. . . AN OPERA HOUSE

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PRELIMINARY RESEARCH FOR AN OPERA HOUSE FOR STAMFORD, CONNECTICUT
PART I OF AN UNDERGRADUATE THESIS

SUBMITTED TO THE SCHOOL OF ARCHITECTURE AT MONTANA STATE COLLEGE AS PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARCHITECTURE MARCH 15, 1963

BY KNUT SKRAM

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ACKNOWLEDGMENT

I WISH TO EXPRESS MY APPRECIATION TO PROFESSOR H. C. ROSE' AND PROFESSOR JOHN PARKER WHO GAVE OF THEIR TIME TO PROVIDE ADVISE AND CRITICISM THROUGHOUT THE DURATION OF THE PREPARATION OF THIS RESEARCH MATERIAL. SPECIAL THANKS TO TO MR. GEORGE BUCKBEE, BESIDES BEING A NATIVE OF STAMFORD, HE HAS MUCH EXPERIENCE WITH OPERA, AND THE INFORMATION OBTAINED FROM HIM WOULD HAVE BEEN VERY HARD TO COME BY ELSEWHERE. I AM VERY THANKFUL TO MRS. JANETTE EBRIGHT WHO TYPED THE FINAL MANUSCRIPT.

KNUT SKRAM

PROLOGUE

"THE ARTIST IS BORN TO PICK, AND CHOOSE, AND GROUP WITH SCIENCE, THESE ELEMENTS, THAT THE RESULT MAY BE BEAUTIFUL . . . AS THE MUSICIAN GATHERS HIS NOTES, AND FORMS HIS CHORDS, UNTIL HE BRING FORTH FROM CHAOS GLORIOUS HARMONY."

WHISTLER

CONTENTS

PROPOSAL 2

CONDITIONS CREATING A NEED 3

LOCAL CONDITIONS 6

FUNCTION OF THE BUILDING 11

A. PUBLIC AREAS 11

B. NON PUBLIC AREAS 19

C. STAGE MACHINERY 28

AESTHETIC CONSIDERATIONS 34

ACOUSTICAL CONSIDERATIONS 37

PROGRAM 44

A. PUBLIC AREAS 45

B. NON PUBLIC AREAS 47

BIBLIOGRAPHY 50

APPENDIX 51

PROPOSAL

My thesis for the degree of Bachelor of Architecture shall be the design of an Opera House for Stamford, Connecticut. The work will be divided in two parts.

Part One: Preliminary Research

This shall include information on existing opera houses obtained either from written sources or through correspondence. The local conditions of Stamford will be thoroughly explored. A compilation and analysis of all data and information collected shall be presented in the form of a written report at the end of Spring Quarter 1963.

Part Two: Design

The second and final quarter of thesis work shall be spent in completing the preliminary design solution for the problem as presented in the building program, based on the research data obtained. The final presentation, consisting of drawings and a model, shall constitute a complete concept covering all of the important aspects of design, and will be presented at the end of Spring Quarter, 1963.

CONDITIONS CREATING A NEED

THE CONDITIONS CREATING A NEED FOR AN OPERA HOUSE IN STAMFORD, CONNECTICUT ARE IN MANY RESPECTS THE SAME AS THEY WOULD BE IN SEVERAL CITIES OF MEDIUM SIZE IN THE UNITED STATES.

OPERA, AND MUSICAL COMEDY HAVE BECOME QUITE POPULAR IN THIS COUNTRY DURING THE YEARS SINCE THE SECOND WORLD WAR. IN EUROPE, OPERA HAS BEEN ONE OF THE MORE CELEBRATED ARTFORMS FOR THE LAST 100 YEARS, AND COMPANIES BLOSSOM IN EVEN SOME OF THE MORE OBSCURE COMMUNITIES. ESPECIALLY IN CENTRAL EUROPE IS THIS SO. TODAY, GERMANY HAS IN THE NEIGHBORHOOD OF 70 OPERA COMPANIES RUNNING A FULL SEASON, AND THE PERSON WHO IS A PATRON OF THE ART HAS VERY GOOD POSSIBILITIES FOR HEARING HIS FAVORITE WORKS QUITE FREQUENTLY.

IN THE UNITED STATES, YOUR CHANCES FOR HEARING AN OPERA ARE PRACTICALLY NIL UNLESS YOU ARE AMONG THE CHOSEN FEW WHO LIVE IN NEW YORK CITY. THE ONLY COMPANY IN THE COUNTRY THAT HAS A FULL SEASON IS THE METROPOLITAN OPERA IN NEW YORK. THERE ARE OPERAS IN A FEW OTHER CITIES, THE MOST IMPORTANT BEING CHICAGO, SAN FRANCISCO, DALLAS, AND HOUSTON, BUT THESE HAVE VERY SHORT SEASONS, AROUND 6 WEEKS ON THE AVERAGE. THE SAME IS TRUE OF THE OTHER COMPANY IN NEW YORK, THE NEW YORK CITY OPERA COMPANY.

