

A CONCERT HALL

FOR

THE NEW YORK PHILHARMONIC SYMPHONY SOCIETY

Submitted in partial fulfillment of the  
requirements for the degree of  
Master in Architecture.

Massachusetts Institute of Technology

Cambridge, Massachusetts

August 14, 1957

BY

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## ABSTRACT OF THESIS

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Submitted by Michael Keselica, Jr. in partial fulfillment of the requirements for the degree of Master of Architecture.

The Philharmonic Symphony Society along with the Metropolitan Opera Association form the nucleus of a study being made to create a center for the performing arts on an eleven-acre site made available by the New York City Slum Clearance Committee in its Lincoln Square Project. In addition to operas and symphony concerts, facilities will be provided for ballet, drama, chamber music, recitals, debuts, educational facilities, library of performing arts, space for exhibitions of musical instruments, and such supporting activities as a restaurant, parking garage, and stores.

A tentative study has been made by the firm of Harrison and Abramowitz who along with a group of well known architects and consultants have formed a basic plan relationship of the elements involved. Based on this concept four auditoriums are required--an opera house, a concert hall, a theater, and a recital hall. Using this study as a base my thesis project will then be concerned with the development of a single purpose concert hall for the basic use of the Philharmonic Symphony Society and for additional vocal and instrumental recitals or concerts.

Feb. 19, 1958  
R. K. S.

Boston, Massachusetts  
August 7, 1957

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Dear Sir:

As partial fulfillment of the requirements  
for the degree of Master of Architecture, I submit  
my thesis entitled "A Concert Hall for The New York  
Philharmonic Symphony Society".

Respectfully submitted,

Michael Keselica, Jr.

## ACKNOWLEDGEMENTS

To my wife, Patricia Joan, I dedicate this, my thesis.

To Professor Robert E. Newman for his advice and interest my sincere thanks.

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Dean Pietro Belluschi

Professor William H. Brown

Mr. Paul Rudolph

Mr. Reginald Knight

Mr. Imre Halasz

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Miss Katrina Thomas, Harrison & Abramowitz

Mr. Robert Perry, Boston Symphony Manager

Mr. Norman Shirk, Boston Symphony Assistant Manager

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## GENERAL BACKGROUND ON THE LINCOLN SQUARE PROJECT

The Philharmonic Symphony Society of New York has been notified that its present lease at Carnegie Hall would expire in 1959. This being the impetus the management of the Philharmonic Society has joined with the Metropolitan Opera Association, whose present facilities are no longer considered adequate, as the major elements in formation of a plan for developing a center for the performing arts. Besides the opera and the concert facilities, provision will be made for ballet, drama, chamber music, debuts, educational facilities, exhibition of musical instruments, a library of performing arts and such supporting activities as restaurants, garages, and stores. A site has been made available by the Slum Clearance Committee of the city of New York in its Lincoln Square Project. An exploratory committee headed by John D. Rockefeller III which is interested in the development of such a center has authorized a study to be made by the firm of Harrison and Abramowitz who along with a group of well-known architects and consultants have surveyed the needs and arrived at a basic proposal.

The site of the proposed center has been established as a master block from Sixty-second Street to Sixty-fifth Street, and from Columbus Avenue to Amsterdam Avenue. Sixty-third Street and Sixty-fourth Street will be closed. The site is now occupied by old over-crowded tenements, a number of commercial and miscellaneous buildings, and a few

open lots. The residents will be relocated and the existing structures will be razed. Most of the site is relatively flat. If a zero elevation is established along Columbus Avenue, it would rise to plus two feet at Sixty-second Street and Amsterdam Avenue. It falls from plus two feet at Amsterdam Avenue and Sixty-second Street to minus fifteen feet at Sixty-fifth Street. Since the concert hall site is bounded by Sixty-second Street and Columbus Avenue, the area proposed for the concert hall can be considered flat.

It is estimated that approximately 10,000 people would be the total capacity of the four proposed theatres within the site. These people will be brought to the site in a variety of ways. Convenient to the site is a number of bus lines and three major subway lines, the closest being the IRT Station at Sixty-sixth Street. This station is now being extended to reach Sixty-fifth Street providing direct access to the site itself with the further possibility of direct tunnel access to the individual buildings. Other subway access points are at Columbus Circle (Fifty-ninth Street) by the Sixth and Eighth Avenues IND Subway lines, leaving a short three-block walk to the site. It is estimated that about 36 per cent of all the people will arrive by subway and another 3 per cent by bus facilities. About 34 per cent will arrive by private automobile of which some 1,200 will want to park in the immediate area. The present proposal calls for an underground parking garage below the main plaza that will provide space for approximately 700

cars. The rest will be taken care of by private lots that will subsequently be developed on the fringe of the site. The garage proposed will have access from both Sixty-second and Sixty-fifth Streets. An additional 18 per cent will arrive via taxi for which there is adequate curb space available for loading and unloading. Loop-access roads have been proposed that will bring the automobiles and taxis into the heart of the site to drop their passengers closer to their destination.

A clockwise traffic movement around the site has been proposed. This would mean two-way traffic on Sixty-second and Sixty-fifth Streets with one-way traffic going north on Amsterdam Avenue and one-way traffic going south on Columbus Avenue.

With all the facilities in simultaneous use the possibility of traffic congestion before and after the performances increases. To avoid this possibility, it will be up to the managements of the various facilities to stagger opening and closing times to reduce the congestion at these times.



## FOREWORD

The Philharmonic, by its longevity, is the oldest orchestra in America and indeed the oldest musical institution of note in the United States. By its location in New York City, the apex of American musical culture, and by its twenty-six years of continuous radio broadcasts over the same network on the same day of the week (Sunday afternoon), it has come to represent in the minds of the American and world public a unique facet in the American national scene.

The large concept of a music center and the larger amounts of money involved in creating it should certainly provide "a great temple" dedicated to this national rite-- a building not only solely devoted to symphonic music but completely fit for its presentation.

An expanded program is being considered that will extend the life of the hall through the entire year. Pops concerts will take place in a season of four to six weeks. A chamber orchestra concert program will arrange special shows and an orchestra series will present great works seldom heard in New York. A summer festival of international stature in conjunction with the music center as a whole will be introduced. A young solists series is planned, and finally the subscription series will be extended.

With the many other advantages of being in the

new performing arts center comes the opportunity for combining additional work with educational and other projects which should be of substantial benefit to the music world and to the general public.

These plans should provide the long-range needs for a more extensive working season which should make a single purpose hall more economically feasible and increase the earnings of the top-flight artistic talents which are now below what they should be.

## PROGRAM\*

In considering a program for the concert hall, there are five main areas: the entrance, the foyers and promenade areas, the auditorium itself, the stage, and the backstage facilities. These parts must all form a whole, and their relation must be carefully considered.

### Entrance

The entrance area gives the first impression of the hall itself. It should be inviting and intrigue one to go further. It does not contain many facilities, but they are important. Ample box office space must be provided for immediate and advance sale and reservations. This area should be capable of handling large numbers of people in short periods of time.

### Foyer and Promenade Areas

Ample foyer and promenade spaces should be provided at all levels to permit auditorium circulation and to provide for such things as exhibitions of musical instruments and the hanging of appropriate paintings which would provide interest for the patrons. These areas should be inviting as people come to concerts not only to hear music but to see their friends. Exploration of other areas and levels should be encouraged by the design of these areas.

\*Note: This program was developed from the recommendations of the Philharmonic Symphony Society of New York and the Harrison and Abramowitz study.

Promenades may lead to terraces where a breath of fresh air would provide a pleasant contrast to the crowd inside. These areas should not be necessarily ornate and excessive but rather simple and commodious from which their beauty will come.

Toilet facilities should be easily accessible and provided at all levels.

The lower foyer and promenade areas should contain easily accessible coat room facilities. If these areas are designed properly and placed conveniently, they will provide a source of income that is not often realized as nearly everyone has something to check but usually the inconvenience of checking it far outweighs the inconvenience of keeping it on one's lap.

Drinking fountains should be numerous, and public telephone facilities should be provided on all levels.

As extensions of the foyer and promenade areas bar and light food facilities should be provided. This means some table and chair facilities should be provided for all areas of seat prices.

The flow of people from the promenade and foyer areas should be free and easy.

