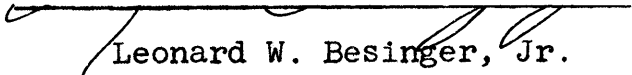


A GOLF AND COUNTRY CLUB WITH  
NITE CLUB AND RESTAURANT FACILITIES  
FOR MEADOWDALE, ILLINOIS


Submitted in partial fulfillment  
of the requirements for the degree  
of Bachelor of Architecture at the  
Massachusetts Institute of Technology.

May 13, 1957

by

  
Leonard W. Besinger, Jr.

by

  
Dean Pietro Belluschi

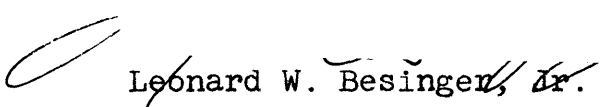
403 Memorial Drive  
Cambridge 39, Mass.  
May 13, 1957

Dean Pietro Belluschi  
School of Architecture and Planning  
Massachusetts Institute of Technology  
Cambridge 39, Massachusetts

Dear Dean Belluschi:

In partial fulfillment of the requirements for the degree of Bachelor of Architecture, I herewith submit the following thesis entitled, "A Golf and Country Club with Night Club and Restaurant Facilities for Meadowdale, Illinois".

Respectfully yours,

  
Leonard W. Besinger, Jr.

## ACKNOWLEDGEMENTS

I wish to take this opportunity to express my sincere gratitude to the faculty of the Department of Architecture for their aid and guidance throughout my years at M.I.T.

To Professor Herbert L. Beckwith for his guidance throughout this problem.

To Professor Ernest N. Gelotte for his helpful advice, criticism and stimulation.

To Professor Eduardo Catalano for making me realize the worth of Architecture and my education.

To my client for his aid in this problem and my entire education.

## ABSTRACT

This paper concerns the design of a country club for Meadowdale, Illinois. The country club is designed as an entertainment facility for the town, one of the stipulations being that of economy, since it is to be privately owned. Therefore, the paper contains a description of the design of the country club, nite club-banquet hall, restaurant and entry facilities necessary for a building of this nature, as well as a determination of insurance and building costs and the economic support analysis of an enterprise of this type. The latter is necessary to determine the size and scope of the facilities provided in the building.

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## INTRODUCTION

Country club design in the United States flourished in the twenties and since that time has diminished excessively. The great depression of 1929 started this decline and rising land values and building costs have further tended to reduce this type of building, due to the generally uneconomic business structure of such an enterprise. In fact many beautiful golf clubs and courses have succumbed to large housing developments since the thirties. There is now an increasing interest in golf in the United States, as it is no longer considered the sport of the rich as it was thirty years ago.

Due to this condition, the old clubhouses are still in use and only remodeled or rebuilt ones tend to indicate the trend of our advancing architecture. Therefore, the design of the clubhouse has now reached the status of being traditional, and building committees etc. have been very hesitant in breaking that tradition. This tradition grew up largely in the American Colonial or French or English Colonial half-timbered styles. The presence of the fireplace, and the rustic stone and timbered treatment were faithfully included in every design. The result, nevertheless, was a very pleasant atmosphere in the clubhouse, which grew on and was expected by the American people. Today

the expense of such a building is prohibitive.

Golf club management has advanced greatly since World War II and the resulting savings in this field and the mechanization of the maintenance equipment has permitted the operation of the golf course to approach a profitable operation.



### GENERAL DESCRIPTION

The Meadowdale Country Club is to be located on the west side of State Route 31, just within the northern-most limits of the town of Meadowdale is a part. Here after the town of Carpentersville will be referred to as Meadowdale.

Meadowdale is located forty miles Northwest of the city of Chicago, and four miles north of the city of Elgin in the Fox River Valley. It is a city being created by the client and only attached to the town of Carpentersville, population 1,500, for political reasons. It now contains 2,500 new families with new housing going up at the rate of 1,000 homes per year. A new 300,000 square foot shopping center is being completed and 400 acres of industrial sites are planned with plants for 700 workers already constructed and in operation. There are at present five new schools, seven new churches, and a new community center which have been developed and/or built by the client. The city has an expected population of about 35,000 people.

The need for a golf and country club, a nite club, and good restaurant facilities are apparent in the overall planning of Meadowdale. A discussion of the economic basis for the above facilities will follow later in the report.

The golf course will have eighteen holes in its first stage of development. An additional nine holes are planned for later. The fairways will be watered and the general condition of the course is to be of the best quality. Public golf courses are common in the Chicago area, and golf in the summertime is the major sport. The course will be very hilly and will wind through the woods. The additional nine holes will run down to and along the Fox River. Therefore it will be a very scenic and pleasant golf course.



## THE PROBLEM

The problem then, as stated by the client is to design one facility, for reasons of economy, control, and atmosphere, that will contain a complete country club building with a large tournament banquet hall, a nite club for use chiefly during the weekend evenings, and a restaurant capable of being divided into smaller function rooms. The above facilities are to be opened to the public and therefore must contain lobby, kitchen and other necessary facilities capable of handling up to 500 people.

The above facilities were deemed necessary by the client since the building is to house a profit-making enterprise. He feels that the inclusion of these three facilities will serve to make the club a profit making business throughout the year, in spite of the seasonal nature of the golfing activity.

The initial absence of a swimming pool was requested by the client due to the public nature of the enterprise.

Rooms - Area of Sizes

This Design Problem was Solved with the Area and Room Allocations as Follows:

|   |                 |        |
|---|-----------------|--------|
| Club House  | Covered Terrace | 5,608  |
|   | Inside Space    | 13,176 |
| Men's Area  |                 | 7,552  |
| Bar and Lounge, thirty-two at bar;<br>forty-eight at tables (24 x 64) |                 | 1,536  |
| Card Rooms (three @ 16 x 16)  |                 | 768    |
| Lockers (264 @ 1-1/2 x 1)   |                 | 2,240  |
| Valet and storage (16 x 16)   |                 | 256    |
| Shower Room (8 showers, 6 water closets,<br>5 urinals, 7 lavatories)  |                 | 640    |
| Passageway and 48 ft. of storage and display                          |                 | 576    |
| Covered Terrace (up to 100 at tables; 16 x 96)                        |                 | 1,536  |
| Women's Area  |                 | 2,480  |
| Lockers (66 @ 1-1/2 x 1)  |                 | 364    |
| Lounge (24 x 32)  |                 | 728    |
| Shower Room (4 showers, 3 water closets,<br>3 lavatories; 16 x 24)    |                 | 364    |
| Covered Terrace (16 x 1024)   |                 | 1,024  |
| Mixed foursome bar and grille (80 at tables, 16 at<br>bar, 32 x 48)   |                 | 536    |
| Kitchen Storage (16 x 16)   |                 | 256    |
| Pro Shop (24 x 32)  |                 | 832    |
| Pro Storage (8 x 24)  |                 | 192    |
| Passageway  |                 | 840    |

|   |       |
|---|-------|
| Entry Hall and Stairwell (32 x 64)                                | 2,048 |
| Covered Entry (both sides)  | 1,024 |
| Bar and Grille and pro shop terrace                               | 1,024 |
| Entry Area  |       |
| Inside Space  | 8,048 |
| Covered Terrace and walks   | 2,176 |
| Covered Entrance Walk and Entry                                   | 1,920 |
| Lobby and Mezzanine Lobby   | 2,816 |
| Coat Room and Counter (512 coats, opt. cap. 16 x 32)              | 512   |
| Coat Room and Counter Storage (8 x 16)                            | 128   |
| Waiting Lounge (16 x 32)  | 512   |
| Men's Room (6 water closets, 4 lavatories,<br>4 urinals; 16 x 28) | 448   |
| Women's Room (6 water closets, 6 lavatories,<br>18 x 28)          | 504   |
| Clerical Office (8 x 18)  | 144   |
| Manager's Office (8 x 16)   | 128   |
| Office Covered Terrace  | 128   |
| Cocktail Lounge (34 x 36, 70 at tables, 16 at bar)                | 1,224 |
| Cocktail Lounge Covered Terrace                                   | 128   |
| Corridor, bridge and stairwell (to restaurant)                    | 1,152 |
| Bridge (to nite club and banquet hall)                            | 480   |
| Mechanical (part to janitor)                                      | 1,088 |
| Kitchen Area  | 7,264 |
| Dishwashing and Storage   | 896   |
| Service Bar (8 x 16)  | 128   |
| Nite Club-banquet Hall Storage (16 x 26)                          | 416   |
| Employees Lounge (16 x 32, plus hall)                             | 640   |

|  |                      |        |
|--|----------------------|--------|
| Men's Room (2 water closets, 1 urinal, 2 lavatories) |                      | 96     |
| Women's Room (3 water closets, 3 lavatories, 8 x 16) |                      | 128    |
| Chef and Kitchen Office (16 x 16)                    |                      | 256    |
| Storage (3 @ 256)                                    |                      | 768    |
| Walk-in Refrigerator (16 x 16)                       |                      | 256    |
| Salads and Desserts (16 x 16)                        |                      | 256    |
| Bakery (16 x 16)                                     |                      | 256    |
| Butcher (16 x 16)                                    |                      | 256    |
| Cooked Foods   |                      | 512    |
| Ice Cream and Beverages (16 x 16)                    |                      | 256    |
| Waitress Pickup Area                                 |                      | 1,280  |
| Service Bridges                                      |                      | 864    |
| Nite Club - Banquet Hall                             | Inside Space         | 6,112  |
|  | Covered Area         | 4,704  |
| Circulation Space                                    |                      | 1,244  |
| Seating Space  | Capacities           |        |
| Banquet Hall   | low, @15 sq. ft.     | 324    |
|  | normal @11 sq. ft.   | 442    |
|  | emergency @7 sq. ft. | 695    |
| Nite Club  | low, @15 sq. ft.     | 222    |
|  | normal @11 sq. ft.   | 301    |
|  | emergency @7 sq. ft. | 476    |
|  |                      | 4,868  |
| Restaurant   |                      |        |
| Covered Terrace                                      |                      | 1,024  |
| Dining Space (148 or 2 function rooms, 74 each)      |                      | 2,560  |
| Protected Patios and terraces in building area       |                      | 30,636 |
| Total Inside Floor Space                             |                      | 38,248 |
| Total Covered Terrace                                |                      | 13,512 |