THE PERSON WHO ATTENDS THE OPERA IN ONE OF THE SMALLER CITIES IN EUROPE WILL OFTEN HEAR PRODUCTIONS THAT CANNOT COMPARE FAVORABLY WITH THOSE OF THE METROPOLITAN. THE SETS ARE NOT ALWAYS AS GRADIOSE, AND THE SINGERS MAY NOT BE AMONG THE GREATEST IN THE WORLD.

IN A CURRENT ISSUE OF OPERA NEWS, (MARCH 3, 1963) JOHN GUTMAN, AN ASSISTANT MANAGER OF THE METROPOLITAN OPERA, HAS WRITTEN AN ARTICLE CALLED "SINGERS' OPERA". HE CLAIMS THAT ALL OPERA TODAY IS DIVIDED INTO SINGERS' OPERA AND COMPOSER'S OPERA. "THIS IS NOT TO SUGGEST THAT THE SINGER IS EVER NEGLIGIBLE IN OPERA. IT IS ALL A MATTER OF EMPHASIS, AND IN "SINGERS' OPERA" THE EMPHASIS ON THE SINGER- I.E. ON THE SENSUAL, ANIMALISTIC ELEMENT - IS OFTEN OVERPOWERING TO A DISASTROUS DEGREE. WITH VERY FEW EXCEPTIONS, THE CENTRAL EUROPEAN OPERA HOUSES BENEFIT FROM THE ENORMOUS ADVANTAGE OF NOT HAVING ANY "SINGERS". DEPRIVED OF GREAT VOICES THE MORE MODEST HOUSES MUST MAKE UP FOR THE DEFICIENCY WITH MUSICIANSHIP, ENSEMBLE SPIRIT AND POSSIBLY EVEN WITH ACTING TALENT. - - - WHEN THE PATRONS TAKE THEIR SEATS, THEY DO NOT EXPECT VOCAL FIREWORKS. THEY DO NOT ATTEND FOR THE CIRCUS KIND OF THRILL A HIGH C CREATES; - - - THEY COME, BELIEVE IT OR NOT, TO HEAR AN OPERA. THEY MAY EVEN COME FOR THE DRAMATIC EXPERIENCE AN OPERA CAN OCCASIONALLY DELIVER."

OPERA IN THE UNITED STATES MUST VERY DEFINATELY BE CLASSIFIED

AS "SINGERS' OPERA", IT HAS ALSO BEEN ALMOST SYNONOMOUS WITH THE METROPOLITAN OPERA.

IF A SINGER WAS NOT AT THE MET, AND IF HE WAS NOT GOOD ENOUGH FOR THE MET, WHY LISTEN TO HIM AT ALL? THIS ATTITUDE HAS CHANGED SOMEWHAT DURING THE LAST DECADES. AS THIS CHANGE BECOMES MORE PRONOUNCED THERE IS GOING TO BE A NEED FOR MORE AND MORE OPERA COMPANIES WITH MUCH LONGER SEASONS THAN AT PRESENT. THE NEED IS, AS A MATTER OF FACT, VERY EVIDENT TODAY. AT LEAST 80% OF THE SINGERS IN THE UNITED STATES WHO ARE INTERESTED IN OPERA GO TO EUROPE AT SOME TIME IN THEIR CAREER, MOST OF THESE GO BECAUSE THERE IS NO WORK TO BE HAD HERE. THIS COUNTRY HAS EXCELLENT SCHOOLS AND CONSERVATORIES TO EDUCATE SINGERS, BUT FEW PLACES WHERE THEY CAN GAIN EXPERIENCE, WHICH IS SO IMPORTANT IN THIS FIELD.

THE REASONS WHY STAMFORD, CONNECTICUT WAS CHOSEN AS THE ALMOST IDEAL SITE FOR AN OPERA HOUSE WILL BECOME EVIDENT WHEN THE LOCAL CONDITIONS OF THIS CITY AND THE REGION ARE CONSIDERED.

LOCAL CONDITIONS

STAMFORD, CONNECTICUT IS LOCATED ON U. S. HIGHWAY 1, THE OLD BOSTON POST ROAD, APPROXIMATELY 35 MILES FROM NEW YORK CITY. THE CITY IS BORDERED BY LONG ISLAND SOUND AND HAS AN EXCELLENT HARBOR, LARGE ENOUGH TO ACCOMODATE LARGE SOUND VESSELS. THE AREA WAS FIRST SETTLED IN 1641 BY 29 PERSONS WHO SECEDED FROM THE WETHERSFIELD CHURCH IN THE NEIGHBORING COMMUNITY OF NEW HAVEN. THE BOROUGH WAS INCORPORATED IN 1830, AND IN 1940 TOWN AND CITY GOVERNMENTS WERE CONSOLIDATED.

