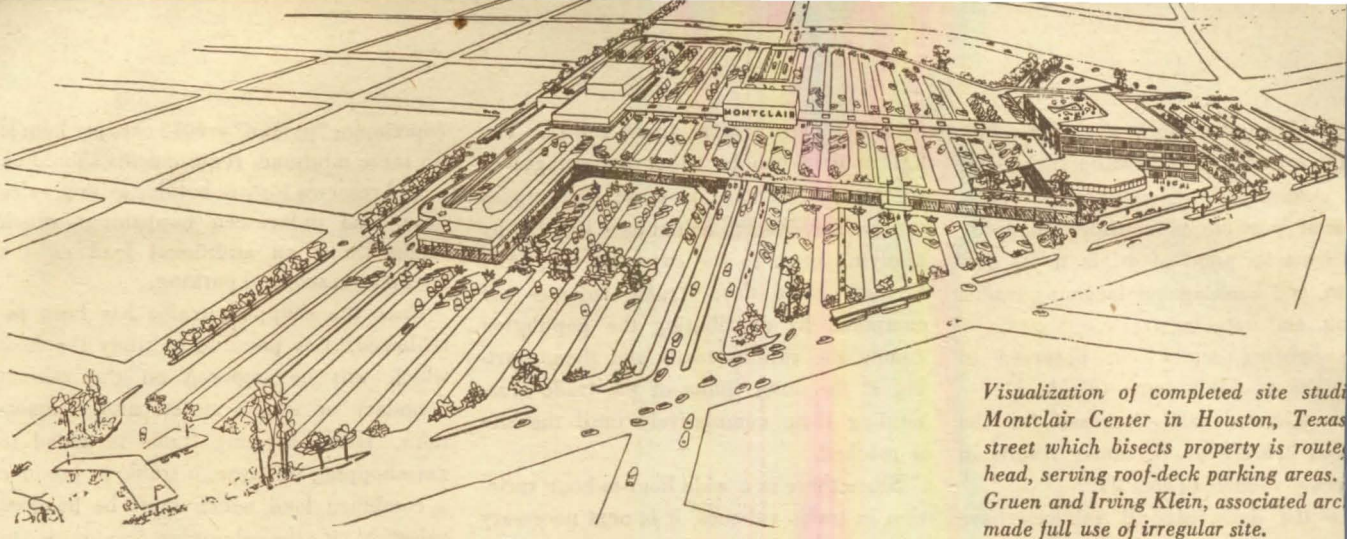
Since there is a wide hour-to-hour variation in traffic volumes, it is next necessary to break down the daily total into hourly or half-hourly subtotals. The Smith and Gruen offices found it possible to plot the number of cars "in," cars "parked," and cars "out" from curves based on the operations of existing centers which show a definite similarity in these operations. From these charts, a "mean" curve can be constructed and then, working from the total traffic expected each day, a tabulation of the operation can be computed. Considering Friday, when approximately 18,300 cars are anticipated at the proposed center, the day's operation would be as shown (*Table 3*).

This tabulation forms the basis for establishing the required number of entrances (maximum "in" load=3412 cars per hour), exits (maximum "out" load= 3596 cars per hour), and parking stalls (maximum "parked"=4042 cars per hour). To these minimum requirements should be added reserves for pre-holiday selling, sales days, and unforeseen happenings which might throw an additional load on the shopping traffic and parking.

Once the shopping traffic has been established, it is possible to study the load which will be imposed on the critical boundary or access streets and intersections. Here shopping traffic is added to non-shopping or through traffic to produce a combined load which must be handled smoothly if the shopping center is to operate efficiently. A car count is taken of the existing traffic on all boundary roads, tabulating volumes for each half-hour of the shopping week. This is projected forward to the date the proposed center is expected to open, and adjusted for population increase, new highway facilities, etc. The shopping traffic is then broken into half-hour totals for each day and added to the non-shopping traffic, producing a combined load which the roads must be designed to handle. The boundary roads will carry the most critical loads and the locations of exits and entrances to the shopping center can have a great effect on these loads. The entrances and exits must be located as strategically as possible in order to balance the traffic flow about the center.

Ramp leading to multi-level parking space where customers park their own cars. Hecht Company's Parkington shopping center, Arlington, Virginia. Abbott, Merkt & Company, engineers; Kahn & Jacobs, consulting architects.





Visualization of completed site studi Montclair Center in Houston, Texas street which bisects property is route head, serving roof-deck parking areas. Gruen and Irving Klein, associated arc made full use of irregular site.

the site plan

This plan is the culmination of land-usage studies, merchandising plans, and parking and traffic analyses. It is here that the refinements are made. The basic requirements have been determined and fulfilled. But, faced with the complexity of area requirements, rents, car counts, intersection studies, truck traffic, drainage conditions, tenant demands, etc., architecture though not forgotten, is sometimes temporarily moved to the background.

The architect designing a regional shopping center faces one of the great opportunities of his day. Projects of this scale have been rare since the Renaissance and what is lacking in experience must be made up for by skill in mastering the spatial relationships, the landscaping, the walks, the vistas, the atmosphere to produce a beautiful and harmonious whole.

shopping-center type plans

Basically, there are five types of shopping-center plans. These types are often used in combination, and each has many variations.

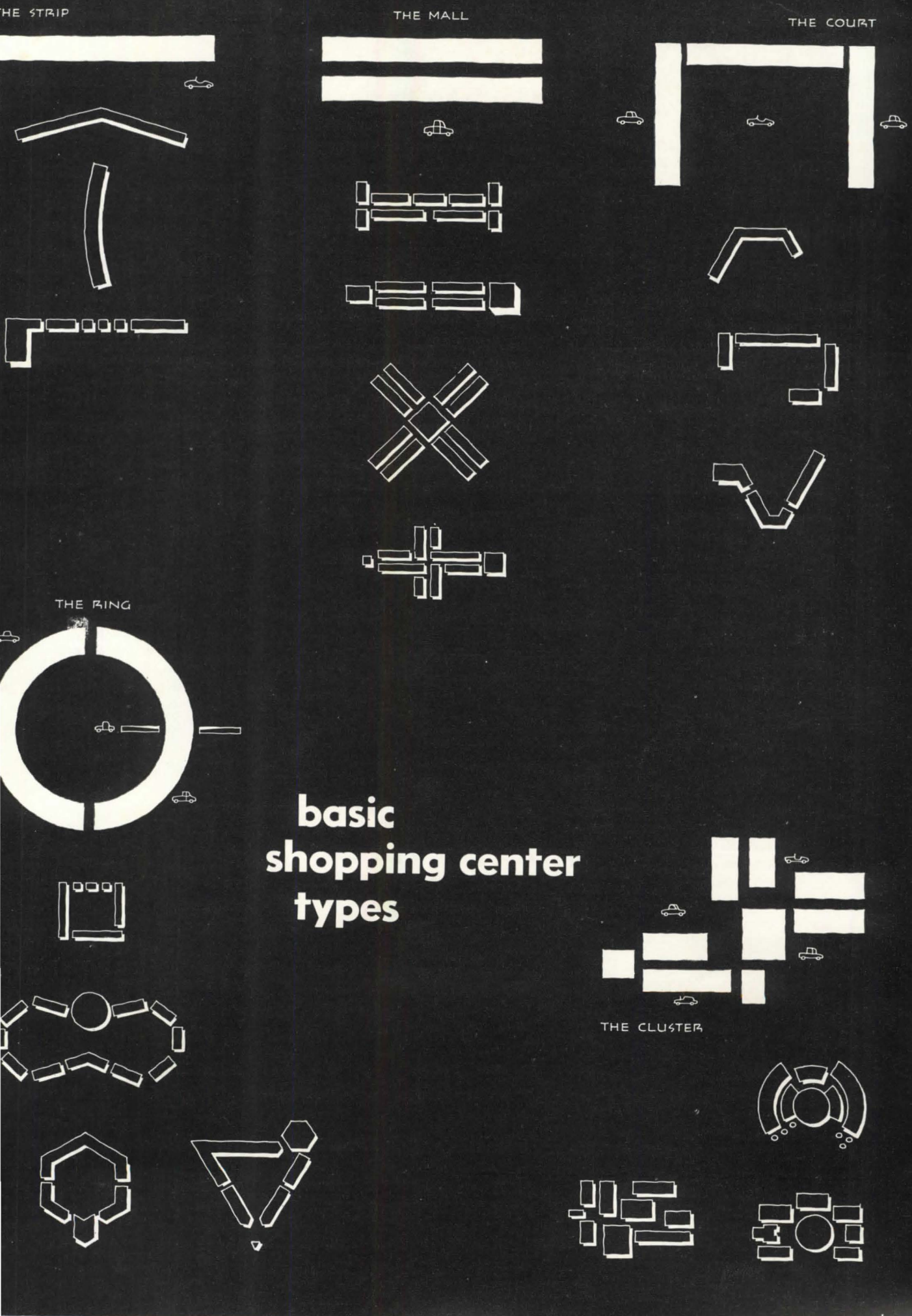
1. *The Strip.* Most store groupings stem from this "line of stores." It is efficient and economical to place stores side by side with common end walls, a united front, and service concentrated in the rear. The strip can be adapted to neighborhood and even, at times, to district centers. But, as the size of the center increases, the advantages of the strip are outweighed by the disadvantages. It becomes too elongated, difficult to merchandise, foot traffic is diluted, and walking distances are increased.

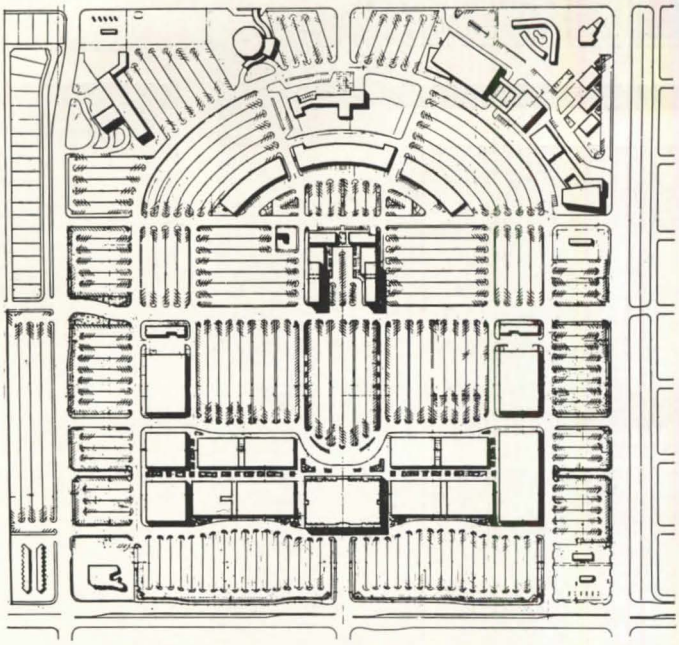
2. *The Court.* By shaping the strip into a court or series of courts, its basic advantages are retained while new ones are added—visual distances are decreased, walking distances can be lessened, and foot traffic improved since more key store locations are created. The court is adaptable to neighborhood and district centers and, by double-use of the site, to regional centers.

3. *The Ring.* A closed court. This basic type shapes the strip into a ring and in so doing creates equal trade locations and, consequently, increases foot traffic. Walking distances are reduced since almost all retraced steps are saved. If the court in addition to the periphery is used for parking, the stores enjoy excellent contact with the parking areas. This type can be used for neighborhood and district centers, although, in this case, the inner court will not be large enough to use efficiently for parking. A regional center, however, develops sufficient diameter to devote the inner court to parking.

4. *The Mall.* The mall is essentially two strips, face to face. This simple shift in grouping has tremendous advantages which increase as the size of the center is increased. First, it is possible to double the building area with no increase in walking distances. Second, the volume of foot traffic is greatly increased. Third, more strong store locations are created. And fourth, if the center is large enough to warrant the expense of underground delivery, a single service road below the mall will serve the stores on both Inherent in the mall scheme is the bility of covering and closing the m being planned for Woodridge, in H Texas—to provide air-conditioned walks, complete weather protection type is adaptable to any size cente the neighborhood arcade to the imp regional mall.

5. *The Cluster.* The cluster plan is a carefully plotted informal grou stores, can range in size from th "farmers' market" with a dining co its core, to the huge regional cent a major department store for its n In its small form, the cluster is aki early bazaars and market places. regional size, the cluster can comb four of the basic types—strip, cou and mall—to produce a tightly int store grouping with a maximum in between stores. Extreme care m taken with this plan type to mainta contact between the parking and sh areas, and to avoid "lost" store lo Although very difficult to plan, the scheme has great possibilities.


HE STRIP
THE MALL
THE COURT
THE RING
basic
shopping center
types
THE CLUSTER



Lakewood Center, Los Angeles, California; Albert C. Martin & Associates, architects and engineers. The center, now under construction, will grow to the extent indicated by the site plan including many community facilities.

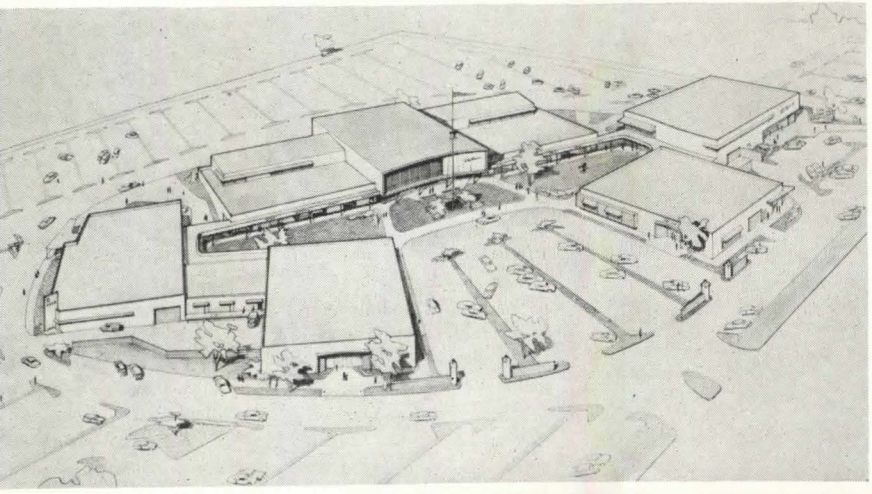
Completed store for May Company is shown (above) *with aerial view looking east to new sub-divisions this center will serve. Rows and rows of houses; rows and rows of cars—each creating new problems* (left).

Northgate Shopping Center, Seattle, Washington; John Graham & Company, architects and engineers. A mall development with the large department store, Bon Marche (right), *which connects the two arms, entered either from the parking area or from the mall.*

ects

h Shore Mart, Great Neck, Long d; Lathrop Douglass, architect. n-acre shopping center with John amaker store as main unit. Single curved around parking area, on er site.

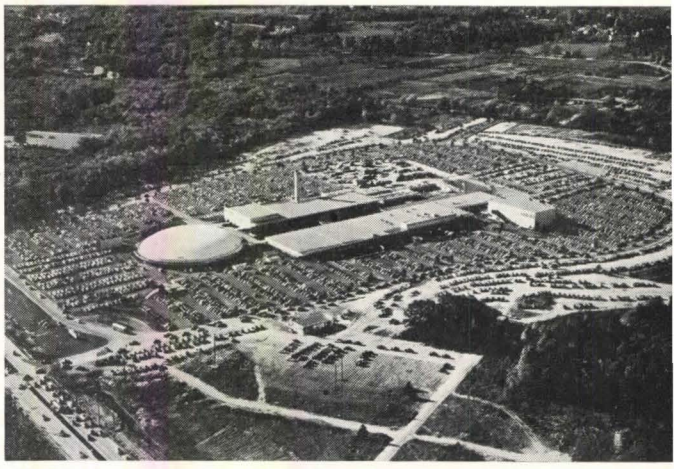
Swifton Shopping Center, Cincinnati, Ohio; Ketchum, Gina & Sharp, architects.

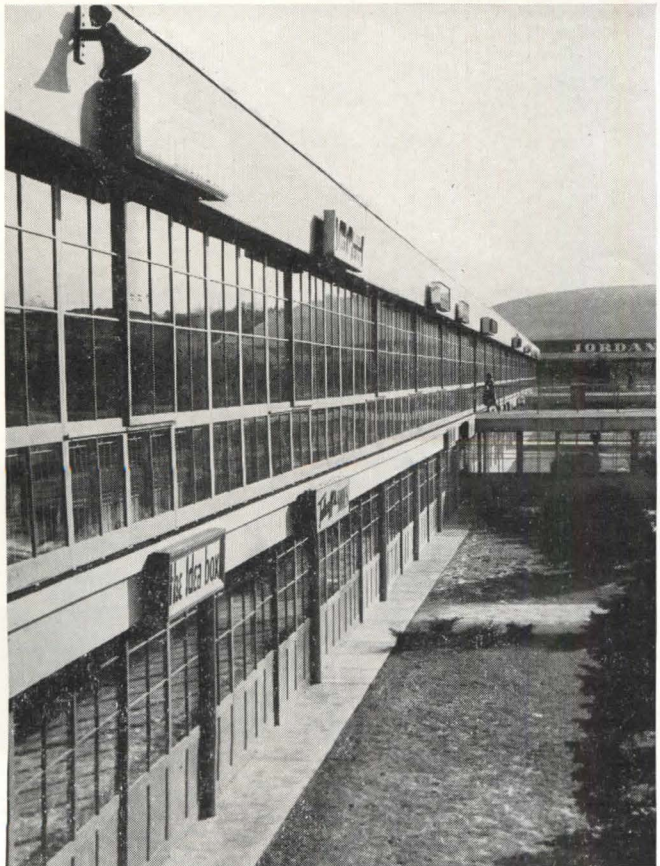


Park West Center, Mansfield, Ohio; Raymond Loewy Corp., designers. Twenty-acre center for rapidly growing area.

evue Shopping Center, Bellevue, hington; Bliss Moore, Jr. & Asso- es, architects. Growing since it was ed in 1946, this has lost the raw of projects started more recently. sons might be drawn from saving of e tree, to which plan of restaurant adapted. Result: successful, well wn eating place which has been boon ther tenants.

Shoppers' World, Framingham, Massachusetts; Ketchum, Gina & Sharp, architects; Kenneth C. Welch, economic survey. Among contemporary shopping centers, this is an example of the mall-type development. In contrast to others, such as Northgate in Seattle, the principal department store is at one end of the mall, with another major store planned ultimately to close the opposite end of the mall. The planning and merchandising theory here is that for such a great development there must be two principal "pullers." Site has a rather narrow frontage; parking area surrounds the stores.





Picture above shows a busy day at Shoppers' World in rather mild weather, with the two-story pedestrian arcades open to the landscaped central mall, which is eight feet below the level of the parking space. The same arcades are shown (left) *glazed against winter weather. Note the discipline in the use of signs—here the management controls size and placement, both on the outside of the arcades and on the walkways themselves (in comparison to the greater freedom suggested later on in this issue).*

Owner-Architect Contracts

standard forms of agreement as issued by the A. I. A. provide basically for two types of agree-
: Forms a-102 and b-102, in which a percentage of the cost of the work forms the basis of pay-
s to the architect; and Form 103, which is based on the fee-plus-cost system.

xperience seems to indicate that the first-mentioned type of agreement, the percentage type, is
t all practical for shopping-center contracts. The reasons are many: the long pre-preliminary
d and the number of people involved as consultants and tenants are among them. The fee-
ost system would seem, on the basis of some experience, to be much more adaptable to shop-
center design. However, even this agreement should be used only with considerable changes.

irst, a special arrangement should be made for the period of exploratory work which precedes
ervice referred to in standard architectural projects as preliminary work. As we have attempted
plain step by step in this issue, many studies have to be made before, what are commonly re-
l to as, architectural preliminaries can be started—and the architect should be involved in all
pre-preliminary matters. At various stages, he will be called on to present studies for leasing
inancing purposes. This exploratory period may last anywhere from a few months to a few
. Only when the basic land-usage plan has been agreed upon by owner, economist, and financ-
stitution and when the main tenant or tenants have in principle agreed on the terms of a lease,
he architect start to undertake the work which is usually referred to as "preliminary."

seems to be obvious that, for the entire exploratory period, only a highly flexible arrangement
l be practical. Victor Gruen's office uses, for this period, an arrangement by which it is reim-
d for actual drafting cost, for overhead in the form of a percentage of these drafting costs, and
l other out-of-pocket expenses; it uses a fee which is expressed as a function of the drafting
. In such a preliminary agreement, the typical Gruen contract provides that the project can be
led by either side on proper notice (60 or 90 days), and that neither side shall have any obliga-
oward the other if the project should not be executed at all, or if the owner does not desire to
nue to employ the services of the architect—with the proviso that, in that case, he shall not use
rchitect's plans, ideas, or any part thereof.

nce the exploratory work is concluded, the A. I. A. Form 103 could well be used. However,
ictor Gruen offices find the following changes and additions practical:

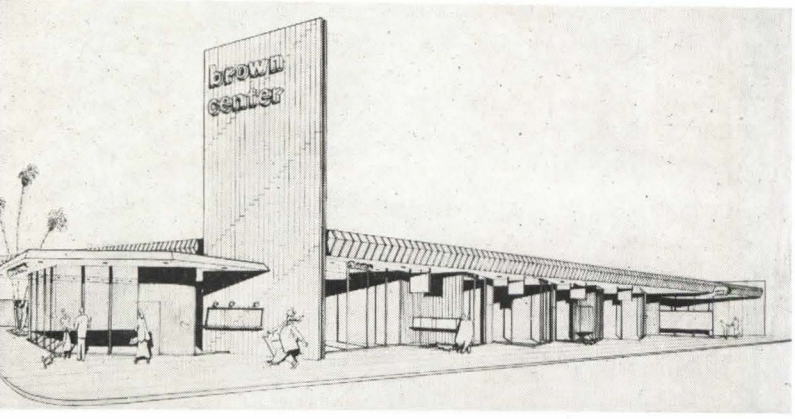
. At this time, the size and nature of the project can be documented by photostats of the site
ing and basic program which has been agreed upon in the exploratory stage.

. Clear provisions concerning changes of the fee in case changes in the program should be
. (They could, for example, refer to changes in the square footage of building area, or to extra
ent for changes which make completed drawings obsolete.)

. Paragraph 3B of the agreement—which deals with sums paid to structural, mechanical, elec-
, sanitary, or other engineers—should be enlarged in scope to include consultants for lighting,
, landscaping, graphic work, land planning, etc.

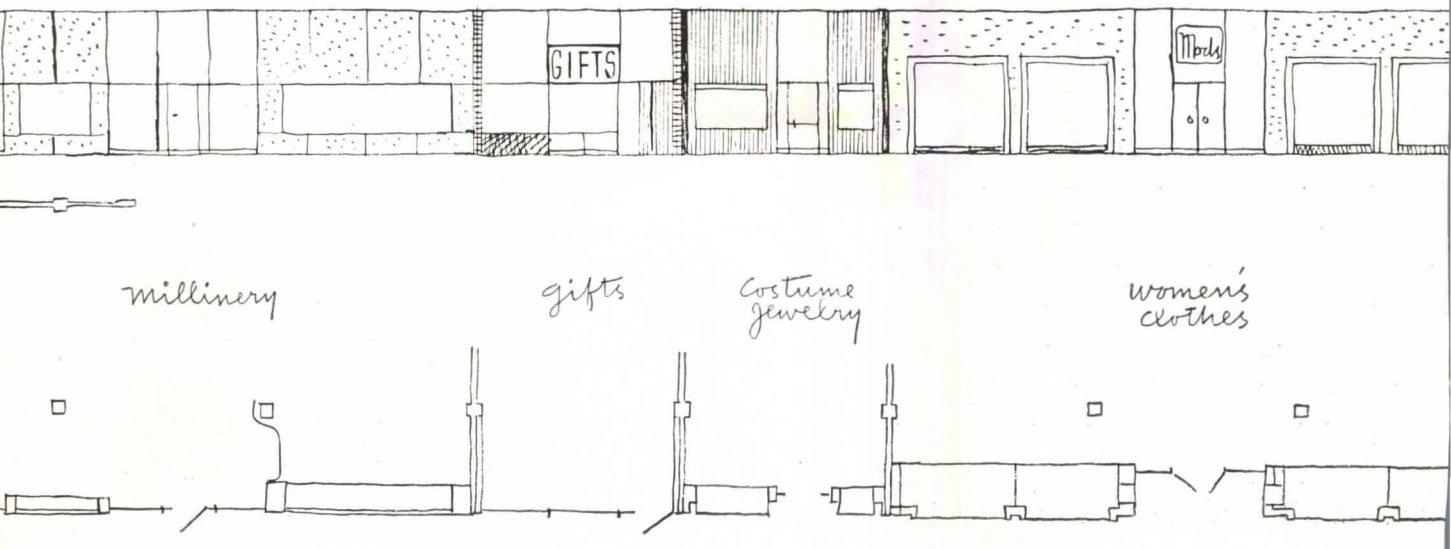
ecause of the complex nature of shopping-center planning, the architectural cost is consider-
nigher than that for projects of similar size in the housing or office-building field. The repetitive
s which occur in the other fields are not as prominent in shopping-center planning, and many
n factors which do not occur in other fields are present in shopping-center design. If it is neces-
o give an estimate of architectural cost (which should never be guaranteed) or to submit a
nteed minimum cost (which is not desirable), these facts should be borne in mind. Architec-
costs, even for very large shopping center projects, should probably be estimated to run be-
5% and 7% of the total construction cost.

If signs and lettering are considered a part of the total design problem, there can be a much better co-ordination without loss of merchandising appeal. An instance is the picture (right) *of the Shopping Center for the Palo Alto Consumers Co-operative Society in California; Bolton White and Jack Hermann, architects.*



What can happen when intentions are good but control is lacking is indicated by the sad case of real-estate signs, directional signs, and ads pasted on show windows of the shopping center in Tarzana, California (left). *It was designed by the architects, Palmer & Krisel, with the restraint which the rendering* (left, below) *indicates.*

Sketches of storefront and sign treatments, from the office of Victor Gruen, indicates what can be done within the terms of a reasonable lease arrangement such as the one outlined in the following article.



Storefronts and Signs in Shopping Centers

orces, that seem to be hostile to one r, influence shopping-center design, to pull it in different directions. the desire for architectural unity; ner, the desire for full expression of dividual character of tenant stores.

lear victory of the second tendency seen in the strip developments along an roads and highways. Here stores ifferent depths and various heights wild zigzag toward the parking area, nother zigzag toward the sky. Colors aterials of neighboring stores clash ently, and signs try to outdo each in size, garishness, and light inten- The absurdity of the competitive ef- f neighboring stores was most effec- illustrated in an old Chaplin com- hen Charlie, the store owner, caught middle between two "gorgeously" re- ed neighboring stores, saved his busi- y affixing a large sign on his shop g "Main Entrance."

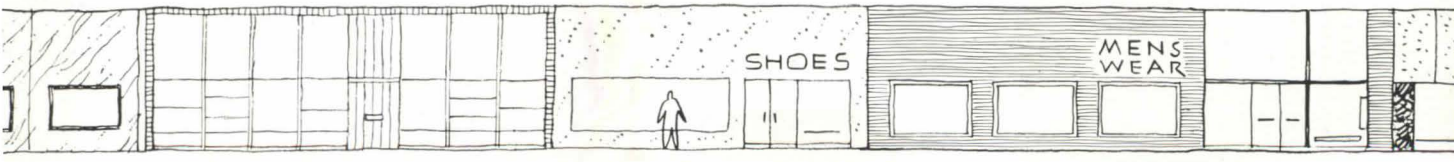
much less easy to find examples of te uniformity of storefront treat- -at least, they are hard to find in g shopping areas. Very often, proj- hich provide for the strictest stand- ardization are started with great courage, only to experience defeat after defeat during the leasing period, the final construction period and (worst of all) during the years following the opening of the center. This is not surprising, if one remembers that a shopping center is by no means an institutional enterprise, but a voluntary cooperation of individual tenants.

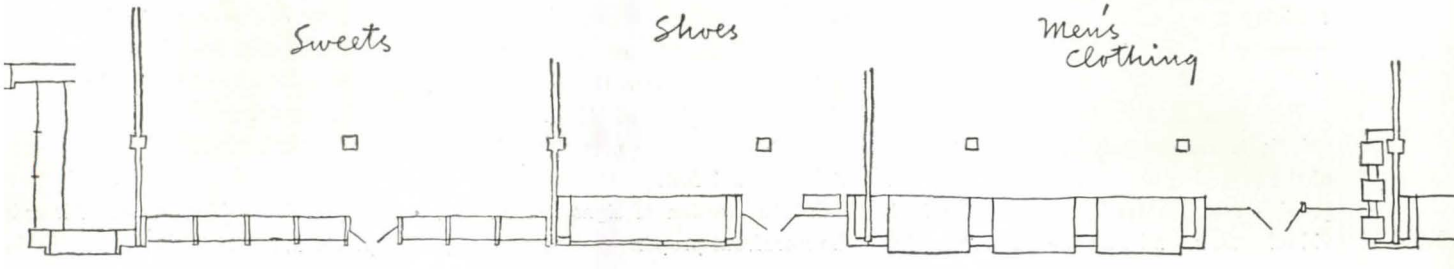
Shopping centers are constitutionally organized along the lines of a federal republic: the owner, or shopping-center management, represents the federal government; the tenants, the different states. Certain laws and institutions serving the overall interest will be administered by the management; others can be, and should be, left to the tenants. In most instances, the division of authority is a pretty clear one. There is usually full agreement that the store interiors shall be individually shaped by the tenant in accordance with his needs. There is mostly agreement that parking, landscaping, utilities, general upkeep, and maintenance should be taken care of by shopping-center management. But there is one area of conflict—storefronts and signs.

Architects who have worked on store design will always stress the point that each individual store needs an individual expression on the outside. Some merchandise calls for open fronts, other products for big show windows, still others for small show windows. Some stores need vestibules or so-called arcades; others, just a straight glass wall separating exterior from interior.

There is no doubt that when each store is given the exterior treatment which best expresses its individuality and its merchandising methods, it will function best and, therefore, be of the greatest value to the shopping center as a whole. Individual storefront treatment should be encouraged, but this does not have to result in a disorganized appearance if a number of measures are taken to protect architectural unity.

One of these measures is the creation of the basic architectural elements which form part of the over-all design of the center. Uniform roof lines, parapet walls, canopies, colonnades, exposed columns, and color schemes must be strong and clearly defined. The more strongly the over-all character is stressed by architec-





tural means, the more liberal can be the policy concerning individual expression in store exteriors.

For instance, the Victor Gruen organization has used the colonnade instead of a cantilevering canopy in many cases, because it seems to offer two advantages: It provides a strong rhythmic architectural element which gives character to the shopping center itself; and, it permits the establishment of the storefront line in an area where no columns occur, so that complete freedom concerning store sizes and storefront treatments is achieved.

Another measure is architectural control of tenant storefront design. This control should be anchored in the lease and should not only provide a clause requiring all plans to be approved by the owner, but should also give the tenant a clear indication of the requirements which the owner will consider desirable and on which approval or disapproval will hinge.

A similar policy should prevail concerning tenant signs. It seems to us of utmost importance to keep tenant signs rest to the storefront areas of the individua ants themselves. On the other hand, est freedom, within the bounds of gooc and sound construction, should be giv the tenant signs which are attached di to the storefront. They should be su to architectural control, but here to tenant should be told in the lease, no that the owner's permission is req but also the considerations on whic granting or refusal of such permissio be based.

TYPICAL LEASE CLAUSES GOVERNING ARCHITECTURAL AND CONSTRUCTION STANDARDS

General Principles. In establishing architectural and construction standards, the management is guided in this matter by the belief:

That a shopping center is basically an expression of the effort of many individuals to co-operate with each other to achieve the highest degree of service for their customers and, from this, the most profitable operation for themselves.

That this co-operation will find its clearest expression in the public services provided by the shopping center, and in the exterior appearance of the individual stores.

That the individual stores contribute most to the total visual effect of the center if they, on one hand, maintain individual expression and thus add interest, variety, and color to the total project and, on the other hand, relate harmoniously to the general character of the center and to their immediate neighbors.

That an integrated shopping center is a place to which prospective shoppers come with the express purpose and intention of shopping; therefore, the large flashy signs, loud color scheme, noisy designs, deep arcades (which are necessary in downtown areas) can be forgotten.

That the shopping center itself, by virtue of its size, public features, and general advertising value, offers each tenant the opportunity to keep his storefronts and, especially, signs simple and in good taste.

The management believes that these principles are not only in the best interest of the shopping center as a whole, but will provide the greatest benefits for the individual tenant, and that the guiding motive in the development of the tenant storefront should be conformity, but not uniformity.

●

Therefore:

1. All entrance doors must be recessed in such manner that the door openings to the outside will not cross the general storefront line.

2. Arcade fronts are to be considered undesirable and unnecessary; however, if in some special cases, an arcade front shall be held necessary by the lessee, then the depth of the arcade will be limited to its width.

3. To secure a clear separation of one tenant store from the other, and to avoid possible clashing in materials and treatments, there will be a neutral strip between each store of a minimum of 12 inches in width. The center line of this neutral strip will coincide with the line defining the leased spaces.

4. To avoid areas which will not provide points of interest to pedestrian customers, blind walls more than 20 feet in length will not be permitted. The break separating blind wall areas must be of a major character, such as a glass-wall view into the store or a large-scale show window.

5. Signs should be regulated as follows:

a. All designs for signs shall be subject to approval by the owner.

b. Signs shall be of substantial, easily maintainable construction and conform with all regulations of the Building Code.

c. No sign or any part thereof shall be higher than 4 feet.

d. The location of signs is restricted to the storefront proper.

e. No electrical signs of the mov flashing type shall be permitted.

6. No storefront or any part t shall project beyond the lines desc the leased premises, with the exc that signs may project beyond the g storefront line not more than 6 inch

7. The center provides general su weather protection by covered colo sufficient to cut the sun's rays dow 45° angle. In certain cases, addition tection will be provided by awnings furnished by the owner and opera the tenant. In such cases, the awnin carry a standard, uniform sign pan the name of the store located bel awnings. Individual awnings will permitted; however, the installation skirts, or interior, plastic, sun sha permissible.

8. It is the desire of the manager give the tenants the greatest possibl dom in the choice of materials; ho materials must be fireproof and lend selves to easy upkeep and maint and must offer a pleasant, orderly a ance.

9. It is the desire of the manager give the tenant the greatest possibl dom in the choice of colors. Howe

a. Colors must harmonize with th scheme of the center itself and, esp with the columns of the colonnade.

b. Colors must harmonize with th scheme of the surrounding stores. T the tenant, a general color range developed, with a sufficiently large s to permit a wide latitude of indivi pression.

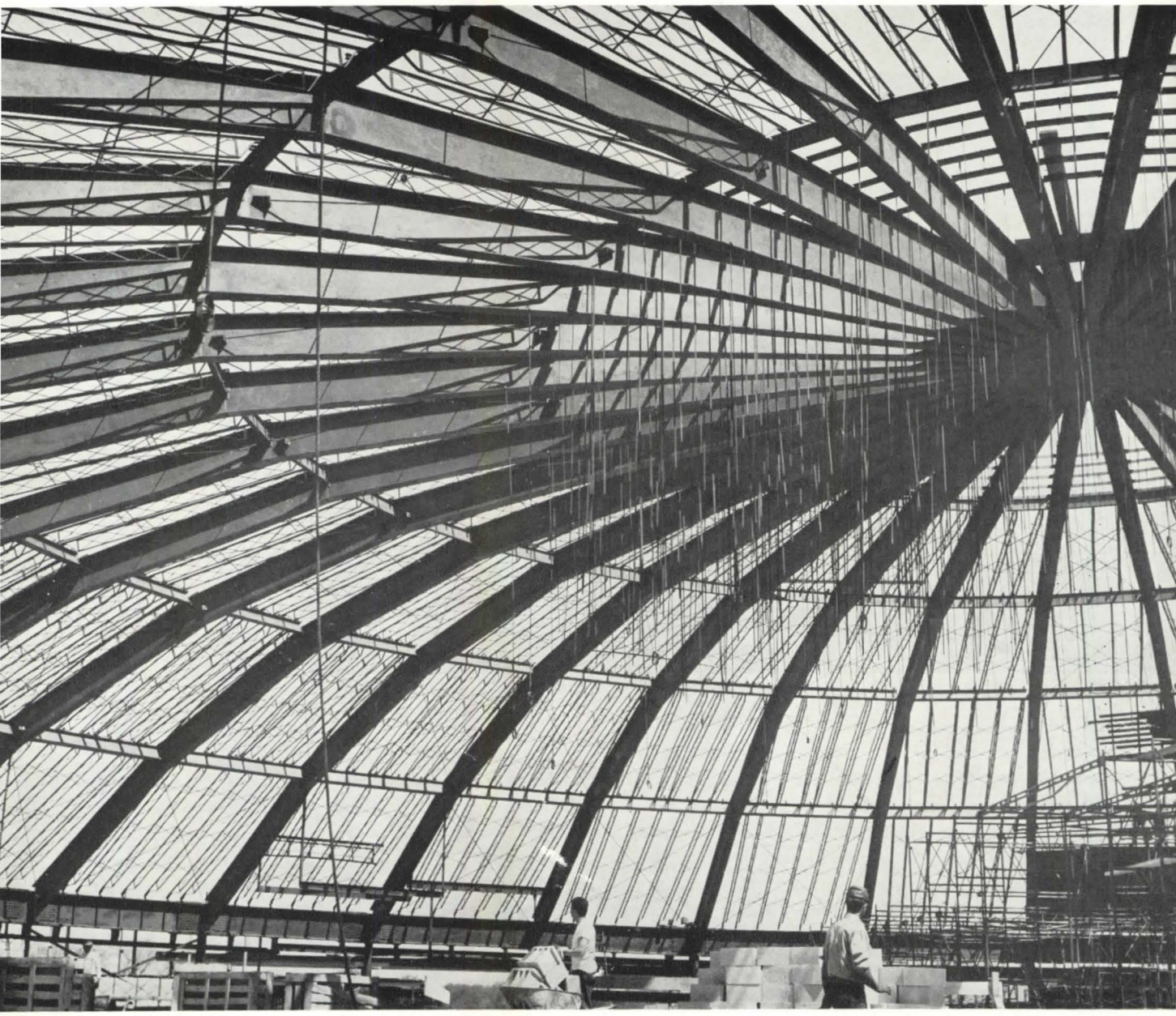


Figure 1—domed roof 222′ in diameter for Jordan Marsh Store, Shoppers' World, Framingham, Massachusetts; Ketchum, Gina & Sharp, architects; Severud-Elstad-Krueger, engineers. Impressive, column-free area.

THE SHOPPING-CENTER STRUCTURE

ction of the structural framing for ing center project is affected by ctors. Some of these are constant; wever, vary greatly in relative im- from project to project. A n, general study of the problem will uce a recommendation for *one* pre- system, but will help to establish asic relationships characteristic of project. Such a study will also which of the most recent develop- structural design promises most for development and application to shopping-center framing.