Late-comers might be pacified for not being admitted into the auditorium by possibly incorporating a closed-circuit television system in the promenade areas.

Fire laws prescribe the number and size of the exits necessary in a building of this type. It would be wise to have the requirement and more so changing regulations will not result in petty arguments over their number and the number of standees allowable.

It is of the utmost importance that sound locks be provided insulating the auditorium from the foyers.

The first floor lobby should contain the office of the manager where he will be accessible to those who need him and a press office for the use of newspaper men. This would be serviced with teletype, phone and typewriters.

#### Auditorium

To quote the official record of the Royal Festival Hall: "For the Royal Festival Hall will be chiefly judged and rightly on how well it fulfills its function as (almost) itself a musical instrument". "... . . . . . calculated to promote the prime purpose of the Hall: the hearing of good music".

"There has never been any suggestion that the main auditorium should be designed as anything but a hall in which its prime purpose, good musical tone, should be aimed at and if possible achieved".

Working on the basis of these assumptions, the acoustics of the auditorium is the most important single thing.

The architectural solution of the hall should be such that it will provide the four basic ingredients for good

hearing--adequate quiet, good distribution of sound, adequate blending and separation of successive sounds or syllables, and lastly adequate loudness. "The auditorium itself should provide a feeling of intimacy and close association with the orchestra and conductor".

"The interior of the hall itself should be neither austere nor ornate. It should while providing the feeling of a gala occasion nevertheless have nothing which will detract from the hall's prime purpose: that of listening to a concert".

The recommended seating capacity is 2,800 which is to be subdivided as follows:

1,600 orchestra seats  
100 box seats - one level  
415 mezzanine seats  
685 balcony seats.

There has been a change in the habits of ticket buyers. Originally halls were designed to cater to its wealthy supporters, and the rest of the public was content with less attractive seats in left-over type spaces that were of course cheaper. Once these cheaper seats were highly desired in Carnegie Hall, but now they are the last ones to be sold. Care must be taken to make all seats attractive. Aisle seats are highly desirable, and the greatest number of aisles are therefore desired. Seats should be staggered to provide good visibility. Sight-lines of the auditorium should be very good.

Boxes are a problem. If they are not sold they give the hall a very empty look. On the other hand they satisfy the desires of a group of people who contribute largely to the orchestra's support. It is generally felt that the boxes could be smaller, four to six seats each, and located all on one level.

Pops concerts are contemplated. Means for providing a flat floor for tables should be considered. As a necessity of pops concerts is light food and drink, the catering area must be accessible.

The lighting of the auditorium should be given great consideration and should provide for many varying degrees. Lighting should be neither too cold or austere if the feeling of intimacy is desired.

Provisions should be made for monitoring a public address system which is required. Speakers should be placed throughout the hall as to afford easy and well-balanced hearing.

Motion picture booths should be provided.

Since radio broadcasts are also important parts of a concert hall conception and television will increase its role, adequate facilities will be necessary for these functions. Provisions should be made for at least five camera locations: one in the center at balcony level, three at stage level (left, center rear facing conductor, and right), and one backstage.

An announcer's booth should be provided (approximately 150 square feet) with direct visual contact with

the auditorium and control room.

A control room to house television and audio equipment should also be provided with direct visual contact with the auditorium.

Attention should be given for critical listening in both of these spaces as well as lighting too.

### Stage

The acoustics of the stage itself must be considered as they are not necessarily the same as the acoustics of the hall.

Mechanical aspects of the stage should also be considered. Flexibility is desirable. In the long run a mechanically operated segmented stage should reduce operating expenses. Lifts should be provided for moving pianos and chairs to and from the stage from the basement.

Lights on the stage should provide for every possible use of the hall.

The front section of the stage should be able to form an orchestra pit with space for seventy or eighty musicians. The pit should be as deep as possible front to back.

Arrangements must be provided for flexible microphone arrangements of the suspended and floor types.

Stage flooring should be of a good hardwood.

Radio, recording, and television booths should overlook the stage through one-way glass-type windows so they will remain invisible to the audience.



A really first-class organ is being contemplated for the hall. To quote from the Royal Festival Hall Official Record "a great organ takes about as long to build as a battleship". Therefore it is imperative that architects and organ builders confer at an early stage and adequate space be provided.

There should be easy access to the stage from each side for the musicians. The conductor's access should also be considered.

The stage should be of such a dimension as to provide space for up to 200 chorus members and 120 orchestra members.

### Backstage

This area has to accommodate those persons who must perform on the stage. In addition it also serves those people who wish to come backstage to see the performers.

An orchestra club room should be provided immediately backstage. This room should provide lockers for personal belongings and instruments. Adequate toilet facilities with showers should be provided. This room would be used exclusively by the Philharmonic.

A tuning room is required. It should be close to the stage and soundproof. Here musicians can wait and tune their instruments before going on stage.

A room should be provided for housing the large double base instruments. Also a room to store tympani and

other percussion instruments. These rooms should have easy access to the stage also.

A room should be provided for visiting orchestras with adequate toilet and shower facilities included.

Four or five smaller rooms are required for use by the concert master and other first desk orchestra members. Toilet facilities should be provided.

The conductor requires one comfortable "Green Room" and dressing room with shower and toilet facilities. This Green Room will be where the conductor receives his visitors. This room should have two exits to facilitate movement through it. Otherwise this room will serve as the conductor's study.

Adjoining the conductor's room should be the music library of the Philharmonic. A music assembly room should be also provided.

There should be four soloists' dressing rooms provided with toilet facilities. A soloist's reception area should be placed convenient to these rooms. This area should be easily accessible and designed to allow free movement of traffic.

A large rehearsal room is required. Its size should be about the same as the stage for the apparent advantages. This room will double as dressing space for a chorus of about 200.

In the basement there must be room for storage of musical and personal trunks. Work space should be provided for occasional repairs to trunks. Lockers also

are required for stage hands and electricians. Locker space must also be provided for other employees as well as adequate toilet facilities.

Access to the street should be considered for delivery and loading and unloading of luggage from the street.

A freight elevator should be provided to service the backstage areas and the basement.

Since the concert hall will be the permanent home of the Philharmonic Symphony Society, office space of approximately 6,500 square feet should be provided. Their needs include space for a board of directors' room, the managers and their secretaries, the Bookkeeping Department, office manager, Pension Fund and Special Events Department, Youngpeople's Concert Department, Press Department, Friend's Fund Department, and Subscription Department. These offices should have an entrance that is separate from the general lobby areas of the concert hall itself.

To conclude the program requirements, it is desired to air condition the entire building with the exception of the basement areas and a few storage areas. Care should be taken in the design of this system so noise is not transmitted into the auditorium itself. Rubber in shear mountings should be used on vibrating parts, and noise traps should reduce noise to acceptable levels. Care must be taken at the stage so no drafts occur especially

when any doors are open as the tone of the individual instruments may be affected.

### SOLUTION

In keeping and in agreement with the previously stated goal, "The auditorium itself should provide a feeling of intimacy and close association with the orchestra and conductor", I felt the best way to achieve this was to bring the audience and orchestra as close together as physically possible. The audience should engulf the stage which in turn responds by moving into the audience. While I do not feel the audience should completely encircle the orchestra as sound is in a sense directional, I feel that a grouping similar to the Greek Amphitheater would be desirable. For instance I feel that Symphony Hall fails in this respect. It is essentially a box with a long distinct axis. Sitting in the side balconies, one is oriented toward the opposite walls and it is difficult to sense any belonging or rapport at all between the orchestra and audience. The same feeling must be true to some extent in the rear section of the balconies and the orchestra. One feels the distance from the orchestra is accented by this long dimension and consequently this desirable rapport is not present.

Many auditoriums that serve both staged productions and symphony concerts are limited by the site-line obligations that a fixed type of proscenium imposes. This arrangement also imposes a harsh separation of spaces that is not desired in a concert hall. Since these limitations are not imposed in this problem, the performing area as previously noted should be a part of the whole having its own distinct

character but nevertheless forming a feeling of completeness with the audience.

Relative to the problem of acoustics no concept can be formed that is not integral with the interest of producing a hall that is acoustically correct. In the end the hall will be judged on how well it fulfills its functions as the "containing instrument". Its failure in this respect cannot be redeemed by any other success.

