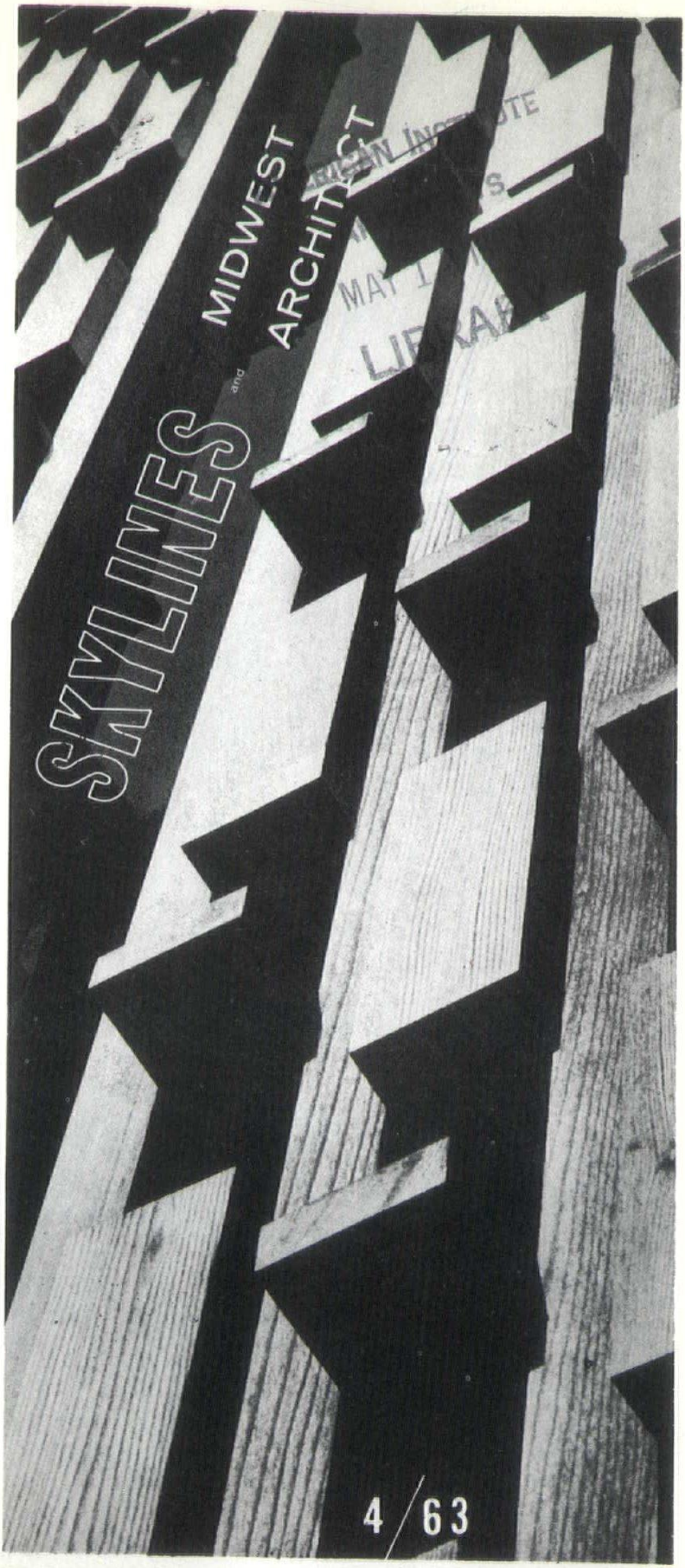
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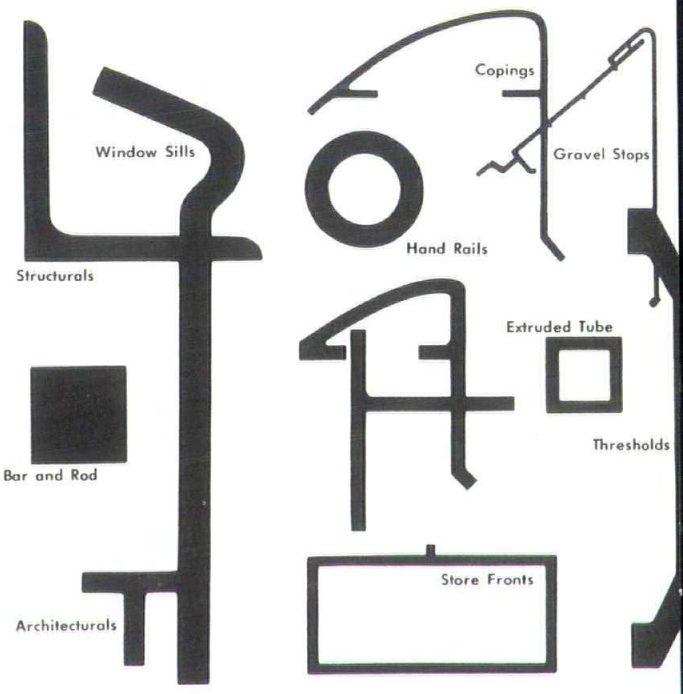

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SKYLINES is the official monthly journal of the Kansas City Chapter of The American Institute of Architects

SKYLINES and MIDWEST ARCHITECT

Vol. 13 No. 4 APRIL 1963

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A. I. A.

KANSAS CITY
CHAPTER

FOUNDED 1890

CHAPTER OFFICE
1127 Scarritt Building
Kansas City 6, Missouri
Telephone—Victor 2-9737

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DOROTHY LAMOREE

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1963-1965	Dwight C. Horner Horner & Horner 1401 Fairfax Trfkwy. Kansas City, Kansas
1962-1964	Mark S. Sharp Neville, Sharp & Simon 25 East 12th Street Kansas City, Missouri
1961-1963	Clarence Kivett Kivett & Myers 1016 Baltimore Avenue Kansas City, Missouri

EXECUTIVE SECRETARY. . .

PAST and PRESENT

PAST–Gerre Jones, able and personable executive secretary to the Chapter for the past four years, has resigned to accept a position with Radio Free Europe in Munich, Germany. The Chapter has benefitted greatly from Gerre's zeal and dedication, both at local and national levels. Under his editorship, SKYLINES has become an outstanding Chapter publication.

Belatedly, perhaps, we want to acknowledge the endeavors of Mrs. Jones, Charlotte, and express our sincere appreciation and friendship.

The Chapter's best wishes for every success which they would envision go with Gerre and Charlotte Jones.

EW – The Chapter was fortunate in securing a new executive secretary in the person of Dorothy Lamoree. Dorothy will continue in her offices of the DC Lamoree Company, Suite 1127 Scarritt Building, where the A.I.A. phone will ring, as before, for VI 2-9737.

Mrs. Lamoree opened her own public relations and publications firm in May of 1962 after eleven years as manager of the public relations department of the Chamber of Commerce of Kansas City and editor of the Kansas Citian magazine.

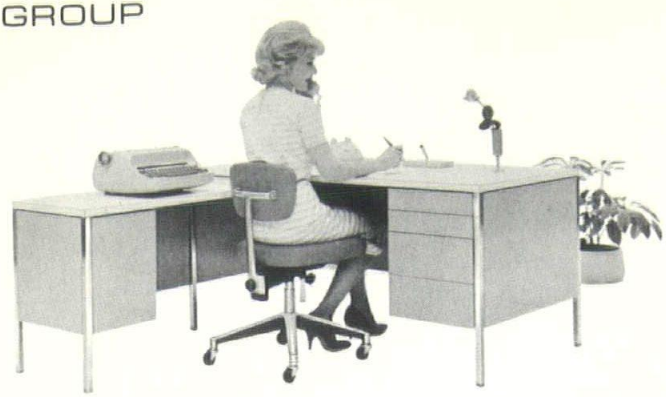
Listed in Who's Who of American Women, she was cited during her tenure with the Chamber as Editor of the Year in 1955 by the Kansas City Industrial Editors and as Woman of the Year in 1958 by the Kansas City Alumnae Chapter of Gamma Alpha Chi.