THE FOLLOWING SHOWS THE POPULATION RISE SINCE 1940; *)

YEAR:	1940	1950	1960	1962
POPULATION:	47,938	74,293	92,713	96,000

THE AREA HAS THE TYPICAL CLIMATE OF THE NORTHERN ATLANTIC COAST REGION, VERY HUMID WITHOUT EXTREME TEMPERATURE CHANGES.

MEAN TEMPERATURE: JANUARY: 27.8° F, JULY: 72.5° F.

AVERAGE RELATIVE HUMIDITY: 73%

DURING THE SUMMER MONTHS THE HUMIDITY MAY BE MUCH HIGHER. THIS COMBINED WITH HIGH TEMPERATURES, MAY MAKE THIS PERIOD QUITE UNCOMFORTABLE, ALTHOUGH NOT AS UNBEARABLE AS, FOR INSTANCE, NEW YORK CITY.

THE SCENERY OF THIS PART OF CONNECTICUT IS VERY PLEASANT WITH ROLLING LAND, LARGE PORTIONS OF WHICH IS WOODED. THE MERRITT PARKWAY RUNS THROUGH THE SUBURBS OF THE CITY. THIS 4-LANE

*) RAND MCNALLY, PAGE 98.

THROUGHWAY WAS ONE OF THE FIRST OF ITS KIND IN THE COUNTRY AND HAS BEEN GETTING RATHER INADEQUATE FOR THE EXTREMELY HEAVY TRAFFIC. 3 YEARS AGO, HOWEVER, THE CONNECTICUT TURNPIKE WAS COMPLETED, AND HAS TAKEN QUITE A LOAD OFF THE MERRITT PARKWAY. THIS THROUGHWAY, BECAUSE IT IS RATHER OLD FASHIONED, PROVIDES AN EXTREMELY PLEASANT APPROACH TO THE CITY.

THE "NATIVE" POPULATION OF STAMFORD IS MAINLY OF ITALIAN AND JEWISH DESCENT. SINCE THE SECOND WORLD WAR, HOWEVER, THE POPULATION HAS ALMOST DOUBLED, (SEE PAGE 1) AND FAMILIES OF ALL BACKGROUNDS HAVE MOVED IN. PEOPLE WHO LIVE IN STAMFORD AND COMMUTE TO THEIR WORK IN NEW YORK CONSTITUTE THE LARGEST PART OF THIS INCREASE. THEY MAY EITHER DRIVE ON THE TWO THROUGHWAYS, OR COMMUTE BY TRAIN. STAMFORD IS THE FIRST STOP ON THE RAILROAD EXPRESS FROM NEW YORK TO BOSTON.

WHEN PLANS WERE BEING MADE FOR SITUATING THE UNITED NATIONS HEADQUARTERS IN THIS COUNTRY, THE COMMITTEE PROPOSED STAMFORD AS THE MOST ADVANTAGEOUS SITE. THE CITY ASKED THAT ANOTHER AREA BE CHOSEN, HOWEVER. THEY REALIZED THIS COULD BE VERY BENEFICIAL TO THE CITY, BUT WERE AFRAID A CITY THE SIZE OF STAMFORD WOULD NOT BE ABLE TO ABSORB THE LOSS IF THE ORGANIZATION SHOULD PROVE A FAILURE AFTER SOME YEARS OF OPERATION.

A SUBSTANTIAL PART OF THE POPULATION BELONGS TO THE UPPER MIDDLE CLASS. HIGHEST, BOTH SOCIALLY AND CULTURALLY, ARE THE PEOPLE ASSOCIATED WITH RESEARCH, THESE TOGETHER WITH THE PROFESSIONAL PEOPLE CONSTITUTE THE CLASS WHICH GENERALLY PATRONIZES THE ARTS, AND COULD BE EXPECTED TO GIVE THE STRONGEST SUPPORT TO THE PROPOSED OPERA HOUSE.

MANY PROMINENT MUSICIANS HAVE MADE STAMFORD THEIR HOME. PEOPLE LIKE EZIO PINZA, ALEXANDER SMALLENS, ANDRE KOSTELANETZ, AND LILY PONS LIVED THERE. TODAY A LARGE NUMBER OF PROFESSIONAL MUSICIANS LIVE IN OR CLOSE TO THE CITY, SOME OF THEM ARE EMPLOYED LOCALLY, BUT THE MAJORITY WORK ELSEWHERE, MOSTLY IN NEW YORK CITY. FOR YEARS STAMFORD HAD ITS OWN SYMPHONY ORCHESTRA. IT WAS A VERY FINE GROUP AND ATTRACTED EXCELLENT GUEST ARTISTS IN ADDITION TO THE PERMANENT MEMBERS, BECAUSE OF POOR ORGANIZATION THERE HAS NOT BEEN AN ORCHESTRA DURING THE LAST DECADE.