We shall list the most important factors affecting structural framing and briefly examine their influence on the selection and development of framing schemes.

size of project

A small shopping center, especially if located far from a large city, will probably be best framed by the conventional methods prevalent in the region where the center is located. Imagination in applying such common systems as trussed rafters, open-web steel joists, or beam-and-slab concrete framing can bring entirely satisfactory results. On the other hand, a regional shopping center, located where competitive, aggressive, and experienced contracting firms are available—covering several hundred thousand square feet of floor area, and designed so that a repetition of typical elements will occur on a large scale—offers an excellent chance for an investigation of the most ad-

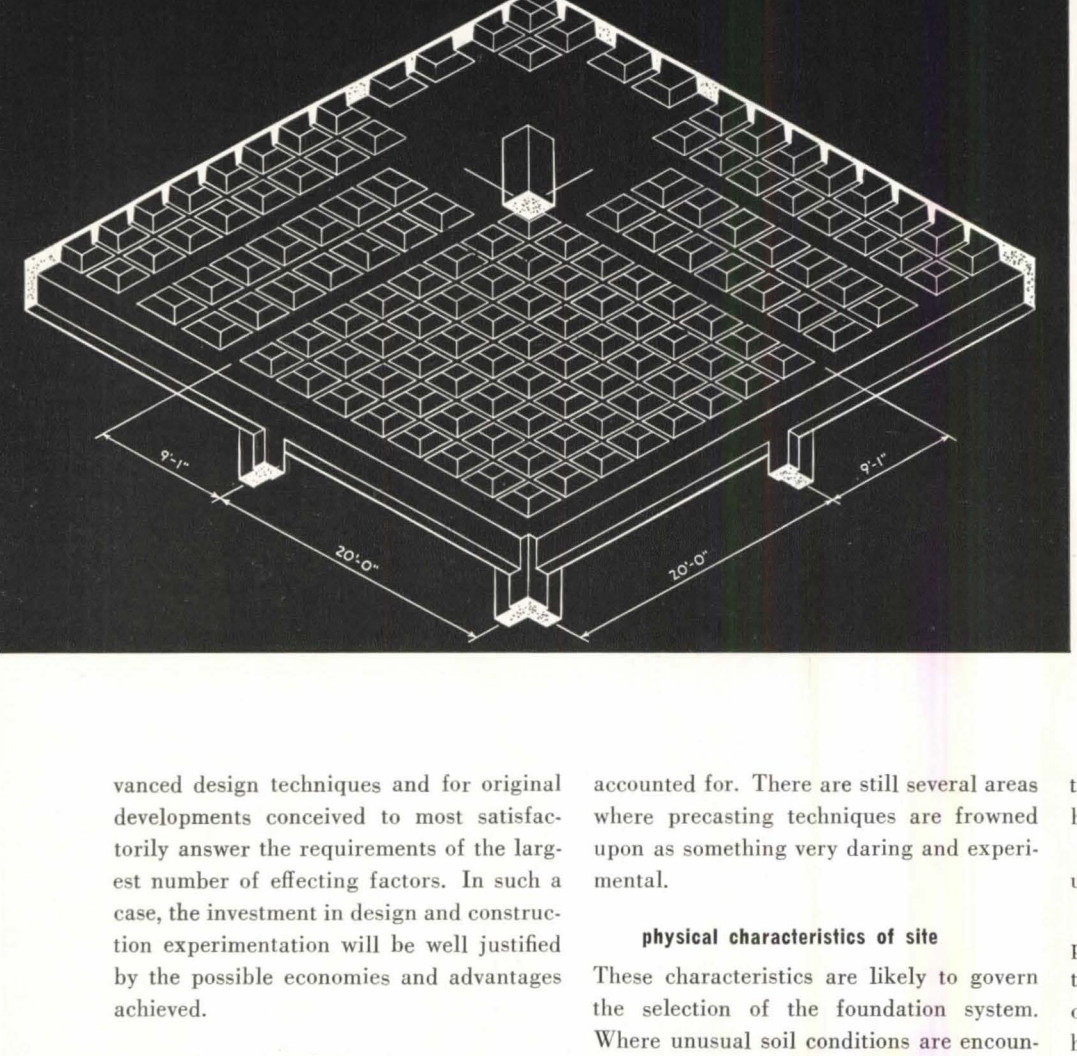


Figure 2—"waffle-type" flat slab signed by Edgardo Contini of Vi Gruen Associated Architects & E neers, for Northland Center.

vanced design techniques and for original developments conceived to most satisfactorily answer the requirements of the largest number of effecting factors. In such a case, the investment in design and construction experimentation will be well justified by the possible economies and advantages achieved.

location of project

Location will effect structural design in several ways. Differences in building codes (particularly the reluctance of some building departments to accept new techniques of analysis or tests, or of departing from obsolete and arbitrary restrictive rules) may penalize the use of certain materials. Climatic differences evidently bring complex and controversial influences. The supply of some materials is also effected by geographic location. The economical availability of good quality lightweight aggregate for reinforced concrete is, for one example, geographically limited for the present by the high cost of transportation for a material of such bulk. Further, established habits of local contractors have to be accounted for. There are still several areas where precasting techniques are frowned upon as something very daring and experimental.

physical characteristics of site

These characteristics are likely to govern the selection of the foundation system. Where unusual soil conditions are encountered, site characteristics represent an important secondary factor effecting the selection of the framing for the superstructure.

The foregoing factors, of course, are not peculiar to shopping centers; however, they combine with the more specific ones (which follow) in effecting the final selection.

selection of column spacing

There are three primary types of buildings generally present in a large shopping center:

(1) The typical row-type building. These are one or two stories high, 100′ to 150′ in depth, and will accommodate tenant stores of different widths.

(2) The special-purpose-type building. Accommodating major department stores, these may be multistory and, in ge have a compact plan shape.

(3) The supermarket-type build usually one story high.

All of these, from a merchandising point, will benefit from complete el tion or, at least, reduction to a mir of interior bearing supports. On the hand, long unobstructed spans, if fe from an engineering standpoint, un ably conflict (especially for floor fra with the primary underlying factor of construction. Cost has not prev been mentioned simply because, with economic framework representing t sence of a shopping center, it effec others.

At present, very large clear spar economically feasible for roof framing Large spans, up to 200′ or 300′, c achieved by means of trusses, arches frames, and, more dramatically, by of domed structures of thin concrete or structural steel framing (*Figure 1* the other hand, it is very likely that ing concepts in department store pla enabling great framing depths witho

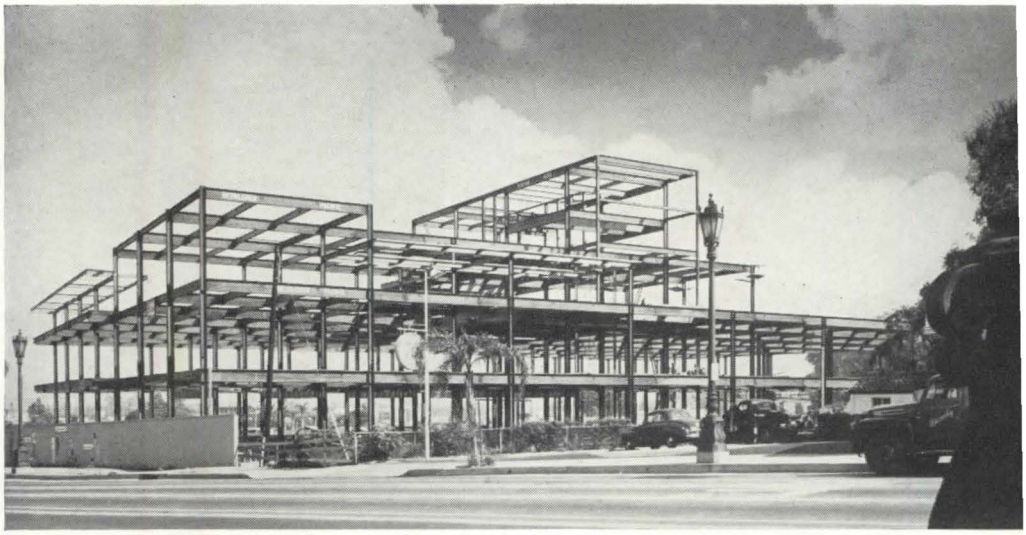


Figure 3—continuous field-welded steel frame for Robinson's new Beverly Hills store in California (right); Pereira & Luckman, architects.

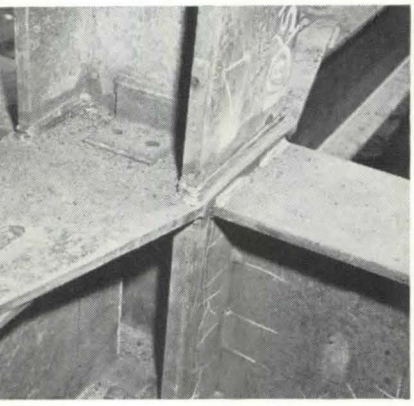


Figure 4—detail (left) of welded connection for columns and girders in field-welded steel frame of Robinson's Beverly Hills store.

ful space, or new structural develop- such as the practical application stressing techniques for concrete, llow an increase of economically e column spacing beyond the present rds. It is unquestionable that the challenge facing engineers concerned hopping-center framing is the de- ent of economical as well as struc- sound larger spans. In general, it found that merchandising layout partment-store-type buildings sug- n even spacing in both directions. ıb concrete construction (for which ely interesting optical methods of letermination have recently been de- !) lends itself for column spacing up or 30′. For larger spacings (or, present restrictions, for maximum y of reinforcing steel) concrete- ype flat slabs are very satisfactory 2). Were it not for the present ions, however, structural steel would ovide a very competitive type of —especially with an increased use welding to create continuity of both and horizontal members. The recently completed Robinson's Store in Beverly Hills achieves a remarkably light steel framing on a 32′ x 32′ typical column spacing (*Figure 3*). In fact, it is likely that advanced structural steel design, exploiting continuity in a multi-directional way rather than as the obvious linear extension of the traditional two-way simple-span riveted framing, will soon find successful application and allow lighter framing for longer spans (*Figure 4*).

For the typical, row-type buildings that are sub-divided into leasable units of narrow frontage and considerable depth, it will be found preferable to minimize the number of interior supports by maintaining a longer column spacing in a transverse direction and a narrower spacing in a longitudinal direction. This solution suggests a two-way framing which, if less economical than flat-slab construction, offers another advantage—that of framing flexibility.

For the supermarket-type building, if present in the project as a separate unit, it is desirable to span the roof as a clear span, if for nothing more than to meet the demand of the supermarket operator who often objects to having his counter layout dictated by column spacing. Wood trusses, lamella framing, or glued laminated-wood arches offer reasonably inexpensive solutions for clear-span roofs.

framing flexiblity

Of all the factors effecting the selection of a structural framing method, its adaptability to alterations is perhaps the most specific consideration. Maximum flexibility is required for the typical row-type building for the following reasons: (1) not all of the space may have been leased by the time the center is under construction or completed; (2) changes of tenancy will undoubtedly occur, in time. It is often desirable to provide for future vertical expansion, rather than by the addition of new wings or buildings. In this manner, the delicately balanced plan pattern of the shopping center need not be disturbed. Thus, it becomes important that the floor framing and the roof framing, if designed for possible floor use, allow for the future openings of shafts for stairs, escalators, ducts, elevators, etc., without creating ma-

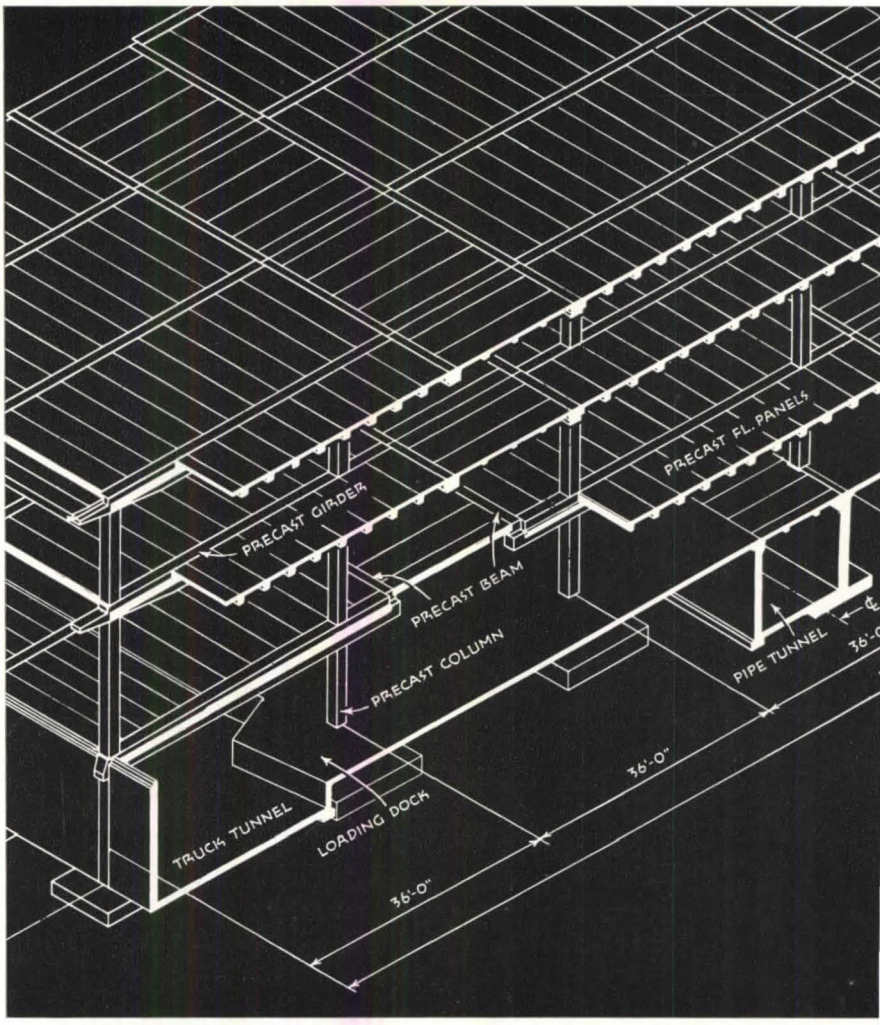


Figure 5—all-precast framing system for the J. L. Hudson Company's tenant buildings at Eastland Center, Detroit, Michigan; Victor Gruen Associated Architects & Engineers.

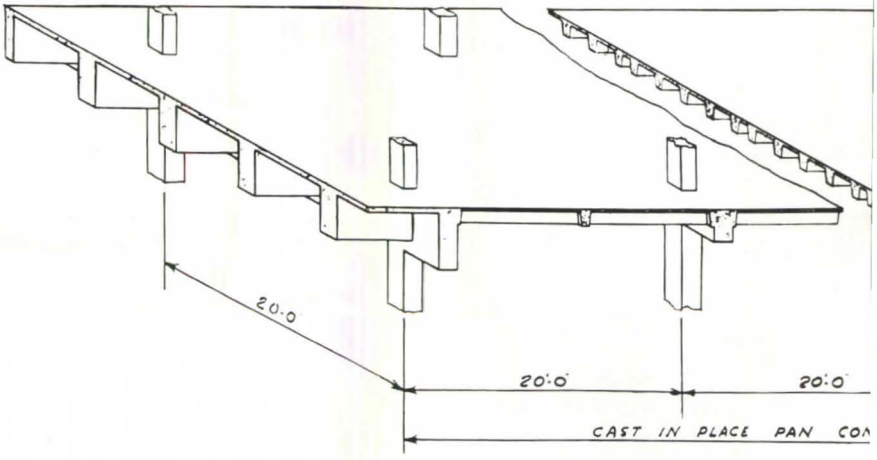


Figure 6—design for tenant buildings of project in Detroit (same owners, architects, and engineers as design above) which is a compromise between cast-in-place and precast elements, in order to conserve steel.

uctural difficulties. Changes of this will not occur frequently enough, er, to warrant an excessive invest- to achieve absolute flexibility. An m compromise is to be sought; too s known about the operational de- of shopping centers at present to hat degree of framing flexibility ap- es this optimum.

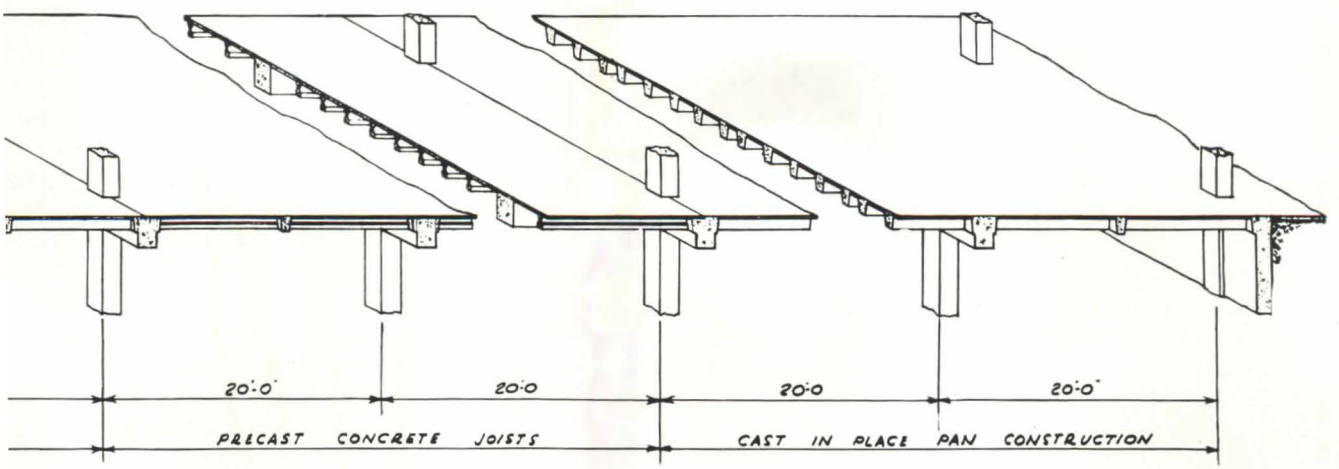
eneral, the demands of flexibility fac- e not too taxing on structural steel g which, by its very nature, is emi- suitable for alterations.

reinforced concrete does impose ions on flexibility. Flat-slab con- on does not lend itself successfully tting of openings after construction. mitation is unfortunate because one nost interesting recent structural de- ents, the lift-slab, offers a low flexi- ating. Two-way framing, previously s advantageous in the selection of spacing, is also desirable from the oint of flexibility.

the J. L. Hudson projects, which heir inception were designed for re- d concrete framing, due to material ions, an exhaustive study was con- on the possibilities of precast con- n. This technique seemed to present possible economies as well as excellent qualities of flexibility. In the first project (Eastland), the framing for the typical row-type building has been detailed for all-precast construction—entirely eliminating scaffolding and formwork. The framing consists of 18″ x 18″ precast columns, spaced 36′ on center, which support 18″ wide double-cantilever girders spaced 20′ on center (*Figure 5*). A specially designed connection detail allows for ease of erection and at the same time re-establishes a high degree of rigidity between girders and column. Spanning the girders are typical precast 4′ wide channel panels of 2½″ slab thickness. The two bays between the end of the girders' cantilevers are also framed with typical channel panels; however, they span in a transverse direction. With this system, it is possible to provide at any time for stair or other openings, in either direc tion, by simply removing one or more typical panels. An all-precast system, though offering the most satisfactory solution for such a large size project, does not achieve the highest economy of reinforced steel—the price is paid for flexibility at the expense of continuity!

For the project presently being detailed (Northland), a compromise solution was adopted in an effort to achieve the maximum saving in steel tonnage. The framing will consist of cast-in-place, continuous, deep-ribbed pan construction throughout, except on the two interior, center bays where most of the foreseeable future openings may be located. These are framed by means of precast concrete joists, supporting a 2½″ cast-in-place slab (*Figure 6*).

During the preliminary studies, the feasibility of using prestressed elements was investigated. It was found, however, that the high ratio of live to dead load for floor construction penalized the design of continuous elements. It was also felt that the absolute lack of flexibility of a framing system employing prestressed elements would prevent its adoption. Even if additional supports were added to such a framing system, it would be impossible to cut through a prestressed girder. It is possible, however (especially for roof framing where flexibility is not demanded), that prestressing large-size, precast units and applying the strands to the full length of the building, to minimize the cost of anchoring devices and stressing operations, may lend itself to very significant developments in the search for economical long-span framing.



fire rating factors

For department store buildings where large, undivided floor areas are demanded, Class I construction will be required for all but the smallest projects. Either reinforced concrete or fireproofed structural steel can be used. Developments in lightweight fireproofing and in lightweight aggregates for concrete topping are in favor of structural steel framing. On the other hand, the need for flexibility on store ceilings—where lighting fixtures, air-conditioning outlets, and other inserts may need relocations and additions—makes it almost mandatory to divorce the fireproofing ceiling from the finished ceiling. It may, therefore, often be more economical to adopt a basic reinforced concrete structure with finished ceiling suspended directly.

For the typical row buildings, where the total floor area can be divided into smaller units by using firewalls or separations between tenants, the selection of framing systems becomes more complex. This is because differences in fire ratings and consequent insurance costs have to be projected against differences in initial construction costs. Furthermore, the introduction of sprinklers—a reasonable enough investment—will considerably reduce the insurance cost of systems with otherwise high rates. Thus it becomes impossible to give any rule of thumb. In ease case an exhaustive comparative analysis will have to be made to determine the most economical solution. It is possible that, under certain circumstances, wood framing—in the form of arches, trusses, glued-plywood-box girders for roofs used in combination with structural steel or concrete girders for floors—may well prove to offer an entirely satisfactory solution.

owner's or tenant's specific requirements

These, of course, are highly unpredictable. It has been mentioned that some supermarket tenants will not consider anything but a clear-span roof. The clear-span domed roof over the main department store at the Framingham center has also been cited. It is unquestionably a desirable luxury to have an uncluttered area of such size within which to develop the merchandising layout. Yet, other major stores have been successfully planned on the basis of conventional open-column spacing. The conclusion: that the asset of clear span is evaluated with different factors by different tenants.

After having thus surveyed the influence of general factors on the selection of a structural system, a brief mention can be made of some specific framing problems that are characteristic of shopping center projects. It is accepted as almost mandatory that a covered pedestrian sidewalk be provided at the periphery of the store buildings. It is also very desirable to eliminate all columns from the storefront line of typical row-type buildings in order to allow for maximum flexibility in the subdivision of tenants' space and in the design of storefronts. This problem can be solved either by recessing the columns a reasonable distance inside of the store space and cantilevering the horizontal framing, or by providing colonnade columns at the outer edge of the sidewalk. Aside from architectural considerations that may influence the choice, it can be noted that the first solution, involving cantilevers of considerable span, is more appropriate where the typical interior transverse column spacing is also very wide. The second solution, on the other hand, lends itself satisfactorily to any selected column spacing.

If the shopping-center plan is developed around a covered mall, there arises the problem of how to roof (elegantly) the public promenade. The use of long-span, precast elements — possibly prestressed — having integral—glass inserts, so that natural light will not be excluded, may lead to interesting solutions.

If truck tunnels for underground service delivery are a part of the project, special framing problems will unavoidably
It should be noted that often a larg
tion of the structure's total cost is
sented by special conditions of this
As a thorough analysis of the typical
ing system is necessary to the select
the most satisfactory and economical
ture, so ingenuity and sustained effo
plied to the design and detailing of
dary elements, is needed to avoid the d
that some features of the project, oth
very desirable, may become excessiv
nomic burdens.

conclusions

In view of the fact that so many
concepts are still at a fluid and for
stage, the creative collaboration of
tect and engineer is vital in the bas
sign of shopping centers. Inventivenes
daring are as much bound by consider
of economic necessity as spurred b
magnitude and the extraordinary pote
of the problem. The shopping center
again, to modern man, the values of
mal order, well-scaled environment
relaxed activity that were characteris
the old-time plaza or the country ma
lost in the fragmentary, unplanned,
development of our time's downtown

These same values are in the proc
being reinterpreted for modern m
terms of today's economy, up-to-date
nology, and contemporary living pa
Moving as we are in this direction, w
just traveled the first steps. Tomo
"plaza" may well be envisioned a
great, cheerful, informal, air-condi
space, sheltered by a light, luminous,
span roof. Within this one space
organized and interrelated — merch
will be displayed and "shopping" w
come again a most enjoyable excitin
civilized experience! To make s
vision into a physical and economic
the combined, interplaying imaginati
ingenuity of architects and enginee
a challenging task.

SHOPPING-CENTER MATERIALS

pecial problems introduced in the
on of materials for a shopping cen-
e related principally to those por-
f the building directly affected by
nant occupancy, which would be
to alteration with a change of ten-
nsofar as the criteria for selecting
r materials are concerned — unaf-
by the consideration of flexibility—
re not significantly different from
ther building types.

familiar problems exist—some of
ecoming more important because of
cial use of the buildings—and are
by the same analysis that the archi-
stomarily makes of existing condi-
or any building. Cost, appearance,
ility, size of project, adaptability for
th various structural systems, dur-
speed of erection, climatic condi-
nd maintenance factors—these con-
ions must be recognized in varying
s of importance for all buildings.

hopping centers the maintenance
n, particularly of those materials
e exposed to contact with the public,
ified because of the intensity of traf-
eloped for many hours every day.
oblem, then, is to select paving and
wall and column materials which
quire over the years a minimum of
nance under rigorous use, while pro-
an agreeable, pleasant atmosphere
uting to the enjoyment of the shop-
Color and texture should be used
but not garishly and materials
offer a wide range of color and tex-
ssibilities should be sought.

ne selection of materials for a shop-
enter presents possibilities which
ost unlimited, we shall make this a
udy of a specific center—the J. L.
Company's Northland, in Detroit
which materials have been selected
onsidering all of the factors previ-
entioned.

ast architectural-concrete facing
have been specified for the large
wall areas of the major department
s well as for the fascia on the cov-
ered walkway canopies, decorative panels in storefronts, and panels in the pavement of courts and malls. This precast architectural-concrete material was found particularly adaptable for the exterior wall panels of the department store. A sandwich panel 6″ thick, consisting of two 2″ layers of concrete enclosing a 2″ layer of cellular glass is being used. Any desired color or texture is possible for the exterior and the interior side will be finished smooth, ready for painting. The panels are 4′–6″ x 24′–0″, reducing the number of troublesome joints to a minimum.

The exterior free-standing columns supporting the canopies and covered walks will be of reinforced concrete faced with a vitreous cement-enamel finish. Here, a variation of color was required in a material easily maintained and durable. The colonnade surrounding each court or mall area is in a distinctive color, identifying that area and establishing a unifying framework for the varying treatments of the storefronts which face it. The edge of the colonnade roof will be precast panel-facing throughout the center helping to knit all the elements into an integrated composition.

Splashes of bright color will be introduced into the permanent features of the court areas by ceramic-mosaic tile walls for orientation maps and directory panels in strategic locations.

In the selection of interior materials, the concept of flexibility assumes an important role, and those permitting relatively quick and economical alterations to the tenant spaces should, when practical, be selected.

It is customary for the owner to provide the tenant with finished floor, finished ceiling, and finished walls enclosing his space, in addition to the necessary stairways, toilet facilities and access directly from his space to shipping and receiving services provided for the center, whether at basement or grade level. Within this space, the tenant then provides any additional walls, curtain walls, fixtures, and any finish materials which deviate from those furnished by the owner.

A mastic-tile finish floor is the best type for the owner to provide consistent with economy, durability, and good appearance and one which many tenants will regard as acceptable without further expenditure on their part. It offers as much flexibility as is possible in a floor finish, and is easily replaced or matched to suit the changing requirements of the tenant.

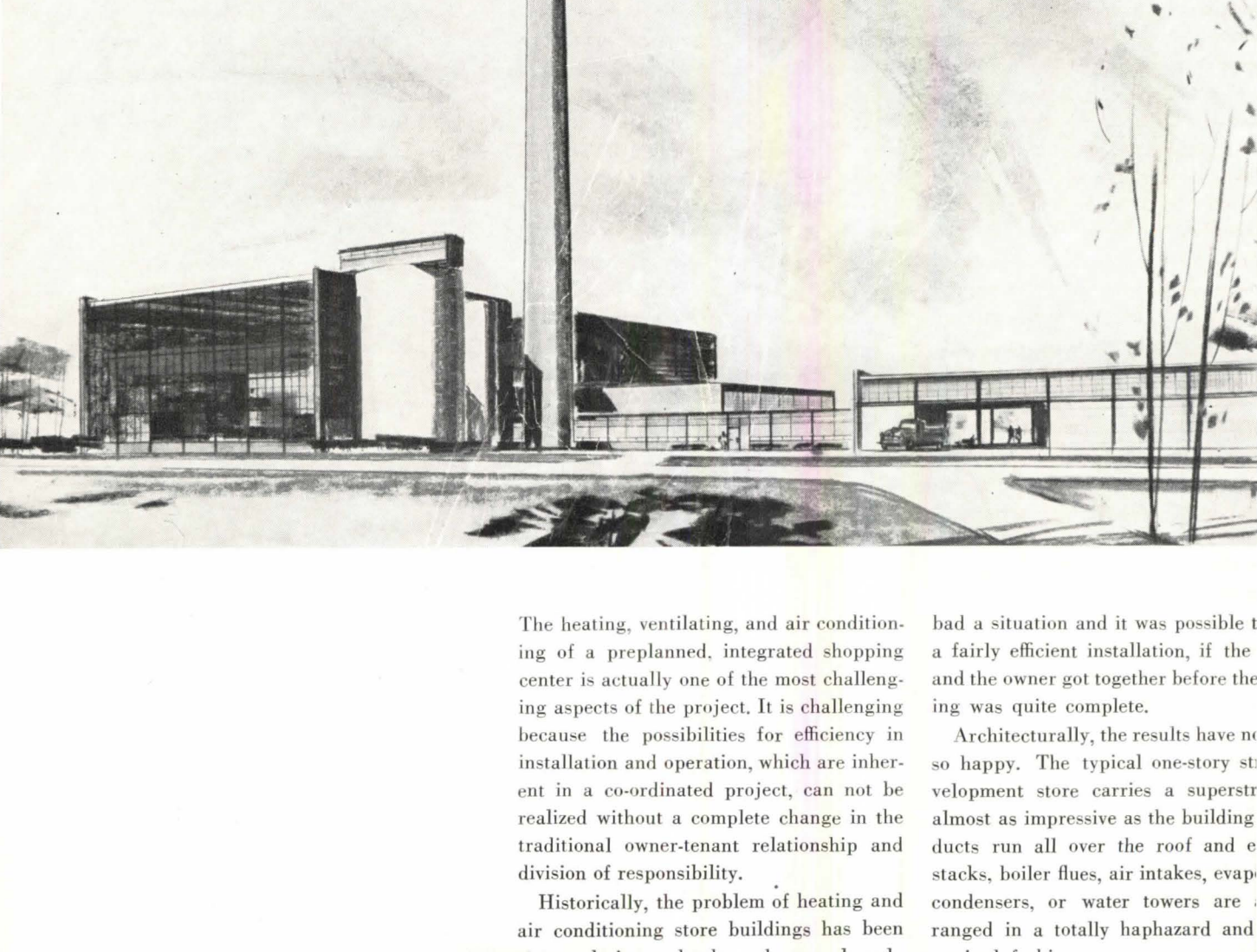
Ceilings should be of acoustical tile on a suspension system designed to provide maximum adaptability to change. Recessed light fixtures and air diffusers demand this flexibility and it should be possible to provide new openings and close old ones quickly and easily.

The importance of a dry-built ceiling installation in a shopping center cannot be stressed too strongly. Constant changes are being made in fixture layout and curtain-wall location; these changes reflect themselves in new lighting, air diffuser, and sprinkler layouts. Changes in the ceiling must be made quickly and cleanly so that the merchandising operations can proceed without the mess and bother attendant when plaster is torn down, patched, and painted.

In Northland Center the owner will provide an asphalt-tile floor through the merchandised areas and a cement finish on concrete slab in storage and utility areas. The ceilings in selling areas will be a standard acoustic tile applied with mastic to rock lath on a standard metal suspension system. Since the buildings at Northland are of reinforced concrete construction, a fire-resistant ceiling is not necessary. Walls installed by the owner, separating the leased spaces, will be of gypsum-tile construction, plastered and painted. The employees' toilet rooms for each tenant (which are part of the owner's work) will have terrazzo floors, ceramic-tile walls, suspended plaster ceilings, and flush-type metal stalls. Stairs will be standard pan type with channel stringers and abrasive finished-cement treads.

Provision of a central heating and air-conditioning plant will eliminate a multitude of scattered stacks and superstructures. The single plant can be unified in design with the total. Eastland Center (below) *by Victor Gruen.*

SHOPPING-CENTER MECHANICAL DESIGN



The heating, ventilating, and air conditioning of a preplanned, integrated shopping center is actually one of the most challenging aspects of the project. It is challenging because the possibilities for efficiency in installation and operation, which are inherent in a co-ordinated project, can not be realized without a complete change in the traditional owner-tenant relationship and division of responsibility.

Historically, the problem of heating and air conditioning store buildings has been managed in a haphazard way largely through expediency rather than upon a logical basis. The owner generally built his building with a particular tenant in mind. It was his responsibility to provide the heating plant—the tenant provided the maintenance and operation. If a tenant wanted air conditioning, the owner sometimes, and sometimes not, provided the duct work and the enclosures or supports for the air-conditioning equipment. The compressors, the air-handling equipment, fans, evaporative condensers, etc., were supplied by the tenant. Mechanically, this wasn't too bad a situation and it was possible t a fairly efficient installation, if the and the owner got together before the ing was quite complete.

Architecturally, the results have no so happy. The typical one-story st velopment store carries a superstr almost as impressive as the building ducts run all over the roof and e stacks, boiler flues, air intakes, evap condensers, or water towers are ranged in a totally haphazard and ganized fashion.

So long as each store in a group to be the property of a separate own only relationship between stores w party wall; the problems of expansio traction, alteration, and change wer considered as horrors to be faced there was no incentive or real rea change this not too efficient pattern.

But the preplanned regional or shopping center has introduced a new set of factors. In the shopping the typical tenant building is not little buildings all strung together

one large building, sometimes 400′ ′ long, uniformly designed, con- d for maximum efficiency, and cap- being divided in many ways to suit sing requirements of a multitude of ncies. This element of being built once, and the ability to adjust to a of occupancy shapes and require- suggests the possibility that the heat- d air conditioning might be conceived same basis—that there might be ad- es in cost of installation, operation, aintenance to be achieved by pre- ng this part of the center.

ourse, it would be possible to wait ne building was rented and, as each s requirements were established, to e the heating plant and the duct work traditional basis — modifying the g; adding superstructures on the erecting a scattered pattern of chim- But the only reason for doing this be to maintain the tradition, to fol- he pattern, without establishing r the old pattern is right for the new t of the shopping center.

y aspects of the old system are not tible with the aims of the planners ners of the modern, integrated shop- enter. Their desire is not only to e convenient shopping, but shopping most pleasant and attractive atmos- possible. The integrated, preplanned building achieves order and uniform- s a disciplined shape to house the uality of each tenant as expressed storefronts and signs. As these gs are set back from the street, sur- d by parking, and therefore visible istance, a disorganized array of roof ent would not enhance the appear- nor would smoke and fumes from f chimneys improve the shopping here.

n alternate to this traditional, expe- pproach to heating and ventilating, lanned building offers the opportu- provide a central heating plant and al air-conditioning plant of sufficient y to accommodate the needs of all within the building. However, as ncept of the central plant departs completely from the historical owner-tenant relationship of cost and responsibility, it must be compared carefully with standard procedures and practices so that its advantages are clearly established.

This examination and comparison should be carried out from four points of view: initial cost, operating cost, flexibility, and the effect on the architectural design.

To determine the initial cost is relatively simple. Take a typical tenant building, fill it with a theoretical occupancy of stores and: (1) design a central system with the necessary distribution lines and ducts to serve the occupancy; (2) design an individual local system for each tenant in accordance with standard practice; (3) estimate the cost of each. Our experience has indicated that the central steam plant, serving a large group of tenants is, from a capital-cost point of view, more expensive than the sum of the individual plants in spite of the multiplicity of units, stacks, etc., involved in the local units. This appears to be due largely to the special character of central equipment as compared with the mass-produced individual units; and to the complex character of a central installation as compared with the simplicity of the installation of individual units.

An examination of operating costs, however, yields very different results. The maintenance, supervision, and fuel consumption of 10 to 12 individual units total approximately twice those of a central plant serving the same number of tenants. This engineering evaluation is borne out by the experiences of industrial plants, apartment house groups, etc., which have been converted from multiple to central installations.

To date, it has been impossible to confirm these operational estimates by figures from stores or chains that operate and maintain individual units, because the common practice of lumping electrical costs, service, and maintenance into the store operation, and of using either sales or management personnel for the operation and supervision of the boiler units.

As far as flexibility is concerned, there is no question that the central plant has advantages for the owner that the scattered individual tenant plants cannot hope to match. Changes in occupancy requirements, due to changes in merchandising activity or to the introduction of new units, can be met without structural change, and with only a minimum of mechanical alteration.

From an architectural point of view, the central system has many advantages: the elimination of a multitude of stacks, the localizing of the mechanical installation in one area, the opportunity of effective smoke control, and the simplification of framing by elimination of stacks. And for the tenants there is a distinct advantage in the actual saving of space — the area which would be occupied by boilers, fuel storage, and related equipment is released for merchandising or the processes necessary for merchandising.

For the landlord, the weighing of these four factors poses an interesting choice. The central plant costs more to install than the individual systems. The maintenance and operating expenses, which were formerly the burden of the tenant, must now be assumed by the management and distributed to the tenant on some equitable basis, such as the metering of the steam. The typical tenant has to be satisfied that the metered rate he is paying for the steam represents a lower heating cost than he would pay with an individual system. Yet there is difficulty in establishing what the tenant's cost would be with the individual plant because there are no clear records of this cost. The tenant must realize, however, that the diversion of man hours from the operation of the equipment to the actual management and selling operations of his store cannot be ignored, and that hidden maintenance and operating expenses are bound to be eliminated if shopping-center management assumes this responsibility.

The case for air conditioning is similar, but perhaps more complicated.

Air conditioning is not as simple a matter as the provision of steam. Tempered air can be produced in a number of ways. The central refrigeration and air-handling plant could easily supply the required volumes

of tempered air to all the tenants in a building. But it is difficult, from a central plant, to adjust to individual requirements in any fashion other than by increasing or decreasing the volume of air in each space. If booster coils are provided, the system immediately becomes special. Tempered air can be provided by supplying chilled water from a central refrigeration plant to zoned, air-handling equipment units, each of which will serve a limited area. The chilled water can be metered on a thermal basis, and the air-handling equipment will be operated by the individual tenant as he requires. Or the central plant could produce only condenser water, which would be piped to zoned compressor locations. There are others, but these are the basic central-plant variations.

Each of these three must be completely laid out with their related duct work, electrical installation, etc., in order to establish a fair basis of comparison. And in making the examination and comparison, again the four factors involved are: initial cost, operating cost, flexibility, and the effect on architectural design.

Initial cost can be determined by laying out individual systems in accordance with standard practice for a theoretical pattern of individual tenants, and three central system variations designed to serve them all.

Our surveys have indicated that, from a total cost point of view and considering a group of approximately 12 stores, the initial cost is almost a toss-up with the central plant, providing tempered air adjusted on a volume basis, having a slight edge.

Our examination of the projected operating costs of the four possible situations shows the central refrigeration and air-handling plant providing total tempered air to be by far the most efficient. One of the principal reasons for low-operating cost of the central plant is that, while it is no longer unusual for a typical one-store installation to require and use more than 20 tons of refrigeration, local ordinances and controls now generally require the continuous presence of a first-class engineer for any installation of 20 tons or more. This means that six to eight engineers would be required continuously if the regulations are adhered to, whereas only one engineer with a helper would be necessary at the central plant.

Here, again, cost figures on individual installations are hard to check: condenser water is generally thrown away and lumped into the water bill; electrical consumption is buried in the total; most operating stores ignore the regulation requiring a registered engineer, and the same manager who operates the steam plant fiddles with the air-conditioning unit.