It is commonly agreed that a good hall should have the outstanding characteristics of good definition and resonance. Good definition means articulation--clear staccato, and prestissimo but also proper hearing of transients, the characteristic start of the sound. Free sound paths, good reflectors near the source, and lack of echoes are most likely to give good definition. Resonance is the product of inter-reflection. A random reflection from parallel opposites gives that desirable reverberation and fullness, "singing tone". Another characteristic for good acoustics is adequate quiet which should be insured by insulating the auditorium from outside noises and making sure that the mechanical equipment does not introduce any objectionable noise. Good distribution of sound and adequate loudness are the last two desirable characteristics. The first is basically a result of the shape of the hall and its ability to produce even sound in all parts of the hall. It may be necessary to consider additional reflectors to insure good distribution. The last characteristic should be insured by limiting the audience to a desirable number.

Ideally the audience in the tradition of the Greek theater should sit on the slope of a big hill with the instruments on the steeper slope of a little hill.

Architecturally speaking, the task of designing for music means to create an atmosphere for perfect musical reception.

The solution proposed fulfills this concept. By extending the performing area into the space and wrapping the audience partially around it, I believe a sense of fullness and belonging has been created. All seats have good site lines both in plan and in section. The section of the concert hall shows the orchestra on the smaller and steeper of two slopes and the audience on the other. There is a mezzanine and a balcony level. Both of these levels have been extended almost to a point where they begin to encompass the performing area. The face of these levels is faceted and articulated at their extremities by stepping them down. I expect these surfaces to have a positive effect in helping to insure good sound distribution. Here, as in the orchestra, good site lines in plan and section are maintained and everyone is oriented or focused on the performing area. These levels are deep enough to insure a feeling of fullness and body that will add to the over-all feeling of completeness.

The treatment of the face of these two levels will be carried around the side of the hall to a point where they meet and provide suitable accent for the organ in the rear of the hall. It is hoped that this treatment

will add to the feeling of completeness. This treatment will be three dimensional in nature and faceted to provide another source of sound distributing elements. The rest of the interior will be treated in relatively clean plaster surfaces pending a more detailed study of the possible need for additional acoustical adjustments. Any further articulation of interior surfaces required will be done in the most subtle manner possible.

Above the performing area an element will be suspended which will be treated as a floating sculpture. It is my hope that an individual such as Bertioia or Calder would be given the commission to design this sculpture. This element will serve a four-fold purpose. First, it will reflect the necessary sounds back into the orchestra providing good hearing conditions among the orchestra members themselves. Second, the lighting elements for the stage will be incorporated within the forms. Third, it will serve as another distributing element that will direct sound beneath balconies to insure that good hearing conditions will exist there. And finally, it will serve subtly to define the performing area and accent it in contrast to the proscenium opening device. The space above the element will be illuminated so that the element will definitely read as a floating object in a larger space. A clean treatment of the surrounding walls should provide a suitable contrast for the sculptured element.

In a sense one may wonder why the ceiling is not dropped to perform the reflecting functions of the proposed



element. One fallacy in this approach is that if the ceiling was lowered to a point where it acted in this capacity, and 120 orchestra members and 200 chorus members were all producing sounds at the same time in such a constricted space, it would make this space uncomfortable for the performers. In this sense the space above is needed. Needless to say, this other approach would be a completely different expression.

The shape of the hall was arrived at by a simultaneous consideration of the acoustical problems and orchestra-audience relationship. The performing end of the hall was shaped with the splayed sides to reduce the echo possibilities in the forward part of the audience. The rear of the hall was similarly splayed to reduce the segment of seats which are classified by Burris-Meyer's book on Theaters and Auditoriums as the least desirable seats in the orchestra. These ideas coupled with the desire to have a broad audience rather than a deep one produced the form used. Since this form came so close to being an octagon when the stage and audience areas were estimated, this form was chosen. Having made this decision, the scheme is treated consistently throughout.

Acoustically speaking the plan shape with the parallel walls should prove to be very desirable as it will insure a certain amount of random reflection between the parallel surfaces which in turn will produce a steady rate of sound decay necessary to give the correct resonance characteristic.

The stage will be composed of a number of mechanically operated segments. These segments will form the basic forms unto which secondary blocking will be placed to form the desired stage setting. This would be done with one or two modular-type building blocks. Preliminary investigation has proved encouraging. When dance programs are held, part of the stage will remain flat at stage height and the forward portion will be sunk to form the orchestra pit. Part of the mechanical segment nearest the audience will be used as an elevator capable of handling two pianos at once and performing this function quickly when desired. The rear portions of the performing area will remain stable and will provide space for the chorus when used or sold out as audience space when not in use by the chorus. Access to the stage will be made from either side at two levels.

When pops concerts are contemplated, a series of plateaus will be created in the orchestra with a standardized building block. Each two rows will produce a plateau and a service aisle will be included every three plateaus. This should be possible because each seat riser is a uniform width and height. Service to the tables should be relatively easy as the food and drink served is of a light nature. It is assumed that the bar areas at either side will double as catering areas during the "pops" season. This will bring the food in at approximately the middle of the floor slope, and it will be carried up or down. These access points to the main floor will be closed

to the public, and the four access points at the foot of the stage and rear of the orchestra will be used.

One last thought on the position of the boxes. They have been given the most prominent position in the house. Since their number and size have been reduced, they will be used primarily by the hard core of Philharmonic financial supporters. Yet I feel that the boxes still remain consistent in the total conception.

Since the site proposal of the Harrison and Abramowitz study is being adhered to, a certain limitation is put on what form the concert hall should take externally. The Metropolitan Opera is the dominant building on the plaza --with its stage house and mass it will be an imposing building. The other two sides of the plaza are formed by the concert hall and another building. It is my belief that in this case the concert hall should be treated rather formally and consistently--maintaining its own character but fulfilling its role in the plaza. It really has no rear side and can be seen equally well from all sides. This, coupled with the nature of the activities that surround the auditorium itself, leads me to feel that the external solution should be completely consistent around the building. I feel that there are two main approach possibilities--one directly from the plaza and the other from Sixty-second Street. Each entrance will serve subway approaches from either side. The automobile traffic will use the Sixty-second Street side essentially, although loop-access roads into the heart of the plaza could drop passengers closer to

the plaza entrance.

The body of the auditorium extends through the roof beyond the mass of the surrounding activities. The facade of the building is ordered by an expression of the columns indicating the structural bay used for the surrounding activities. A precast concrete panel with a subtle pattern will form the section between the columns and give relief and a certain playfulness to the facade. A secondary texture will be introduced by exposing a carefully selected aggregate that would give a subtle color to the precast panels. The windows would respond to the pattern of the precast blocks so that the consistency is maintained and one is internally aware of this consistency. The ground level is set in from the face of the building providing a possibility for shelter in bad weather and giving the facade a certain character and definition of mass. The entrance areas will be raised higher giving them a character distinct from the other areas.

The entrances will lead into a lobby at either side which will contain the box offices and other related activities.

The concept behind the secondary spaces of the concert hall, considering the auditorium as the primary space, is based primarily on the acceptance of the limitations of a tight site. In this case it was decided to lift up the main body of the auditorium and utilize the space below as a dominant secondary space. Once access to the building has been gained, one raises up a

short flight of stairs into a large open space which is formed primarily by the under side of the auditorium itself and a balcony level that is accessible via a dominant staircase. The underside of the auditorium will be treated as a sculptured form, that is, modulated by electric lights so it reads as a rich airy form. Generally this surface slopes up and the grand staircase rises in sympathy with it from the lower level to the balcony level. This space also contains a bar which is at the lower end of the slope and articulated by a definite change in ceiling treatment and a drop in floor level. Cloak room and toilet facilities are also included in the space.

It should be noted that in addition to the grand stair there are available two elevators and two other staircases which are accessible from the entrance lobby. The lower floor will be relatively free, and control points will be established at the staircases up to the higher levels. There are separate entrances provided to the offices of the Philharmonic Symphony Society on the top floor and to the performers' areas on the side closest the loop-access road.