Parking Lots

One lot adjacent to the clubhouse area; 120 cars

One lot for overflow, north of entry drive; 180 cars



## THE SITE

I was given 120 acres on the west side of Route 31 in the Northwest corner of the city of Meadowdale, and the tentative course layout on which to locate the building. For reasons of advertising and accessibility, I decided to locate the building near Route 31.

At this point, the site has 1500 feet of road frontage with a creek which runs all year round running down the center of it in a valley between two hills. The hill south of the creek is heavily wooded and rises 120 feet in 1000 feet with a northern exposure. This hill is a very beautiful one, the trees being large white and black oaks for the most part. The area east of Route 31 owned by the client is scheduled for either housing or light industry. The south hill commands a view of this area. The north hill is less wooded and rises 100 feet in 800 feet from the creek. The trees on this hill are small, since it was once an orchard, with the larger trees beginning near the top. This hill commands a view of the south hill across the creek which meander through the site dropping at the rate of three feet every hundred feet. The creek, therefore is highly suitable for building low earth dams, reinforced with concrete membranes, to create ponds on the site. Since the course requires an excessive amount of water to keep it in shape, the dammed ponds will serve as water reservoirs as well as hazards and in this way they will serve a threefold purpose in justifying their presence.

Therefore, in order to maintain the sylvan atmosphere, and to remove the necessity of viewing the town which would mar this atmosphere, I decided to locate the building 300 ft. from the road and at the base of the north hill, integrating it with two ponds formed in the creek. The main views being towards the south hill and a vista up the valley in which the creek lies. It is on these areas that the first and tenth tees as well as the ninth and eighteenth greens occur, giving a view of the golf course as well. It is important in siting a clubhouse that it be in close proximity to these greens and tees, since easy access is a necessity for the patrons as well as the owners of the club.

If many terraces and protected open spaces can be attained in the clubhouse design it is naturally highly desirable.

All of these considerations will enhance the beauty, the use, and the view of the nite club-banquet room and restaurant.

Demolition of the existing buildings was approved by the client in a letter from him dated February 28, 1957, in which he states "the present barn and silo have no importance, and the house occupied by the Harvel's could (the farm house in the parking area) be moved". The floor and walls of the barn and silo will be salvageable as fill for the dam which will be built.

## DESIGN ANALYSIS

### Part I

#### Clubhouse Area

The clubhouse area was designed to be separated from the other areas of the building due to the different functions it performs. This area is intended to be place where informal dress in in order and where noise will not interfere with the operation of the other parts of the building. It is located very near the parking lot for easy accessibility, and is also at the ground level so that strenuous climbing will not be necessary until the golfer is ready to begin play. It is purposefully placed so that it must be entered, before teeing off with the pro shop at the point of control. At this location the Pro and his assistants can supervise the play.

Since the golf professional is essentially a shopkeeper part of the time the Pro shop is located at the point of maximum traffic, in order to more advantageously display and sell his wares. It has been a common fault of pro shops in the past that they are too small and poorly placed. This situation would mean less money for the club and the pro, and keeps the club from obtaining a good professional.

The women's locker area was not to be emphasized, according to the client as it seems that at a public course the women have little use for a locker room. Nevertheless, a good area of lounge and terrace is provided so that the women

that do use it can have a place in which to lounge away from the men.

The mixed couples bar and grille serves the purpose the name implies. It is necessary that it be located near the women's locker room so that they might enjoy its advantages more easily, since it is not economical that they have a bar of their own. This bar and grille will also service the large terrace which can be used for lounging. It also must be capable of being under the pro's surveillance as he will be the manager of the clubhouse area.

The men's area is designed to be spacious enough to handle a large number of men. Golf course locker rooms have been, it seems, traditionally rather unsightly, and this is not the situation which I intend to perscribe. The emphasis on locker space is lessened due to the public nature of the club. Therefore 264 lockers will be adequate for a tournament of 500 men. The shower room is designed in a similar manner. Clubs, if not carried home, can be stored in the valet's storage room, but it is expected that most of the golfers will take their clubs home with them. The valet will be there to supervise the locker room and showers and is located in such a position. He will also clean clubs and shoes. The valet's strage room will also store linen, etc. The card rooms were a ncessity as described by the client in a conversation with him. They will act as places where a number of foursomes can gather away from the bigger space of the

men's bar with access to the locker rooms as well as the bar. It must be noted that easy access to the bar from the locker rooms is a necessity. The covered terrace will act as a lounge and for overflow from the bar and is accessible from the locker rooms, card rooms, and bar. The men's bar room is designed to carry the bulk of the load. It must be noted that the lounge and bar areas will handle as much as 250 men at one time, in the event of a large tournament. It is intended to be a flexible area so that on days of little traffic the rooms will not dwarf the numbers using it.

It is my belief that the clubhouse area should be a dark, cool, place. This will provide a relief from the heat of the golf course, and its atmosphere should provide pleasing contrast acting as a sort of oasis. It is for this reason that the sixteen foot overhangs are used wherever windows occur, except for the garden cut through the terrace overhead. In this instance, frosted glass will be used on the locker room side to provide a diffused light and also for reasons of privacy the card room side of this area will be in shadow during the entire day. The presence of the pond immediately outside of the men's area will provide a cool, pleasing atmosphere, and coupled with the fact that the clubhouse area is at ground level, should keep the area cool, but it is not advisable to make it as chill as air conditioning would make it.

The entire area is easily accessible to the banquet hall above it which will still keep the country club function far enough away from the restaurant and cocktail lounge areas of the club. It is intended the the banquet hall and clubhouse areas will read as the clubhouse to the tournament golfer.

Since the local trend is towards portable caddy carts no caddys will be used, eliminating the necessity of a caddy house.

The prevailing breeze is from the southwest, and therefore the entire building should be oriented to take advantage of it. The prevailing weather conditions are such that the course can begin operations late in March and continue on until the middle of November. Therefore the clubhouse area must be capable of being closed off as the rest of the building will be operated throughout the entire year.

### Lobby Area

The Lobby area is intended to be used for both the nite club and restaurant. Therefore it must be large enough to handle as many as 500 people at one time.

Coming in from the entrance shelter, the space is large with a twelve foot ceiling height. Immediately at the right is the counter and the coat checkroom, on the left the waiting lounge. The stairway up to the mezzanine level is immediately in front of you and it is intended to imply that this is the way to wherever you are going. Thus it is still part of the lobby, but it moves the people out. The floor surface in the lobby portion and on the corridors to the restaurant and nite club will be terrazzo. The floor surface in the waiting lounge will be carpeted, with a long table across the front of it to denote its presence in and deparation from the lobby proper. The vinyl floor tile and counter will perform the same function in the coat check area.

The cocktail lounge should be large enough to accommodate those waiting for tables, those using it for a meeting place, and those people in the area who plainly enjoy a good drink. For this reason it is placed in the lobby area, but below the traffic routes to offer some seclusion. It has a fairly private patio as outdoor space should be provided in keeping with the atmosphere of the building.

The managerial offices should be kept out of the way to provide seclusion from the clubs' patrons for the business

staff and for this reason they are placed near the main point of control, but out of the way of the public.

### Bridges

A conflict is involved in the circulation of both people and food to the dining areas, while the view should be maintained in both of these areas and they should both be serviced from the same lobby and kitchen. It is for this reason that the bridges are necessary. Light must be permitted to enter the lobby area and its adjacent rooms, and the kitchen sounds and odors must be held to a minimum if not eliminated in the dining areas. Therefore, the bridges help to fulfill these requirements as well as providing an interesting walk to the dining areas.



Restaurant

The restaurant is to be used to service the public, not the golfers. Therefore, it should be placed in such a manner that it enjoys the view and atmosphere that a country club has to offer, but it must be located so that it is not necessary to encounter a sea of golfers to get to it.