There is also the problem of distributing costs. Steam consumption can be easily metered—air flow, only with difficulty. And to distribute the cost simply on a square footage basis can result in inequalities because of differing hours of operation.

In considering flexibility, there is no question that the central plant has great advantages. Changes in merchandising techniques often introduce increased lighting loads in an individual store and require brand-new or additional cooling equipment; with a central plant system, however, the extra cooling can be supplied without additional equipment. Changes in store occupancy also can be accomplished with little or no structural or mechanical problems.

Architecturally, the central plant is a boon. The superstructures are gone from the top of the building. There are no exposed ducts crawling over the roof. Intake and exhaust stacks can be centrally located and specially treated. And, for the tenant, the space advantage gained from the elimination of the individual boiler plant is repeated by the elimination of the sp
quired for the compressors, cond
fans, etc., thus increasing his usable
and giving him a larger net area av
for actual merchandising.

In addition to these purely theo
considerations of cost and flexibility
are limiting factors that may be dicta
facilities or conditions special to th
tion of the project. It is possible, ever
able, that the sewer capacity availa
a suburban shopping center will
sufficient to permit total discharge
condenser water into the system.
these circumstances, evaporative co
ers or cooling towers which permit
culation may be mandatory. Or the
supply may be limited in the genera
and, for conservation reasons, the
condenser water restricted.

Where these conditions exist, our fi
have indicated that the capital cos
central plant is considerably less th
capital costs of a series of individual
each requiring its own water tow
evaporative condenser; further, the
mulated space lost where each tenan
satisfy these special requirements is
sive and imposes a burden on the
who must rent this space. (It also dec
the opportunities of profit to the
because this space is totally lost to
and so must affect the percentage
payments.)

The decision on the method of ha
air conditioning on an integrated b
obviously a complicated one both f
owner and the tenant. If a central p
introduced, a large item of capita
normally borne by the tenant, is com
eliminated and must be expressed
change in the rental structure or c
to the tenant on some fair and eq
basis. Either of these alternates wi
major departure from the rental

enced in other kinds of store loca-
nd may be difficult to negotiate—
ularly if the tenant may not be satis-
his heart that the central plant means
gs.

n, there is the question of the opera-
osts normally borne by the tenant
must, in a central plant, be carried
nagement and distributed to the ten-
the basis of his consumption. With
ral cooling and air-handling plant,
ng of the individual tenant's con-
on by volume of air is, at present, un-
e. The distribution of costs on a
footage basis has many inequities
e the volumes required by different
of occupancy will vary greatly.
operation costs of a central, chilled-
plant can be fairly and equitably dis-
d where the zoned consumption of
water by the individual tenants can
tered on a thermal basis. But the
ing and maintenance costs are
y increased because of the necessity
ding the zoned air-handling equip-
It is also possible to meter the con-
on of condenser water. But in this
f installation, the increased number
l compressor units vastly increases
erational and maintenance costs and,
rge extent, fails to realize the advan-
n space saving, etc., offered by the
plant.
Northland and Eastland Regional
ng Centers in Detroit are being de-
with central-heating and central-
ration plants. In making their de-
the owners agreed with the archi-
nd engineers that the advantages in
ity, efficiency of operation, improved
ance and shopping comfort, and the
erable space made available for mer-
sing, more than compensated for
rease in cost. These advantages are
on to the tenant.

in conclusion

We—the Authors and the Editors—hope that this issue of PROGRESSIVE ARCHITECTURE has offered something helpful and useful in understanding the problems raised by that new building type, the shopping center. In conclusion, we would like to re-emphasize three points:

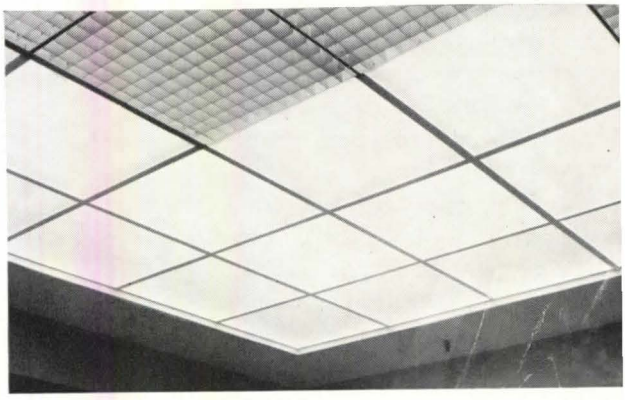
First, there has seriously been a desire to avoid definite "instructions" and dogmatic statements. If there is anywhere an appearance of such, it should be taken as a case study of one or more projects, rather than a general rule to be followed.

Second, interrelationships of factors are so important, especially in the economic aspects of shopping centers, that one can easily change another. For example, even the "trade area" cannot be defined except in relation to the physical design, and the selection of tenants.

Finally, the point made in the opening pages of the issue —that a modern shopping center can be a cultural and social center as well—may have been lost in the technical discussion through the study. This important aim should not be lost sight of: if it has not yet been attained in any completed center, it remains a possibility and a goal to work for.

PRODUCTS

interchangeable over-all lighting



Smithcraft's Area Illumination, a complete fluorescent system, represents an entirely flexible approach to over-all lighting. The method gives the architect, designer, and engineer full freedom in lighting design for areas of any size or shape, with a limitless choice of pattern, shielding, and intensity.

In principle, the system consists of two sets of grids of flexible dimensions, one positioned directly above the other. The upper set of grids forms the lighting panel and contains all the electrical components. Parallel electrical housings are furnished with as many lamp holders as needed to create the desired lighting level. While the lamp spacing can vary every 3″, the manufacturer believes that 12″-, 18″-, 24″-, and 36″-spacing will meet most demands. The installed or completed lengths of these housings can be any dimension from 2′ to 2000′ or more.

The lighting panel may be fastened directly to, or suspended from, the building structure by movable support ha which can be adjusted by as much in each direction—a total of 4″ that for the variations, discrepancies, a structions found in almost every bu

air and temperature control

Vaporizing Oil Burner Wall and Floor Furnaces: complete new line provides full automatic heating for small houses; each unit equipped with electric ignition system that controls combustion and temperature without need for pilot light, eliminating extra fuel consumption. Available in models suitable for shallow pit, basement, or wall-recessed installations; units may be set safely against wood. Capacities range from 50,000 to 85,000 Btu. Iron Fireman Mfg. Co., 3170 W. 106 St., Cleveland 11, Ohio.

Power Exhauster: up-blast type, ready for installation, with exceptionally low silhouette designed to cut down danger of overturning; largest model, rated at 22,000 cfm, stands only 54″ high. High-tensile, cast aluminum fan blades follow latest development in air foil design. Totally enclosed motor. Gallaher Co., 4108 Dodge St., Omaha 3, Nebr.

Automatic Heating Plant: designed for low-priced, small homes. Interchangeable unit is designed to accommodate oil or gas burners; in spite of compact size—22″ square—furnace will heat, humidify, filter, and circulate warm air to every room. Rated capacity of 80,000 Btu with .75 gph oil input, and 65,000 Btu with 82,000 Btu gas input. Majestic Co., Huntington, Ind.

Model 2000 Thermobloc: gas- or oil-fired industrial heating plant, capable of 2 million Btu per hour, with normal air output of 22,000 cfm. Equipped with twin heat exchangers, four diffusers that can be rotated a full 360° to any position desired, and blower fan powered by 10 hp motor. Unit requires less floor space and head room than most conventional space heaters. Prat-Daniel Corp., Thermobloc Div., 2 Meadow St., South Norwalk, Conn.

"Water-Saving" Air Conditioners: new line of medium-tonnage, self-contained units designed to meet most municipal regulations on water consumption and disposal; completely wired, piped, dehydrated, charged, and tested for operating conditions specified for each individual job. Produced in 15 and 20 ton capacity ranges to serve offices, super markets, banks, restaurants, and other commercial and industrial applications. Trane Co., La Crosse, Wis.

Unitaire Air Conditioner: 10 hp, self-contained unit, encased in thermally and acoustically insulated cabinet, is 91″ high when top mounted, and 61″ x 32″ at base, making it ideal for fitting into recesses to save floor space. Two double-inlet, 12″ fans deliver 4000 cu. ft. of air per minute; adaptability for heating is provided. Unit is suitable for offices, stores, and other applications calling for economical air conditioning. Westinghouse Electric Corp., 200 Readville St., Hyde Park, Boston 36, Mass.

construction

Stri-Color Shingles: asbestos-cement siding with striated, embossed surface, available in brown, gray, or green. Special "Dura-Shield" factory finish helps to repel water and resist staining. Flintkote Co., 30 Rockefeller Plaza, New York 20, N. Y.

Adjustable Welding Connector: new, adjustable clip offers ¼″ adjustment which facilitates erection of welded-steel, multiple-story building construction; is claimed to save steel, produce fabrication economies, and speed erection. J. H. Williams 400 Vulcan St., Buffalo 7, N. Y.

doors and windows

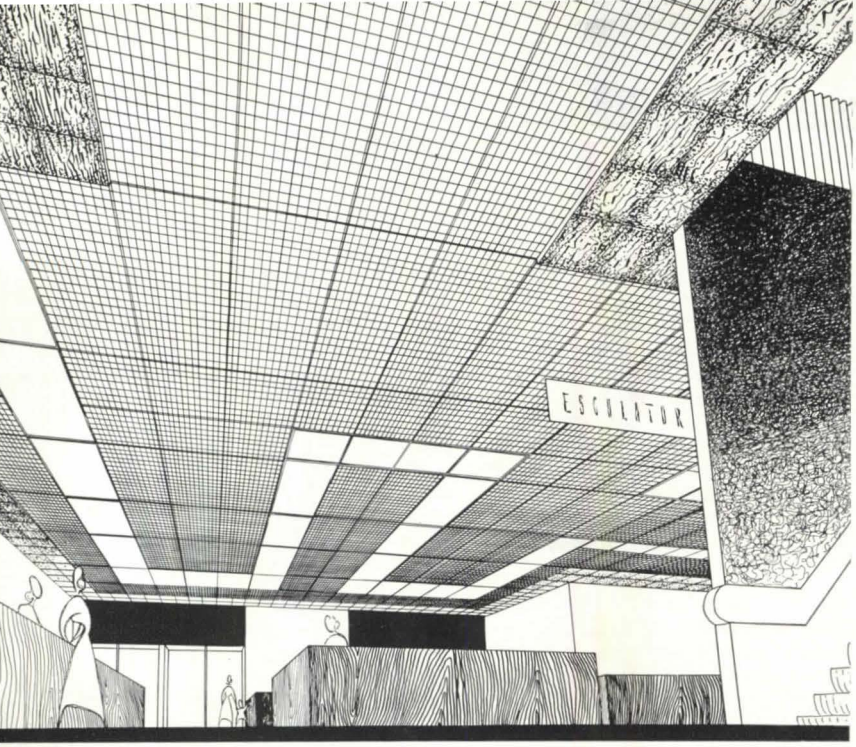
Full-Vision Rolling Door: rolling door now furnished with windows, 12 20″, or 24″ in height and 20″ in made of aeroplane plastic lights shap assembled to coil with door. Windo mits clear, unobstructed view of e and interior, admits light to aid in c ing truck movements; may be instal existing rolling doors as well as i Cornell Iron Works, Inc., 36 Ave. & Long Island City, N. Y.

Marmet Window-Wall Sash: welded inum sash, ready to install in frame able in single sash *width and* heigh multiple of 3 sash wide or additiona tiples of 1, 2, or 3 sash and 1, 2, or high. Glass opening takes stock size mopane; equipped with operating ha Marmet Corp., Wausau, Wis.

Carrara Glass Plates: structural glas plates for doors, furnished in any re size in full range of colors. Permane ish *needs no polishing*; can be kep merely with damp cloth. Pittsburgh Glass Co., 632 Duquesne Way, Pitt Pa.

electrical equipment, lightin

"Grid-Light": lighting system u grid-like arrangement of prewired c single-pin T12 slimline lamps, and lucent plastic shields, designed for mounting installations against flat of any material. System is said to i lighting efficiency, facilitate maint



portant advantage of these adjust-upports is that any adjustment, r sidewise or lengthwise, up or is made *after* the erecting of the g panel; which means that no exact dimensioning is required when attaching the supports into a poured-concrete ceiling structure. They also have the advantage of economy, since it is only necessary to secure them at dimensions of 8′ x 3′ to 4′ —using about half the number of support-devices essential to the conventional suspended-lighting system.

The lower grids are designed to receive all types of shielding media and acoustical treatment. The shielding materials may be used singly, or in combination; thus, special effects can be created with eggcrate mental louvers interspersed with molded-plastic panels, glass panels, or corrugated-plastic sheets. Spotlights may be inserted at will in desirable locations. In stores, where changes of departments and different seasons call for alterations in lighting effects, the many possible variations prove particularly advantageous.

Area Illumination is entirely pre-wired and needs only to be connected to the feed wires in the same manner as an ordinary lighting fixture. The manufacturers state that this product is not custom-made. The system is completely standardized and may be ordered in the same manner as one would order steel casement windows. Smith-craft Lighting Division, Chelsea 50, Mass.

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y specification, and make installation Recommended for classrooms, stores, drafting rooms, and similar loca-Benjamin Electric Mfg. Co., Des , Ill.

naster Stand-by Light: automatic quipped with glass jar rechargeable and visible ball-float hydrometer, s emergency light instantly when failures occur. Electrical components lly engineered for constantly ener-tand-by duty. Choice of floodlights ed beam lamp heads. Unit can be for permanent location or supplied rd and plug for semi-portable instal-Carpenter Mfg. Co., Somerville,

ite PBM Lighting Fixture: fully d, luminous indirect fixture, devel-y M.I.T. engineers, reduces mainte-to minimum and assures long life uble-free operation. May be installed vidual unit or in continuous run. le for two 40w fluorescent lamps, or 40w and two 60w slimline lamps. te Lighting, Inc., 5455 Bulwer Ave., is 7, Mo.

Spot Adapter: portable spot or flood-xture, involving no installation ex-designed for use in any porcelain receptacle and with swiveling de-suitable to wide variety of display cent lighting in stores, restaurants, nilar commercial interiors. Consists l housing, porcelain adapter recep-luminum reflector, and concentric Silvray Lighting, Inc., Bound Brook,

Circline Fluorescent Fixture: two-ghting fixture, of hard-baked enamel, has 8″, 22w preheat type, standard-start lamp mounted inside 12″, 32w instant-start lamp, both arranged so as to form concentric circles of light; decorative glass centerpiece fastened to fixture by knurled thumb nut. Suitable for applications in residential kitchens, bedrooms, hallways, bathrooms, as well as for commercial applications (small offices, waiting rooms, etc.) Sylvania Electric Products, Inc., Ipswich, Mass.

finishers and protectors

Flow Kote: rubber-based flat wall paint, easily applied, durable, thoroughly washable, is thinned with water, acts as its own primer, and resists chipping. May be applied with brush or roller-coater without causing lap marks or streaks. Du Pont Co., 350 Fifth Ave., New York 1, N.Y.

Mason-Coat 310: one-coat, oil-based paint designed for decoration and protection against moisture infiltration, is applicable to interior and exterior surfaces of concrete block, cement, brick, stucco, and similar masonry surfaces. Available in white and several tints. United Laboratories, Inc., 16801 Euclid Ave., Cleveland 12, Ohio.

insulation (thermal, acoustic)

Finger Strap: ¾″-wide metal strapping for use in applying all types of insulation material, quickly, economically, and permanently, to ducts, pipes, tanks, and flat walls. Available in continuous coils, in thicknesses from .015 to .35, in plain steel, galvanized, stainless 430, or monel steel. A. J. Gerrard & Co., 1950 Hawthorne Ave., Melrose Park, Ill.

sanitation, water-supply drainage

Ideal Distributing Box: prefab, hexagonal distributing box of heavy welded steel, for sewage disposal systems; insures uniform distribution to entire drain field and is easily inspected at heart of system. When one line becomes clogged, remaining lines share load; one inlet and five outlets are sized for tight seal within standard field tile. Ideal Sanitation Co., 8052-A Montgomery Rd., Cincinnati 27, Ohio.

specialized equipment

Meteorological Equipment for Industrial Site Location: newly-developed electronic wind-speed and -direction recording system provides means of accurate investigation into meteorological conditions affecting projected plant sites so that later corrections to plant waste-discharge operating procedure can be minimized. System makes recordings from threshold below one mph up to 30 mph, on standard pen-type, strip paper recorders. Unit is energized by its own battery supply, weighs only 100 lbs. Beckman & Whitley, Inc., 1031 San Carlos Ave., San Carlos, Calif.

surfacing materials

Colorbestos: large-sized asbestos-cement sheet, in random-ribbed pattern, for exterior siding of houses, comes in 32″ x 96″ x 3/16″, covers large areas quickly, yet is convenient size for handling. Manufactured in strong colors of red, yellow, brown, green, and three tones of gray. Johns-Manville Corp., 22 E. 40 St., New York, N.Y.

pa MANUFACTURERS' LITERATURE

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

air and temperature control

1-173. June-Aire, 4-p. folder illustrating operation of completely automatic winter air-conditioning system, available for light- or heavy-oil fuel, gas, or hand- or stoker-fired coal. Components, cross-section of heater room, system designs. American Foundry & Furnace Co., Dept. CV, Bloomington, Ill.

1-174. Anemostat Air Diffusers, AIA 30-J (Selection Manual 40), 64-p. revised booklet containing full technical data on selection of proper air diffusers for air-conditioning systems; complete new section on high-pressure units for high-pressure, high velocity systems. Types, accessories, typical specifications, installation data, list prices, weights, contents table, photos, drawings. Anemostat Corporation of America, 10 E. 39 St., New York, N. Y.

1-175. How to Have a Carrier Weathermaker Home, 31-p. booklet outlining new way of planning homes, with freedom from many old technological restrictions, by means of installing air-conditioning system that cleans air, cools or heats it, and circulates it throughout house. Economic advantages, plans and other drawings, photos. Carrier Corp., 300 S. Geddes St., Syracuse, N.Y.

1-176. Chelsea Fan and Blower Catalog, AIA 30dl (400), 20-p. catalog, including loose-leaf price list on fans, blowers, packaged penthouse units, louvers, and shutters. Types, applications, dimensions, specifications, photos, diagrams. Chelsea Fan & Blower Co., Inc., Plainfield, N.J.

1-177. How to Have Comfort from Moving Air (1952), 200-p. revised and enlarged catalog providing data on heating, cooling, and ventilating equipment made by various manufacturers; includes air circulators and dehumidifiers, fans for all requirements, heating systems, oil burners, unit heaters, floor furnaces, clothes dryers, farm ventilators, etc. Illustrations, contents table, manufacturers' index. Torrington Mfg. Co., Torrington, Conn.

construction

3-145. Architectural Uses of the Stainless Steels, AIA 15-H-1. Photographic examples of architectural applications of stainless steel and basic information about properties. Availability, parts and sections, drawings. American Iron and Steel Institute, 350 Fifth Ave., New York 1, N.Y.

★ **3-146. Macomber Steel Trusses,** 20-p. catalog. Basic design data on industrial plants and commercial buildings completely built of structural-steel framing members—trusses, open-web purlins and joists, decking and siding, columns, eave struts and girts. Plant layouts, structural details drawn to scale, safe-loading tables, general information, photos. Macomber, Inc., 1925 10 St., N.E., Canton, Ohio.

3-147. Reinforced Portland Cement Stucco (1), 4-p. bulletin giving complete details and specifications for reinforced Portland cement stucco for both new and remodeling work. Photos, drawings. Metal Lath Mfrs. Assn., Engineers Bldg., Cleveland 14, Ohio.

3-148. Robinson Clay Product Co. (R-450-15), 4-p. folder. Illustrations of vitrified clay pipe, perforated clay pipe, flue lining, terrace tile, wall coping, chimney tops and bases, and septic tanks, all of clay. Sizes, dimensions, weights, diagrams, drawings. Robinson Clay Product Co., 65 W. State St., Akron 9, Ohio.

3-149. You Can Build Schools Now, 12-p. booklet, on methods of using proven clay-masonry construction in schools to reduce use of steel to absolute minimum. Typical examples, photos. Structural Clay Products Institute, 1520 18 St., N.W., Washington 6, D.C.

3-150. Specifications for Vermiculite Concrete Floors, AIA 4-E-13, 12-p. booklet. Concise data given on use of vermiculite-sand concrete as fill over structural floors, as floor slab over supports on relatively close spacing, and as slab laid on ground. Specifications for vermiculite concrete floors on ground (with and without radiant heating units) that are topped with sand concrete. Drawings. Vermiculite Institute, 208 S. La Salle St., Chicago 4, Ill.

doors and windows

4-176. Aluminum Windows for Moderately Priced Homes, 8-p. brochure. Standard types and sizes of solid-aluminum residence casements, also available as fixed windows. Brief descriptions and photos of basement windows and casement hardware; installation and assembly details. Alcasco Products, Inc., 1780 Creston, Muskegon, Mich.

4-177. Amweld, AIA 16-A, 12-p. catalog. Installation advantages of interior steel door and frame units and steel sliding closet door units. Sizes, types, construction data, photos, drawings. American Welding & Mfg. Co., Warren, Ohio.

★ **4-178. Window Magic,** 16-p. booklet, including rotating color selector, illustrating many examples of drab window areas converted into decorative wall areas by color integration of Venetian blinds, draperies, and walls. Fu photos, construction features of V blinds, suggested color combination able colors for blinds. Levolor Lo Inc., 391 W. Broadway, New York

4-179. Stay-Strate Door (1114-510 folder on warp-proof, flush-venee with Kaylo (incombustible material bestos fiber and hydrous calcium si suitable for residences, apartments, hospitals, and institutional uses. tages, construction data, specificatio ical installations. U.S. Plywood C W. 44 St., New York, N.Y.

4-180. Flexseal, AIA 35-P-6, 4-p. describing flexible-type weatherst utilizing steel-spring assembly that wool felt strips tightly in place, sea window gaps and openings. Specifi general information. U.S. Weath Inc., 463 W. 5 St., Bountiful, Utah.

4-181. Residential Aluminum Wi 8-p bulletin. Specifications for standa modular size casement and awning inum windows. Sections, details. Laboratories, Inc., 3700 N.W. 25 St., Fla.

electrical equipment, lightin

Booklet describing fluorescent and descent lighting fixtures designed an ufactured to meet specific home requirements and to insure correct for every kind of domestic seein Types, uses, illustrations. Also, 6-p. presenting line of incandescent lum for either close ceiling mounting or sion, designed for use with all-silv semi-silvered bowl lamps. Models tometric data, coefficients of utilizati struction features. Silvray Lightin Bound Brook, N.J.:

5-119. Silvray Components for Conditioning Recipes for the (LC50 4 S)

5-120. Luminaires by Silvray (5

finishers and protectors

6-66. Busatti Adhesive Coatin pamphlet on plaster-like ready-mix ing smooth, marble-hard finish t board interiors; not affected by da is easily washed. For use on dry teriors only. Advantages. Busatti ucts, 575 Old Country Rd., Westbur

6-67. What's a Silicone? (SIL-1 booklet. Detailed answers to 51 q tion on practically all forms of products: polishes, water repellents, tive coatings, lubricants, rubber, e insulation, etc. Photos, thumb Dow Corning Corp., Midland, Mich

6-68. Hydroban, 4-p. folder givi data in form of questions and ans

arent, liquid water repellent for most ry surfaces and wood surfaces; not a g, it penetrates surface and becomes al part of material. Hydroban, Inc., ospect St., Brooklyn 1, N.Y.

Your Answer Book on Penta, 40-p. et. Detailed answers to 51 questions ling pentachlorophenol wood preserva- covering types of applications and ds of use. Monsanto Chemical Co., S. 2 St., St. Louis 4, Mo.

Your Floors and How to Main-Them (1000), 40-p. booklet on proper enance of commercial, industrial, and tional floors, plus listing of floor rs and cleaning equipment, finishes, rvatives, etc. Table of contents, s. Multi-Clean Products, Inc., 2277 Parkway, St. Paul 1, Minn.

Rustoleum Stops Rust! (251), 16- alog. Guide to various types of rust- tive coatings, floor sealers, and other tive coatings. Technical data, ap- ons, resistance qualities, drying time, samples. Rust-Oleum Corp., Evans- ll.

insulation (thermal, acoustic)

Fissuretone and Perforated Min-Tile (5114A), 12-p. booklet describing ypes of acoustical tile made from al fiber, one with fissured texture, her with perforated surface; both are bustible, moisture-, rodent-, and abra- sistant. Typical application photos, absorption coefficients and specifica- of test samples. Celotex Corp., 120 Salle St., Chicago 3, Ill.

Kaylo Heat Insulation (KH3-517), ooklet illustrating numerous ways in hydrous calcium silicate insulation al is used in industrial and commer- rojects for temperatures as high as . Shapes and sizes, physical char- tics, recommended thicknesses, in- n efficiencies, photos, illustrations. -Illinois Glass Co., Kaylo Div., Ohio Bldg., Toledo 1, Ohio.

Insulating Sheetrock (WB55), 4- ler describing fireproof gypsum wall- laminated with aluminum foil which as vapor barrier, heat reflectant, and epellent. Advantages. U.S. Gypsum 0 W. Adams St., Chicago 6, Ill.

sanitation, water supply, drainage

4. New Way to Cut Man-Wasted (SP60-2123), 4-p. folder. Recom- tions for proper placement of water , based on extensive study made by f drinking-water requirements of in- l plants and offices. Sample floor table for computing payroll savings by using recommendations. General c Co., Air Conditioning Div., Bloom- N.J.

specialized equipment

19-245. P-A-X Business Telephone System (1735), 16-p. circular describing intercommunication system, composed of standard automatic equipment: required number of telephones, wiring, and switchboard (with associated power supply unit); suitable for all types of small and large organizations. Switchboard models, diagrams, photos, installation data, special services. Automatic Electric Sales Corp., 1033 W. Van Buren St., Chicago, Ill.

19-246. Acousti-Booths, AIA 35-R, (A-107), 4-p. bulletin. Full information on 4 types of floor and wall telephone booths, of steel or wood, with patented acoustical construction that reduces sound by 50%; suitable for any noisy location, such as bus terminals, power stations, railway stations, hotels, airports, drug stores, etc. Construction features, advantages, specifications, prices. Burgess-Manning Co., 5970 Northwest Highway, Chicago 31, Ill.

19-247. Curtain and Drapery Hardware (15), 8-p. catalog illustrating various types of traverse equipment for curtains and draperies. Uses, typical installations, construction details and other drawings, finishes, advantages, photos. Gould-Mersereau Co., Inc., 35 W. 44 St., New York 18, N.Y.

19-248. The Original Tubular Steel School Furniture, 30-p. booklet. Wide range of classroom chairs, desks, chair-desk units, tables, all made with seamless, welded steel tube framing and birch seats and backs. Construction data, dimensions, schedule of sizes, details, photos. Heywood-Wakefield Co., Gardner, Mass.

surfacing materials

19-249a. Traffic Concrete—A Study in Specialization, 20-p. booklet outlining properties and advantages of high density, extremely hard, concrete, floor topping with maximum resistance to wear and abuse; four prepared types to meet every traffic need. Step-by-step comparison of low water ratio of material, as opposed to wet mixes, applications, photos. Flash-Stone Co., Inc., 3723 Pulaski Ave., Philadelphia 40, Pa.

19-250. Cold Process Built-Up Roofs, 6-p. pamphlet. Specifications for cold process built-up roofs, using especially treated felt, liquid roof preservative, and plastic roof preservative, providing interlocked, all-weather roof covering. One- and two-ply application data, photos. Hallemite Mfg. Co., 2446 W. 25 St., Cleveland 13, Ohio.

★ **19-251. Formfree Decorated Wall Tile** (151), 8-p. booklet. Illustrations of glazed mosaic tile, 6″ x 6″, patterned with free, flexible designs, for use as decorative panels or large, continuous wall surfaces. Patterns, full-color plates, typical applications. Mosaic Tile Co., Zanesville, Ohio.

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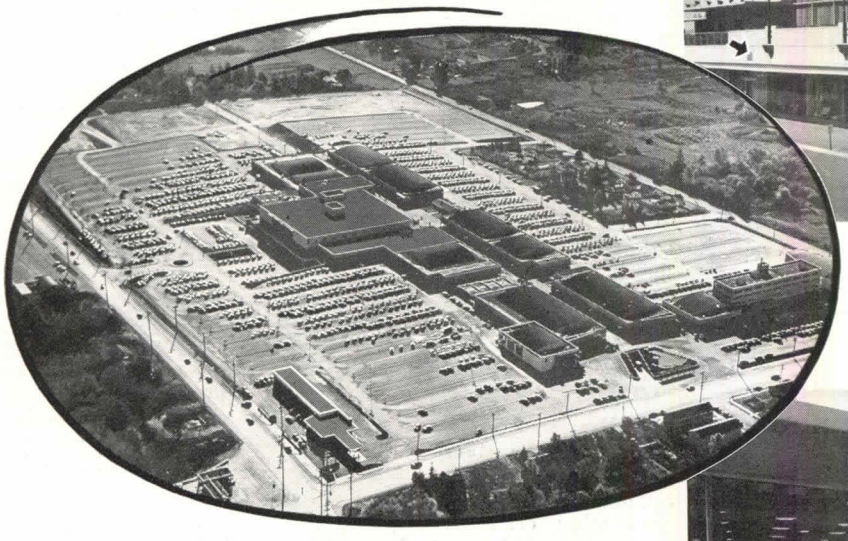

Front elevation of the central Bon Marche Store. Arrows indicate location of decorative inlet grilles which provide fresh air to the "YAC" Units.

45 YOUNG "YAC" UNITS COMBINE ECONOMY OF CENTRAL PLANT HEATING WITH EFFICIENCY OF POSITIVE ZONE CONTROL

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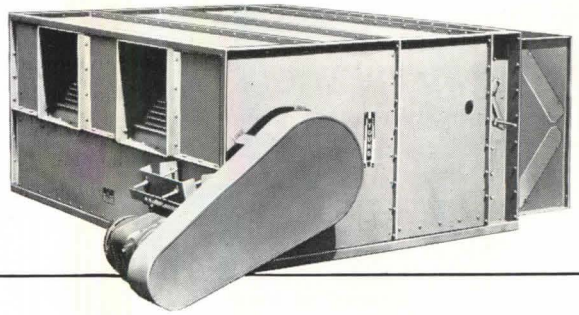
Interior view of the largest building of the group showing outlet grilles and recirculated air inlet grille. Horizontal "YAC" Units are concealed within the ceiling.



Young sectional-design means greater ease in handling, installing, servicing . . . permits partial or complete air conditioning service from compact, economical units. Eight sizes, horizontal or vertical types, are designed for right or left hand installation. Catalog 7550 gladly sent upon request.

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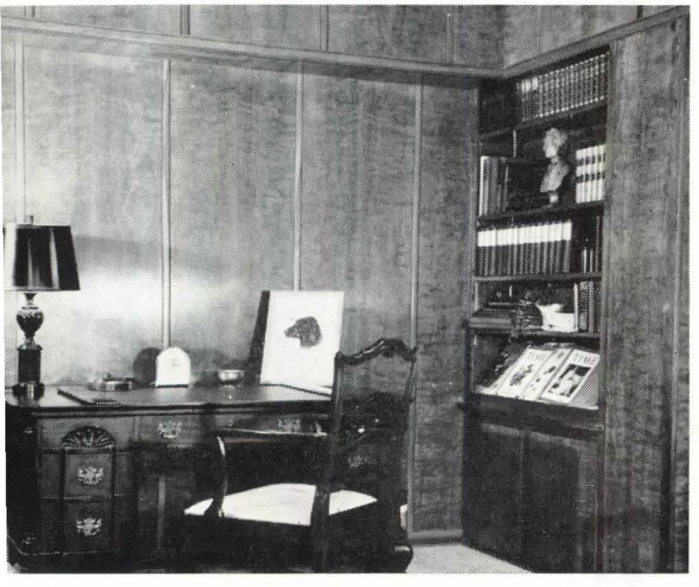

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staurants

By Abraham W. Geller*

There must be a reason, other than a predominance of bad cooking, why the percentage of fail- in the restaurant world is higher than in any other business enterprise. One suspects that the nued reappearance of mock-Colonial and rococo settings; the inept combinations of materials, spurious; the wide use of banal murals and garish mosaics—all help maintain this percentage. Exceptionally fine cooking will, in rare cases, draw patrons into strange surroundings. I have for a number of years in a Chinese restaurant esteemed by some as one of the finest in the try and where, because I know one of the owner's closest friends, I am permitted to eat in the room. I am thankful that this resourceful move on the part of the owner to provide space is universal solution.

The charm of a mellowed establishment, well-maintained over the years, combined with a long tion of good cooking, will undoubtedly draw continued patronage. Here the warm and gracious sphere has been carefully nurtured for many years and any accelerated aging will appear false. What then should be the approach of an owner and architect in planning a restaurant that flourish? They can best insure their success by a contemporary solution which, if sensitively ceived, will become a favored dining place of the present and future.

The experienced restaurateur is worth his weight in magazine articles on restaurant planning. rchitect with a respectful ear can gather valuable fundamental information from a sagacious r on his particular methods of management and the level of standards between the ideal and eal. How important is the headwaiter's pivotal position between bar and dining areas and is nned bottleneck at this point necessary? How much area should be given to patrons waiting ables and how near to the bar should the space be located? What importance should be given rrent standards on seating? How far can the kitchen be from the farthest table and still permit able service? What are the spheres of authority of the head chef, the headwaiter, the manager, he owner; and what physical provisions are to be made for carrying out their several responsi- es. All the above questions, and many others, are best answered by the restaurateur.

The owner is, of course, not infallible. He may be over-optimistic about the potential number s patrons and should be advised against building too large a restaurant (much better an over- ded, than a sparsely filled one). Also, his desire to pack the house may lead him to crowd the ng. I recall an owner of a chain of fine restaurants who insisted that the standard booth width ade appreciably narrower and who, wedging himself into the model booth, had to be forcibly cated.

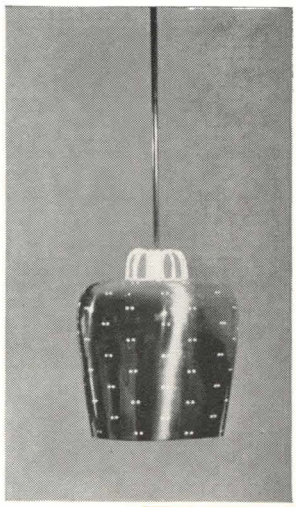
Depending on the size of the project, the architect may call on the expert aid of lighting, acous- and kitchen-planning consultants. It is the designer's task to co-ordinate and sometimes temper recommendations. It may be wise to eschew a too-perfect sound treatment so that the result is a e hubbub rather than an acoustical deadness, a condition to be reckoned with as much in the rant as in the theater or concert hall. Standard lighting recommendations of 10-foot-candle r for dining areas should be accepted with reservations. More often, a lesser intensity of lighting produce a more cordial atmosphere and prove more flattering to the patrons.

The restaurateur and his architect may, in the near future, be challenged by higher standards, here is in America a lively new interest in fine food and fine cooking. A continued interest in ior cuisine may result in the renaissance of more gracious manners and surroundings for din- A restaurant may then become an integral part of our culture—a meeting place closely related e gaiety and activity of the street, square, or park, where one can dine leisurely and repair pirit as well as his hunger.

t, New York, N. Y.

restaurants

acoustical tile ceiling



suspended brass lighting fixture
banquette fabric: red and black

striated plywood

wool

data

Banquette: architect-designed/ Equipment Mfg. Co., 1615 Michigan Ave., Chicago, Ill.

Banquette Fabric: "Transportation Cloth"/ "Avisco" fiber/ 50" wide/ red-and-black, yellow-and-black, gray-and-black, brown-and-black, ultramarine, "vibrant" green, black/, list: $13.50 per yard/ Knoll Associates, 575 Madison Ave., New York 22, N. Y.

Carpet: special/ uncut-wool pile/three shades of blue/ A. & M. Karagheusian Inc., 295 Fifth Ave., New York, N. Y.

Ceiling: "Acousti-Celotex"/ Celotex Corp., 120 LaSalle St., Chicago, Ill.

Chair: #71 USB/ Saarinen design/ molded plastic shell covered in foam rubber/ tubular steel legs in brushed chrome or dull-black enamel finish/ list: $138.00/Knoll.

Chair Fabric: (outside) "Apples"/ Stig Lindberg design/ cotton 53" wide/ 17½" repeat/ red, green, or dark gray on white; brown-on-rust, charcoal-on-brown, and black-on-blue/ list: $4.80/ Knoll.

Chair Fabric: (inside) "Naugahyde"/ vinyl plastic on cotton backing/ 50" or 54" wide/ U. S. Rubber Co., 1230 Sixth Ave., New York 19, N. Y.

Lighting Fixture: (bracket) architect designed/ brass/ M. A. Van Esso, 154 W. Erie St., Chicago, Ill.

Lighting Fixture: (recessed) #206 A/ pin point/ list: $23.00/ Ledlin Lighting Inc., 49 Elizabeth St., New York 13, N. Y.

Lighting Fixture: (suspended) #FH 252/ special/ Paavo Tynell design/ brass/ price on request/ Finland House, 41 East 50 St., New York 22, N. Y.

Mural: Karin and Ernest van Leyden, Brentwood, Calif.

Table: (chrome pedestal and wood top) Charles Tuteur, Merc Mart, Chicago, Ill.

Table Base: black crackle finis Products Corp., 210 Spring S York, N. Y.

Waiter's Station: architect-de Equipment Mfg. Co.

Waiter's Station: (top) "Tex laminated plastic/ General Co., Pittsfield, Mass.

Walls: plaster painted whi "Weldtex"/ striated-plywood gray/U. S. Plywood Corp., 5 44 St., New York, N. Y.

	Harlequin Room—Chicago, Illinois
architects	Holabird & Root & Burgee
contractor	William Koenig

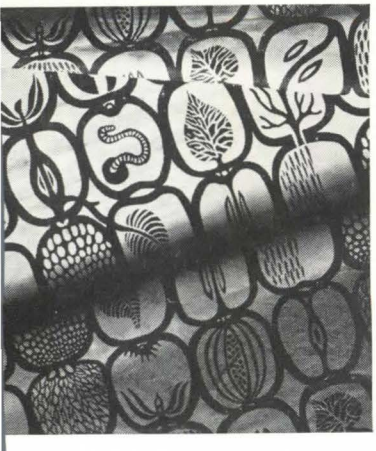
This room takes its name from the mural which depicts a harlequinade, the comic episode of the 16th Century Italian commedia dell' arte. The theme is played with restraint. Only harlequin paintings by Degas, Dufy, and Picasso are further interpretations of the name.

The assignment was to design for the Harvey chain a restaurant of leisurely pace, spaciousness, and a touch of elegance. The architects have successfully fused a delicate atmosphere with the plain duties of maintenance. In happy combination here are the materials chosen for durability but sensitively contrasted for texture, kind, and color.

The vulnerable surfaces of the chairs, for instance, are covered with tough plastic, but the outer sides, which escape hard wear, are in a colorful print. For the banquettes, a textured fabric is used to contrast with the smooth plastic and cotton of the chairs. But, again, there is no sacrifice of toughness, because the choice is a closely woven fabric of hard viscose fiber, designed for heavy duty.