The auditorium is supported by a minimum number of columns and in a sense is floated within the surrounding areas. This is not done to specifically try to create an awareness of the auditorium but to provide spaces that are formed and ordered by the two lower levels from which a certain amount of spectator interest is provided. Although the plan shape of some of these spaces may be

questioned, I believe that when one considers what the space will actually be like, the extremities of the rising plane of the bottom of the auditorium will not produce the same definition as the plan would indicate. The plan relationship will be just that but what will count will be an exciting three-dimensional space that is dominated by the grand stair and gain its visual order from the more familiar forms of the 90 degree cornered plane of the second level.

Once on the second level, two open stairs at either side will take the people to whatever level they desire. I feel that this is justified in that the walk along the second level will be much like that of a stroll on a pleasant balcony and a great deal of interest will be achieved by this open relationship with the lower lobby space. This level also will contain two bars on either side of the auditorium as well as the necessary toilet facilities. The corresponding level in the backstage area will be composed of a large rehearsal hall and various smaller rehearsal rooms. This level is further modulated and can be seen more clearly in the drawings than I could explain it, but briefly it is essentially a level and a half high on the entrance sides where it rises half a level to gain access to the mid point of the orchestra. This rise is expressed in the elevation of the building at the entrances on either side. The third level does not carry completely around at this point so the area is a level and a half

high.

The third level provides access to the rear of the auditorium at orchestra level. The backstage end is composed of the performers' facilities.

The fourth level gives access to the dress circle seats and boxes. Bars are provided at either side and a terrace is provided overlooking the planted area on the Columbus Avenue side. The backstage area provides facilities for the conductor and soloists along with the concert master and first desk men. Access to the visitors' reception areas are at this level. Adequate toilet facilities as well as exhibition areas are also provided at this level.

The fifth level provides access to the balcony. It also has bar and terrace facilities as well as toilet facilities. The backstage area is composed of the offices of the New York Philharmonic Society.

In summation the general approach to the treatment of the various levels was to make them inviting by allowing them to join each other in common larger spaces. At these common spaces one is always aware of the existence of other levels and the subsequent result is an inviting one. All levels were designed to provide bar and toilet facilities.

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## SOLUTION SPACE ANALYSIS

Seating

Orchestra	1,630
Boxes 17 @ 6 persons each	102
Mezzanine	490
Balcony	<u>590</u>
Total capacity	2,812 plus standee and choir seating (optional)

Public Areas

Check Rooms	2 @ 975 sq.ft. each
Public Washrooms	2 @ 384 sq.ft. each
Public Washrooms	6 @ 400 sq.ft. each
Public Washrooms	2 @ 550 sq.ft. each
Box Office	2 @ 200 sq.ft. each
Manager's Office	300 sq.ft.
Press Room	300 sq.ft.
Bar, main lobby	1,000 sq.ft.
Bars, mid orchestra level	2 @ 1,200 sq.ft. each
Bars, mezzanine level	2 @ 1,600 sq.ft. each
Bar, balcony level	2,000 sq.ft.

Backstage Areas

Main Rehearsal Hall	2,400 sq.ft.
Rehearsal Rooms	4 @ 400 sq.ft. each
Rehearsal Rooms	2 @ 800 sq.ft. each
Philharmonic Orchestra Club Room	2,000 sq.ft.
Visiting Orchestra Room	1,200 sq.ft.

Tuning Room		600 sq.ft.
Percussion Instrument Storage		100 sq.ft.
Large String Instrument Storage		150 sq.ft.
Conductor's Study & Green Room		800 sq.ft.
Music Library		1,000 sq.ft.
Music Assembly Room		400 sq.ft.
First Desk Men	4 @	150 sq.ft. each
Concert Master		400 sq.ft.
Soloists	4 @	150 sq.ft. each
Soloists' Reception Area		800 sq.ft.
Radio Announcer's Booth		300 sq.ft.
Television, radio and audio control room		300 sq.ft.
Stage Manager's Office		180 sq.ft.
Electricians' Room		240 sq.ft.
Stage Hands' Room		240 sq.ft.
Employees' Room		240 sq.ft.
*Trunk Repair Shop		400 sq.ft.
*Trunk Storage Room		2,000 sq.ft.
*Orchestra Seats or pops table storage		3,000 sq.ft.
Performing Area		2,200 sq.ft.
Choir Area		1,500 sq.ft.

\* Note: This space located in basement--no plan shown.

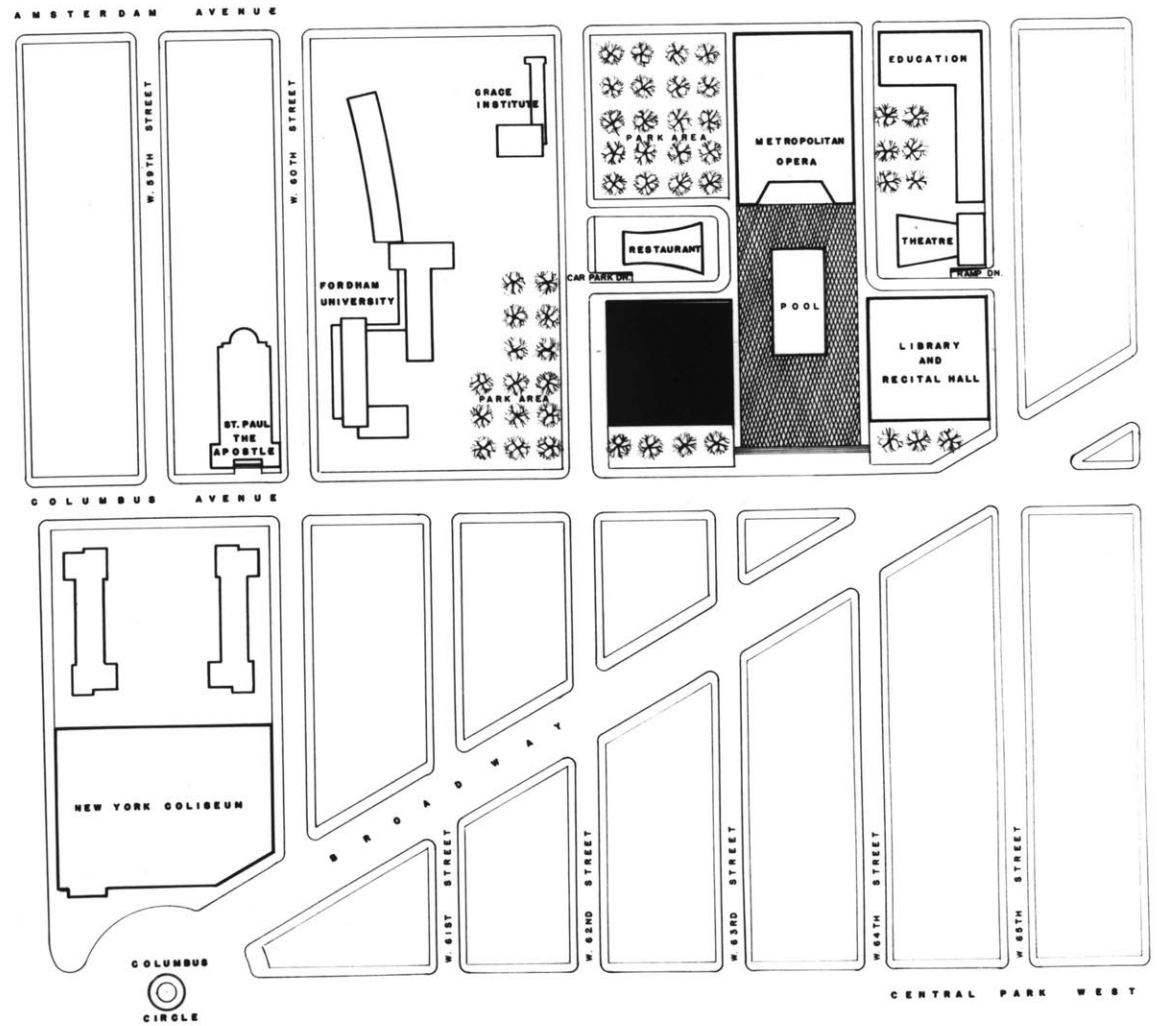
Philharmonic Symphony Society Offices

Directors' Offices	2 @ 400 sq.ft. each
Directors' Offices	2 @ 300 sq.ft. each
Secretaries' Offices	1 @ 225 sq.ft.
Secretaries' Offices	1 @ 300 sq.ft.
Conference Room	800 sq.ft.
Friend's Fund	500 sq.ft.
Pension, Young People and Radio Membership Departments	400 sq.ft.
Office Manager and Bookkeeping	600 sq.ft.
Subscription Department	800 sq.ft.
Press Department	800 sq.ft.
Rest Rooms - Office Staff	2 @ 150 sq.ft. each
Storage Areas	2 @ 150 sq.ft. each