The restaurant should be capable of handling 100 people and function rooms are required as well to handle up to seventy five people. It is for this reason that the restaurant is divided into two equal parts with the common terrace and entry linking them and providing smaller more intimate rooms, as the restaurant should not be a dining hall. It should take on the outdoor atmosphere of the country club and therefore the glass is set well back in from the roof line which is intended to lead the diners eye outside. This blends into an open terrace, and towards the first tee. Outdoor dining should be provided for, and, with the terrace, the capacity can be as much as doubled on a good day.

Night Club - Banquet Hall

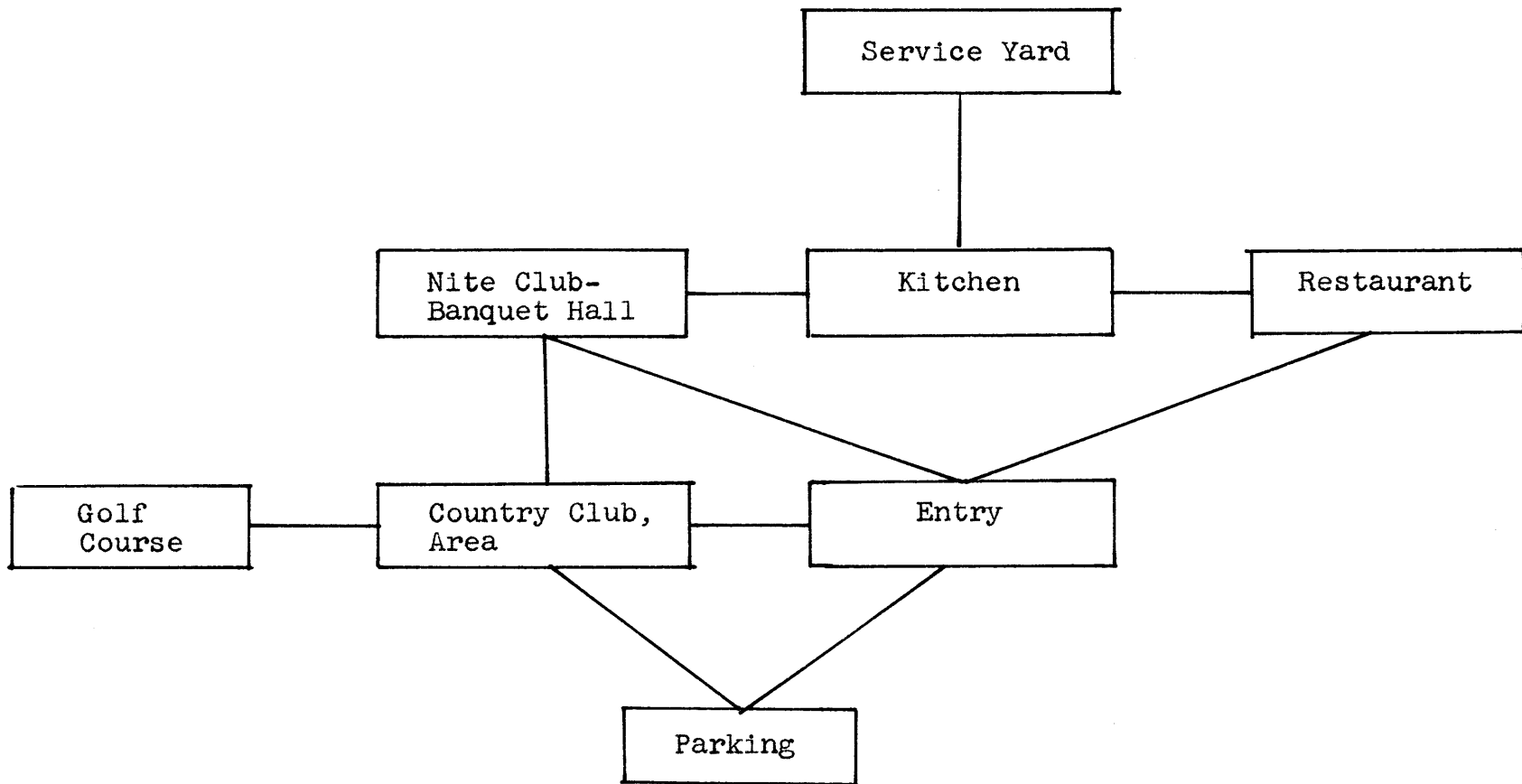
The nite club and banquet hall should be designed to handle large groups of people as has been mentioned before. No emphasis was placed on one function over the other by the client, and in this way a single large flexible space seemed in order as two such spaces would be superflous. It is for this reason that no columns are wanted in this space and since it was the main feature of the club as explained by the client, it seemed proper to use this as a focal point and therefore the warped surface shell concrete design. It is necessary that the building be completely of fireproof construction and it was for this reason that a steel or wood structure was ruled out. A more complete explanation of this will follow. The hall should command a good view of the surroundings if possible, and it should be in such a position so that control of its patrons is also possible. It is for this reason that the building is opened on three sides by the glass walls which follow straight lines in the surface for ease of glass installation. The glass should be set in at a considerable distance from the edge of the form so as not to break the continuity of the curve and also to protect the room from glare. It should have plenty of open space for overflow and outdoor dancing or dining and it is for this reason, coupled with control and the idea that such a strong form should have a good base that it is set on the countryclub complex. Along with

the reason for a good base was the decision to keep all openings in that base in an extremely deep shadow to afford it with more solidity rather than having it resting on glass. The buttresses should be seen for reasons of structural expression, so it is for this reason that they penetrate the terrace floor through large holes which admit light to the buttress so that it will stand out in the shadow. The floor of the hall itself since it is to be used for dancing as well as entirely for dining will be of oak and raised above the concrete deck to admit heating ducts into the space. A movable stage will be provided for the nite club and storage for the extra chairs and tables needed is located just inside the kitchen. No change in levels in the floor is desirable since it would hamper both safety, service and flexibility.

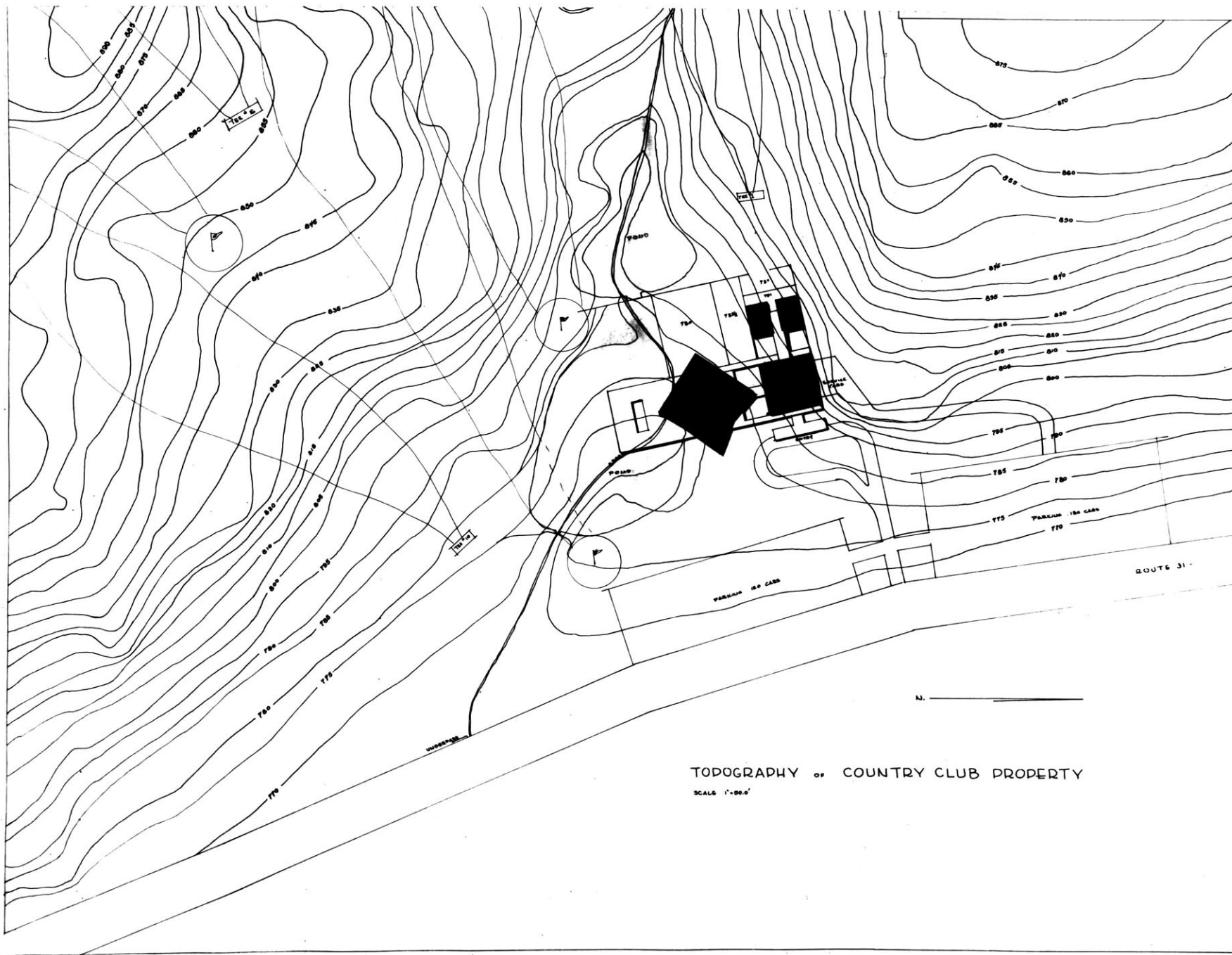
### Kitchen

The kitchen in this case should occupy over 75 per cent of the dining space and should be on the same level and adjacent to them for efficient service. The kitchen has 84 per cent of the dining space. It is pretty far away from the nite-club banquet hall for easy service and it is proposed that a steam table be placed in the bridge at which the waitresses can pick up the food. There should be a service bar located in the kitchen, as well as employees rest rooms and lounges. A chef's office is also necessary. The dishwashing section should be separated from the rest of the kitchen physically and acoustically and for this reason an eight inch concrete block wall is provided. The various preparation sections should be clearly defined and a high ceiling of at least ten feet is a necessity, as no practical amount of ventilation will keep the area cool enough to work in. Otherwise all these preparation sections must have a counter along the waitress pickup area. A large amount of storage space should be provided as well as a large walk-in refrigerator, which is highly desirable. It is not necessary to have a lot of natural lighting in the kitchen as the efficiency of windows is hindered by the accumulation of grease, etc. The kitchen storage area should be located near a service yard that is separated from the public for ease of handling and to get the kitchen's back door out of the public's view.