A former reporter and editor on the staff of the Hastings (Nebraska) Daily Tribune, she served also as director of radio and television publicity for the Kansas City Centennial in 1950. She is a member of the Public Relations Society of America.

We are looking forward to a very pleasant, long lasting and enterprising tenure for our new executive secretary, Dorothy.

Louis H. Geis,
President

THE 500 GROUP



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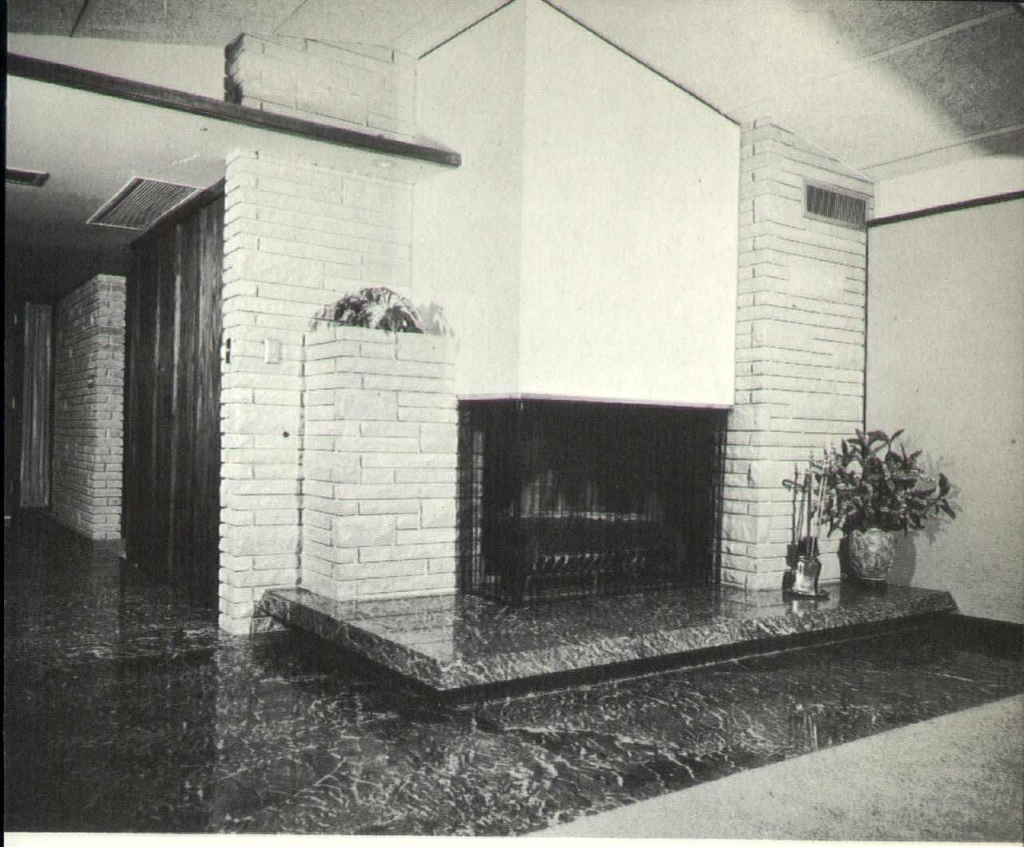

Rugged Split-Face Carthage Marble protects the outside of this house and forms the durable surface for many of the interior walls, finally framing this handsome fireplace.

Forest Green marble leads the visitor from the parking area with stepping stones, paves the covered entrance porch, and leads him through the door and down the entry hall to the fireplace, where it forms the wide, raised hearth.

Sparkling white Colorado Yule marble tops counters in kitchen, family room and dining room, finally reaches its focal point within the house with two huge slabs enclosing the chimney above the fireplace.

This is unity, purpose, and harmony in the architectural use of marble.

Architect: Albert C. Esterly, Springfield, Missouri
The House: M. E. Potter Residence, near Carthage, Missouri

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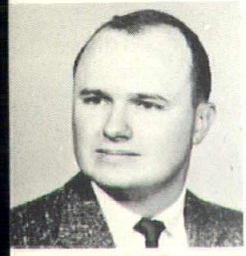
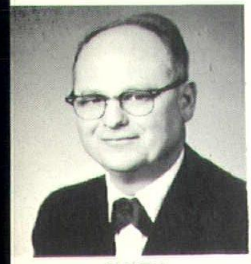


KORFF



SIXTA

CORPORATE

CHRIS P. RAMOS

Central High School, Kansas City, Mo. (graduated 1942)
Kansas City Jr. College, Kansas City, Mo. (2 years, graduated 1947)
University of Nebraska (4 years, graduated 1951)
Finlay Eng. College, Kansas City, Mo. (graduated 1954, B.A.E.)
Draftsman, Alfred Benberg, 1947
Draftsman, Martin I. Aitken, 1948-1951
Draftsman, Alfred Benberg, 1951-1953
Architect, S. W. Bihr, 1953-1955
Architect, Grimaldi, 1955-1957
Partner, Geis-Hunter-Ramos, 1957 to present
Registration: Missouri, Kansas, South Dakota, Nebraska

CHARLES E. STEELE, JR.

Southeast High, Kansas City, Mo. (graduated 1948)
Kansas University (5 years, graduated 1953, B.S.)
Draftsman, Kivett & Myers, (1 yr., 2 mo.)
Draftsman, Monroe & Lefebvere, (1 yr., 5 mo.)
Chief Draftsman, Conrad & Mantel, (1 yr., 5 mo.)
Associate, Conrad & Mantel, 1959-1960
Partner, Mantel & Steele, Inc., 1961 to present
Registration: Missouri

BENJAMIN R. HUNTER

Rockhurst, Kansas City, Mo. (graduated 1943)
Finlay Eng. College, Kansas City, Mo. (graduated 1947, B.A.E.)
Draftsman, Archer-Cooper-Robinson, 1947-1948
Draftsman, Hansen and Geis, 1948-1949
Chief Draftsman, Louis H. Geis, 1949-1957
Partner, Geis-Hunter-Ramos, 1957 to present
Registration: Missouri, Kansas, Colorado

ASSOCIATE

MORTON ROLSKY

Northeast High, Kansas City, Mo., (graduated 1937)
Manual Vocational, Kansas City (2 years)
University of Mo., Columbia (1 year)
Lincoln Aero. Inst., U.S.A.A.F. (graduated 1942)
Finlay Engineering College, Kansas City, Mo. (graduated 1950)
Construction Inspector, Kansas City Park Department, 1950-1953
Architectural Coordinator, Consultant & Designers, 1953-1955
Merchant & Free Lance Design Work, 1955-1951
Principal Architect, Kansas City Park Department, 1961 to present

DEAN LINTECUM

Olathe High School, Olathe, Kansas (graduated 1949)
Kansas State University, half year
Kansas University (5 years-graduated 1955, B.S.)
Architect, Donald Hollis, 1955-1956
Architect, Marshall and Brown, 1956-1958
Architect, Donald Hollis, 1958-
Architect, Marshall and Brown, 1960 to present
Registration: Kansas and Missouri

EESEBROUGH

RAMOS

STEELE

HUNTER

EDWIN W. KORFF

Hebron High School, Hebron, Neb. (graduated 1950)
University of Nebraska, (graduated 1955, B.A.)
Draftsman, Marshall & Brown, 1957-1959
Designer & Job Captain, Wolfenbarger & Assoc. 1959-1960
Designer & Job Captain, Marshall & Brown, 1960-1962

ROBERT E. SIXTA

Bishop Ward, Kansas City, Mo. (graduated 1941)
On the Job Training to Job Captain, Kivett & Myers, 1946-1954
Associate, Manuel Morris Architect, 1954 to present

JOSEPH P.CHEESEBROUGH, JR.