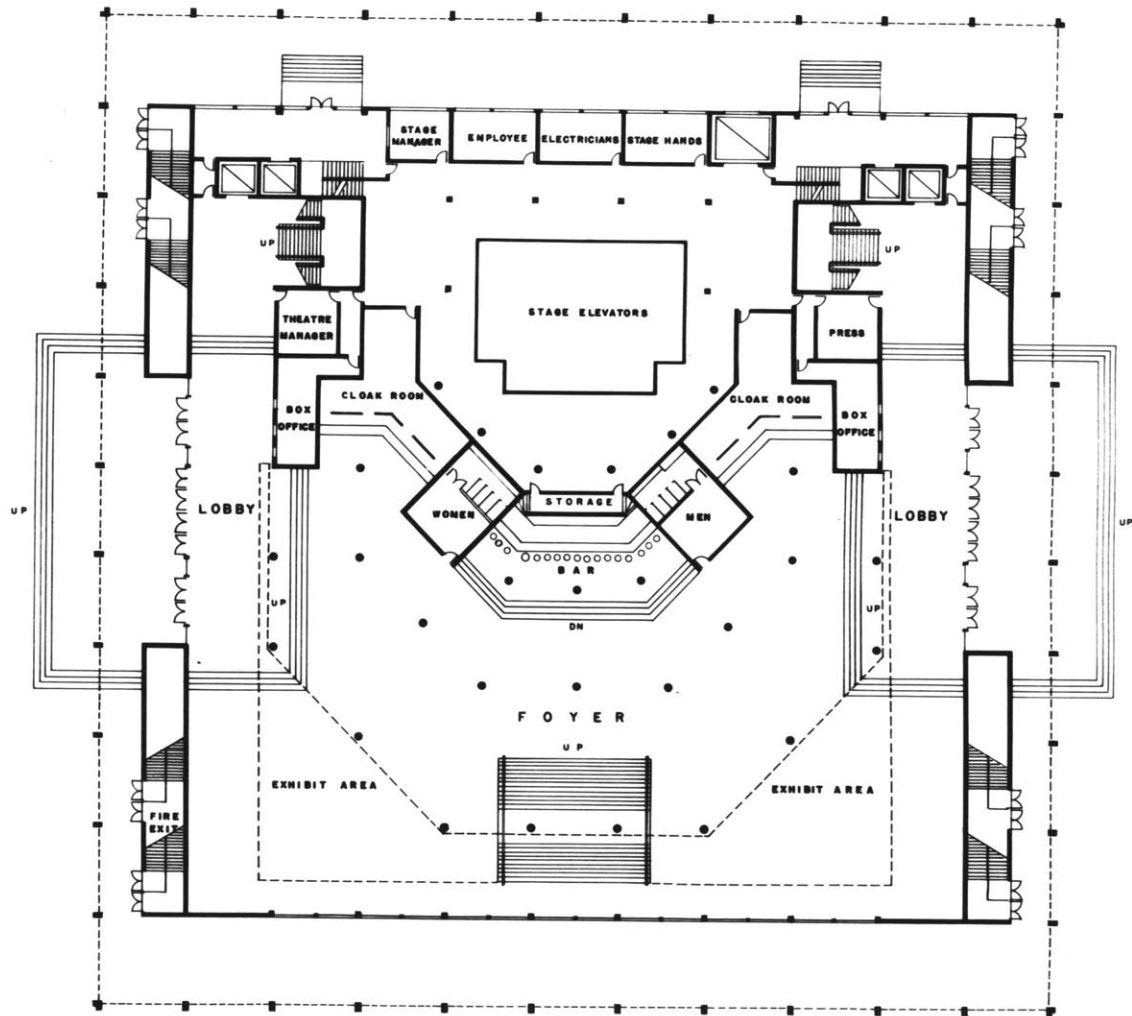
TOTAL VOLUME OF AUDITORIUM . . . . . 850,000 cu.ft.

APPROXIMATE CUBIC FEET PER PERSON . . . . . 275 cu.ft.

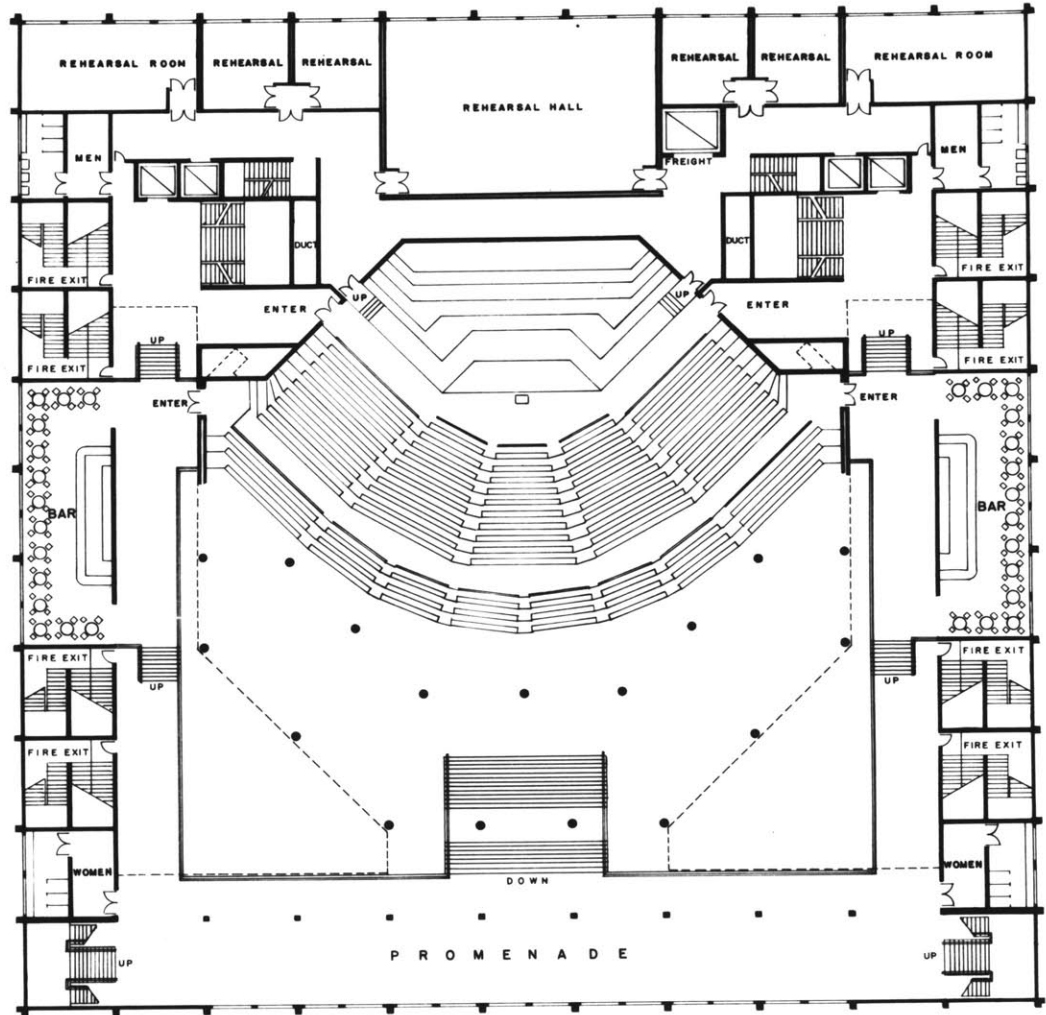
**A CONCERT HALL**  
 FOR THE  
 NEW YORK PHILHARMONIC SYMPHONY  
 AUGUST 14 1987 M. I. T. MICHAEL KESELICA  
 ①  
 SITE PLAN & SURROUNDING AREA