PRELIMINARY SKETCHES OF FINAL DRAWINGS



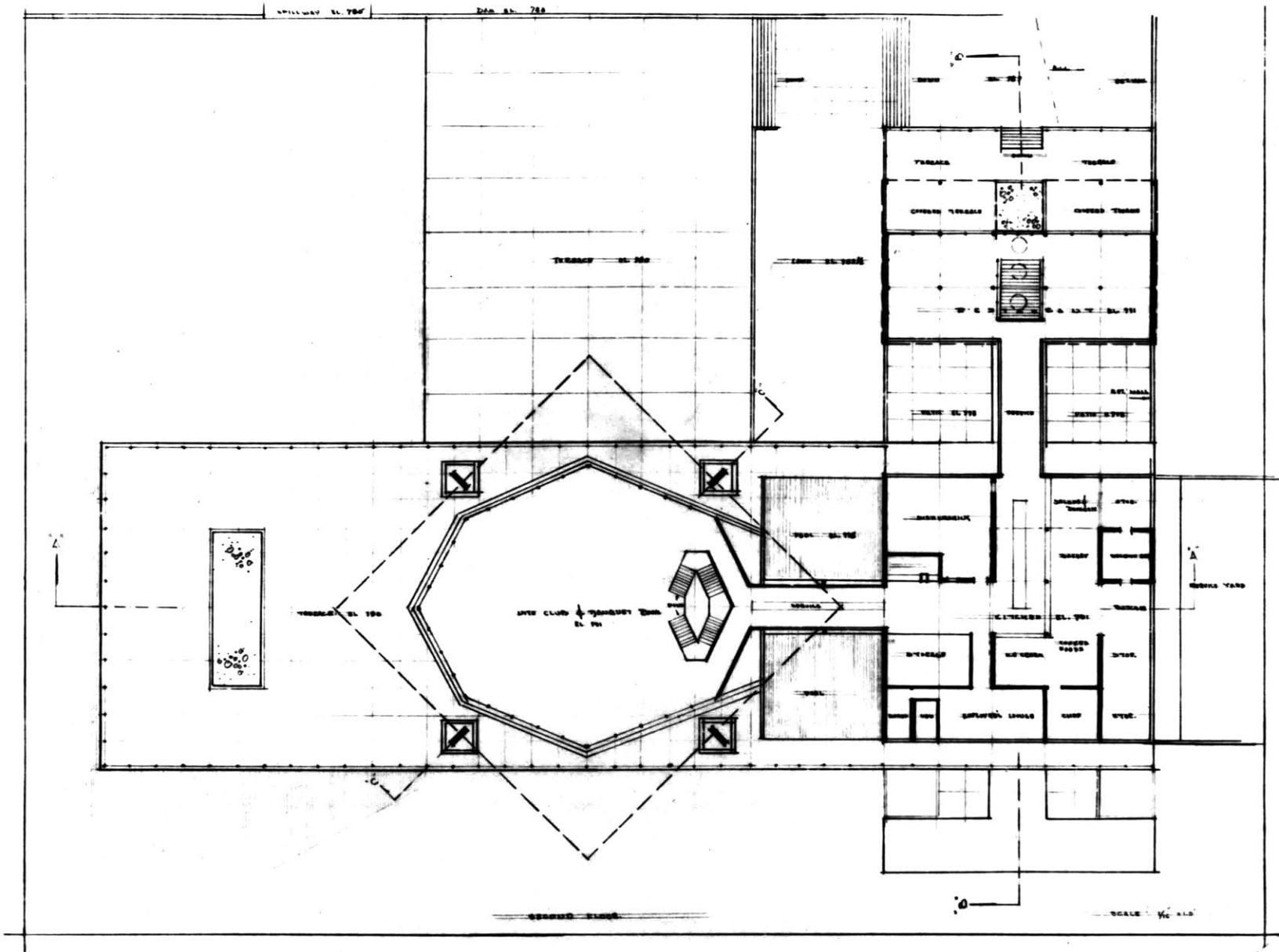
CIRCULATION DIAGRAM

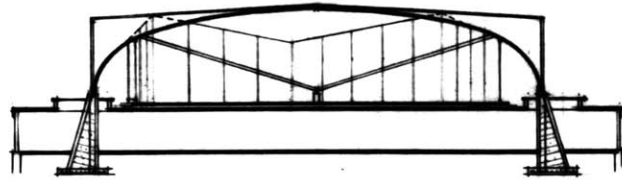


TOPOGRAPHY OF COUNTRY CLUB PROPERTY  
SCALE 1"=500'





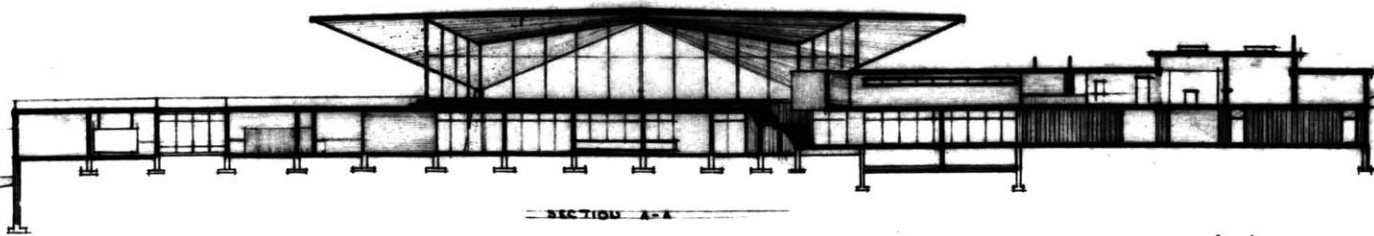




SECTION C-C

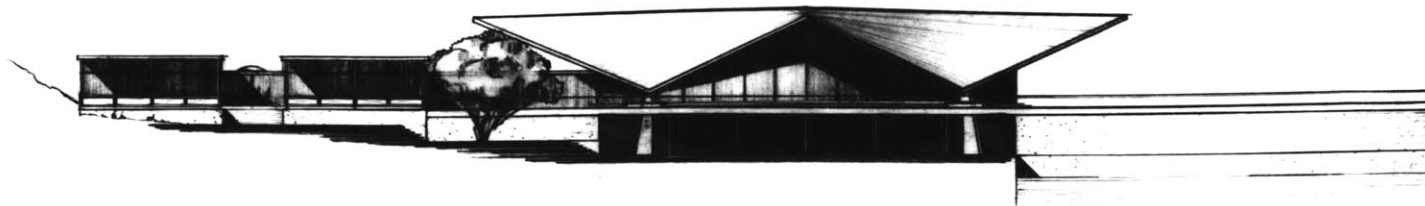


SECTION B-B

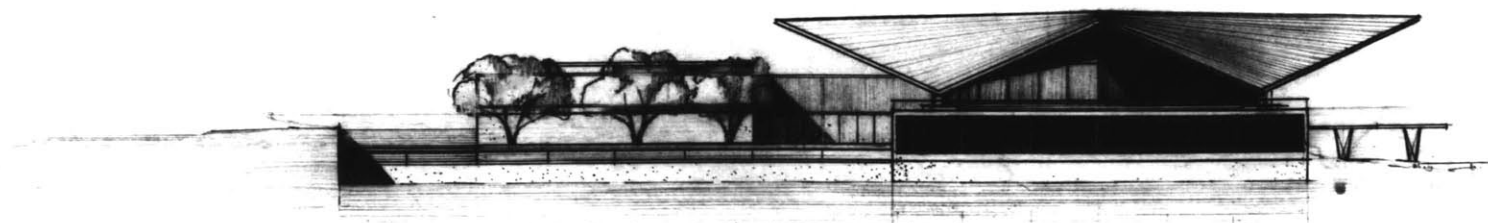


SECTION A-A

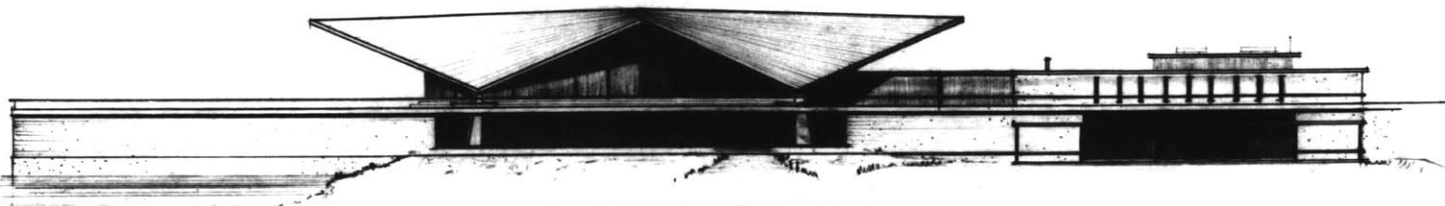
SCALE 1/8" = 1'-0"