North Kansas City High School, N.K.C., Mo. (graduated 1952)
Junior College, Kansas City, Mo. (2 years)
University of Kansas (4 years, graduated 1958, B.S. Arch.)
Draftsman, George W. Tewksbury, 1958-1959
Architect, Herman A. Scharhag, 1959 to present
Registration: Kansas and Missouri

FORD

BARDEN

JUNIOR ASSOCIATE

DAVID ROE BARKHOUSE

Westport High School, Kansas City, Mo. (graduated 1959)
New Mexico Military Institute, Roswell, N.M. (2 years, A.A., 1961)
University of New Mexico, (1 year)
Finlay Engineering College (student)
Student Draftsman, William S. Loth & Assoc. 11/20/62 to present

RONALD W.FORD

Wyandotte High School, Kansas City, Kansas (graduated 1951)
Kansas City, Kansas Junior College (1 year)
Kansas State University, (graduated 1961, B. Architecture)
Kansas State University (4 Mo. Graduate School)
Draftsman, J. E. Crute & Assoc., 1953-1957
Draftsman, A. K. Bader, 1958-(part time)
Draftsman, W. R. Edison, 1960-1961-(part time)
Draftsman, Cooper, Robison and Carlson, 1961- to present

GIBSON

MARVIN R. BARDEN

Ruskin High School, Hickman Mills, Mo. (graduated 1955)
Junior College, Kansas City, Mo. (Now attending night school)
Draftsman, Frangkiser & Hutchens, 1956-1959
Chief Draftsman, James L. O'Bryan, 1960
Draftsman, William S. Loth, 1960-1961
Draftsman, Herbert Duncan Assoc., 1961 to present

THOMAS W. GIBSON

Wm. Chrisman High School, Independence, Mo. (graduated 1951)
University of Nebraska, (graduated 1962, B.A.)
Draftsman, Herbert E. Duncan, Assoc., 1962 to present

SWINNEY

FRANK C. SWINNEY

Southwest High School, Kansas City, Mo. (graduated 1949)
K. C. Junior College, Kansas City, Mo. (1 year)
Missouri University (2 years)
Kansas City University (graduated 1956, Bach. of Bus. Administration)
University of Kansas (graduated 1962, Bach. of Architecture)
Draftsman, Herbert E. Duncan Assoc., 1960 to present

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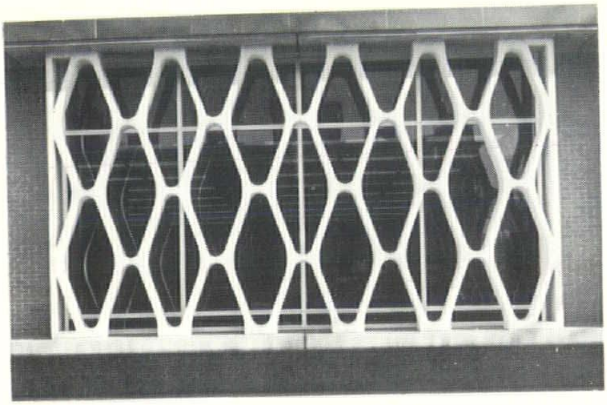

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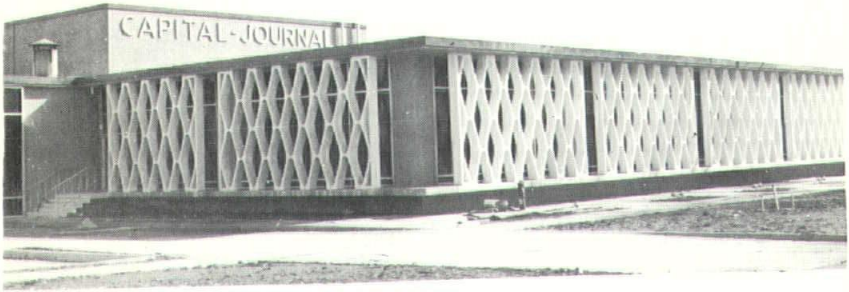

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Pause and Chat Social Hour

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Architecture in early Missouri

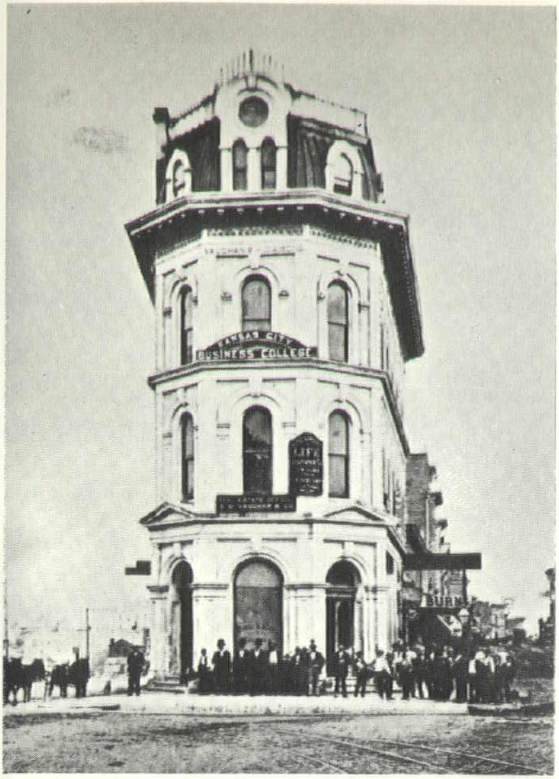
By Dorothy Lamoree

There's many a tale for the telling in the development of architecture in early Missouri, when a man's occupation was much more apt to be listed as "tallow chandler," "wheelwright," "cordwainer," "well digger" or "victualler."

These were the days when the designer of the first cathedral in the state, Gabriel Paul of St. Louis, found it feasible to be listed in the Director as an "Auctioneer and Commission Merchant," a listing a lot more certain of attracting a fortune in one of civilization's outposts than that of a man who had no other talents than ability as a draftsman and a knowledge of sound construction.

In November, 1837, Missouri's first Capitol in Jefferson City, a commonplace 2-story structure burned to the ground. Determined to have a Capitol worthy of the state, Governor Boggs urged approval of A. Stephen Hills' plans for a new building on Capitol Hill. The building was not completed until long after the estimated time, and cost a great deal more than had originally been appropriated, triggering a sweeping but apparently groundless investigation by a Committee appointed by the Legislature.

In the year of 1840, a cornerstone was laid for the first building of the State University in Columbia.



"Vaughan's Diamond, 1869
Asa B. Cross, Architect

The ceremony's printed program is a little isleading to the uninitiated. Again the archi- ect was A. Stephen Hills. His appearance was cheduled fourth on the program, followed by he "Principal Undertakers of the University."