ABOUT 50 YEARS AGO STAMFORD HAD SEVERAL THEATRES, THIS WAS, OF COURSE, BEFORE THE MOVING PICTURE INDUSTRY HAD MUCH TO OFFER, AND THE THEATRES WERE DESIGNED PRIMARILY FOR PLAYS AND VAUDEVILLE. THESE THEATRES WERE ALSO USED AS TRYOUT THEATRES FOR BROADWAY PLAYS. WITH THE ADVENT OF THE MOVIES ALMOST ALL OF THESE THEATRES WERE CONVERTED TO ACCOMMODATE THIS NEW FORM FOR ENTERTAINMENT. IN SOME CASES THIS TOOK BUT SLIGHT ADJUSTMENTS. OTHER MOVIE THEATRES HAVE BEEN ADDED IN LATER YEARS, THESE ARE, OF COURSE, DESIGNED SPECIFICALLY FOR

THE PURPOSE OF SHOWING MOVIES. THE ONLY STAGE IN TOWN THAT LENDS ITSELF READILY TO THE PERFORMING ARTS IS THE HIGH SCHOOL AUDITORIUM, A LARGE, RATHER OLD FASHIONED BUILDING SEATING CLOSE TO 3500 PEOPLE. THIS HALL IS USED VERY SUCCESSFULLY FOR THE COMMUNITY CONCERT SERIES, IT IS USUALLY FULL, AND OFTEN OVER-CROWDED. FOR SMALL GROUPS, CHAMBER MUSIC, OR SOLO RECITALS IT IS MUCH TOO BIG. THE NEW MOVIE THEATRES IN TOWN DO NOT HAVE STAGE FACILITIES TO ACCOMMODATE CONCERTS OF THIS KIND, NOR COULD THEY BE USED FOR BALLET PERFORMANCES. THE OLDER THEATRES, WHICH COULD POSSIBLY HOUSE PRODUCTIONS OF THIS TYPE, ARE, WITH A FEW EXCEPTIONS, IN THE OLDER PART OF TOWN WHICH WILL BE AFFECTED BY THE URBAN RENEWAL SCHEDULED TO TAKE PLACE IN THE NEAR FUTURE.

CONCERTS AND PRODUCTIONS AS MENTIONED ABOVE ARE OFTEN ENHANCED BY THE INTIMACY AFFORDED BY A SMALLER HALL. ALSO, AUDIENCES WOULD TEND TO BE SMALLER AT THESE THAN AT THE COMMUNITY CONCERTS WHICH OFTEN OFFER PROGRAMS OF A POPULAR NATURE. THE OPERA HOUSE WHICH I AM PROPOSING WILL HAVE A CAPACITY OF ABOUT 1800 SEATS, AND WILL BE PERFECT FOR PERFORMANCES LIKE THOSE MENTIONED ABOVE.

ONE OF THE CURSES OF MODERN ARCHITECTURE IS THAT IT MUST FREQUENTLY SERVE MANY DIFFERENT PURPOSES AND HOUSE ACTIVITIES OF SEVERAL DIFFERENT KINDS AT ONCE. THE END RESULT IS TOO OFTEN, UNFORTUNATELY, THAT ALL OF THE PURPOSES ARE SERVED EQUALLY AS POORLY. WHAT ABOUT THE "CAFETORIUM" WHICH INCLUDES:

CAFETERIA, AUDITORIUM, GYMNASIUM, AND HEAVEN ONLY KNOWS WHAT ELSE? AN AUDITORIUM DESIGNED FOR SYMPHONIC MUSIC WILL PROVE VERY INADEQUATE FOR OPERA, THE OPPOSITE, HOWEVER, IS OFTEN A MUCH HAPPIER UNION. AN OPERA HOUSE AND A SYMPHONY HALL ARE VERY SIMILAR AS FAR AS THE ACOUSTICAL AND PHYSICAL PROPERTIES OF THE AUDITORIUM ARE CONCERNED. AN EXCELLENT AUDITORIUM WILL USUALLY MAKE A GOOD SYMPHONY HALL. THE BEST AUDITORIUM IN THE WORLD, HOWEVER, WILL NOT MAKE A GREAT OPERA HOUSE IF THE STAGE FACILITIES AND THE BACK STAGE AREA DO NOT FULFILL THE MANY AND VARIED REQUIREMENTS.