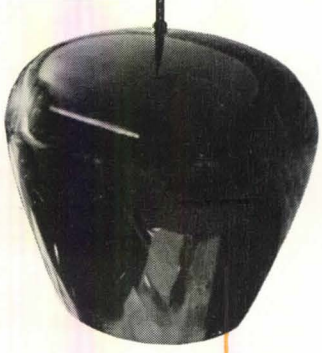
One of the perpetual problems of contemporary interior design is the conflict between the desire for plain surfaces and the need for stain and soil camouflage. For the carpet in this room, the architects have specified one woven with three shades of blue. The impression is one strong color but the variation minimizes stain and soil.

We like the nice transition between areas by change of ceiling height, the variety of seating, and the lighting fixtures astutely chosen to suit. Banquettes are covered in red, chairs in gray plastic and black-blue print, and carpet is dark blue. Striated plywood is painted light gray, walls and ceiling are white. *Photos: Hedrich-Blessing*



fabric: black figure on blue ground

restaurants



suspended brass lighting fixture

fieldstone wall with wide mortar joints

data

Banquette: architect-designed/ S & S Woodworking Corp., 457 West Broadway, New York, N. Y.

Banquette Fabric: "Naugahyde"/vinyl plastic with fabric backing/ 50" or 54" wide/ U. S. Rubber Co., 1230 Sixth Ave., New York 19, N. Y.

Bar: mahogany top/birch-spline front/ S & S Woodworking.

Ceiling: acoustical plaster.

Chair architect-designed/ unavailable.

Curtain: "Chinese Coins"/ designed by Noemi Raymond/ 50" wide/ 18" repeat/ red, black, gray, or green-on-white, brown-on-gray, black-on-blue, black-on-red/ list: $4.50 per yard/ Knoll Associates, 575 Madison Ave., New York 22, N. Y.

Curtain Hardware: Gould-Mersereau Co., Inc., 35 West 44 St., New York, N. Y.

Doors: (entrance) bronze frame/ Englecraft, 370 West St., New York, N. Y.

Door Hardware: (pulls) architect-designed/ polished brass/ Elmer T. Hebert Inc., 211 East 37 St., New York, N. Y.

Door Hardware: Sargent & Co., New Haven, Conn.

Exit Sign: special design/ Green-Lite Sign & Sales Inc., 305-307 West 140 St., New York, N. Y.

Floor: random-width oak planking/ 4", 5", 6", 7", and 8"/ oak or walnut plugs/ E. L. Bruce Co., Memphis, Tenn.

Heating and Air-Conditioning Outlets: special/ U. S. Register Co., Battle Creek, Mich.

Lighting Fixture: (recessed) #207/ Ledlin Lighting Inc., 49 Elizabeth St., New York 13, N. Y.

Lighting Fixtures: (suspended) architect designed/ special/ Ledlin.

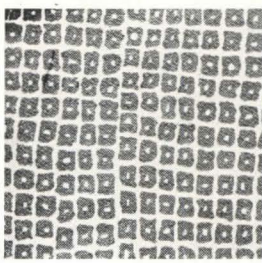
Mosaic Panel: Max Spivak, 175 Madison Ave., New York, N. Y.

Paint: Pratt & Lambert Inc., 79 Tonawanda St., Buffalo 7, N. Y.

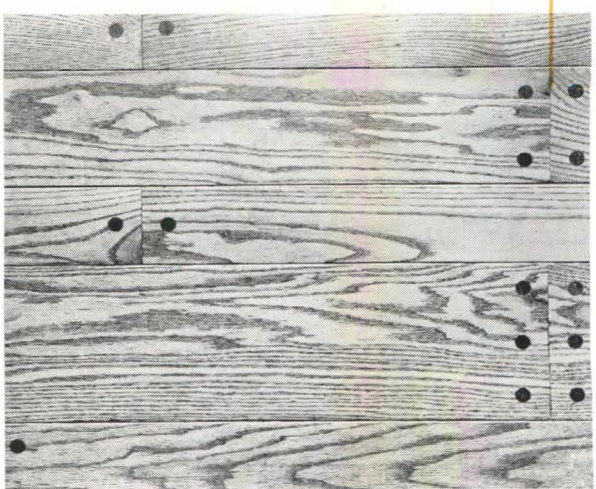
Stair: oak risers and treads/ brass posts/ birch handrail/ A. Mestel Stair Building Corp., 24 Dodworth St., Brooklyn, N. Y.

Wall Covering: (south wall) "Fabricona"/ burlap painted brown-black/ 36" wide/ list: approx. $1.50 per yard/ H. B. Wiggins Sons Co., Bloomfield, N. J.

Walls: fieldstone, brick, and 12"-wide Douglas fir paneling.



random-width oak

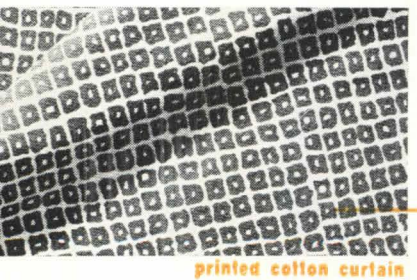


	Al and Dick—New York, New York
architects	George Nemeny & Abraham W. Geller
contractor	Great Eastern-Victor Corporation

The visual quality of this steak house suggests substantial food, hearty eating. The rough natural materials, the generous chairs, the glistening brass speak of the sizzling platter. These architects are practical planners, but they are showmen too. And this is important in restaurant design, where atmosphere invites as well as food. The mechanical copy of a style is dreary fare but nostalgia is human stuff. Here it is creatively employed to evoke a sense of warmth and substantialness associated with the pub.

Materials used are the kind that require little upkeep and, in fact, improve with age. The existing brick wall was peeled of plaster, tin, and paper. The opposite wall is paneled with 12″-wide Douglas fir, and the wall between dining and kitchen is warm-colored fieldstone with wide mortar joints.

Lighting is subdued and frankly meant to flatter. At the wood wall, coved lighting is directed to the arched ceiling and down on photographs of famous patrons. The floor is pegged, random-width oak. Lighting fixtures, entrance doors, and balustrade are all polished brass. The only applied colors are the brown-black paint on the burlap wall covering at entrance, blue-plastic covering for banquettes, and the red-and-white cotton curtain at the stair. *Photos: Ezra Stoller*



printed cotton curtain

Douglas fir paneling

restaurants

The Cookery—New York, New Y

architects: Roy S. Johnson & Julius Stein

contractor: Accurate Construction Compar

acoustical tile

cypress walls

black-green asphalt tile

suspended brass lighting fixture

"ice cream parlor" chair

The use of few materials and a simple color scheme give a sense of largeness and calm to this quick-order restaurant. Large areas of cypress and oak make a good background for the special murals and the playful touches. Use of materials is architectural—the dramatic lighting for cakes, the choice of chimney lamps and wire chairs —with an awareness for mood and display. The old "ice cream parlor" chairs bought from second-hand shops are painted white. (One first-hand source for these sturdy reliables is included in our data listing and a photograph of the model is shown.) Because of a low budget, architects saved an existing front, the recessed lighting fixtures, and the acoustical-tile ceiling, which they painted green. Counters are comfortably wide and low—the scrubbed wood tops in effective contrast with the glossy black floor.

Photos: Lionel Freedman

data

Chair: (metal) "ice cream parlor"/ plywood or "Masonite" seat/ net: (unfinished) $7.45/ brown, green, black, or aluminum: $7.80/ custom colors: $8.55/ National Chair Co., 412 N. 4 St., St. Louis 2, Mo.

Chair: (wood) #6090 S7/ maple/ list: $12.20/ Thonet Bros. Inc., One Park Ave., New York 16, N. Y.

Ceiling: existing acoustical tile, painted green.

Counter: oak/ Accurate Construction Co., 330 West 42 St., New York, N. Y.

Floor Covering: #209/ "Verde Antique"/ Kentile, Inc., 58 Second Ave., Brooklyn, N. Y.

Lighting Fixture: (recessed) existing.

Lighting Fixture: (suspended) #97/ "Lyktan"/ chrome tubular frame, milk-glass globe, red-enameled holder, chain, and globe, red-enameled reflecter with white underside/ list: $30.00/ Bonniers, 605 Madison Ave., New York 22, N. Y.

Mural: Anton Refregier, Glasco Turnpike, Woodstock, N. Y.

Restaurant Equipment: Barth Equipment Co., 390 Fourth Ave., New York, N. Y.

Table Base: "ice cream parlor"/ National Chair Co.

Table Top: oak/ Accurate Construction.

Walls and Fascia: cypress.

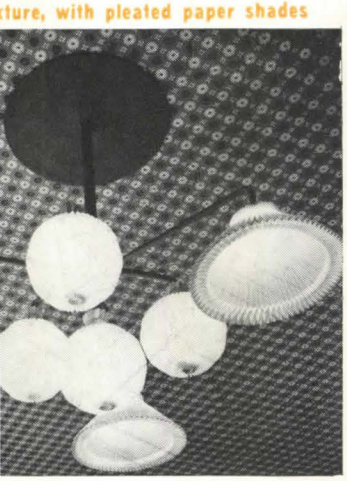
Villa Sweden—New York, New York

ects Warner-Leeds

ctor Albert Kennerly

nd dark green
n orange ground

cture, with pleated paper shades



translucent plastic panels

blue carpet with white squares

data

arpet: blue with white squares/ ames Lees & Sons Co., Bridgeport, a.

hair, Stool and Table: existing

eiling Paper: white, yellow, and dark een on orange ground/ United allpaper, Merchandise Mart, Chi- ago 54, Ill.

urtain Fabric: #2403/ natural linen " wide/ list: $1.65 per yd./ Robert lcBratney, 121 Franklin St., New ork, N. Y.

urtain Fabric: (inside) #4187/ im- orted Swiss ecru net/ 93" wide/ st: $2.85 per yd./ W. B. Quaintance Co. Inc., 227 E. 56 St., New York , N. Y.

urtain Hardware: The Kroder-Reubel o., 556 Meeker Ave., Brooklyn 22, . Y.

ighting Fixture: architect designed/ lack iron/ Morsol Iron Works, 279 . 150 St., Bronx, N. Y.

ighting Fixture Shades: "Le Klint"/ leated paper/ list: $7.00 and $10.50/ onniers, 605 Madison Ave., New York , N. Y.

lirrors: "gunmetal"/ Pittsburgh Plate lass Co., 632 Duquesne Way, Pitts- urgh, Pa.

kylight Panels: "Fiberglas"/ Poly- lastex United, 1385 Commerce Ave., ronx, N. Y.

Walls: plaster painted cocoa; white- ashed brick and random oak.

Two rooms were thrown open to each other as much as structural requirements would permit. Then, since this was a headquarters for smörgasbord, treated in the domestic scale and spirit associated with Scandinavia. The large room with windows on either side was respected for its rigid symmetry. A high ceiling was coved on window sides and covered with a gay-patterned paper, which is the dominating color in the room. It brings the vertical dimension into more friendly scale; also drawing attention away from the irregular walls. Oak fascias terminate the coved ceiling and are baffles for fluorescent strips that filter light above: curtains hang below. At central points, the architects mounted specially designed chandeliers. These are of black iron, capped with crisp pleated shades of Scandinavian design. Lighting can be dramatic and focal, gently diffused from the coves, or a combination of both. Alternate lighting and choice of opaque linen or open-net curtains changes the mood for day or evening dining. To relate the two rooms, carpet and wall color are one. Painted plaster walls are cocoa, carpet blue with small white squares, ceiling paper predominately orange. In the bar section, there is also some whitewashed brick and random oak. All furniture was left by previous tenant. *Photos: Wheaton Galentine*

The versatility of MICARTA® laminated plastic surfaces helped inspire the dramatic interiors of the home exhibit in the Museum of Modern Art. The room divider and storage wall, shown below, has a light gray MICARTA top. This surface was chosen because it blends discreet beauty with the ability to withstand all the known hazards and inconvenience of household wear.

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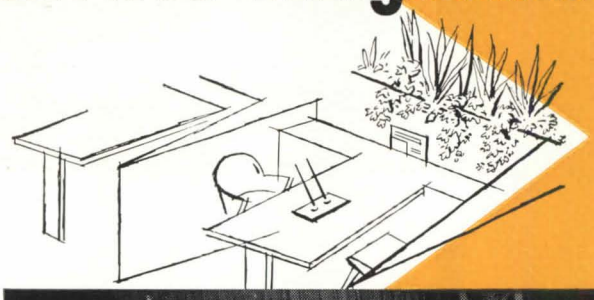

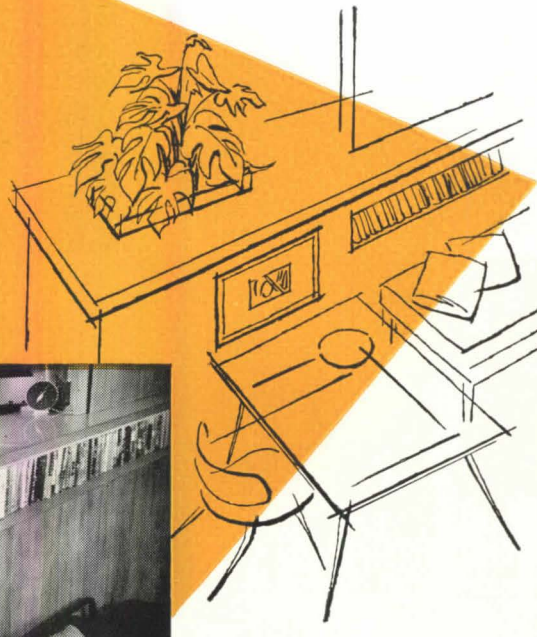

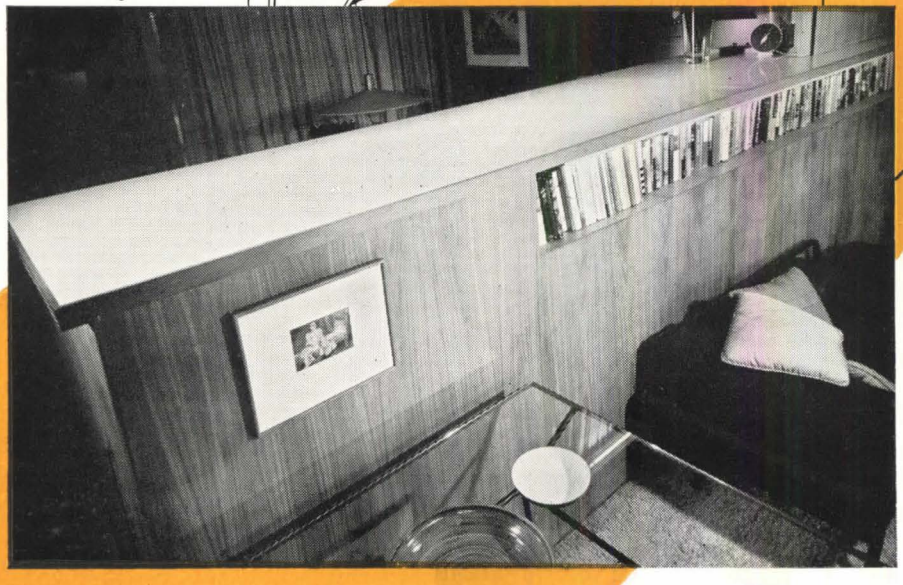

Gregory Ain, Architect

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Members' Penthouse at the Museum of Modern Art was recently renovated under direction of Philip Johnson. Lighting is by Richard Kelly, New York lighting consultant. Eames chairs are from Herman Miller Furniture Company, Zeeland, Mich., and tables are by Darrell Landrum for Avard, Inc., 66 W. 55th St., New York 19, N. Y.

Photo: Ezra Stoller

Dining Table: #220/ designed by Darrell Landrum/ wrought-iron frame with solid ash top/ 30" x 30" x 29" high/ **approx. retail:** $96.00/ quantity and contract prices on request/ also available: rectangular table 30" x 68" x 29" high with walnut "Realwood Formica" top. **retail:** $232.00/ other sizes to special order/ **Avard Inc., 66 W. 55th St., New York 19, N. Y.**

Koroseal Tile "Supreme" as used in the penthouse of the Museum of Modern Art, New York. Tile is 9" x 9" x 1/8" solid vinyl plastic, with a nonporous glossy surface said to resist indentation and to be unaffected by grease, oils, and alkalis. Only an occasional coating of wax is required for maintenance. Flecked or marbelized patterns in a variety of colors/ **approx. retail:** $1.35 per sq. ft./ also available are "De Luxe" and "Special," thinner gauge tiles with felt backing/ **approx. retail:** $.65 and $.25 per sq. ft., respectively/ **Sloane-Blabon Corp., 295 Fifth Ave., New York, N. Y.**

Associates introduced a new line of woven fabrics at the recent A.I.D. exhibit. handsome collection combines wool, raw mohair, hemp, linen, jute, cotton, and etics such as nylon, plastic, Orlon, and le. A wide range of textures is offered for upholstery, but includes some suitfor curtain fabric. Bold vibrant colors sed, such as green with turquoise, cobalt and black, or Mexican pink wool with e nylon threads, or burnt orange with plastic, or black wool with orange and tripes. All fabrics are 50" wide but may wide as 72" to special order. Comons of specific colors and textures can be to order. **Retail prices:** $18.00 to $30.00 per yard. Eszter Haraszty, head of the Textile Division is responsible for color coordination. Evelyn Hill designed the line for **Knoll Associates, 575 Madison Ave., New York, N. Y.**

Nessen Studio Inc., lamp manufacturers have added a Contract Division to produce portable lamps for hotels, schools, hospitals, and other institutions. Any of the standard lamps may be ordered in quantity or adapted to suit specific needs. The use of materials other than the standard metal is now also possible. The design staff headed by Greta Von Nessen is available for consultation and special design. Stanley Wolf heads the new Contract Division of **Nessen Studio Inc., 5 University Place, New York, N. Y.**

The Herman Miller Furniture Company, Zeeland, Mich., has issued a new comprehensive price list illustrated with drawings of every item in the line. Complete facts and figures are systematically and clearly presented in a booklet that is a visual delight. Included is a cross reference which co-ordinates the price list with the forthcoming revised edition of "The Herman Miller Collection." The 40-page price list, 8½" x 11" with cardboard cover is available to architects and designers on request.

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4.5 BTU/sq. ft./hr./°F/in. thick	0.7 BTU/sq. ft./hr./°F/in. thick	4.5 BTU/sq. ft./hr./°F/in. thick
1/8" 36 BTU/sq. ft./hr./°F	3/16" 3.7 BTU/sq. ft./hr./°F	1/8" 36 BTU/sq. ft./hr./°F
3/16" 24 BTU/sq. ft./hr./°F	5/16" 2.2 BTU/sq. ft./hr./°F	3/16" 24 BTU/sq. ft./hr./°F
	1/2" 1.4 BTU/sq. ft./hr./°F	

Based on the "K" factors at top of each table, heat transmission rates through the various thicknesses of KENTILE, KENCORK and KENRUBBER are shown. The °F means that this is the transmission rate when there is 1°F difference between the top and bottom of tile. The heat transmission rate increases proportionately with an increase in the temperature difference between the top and bottom of the tile; e.g., with ⅛" KENTILE, heat transmission rate would be 180 BTU/sq. ft./hr. if there were 5°F difference between top and bottom of tile.

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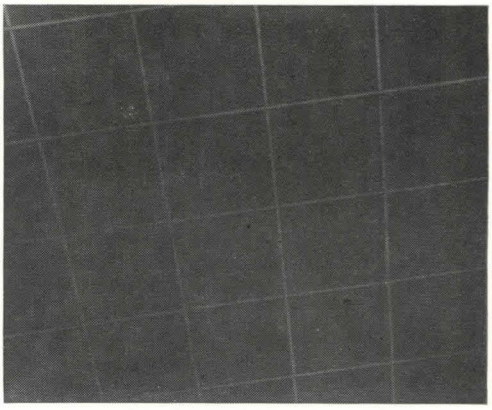
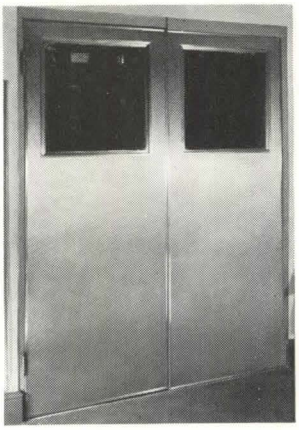
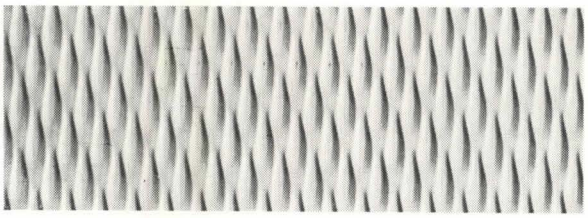
l: #918/ from the new Fulbright designed by Edward Stone/ red in natural finish—"Sunrise" or lacquer — "Midnight"/ **list:** 00/ included in the large new line chairs, cabinets, dining and occa- l tables, an open-slat bench, and naise/ all are of red oak in nat- or black with cane or oak wythe seats and cabinet doors/ **Manu- rer: Fulbright Industries, Fayette- Ark./ Distributors: Waldron As- tes, 1230 Second Ave., New York, Y./ Interiors for Living, Merchan- Mart, Chicago, Ill./ Showroom 170 N. E. 40 St., Miami, Fla./ ld Panning, Los Angeles and San cisco, Calif.**

dized Metal as used for swinging s between dining room and en in the Cafe St. Denis, New . Pebbled texture in stainless l is unmarred by rough han- . Doors can be kicked open or by trays without injury to the sur- Fingerprints are inconspicuous washing with a damp cloth is hat is required for maintenance. **lized Metals Corp., 658 Ohio St., le 3, New York.**

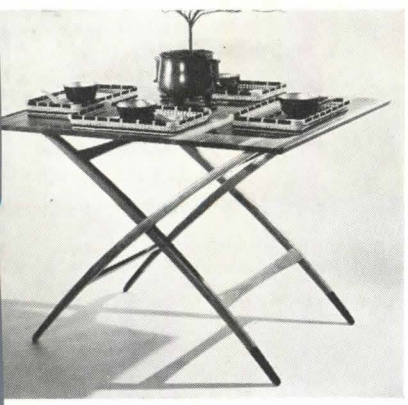




Luminescent Terrazzo Strip can act as a guide in darkened aisles of theatres, assembly halls and other public spaces. Sheet metal, stamped with holes and projections to grip terrazzo, is stapled to an extruded plastic filled with a luminescent pigment. Strips glow for several hours after exposure to light. 1¼" x 3/16" in ivory color/ plastic extruded by **Anchor Plastics Co., New York, N. Y./ shown:** terrazzo floor with luminescent strip in light and dark/ **Rudel Floor Strip Co., Inc., 3709 Third Ave., New York, N. Y.**



"Three-in-One" Table designed by Edward Wormley. 30" x 39"/ adjusts to three levels—20", 25", and 28"—for use as coffee table, work table, or dining table for four/ a brass rod and cleat holds the X-stretcher legs at the three levels/ sap-streaked walnut top and black-tipped cherry legs/ **list:** $216.00 **Dunbar Furniture Co., Berne, Ind.**



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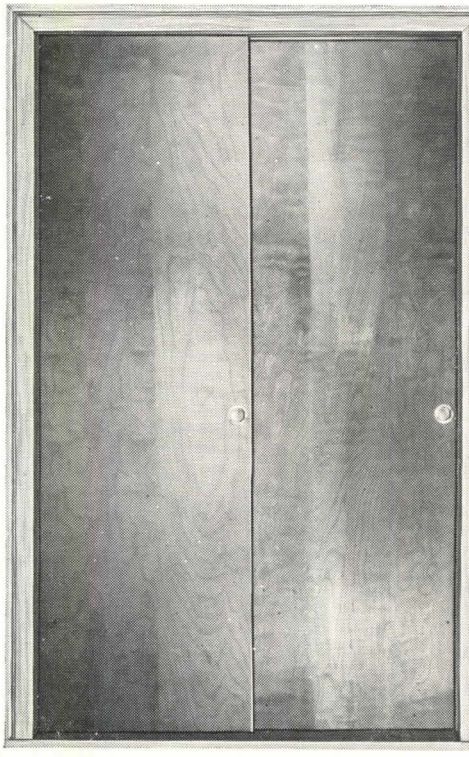

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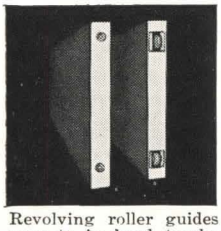
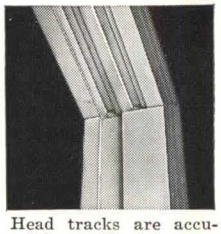
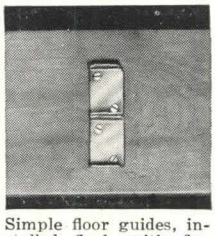


Revolving roller guides operate in head track; vulcanized rubber rollers run on finished floor.



Head tracks are accurately machined for perfect operation of revolving roller guides; side jamb is routed to receive the door.

Passageway door slides easily into wall pocket



Simple floor guides, installed flush with finished floor, eliminate need for floor track.

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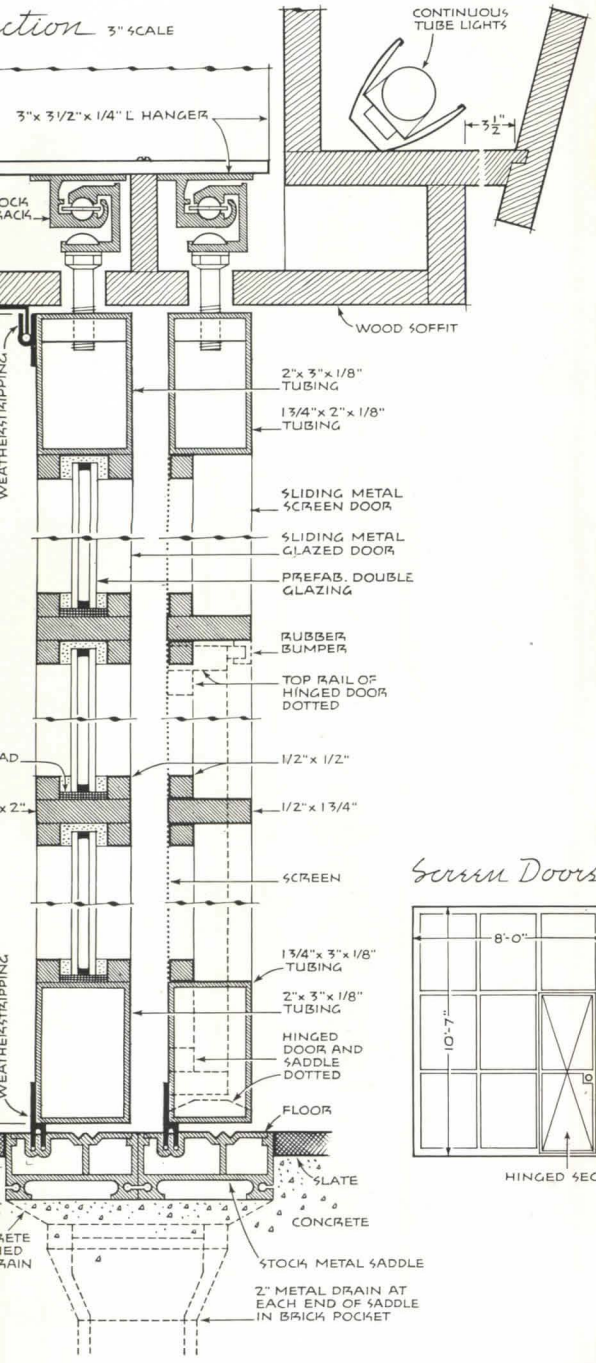
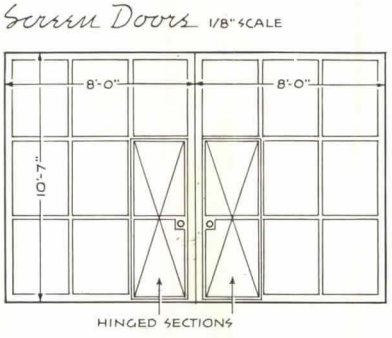
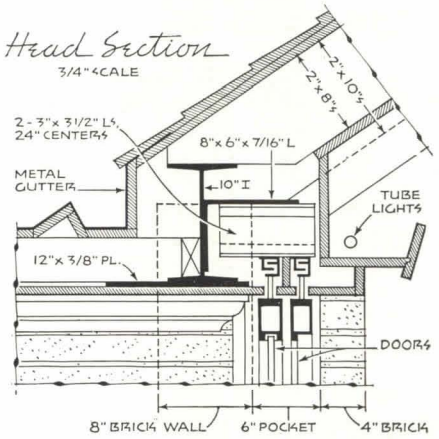
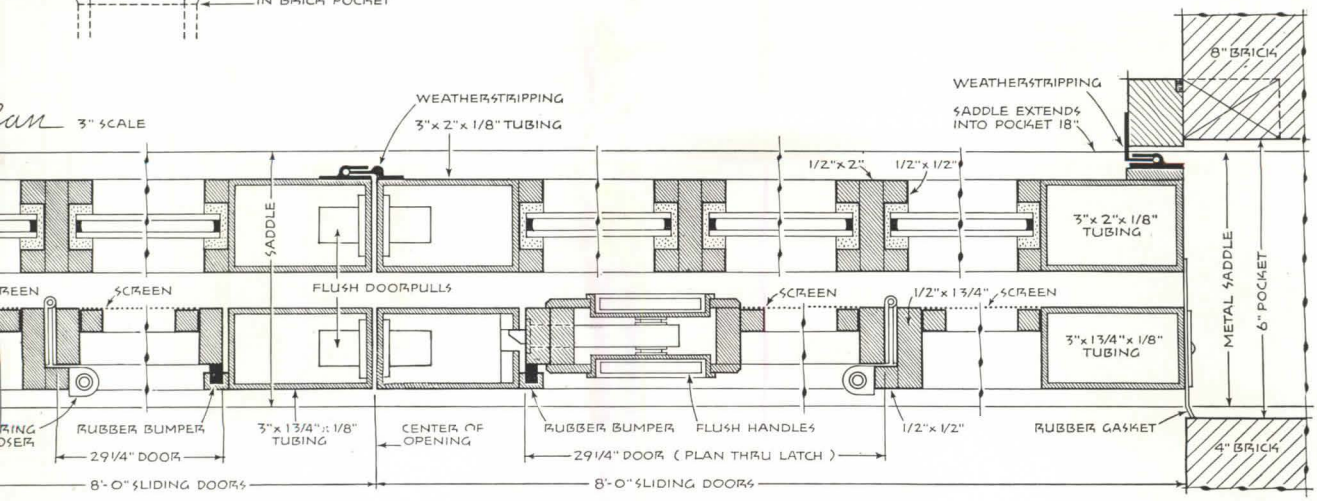




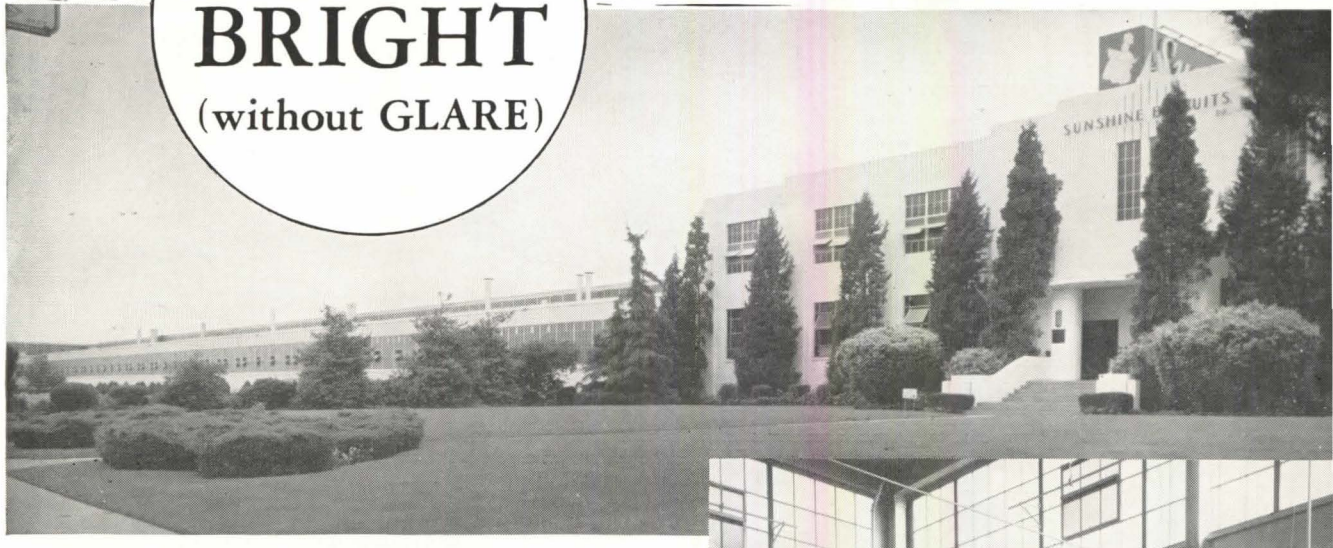


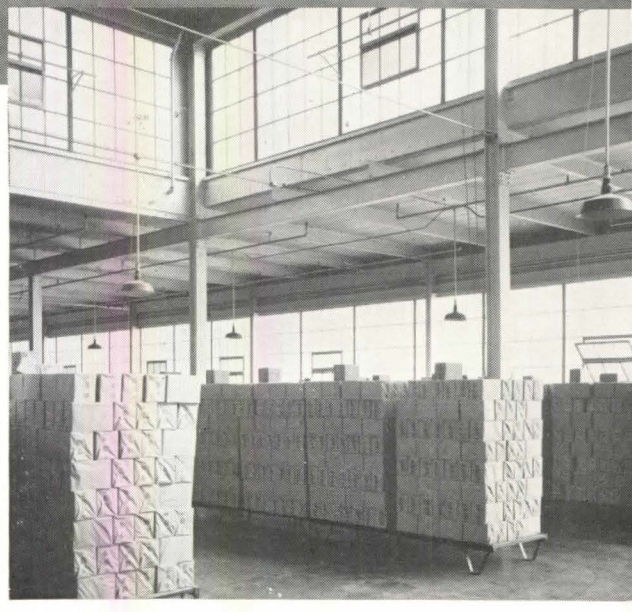


NTOSH RESIDENCE, Mentor, Ohio

om Little, Architect

Sunshine's BRIGHT (without GLARE)





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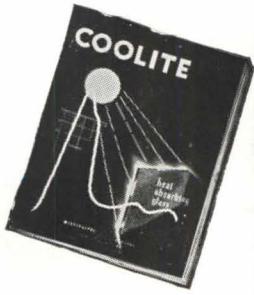

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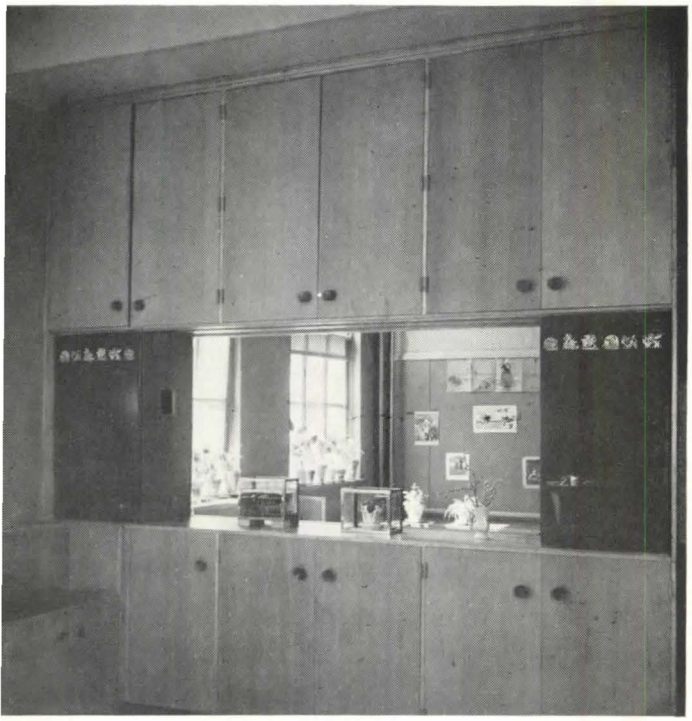
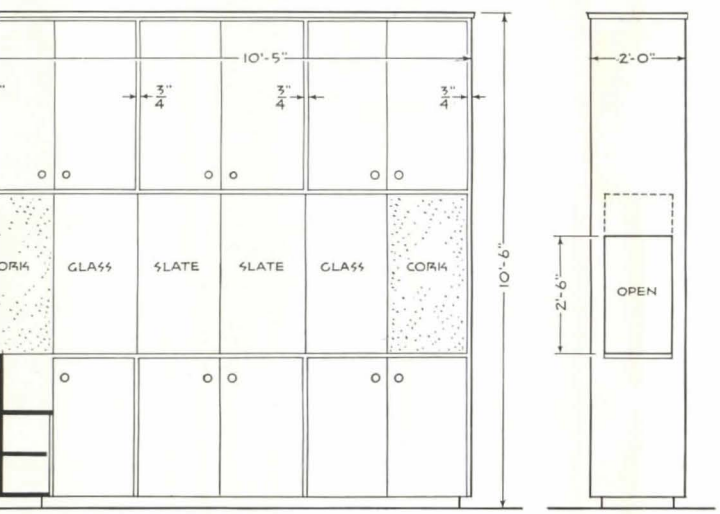
WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLAS

kindergarten: storage cabinets

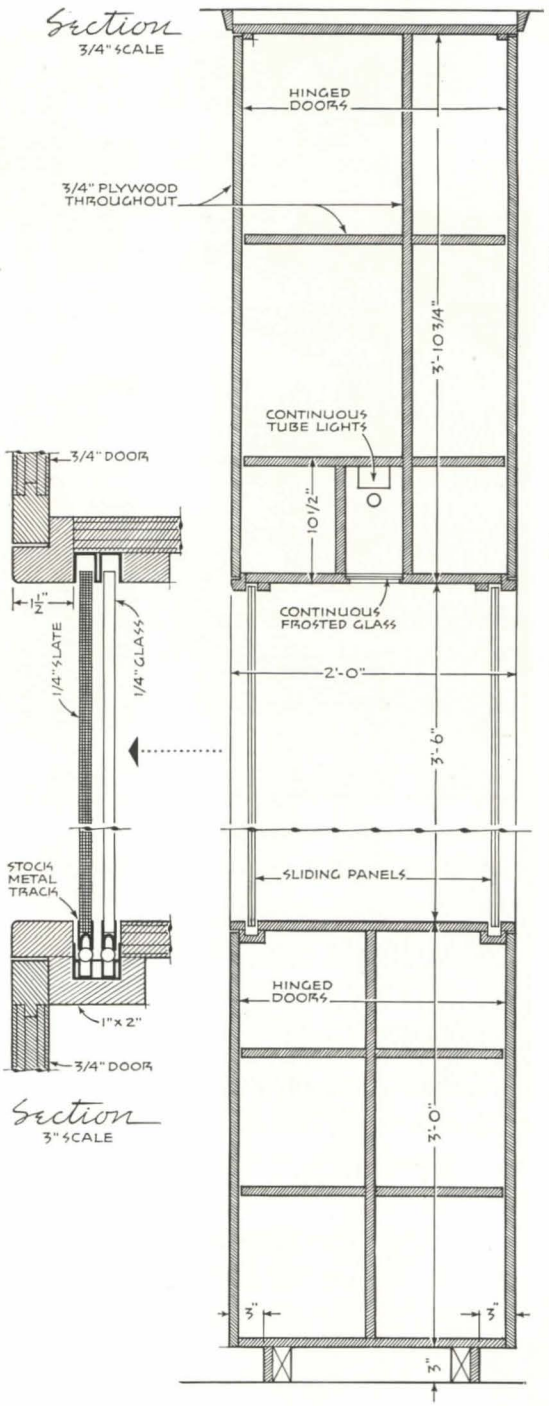


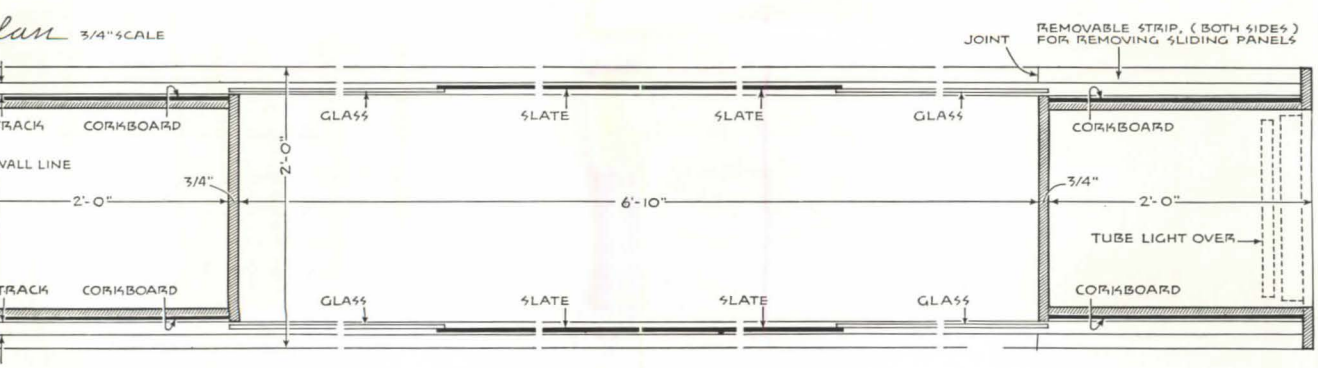
ANNE SZASZ



elevation 1/4" SCALE

End





LTON SCHOOL, Rye, N. Y.

leb Hornbostel, Architect

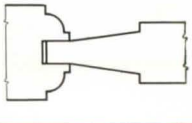
Architecturally Alive · Structurally Sound

This is the MORGAN **TRI-PANEL** Door of Dimension

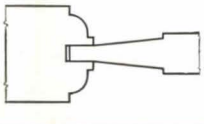
The "Picture Door"

A welcome relief from flat monotony . . . delighting the eye with balanced lines, clean hi-lites, deep soft shadows. Here is the door of depth . . the third dimension, to inspire the Architect, to brighten the Dealer's line, to help the Builder close the sale. Write today for full details on Morgan Tri-Panel, the Door of Dimension . . . of today . . . of tomorrow.