WEST ELEVATION

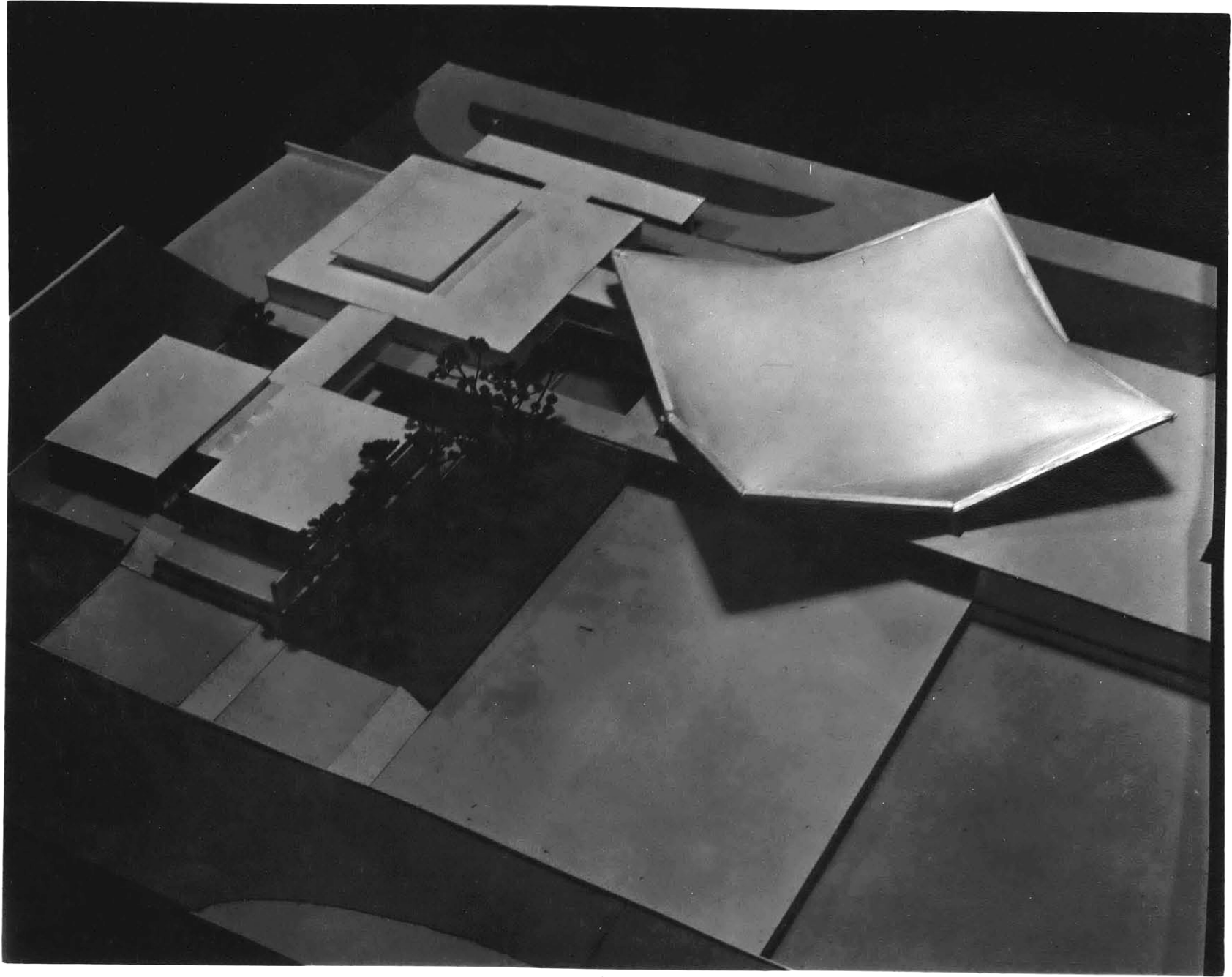


SOUTH ELEVATION



EAST ELEVATION

SCALE 1/4" = 1'-0"



## INSURANCE ANALYSIS

The structural considerations in this building are based primarily on fire insurance rates. In the Meadowdale area there is a volunteer fire department at the present time, although there will be a city water system into the clubhouse. It is for this reason that fire insurance rates on the building would be tremendously high. If we assume that the building will cost \$468,000 in concrete, and roughly \$425,000 in brick and steel construction, we find that the following insurance rates will apply on a co-insurance basis, insuring it at an 80 per cent of value rate, or \$374,400 and \$340,000 respectively. Using the rates of \$.091 per \$100 for the fireproof building we obtain an annual insurance cost of \$340,704. In the case of the building with brick construction which is approximately equal to one built of steel, unprotected, we obtain an annual insurance cost of \$3,832.20 at a rate of \$833 per hundred. This makes an insurance cost difference of \$3,491.50 against an increased building expense of roughly \$43,000. This expense will be amortized by the insurance benefits alone in twelve and a half years to say nothing of the lower maintenance costs of the concrete construction and the generally better construction obtainable. This is especially important to the client who strongly wants yearly operating costs as low as possible even at the expense of a

greater cost at the beginning.

**EDWARD W. MORSE**

INSURANCE

113 WEST MAIN STREET

TELEPHONE MAZEL 6-4881

DUNDEE, ILLINOIS

April 22, 1957

Mr. Arthur Franzen  
Leonard W. Besinger & Associates  
Meadowdale Subdivision  
Carpentersville, Illinois

Re: Shopping Center Building

Dear Art:

In accordance with your request, I have obtained the following tentative rates in connection with the above captioned building from the engineering department of one of the insurance companies I represent:

BUILDERS' RISK - COMPLETED VALUE FORM (COINSURANCE MANDATORY)  
RATES

|                             | <u>Fire</u> | <u>Extended Coverage</u> |
|-----------------------------|-------------|--------------------------|
| Fireproof Construction      | .078        | .049                     |
| Ordinary Brick Construction | .366        | .162                     |
| Frame Construction          | .60         | .162                     |
| - - - - -                   | - - - - -   | - - - - -                |

COMPLETED BUILDING RATES

|                             | <u>Fire</u> | <u>E.C.</u> | <u>Net Rates if Co-insurance Attaches</u> |             |
|-----------------------------|-------------|-------------|---|-------------|
|                             |             |             | <u>Fire</u>                               | <u>E.C.</u> |
| Fireproof Construction      | .304        | .18         | .091                                      | .016        |
| Ordinary Brick Construction | 1.11        | .24         | .833                                      | .084        |
| Frame Construction          | 9.50        | .24         | 8.55                                      | .084        |
| - - - - -                   | - - - - -   | - - - - -   | - - - - -                                 | - - - - -   |

Needless to say, the above rates are approximations and are not binding on the insurance company providing same, as all

rates applicable to a risk, such as the one under discussion, are subject to approval by the Illinois Inspection Bureau, if the risk is located in Illinois outside of Cook County.

Trusting the above proves sufficient for your purposes, I am,

Sincerely,

EDWARD W. MORSE

EWM:jg



DESIGN ANALYSIS

Part II

Structure

Therefore, in the light of the previous insurance analysis, square steel columns will be used, (these do not hinder the fire rating) with a steel grid set between steel shear heads at the tops of the columns. A poured in place, mesh reinforced, expanded mineral aggregate concrete, such as perlite, will be used. This two way slab will be 7-1/2 inches thick and will cover the steel grid which will be four inch wide flange beams. This slab will serve as a base for the flooring material in the kitchen and on the bridges, and will also serve as a finished ceiling in almost the entire building which only need be painted. Naturally care must be used in forming the slabs, using plywood forms. The steel columns shall be four inches square throughout the building except in the entry area where they will be six inches square to support the kitchen. Three inch columns could be used in the kitchen and bridge areas, but for reasons of uniformity and avoidance of too many different sizes, I think it wise to use the four inch columns.