It is not to be assumed that the architect ed a procession of funeral directors. Con- actors at that time were known as "under- kers" – and Mr. Hills probably had three or ur men following him, the "undertakers" of onework, brickwork and carpentry.

The Civil War in Missouri came to a close n April 9, 1865 at Appomattox Courthouse. ith the cessation of hostilities a great surge railroad building swept the state.

Conspicuous among the towns growing with e coming of the railroads was Kansas City, which had attained something of a reputation as an enterprising community in the days before the War as a result of its location at the junction of the Missouri and Kansas Rivers.

Credited as the pioneer architect of Kansas City, Asa B. Cross was commissioned to build the Pacific Hotel here at the southwest corner of Fourth and Delaware Streets in 1860. Later, when Kansas City was beginning to hub several railroads, he designed the first Union Station in the West Bottoms, giving the native sons and daughters from Western Missouri and Kansas their first taste of metropolitan bustle and confusion.

Many real estate dealers and architects are said to have faced financial peril as a result of the lure of "Vaughan's Diamond" at The Junction in Kansas City. Mr. Vaughan was a

The Coates House, 1889 Van Brunt & Howe, Architects

real estate dealer and when he engaged Mr. Cross to erect a pretentious building at the junction of Main, Delaware and Ninth streets, he dressed the stage for what was to be the busiest corner in town for 40 years. The Ninth Street Cable Line loaded and unloaded the greater number of its passengers there; persons making appointments, either business or social, usually specified The Junction as the meeting place. Thus, Mr. Vaughan's property was the object of much speculation.

After the "DIAMOND" had been upstaged by more modern buildings on other corners, first one enterprising architect and then another would join forces with a promoter and the headlines would herald the story of a projected office building or hotel for that site. But after 1910, when the new Union Station was begun, Ninth Street was considered too far north for future greatness as a business street and all hope of seeing a Flatiron Building at The Junction vanished.

Other pioneer architects in Kansas C were Adriance Van Brunt, for whom a bouleva is named in recognition of his services on t Park Board, and his younger brother, Jo Van Brunt.

In 1885, Fred B. Hamilton, G.M.D. Kn L.L. Levering and Herman Probst of Kans City were admitted to membership in t Institute. At the National Convention of t American Institute of Architects in 1899, Her Van Brunt of Kansas City was elected pre dent. Mr. Van Brunt, who had moved to Kans City from Boston in 1887, was senior memb of the firm Van Brunt & Howe. Besides carryi on a large practice, he found time for consid able writing. His "Greek Lines and Oth Architectural Essays" first appeared in t Atlantic Monthly in 1892, and were publish in book form the following year. He also tra lated Violett le Duc's "Discourses Architecture."

Old Kansas City Club, 1888, Van Brunt and Howe, Architects

Reviewers of American history frequently take note that 1907 was a year of unusual religious zeal among all the denominations. A wave of church building resulted, including the First Congregational Church in Kansas City.

During this period, there were several changes in the names of architectural firms. In Kansas City, Charles A. Smith had formed a partnership with Messrs. Rea & Lovitt. William H. Cutler died and the firm Howe, Hoit & Cutler became Howe & Hoit. Another new firm on the local horizon was Wilder & Wight. Keane & Simpson came upon the scene in 1910.

In April, 1923, death occurred for an architect, George Edward Kessler, who for many years had been prominently identified with civic improvement. When the first Park Board was organized, he was appointed Landscape Architect, a position he held for the remaining 32 years of his life. During those years Kansas City attracted national attention by building an elaborate system of boulevards and parks under the direction of Mr. Kessler, and when the Louisiana Purchase Exposition was being planned in St. Louis, Mr. Kessler was appointed Landscape Architect. In 1921 the University of Missouri bestowed upon him the honorary degree of Doctor of Laws.

Going back in architectural time, many of the nation's great theaters and opera houses were designed for Missouri. Very shortly after the close of the Civil War Colonel Kersey Coates invested one hundred thousand dollars in the Coates Opera House in Kansas City. In the 'Seventies, when Mrs. Mary Gilliss Troost died, her will provided funds for the erection of the Gilliss Opera House, the proceeds to go to charity. Shortly after the completion of the Gilliss, Colonel George Warder invested more than one hundred thousand dollars in the building of the Warder Grand Opera House in Kansas City, which was said at that time to be the largest theater in the West.

Those were the days of architecture in early Missouri, chronicled in the book, Missouri's Contribution to American Architecture, compiled and edited by John Albury Bryan and the St. Louis Architectural Club.

And then it was 1920 and new chapters were still to be written.

Warder Grand Opera House, 1887 M. U. Vrydagh, Architect

LOUIS GEIS

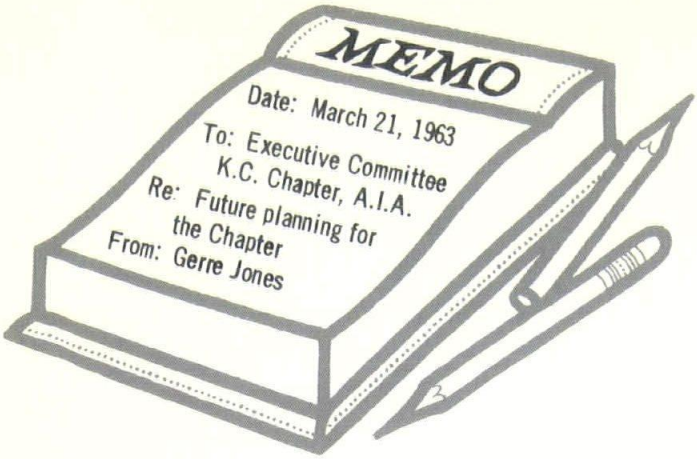
President's Page

The initial effort and enthusiasm of the chairmen and members of the various Chapter committees began and remains at a very high level. It is our hope that this enthusiasm will continue—even accelerate—and be evidenced in all committee activities.

Chapter meetings do not allow sufficient time for all committees to report to the membership. With this in mind, the Executive Committee has suggested that one or two committees report each regular Chapter meeting, keeping us all informed of the overall program.

We would like again to remind the membership of the Office Procedure Workshops which serve as an excellent medium of communication among us. These architect-to-architect discussions have produced prime results to date, with both sessions well and enthusiastically attended.

We anticipate outstanding success for the program.



This is being written in response to a r
quest from Clarence Kivett and other Chapt
officers – and not because I feel that I hav
all – or even very many – of the answers.

Let me say at the outset that our work wi
the Chapter members and officers over the pa
four years has been one of the most pleasa
and rewarding relationships I've ever had. A
suggestions I might have for the future wou
have to be based on contacts and conversatio
I've had with Chapter members and the Octag
staff over the years.

EDUCATION – This is a field of ever-increa
ing importance, of course, and the extent of a
Chapter program is almost unlimited. The
fresher courses for registration applicants co
tinue to attract many young men. An evaluati
of the subjects covered and instructors a
signed to each subject might be in order.

The Chapter has never been as strong
it might be in the career counseling field. C
year letters went to all high school counselo
in the area offering an architect speaker and
a film for career days. Response was pre
fair – but I believe this kind of activity is m
successful on a sustained basis.

Under this general heading, I'd like to s

ore of our member offices bring in archi-ctural students for visits in their offices and building projects.

One final point on education – the Archi-ct-In-Training Program is being revised and, esumably, revitalized on a national level. his is been a kind of grey area in past years d I've never felt that we or the A-I-T en-llees really got the maximum benefits from e program. Assuming that the revised A-I-T ogram is adopted nationally, it might be well have a sub-committee of the Education Com-ttee, or even a separate committee, to over-e the administration of it on the Chapter level.