TRI-PANEL blends with every architectural trend



M-117 EXTERIOR DOOR Thickness: 1¾", with 1⅛" hip-raised panels, true ovolo sticking, smoothly sanded overall.



M-1073 INTERIOR DOOR Shown at left. Thickness 1⅛", with ¾" hip-raised panels. Both doors in Standard Sizes.

TRI-PANEL Tri-Panel relieves the wall-like flatness and makes the entrance to a room or a house the focal point, with a changing picture of correctly proportioned, sharply defined panels, ever changing with the source of light and the viewer's angle. Tri-Panel is the "Picture Door."

MORGAN COMPANY • Oshkosh, Wisconsin

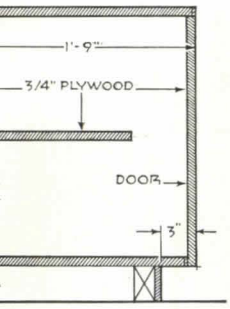
A great name in woodwork for 97 years • Doors • Entrances • Stairwork

Mantels • Corner Cases • Kitchen Cabinets • Morganwalls • Sash • Trim

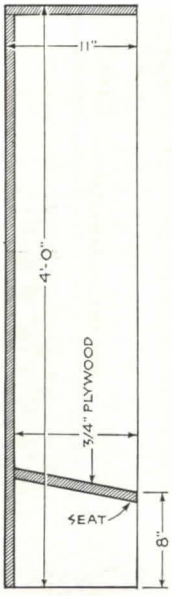
MORGAN WOODWORK

kindergarten: storage wall

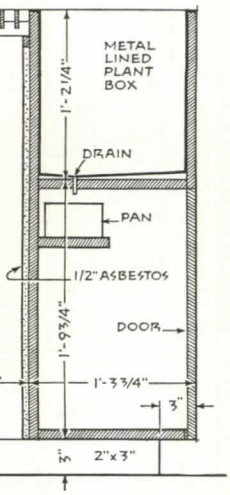
SUZANNE SZASZ



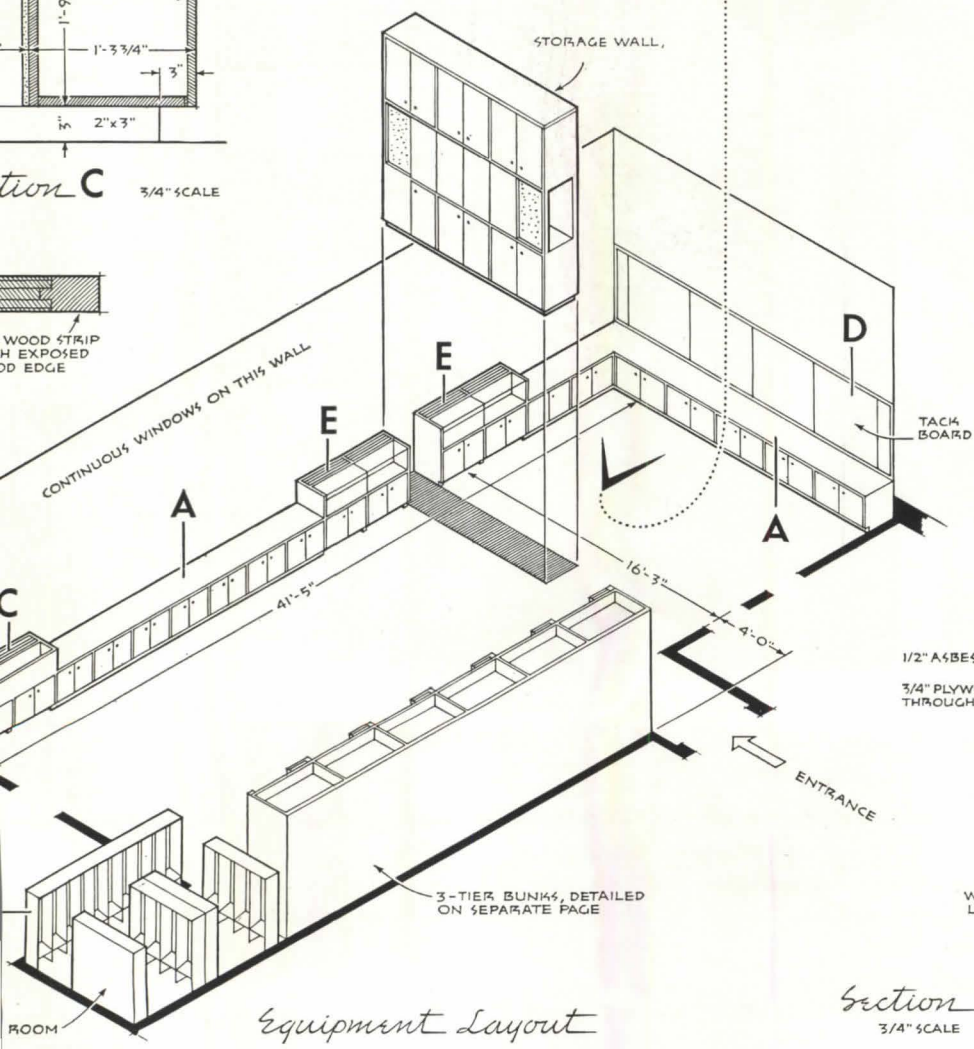
tion A 3/4" SCALE



Section B
3/4" SCALE

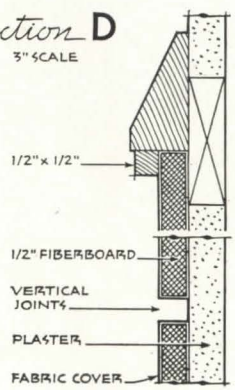


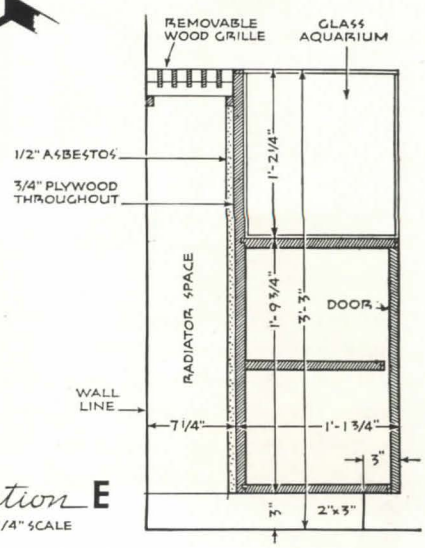
tion C 3/4" SCALE



Equipment Layout

Section D
3" SCALE





Section E
3/4" SCALE

ON SCHOOL, Rye, N. Y.
Hornbostel, Architect

"Sign up now, boss—it's got Honeywell Controls!"

The *best* way to assure comfort in any building is to insist on Honeywell controls

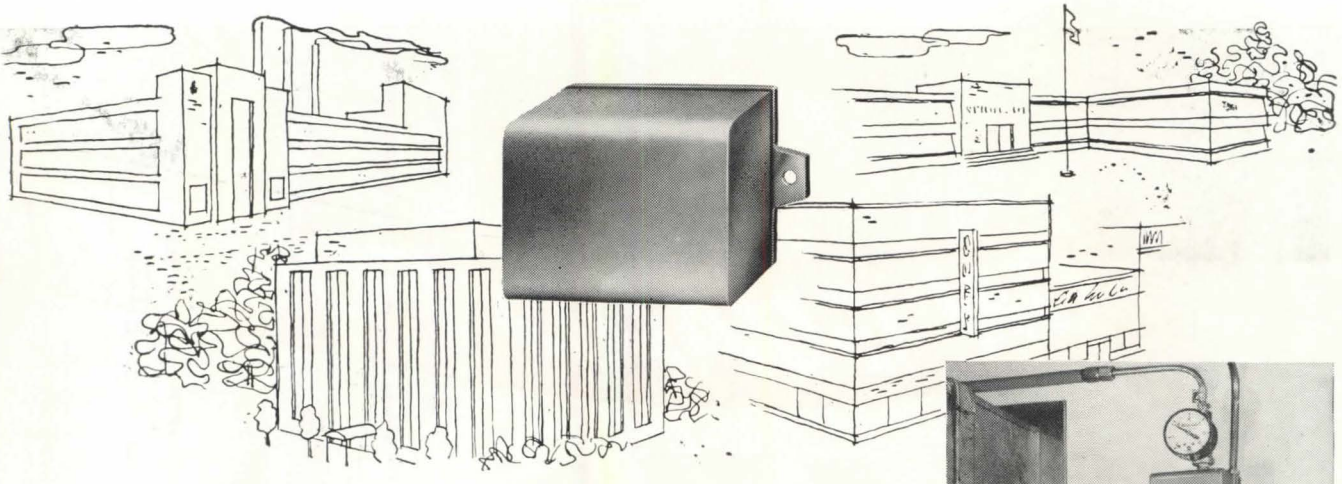
If *you* have a control problem, Honeywell can help provide the proper thermal environment for any client—anywhere—in any kind of structure.

A large staff of well-informed control engineers—in 91 different Honeywell offices across the nation—are experienced in doing just that. Or—there's a lot of literature that's yours for the asking—on the automatic control of heating, ventilating and air conditioning.

So, why not *talk to Honeywell?* Why not *write to Honeywell* about *your* control problem? And why not do it *now?*

H HONEYWELL

For help with any control problem talk to Honeywell



for pin-point control of heating, ventilating and air conditioning

Specify Honeywell Automatic-Reset Pneumatic Relay

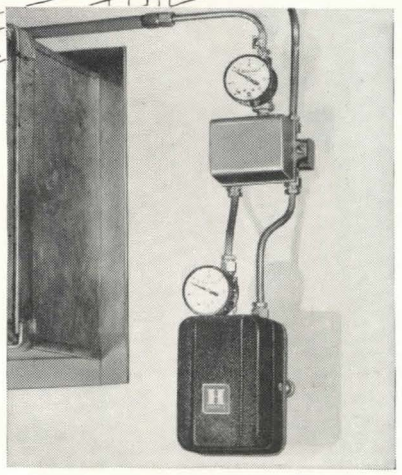
Stop temperature see-sawing and lagging

This magically accurate relay, made only by Honeywell, sets new standards of performance for pneumatic temperature controls. By using it, you can give clients closer temperature control, regardless of weather variations.

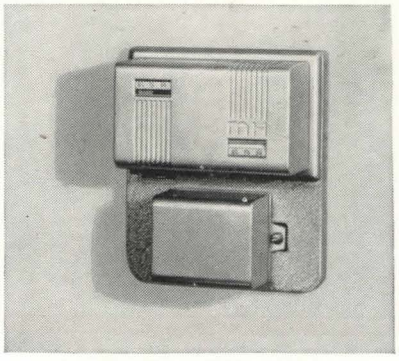
This remarkable Honeywell mechanism virtually *eliminates see-sawing temperatures* because it goes to work the instant the temperature deviates from the thermostat setting.

The Reset-Relay can be installed on any graduate-acting pneumatic system where close temperature control is desirable.

Get the complete story on this exclusive Honeywell control. Call your local Honeywell office or mail coupon below.



This typical installation shows the Honeywell Reset-Relay used with a Honeywell insertion thermostat to control temperature of discharge air.



Here the Reset-Relay adds reset action to a Honeywell Grad-U-Stat, which controls other pneumatic devices such as a damper motor.

MINNEAPOLIS **Honeywell**

H HONEYWELL

First in Controls

...and when I heard (your firm name) ...signed that building, I decided to ...ove in."

...EE! *Personalized cartoon. For your ...½" x 9" reproduction of this Hoff car-...n (incorporating your name or the ...me of your firm), fill out and mail ...upon today.*

MINNEAPOLIS-HONEYWELL REGULATOR CO.
Dept. PA-6-131, Minneapolis 8, Minnesota

Gentlemen:

☐ Please send me information on your Gradutrol System of pneumatic controls.

☐ Please send me a free, personalized reproduction of the Hoff cartoon, inscribed with this name:

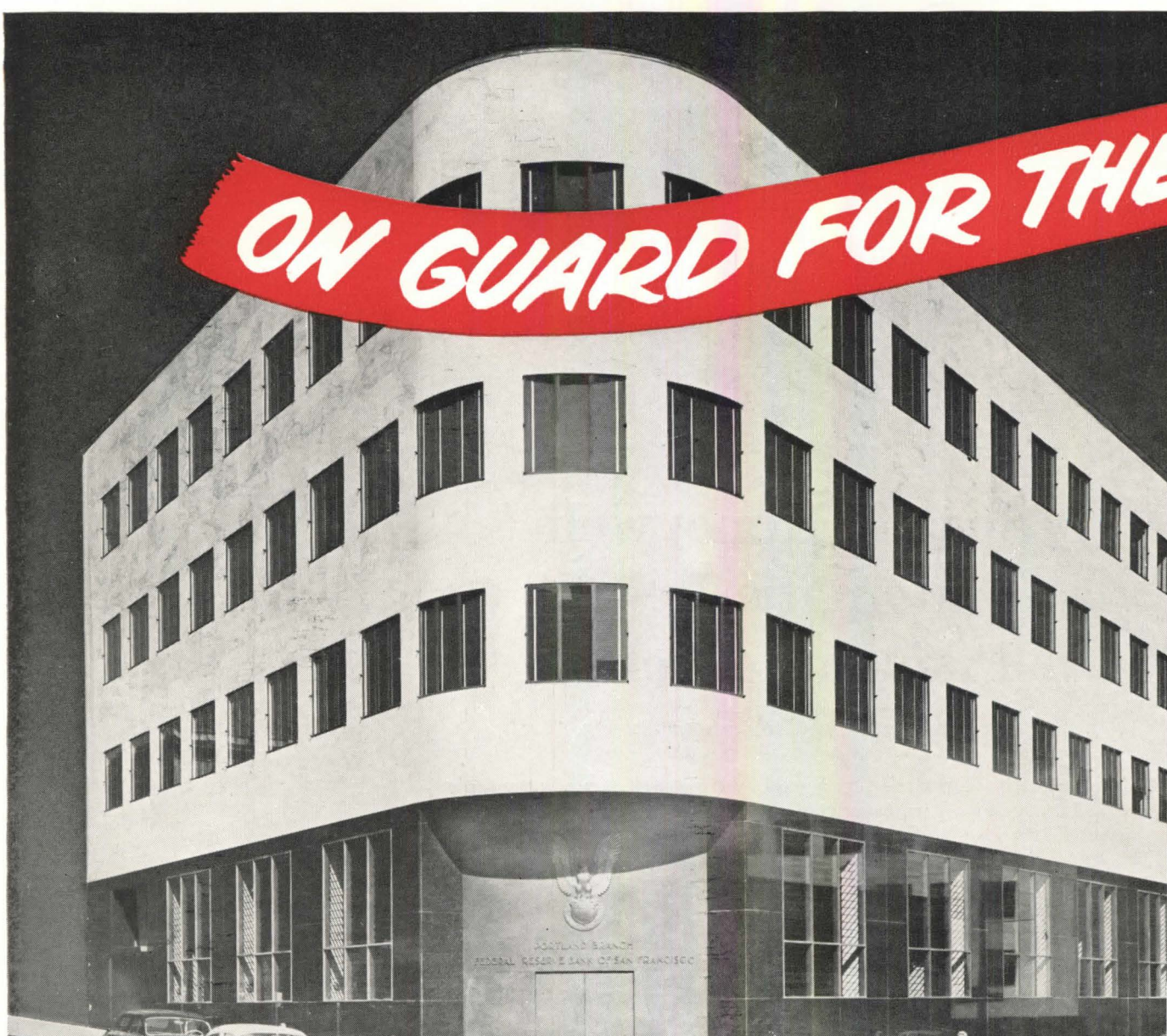
_____

Name _____

Firm Name _____

Address _____

City _____ *Zone* _____ *State* _____



Wheeling Steelcrete ExM Vault Reinforcing

For the Federal Reserve Bank of San Francisco's newest branch in Portland, Oregon, it's a solid concrete vault reinforced with Steelcrete ExM Vault Reinforcing.

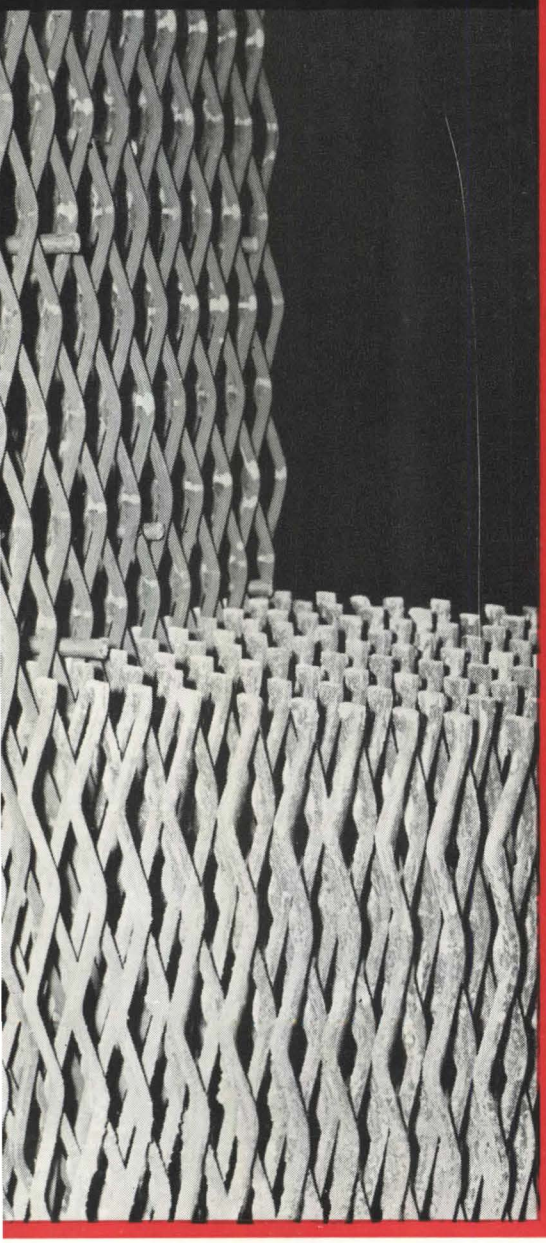
Not woven, not welded, but pierced and stretched from a single plate of solid steel, ExM proves the most easily placed and most highly resistant reinforcing known for modern bank vaults. Vault Reinforcing is but one of many materials for which architects, engineers and builders turn to Wheeling. The Wheeling line of building materials includes: Steelcrete Reinforcing Mesh · Expanded Metal · Metal Lath and Metal Lath Accessories · Tri-Rib Steel Roof Deck · ExM Angle Frame Partitions. Wheeling Steelcrete Vault Reinforcing supplied and erected by SOULE STEEL COMPANY. Architect: PIETRO BELLUSCHI; Consulting Engineer: MILES KAY COOPER; General Contractor: ROSS B. HAMMOND C

WHEELING CORRUGATING COMPANY · BUILDING MATERIAL DIVISION

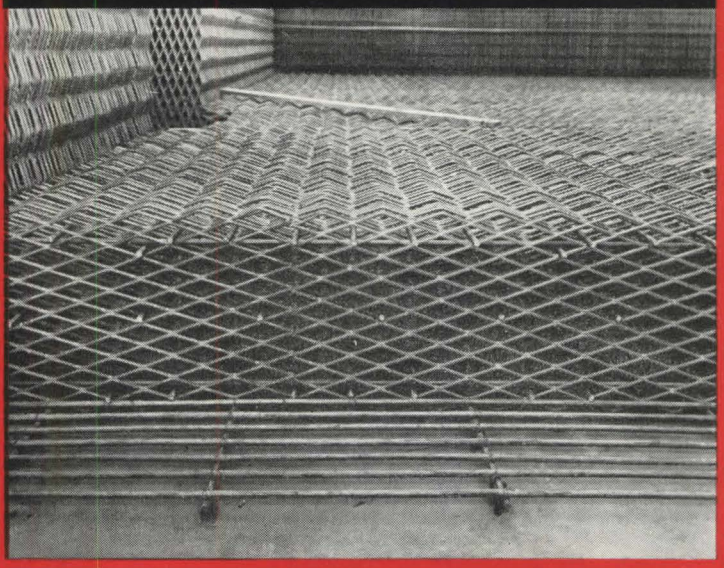
ATLANTA BOSTON BUFFALO CHICAGO COLUMBUS DETROIT KANSAS CITY LOUISVILLE MINNEAPOLIS NEW ORLEAN

FEDERAL RESERVE...

this close-up is seen the sturdy interlaced ing that Steelcrete gives to concrete walls.



In this photograph the simplicity of Steelcrete assembly is readily seen.

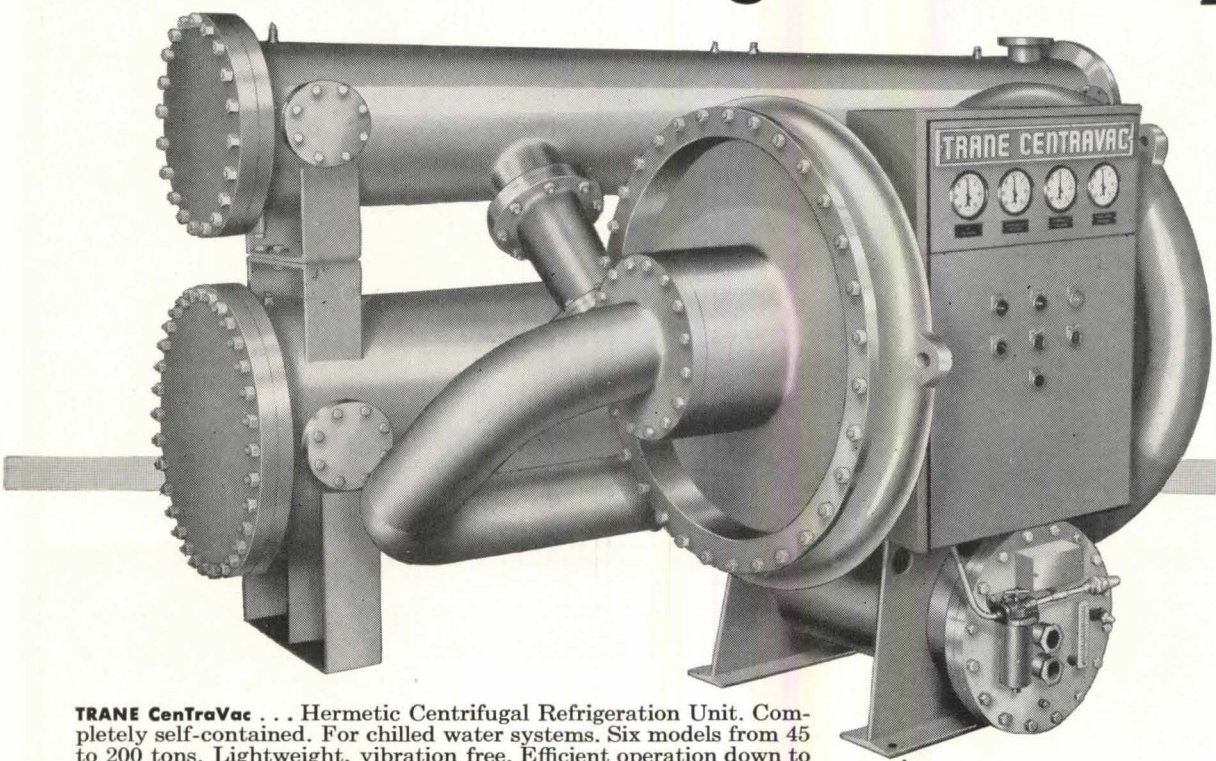


In the roof view, note the relatively long spans made possible by Steelcrete's lateral stiffness.

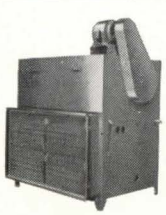
Wheeling
CORRUGATING COMPANY
®

WHEELING, WEST VIRGINIA
NEW YORK PHILADELPHIA RICHMOND ST. LOUIS

These TRANE products fi air conditioning results yo

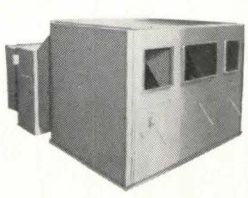


TRANE CenTraVac . . . Hermetic Centrifugal Refrigeration Unit. Completely self-contained. For chilled water systems. Six models from 45 to 200 tons. Lightweight, vibration free. Efficient operation down to 10% of capacity, through automatic throttling controls. Power consumption very closely proportionate to load through entire range.



TRANE Climate Changers . . . basic air conditioning units, built for widest range of requirements. Combine coils, fans, humidifiers, filters, dampers. 450 to 22,000 cfm.

TRANE Evaporative Condenser . . . for condensing refrigerant in the air conditioning system where water is scarce or expensive. Cuts water consumption as much as 90%.



TRANE Multi-Zone Climate Changer . . . A single air conditioner that provides heat or cooling or both simultaneously to as many as 8 different zones.

D MATCH THE JOB...

together to give you the want!

What air conditioning results do you want? Have you a simple cooling problem—or a complex one? Is it small or large? Does the job require only cooling or does it involve the related problems of heating and ventilating?

Regardless of the nature or scope of your next air conditioning project, the *complete* line of TRANE matched air conditioning products contains exactly the equipment needed to do a superlative job.

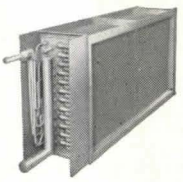
Consider these advantages:

1. UNDIVIDED RESPONSIBILITY The completeness of the TRANE line makes it possible to get the undivided responsibility of one manufacturer.

2. ONE SOURCE OF SUPPLY You save time by dealing with one competent specialist — the TRANE sales engineer —instead of many.

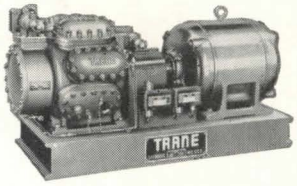
3. ONE SET OF CATALOGS From one handy and complete set of catalogs you can select all the equipment you need.

4. COMPLETE FLEXIBILITY There's a wide range of sizes and models. So flexible is the line, you can, for example, create 10 different 50-ton air conditioning systems.



TRANE Cooling Coils . . . Efficient fin-and-tube extended surface. For use with chilled water, well water, or direct expansion refrigerants.

TRANE Centrifugal Fans . . . Class I and II construction with backwardly inclined or forward-curved wheel design. Ruggedly built. Quiet operation.



TRANE Reciprocating Compressor . . . Capacities up to 50 tons. New, automatic cylinder unloading saves power through multi-step reduction.

TRANE Self-Contained Units . . . all-in-one package. 3- to 20-ton capacity. Heating coil optional. 15- and 20-ton available with built-in evaporative condenser.

TRANE UniTrane and Custom-Air Systems . . . Multi-room air conditioning. Individual room control of heating, cooling, humidifying.

Why not join the many architects, engineers and contractors who specify and install TRANE Equipment? Call or see your nearest TRANE sales engineer when you plan your next air conditioning project.

D AIR CONDITIONING EQUIPMENT

TRANE

THE TRANE COMPANY, LA CROSSE, WIS.
Eastern Mfg. Division, Scranton, Pa.
Trane Company of Canada, Ltd. . . .Toronto
Offices in 80 U.S. and 14 Canadian Cities

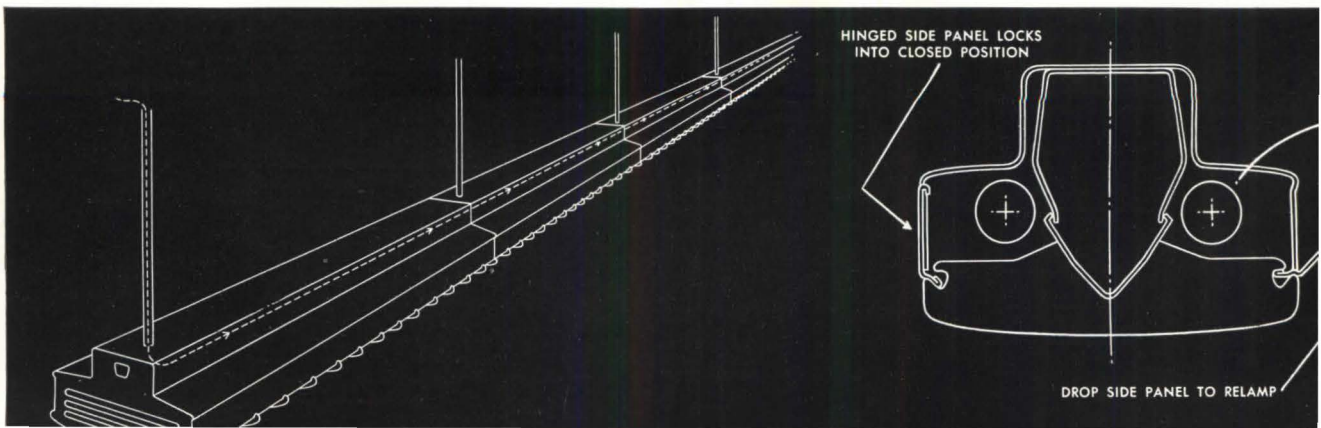
"Off-ceiling" lighting is attractive

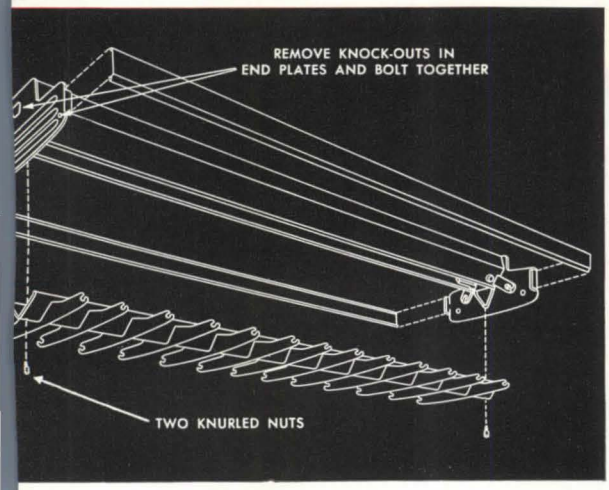
Creative design added spaciousness and beauty to this confined building interior with an unusually high ceiling. Modern, flexible lighting systems and more freedom in architectural design techniques are the basic ingredients.

In the Anglo California National Bank's office at Hayward, California, the architect cleverly planned a second working level to minimize the high ceiling. An off-ceiling (or suspended) lighting system became an integral part of this design. Individual working areas are more than adequately lighted (over 40 footcandles) *with good, comfortable* lighting.

Open office spaces and carefully selected decorating colors help provide "spill-over" light for the main area; a device that might be used in many office buildings where the problem is one of high ceilings and limited space.

Westinghouse Type CC, 8-foot slimline fixtures with plastic sides were selected. Low in first cost, they are economical to install and maintain, since a minimum number of fixtures are needed. This is only one of a wide variety of lighting systems designed by Westinghouse for flexibility in planning. Send for B-5254, "Lighting Sets the Stage" and see an analysis of our complete commercial line. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-04307



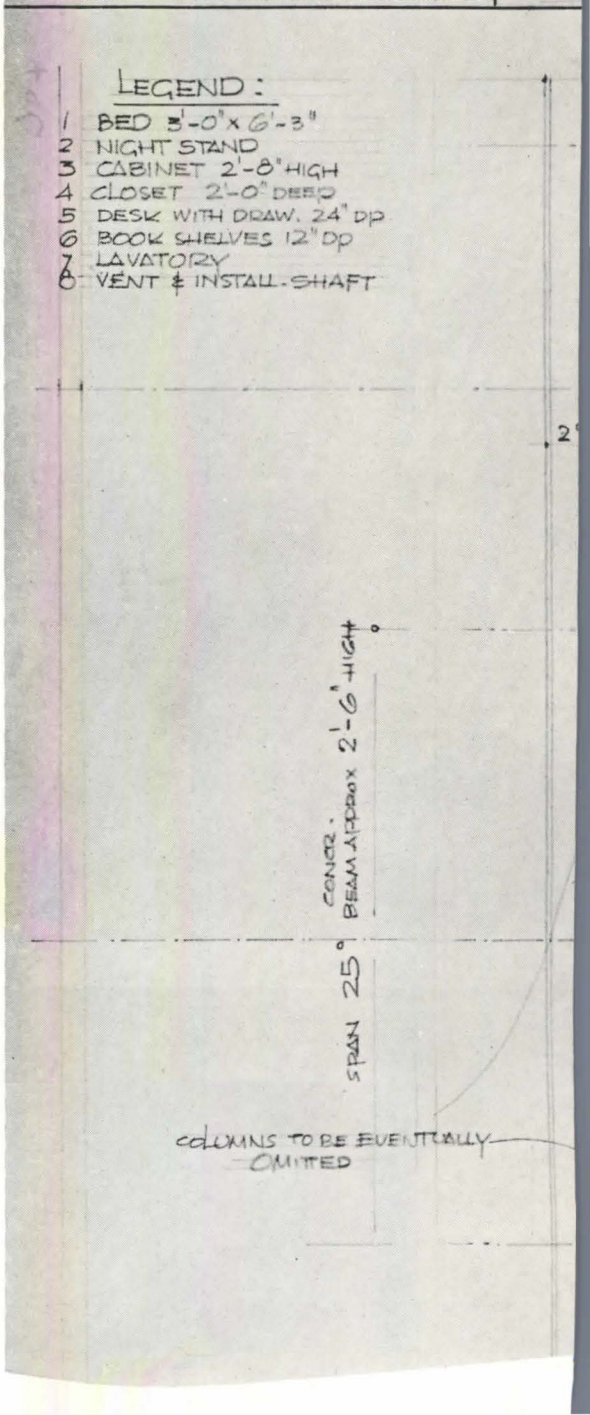


combined sanatorium and university

(Continued from page 24)

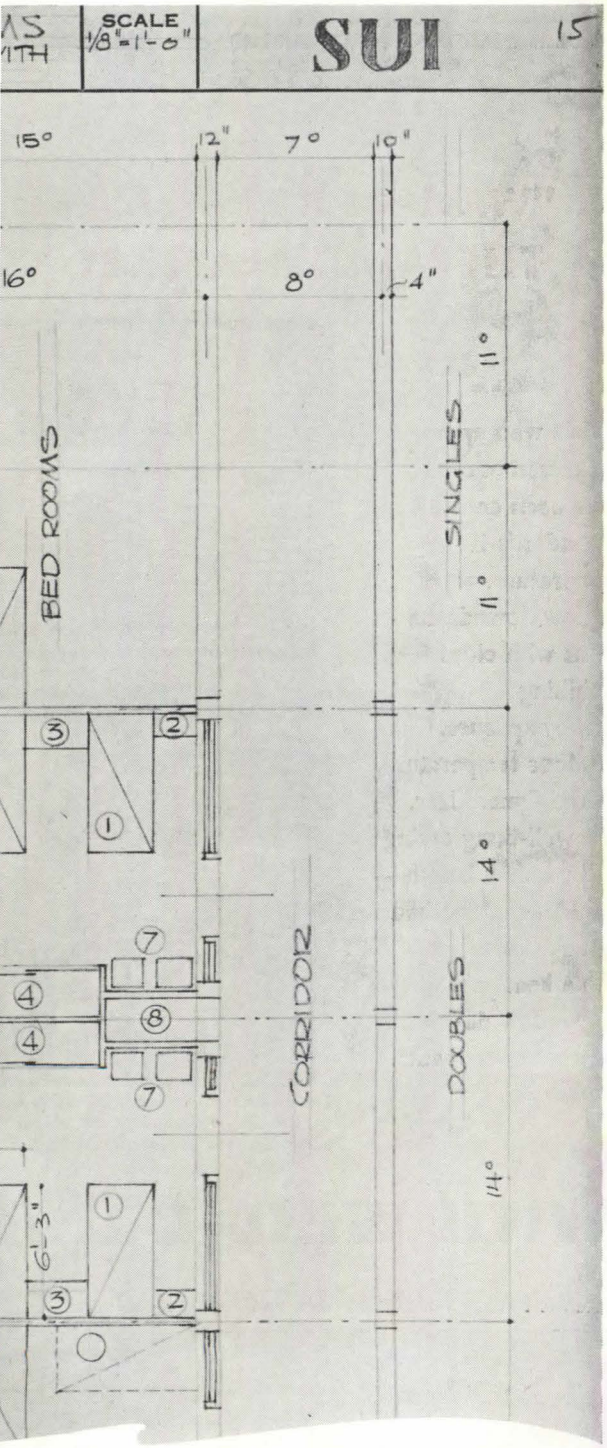
each functional element in the most detailed sort of way, for all areas firmly established and approved before incorp working drawings.