The actual structural calculations of the warped skin surface are beyond the scope of this problem and were therefore not performed, but I have received assurance that it would work. Basically it will be a four inch, mesh reinforced skin with the thickness increasing slightly at the point



where it meets the buttresses. It can be thinner nearer the center and at this point acoustical material will be placed in order to reduce the reverberation time in the nite club below. The edge beams or directrices will be of reinforced concrete with the ones running towards the center at a slight pitch upwards so that their weight causing a downward pressure at that point will not cause the structure to cave in at the center putting these beams in tension, as all the beams in the structure must be in compression. Since most of the thrust in the structure will be cancelled by the opposing beams, it can essentially be put on stilts, but the skin surface immediately above the buttresses will put some outward thrust at this point and therefore a comparatively small amount of buttressing is necessary. Along with this fact, uneven wind loadings must be accounted for.

### Acoustics

The acoustics of the building in most areas will not be a problem. The kitchen is purposely separated from the dining rooms for these reasons, with the passageways containing material to deaden the sound such as a tiled ceiling. The dish-washing area will be separated by an eight inch block wall as has been previously described.

The main area that must be given considerable consideration is that of the nite club area. The irregular shape of the ceiling will serve to keep the sound from focusing, while the layout of the angled walls will aid and reinforce the sound across the entire room. The rear walls at the waitress entry will be treated with two inches of fuzz and a perforated steel covering, providing sound absorbancy from the kitchen and somewhat reducing echo. This will also aid the reverberation time in the room which has a volume of 122,240 cubic feet. The desired reverberation time will be roughly that of a motion picture theater of the same size of 1.44 seconds. This means that the room will require 6,500 sabins to keep the reverberation time at the desired level. To accomplish this, the floors will be carpeted wherever possible and acoustical material will be placed in panels in the ceiling. This will be necessary since the walls are entirely of glass on three sides.

### Heating and Ventilation

The heating system will be of forced warm air. Two heating plants will be used with one on either side of the building. The main ducts running with the pipe trenches along either side of the length with the outlet ducts placed under the poured slab floor. This is done so that one may be used as an auxiliary to the other should a breakdown occur, and to permit shorter runs from the main duct to the outlet. The nite club will use the same system with the wooden floor raised to allow the ductwork to run underneath it and permit returns for the countryclub area. The restaurant will have its own forced air heating system located in the stairwell.

The only areas which will be air conditioned are the nite club, cocktail lounge and restaurant, while the country club locker areas and grille area will be ventilated. The kitchen has a raise roof portion to permit the warm air to rise to the ventilators which will be located on the roof.

ECONOMIC SUPPORT ANALYSIS

In order to justify the design of such a large building I feel it necessary to include the following population statistics and family incomes in the adjacent areas.

Between the years 1940 and 1957, the population in the area of influence of the country club will have increased 71 per cent; by 1960 it will show an increase of 101 per cent, more than doubling the 1940 population. The area within four miles of the countryclub has shown the greatest rate of increase, 97 per cent between 1940 and 1957 and 222 per cent between 1940 and 1960. This phenomenal rate of increase in the immediate area is indicative not only of the pace at which Chicago is growing to the northwest (as can be seen in the following Population Growth Tables) but particularly it represents the tremendous rate of building of homes in Meadowdale.

These figures should be compared with population yardsticks for the State of Illinois which will have increased 22 per cent to 1957 and 26 per cent to 1960 and with the total United States which will show 28 per cent and 3 per cent for the same periods.

The short term population growth for the countryclub sphere of influence indicates a 33 per cent population increase from 1950 to 1957 and a 56 per cent increase from 1950 to 1960.

This indicates that not only has growth been great, but that the greatest increases have tended to be within recent years. <sup>(1)</sup>

Furthermore, the average family after-tax income in the area is roughly \$6,800 and by 1960 it will rise to \$7,100. From this income, within an eight mile radius of the countryclub, people spend a total of \$9,897,900 at eating and drinking places alone. At the present time there is no worthwhile golf course with the facilities to be provided in the clubhouse area alone which is open to the public. The Elgin and Barrington Country Clubs, which are of a private nature are the only clubhouses and courses which might compete with the Meadowdale Country Club, and they are eight miles away.

Besides the above facts, there is only one country club in the city of Chicago with the facilities to handle a tournament of 500 men. This is the Medinah Country Club, which must use about five separate rooms plus their terraces in order to seat a tournament of over 300 men. This, coupled with the fact that the only source of good evening entertainment in the form of a night club is forty miles away in the city of Chicago for 150,000 people. Therefore, the nite club and banquet hall were designed to accommodate this need.

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(1) From a report on the Meadowdale Shopping Center Trading area prepared by Amos Parrish & Company, New York, 1956.

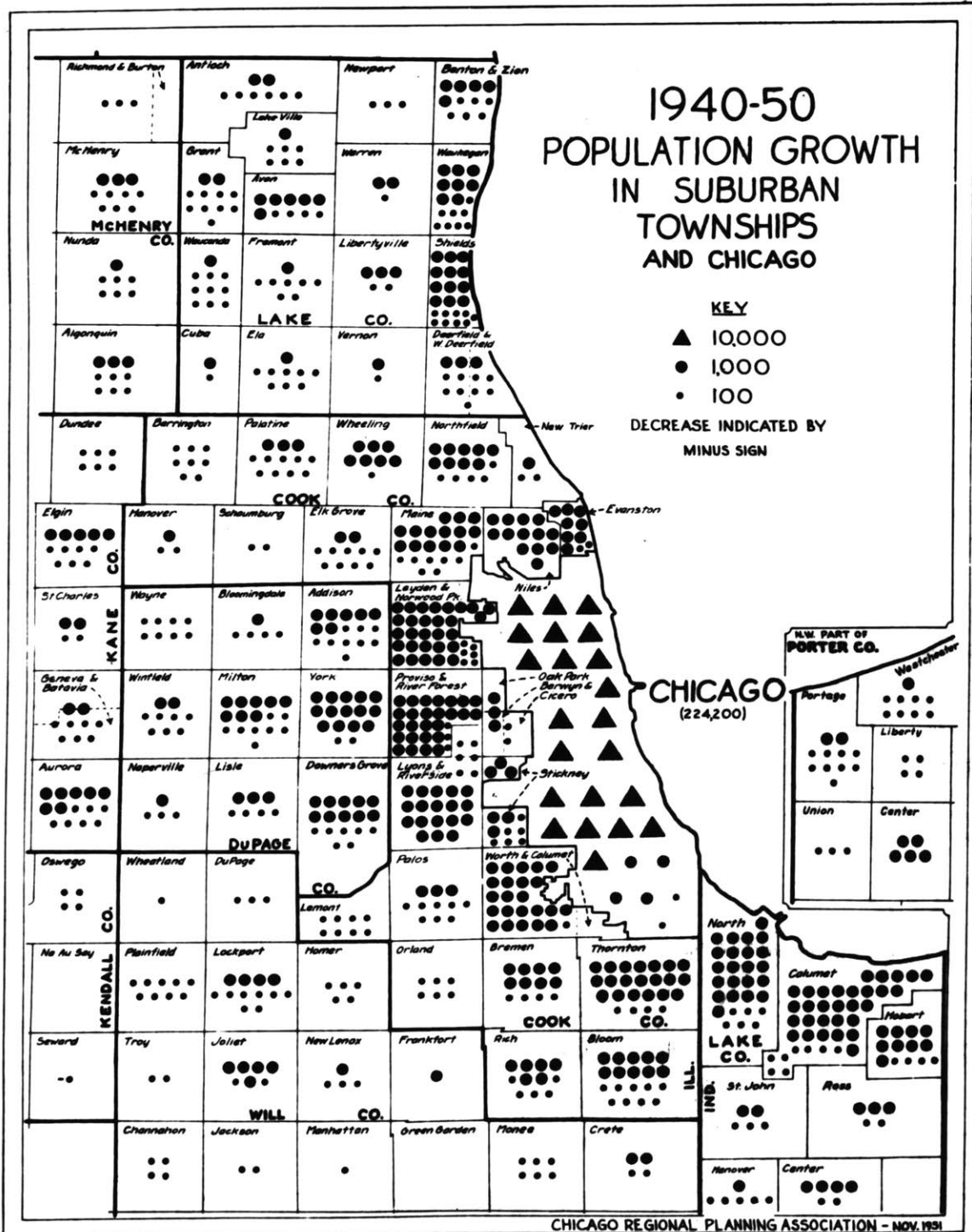
Since the area across Route 31 and further on the other side of the river will be highly industrialized the need for a good restaurant is apparent.