UBLIC RELATIONS – With the A.I.A.'s tional PR committee chairman right in our n backyard, the K.C. Chapter should have e best on-going public relations program in e U.S.

The record so far is pretty good. The of-ers and members should continually watch local developments on which the Chapter ght take a public stand – to the mutual nefit of the Chapter and the public. By the me token, the Chapter should know that ny organizations and individuals are very ch aware of the Chapter's good public image, d that these outside interests would be opy to stampede the officers into taking a sition on an issue – a position that might ve untenable after an objective analysis.

The People-to-People project under con-leration offers the Chapter another p.r. op-tunity in the public service field. Because T-P is international in scope, the p.r. nefits can be much greater in degree than me of our past efforts.

I'd say that the main point the Chapter ould keep in mind is that it does have area tus and recognition – honestly won through st efforts on community and national levels – and in the vernacular, "The architects don't have to take any guff off of nobody". The recent "Butler incident" should prove this.

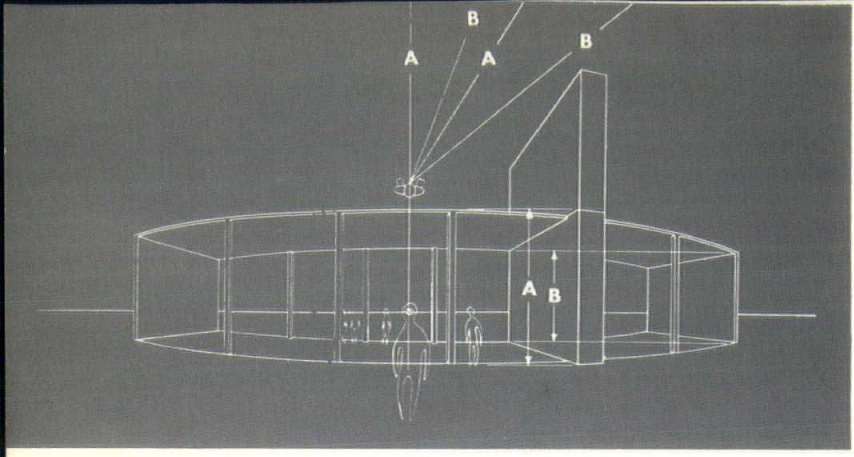
Keep in mind, also, that several members of the local media are pretty well oriented as to what architects are and do – and are in sympathy with most of your efforts. These persons would include, but are not limited to, Fred Fitzsimmons, Al Bohling and Jim Scott of the K.C. STAR; Walt Bodine, Bill Griffith and Jean Glenn of WDAF; Allen Smith and Charlie Gray of KMBC and Jim Monroe and Ken Heady at KCMO.

On other subjects, and in somewhat rambling manner – I believe that there are a number of younger Chapter members who have shown real promise as future leaders of the Chapter and the architectural profession.

A note or two on SKYLINES – which probably should have appeared under "Public Relations". The magazine has established itself among the many Chapter magazines as a pretty good publication. We get letters from readers who seem to like it. With its current circulation of 2000 it can be a real p.r. tool for the Chapter – and should never be dropped by the Chapter.

I believe the Chapter can expect the next three years, with Angus McCallum as Regional Director, to be productive ones. But Angus must have good Chapter support.

I don't know whether any of the above will prove to be of help to the Executive Committee – but it was written in the spirit of friendly help and advice. In closing, let me say that the last four years have been always interesting, sometimes fatiguing, and constantly stimulating ones for me. I only hope that I've been able to convey some of my loyalty to and enthusiasm for the profession of architecture to those I come in contact with – past, present and future.



There are many changes and improvements in structural engineering and design which hold particular meaning for the shopping center developer...changes in fact and in concept which will affect his planning and his investment.

I propose to confine our discussion within a particular frame of reference, to analyze the usefulness of certain of these changes and advances in safely effecting real structural economies.

I use the word "safely" with emphasis and precision because, as a structural engineer, I have a dual responsibility; one, to protect the public in terms of safety, and two, to protect my client in terms of economy.

Happily, however, there is no genuine conflict of interest in this dual responsibility, because protecting the public safety is also in the best interest of the client. Therefore, it is important for the client to understand the risks involved in utilizing new methods and new materials.

Shopping center developers, as a group, are apt to be pioneers in mind and in spirit, and may regard certain cautionary attitudes as either old-fashioned or ultra-conservative. On the contrary, I am very much interested in new materials, new framing systems, new design methods and new methods of construction...but, I must do my best to make you understand th risks involved so that your own evaluation ca be properly based on the consideration of a of the factors involved.

Perhaps the most significant of all th changes which affect us in the continuous re vision of the building codes, the most dramati of which is probably exemplified by the use o structural steel. During the early '20's stee was designed for a bending stress of 16,00 psi. By 1928 a decided advance had been made the Empire State building was designed for bending stress of 18,000 psi. From that tim on, due in no small measure to competition fro reinforced concrete, working stresses hav steadily increased until today, under certai conditions, we design for a stress of 24,000 ps

In other words, we have increased ou working stresses 50% since the 1920's and with allowance for bracing members an members with reserve capacity, we can als say that we have reduced structural stee weights by some 40%.

To illustrate what this means in terms o actual construction, let me point out that if w were to build an Empire State Building today we would use 15,000 tons less steel, or a sav ing of four million dollars in today's marke The saving on a 300,000 square foot shoppin center would be some 500 tons or $125,000.

While it is true that the higher stresse have made our buildings economical in terms o

By Elliott Feiden, Throop & Feiden, Consulting Engineers, New York: International Council of Shopping Centers Idea Exchange and Conference

Changes in Fact and Concept For the Shopping Center Developer

teel, these stresses have also made our buildgs slender and flexible, with consequent roblems in deflection and vibration. For these easons, the use of bracing members becomes ore crucial than ever and is consequently not n area in which to look for economy.

Above all, be sure that there is adequate mporary bracing during construction, since st failures will occur during that stage. The st of bracing members is small, but a little acing will go a long way in making a closely signed structure safe.

Equally important are the changes in undation design, brought about mostly by adnces in the field of the earth sciences. In the st, without the back-up of laboratory tests, e engineer tended to be quite conservative, th the consequence that footings were made rger, deeper and more heavily reinforced. ery few engineers would have considered acing a building on filled-in ground. In a rginal situation, he was much more likely to oose an expensive pile or caisson job rather an to risk a spread footing design which ght result in settlement problems.

However, reliable sub-soil data widened e scope of design and method for foundations, with important implications for two of the main problems in shopping center constructions. The first was the question of utilizing sites which were passed up by others because of poor foundation conditions, with a radical departure from normal foundation procedures necessary in order to make the project both possible and economically feasible. The second, and probably the most important problem was that caused by the basic premise that there can be no steps and only limited ramps on any shopping center mall.

To meet these requirements on certain sites, there were necessarily deep fill and deep cut areas. While the cuts were not usually much of a problem, unless they occurred in rock, the deep fill presented problems which called for a relatively complex and collaborative investigation by both the structural engineer and the soils mechanics engineer. This close teamwork, based on a scientific approach, has been most rewarding for the shopping center developer. For buildings placed in deep fill areas, the solution has been to place a carefully compacted fill, controlled by continuous on-site laboratory analysis and supervision. Footings then are placed directly on the fill. In many instances, we have had considerable success with compacted fill where footings have been placed on as much as 32 feet of fill with only negligible evidence of subsidence.