Indicative of Neutra's exhaustive preliminary study of a project is the series of work sheets made for every type of for by the program, for each specialized room, and for such the rest balconies provided for most of the rooms, utility roo etc. Grouped together as "Study of Organization," these



literally as units of the plans and insured inclusion of all pro-
in the right place on the right floor.

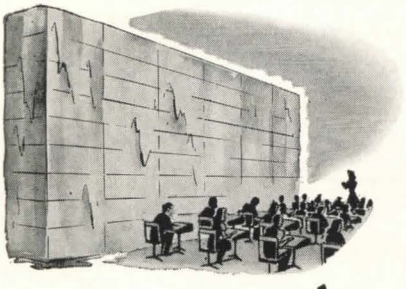
orological records for the area of the site were reviewed. And
course of analyzing the impact of the new institution on the
iosen, it was pointed out that S.U.I. would bring with it better
ter communication services, snow removal in winter, economies and
ement of transportation facilities. Possible creation of a new
for the district also was foreseen, with the addition of the
ium population to the community.



Positive Protection Against

COLD WINDOW DOWNDRAFT

The free-standing Nesbitt Syncretizer Unit Ventilator with Wind-o-line Radiation extending from both ends of it, at the sill line.

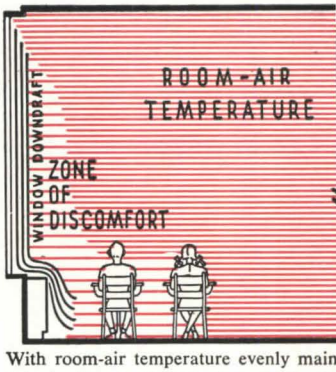


To solve your "WALL-OF-ICE" problem... this NESBITT THERMAL BLANKET:

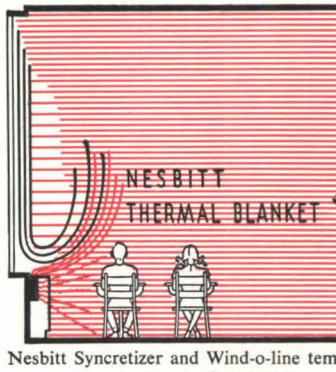
Architects who design and school officials who approve large window areas in the modern classroom may delight in their choice if *thermal comfort* has been considered. Unit ventilators could be selected by conventional standards if thermal comfort depended alone upon the classroom air temperature. But today we know that low-temperature exposures and cold window downdrafts may remain the robbers of pupil comfort, even in classrooms with close control of room-air temperature. The practical solution to the chilling effect of window downdraft is to release heat upward over the exposure.

For conditions of large glass area and cold outdoor temperature, Nesbitt provides Wind-o-line Radiation for integration with the Syncretizer. Wind-o-line consists of fin-and-tube radiation in a grilled wall-hung casing to extend from both ends of the ventilating unit for the full window length—and continued, if required, along cold outside walls. (Or it may be had as a component of the storage cabinets forming The Nesbitt Package.) Wind-o-line solves the problem of heat loss logically with a heat gain where and when needed. Convected currents of warm air temper the window downdraft and divert its flow upward and above the heads of the room occupants.

Inquire further of John J. Nesbitt, Inc., Philadelphia 36, Pa.



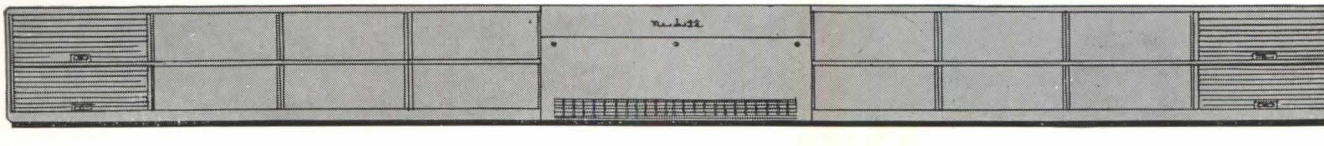
With room-air temperature evenly maintained, downdraft from large cold windows may remain the robber of comfort



Nesbitt Syncretizer and Wind-o-line temper the downdraft, raise it out of impression range, and improve thermal balance

NESBITT *Syncretizer* WITH WIND·O·LINE

Wind-o-line Radiation may be integrated as part of The Nesbitt Package of Syncretizer and storage cabinets.



pness and sweetness

ian Sculpture From Gothic to Renaissance. *:e Gilman Proske. Hispanic Society of :a, Broadway at 155 St., New York, N.Y. 525 pp., 328 illus. $15.00*

ook is a well thought-out effort to recreate ain phase of Spanish sculpture, that of a in the 15th Century, and to do it logically. The photographs are sharp and some are of architectural views, many depict intricate details. These numerous ations define the mood of the time.

sculpture is more than a borrowed gar- rather it takes form from the physical, ctual, and emotional milieu of Castilla, eveals particular qualities of boldness and lness; the contribution of Spanish artisans period of overlapping styles.

pness of carving and sweet smoothness lustrated and accounted for, whether the al be stone, wood, or metal. To under- the surface treatment is not enough, we ook more deeply into the life of the age preciate its distinctive style, expressive of notion of the Spanish people at the time Catholic Kings.

text exhibits a search of what has been rings to light much new material. Its form berate, yet one finds fascination in turning after page. Here is charm combined with noulded facts that cause excitement. We ble to follow the unexpected play of move- and the elaboration of originally simple , so well are they described and pictorially ated.

H. A. L. BEHLEN

agazine index

rchitectural Index for 1951. *Compiled and by Erven J. Bell. The Architectural Index, Kenwood Ave., Chicago 37, Ill. 36 pp. $3.*

Bell continues his good work for the ectural profession with his latest index ck copies (January 1951 to December inclusive) of leading architectural maga- —*Arts and Architecture, Architectural Rec- PROGRESSIVE ARCHITECTURE, The Maga- of Building*—and also *Interiors.* All entries rranged alphabetically. Articles about a ic building are indexed under the general ng type and cross-filed under "Architects Designers," also under locations, state, eign country. Under some headings, sub-

(Continued on page 146)

BOOKS RECEIVED

The Perspector. A device invented by Theodore A. De Postels. Reinhold Publishing Corp., 330 W. 42 St., New York 36, N.Y., 1952, $10

A Handbook of Perspective Drawing. James C. Morehead and James C. Morehead, Jr., Elsevier Press Inc., Houston, Texas, 1952, 168 pp., illus. $6

Hydrogen Embrittlement of Steel. R. W. Buzzard and H. E. Cleaves. National Bureau of Standards Circular 511, U. S. Government Printing Office, Washington 25, D. C., 1951. 29 pp. 20 cents

Stone Exposure Test Wall. Daniel W. Kessler and R. E. Anderson. Building Materials and Structures Report 125. U. S. Department of Commerce, Washington 25, D. C., 1951. 41 pp. 30 cents

REVIEWS

(Continued from page 145)

divisions are made geographically or subject. All other articles are indexed subject and not by article.

furniture characteristics

American Furniture: Queen Anne and Chippendale Periods. *Joseph Downs. Macmillan Company, 60 Fifth Ave., N.Y., 1952. 401 illus. $1*

Written by the outstanding authority on American decorative arts, this handsome book highly significant contribution to the field, that will be welcomed by everyone who pleasure in beautiful period pieces and architectural backgrounds for which they made. There is probably no one better qualified nor more conversant with the subject Joseph Downs. Before becoming curator of recently opened Winterthur Museum, near mington, Delaware, he was curator of the American Wing of the Metropolitan Museum of New York, and previous to that was associated with the Philadelphia Museum of Art and Museum of Fine Arts, Boston.

The author shows how social and economic changes in the 18th Century brought about transitions to new styles and the manner which they were reflected in homes of the Here are pictured more than 400 examples Queen Anne and Chippendale pieces from Winterthur collection, so the reader has a wonderful opportunity to study the characteristics of the different types of furniture made in country during that time. There is a painstaking description of each piece shown, including place of origin, approximate date of construction, maker's name and many other pertinent facts.

Not the least important in this comprehensive volume are the 10 exquisite color plates period rooms at Winterthur, with the furniture in its authentic environment.

FRANK A. WREN

bank mortgages

Commercial Bank Activities in Urban Mortgage Financing. *Carl F. Behrens. National Bureau of Economic Research, 1819 Broadway, New York 23, N. Y. 125 pp. $2.50*

As may be implied from the title, this volume deals with the role of commercial banks as real estate agencies—lending on a short-term basis to finance construction, financing intermediary institutions such as mortgage loan companies,

(Continued on page

THE OLD WAY:
strong contrast
deep shadows

the
GUTH WYTE-LINER WAY:
low contrast
soft shadows

ALL POLAR BEAR WHITE — FOR BETTER SIGHT AND BETTER LIGHT

Here's a new idea in factory lighting to lift the eyestraining gloom off the ceiling:

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Leaders in Lighting since 1902

REVIEWS

(Continued from page 146)

making long-term mortgage loans on resid and commercial properties. Technical da given on the legal aspects and scope of mortgage lending and bank experience wi type of lending, covering acquisition an vicing costs, foreclosure and loss experienc yields. Findings in this report were base marily on a sample study of 170 comm banks and tabulations supplied by the F Deposit Insurance Corporation.

radioactive contamination

Control and Removal of Radioactive Co nation in Laboratories. *National Bure Standards Handbook 48. Government P Office, Washington 25, D.C. 24 pp. 15*

This handbook is one of several author reports on radiation hazards, prepared auspices of the National Committee on tion Protection. While it is concerned with operating procedures, it also contain siderable material of value to architects ning hospital or research radio-isotope l tories; of particular interest to the archite the "Introduction" and the chapter on "S Materials." The Introduction outlines the g problem of radioactive contamination an it may be minimized. Chapter 5, "Specifi terials," gives a brief analysis of the mos mon surfaces in use in radio-isotope labora from the point of view of contamination.

CARL B. BRAE

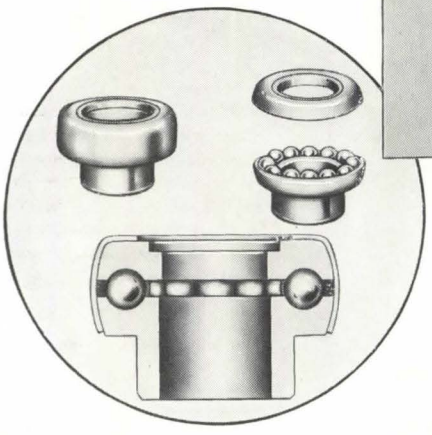
revised guide

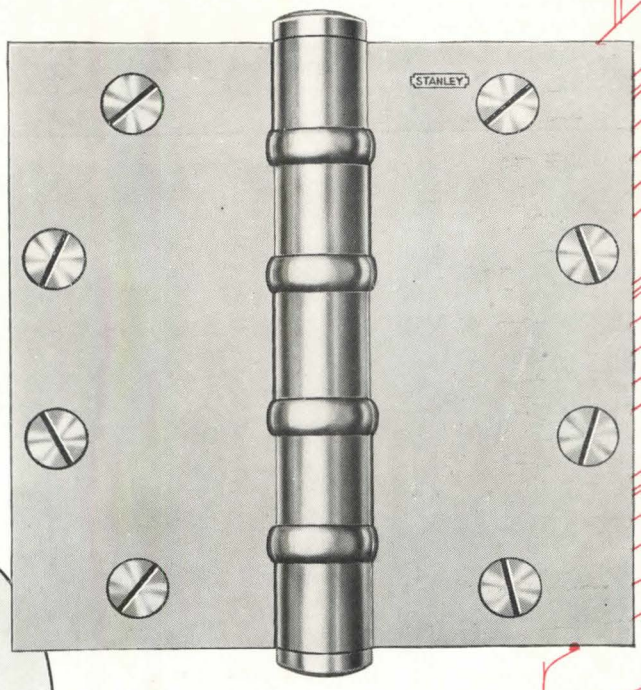
Heating, Ventilating and Air Condit Guide, 1952. *American Society of Heatin Ventilating Engineers, 62 Worth St., New 13, N.Y. 1520 pp., illus. $7.50*

The newest A.S.H.V.E. Guide contains r and increased technical data on 50 subje lated to the heating, ventilating, and ai ditioning industries. Chapter arrangemen still grouped under the familiar section Fundamentals; Human Reactions; Heatin Cooling Loads; Combustion and Consu of Fuels; Systems and Equipment; Specia *tems; Instruments* and Codes. Names an dresses of organizations which can supp codes and standards are listed in the last ter. One of the special features in the is the larger Catalog Data section giving tial information and specifications on the equipment produced by 277 national ma turers. A 32-page index simplifies the for products and manufacturers, and a index is provided for both the Catalog and Technical Data sections.

a hinge that WON'T wear out

Stanley Full-Jeweled* Ball Bearing Butt Hinge





eliminates lateral as well as vertical wear

Here's a hinge you can specify for heavy doors, exterior doors, and doors receiving high frequency service — with complete confidence that it will last as long as the building.

The ball bearing construction of the Stanley Full-Jeweled* Hinge is designed to take lateral as well as vertical wear. With the load supported both ways on ball bearings, it is practically impossible to wear out this hinge.

Whenever there are heavy or busy doors in any building you design, you will insure your client's investment by specifying Stanley Full-Jeweled Extra Heavy Ball Bearing Butt Hinges†.

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† *All Stanley Extra Heavy Ball Bearing Hinges are equipped with Full-Jeweled Bearings.*

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The most famous doors in the world swing on Stanley Hinges

out of school

by Carl Feiss

The following editorial from *The Architect's Journal* of March 6, 1952, should be read by student and teacher alike and then followed by reading (on page 296 of that issue) the letter from Tony Moore, an R.I.B.A. student, called "Theory and Practice in Education."

research into education

"Two talks followed by discussions, which were attended by architectural students last week showed that students (in London, at any rate) are becoming anxious and worried about their training and their future prospects. They have good reason to be so. The postwar building boom on which both architects and stuc have staked so much has never amounte a great deal and is now fast coming close. Students, on qualifying, are at last fin it difficult to get a job. The reason for w ing about their training, however, is not so obvious for those who remember struggles to form schools, have lectures, qualification by exams, for "live" prog and for freedom to design in one's *metier*. The student of a recognized sc has, on paper, got everything. He has fact, got too much, including title of "archit at the end of a five-year's course with year's practical experience. The average year school course is over-crowded and balanced.

"He attempts a superficial study, backed sparetime reading, of more separate different subjects than any other professio the world. He also attempts to apply knowledge by designing (on paper) as m buildings in five years as he, alone, c design, detail, and supervise the construc of, in fifty years. His position, leaving sch is akin to that of Barrie's little sillies don't know what they are—he is compe neither as an assistant nor as an archi

"Our plea is for the formation of a s group who, now the battle for sound arch tural schools is won, will look afresh at problems of education and qualification. R.I.B.A. is heavily overworked but the A tectural Association—that self-professed *un* institution—has a precedent in these matt

•

I wonder what is meant by "the battle sound architectural schools is won." It certa isn't won here and I can't conceive of fin in such a battle.

There is a bitter tinge to this editoria disappointment in postwar events, along that constant frustration which seems to at the analysis of architectural training these d In this country, we have little cause to unhappy about postwar building. Despite s slowdowns and material shortages, the re is not too bad. We've done only fairly in office buildings but there has been a s of good churches. Design trends have *upward in the* medium-sized but high single house, but row houses and large a ment groups have reached a new low in and discernment. In fact, we have now rea a point where we are accepting as stand what less than a generation ago were sidered substandards. I like some of the factories we've been designing and we've

(Continued on page

Intermediates that last like photographs

. . . produced at low cost

A case history based on the experience of the Hyster Company, Portland, Oregon

By reproducing its engineering drawings on Kodagraph Autopositive Paper, the Hyster Company gets intermediates which have dense black photographic lines on a translucent, highly durable paper base. *Intermediates* which will remain intact in the files year after year . . . and produce sharp, legible blueprints and direct-process prints whenever needed.

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"THE BIG NEW PLUS" in engineering drawing reproduction

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Kodak
TRADE-MARK

out of school

(Continued from page 150)

one interesting plan for a new town, but not very exciting building to go along with it. The last five or six years have been good years—not great years—for architects in the United States.

Our British friends, although frustrated by shortages in money, men, and materials have no cause to be ashamed of the quality of their small production. In mass housing they have done some fine things. Their new town plans are way ahead of our thinking and their public buildings are, on the whole, of greater dignity and taste than what we have been turning out.

Much of the matter of spirit in today's design rests on the quality emphasis to be found in our training systems. In the general subjects I have mentioned above, there has been little or no debate. We have no forum for discussion adequate to do justice to the merits of the issues to be discussed, or of sufficient stature to attract our attention. Debate on architectural design could be a television dream. I'll expand that idea sometime soon. I understand that one architectural educator, at least, is working on TV ideas. But I'm still going to look for great debates on architecture, on planning, and on the training for whatever systems of design, construction, and initiative develop. Perhaps the students will do it yet.

●

As I write this, the first issue of LINE magazine is on my desk. Some of you may remember that I put quite a plug in for the publication of this student architect's magazine, back in the September, 1951, OUT OF SCHOOL. I am happy to see the first issue and congratulate the editors on the fruition of their obviously arduous task. Frankly, I am sorry the issue does not have more meat in it, neat as it may be in format. Tony Moore's letter in *The Architect's Journal* mentioned above raises the kind of questions students should be asking, but LINE, in its first issue, starts with a gentle and slightly patronizing first editorial by Vi Hudnut, who was talking to boys, not men. This is followed by several high-school themes on the subject, "Why My School is Best." There are also some reproductions of student problems, without explanation, comment, or criticism.

Come on, men, get mad! Take a poke at something if you feel like it! Take a poke at me or any handy object, but get going! I want to see a student magazine that howls. You've published your first issue—now get rolling!

(Continued on page 154)

...FROM

HERMAN NELSON

In the industrial plant shown above 43 Herman Nelson Propeller Fans insure comfort cooling for employees working at heat-producing, high speed machines.

No matter what type or size of ventilating fan you need for industrial, commercial and institutional use Herman Nelson makes it. Our designers and engineers are leaders in the fan field and in our laboratories and test rooms all the latest findings of aerodynamic science are put to work in fan design. Herman Nelson fans are noted for low initial, operating and maintenance costs. They are designed to operate with minimum air turbulance, thus permitting the delivery of more air with less noise.

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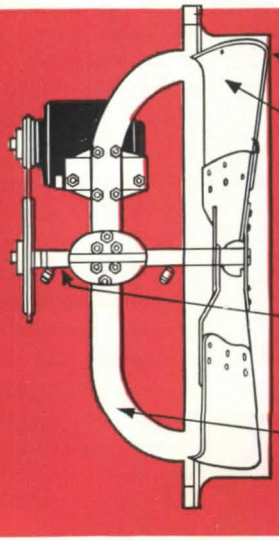

1. Streamlined air inlet in panel.
2. Aluminum blades having an "air-foil" cross section with pitch increasing toward hub.
3. Porous, bronze, capillary bearings with wick feed oilers.
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AAF herman nelson moline illinois

HERMAN NELSON

Division of **AMERICAN AIR FILTER COMPANY, INC.**

MOLINE, ILLINOIS

out of school

(Continued from page 152)

And remember what I asked last September? "What is the program for LINE? What are some of the issues and principles it hopes to develop?"

●

The other day, I was walking down the elm-shaded walks of the University of Theleme, lost in the architectural nostalgias for which the university is famous. The warm June sun beat brightly on the library's ivy-covered walls and, between the buttresses, the lancet windows glowed with the pale blue of the cold cathode lights in the reading rooms behind little leaded panes. By a flight of steps to handsome Georgian portico of what was obv ously either a classroom building or dormitor I paused to question a blue-jeaned co-ed an her two drooling escorts.

"Where," I asked, "is the School of Arch tecture?"

"The whicht?" she languished, and one of h pals dropped one of her books.

"Agriculture?" the other pal asked, his gaz wandering reluctantly to me.

"What team are they on?" asked the fir palsy, having recovered his stance.

I explained gently that it was where the taught people to design buildings like thos around us.

"Never heard of it," says the second wals

"Do they actually teach things like that? she crooned, her eyes obviously seeing f the first time the buildings around us. "Ho cute!" and she giggled.

I left them to their more important affai and plucking my long, grey beard, fixed wi glittering eye one out of every three studen I could corral, as I continued my search. Th mystery thickened as my random samplin turned up no more than shrugged shoulde and an occasional misdirection. Finally c elderly professor told me that he was walkin that way, just by chance, and would esco me to the door. As we strolled along, I aske him about the School of Architecture.

"Frankly," he said, "Although I have bee on the campus 30 years, I have never visite it. I have heard that it does have a goo reputation. Some of us occasionally meet th Dean at a President's reception, or at Con mencement. He is said to be an excellent coo and to have traveled widely. I am an urbo sociologist myself, so I would have nothing common with architects, nor they with me. do have a friend in engineering, who tells m that the construction courses in the archite tural school are below par. I have heard, als (though this is mere hearsay, mind you), th the school is an expensive one to run, an that *there is some* feeling that it is a luxu which, in these days of inflation, the Universi can ill afford. However, I am of the old scho myself and I feel that in these days of gro materialism a university should indulge itse occasionally with a few educational frivolities–

(Continued on page 15

Country Club, Raleigh, N. C.
Floored throughout with
Northern Hard Maple.

Architect:
Wm. Henry Deitrick, Inc.
Raleigh, N. C.

If it deserves fine architecture, it deserves

"The Finest Floor that Grows"—

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Arch. (13k-MA) for specifications data.

FLOOR WITH *NORTHERN* HARD MAPLE
BEECH AND BIRCH

out of school

(Continued from page 154)

not always just the necessities, if you know what I mean."

I did.

"Of course," my friend the urban sociologist went on to say, "A truly educated man is always interested in architecture. Every time I go to Europe I visit the Cathedrals and really the main reason most people travel is to see buildings, or scenery, or historic spots. I have a large collection of postal cards from my various trips abroad. Most of them are on architectural subjects and I have thought of willing them to the architectural school library, which I have heard (although this is just a rumor), refuses to catalogue its collec by the Dewey Decimal system—and the brarian is being threated with excommun tion by the joint chiefs of staff. Under circumstances, I may will my postal card Harvard."

We had been walking for some time r passing at a leisurely pace from quadra to quadrangle. Since the fronts and back buildings did not match, following the tradition, I suppose, (where a Gothique fac has as its opposite, or rear, a Georgic facade), the variety of effects was stimulat if not pleasing. Turning to my companio asked, "Do you know whether or not faculty of architecture designed the cam buildings?"

"Why, I don't believe so," said my fri in some surprise. "I don't think it would o to anybody to ask them to."

We were now approaching an undistinguis and drab structure with three-story limest fluted pilasters flanking an entrance much small for this frame. Before this grandiloq decalcomania we paused to say good-bye.

"I can always recognize the School of Ar tecture at night; its lights are on later in any other building. Sometimes I wo why." And with these remarks we parted ways.

●

Seated later in the Dean's office, I mentio my recent experience. He put his pipe in bulging pocket of his tweed jacket and loo at me sternly.

"I would not dream," said he, "of risk the political future of the school by permit my faculty to work on the design of unive buildings. There are two dangers; first that might get into a stylistic debate on the cam and the second that the students might ques the competencies of the faculty. The perils much too great. We rely on our reputat Best to leave well enough alone.

"Of course, it is regrettable, to some ex that we are not better known on the cam I can assure you that were anyone from other college of the university to visit u would receive a cordial welcome. Our problem, of course, is time. We are just busy to curry friendships, which would very little to us. Besides, looking at it

(Continued on page

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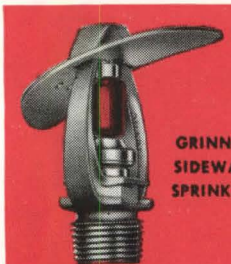
For offices, shops, stores, restaurants, lounges, country clubs . . . where sprinklers must be unobtrusive and blend into modern interior design. Protrudes only 1-inch below ceiling.



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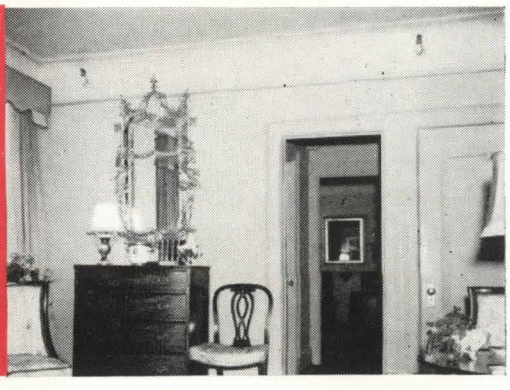

Records show that during the next twenty-four hours fire will strike more than 1600 buildings in the United States. Among these will be 140 stores, 80 factories, 6 churches, 3 hospitals, 6 schools. A staggering daily total of property destroyed . . . far worse, when measured by lives lost.

These figures emphasize the obligation upon architects and management to provide protection against fire in hospitals, hotels, restaurants, schools, stores, offices and factories. Be sure the buildings for which you are responsible have the positive protection of a Grinnell Automatic Sprinkler System.

Call in the Grinnell engineer when your project is in the design stage. Let him show you how, with the use of these inconspicuous sprinklers, you can have this dependable protection against fire without taking away from the appearance of your carefully planned interiors.

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it's the la

(Continued from page 156)

the vantange of the student, what conceiv benefit would such contacts be to him?

"After all, the architectural school can considered as an exclusive club. We are tr ing professionals. Now, if our men were go out into the world to earn a living as objective, it might be different. But primc they are designers in a profession of a h degree of specialty. It is impossible that men, with all the charettes and everyth should fritter away useful time trying to g the university the benefit of their experie training, and character. Yes, I use the w 'character' advisedly, as our men are, course, of a higher type than is to be fo anywhere else on the campus."

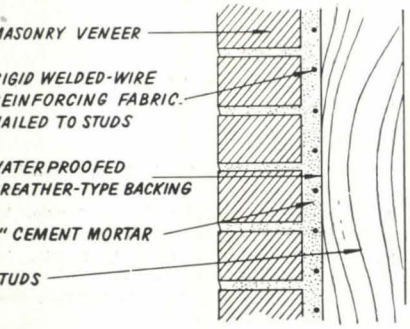
The Dean paused and looked sentiment at a handsome photograph of Chartres on wall. I found my gaze wandering around office. The furniture was adequately cont porary to satisfy the demands of the stude without disturbing the more conservative alun The atmosphere of decorum, proper to a Dea dignity, was disturbed only by the tweed c It should at least have been a pin-stripe b serge.

I asked, "Haven't I heard that there is excellent English faculty on the campus. D it serve your school?"

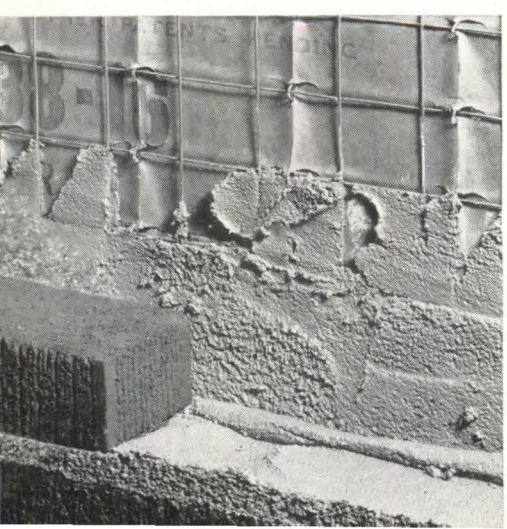
"Oh, *no!*" cried the Dean, letting his g wander to another fine picture, this time Falling Water. "We have our own Eng courses, exclusively for architects. After all, boys do not need to read too much. They designers. They should be able to read copies of "Mont St. Michel and Chartres" Henry Adams and OUT OF SCHOOL in P but beyond these they should not be expec to go. An architect, it is true, should be liberal intellectual. He should know when enjoy art, music, and literature. But, beca of the many exacting tasks confronting profession, I believe that it is the duty o school to teach its students the maxim amount of culture necessary for this partic profession to retain its reputation. To deve an intellectual curiosity beyond these lir would be indicative of overbreeding."

The Dean leaned back in his chair, finger tips together, and staring through tops of the elm trees at the tall ivory tow of Theleme, added, "We tolerate this univer as a necessary adjunct to the School of Ar tecture. My task, to which I have devo many years, has been to see that at no t does the university intrude on our activi I modestly pride myself on the complete cess of this undertaking."

I could not argue the point.



Note from the drawing above and the photo below how Steeltex bonds a veneer wall together as a strong single unit and eliminates the need for standard sheathing.



500 Families Get Added Fire Protection with Steeltex for Masonry Veneer

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"Another excellent reason," said Mr. Wise, "lies in the fact that Steeltex rigidly ties the brick veneer and frame together for mutual protection against later settling and distortion. In the Oglethorpe Apartments, I have noted that there has been no plaster cracking or breakaway."

To take advantage of the stronger, safer walls Steeltex brings to your veneer construction, see our catalog data in Sweets' or write for Catalog DS132, Dept. PA, Pittsburgh Steel Products Company, Grant Building, Pittsburgh 30, Pennsylvania.

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SHOPPING CENTERS

the illustrations

All illustrations from Gruen and Smith offices, with exception of those listed below.

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Nuremberg Market Place, 1599. Courtesy: *Metropolitan Opera Guild.*

Page 68 & 69

Agora of Assos. *N.Y.P.L. Picture Collection.*

Page 69

Great Cloth-Market, Leeds. *N.Y.P.L. Picture Collection.*

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Northgate Shopping Center, Seattle, Wash. Photos: *Martin Moyer. (through owners).*

Christmas Tree, Northgate. Photo: *no credit (th owners).*

Page 75

Richards Market, Newport Beach, Calif. Photo: *S. Bechner.*

Town & Country Center, Palm Springs, Calif. F *Julius Shulman.*

Bullock's Pasadena, Pasadena, Calif. Photo: *Shulman.*

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Baldwin Hills Shopping Center, Los Angeles, Photo: *Julius Shulman. Same as above.*

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Bellevue Shopping Center, Bellevue, Wash. P *Dearborn-Massar.*

Community Shops, Greenhills, Ohio. Photo: *Resettlement Administration.*

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Halle Brothers Store, Cleveland, Ohio. Photo *Marvin Wilson.*

Bullock's Pasadena, Pasadena, Calif. Photo: *Shulman.*

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Pavement market, Mexico City, D. F. Photo: *World Photos, Inc.*

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(Belmont Race Track) Parking. Photo: *Wide Photos, Inc.*

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Hecht's Parking Garage, Arlington, Va. Photo: *ert C. Lautman.*

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Lakewood Center, Long Beach, Calif. Photo: *Wi A. Garnett. (through owners).*

Aerial view of Northgate Center, Seattle, Photo: *Martin Moyer. (through owners).*

Northgate Center (Bon Marche), Seattle, *(through owners—no photo credit).*

Lakewood Center—May Company building. *(thr owners—no photo credit).*

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North Shore Mart, Great Neck, N. Y. Photo: J. *Langley. (through publicity firm).*

Bellevue Shopping Center, Bellevue, Wash. P *Dearborn-Massar.*

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The Shoppers' World, Framingham, Mass. A view. Photo: *Fay Foto Service, Inc.*

The Shoppers' World, Framingham, Mass. P *Kenneth C. Welch.*

The Shoppers' World, Framingham, Mass. P *Fay Foto Service, Inc.*

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Co-op Market, Palo Alto, Calif. Photo: R *Partridge.*

Tarzana California Shopping Center. Photo: Joe

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Construction photograph of Jordan Marsh Framingham, Mass. Photo: *Dunhill Studios.*

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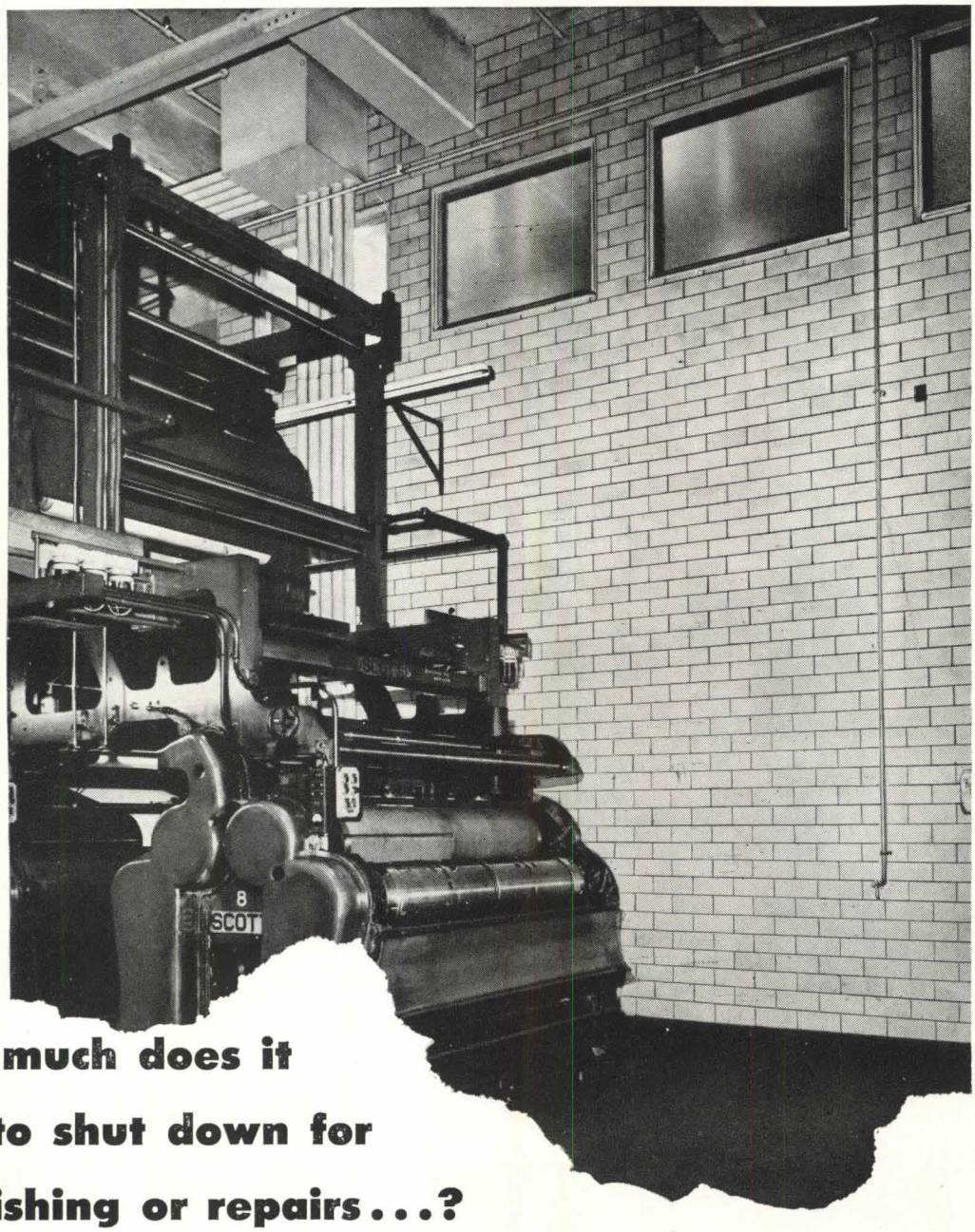
Beverly Robinson, Beverly Hills, Calif. Photos: *ernage.*



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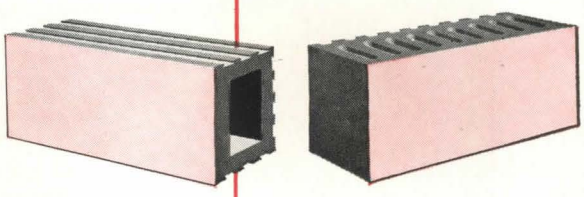


FACING TILE INSTITUTE

1520 18th Street, N. W., Washington 6, D. C.
1949 Grand Central Terminal, New York 17, N. Y.

it's the law

by Bernard Tomson

This column has previously discussed zoning law as it applied to esthetics and related matters: (May 1950 P/A—Extent to which a municipality may limit the minimum area upon which a dwelling may be constructed; November 1950 P/A—Extent to which a municipality may restrict construction of homes that "look alike"; December 1950 P/A—Extent to which a municipality may restrict area for construction of one-family homes). The tendency has been to incorporate in a building or zoning ordinance a rigid set of rules intended to be applicable to all building projects. Lately, an interesting variation has begun to appear. Under these zoning laws a commission, or similar body, has been set up to determine, among other things, the esthetics of a building project at the time the building project is contemplated.

An excellent example of this device is found in New York City, where the pr of finding industrial sites has directed companies into residential areas. An tional advantage in such a site stems the fact that a project in such an are immediately available a ready pool of The difficulties inherent in placing an trial plant in a residential area are r apparent. How New York City solved problem is intriguing.

esthetic zoning

part I: industrial

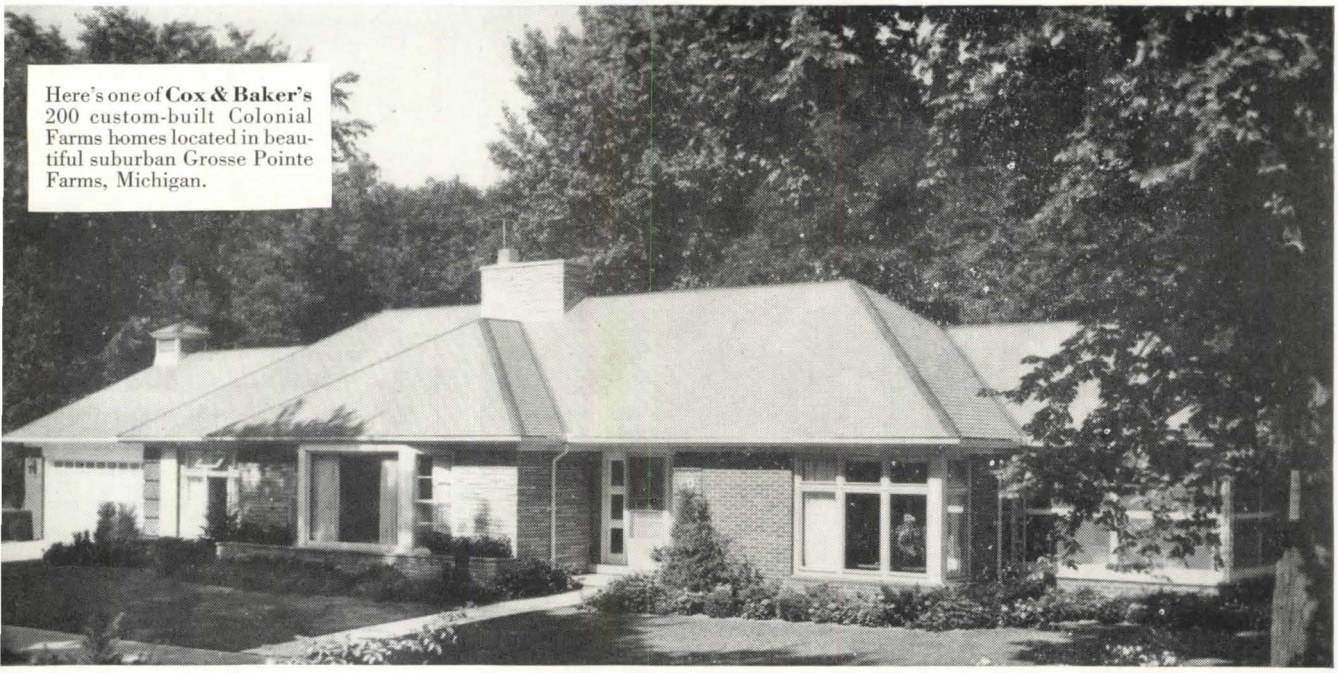
In 1943, New York City adopted a z resolution permitting the erection of c types of industrial plants in residential Art. 2, Sec. 3 (10) of the resolution pro for the submission to the New York City ning Commission of a site plan, and ge building plans showing design, location, structures and open spaces of project. resolution listed the type of project per (administrative offices and industrial la tory projects), and restricted the size of the height of buildings, the distance be buildings and required conformity to a plicable laws and regulations relating to struction, operation and maintenance.*

(Continued on pag

* "*Landscaped administrative offices a dustrial laboratory projects, consistent and designed to promote and benef value and use of property in residenc tricts or in areas which are predomi residential although partly lying in le stricted districts. Such use may be per only if approved in accordance with th lowing terms and conditions:*

"*(a) Every project authorized unde subsection (10) shall occupy a plot o less than ten acres, of which not more 25 percent shall be occupied by bui and structures and not less than 25 p shall consist of a landscaped park ar which the public shall have access s to reasonable restrictions. The aggr floor area of the buildings and stru shall not exceed one-half of the ar the plot.*

"*The minimum distance between an buildings or structures shall be not less 20 feet. All buildings and structures be erected and arranged in a manner will provide adequate light and air at equivalent to the requirements of this lution. The height of any building or ture shall not exceed 50 feet, and such limits shall be that best suited architectural design and arrangement the buildings, notwithstanding the sions of Article III of this resolution. location and design of all building*



Here's one of **Cox & Baker's** 200 custom-built Colonial Farms homes located in beautiful suburban Grosse Pointe Farms, Michigan.