THE BUILDING I AM PROPOSING WILL THUS BE DESIGNED SPECIFICALLY TO HOUSE OPERA, WITH STAGE FACILITIES ADEQUATE TO HANDLE MEDIUM AND EVEN LARGE SIZE PRODUCTIONS. PERFORMANCES WILL BE BY A RESIDENT COMPANY AND BY GUEST APPEARANCES. WHEN THE HALL IS NOT USED FOR OPERA IT WILL BE AVAILABLE TO PERFORMANCES OF MANY KINDS, DRAMA, CHAMBER MUSIC, SOLO RECITALS, BALLET, LECTURES, AND EVEN SYMPHONY CONCERTS.

FUNCTION OF THE BUILDING

"THE SHOWMAN'S FIRST CONTACT WITH ANY MEMBER OF HIS AUDIENCE OCCURS WHEN THAT INDIVIDUAL COMES IN SIGHT OF THE THEATRE. FROM THAT MOMENT UNTIL THE PATRON IS ON THE HIGH-WAY OR SUBWAY HEADED FOR HOME, HIS EVERY MOVEMENT IS THE SHOWMAN'S CONCERN. THE EASIER AND PLEASANTER THE PATRON'S PROGRESS FROM HOME TO THEATRE SEAT AND BACK AGAIN, THE BETTER THE SHOWMAN'S CHANCES FOR MAKING AND HOLDING A REPEAT CUSTOMER." *)

THE PRECEDING QUOTE CONCERNS THE PUBLIC AREAS OF THE BUILDING. THEY CONSTITUTE ONE OF THE TWO MAIN PARTS OF AN OPERA HOUSE, THE BACKSTAGE AREA IS THE OTHER. THE LATTER INCLUDES, OF COURSE, EVERTHING THAT IS NECESSARY TO PUT ON A SHOW, BE IT ABOVE, BELOW, BEHIND OR ON THE STAGE.

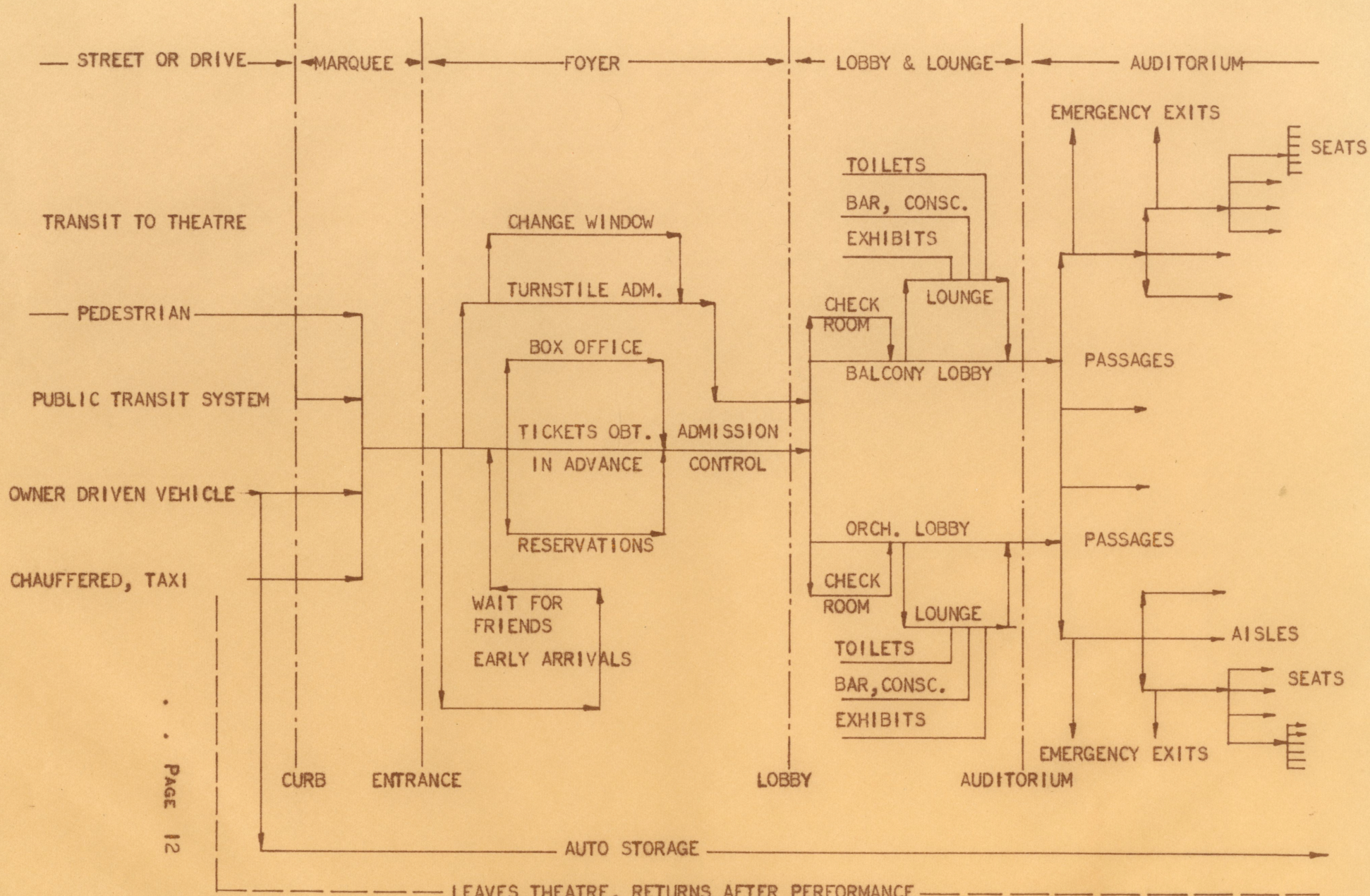
A. PUBLIC AREAS:

FOUR MAIN AREAS ARE INCLUDED UNDER THIS HEADING; 1 ACCESS-DRIVE, MARQUEE AND PARKING. 2, FOYER. 3, LOBBY AND LOUNGE, 4, AUDITORIUM. THE CHART ON PAGE , SHOWING THE FLOW IN THESE AREAS, ALSO SUGGESTS THEIR RELATIONSHIPS.

THE FOLLOWING SQUARE FOOTAGES ARE BASED ON A SEATING CAPACITY OF 1800. *)

FOYER:	1 SQUARE FOOT PER SEAT	OR 1800 SQ. FT.
LOBBY:	2 SQUARE FEET PER SEAT	OR 3600 SQ. FT.
LOUNGE:	8 SQUARE FEET PER SEAT	OR 14,400 SQ. FT.

*) THEATRES & AUDITORIUMS, PAGE 16
*) THEATRES & AUDITORIUMS, PAGE 24



COMPOSITE AUDIENCE FLOW CHART
(THEATRES & AUDITORIUMS, P. 23)

1. ACCESS - DRIVE, MARQUEE, AND PARKING

PARKING FOR THE PATRONS OF THE PROPOSED OPERA HOUSE AT STAMFORD, CONNECTICUT WILL NOT CAUSE A GREAT PROBLEM. THE DISCUSSION ON SITE CONDITIONS WILL SHOW THAT LARGE PARKING LOTS AND GARAGES ARE BEING PLANNED IN THE IMMEDIATE VICINITY. IF MORE PARKING IS NEEDED EVEN CLOSER, PART OF THE LOT PROPOSED FOR THE OPERA HOUSE MAY BE USED FOR THIS PURPOSE. DURING THE DAYTIME THIS ADDITIONAL PARKING COULD BE USED BY PATRONS OF THE SHOPPING CENTERS AND OTHER ESTABLISHMENTS OF THE CENTRAL BUSINESS DISTRICT. THE LENGTH OF THE THEATRE WALL FACING THE STREET OR DRIVEWAY DETERMINES THE AMOUNT OF CURB SPACE AVAILABLE FOR DISCHARGING THE PASSENGERS. THE TRAFFIC IS NOT AT ALL CONTINUOUS HERE, NEARLY 100% OF THE PEOPLE ATTENDING A PERFORMANCE WILL ARRIVE AT, AND DEPART FROM THE THEATRE IN A VERY SHORT SPAN OF TIME, SOMETIMES LESS THAN ONE HALF HOUR. BECAUSE OF THIS A LARGE CURB LOADING AREA IS VERY DESIRABLE. THE MARQUEE SHOULD COVER ALL OF THE CURB USED FOR LOADING AND UNLOADING.

2. FOYER

FROM THE SHELTERED AREA UNDERNEATH THE MARQUEE THE PATRON ENTERS THE FOYER. THOSE WHO HAVE NOT YET BOUGHT THEIR TICKETS, OR ARE PICKING UP RESERVATIONS WILL DO SO HERE. QUEUES WILL OFTEN FORM IN FRONT OF THE BOX OFFICE AND RESERVED TICKET WINDOWS, THE ARRANGEMENT OF THE FOYER MUST BE SUCH THAT THESE DO NOT CREATE AN OBSTACLE TO THE PATRON WHO ALREADY HAS HIS TICKET AND CAN PROCEED DIRECTLY TO THE LOBBY.