Scientific analysis of a marginal bearing condition will help in the evaluation of the risks of possible foundation failure, which in view of the current high costs in construction, can produce economic disaster. On the other hand, some predictable settlements based upon scientific analysis can often be tolerated, particularly if the alternative is a foundation which makes the project economically unfeasible.

There are certain conditions under which the use of bearing walls can be quite economical, despite the feeling of the steel people that it is difficult to get erection continuity on a bearing wall job. A center with frozen building lines because of zoning restrictions or lease arrangements often is a 'natural' for a bearing wall design, since this situation does not permit too much concern with flexibility.

End walls and rear walls, as well as fire walls, have reserve structural capacity and can be utilized for bearing. Other natural bearing wall locations are the side walls of substantial tenants with long term leases. Walls such as these can be frozen with very little risk.

One of the important things for the developer to determine in the early design states, before decisions are made regarding bearing walls, is just how much flexibility is required to be built into the center. We recently had occasion to redesign a 200,000 square foot center because of changes in the flexibility requirements. We developed a bearing wall design to replace a steel skeleton design. The result was a savings in steel in excess of 200 tons for about $50,000.

Certain safety measures are also indicated in the use of bearing walls. Important among these is the height which must be considered carefully, and the ratio of thickness to height kept within code limitations. An alternative would be to stiffen the walls with piers or other devices.

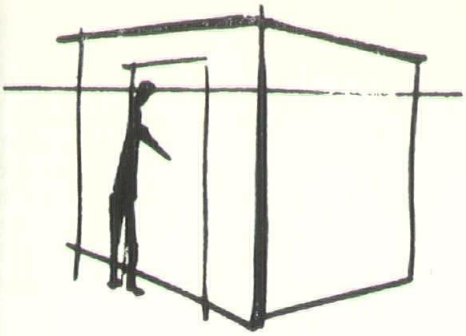
I should like to call your attention now t a number of other potential economies. Fo example, you might consider the use of ligh weight roof decks, which can reduce total roo design load by as much as 10% and result i substantial savings in the cost of the struc tural frame.

Lightweight concrete aggregate ha definite application in multi-story departmen stores where weight reduction is a factor du to foundation conditions. Its use will reduc column and footing sizes. The product, how ever, has some shortcomings. Deflection is problem and so is plastic flow. It also is some times difficult to get a workable mix. Ther have been a number of reports of bricks pullin away from the frame at the lower portions the building.

I can only stress that these advances i materials, methods and economy are not wit out their secondary problems.

Another material which offers potenti economy is prestressed concrete. Here it ma be most economical when a prestress plant i in close proximity to the job, when it is em ployed on a longer span, and when there considerable degree of standardization of d sign. Its major disadvantage, if otherwis economical, is lack of flexibility subseque to erection.

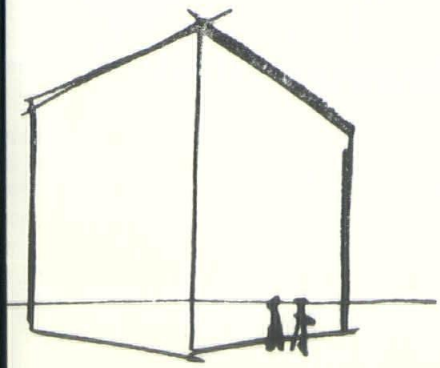
Another possibility for economy is offer by the use of concrete admixtures which c be effectively used to reduce cement conte Air-entraining agents are desirable for expos concrete. In general, where admixtures a used, more control of the concrete mix is r



quired since improper use will sharply reduce concrete strength.

Further possibilities for economy lie in he choice of design as well as materials. A continuous design in steel will give you a very ight steel frame, with resulting savings; how-ver, the footings for this type of design must est on an unyielding strata, such as rock. Any nequal settlement here can cause disastrous esults. An alternative which approaches the conomy of continuous design is the cantilever ethod which can be used with greater safety n the event of same unequal settlement.

Composite design has definite application n floor construction. In this system, shear con-ectors are welded to the steel beam and cast nto the concrete slab. Use of this system can ffect a 10 to 15 per cent savings on steel.



Some suggestions are not confined to any one area of construction, but represent a series of ideas on the total problem. Savings may be effected by eliminating gravel or crushed stone below concrete slabs on ground, where the drainage is sufficiently good. To give you an idea of the actual savings here, 3,500 cubic yards of excavation and 3,500 cubic yards of porous fill could result in a 300,000 square foot project, for a savings of some $20,000. Naturally, this kind of saving can only be effected when the condition of the drainage permits. Even when the condition is not poor, a vapor barrier should be used.

Bar joist construction has always been limber, and is becoming more so all the time. This again is due to increased working stresses. Today, the cold rolled joist utilizes stresses about 90% more than was used in joist construction 30 years ago. These joists can be very economically used for roofs at the relatively high stresses. However, they should not be used for floors without greatly decreasing the allowable working stress.

Bay spacing, that is, the size of the bay in a given design, is another matter which merits consideration from an economy point of view. As a rule, it costs more to carry a load horizontally than to carry it vertically. Now, in a multi-story department store structure, you will usually get maximum economy in the 24 ft. to 28 ft. bay range. When spans exceed this, the cost of the framing rises sharply. For roof framing, assuming that we use a 20 ft. bay as a base, we will increase the cost of framing about 25% for each additional 10 feet of span.

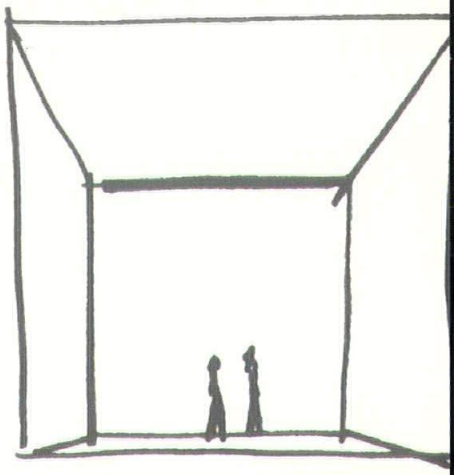
Another consideration regarding desired flexibility arises in the matter of covered malls. With the current trend toward covered mall centers, it would be advisable for developers now planning open mall centers to make structural provision for enclosing the mall at a future date. Without such provision, which is relatively low cost in terms of the value of its flexibility, we are starting with expensive built-in obsolesence.

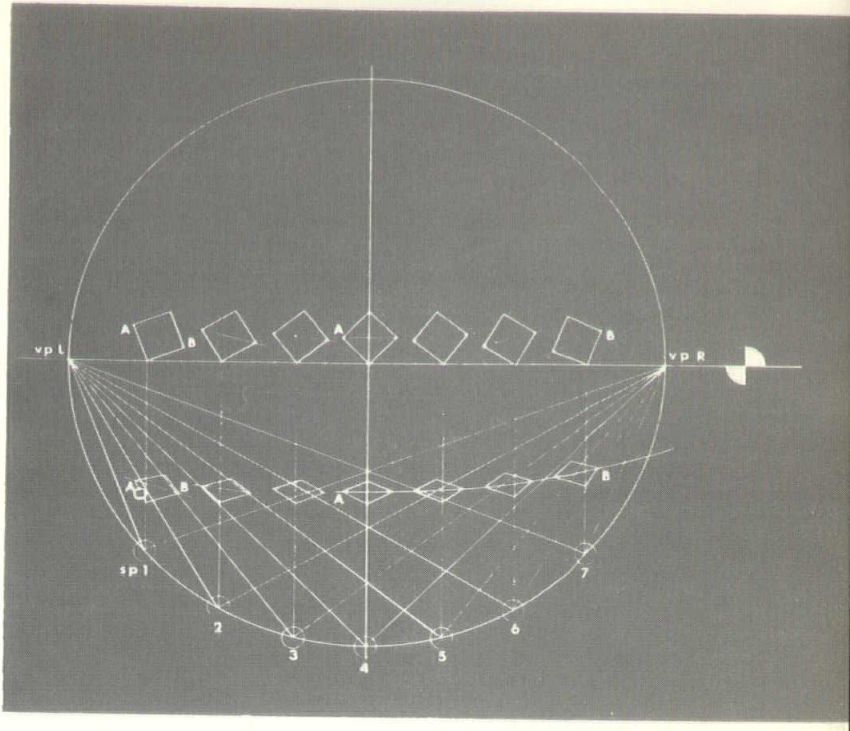
While I am on the subject of flexibility, let me call your attention to another possibility; namely that you can get additional built-in flexibility by making provision for vertical expansion of a department store. The cost is relatively small, particularly when the structure is a concrete frame, and the bearing material is reasonably good.