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It's a big advantage. Gold Bond Products are engineered to work together to produce results that will please you, the builder, the plasterer and the owner.

You will find Gold Bond Products fully described in Sweet's—or write our Architectural Service Department for information about any of our 150 building materials and their multiple uses.

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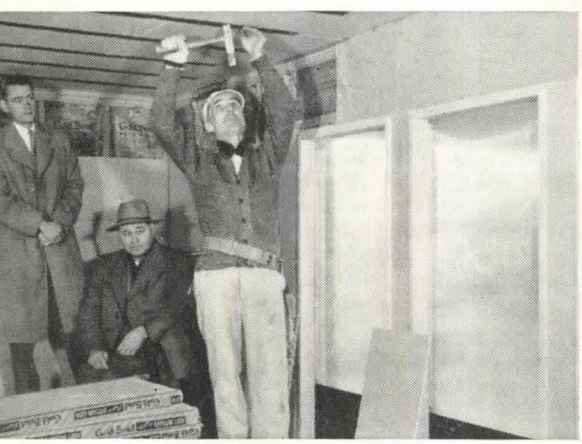

100% GOLD BOND GYPSUM LATH. Bill Baker (left) of Cox & Baker and Robert Dickson (center) Robert Dickson Lathing Co., watch as Gold Bond Gypsum Lath and Stripite are applied in a Cox & Baker Colonial Farms home.

100% GOLD BOND PLASTER AND LIME. Frank L. DeGrendel (second from left), DeGrendel Fuel and Supply Co. and National Gypsum Company representatives look on as Kaye and John Bruggeman (right), Bruggeman Bros. plaster one of Cox & Baker's Colonial Farms houses with Gold Bond Plaster.

100% Gold Bond Rock Wool Insulation on this project.

it's the la

(Continued from page

City Planning Commission was then to sider the merits of each contemplated ect individually in the light of promoting benefiting the use and value of propert the area.

Only one concern took advantage of resolution. In August of 1943, *Sylvania tric Products, Inc.* of New York made an plication for the erection of a research, d opmental, and administrative center in a dential zone. The project presented by *vania* comprehended the initial utilizatio two buildings then occupying the site in Neck, Queens, and the subsequent erectio five administration and industrial labor buildings, a garage, and club house. The contained 28.5 acres, of which seven acres set aside as a park area for use by the eral public. The total floor area of the e project was 429,104 square feet, or 36 cent of the net area of the site. The further provided for parking areas (app mately 500 cars) and for landscaping and veloping of the entire area so as to c "a pleasing appearance to the community attractive setting for the buildings and a eral atmosphere of a high-grade technica stitute . . . The architecture will be a mod Georgian style depending upon project v and ells and varying roof treatment to b up otherwise long building masses. Mod

(Continued on page

structures on the plot shall be consi with the predominantly residential char of the district. The uses provided for in subsection (10) shall in no instance inc the trades, industries and uses proscribe section 4(a) and 4(b) of this resolutio

"(b) Upon presentation to the City P ning Commission of a site plan and ge building plans showing the design, loc and uses of buildings, structures and spaces of a project within a residence trict or in an area predominantly reside although partly lying in less restricted tricts, the commission may, after public tice and hearing, and subject to approp conditions and safeguards, by resol certify that the construction, operation maintenance of such a project is consi with the use of property in such distri districts and is designed to promote, enh and benefit the value and use of such pro and may, thereupon, approve such plan project. Such resolution of the City P ning Commission, together with the pl a project shall be filed with the Secr of the Board of Estimate within five (5) after its adoption. Unless the Board of mate shall disapprove such resolution majority vote within thirty (30) days the date of filing, it shall thereupon

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ı residential and commercial interiors, count on ·ome† Tile to always give you beauty plus service.

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ugh Vitachrome can be used wherever resilient is desired, it is particularly suited to food-serving You'll find that it resists oils and fats, acids and that bite into ordinary floors when food is spilled.

hrome is a *cinch* to clean. Just ts smooth surface to remove rt. Wash periodically, water- asionally.

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And yet how sparklingly alive they remain for entertaining . . . for parties. Their gay, smooth surfaces make even old-timers eager to trip the light fantastic again.

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Get all the details about this *light, bright* flooring material from your Tile-Tex* Contractor. You'll find his name listed in the classified pages of your phone book . . . Vitachrome is one of *several* very attractive and serviceable *extra* floor coverings that are made by Tile-Tex.

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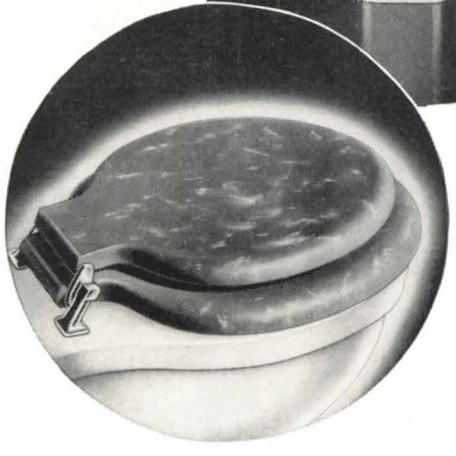
THE BEST SEAT IN THE HOUSE®

Church Gothic Tile, with distinctive contour face, shown in a Provincial style bath



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For over thirty years Church Seats have offered architects a quality product with a national reputation, instantly recognized and accepted as . . . "The Best Seat in the House".

Now Church Plastic Wall Tile, made to the same high standards, backed by the same integrity, meets the architect's demand for a wall covering that is economical, easy to apply, permanently beautiful — and at home anywhere.

Light in weight (less than half a pound per square foot) Church Tile requires no expensive supporting construction, can be applied to any clean, smooth surface; is crack-, chip-, warp- and fade-proof, and immune to moisture, grease and common acids and alkalis.

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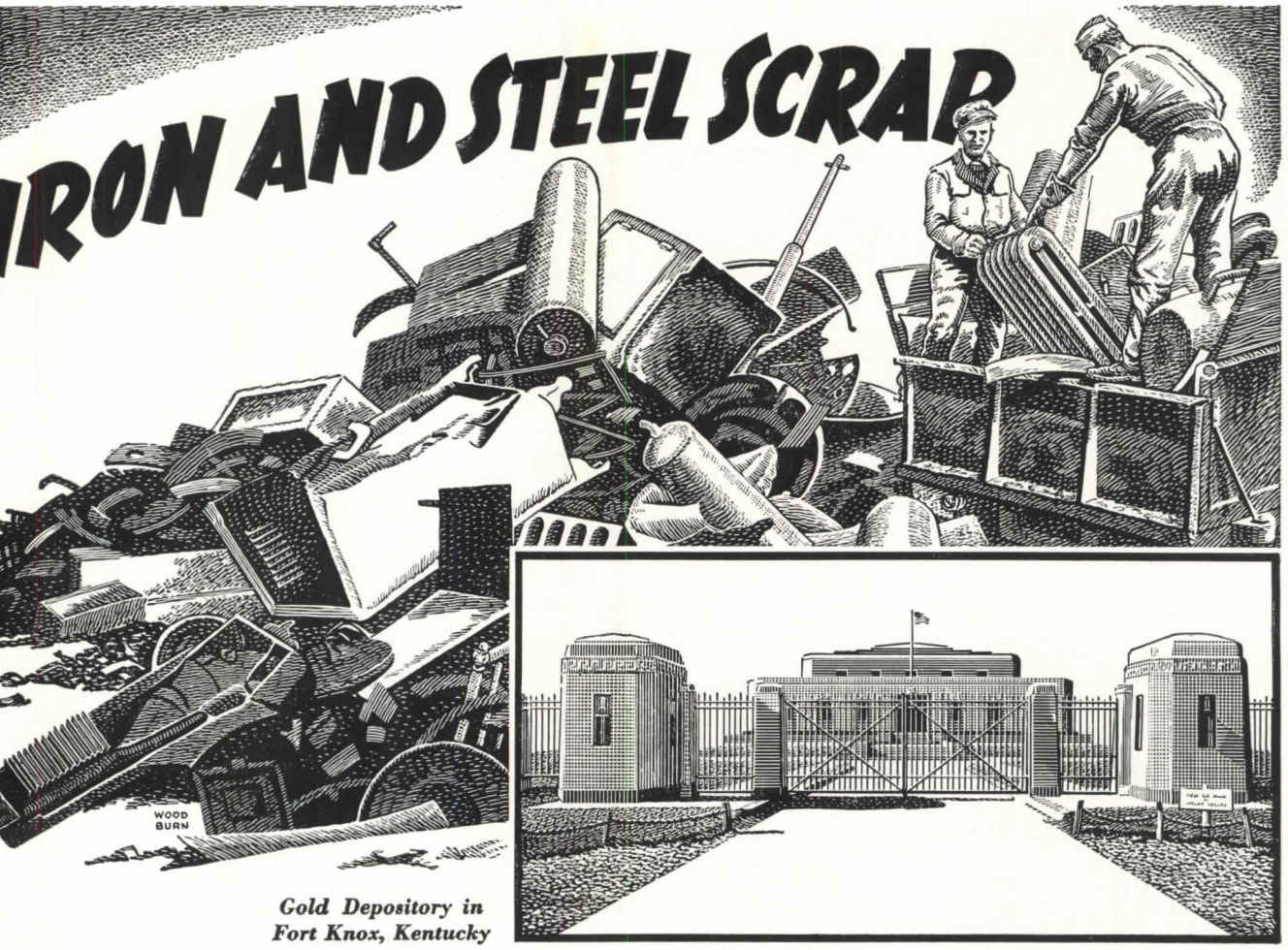

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The most important metal today is not e tons of gold buried at Ft. Knox!

Far more important are the millions of tons of on and steel scrap so desperately needed to ake new steel. All scrap, actual and potential, eds to be gathered up and channeled to the eel producing plants-NOW, today, tomorrow d tomorrow. So long as the steel industry is lled upon to produce two million and more ns of ingot steel per week, it must have one million and more tons of scrap each week.

Steel producers are getting the iron ore, limestone and coal they need. But the scrap situation is critical and will continue to be so until inventories are built up substantially.

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YOUR SCRAP IS NEEDED — YOUNGSTOWN

The Youngstown Sheet and Tube Company

General Offices -- Youngstown 1, Ohio
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MANUFACTURERS OF CARBON ALLOY AND YOLOY STEELS

The steel industry is using all its resources to produce more steel, but it needs your help and needs it now. Turn in your scrap, through your regular sources, at the earliest possible moment.

it's the law

(Continued from page 164)

classic entrance porticoes and varying treatment of the fenestration together with low connecting colonnades and arcades will create an intimate college campus effect, suitable to a highly restricted residential neighborhood."

The project was to contain complete facilities for research and development in lighting, communication and electronics, as well as general administration and sales offices for the concern. Manufacturing was strictly limited and the ultimate number of employees upon completion of the project was not to exceed 2000. The City Planning Commission, after considering the merits of this application by Sylvania, by resolution dated September 2 approved the contemplated project.

●

It will be noted that the original re made no provision for the erection of a of manufacturing plant. In 1950 this wa died by the insertion of the words "ar Industrial Plants" into Art. 2, Sec. 3(10 dealt with the types of projects which be erected. In November of 1950, un then amended resolution, *The Bulova Company, Inc.*, filed an application erection of a light industrial plant in dential area.

The *Bulova* project, in Jackson Queens, was prepared with the prob esthetics kept foremost in mind. The cation provided for the erection of a story building on a site area of approx 24 acres, a plot coverage of 15%. Si were reserved for landscaped park ar public use. The floor area of the build to be 390,000 square feet. There we provisions for a parking area to accon not less than 500 cars. The entire a cluding the plant building, interior ro and walks, park areas and automobile

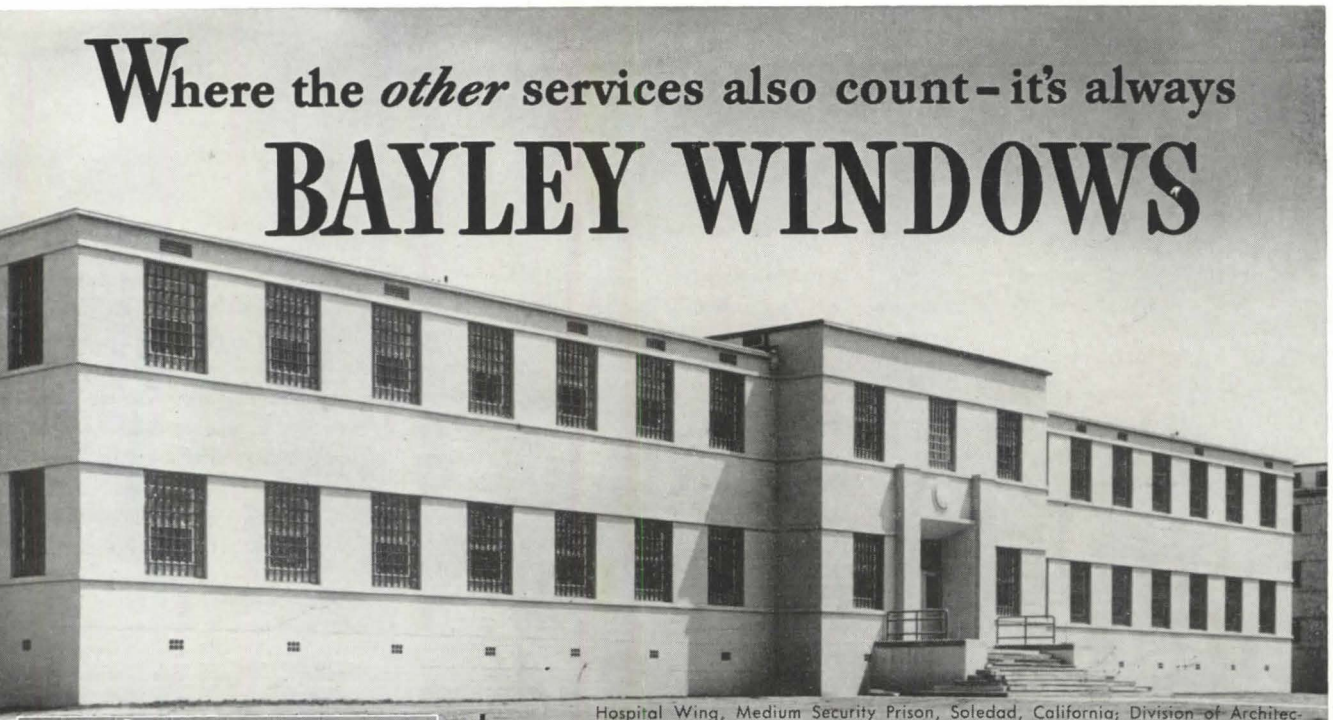
(Continued on pa

effect, except that in case a protest a proposed resolution shall have the been presented, duly signed and a edged by the owners of 20 percent of the area of the land immediately a extending 100 feet from said plot, or owners of 20 percent or more of the land directly opposite thereto extend feet from the street frontage of such land, such resolution shall not be unless approved by the Board of E by unanimous vote of the entire Boar

"(c) All buildings and structures ized and established under the pr of this subsection (10) shall conform applicable laws and regulations rela construction, operation and maintena

"(d) No modification, variance or in the general location, layout and ch of the project as shown on the plan proved shall be permitted except w proved in accordance with the pr set forth in subdivision (b) of th section (10), provided that upon a ment of a particular project authorize this subsection (10) the land and th tures thereon may be used witho approval for any other lawful purp missible within the district or dis which the project is located."

Where the *other* services also count – it's always BAYLEY WINDOWS



Hospital Wing, Medium Security Prison, Soledad, California; Division of Architecture, State of Calif., Archts.; M & K Corporation, San Francisco, Calif., Builders.

Highlights of this New Exclusive BAYLEY Product

● Safeguards against escape ● Better daylighting ● Controlled ventilation ● Large areas of clear vision ● Minimizes self injury ● Working parts concealed ● Clear glass ● GLAZ-WEDG secures glass ● *Sanitary*—screens removable, easy to clean ● Glass washed from inside ● Noncorrosive metals throughout ● Reduces maintenance and interference with hospital routine

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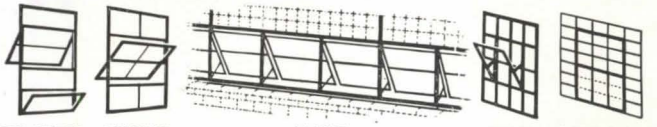
New Bayley SAF-T-GARD Window
Scientifically Developed for Mental Hospitals

To be known for a fine quality product is only the *first* essential. Much more is required from a truly satisfactory relationship. Full understanding of this fact is the foundation of Bayley's policy—and why Bayley has been so widely preferred for so many years by discriminating Building Designers.

Bayley's endeavor to better serve through all the building stages—from recognition of need to building occupancy—is further exemplified in the new Bayley Saf-T-Gard Window. This window is the result of Bayley's close collaboration with Doctors and officials of mental institutions. Not only does it efficiently meet the demands of modern mental hospitals but it also incorporates construction features made possible by Bayley's years of specialized window experience.

Regardless of window requirements, you too will find extra values *in discussing your needs with Bayley. Write or phone.*

See Bayley in Sweet's. Complete catalogs on Aluminum Windows, 17a/BA; Steel Windows, 17b/BAL; SAF-T-GARD Hospital Detention Window, 17b/BAY.



PROJECTED PIVOTED AirVUE GUARD SAF-T-GARD

THE WILLIAM BAYLEY COMPANY

Springfield, Ohio

District Sales Offices:

Springfield, Ohio Chicago 2 New York 17 Washington 16

it's the law

(Continued from page 168)

area was to be landscaped, developed and maintained, "in such a way as to create a suitable and attractive appearance." The application further stated that the three-story building would be used as central headquarters and plant for Bulova Watch Company. More specifically the activities would include administration and sales officers, advertising, personnel administration, product research and development, general engineering, quality control and metallurgic development, production of watch parts, assembly of watch movements, shipping, and the production of tools and dies for watch parts manufacturing. This light manufacturing would be permitted under amended resolution. It was also estimate the number of employees to be accommo on this project would not exceed 2000. were also provisions for the building new streets, the widening of existing and the deeding of these to the city.

The City Planning Commission, in its lution approving the Bulova applicatio December 27, 1950, stated:

"The Commission was impressed by the munity Campus plan, *but* the effectuat any such plan is not practical at this tim cause of the numerous interests and ag involved. It is obvious that the propose would require expenditures far in exc sums now available for such purposes. ever, development of the Bulova project not preclude the subsequent use of othe in the vicinity for public purposes. It appear that the Bulova project could tegrated with a larger community plan adversely affecting the over-all objectives latter. The Commission is hopeful that, as practical, schools, parks and other facilities in this area may be provided formity with such an integrated plan."

●

The results of these two projects alone listed as follows:

1. New York City gathered increased re by their real estate tax on the greater a valuation of these two large projects, posed to lower assessed residences.
2. Employment was provided for resid neighboring communities close to their
3. The City was given a large area fo parks—the *Bulova* site provides playg swimming pool, comfort station, b basketball and football fields available public.

(To be continued)

VIEWS

(Continued from page 20)

examinations, appreciate the fact that shortcomings were thereby made app them. Architectural teachers listen to tales of their students and are sure examinations are at fault, rather th own teaching. Practicing architects, havi

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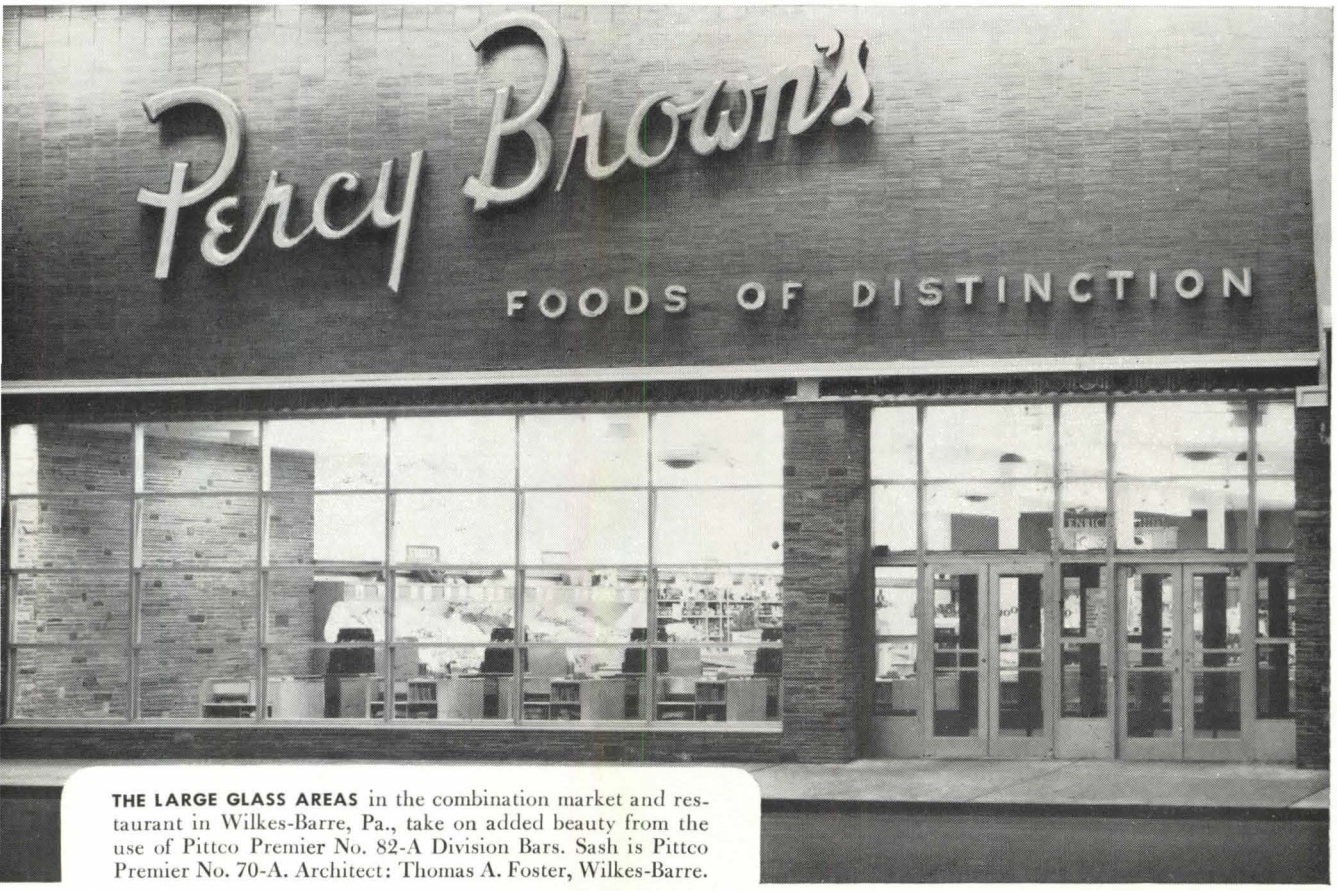
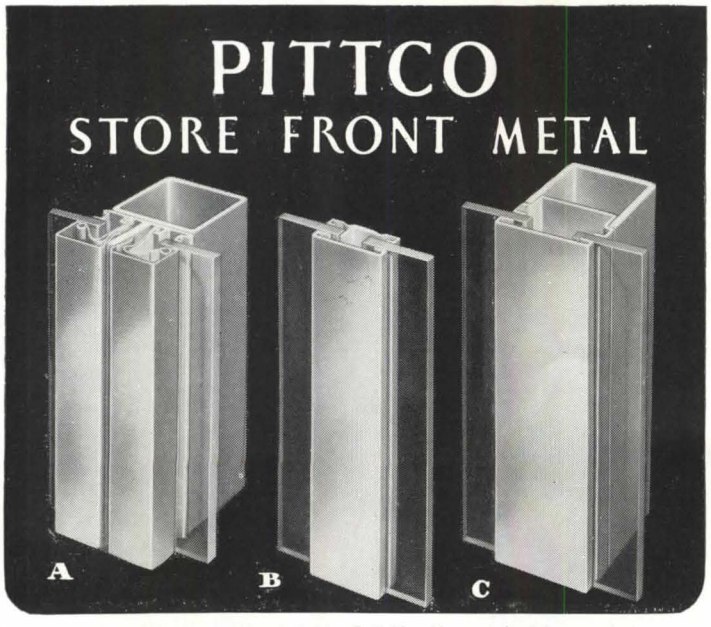


THE LARGE GLASS AREAS in the combination market and restaurant in Wilkes-Barre, Pa., take on added beauty from the use of Pittco Premier No. 82-A Division Bars. Sash is Pittco Premier No. 70-A. Architect: Thomas A. Foster, Wilkes-Barre.

Distinctive design in divided glass areas



(A) Pittco Division Bar No. 82-A (also available without steel reinforcing tube). (B) Pittco Muntin Bar No. 32. (C) Pittco Division Bar No. 28.

● From both the Premier and De Luxe lines of Pittco Store Front Metal, you can select Division Bars that blend perfectly with other Pittco members. The result is distinctive, symmetrical design in store fronts with divided glass areas.

Pittco Division Bars offer you plain, angular lines with minimum dimensions. They have adequate strength to satisfy structural requirements of this type of design. They facilitate easy setting and easy glass replacement.

You'll find the complete line of Pittco Store Front Metal gives you the widest latitude in modern design. See your Pittco representative for complete information.

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PITTSBURGH PLATE GLASS COMPANY

VIEWS

(Continued from page 170)

registered, often give little thought t problem until they need registration in a state. What is needed is continuous c on the part of every architect to the en registration procedures will be improved registration laws will be strengthened an weakened, and that such laws be enforc

An encouraging sign has been the inc number of architects who are not memb registration boards, who have attended ings of the N.C.A.R.B. Possibly a semin registration should have a place on the convention program.

In general, I agree heartily with To Among the flaws in the new Georgia la (1) requiring only one member of an ar tural firm to qualify, (2) providing for th ceptance of "a diploma . . . from an ar tural . . . school . . . in lieu of the examina and (3) no specific provision for enforceme

C. H. COWGILL,
Department of Archit
Virginia Polytechnic In

exceedingly timely

Dear Editor: I have read the article very fully and feel that it is exceedingly time stature of the profession would be mat raised if registration laws were u throughout the country.

IRVING G. SMITH, D
Northwest District,
Portland,

the intelligent way

Dear Editor: Only a short time ago arc seemed to focus indifference, individu independence and pure cussedness on suggestion at group effort for group a tage, but lately I am greatly encourag I watch various architectural groups at and note the fruits of their labor.

They stood off bureaucracy in Marylan year, in Virginia this year. They are ab win a national battle on fees with the services, long-drawn though the engag has been. They even begin to impin PHA with NAHO to appreciate us. Small are stirring of some research matters ning to take form. All these items a unsurpassed public relations value. As tects learn to respect and guard *their*

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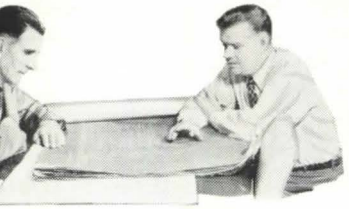
GH QUALITY SCHOOLS

for 65 to 75% of prevailing area costs...



Gregson & Ellis schools do not skimp to achieve low cost. They ave the de luxe features—finest lighting, ventila- on, P. A. system and such equipment—that ear- ark today's best schools. The economy derives om the architects' ingenuity in organizing the job; using materials functionally without disguise, d from their intelligent approach to design and dget problems. The other source of Gregson Ellis' low cost is the economy inherent in obertson materials. Contractor for this job was e Central Construction Co., of Atlanta, Georgia.

ete figures,
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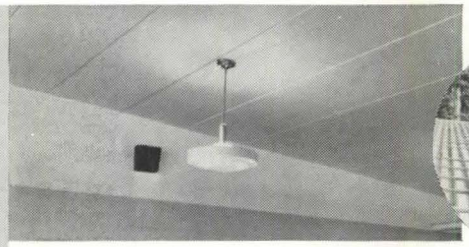

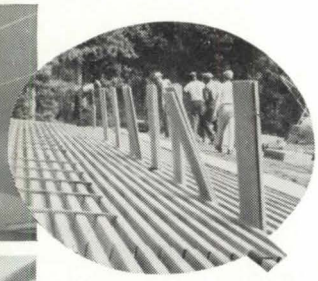

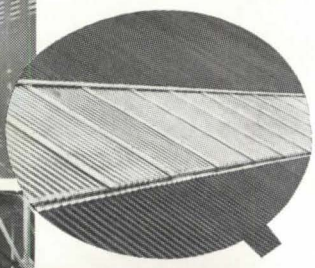

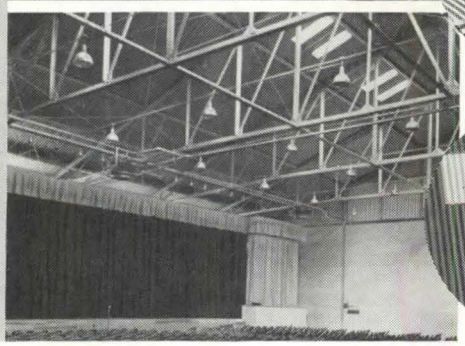

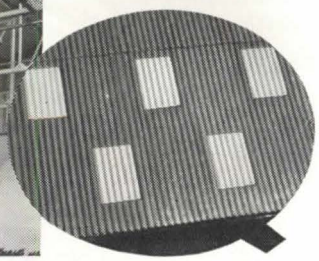

ROBERTSON STEEL ROOF DECK
forms a flat, attractive ceiling requiring only a paint finish. By sloping, the ceiling has good acoustical qualities. On the Roof Deck is 2″ of insulation and a twenty-year bonded built-up roofing. The insert shows one detail of efficient job organization—workmen placing insulation and waterproofing on roof. The long-span deck is welded to steel members imbedded in the masonry walls.

ROBERTSON CORRUGATED WIRE GLASS SKYLIGHTS,
used to daylight corridors, are a feature of all Gregson & Ellis schools. This scene is in the Jim Cherry School, Brookhaven, Ga., pictured above. This school with 16 classrooms, auditorium-dining hall, kitchen, offices, auxiliary rooms, public address system and other modern equipment was completed for $6.25 per sq. ft.

16 ROBERTSON SHEETLITES,
set in a GALBESTOS roof, light this clean-cut auditorium. The structure is made entirely from noncombustible materials. This school at Manchester, Ga., has 27 classrooms, 3 offices, storage, toilet rooms and the 116′ x 111′ gymnasium-auditorium. It was built for $4.60 per sq. ft. The $217,000 total was $3,000 less than the budget.

H. H. ROBERTSON COMPANY

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World-Wide Building Service

VIEWS

(Continued from page 172)

professional values they will gain, and deserve, more public appreciation. May lessons hard learned stay with us.

Bernard Tomson strikes at the heart of our professional troubles in seeking to develop, common to all states, the public values inherent in adequate registration laws. I hope his article stirs a real urgency among architects everywhere to demand a united front through national A.I.A. guidance, and to work unceasingly to bring this about. Its accomplishment would be the finest public relations gesture the profession could ever hop make. It is the intelligent way to a p appreciation of the architect's comm contribution.

More power to Bernard Tomson and his for adequate registration laws common t states.

C. E. SILLING, Di
Middle Atlantic District,
Charleston, W

more than a law

Dear Editor: It is certainly time to attem get some reasonable uniformity in regist legislation. However, more than a "st law is needed. The whole examination cedure in states with strong laws a required "internship" period needs re- ination.

Among the questions that should be are:

1. The reasonableness of the requir of three years of experience in New Yor some other states before any part o examination may be attempted. The e ence period is completely without contr any professional or public agency.

2. The justification for examining in subjects as the history of architecture. N has yet convinced me that a knowledge o designed what building in 16th Century has any reasonable relationship to the p tion of the public health, safety, mora general welfare in 20th Century America

3. The examination in design, as giv some states, lends itself to subjective e tion on the part of the examining board end result can be that the design jud criteria have little to do with the prot of persons and property.

THOMAS W. MACKESEY,
College of Archit
Cornell Uni

agrees wholeheartedly

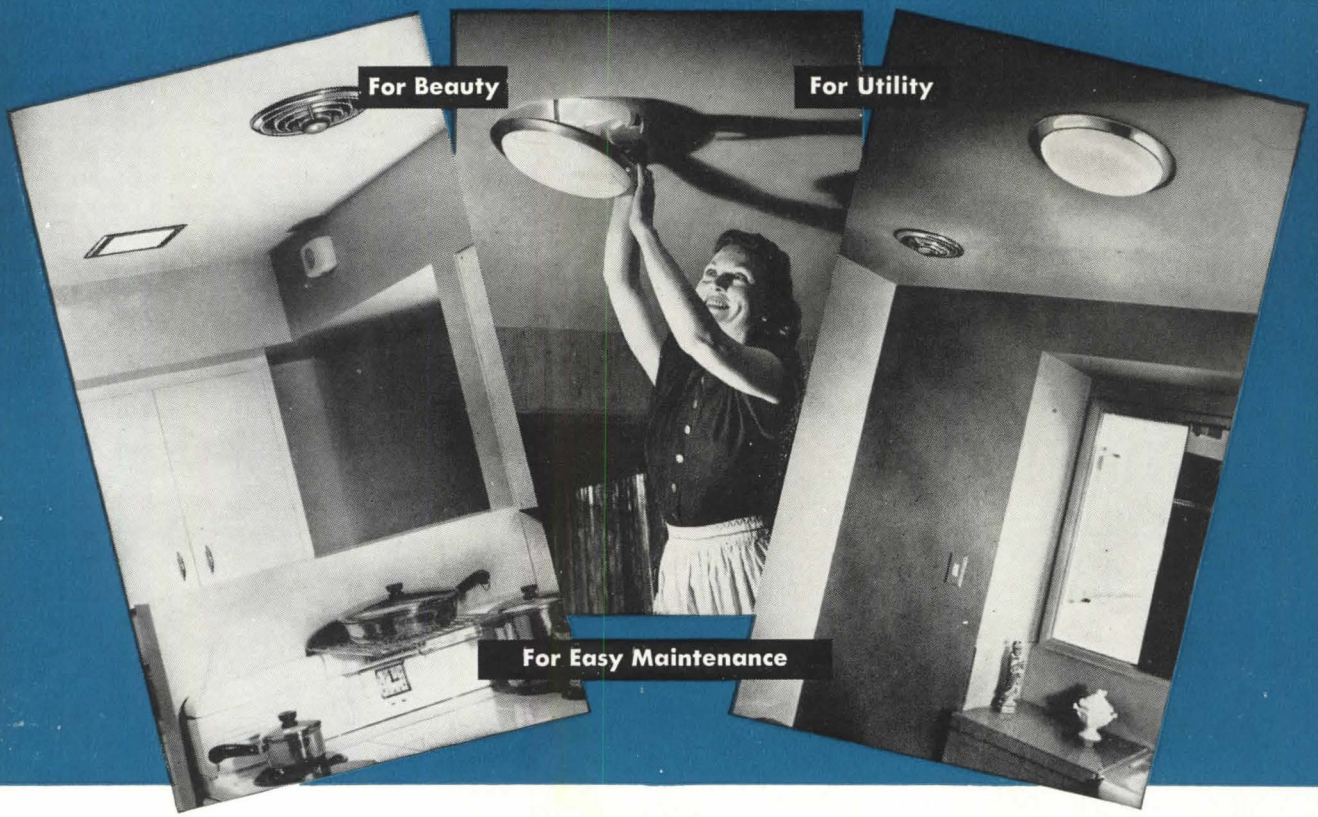
Dear Editor: My comments relative to Tomson has to say are: I agree wholehe with his premise that some uniform lic law should be advocated for the entire You are probably aware that the Ins Special Committee for Surveying Archit Education and Registration, has one section of their report devoted to regis

(Continued on pag

3 Reasons why...

Architects Specify
Builders Certify
Electricians Recommend

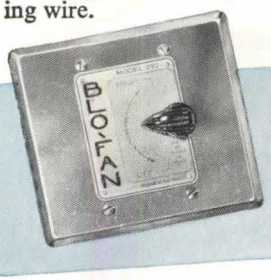
Blo-Fan and Pry-Lites



No kitchen is complete or modern without a Blo-Fan electric exhaust ventilator. Its patented blade combines the volume of a breeze fan with the power of a blower. Its attractive grille is removable *without tools* and the motor assembly merely lifts out for easy cleaning. A Pry-Lite modern recessed lighting fixture completes the picture.

Easy to clean or relamp, Pry-Lites have snap-on fronts. No screws, no hinges, no nuts—and no tools needed. Pry-Lites (1000 series) have a built-in pull box, adjustable mounting straps that eliminate framing-in time, a plaster flange which fits any finish, and they are U.L. approved for any standard building wire.

In the bath . . . Pry-Lites and Blo-Fan go together—Pry-Lite recessed lights give perfect illumination without glare—and elimination of offensive odors and steam-streaked walls is assured with a Blo-Fan exhaust ventilator.



9 SPEED SWITCH

This exclusive Blo-Fan feature makes it as easy to regulate the rate of ventilation as it is to control the speed of a car. Standard equipment on De Luxe Model 210 Blo-Fan only.

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America's Most Imitated Home Ventilator

Pry-Lites
The Original Recessed Lights with Snap-on Fronts

*Trade Mark Reg.

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VIEWS

(Continued from page 174)

Having attended but one of the many sessions of this commission, I am, however, aware that the members recognize the worth of a uniform licensing law; but also realize that states' rights and many local conditions, together with local interests are working against such over-all simplification.

I am also very familiar with many cases and problems that come before the Board of Directors of the Institute relative to our inadequate licensing laws. The fact that all 48 states now have laws means a step in the right direction, but a step which will have to be supplemented over the years to get the proper teeth incorporated, as was only recently done in the sta of Georgia. Even when such a good act put into force, there are always groups individuals making an effort to weaken purpose, as is the case in Tennessee at t moment.