ECONOMIC SUPPORT TABLES

# 1940-50 POPULATION GROWTH IN SUBURBAN TOWNSHIPS AND CHICAGO

- KEY**
- ▲ 10,000
  - 1,000
  - 100

DECREASE INDICATED BY  
MINUS SIGN





11/24/54 for review  
 Revised 12/56

POPULATION GROWTH  
 Tentative Projections to 1980 in 1000s  
 By Chicago Regional Planning Association

KANE CO. MUNICIPALITIES

|                 | 1950 | 1960 | 1970 | 1980 |
|-----------------|------|------|------|------|
| Carpentersville | 1.5  | 10   | 17   | 23   |
| East Dundee     | 1.5  | 2    | 3    | 5    |
| West Dundee     | 1.9  | 2.5  | 4    | 6    |
| Elgin           | 44.2 | 51   | 58   | 65   |
| South Elgin     | 1.2  | 1.5  | 2    | 3    |
| St. Charles     | 6.7  | 8.2  | 10   | 12   |
| Geneva          | 5.1  | 7    | 9    | 11   |
| Batavia         | 5.8  | 6.8  | 8    | 9    |
| Montgomery      | 0.8  | 1.2  | 1.8  | 2.4  |
| Gilberts        | 0.2  | 0.3  | 0.4  | 0.6  |
| Hampshire       | 1    | 1.3  | 1.7  | 2.5  |
| Pingree Grove   | 0.2  | 0.3  | 0.4  | 0.6  |
| Burlington      | 0.3  | 0.4  | 0.6  | 0.8  |
| Elburn          | 0.8  | 1    | 1.4  | 1.8  |
| Maple Park      | 0.4  | 0.4  | 0.5  | 0.7  |

DUPAGE CO. MUNICIPALITIES

|              |     |     |   |    |
|--------------|-----|-----|---|----|
| Bensenville  | 3.8 | 5.8 | 8 | 11 |
| Wood Dale    | 1.9 | 4   | 6 | 9  |
| Lyons        | 1.3 | 3   | 5 | 7  |
| Roselle      | 1   | 3   | 5 | 7  |
| Bloomington  | 0.8 | 0.5 | 1 | 2  |
| West Chicago | 4   | 6   | 9 | 12 |

COOK CO. MUNICIPALITIES-North

|                |     |    |    |    |
|----------------|-----|----|----|----|
| Mt. Prospect   | 4   | 11 | 19 | 26 |
| Arlington Hts. | 8.8 | 22 | 34 | 44 |

McHENRY CO. MUNICIPALITIES

|                    | 1950 | 1960 | 1970 | 1980 |
|--------------------|------|------|------|------|
| Algonquin          | 1.2  | 1.8  | 2.8  | 4    |
| Lake in the Hills* |      | 2.5  |      |      |
| Fox River Grove    | 1.3  | 2.1  | 3.6  | 5.6  |
| Cary               | 0.9  | 1.8  | 3.5  | 6    |
| Crystal Lake       | 4.8  | 8    | 12   | 16   |
| Lakewood           | 0.4  | 0.7  | 1    | 1.2  |
| Woodstock          | 7.2  | 8.9  | 10   | 11.8 |
| McHenry            | 2.1  | 3    | 4.5  | 6.5  |
| Richmond           | 0.6  | .8   | 1.4  | 2.3  |
| Hebron             | 0.7  | .8   | 1    | 1.2  |
| Harvard            | 3.5  | 4    | 4.8  | 6    |
| Huntley            | 0.8  | 1    | 1.2  | 1.6  |
| Union              | 0.4  | .5   | .6   | .8   |
| Marengo            | 2.7  | 3.4  | 4.2  | 6.4  |

LAKE CO. ILL. MUNICIPALITIES

|                  |     |     |     |     |
|------------------|-----|-----|-----|-----|
| Libertyville     | 5.4 | 8   | 11  | 13  |
| Fox Lake         | 2.2 | 3.6 | 6   | 9   |
| Grays Lake       | 2   | 3.5 | 6   | 9   |
| Lake Zurich      | 0.8 | 3   | 6   | 10  |
| Round Lake       | 0.6 | 1   | 2   | 4   |
| Round Lake Beach | 1.9 | 4   | 7   | 10  |
| Round Lake Park  | 1.8 | 2.5 | 4   | 6   |
| Waukegan         | 1.2 | 2.5 | 4.6 | 6   |
| Palatine         | 4.1 | 9   | 14  | 19  |
| Barrington       | 4.2 | 7   | 8.3 | 9.8 |

STATE OF ILLINOIS - DEPARTMENT OF REVENUE

SALES TAX REPORT FOR

FISCAL YEAR ENDING JUNE 1958

| <u>COMMUNITY</u>     | <u>TOTAL<br/>VOLUME</u> | <u>GENERAL<br/>MERCHANDISE</u> | <u>FOOD</u>  | <u>EATING &amp;<br/>DRINKING<br/>PLACES</u> | <u>AUTOMOTIVE</u> | <u>WHOLESALE<br/>MFR.</u> | <u>ALL<br/>OTHERS</u> |
|----------------------|-------------------------|--------------------------------|--------------|---|-------------------|---------------------------|-----------------------|
| Elgin (685)          | \$68,796,600            | \$21,020,500                   | \$16,531,000 | \$4,678,500                                 | \$11,266,200      | \$3,644,000               | \$11,952,600          |
| Carpentersville (20) | 830,300                 | 113,400                        | 170,000      | 259,000                                     | - 0 -             | 3,900                     | 287,100               |
| Dundee (102)         | 7,928,500               | 722,800                        | 2,080,900    | 2,300,600                                   | 1,010,700         | 444,300                   | 1,368,200             |
| Algonquin (44)       | 2,490,400               | 249,000                        | 341,200      | 750,900                                     | 253,400           | 226,200                   | 668,900               |
| Fox River Grove (36) | 1,345,500               | 46,200                         | 471,400      | 404,700                                     | 13,800            | 12,400                    | 396,800               |
| Cary (37)            | 1,941,000               | 1,600                          | 933,000      | 399,000                                     | 37,400            | 15,400                    | 511,400               |
| Barrington (148)     | 16,318,300              | 1,159,700                      | 6,661,100    | 532,900                                     | 2,762,000         | 1,124,600                 | 3,675,600             |
| Huntley (38)         | 1,821,100               | 26,960                         | 233,950      | 172,300                                     | 176,000           | 47,800                    | 1,067,600             |

## COST ANALYSIS

A cost analysis of the building is necessary since it is of considerable importance to the client. The costs below and following analysis are based on the following construction cost estimates obtained and compiled during my experience in this field and from the client based upon current building costs in the Chicago area:

### Excavating and Grading

- (a) For moving dirt that can be moved with large equipment - 70¢ per yd.
- (b) For any sand fill or dirt that must be hauled by trucking - \$1.25 per yd.
- (c) For trenching a trench up to 4 ft. in depth - 60¢ a running ft.
- (d) For back-filling ditch - 10¢ a ft.
- (e) For common excavating and the digging of holes for basement, etc. - 65¢ per yd.
- (f) For small hand jobs, or small digging jobs such as the digging for piers, etc., figure \$2.00 per yd.

### Foundation and Cement Work

- (a) Concrete footings - \$1.00 per cubic ft. (If any steel is in footings, add 15¢ per lb. for steel set in place.)
- (b) Foundation walls 8 in. in thickness, up to 4 ft. in depth - 70¢ per sq. ft. (If foundation walls are deeper than 4 ft. add 10% for each foot added.)
- (c) 12 in. foundation walls will cost 90¢ per sq. ft. (Same applies for each extra ft., and for depth, add 10%)

- (d) For any reinforcing added into walls, add 18¢ per lb. for set steel.
- (e) Concrete piers: The forming and pouring of concrete piers should be \$2.00 per cubic ft.
- (f) Concrete Floors - 5 in. - 60¢ per sq. ft. (If steel is added, again add 18¢ per lb.)
- (g) For concrete walks - 5 in. - about 70¢ a sq. ft.
- (h) For concrete curbs, the exterior 12 in. deep and 18 in. wide - \$2.90 a running ft. (For floor fill, add 50% to the above quoted price on fill for spreading.)

#### Masonry Walls

- (a) For laying 1,000 face brick, without the cost of the face brick - \$70,000.
- (b) For laying common brick - \$50.00 per 1,000, plus the cost of the brick.
- (c) For laying concrete block - 40¢ a block, plus the cost of the block. (8in.)
- (d) 4 in. block is 35¢ per block, plus the cost of the block.
- (e) For all stone work - \$1.40 a sq. ft., plus the cost of the stone.
- (f) Cost of cut stone for sills, copings, etc. - About \$4.50 a running foot, up to the size of 4 x 12. Sills will be about 1/2 of the above figure, using the 4 x 8 sill.

#### The Following is a Cost on Various Kinds of Brick and Stone, etc.

- (a) Crab Orchard Stone - \$1.25 a sq. ft.
- (b) Cut Stone - \$1.60 a sq. ft.
- (c) Terra Cotta - \$3.50 a sq. ft.
- (d) Common Brick - \$28.00 per 1,000
- (e) 4 in. Blocks - 18¢
- (f) 8 in. Blocks - 24¢

- (g) 12 in. Blocks - 28¢
- (h) Face Brick ranges in price from \$40 to \$80.

Structural System - Per Sq. Ft. of Coverage

Wood - For ceilings and roof construction only.

- (a) For frame construction including the following:  
Joists and steel supports; 60 lb. Felt Roofing;  
Insulation - 4 in. rock wool; rock lath and plaster - \$1.25.
- (b) Using steel bar joists and steel supports, with suspended metal lath ceiling - \$1.85.
- (c) For a poured-in-place reinforced concrete roof, including all steel and concrete columns - \$2.15
- (d) For a pre-cast concrete roof, using concrete girders, concrete joists, a three inch Perlite roof, reinforced and a suspended metal ceiling - \$7.95.