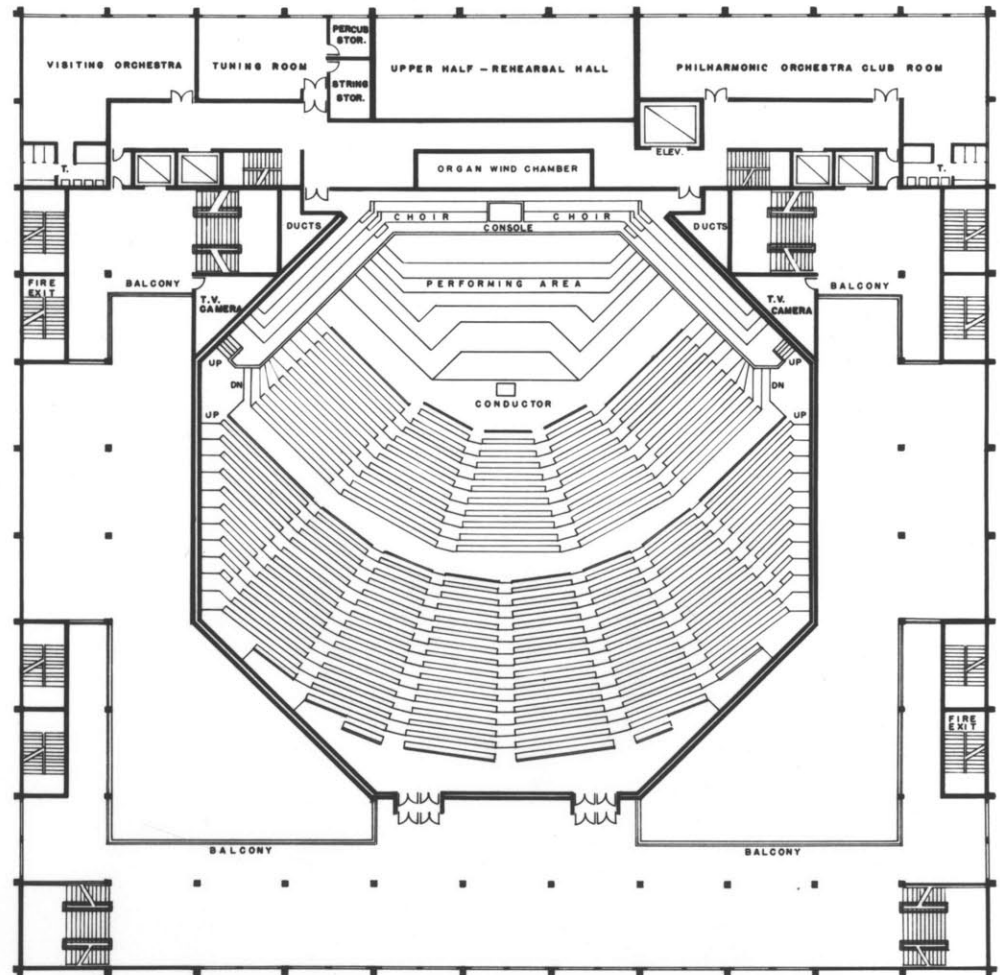
A CONCERT HALL  
 FOR THE  
 NEW YORK PHILHARMONIC SYMPHONY  
 AUGUST 14 1957 M. I. T. MICHAEL KESSELICA  
 ②  
 GROUND FLOOR PLAN - LEVEL A



A CONCERT HALL  
 FOR THE  
 NEW YORK PHILHARMONIC SYMPHONY  
 AUGUST 14 1957 M. I. T. MICHAEL KESELICA  
 ③  
 LOWER ORCHESTRA PLAN - LEVEL B

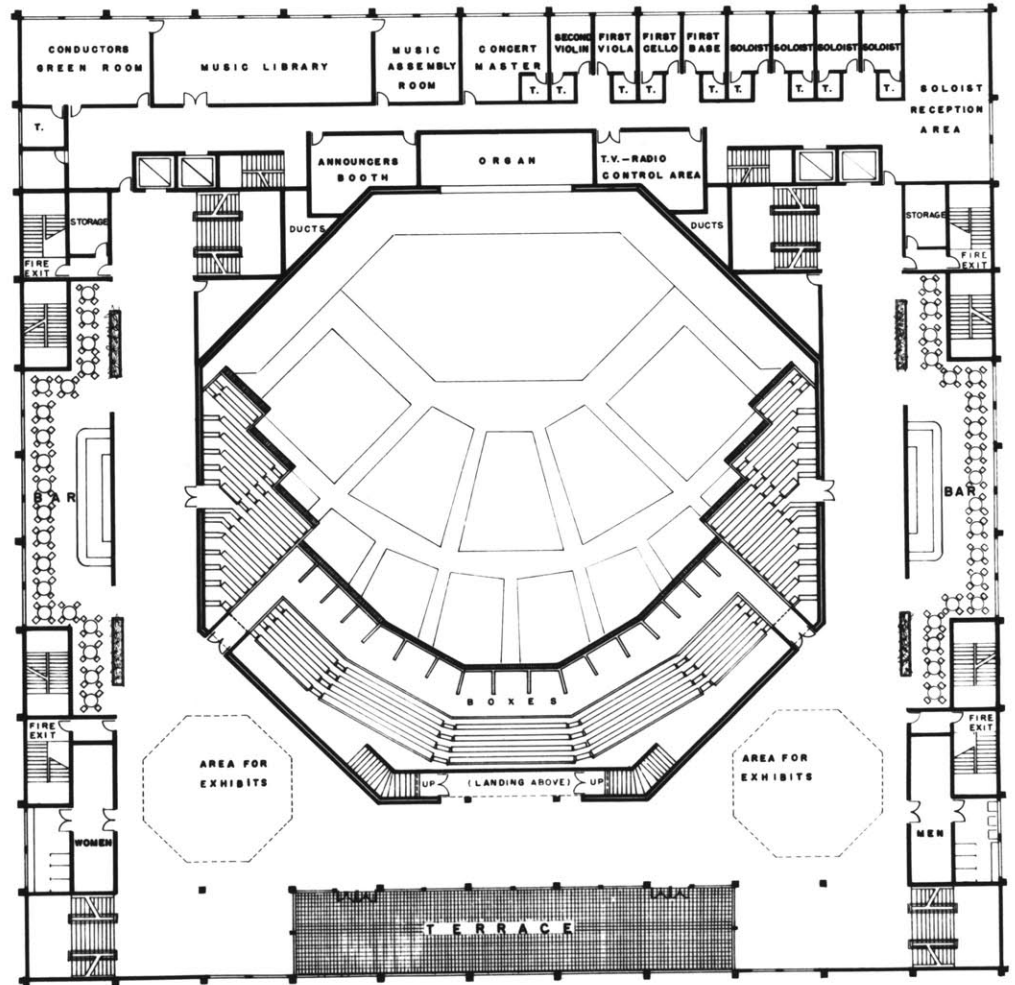


A CONCERT HALL  
 FOR THE  
 NEW YORK PHILHARMONIC SYMPHONY  
 AUGUST 14 1957 M. I. T. MICHAEL KESELICA  
 ④  
 FULL ORCHESTRA PLAN - LEVEL C