To be very practical about the whole matt I feel that all groups with the interest of t profession at heart, including our Board Directors, should keep up a constant pressu within the states and nationally to consumma some sort of a uniform registration law. Th will take time but it is none too soon initiate a pressure of this type.

The futility of working with local legislati groups, who usually are satisfying local int ests and pressures, has been the chief stu bling block in the past, but by the prop public relations, with emphasis placed on t safety, health and welfare of the public, mo than on the resulting interests of the arc tectural profession, would ultimately bri about such a progressive and all-inclusi registration law.

I have heard Bernard Tomson speak befo Institute groups and I compliment you both the excellent job he does.

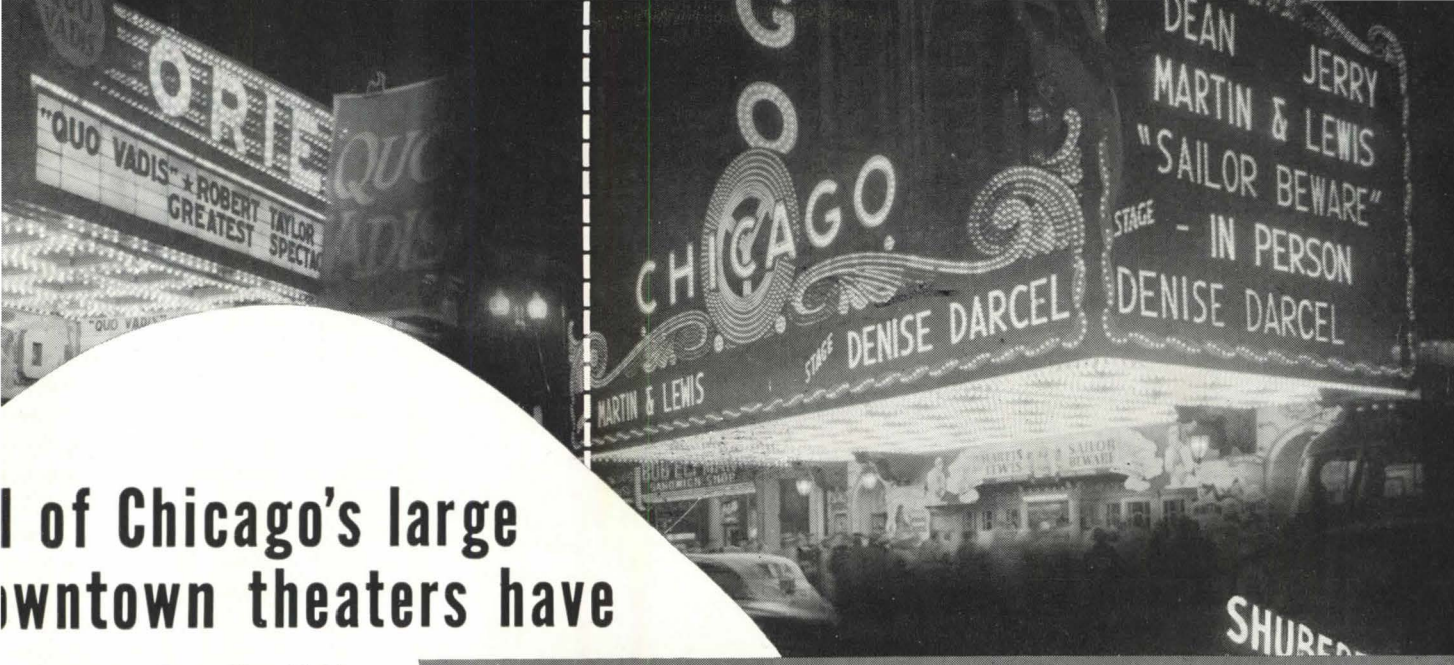
KENNETH E. WISCHMEY
First Vice President, A.I
St. Louis, M

national pattern wanted

Dear Editor: I am wondering if you a Tomson are aware of the activities of t National Council of Architectural Registrati Boards. This organization now has under stu the unification of state registration laws. Th meet each year during the A.I.A. Conventi and will meet this year in New York, Sund and Monday prior to the Convention. I und stand the committee is working and will prob bly report on their activities along the line Tomson's suggestions.

There is no question but what there is need for some unification. I find in my vis to various chapters in my region that it is o of the topics most discussed with emphasis a hope that some national standard could set up for use in securing local legislati which would be strengthened by a natio pattern. I also find that there is a hesita on the part of state groups to ask their spective legislatures to make drastic chan

(Continued on page 1



l of Chicago's large
)wntown theaters have
IXSON concealed door closers
control these heavily used doors.

nly embedded . . . CONCEALED in the RIGID FLOOR . . .

SON Closers are controlling the closing action of

these theater doors (some for over 30 years).

modern appearance, convenience,

ety and long trouble-free service . .

ECIFY precision-made RIXSON.

THE OSCAR C. RIXSON COMPANY

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VIEWS

(Continued from page 176)

in their registration laws because of the fear that they may end with legislative opposition that might result in damage to their existing registration laws. This feeling has been a most deterrent factor in overcoming the inadequacies of existing state registration acts. Therefore, they feel that some national pattern would be of great benefit in selling the respective state lawmakers.

HOWARD EICHENBAUM, Director
Gulf States District, A.I.A.
Little Rock, Ark.

appeasement chant

Dear Editor: My office has just delivered c
plete Contract Documents to the Public Hou
Administration for three Housing Projects
Fresno County, and, being an interested witr
to all the strenuous effort of satisfying
well known host of requirements, my v
has recapitulated in rhyme her impression
the operation, which is enclosed.

I thought it might strike a responsive ch
in some of the readers of your good magaz

JOHN P. MIL
Archi
Fresno, C

public housing

So much confusion in the air
Little men run now here now there
Catching plurals, commas, quotes,
  Thrashing windmills, nanny goats.
When at last the dust will settle,
Tempers calmed and eyes half shut 'til
Slowly they become aware
Of something growing over there . . .
A spreading out—a pushing higher
And here and there a rubbish fire,
By light of which one just makes out
The flow of living space throughout
Soon to be filled with living things,
Flowers, trees, a bird that sings.
People too will soon rush in
With crates and boxes, children,—gin,
Leaving dirt and dark behind
For fresh paint, sun, venetian blind.

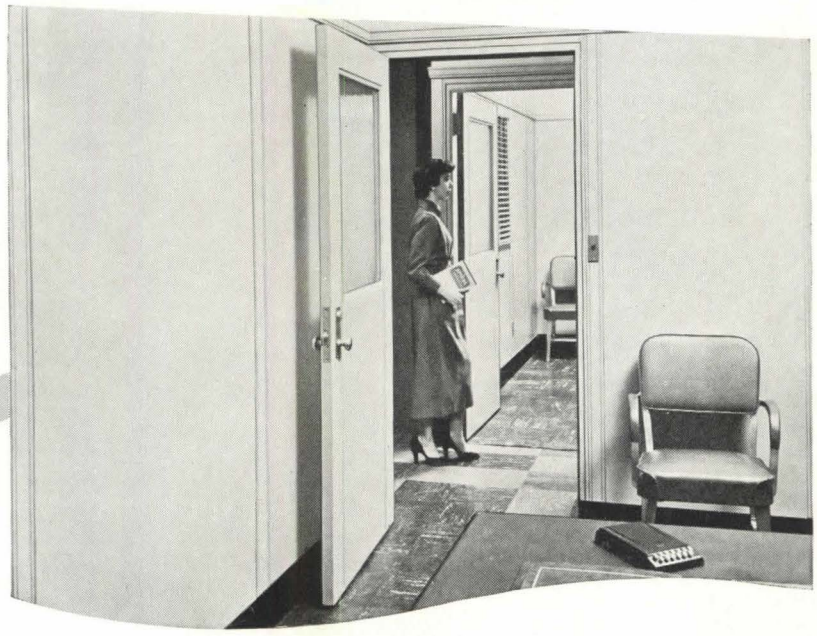
For this, dear sirs, is what evolves
From taxes, red tape, dedication
Of Housing Projects across the nation.

L.

the guest speaks

Dear Editor: Having designed a half do
resort hotels in the last three years, I r
with avid interest the section devoted
INTERIOR DESIGN DATA which concerns it
with resort hotel rooms (April 1952 P/A). Si
I spent some time in the Caribe Hilton
hotels similar to El Panama, I was most
terested in seeing what was said about b
of these hotels. Never having learned
gentle art of polite criticism, I am afraid
what I have to say will seem like rather b
bold statements. I intend no criticism of
architects and their views, but I do feel
something should be said about this sub
lest other architects absorb everything in
section as gospel truth. Paraphrasing the s
wrenching outcry of Hamlet, I cannot help

(Continued on page



This office was planned for livability-not limitation

● Future expansion plans of this small but progressive company call for these executive offices to be a part of the production floor. And when that time arrives—next year or five years from now—these offices *including the walls* will be moved and re-erected in a new location without muss, fuss or even one day of lost time.

With modern Hauserman *Movable* Interiors, thousands of American businesses—commercial, industrial and institutional—are experiencing this same freedom from limitation . . . *permanent livability* despite changing floor space requirements.

Although present demand for Hauserman *Movable* Interiors is the greatest in our almost 40-year history, recent expansion of production facilities makes it possible to meet delivery schedules with earlier *on-time* erection by Hauserman's own nation-wide service organization.

Now, before you remodel or expand, is the time to plan for the many space-saving, time-saving, money-saving advantages of Hauserman *Movable* Interiors. Your nearby Hauserman Representative will gladly furnish you with complete information . . . or write today to The E. F. Hauserman Company, 7218 Grant Avenue, Cleveland 5, Ohio.

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Korweld* —the non-metallic panel construction which combines the best features of *all* types of interior partitions—is an *exclusive* Hauserman development. Ask your Hauserman Representative for facts about this revolutionary new product.

*Trademark

VIEWS

(Continued from page 178)

say of your report on "Resort Hotel Rooms "something is rotten in Denmark."

It is amazing to me to find in this issue of P/A, an article by Mitzi Solomon which she holds forth for such things a "the fantastic—the need for the personali thumbprint—the enigmatic symbol—and delicious joke of the frankly fake." In sh this is a clarion call to bring back some those things which appeal to the eye, heart and the soul rather than to the col esthetic mind. On the other hand, I f Suzanne Sekey saying quite the opposite her text on the Caribe Hilton, citing ". . . ticulous considerations of easy housekeep and durability. Tables and cabinets have pla tops to be impervious to burns and stai Furniture supports are high off the floor clear mops and brooms."

I do not see this as an argument betwe the sensitive classicist and the intellect modernist. What I have to say is not the of the classicist, the yearning for the go old days. Although trained in the traditio school, my very first commission was execu in a groping, stumbling contemporary man over 25 years ago. In all these years, I h never taken a commission in which the cli insisted on the period styling. I can look b to publications in the architectural magazi of my work in the modern manner as l ago as 1928. Whatever may be said ab my work, one thing cannot be gainsai that I have attempted in my own particu way to work in the contemporary idiom. But all my work, I have always felt that I designing for the average person and not the steely-eyed, icy-minded intellectual. shops and hotels are meant to appeal to serve the average American. I have tempted to introduce color and interest excitement which appeals to the eye and heart. Whether I succeeded or not is anot matter. I must cry out against accepting hotel rooms as designed by Messrs. Warr Leeds and Stone as those which have gai popular acceptance.

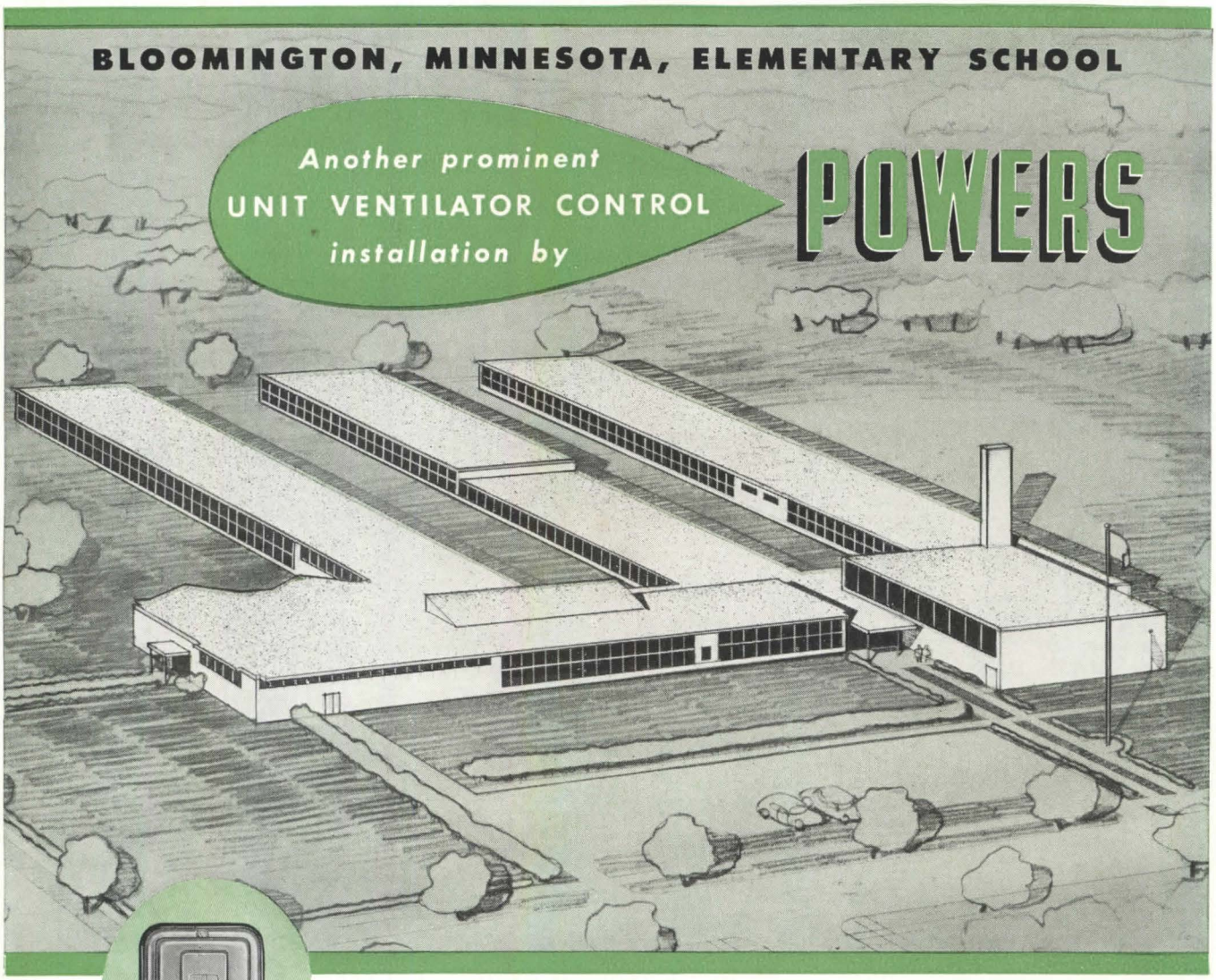
Without intending any offense, I should to enumerate some of the things I have fo which I think need to be spoken of. meticulously designed rooms so easy on brus on mops, are not easy on people. During stay at the Caribe Hilton, my wife, who happ to have a touch of claustrophobia, woke one night in a state of extreme nervous up

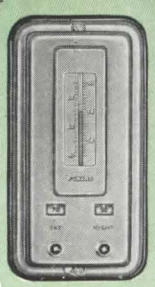
(Continued on page

BLOOMINGTON, MINNESOTA, ELEMENTARY SCHOOL

Another prominent
UNIT VENTILATOR CONTROL
installation by

POWERS





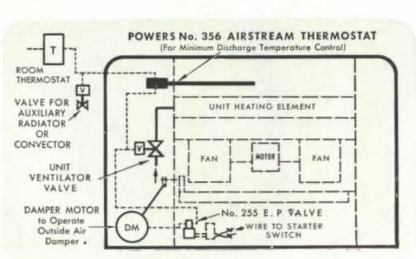
Architect: Eugene D. Corwin ● **Consulting Engineers:** Gausman & Moore
Heating Contractor: E. R. Johnson Plbg. & Heating Co. (all of St. Paul, Minn.)

Comfortable Classrooms under severe weather conditions are assured in Bloomington's modern school. No expense has been spared in giving children and teachers the best of heating and ventilating equipment for classrooms and gymnasium.

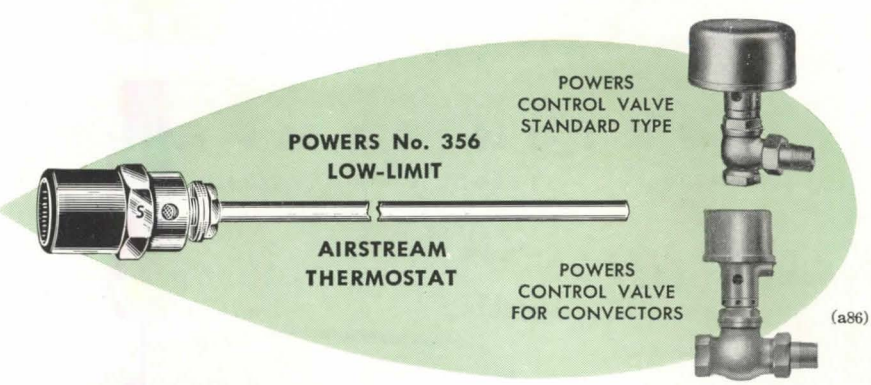
Greater Simplicity and dependable operation of Powers controls for Unit Ventilators in classrooms appeal especially to operating personnel.

Because of its superior design a Powers Low Limit Thermostat requires no auxiliary devices to supplement its accurate control of unit ventilator discharge temperature. Once set for the proper temperature it requires no readjustment —there are no fine restrictions to be serviced. Contact our nearest office for further information about its superior features. There's no obligation.

75 Powers Day-Night Thermostats here control *117 Diaphragm* Valves in Unit Ventilators and Convectors.



Unit Ventilator Control by Powers



(a86)

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VIEWS

(Continued from page 180)

She felt that the room and the furnish
were closing in on her. To avert hysteria,
went out on the terrace while I reasoned
her to see why this sense of claustophobia
taken such complete control of her. She c
not explain in particular, except that she
she could not spend another night in
room. (The truth of the matter is that
checked out the next day.) After a
phenobarbitols, she finally dozed off, b
could sleep no more that night. Lying t
in that efficient room, I too, began to g
vague sense of unrest. It was not claustropho
It was a feeling that here I was on a vaca
in the tropics and my reaction was that I
being locked up in a hospital or a pri
Farfetched, you will say. Not lying o
sofa bed with a vista of efficient metal
supporting functional modern furniture. H
were no soft lines—nothing that human emo
could find pleasure in. A sleepy mind in
environment like this immediately forms ass
ations and if you will look carefully at
photographs of these rooms, as I have loo
at the room itself, you may also underst
the feeling that it is efficiency and me
lousness such as this, that the average pe
would associate with hospitals and public
stitutions. A lone reaction, you say. Oh,
After this disquieting experience at the Ca
Hilton, I made it my business to interro
people who had stayed there and 75%
the reaction was the same as mine. The ro
gave people a vague feeling of unrest
dissatisfaction and I know of one case wh
a couple checked out four o'clock in
morning because the woman refused to
in the room any longer.

The sofa-bed or daybed arrangement
spoken of as "the coming thing" in hot
I have attempted to introduce this type
furniture arrangement in the resort hotel
have done in Florida. And, in each case, n
of these rooms have been furnished beca
the average guest prefers a bedroom arran
ment. I have tried arguing with my clie
but one cannot argue against good busin
In Florida, at any rate, a living-bedroom
rangement is a drug on the market. If I
indulge in personal tastes, I am getting t
of checking into a hotel that has this arra
ment and deciding with my wife whether
would sleep head to head, feet to feet, h
to feet, or what have you. I am old-fashio

(Continued on page

Designed for appearance, performance and a lifetime of trouble-free operation.

he beautiful, modern
rayton Arms Apartments,
avannah, Georgia
rchitects: Cletus W. and
. P. Bergen, A.I.A.,
avannah, Georgia

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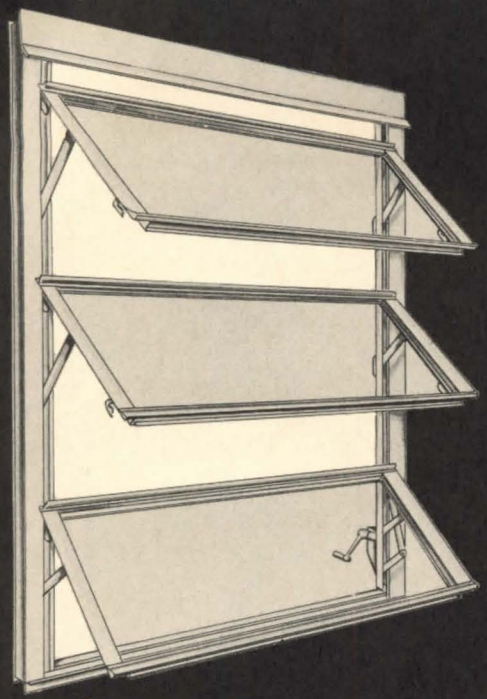
PATENTED

Aluminum
WINDOWS

BINE THE BEST FEATURES OF ALL WINDOW TYPES

Tightest closing window ever made!



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WINDOWS

SPECIFIED FOR THE *BIG* JOBS BY LEADING ARCHITECTS...

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LOW FIRST COST... LOWER MAINTENANCE

Their first cost compares favorably with competing products offering *fewer* advantages. They are time-proven...*you can't buy a better window at any price!* AUTO-LOK's simplified operation eliminates wearing parts...*no periodic adjustments are ever necessary*...gives you a window guaranteed to keep maintenance costs at a minimum.

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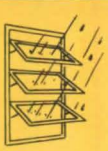
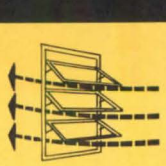


FRESH AIR WHILE IT'S RAINING...no more running to close windows. Rain can't enter through slanting sash!

WARMER IN WINTER ...because it seals itself like a refrigerator... keeps heat in, cold out!



COOLER IN SUMMER ...because it opens widest...scoops air in and up...luxurious ventilation, but no drafts!

LUDMAN LEADS THE WORLD IN WINDOW ENGINEERING

PERFORMANCE FACT

of aluminum awning-type windows

Every day, more and more architects tractors are turning toward aluminum type windows. These newer, more windows are being specified for all construction, including factories, co buildings, apartments, hotels, schools, and homes. Over a period of years, the a awning-type window has been sub rigid and exhaustive tests to determine formance characteristics and operating under every known weather condition. search has been carried on by the leadi facturers in cooperation with leading a

the "open" window

One important advantage in fav aluminum awning-type window is tha remain "open" to provide ventilation air circulation even when it is raining. sash is the answer. One aluminum aw window, the Ludman Auto-Lok, go farther in this respect. The bottom sa Auto-Lok window is designed to remai open, while the upper sash are closed automatically locked. This feature a night ventilation and limited ventilati inclement weather.

better ventilation...easier to clean

Because of their outward projection, in aluminum awning windows provide possibility of attaining 100% ventilati not all awning windows can be o nearly 90 degrees (almost straight degree of their opening can be pred by checking the manufacturer's spec In their wide-open position awning-t dows can be cleaned from the inside. important maintenance factor cannot estimated. However, the basic desig window must be checked. For, on these types, where vents are pivoted a point, the top vent cannot be cleaned inside. The Ludman Auto-Lok windo cleaned completely . . . all from the i sash, too. This feature is accompli Ludman's uniquely designed operating in which the hinge points of the top down with the mechanism when th is opened to provide a convenient 6' between the top sash and the windo

air infiltration

Paradoxically, the use of aluminun windows has for many years been because of their generally unsatisfa formance on the score of tight closure nation of air infiltration. Yet, today, t closing window ever made is an a

w. This unit is Auto-Lok, developed by
an Corporation after many years of research.
ght closing performance is made possible
patented hardware, a self-locking device
automatically seals the window tight when
Auto-Lok hardware provides a closure
mes tighter than the popular established
rds for casement windows and projected
Pittsburgh Testing Laboratory tests reveal
ir infiltration through a standard, assembly
uto-Lok window amounts to only 0.095
feet per minute . . . a degree of weather-
ess heretofore thought impossible in any
v. Though the Auto-Lok locking action is
ive with Ludman, other manufacturers are
ing to use a vinyl plastic weatherstripping
al similar to that which Ludman uses to
erstrip the Auto-Lok unit.

nple operation

one-hand" operation of aluminum awning-
indows is another feature that is very well
ed . . . and, in many instances, one of the
ant deciding factors in the selection of
windows. For example, this feature is im-
t to hospitals, where busy nurses with a
one hand can still open or close the win-
vith their free hand . . . saving time and
.

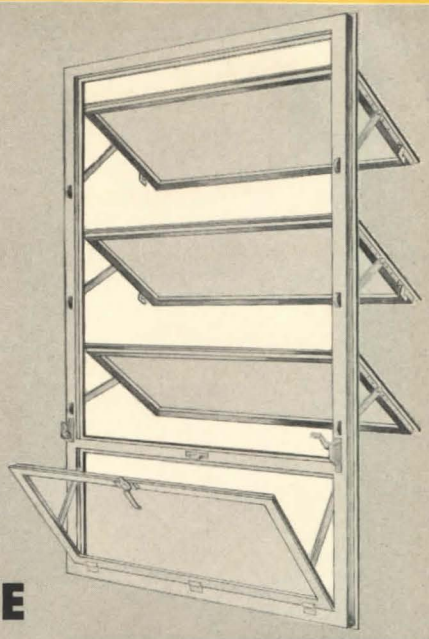
individual manufacturer utilizes a dis-
type of operator to actuate the window
ing hardware. Usually they have large
oxes to generate the great amount of
required to actuate the torque bar window
nism. Because of their size they extend
he face of the window sill into the room.
have removable cranks and extension
A study of the operating hardware of all
um awning-type windows reveals the fact
udman, maker of the Auto-Lok Window,
e most efficient mechanism from the stand-
f easy operation and trouble-free service.
utomatic, self-locking principle of the
ed Auto-Lok operating device eliminates
strain required to force the hinges in
to pull individual sash in tight against
me. In fact, the Auto-Lok mechanism is
fectly balanced and requires so little
e that a child can operate the windows.

ideal window for any installation...
ny climate

uminum awning-type window is practical
very standpoint. Installations all over the
in all climatic extremes, have proven their
ability. Their attractive horizontal lines
them entirely adaptable to all types of
ctural design from cottage to skyscraper.
rapidly growing acceptance is having a
l influence on architectural designs be-
their clean horizontal lines fit admirably
odern architectural styles.

Seals itself shut like a refrigerator

THE FIRST WINDOW TO *Answer* EVERY PERFORMANCE REQUIREMENT



Auto-Lok AUTOMATIC LOCKING PATENTED *Aluminum* WINDOWS

Read this check list for opening sash . . .

✓ AMOUNT AND QUALITY OF VENTILATION? *AUTO-LOK checks:* 100% ventilation, draft-free! Vents open almost 90°, entering air is scooped in and up.

✓ POSSIBILITY OF VENTILATION CONTROL? *AUTO-LOK checks:* You make your own weather! Perfect control in all positions from a slight crack of one vent to full opening of all vents.

✓ IS THE WINDOW EASILY OPERATED? *AUTO-LOK checks:* Friction-free, precision balanced "no wear" operation. Fingertip control with roto-type operator...no interference with screens, drapes or blinds. AUTO-LOK windows never stick.

✓ WEATHER PROTECTION WHEN WINDOW IS OPEN? *AUTO-LOK checks:* Awning-type design provides the luxury of healthful, refreshing ventilation even when it's raining.

✓ WEATHER-TIGHTNESS WHEN WINDOW IS CLOSED? *AUTO-LOK checks: AUTO-LOK is the tightest closing window ever made!* Closes many times tighter than any other window. Patented self-locking device plus elastomeric vinyl weatherstripping automatically seals window tight and isolates weather to a degree heretofore believed impossible.

✓ WHAT OBSTRUCTIONS TO VIEW (RAILS AND MUNTINS)? *AUTO-LOK checks:* Extremely narrow yet extra strong rails and muntins are made possible through the use of adeptly engineered extruded aluminum sections.

✓ FIRST COST? *AUTO-LOK checks:* Initial cost compares favorably with competing products providing many less advantages. You cannot buy better window performance at any price.

✓ MAINTENANCE COSTS? *AUTO-LOK checks:* Simplified operation eliminates wearing parts. No periodic adjustments necessary. Ludman engineering leadership combines the best in design, materials and workmanship to produce a window that will give no-wear operational ease with a minimum of maintenance.

✓ CAN ALL WINDOW GLASS BE CLEANED FROM INSIDE? *AUTO-LOK checks:* Window can be completely, comfortably and easily cleaned *entirely* from inside, including top vent, too. No gadgets to disengage.

✓ HOW DOES THE WINDOW FIT IN WITH PLANS FOR SCREENS, STORM SASH, BLINDS, ETC.? *AUTO-LOK checks:* Interchangeable *inside* screens and storm sash can be placed or removed easily...just flip the clips, no tools required.

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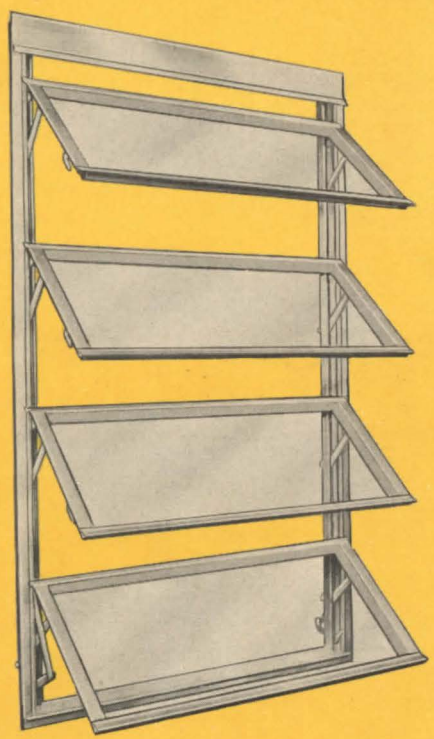
Auto-lok
AUTOMATIC LOCKING
PATENTED

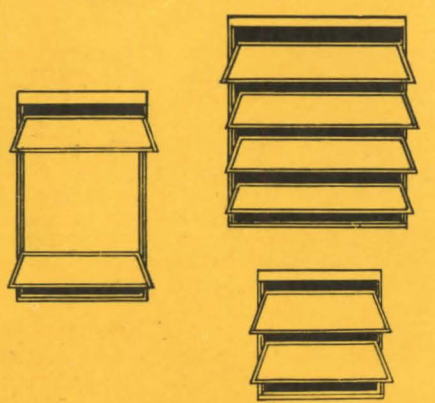
THE WINDOW THAT SETS A NEW STANDARD F

WINDOW PERFORMANC

The design of AUTO-LOK Aluminum Windows and the develo
of their patented, self-locking operating device, are the results of years of re
by men who know windows and window problems. The materials that go in
manufacture of AUTO-LOK are the finest produced. The exacting workmans
your final guarantee of windows that will meet the broadest specifications.
many features to spare!



WIDE RANGE OF STOCK SIZES AND ARCHITECTURAL TYPES TO FIT EVERY REQUIREMENT...



Only Auto-lok gives yo
AUTOMATIC LOCKING
PATENTED

ALL THESE FEATURES...

FRESH AIR WHILE IT'S RAINING

No more running to close windows...rain can't enter through slanting sash!

WARMER IN WINTER...

Seals itself shut like the door of your refrigerator...keeps heat in...cold out!

COOLER IN SUMMER...

Opens widest...scoops air inward and upward...luxurious ventilation, but no drafts!

PRACTICAL BEAUTY...

Narrow horizontal lines and graceful tilt of sash in every open position add distinction to any home...lend themselves to a wider variety of architectural arrangements.

EASIEST TO CLEAN...

Nothing to lift out...no sash to remove...no gadgets to disengage. Simply open wide and clean all glass from the inside ...top sash, too!

INTERCHANGEABLE SCRE AND STORM SASH...

Can be handled all fr inside. Just flip the cli tools required. Reduce work to an hour!

FRESH AIR NITE-VENT...

Bottom sash opens slig night ventilation, while sash remain securely ...fresh air circulation bad weather, too!

FINGER-TIP CONTROL...

for a lifetime. Perfec anced, friction-free me operates window at th of a finger. No adju ever necessary...neve never rattles!

CONCEALED HARDWARE

No unsafe, unsightly nism exposed to colle Compact roto-type o handle does not interf drapes, blinds, etc.

mail this COUPON today!

LUDMAN Corporation, Box 4541, Dept. B, Miami, Florida

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- ☐ Auto-Lok Wood Windows
- ☐ Windo Tite Jalousies
- ☐ Ludman Jalousie Doors

I am a . . . Architect ☐ Builder ☐ Dealer ☐ ☐ Other _____

Also, send your free booklet. "What *Is* Important In A Window."

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World's Largest Manufacturer of Awning Windows and J

NOW YOU CAN OFFER AT NEW LOW PRICES

ALL-AROUND LIGHTING IMPROVEMENTS

with Sylvania's New Industrial Fixtures

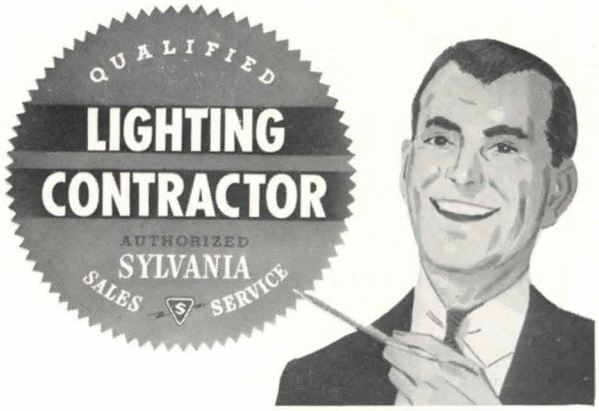
Announcing 222 New Industrial Fluorescent Fixtures at an amazingly new low cost. All are engineered to meet every lighting need in any type plant for any level of illumination. Customers make additional savings since new design also cuts maintenance costs.

Reasons for Sylvania's flexibility and lower cost

Simplified designing is the basic reason for the success of this new line. With one skillfully engineered reflector and two top housings, Sylvania lighting experts have developed 6 interlocking "family" groups of 24 standard fixtures each. These, with optional variations, making up 222 different types, offer a variety and flexibility never before possible.

And, because this line requires comparatively few different parts, die costs and assembly costs are held way down. These savings are now passed along to you in lower prices.

You'll want all the facts about this splendid new fixture line. The coupon brings you new folder and data sheets for your file.



Expert interior designs need expert interpretations . . . so for your lighting requirements, see the man who displays this Qualified Lighting Contractor emblem.

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FLUORESCENT TUBES, FIXTURES, SIGN TUBING, WIRING DEVICES; LIGHT BULBS; RADIO TUBES; TELEVISION PICTURE TUBES; ELECTRONIC PRODUCTS; ELECTRONIC TEST EQUIPMENT; PHOTOLAMPS; TELEVISION SETS

Sylvania Electric Products Co.
Dept. L-5206, 1740 Broadway
New York 19, New York

Please send me illustrated folder and data sheets on the new line of Sylvania Industrial Fixtures.

Name .....

Street .....

City ..... Zone .... State .....

VIEWS

(Continued from page 182)

enough to want to retire in a more conventional position.

Those wonderful tile floors—so clean, so efficient. But if anyone moves a piece of furniture, 10 rooms down, the squeal of the furniture leg on the tile is enough to rouse you out of the deepest slumber and send shivers down your spine. It was one of the most uncomfortable sounds that I had to live with while in this type of hotel. But that's not all! In one of my stays, a young lady (I assumed she was young although I never saw her) had a way of returning to her room at about three o'clock in the morning. The lady in question wore high heels and the so of high heels tapping along those lovely floors, from closet to dressing table, dressing table to bathroom, from bathroo dressing table, until finally she was read retire, was another thing that kept us aw every night. Her nocturnal habits and her heels are something I will never forget, v I think of clean efficient tile floors.

And now to talk of "Nature's own cooling system." Ah, yes! The tradewinds wonderful—much better than draughty air ditioning, but—how can you get air and off light and sound! I have tried and I c not find the answer. If you kept the jalo on the hallway side open, then at approxim eight o'clock in the morning the staff c to work; housemen and maids with their and pails and their stories of how they s the previous evening. Sound travels unhind through the jalousies and, aided and ab by smooth walls and tile floors, even a wh could be heard. Try and sleep! Close jalousies you will say—well, no sound—bu air. Try that in the tropics. That's not On the outside windows, the rooms are us and considerately furnished with a dra over the jalousies, but you cannot draw drapery, because you cut off the flow o through the room, so you leave the dra open when you retire at night. At fiv six o'clock in the morning, the sun "c up like thunder" and floods the room light. Some people, of course, can slee spite of noise and light. I, for one, ca So I get up and close and draw the drap to shut out the brilliant tropical morning Do I go back to sleep? No. Within 10 mi I am lying in a pool of perspiration. No b and you really suffer!

I did not mean and do not mean criticisms to be harsh or offensive. If do not sound quite politic, then you will to attribute it to the fact, as I said be I have never learned the gentle art of crit but the facts do remain. I think that arch should be made to live in their own and find that some of those things looked so good in photographs and so good in text are actually detriment pedients which should not be encourag promulgated.

MORRIS LA
New York,

(Continued on pag

DE LUXE (swirl marbleizing)

Only Armstrong's Asphalt Tile offers you this choice

STANDARD (directional grain)

Now you can specify Armstrong quality in two types of asphalt tile graining. The swirl marbleizing of Armstrong's De Luxe Asphalt Tile creates beautiful allover floor effects that cannot be achieved with any other type of graining. This tile also has superior strength and flexibility. Exclusive manufacturing processes interlock fibers and binders in two directions for greater strength, much as alternating the grain adds strength to plywood. The swirl marbleizing of Armstrong's De Luxe Asphalt Tile also speeds installation because it doesn't require twisting and turning to match grains.

For decorative effects requiring floors with directional graining, the Armstrong Line now includes Standard Asphalt Tile. You can design floors to suit any decorative scheme in which a straight-grained asphalt tile is preferred. Where price is the most important factor, Armstrong's Standard Asphalt Tile offers Armstrong quality at minimum cost.

Armstrong's De Luxe Greaseproof Asphalt Tile is available with swirl marbleizing. Armstrong's Standard Grease-Resistant Asphalt Tile is made with directional graining. For samples and complete specifications, write Armstrong Cork Company, 8906 State Street, Lancaster, Pennsylvania.

ARMSTRONG CORK COMPANY

VIEWS

(Continued from page 188)

pleased and satisfied

Dear Editor: I admire your magazine and appreciate all that you are doing. I study every issue from front to back. However, because of my intensive reading of the P/A and of my other periodicals, not to mention my social activities and studies, I find I get further behind in my reading, and magazines are crowding my desk, my files, and my book case.

It was my intention to let my subscription lapse and get up to date and then at that time consider renewing. I just glanced through the January issue to see what was doing and how and was pleased and quite satisfied with the issue. In fact, I decided that I couldn't afford to miss any of the forthcoming issues. I know I can't show my enthusiasm any better than to renew my subscription.

ALBERT H. TEBBS
Pittsburgh, Pa.

high level

Dear Editor: Each issue of P/A is getting better. You have reached a pretty high level, and we only hope you can keep it up.

THEODORE H. IRION