Some of the economies that I have described are only applicable to centers with modest requirements in quality, others are equally applicable to the center with the highest quality standards.

The choice of methods of materials, of economies, is not an abstract choice, but one made in direct relation to actual conditions and developer requirements. Therefore, what is economical in one set of circumstances may be poor judgment in another. By the same token, the choice of more expensive methods materials may represent unnecessary waste another set of circumstances. Furthermore, th factor of risk in relation to proposed economie is always a matter for consideration, if th economy effected is to be real and appropriat to the overall economy of the job.

For these reasons, it is helpful to hav objective discussions with your structur engineer early in the developmental stages the job. The end results will be most rewardin





Lighting the Shopping Center

By Jack Stone, Consulting Engineers, New York; International Council of Shopping Centers Idea Exchange and Conference

Two subjects of importance to shopping centers are on-site electrical distribution and site-lighting.

The problems of electrical distribution comprise a highly complex subject which can be likened to a circle wherein we start at many points of the circumference with a series of facts and assumptions and work all of these simultaneously toward the Center.

Flexibility is of great importance inasmuch as it is unlikely that anyone knows the final tenancies of the Center at the time that planning is started. I also stress economy since the developer is working toward a maximum projected budget which must be met.

The engineer enters the planning picture after the developer has purchased the site and has negotiated leases with the major tenants and has retained an architect to develop an arrangement satisfactory to him and possibly the major tenant. At this point, the size and type of the Center has been determined, whether it is to be a mall scheme, strip, L-shape or some other variation.

The first thing the engineer will do is to estimate the total electric load for the entire Center and breakdown the load into its various components, such as individual buildings, parking lot or the mall. Generally speaking, these estimates are made on a square foot basis and wherever possible the engineer anticipates with the developer the projected tenancies that may create unusually heavy electrical loads.

This may sound as though the cart were being put ahead of the horse, but the engineer then explores the policies and rates of the local utility company and analyzes local codes. An analysis of the electrical load centers if made at this time and a determination of the most economical voltage and distribution system is also made.

If the developer is to be fully protected, I feel it is of utmost importance that the engineer first decide what is best for the Center before talking to the power company. He is in a better position to negotiate since he knows what he would like to do and also is prepared with several alternate proposals in the event the first one is not accepted.

If, at the time of these meetings with the utility company, a preliminary plan is submitted to show conduit runs, transformer locations and the like, the time required for approval will be drastically reduced.

We now have certain information from the power company. We know our point or points of entry of the electrical service. We also know the primary voltage available. This voltage is generally 4,160---13,800---or 33,000 volts. Occasionally two voltages may be available at the site but the selection of the voltage rests with the supplier. However, there are situations sometimes wherein the developer may negotiate on the selection of voltage. This is particularly true where the developer, because of lease agreements and power company rates may have to purchase transformation equipment. For example, a 33,000 volt sub-station costs more than a 4,160 volt or 13,800 volt sub-station and it might be to the developer's advantage to obtain 4,160 volt or 13,800 volt distribution on the site if it were available in lieu of 33,000. It sometimes pays to request a sub-station on the property even if it means losing the use of that piece of land.

We also know the secondary voltages which are obtainable. That is, 120/208 volts, 277/480 volts, or both. It is quite obvious that the ideal situation would be a combination of voltages in the same Center. We know that stores with heavy fluorescent loads will work out more economically at the higher secondary voltages although we still have to provide step-down transformers for the 120/208 volt requirements in these stores. We also know that stores having heavy incandescent loads and large quantities of small motors would be more economically served at 120/208. In most cases only one voltage will be available and the developer has a choice of selecting 120/208 or 277/480. Under these circumstances an economic analysis based upon the projected tenancies must be made for the purpose of such determination. In certain rare cases, the utility will deliver only 120/208.

Certain power companies offer a primary rate if the customer purchases his own transformer. This may be of importance to the developer since his leases with some of his tenants may require him to provide service to their premises at the best available rates. This requires the developer to figure the cost of the transformer into his initial budget. In other cases, he may elect to provide transformation voluntarily, since it may be more economical for him to do so. This is generally true in

a where only 120/208 is available. The sav- s in feeder and equipment costs of a 277/480 installation for a large discount house or artment store may more than offset the cost he transformer.

Up to this point, we have basically in- tigated the determination of voltages. We will look into the factors governing the ection of our distribution facilities. Distri- on will largely depend on four factors; lay- of the shopping center, esthetics, whether ot a primary network system is to be used, the contribution the utility company makes ard the electrical distribution system.

Obviously, from the developer's point of v, the ideal situation would be one in which power supplier does everything and the eloper does nothing. This is the premise n which the engineer should begin negotia- s. Probably the closest that we come to type of situation is with an overhead dis- ution scheme. This type of arrangement is erally obtained in a strip type of Center re the power company's pole line is along rear property line and the company will run ally to the rear of each store or group of es. With this type of arrangement trans- ers may be located on the poles, on H es or on pads.

In mall type shopping centers, pole lines not generally desirable. For this reason, possibly because of utility regulations, we erally will go underground.

What the power company contributes toward installation depends upon each company's vidual policy. It may provide primary and ondary wiring or primary only with all race- s, manholes, etc., being furnished by the er. It might do all the work and charge the erence between this cost and the cost of head distribution. And, of course, there are er companies which do nothing except ish the transformers and read the meters.

With the mall scheme, the transformers may ocated on pads where such locations are in ice areas. They may also be located in erground vaults which increase the de- per's cost since he is responsible for the vault construction. Transformers may also be located within the buildings, which reduces rentable space, or on the roof where permitted by the power company.

Reduced to its simplest terms, a primary network system is supplied by two power company feeds, with automatic throw-over equipment which will transfer the load from one feed to the other in the event of failure. This type of system sometimes is required by the utility company. In many cases it is optional and in others, it is not available.

The subject of site lighting is unusually interesting in that the final scheme is not necessarily the result of a straight engineering decision but rather a combination of esthetics and engineering.

What, for example, is the proper average lighting intensity to be maintained? I have seen ranges from as low as 1/2 foot candle to as high as three foot candles. We recommend an average maintained value of approximately one to one and a half foot candles with a minimum intensity on the site of 1/2 to 3/4 foot candles. These values can be obtained at a reasonable cost and will provide adequate safety for persons and property in the lot.

There are three basic types of lighting available today.....incandescent, fluorescent and mercury.