Carpentry

- (a) Lumber has an average cost of about \$135.00 per 1000
- (b) Floor sanding is cost finished, about 12¢ a sq. ft.
- (c) Insulation - 4 in. Batts installed - Cost about 8¢
- (d) Roofing Material - Flat roofing - 60 lb. Felt - \$15 a sq

Heating and Cooling

- (a) Heating - Use forced air for gas - about 75¢ a sq. ft.
- (b) Cooling - Use the same duct work - Costs about an additional 65¢ a sq. ft.

Plumbing

- (a) An average cost of \$150.00 per fixture setting or hook-up.
- (b) The running a 1/2 in. copper water line - \$1.25 a ft.
- (c) A one-inch copper water line - \$1.60 a ft., plus the digging, or trenching.

- (d) 4 in. sewer pipe is put in place - 70¢ - ; 6 in. - 90¢ and 8 in. \$1.10; plus the digging and backfilling.
- (e) Running of gas pipe - About 20¢ less than copper, as above mentioned.

#### Plastering

- (a) Placing on rock lath - about \$3.00 yd. (this includes lathing)
- (b) Plastering to metal lath - \$4.00 yd.
- (c) Plastering to metal lath on a suspended ceiling - \$6.50

#### Painting

- (a) .05¢ a cubic ft.

#### Electrical Wiring

- (a) Approximately \$8.00 an opening. (this includes the lathing)
- (b) Where extra heavy service is needed, \$12.00 an opening.

#### Tile Work and Floor Work

- (a) Wall tile - Plastic - \$1.20 a sq. ft.
- (b) Mosaic wall tile - \$3.00 a sq. ft.
- (c) Marble flooring - \$4.50 a sq. ft.
- (d) Terazza Flooring - \$1.50 a sq. ft.
- (e) Vinyl tile flooring - 70¢ a sq. ft.
- (f) All grease proof asphalt tile - Add 10¢ a sq. ft.
- (g) "A" Colors in asphalt - 30¢ a sq. ft.
- (h) "B" Colors - 25¢ a sq. ft.
- (i) "C" Colors - 20¢ a sq. ft.

#### Glazing

- (a) Ordinary glazing costs about 30¢ a sq. ft. with D.S.A.
- (b) Glass area including doors; \$4.00 per sq. ft.

Where the type of construction used does not coincide with the above figures the estimates obtained have been as much as tripled to bring the cost to a realistic figure. I would like to note that any form or method of building estimation never is more than close to the actual construction figures, and therefore I feel that the type used in this estimate, which consists of applying unit costs to overall volumes and areas of materials with the labor costs included, can be a considerably accurate working estimate, Experience in this field is naturally a highly useful tool, since some guesswork is always necessary.

The client, being in the construction business in Meadowdale at the present time, claims that his costs will be approximately 25 per cent less than the unit costs given and the following estimates shown below. Therefore I will offer this margin as a buffer against unplanned on costs.

|   |           |
|---|-----------|
| Foundations, footings, piers, and<br>buttresses                         | \$ 17,261 |
| Concrete walks, terraces, floors, and curbs                             | 38,688    |
| 7-1/2" poured in place, steel grid structure<br>including steel columns | 87,745    |
| Formwork for warped surface roof  | 30,000    |
| Concrete and steel for structure  | 25,077    |
| Plumbing  | 13,120    |
| Spread fill   | 4,440     |
| Masonry (primarily 4 and 8 inch concrete block)                         | 14,717    |

|  |                   |
|--|-------------------|
| Glazing  | \$ 48,640         |
| Doors and trim   | 8,000             |
| Heating  | 30,876            |
| Air conditioning   | 6,916             |
| Ventilation  | 2,000             |
| Wall tile (ceramic)  | 6,600             |
| Flooring   | 43,310            |
| Roofing  | 36,444            |
| Sewer and drainage   | 4,000             |
| Earth moving, excavating   | 5,000             |
| Painting   | 20,000            |
| Electrical work and fixtures   | <u>25,000</u>     |
| Total Estimate of Building   | <u>\$ 468,034</u> |
| Site Improvement   | 24,500            |
| Total Construction Cost Estimate   | <u>\$ 492,534</u> |
| Covered Terraces (13,512 sq. ft.<br>@ \$4.25 per sq. ft. or<br>\$57,426.00)    |                   |
| Inside Building Area (38,248 sq. ft.<br>@ \$10.74 per sq. ft. or<br>\$410,608) |                   |

It is to be born in mind that the above estimate includes a margin of roughly \$80,000.00, according to the lower costs expected to be incurred. This estimate does not include lockers and other such fixtures, kitchen equipment or a plastering figure, since the latter will, for the most part be ilminated due to the slab construction. The estimate does include the costs of the building and its immediate surroundings,



discluding the dam, parking lot and drive. Since the nite club terrace is the roof of locker rooms and the outdoor terraces, pools and patios are a part of the whole design of the building, their costs are included in the above figures and are a part of the cost per square foot of inside area. Covered areas were treated as \$2.15 per square foot for the structure, \$1.50 per square foot for roofing, and \$.60 per square foot for floor material. Over and above the area covered by the building and its terraces; roughly seven additional acres will be improved in order to service the building. This cost will run roughly \$3,500 per acre if the parking lot is paved with three inches of blacktop, bringing the additional site improvement cost to \$24,500 including the earth moving. The costs of building the dam will be allocated to the cost of the golf course, since an extensive amount of site development is necessary there.

Therefore, the total cost of construction will be \$492,534. A highly acceptable rate of rental would be \$2.00 per square foot per year. Without utility expense, etc. Since there are 38,248 square feet of rentable floor space in the building, the annual rent receivable would be \$76,496. This will be applied against the following figures, amortizing the building over a period of eight years, which time is considered standard for good investment policy in the Chicago area.

|                            |              |
|----------------------------|--------------|
| Amortization of Building   | \$ 61,566    |
| Interest at 5 per cent     | 3,078        |
| Insurance                  | 340          |
| <u>Taxes at \$1.00/100</u> | <u>4,900</u> |
| Total Annual Expense       | \$ 69,784    |

Therefore, the building will pay for itself in eight years with a gain of \$6,612 every year.

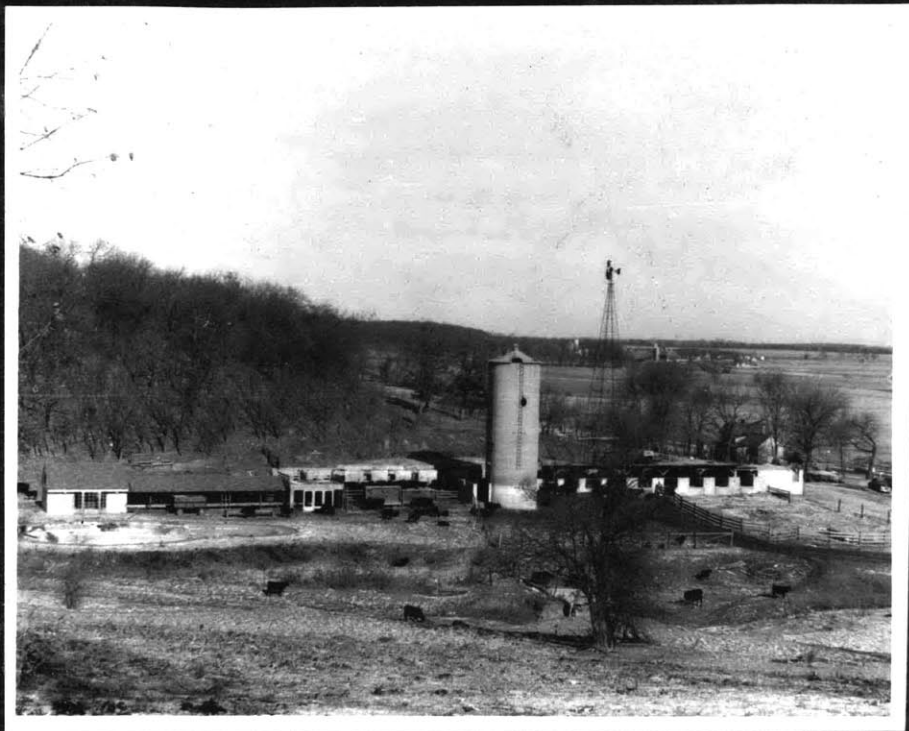
In this particular case the owner does not wish to sell or lease the building, but it can be seen that it will be a profitable venture.

BIBLIOGRAPHY

- Architectural Record, Architectural Engineering; New York, F. W. Dodge Corp., 1955.
- Architectural Record, Motels, Hotels, Restaurants, and Bars New York, F. W. Dodge Corp., 1953.
- Bolt, Richard H. and Newman, Robert B., Architectural Acoustics, Architectural Record.
- Cliffer, Harold J., AIA, Planning the Golf Clubhouse, Chicago 5, Illinois, 1956.
- Golf and Countryclub Reference Number, Architectural Forum Part 1, March 1930, Volume 52, No. 3.
- Ramsey and Sleeper, Architectural Graphic Standards, John Wiley & Sons, Inc., New York; 1947.
- Wendehack, Clifford Charles, AIA, Golf and Countryclubs, New York, William Helborn, Inc., 1929.

**PHOTOGRAPHS**





Above: Site of building Area  
from South hill.

Top Left: Site of building area  
from ninth green and  
east edge of lower pond.

Bottom Left: View of South hill from  
building.