3. LOBBY AND LOUNGE

TO GET FROM THE FOYER TO THE LOBBY THE PATRON MUST HAVE HIS TICKET CHECKED. IN ORDER NOT TO CREATE A BOTTLE-NECK WHERE THE STEADY FLOW OF TRAFFIC WILL BE INTERUPTED, THERE MUST BE AT LEAST TWO TICKET TAKERS. ONE DOOR CAN HANDLE BETWEEN 1000 AND 1500 PERSONS FOR LEGITIMATE THEATRE. *) AT LEAST FOUR MORE DOORS MUST BE PLANNED TO AVOID CONGESTION FOLLOWING THE PERFORMANCE. THE LOBBY IS PRINCIPALLY A DISTRIBUTION AREA, ACCESS FROM HERE TO COATROOMS, LOUNGE, AND AUDITORIUM MUST BE EASY. ALMOST EVERY MEMBER OF THE AUDIENCE MAY BE EXPECTED TO CHECK SOMETHING AT THE COATROOM, THE COUNTER SHOULD THEREFORE BE LONG ENOUGH TO MAKE IT POSSIBLE TO CHECK WRAPS WITHOUT INTERUPTING THE AUDIENCE FLOW. THE ARRANGEMENT OF THE LOBBY IS MORE IMPORTANT THAN ITS SIZE, A SMALL, WELL ORGANIZED LOBBY IS PREFERABLE TO A LARGER ONE WHERE POOR PLANNING CREATES TRAFFIC CONGESTION.

THE ACCESS FROM THE LOBBY TO THE LOUNGE SHOULD BE EASY, IN MANY THEATRES THEY ARE COMBINED WITHIN THE SAME SPACE. THE LOUNGE IS BY FAR THE LARGEST OF THE THREE INTERIOR PUBLIC SPACES DISCUSSED SO FAR, (SEE PAGE) IT SHOULD ALSO BE THE MOST LUXURIOUS PART OF THE OPERA HOUSE. TO SOME PEOPLE INTERMISSION TIME IS THE MOST IMPORTANT, THIS IS WHEN THEY CAN DISPLAY ALL THEIR GLORY, AND ALSO WATCH EVERYONE ELSE. REFRESHMENT STANDS ARE USUALLY CONSIDERED PART OF THE LOUNGE, OFTEN A BAR IS INCLUDED. LAVATORIES AND RESTROOMS ARE, OF COURSE, FOUND CLOSE BY.

*) THEATRES & AUDITORIUMS, PAGE 25.

THE FUNCTION OF FOYER, LOBBY, AND LOUNGE ARE DIFFERENT AND THEY SHOULD BE GIVEN SEPARATE SPACES. HOWEVER, THERE ARE SOME THEATRES WHERE THEY HAVE BEEN COMBINED RATHER SUCCESSFULLY. IF THIS IS DONE THE SPACE REQUIREMENTS OF EACH FUNCTION MUST BE OBSERVED VERY CAREFULLY, OR THE ARRANGEMENT WILL NOT BE ENTIRELY SATISFACTORY.

4. AUDITORIUM

ACOUSTICS, VISIBILITY, AND COMFORT ARE THE MAIN FACTORS DETERMINING THE DESIGN OF AN AUDITORIUM FOR OPERATIC PRODUCTIONS. ACOUSTICS IS THE MOST IMPORTANT OF THESE. IF EXCELLENT ACOUSTICS ARE ACHIEVED IN A HALL, THE REQUIREMENTS FOR AUDIENCE COMFORT AND VISIBILITY CAN USUALLY BE FULFILLED AND FITTED INTO THE DESIGN, THE OPPOSITE WILL VERY OFTEN NOT BE TRUE.

A. ACOUSTICS

"ACOUSTICAL PLANNING FOR A CONCERT HALL OR OPERA HOUSE MUST BEGIN EARLY, AT THE TIME WHEN SUCH CONSIDERATIONS AS SEATING CAPACITY AND THE PATTERN OF USE ARE BEING DETERMINED. THE PLANNING SHOULD ENCOMPASS BOTH THE SELECTION AND DEVELOPMENT OF THE SITE, SO THAT EXTERIOR AND INTERIOR NOISES WILL BE AT A MINIMUM. ---- ---- IN THE DEVELOPMENT OF THE DESIGN OF A HALL, THE ACOUSTICS DICTATE THE CUBIC VOLUME AND STRONGLY INFLUENCE THE ORIENTATION OF EVERY SOUND REFLECTING SURFACE, THE INTERIOR MATERIALS, AND EVEN THE SEATING. EACH ELEMENT OF

A HALL HAS ITS EFFECT ON THE ULTIMATE ACOUSTICAL RESULTS, AND MANY ELEMENTS CANNOT BE CORRECTED ONCE THEY ARE BUILT INTO THE BASIC SHAPE." *) THE TECHNICAL ASPECTS OF PLANNING FOR GOOD ACOUSTICS WILL BE TREATED IN A LATER CHAPTER.