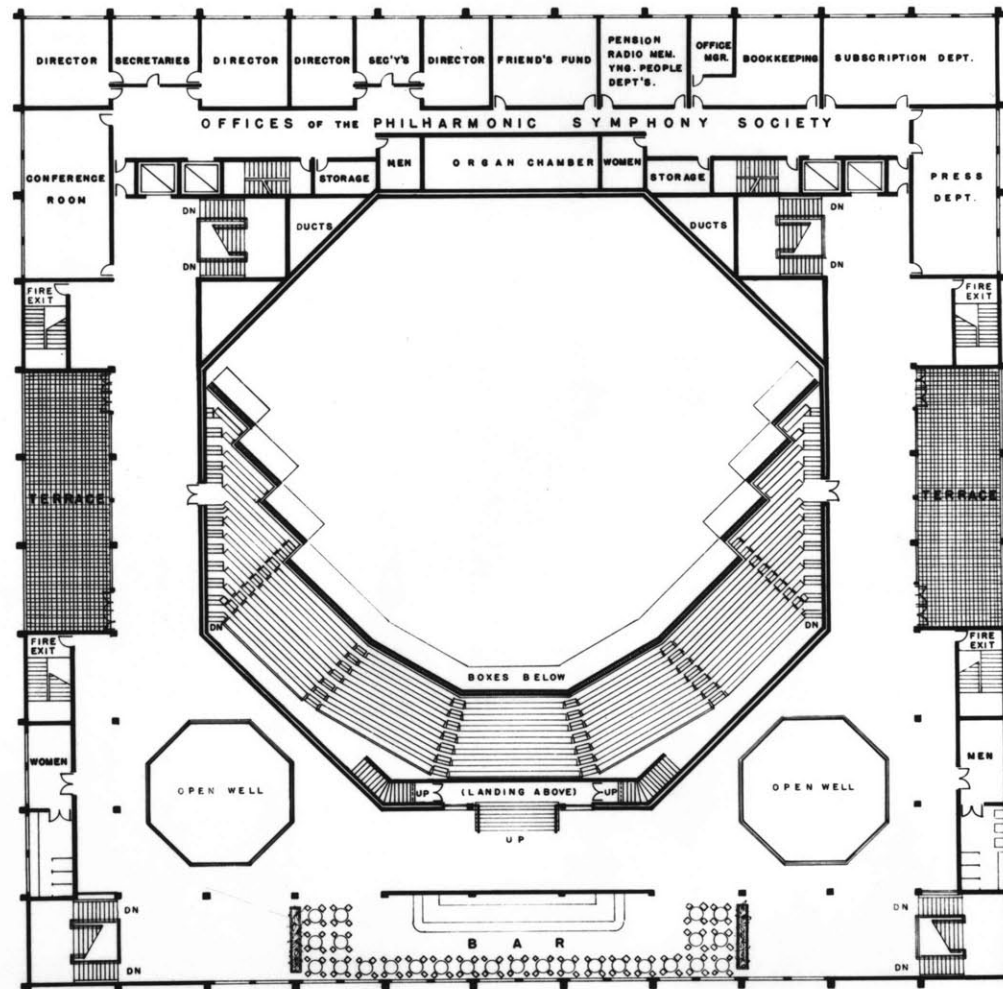




A CONCERT HALL  
 FOR THE  
 NEW YORK PHILHARMONIC SYMPHONY  
 AUGUST 14 1957 M.I.T. MICHAEL KESELICA  
 ⑤  
 MEZZANINE PLAN - LEVEL D



A CONCERT HALL  
 FOR THE  
 NEW YORK PHILHARMONIC SYMPHONY  
 AUGUST 14 1957 M. I. T. MICHAEL KESELICA  
 ⑥  
 BALCONY PLAN — LEVEL E