The incandescent installation provides the lowest output per watt installed. The average life of the incandescent lamp is 1,000 hours and represents the cheapest first cost in lamps. Certain disadvantages exist, however.....more poles are required, wiring cost is increased, and yearly energy costs are greater. Nonetheless, this type of system results in the best color rendition.

The fluorescent system gives a somewhat better overall result. Lamp life is approximately 7,500 hours and the lamp output is more efficient than incandescent. The lamps also can be operated at higher voltages which can result in savings in wiring.

Continued on page 31

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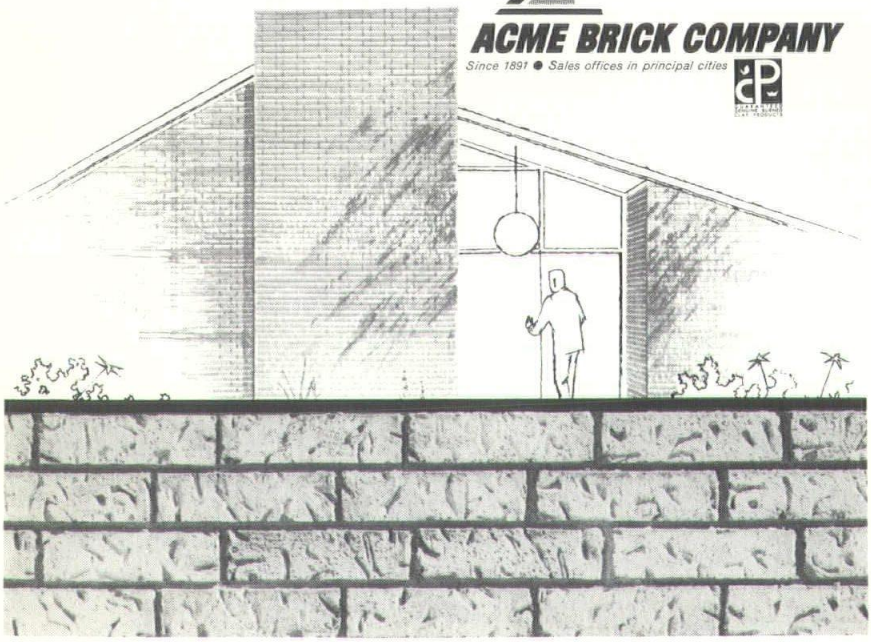

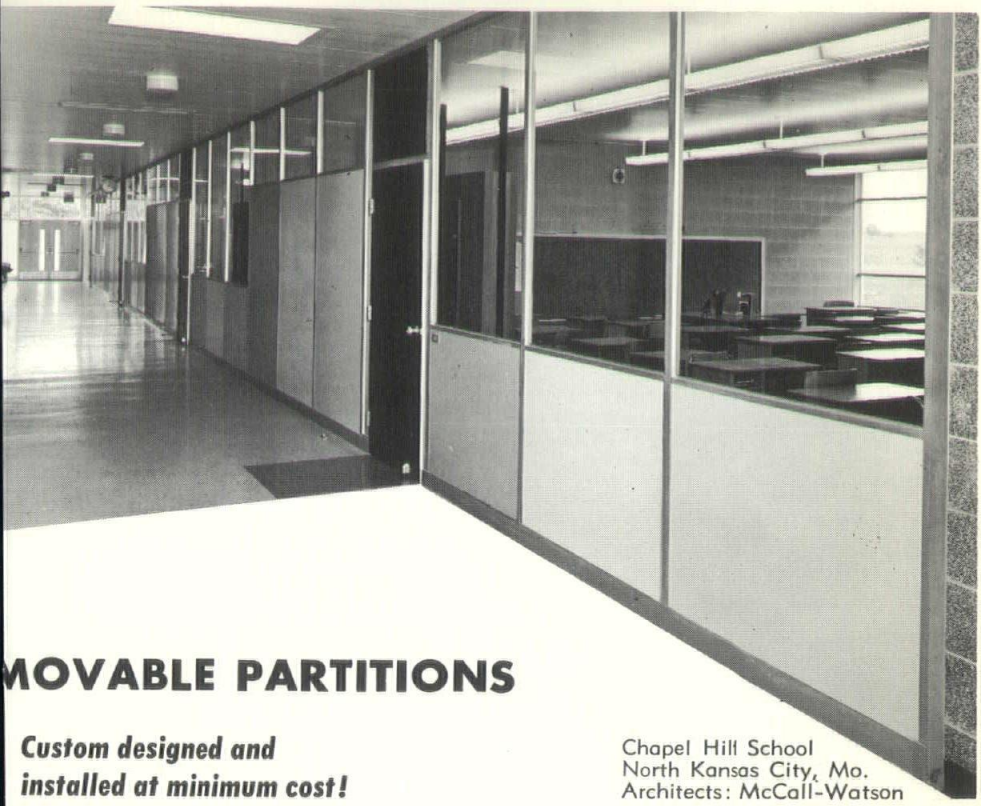

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Continued from page 25)

The third system is mercury vapor which generally used today. Although the lamp and allast combination is the most expensive in rst cost, it produces the highest number of mens per watt, and usually provides the best verall economy through decreased wiring cost, e least amount of poles and luminaries re-uired, and the lowest yearly energy cost. The fe of these lamps is approximately 12,000 urs. Color corrected lamps should be used all cases.

Although the street lighting type of lumi-aire attached to arms is most commonly used, ushrooming and floodlighting are also nployed.

The mushroom type will give a slightly tter distribution but will be 10 to 15 per cent re costly than street lighting. It is available th or without lenses. Special widespread odlighting has been available for several ars, but architectural and budget considera-ns will determine which type of luminaire ll be used.

Poles are manufactured from three types material – aluminum, which is most ex-nsive initially but requires the least amount maintenance; steel which requires painting; d wood which is not generally used in opping centers.

The overall height of the poles will vary th the effect being sought. Poles located at trances and for very small centers range tween 20 and 25 feet in overall height and ually will be equipped with 400 watt mercury mps. The most common height in use today is proximately 30 feet, possibly 35, with 1,000 tt mercury vapor lamps on eight foot arms. A typical spacing to produce an average intensity of one foot candle with this type of arrangement would be approximately 180 x 160 feet.

Cluster mounting of lamps ranging in height from 40 to 70 feet are sometimes used. Less poles are required but the pole price increased disproportionately with the increase in height.

For large centers, 480 volt distribution would be preferable if mercury vapor is used, since the wiring costs can be greatly reduced. Wiring to the poles may be installed in steel conduit or fiber duct. Direct burial cable may be used where the code permits and, since it requires no raceway, it is the most economical system. However, care must be taken in installation to prevent damage to the wires during the backfilling process. The use of this type of cable is not advisable is a water condition exists. The major disadvantage to this type of cable is that repairs cannot be made; the paving must be ripped up and new cable installed. As a compromise solution some developers prefer the use of plastic conduit or fiber duct in order to allow them the flexibility of installing new cable.

The lighting system is normally placed on the shopping center meter and is controlled by time clocks. On larger developments, it will sometimes be more economical to supply the common area lighting from two individual meter rooms.

As you can see, there is no hard and fast rule applicable to every situation. Each individual center must be analyzed thoroughly in order to obtain the best and most economical solution.

Delegated to Place In Sun at Miami

Delegated to a place in the Miami sun, Chapter representatives attending the 1963 A.I.A. convention at the Hotel Americana in Florida, May 5-9 will include Angus McCallum, Louis H. Geis, John Murphy, Lloyd Roark, William M. Conrad and Frank Fisher. Gale Mauk will represent the Associate and Junior Associate membership.

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