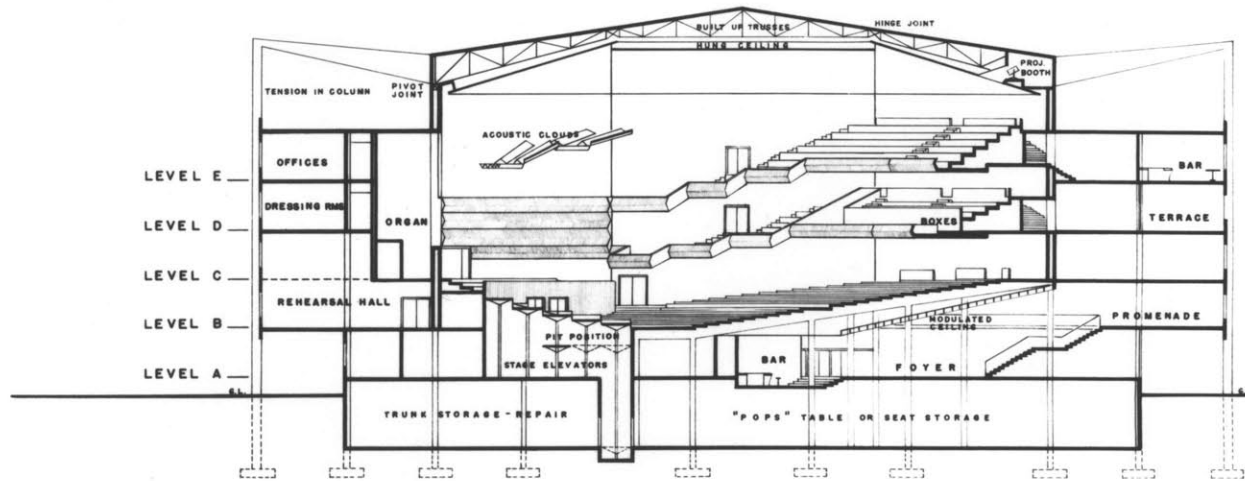


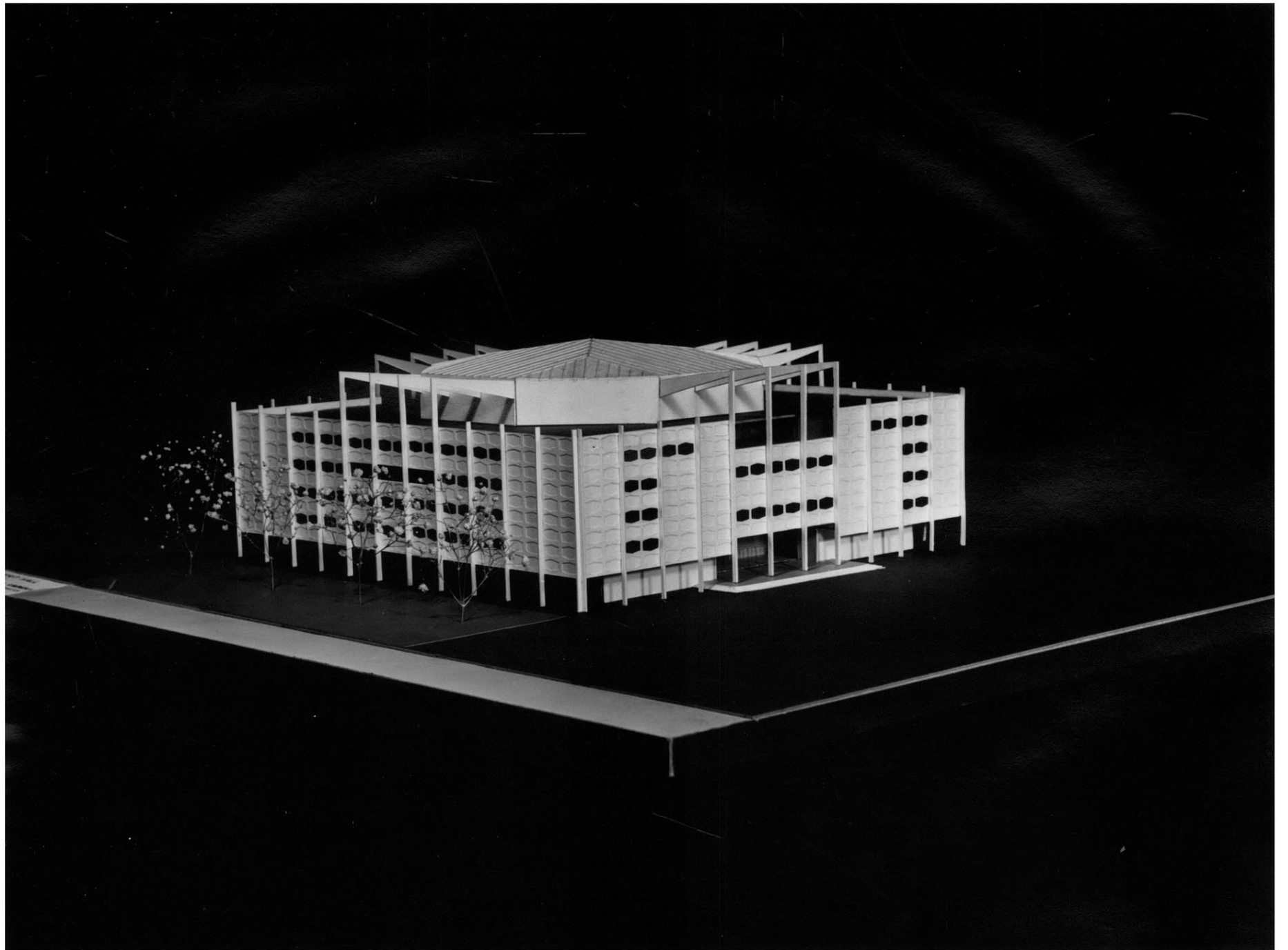
# A CONCERT HALL

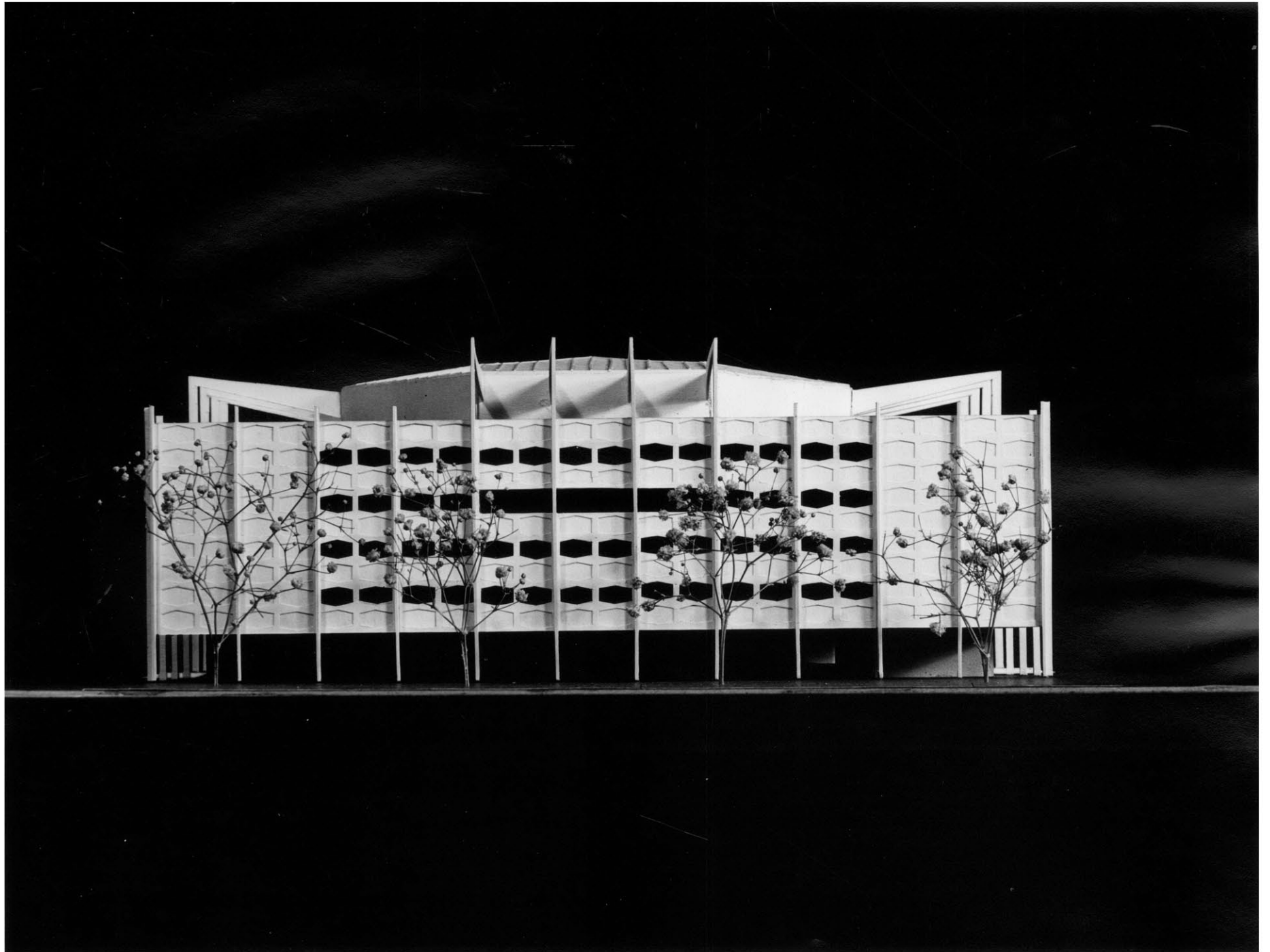
FOR THE  
NEW YORK PHILHARMONIC SYMPHONY  
AUGUST 14 1987 M.I.T. MICHAEL REBELIGA

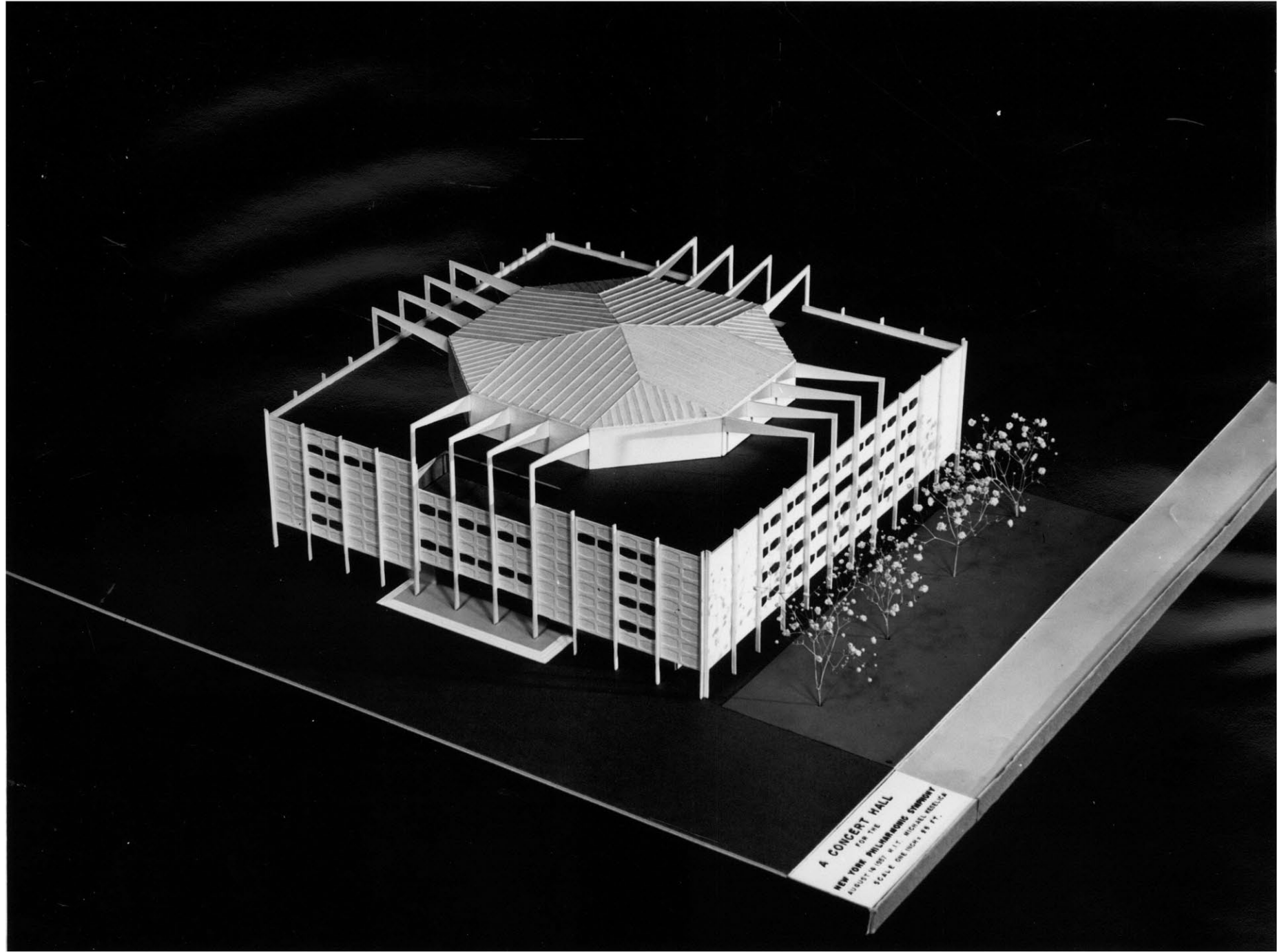
7

TYPICAL CROSS SECTION









A CONCERT HALL  
FOR THE  
NEW YORK PHILHARMONIC SYMPHONY  
DESIGNED BY FRANK GEHRY  
SCALE ONE INCH TO FOUR FEET