B. VISIBILITY

THE PATRON MUST BE ABLE TO SEE THE PERFORMANCE. OPERA, THE UNIQUE ARTFORM COMBINING MUSIC AND DRAMA, CANNOT BE FULLY EXPERIENCED UNLESS BOTH OF THEM ARE PRESENT. ANYONE WHO HAS EVER HEARD AN OPERA IN CONCERT VERSION, WITH NO ACTION, WILL AGREE THAT IT CAN BECOME DEATHLY BORING. NO ONE WOULD EVER DREAM OF PUTTING ON AN OPERA WITHOUT MUSIC, AND NO ONE SHOULD EVER PUT ONE ON WITHOUT THE DRAMATIC ACTION, WHICH IS SO MUCH A PART OF THE WORK. THE PROBLEM OF VISIBILITY, HOWEVER, IS NOT CONFINED JUST TO THE RELATIONSHIP BETWEEN THE AUDIENCE AND WHAT TAKES PLACE ON STAGE. THE ATMOSPHERE OF THE AUDITORIUM MUST BE SUCH AS TO ENHANCE THE PRODUCTION, THIS CAN OFTEN BE ACHIEVED THROUGH SUCCESSFUL LIGHTING OF THE HALL, BOTH BEFORE AND DURING THE PERFORMANCE. BEFORE THE PERFORMANCE THE PATRON MUST BE ABLE TO FIND HIS SEAT, READ HIS PROGRAM, AND ALSO RECOGNIZE HIS FRIENDS. GENERALLY DISTRIBUTED LIGHT FROM LOW BRIGHTNESS SOURCES IS PREFERABLE, AS IT IT WILL MAKE THE HOUSE APPEAR DIM, BUT STILL LIGHT ENOUGH SO THE PATRON CAN SEE AND BE SEEN. AFTER THE PERFORMANCE HAS

*) MUSIC, ACOUSTICS & ARCHITECTURE, PAGE 481

STARTED, THE AUDIENCE SHOULD ONLY BE AWARE OF THE STAGE AND WHAT IS PERFORMED THERE. WHATEVER SAFETY LIGHTS ARE REQUIRED BY THE BUILDING CODES MUST BE LOCATED WHERE THEY LEAST DISTRACT FROM THE PERFORMANCE. THE SIZE OF THE AUDITORIUM SHOULD NOT BE SO LARGE THAT FEATURES AND GESTURES OF THE PERFORMERS CANNOT CLEARLY BE DISTINGUISHED EVEN FROM THE REAR SEATS.

C. COMFORT

"WHEN THE ANNUAL VISIT OF THE CIRCUS CONSTITUTED THE ONLY SHOW IN A COMMUNITY, THE AUDIENCE STOOD FOR CROWDING, HARD SEATS, SOILED CLOTHES, DUST, AND PERHAPS A LONG TRIP HOME, AND COULD SPEND THE NEXT DAY RECUPERATING FROM THE FATIQUE, EXCITMENT, AND CONDIMENTS. THE AUDIENCE COULD, WOULD, AND DID TAKE IT". *) TODAY AN AUDIENCE HAS A RIGHT TO EXPECT SOMETHING QUITE DIFFERENT. A MAXIMUM OF COMFORT MUST BE PROVIDED IN THE OPERA HOUSE IN GENERAL AND IN THE AUDITORIUM IN PARTICULAR. COMFORT IN THE AUDITORIUM DEPENDS UPON:

1. SHAPE AND UPHOLSTERY OF SEATS.
2. DISTANCE BETWEEN ROWS, POSITIONS AND WIDTH OF AISLES.
3. AIRCONDITIONING AND HEATING.
4. DECORATION AND LIGHTING OF THE AUDITORIUM.
5. FLOOR SLOPE.
6. ABSENCE OF DISTRACTION.

*) THEATRES & AUDITORIUMS, PAGE 51.

IN ORDER TO OBTAIN UNIFORM ACOUSTICS IN AN AUDITORIUM ALL SEATS MUST BE UPHOLSTERED. WHEN THE CROWD IS SMALL, THE EMPTY SEATS WILL ABSORB APPROXIMATELY THE SAME AMOUNT OF SOUND AS THE PERSONS WOULD IF IT WERE A FULL HOUSE. THE SEATS SHOULD BE SPACED FAR ENOUGH APART SO THAT THE OCCUPANT OF A SEAT DOES NOT HAVE TO RISE TO LET SOMEONE PASS BY. THIS WILL MEAN CLOSE TO 45 INCHES BACK TO BACK. IT IS VERY UNWISE TO CROWD SEATS TOGETHER TO ACHIEVE A HIGHER SEATING CAPACITY AS THIS WILL NOT PAY OFF IN THE LONG RUN.

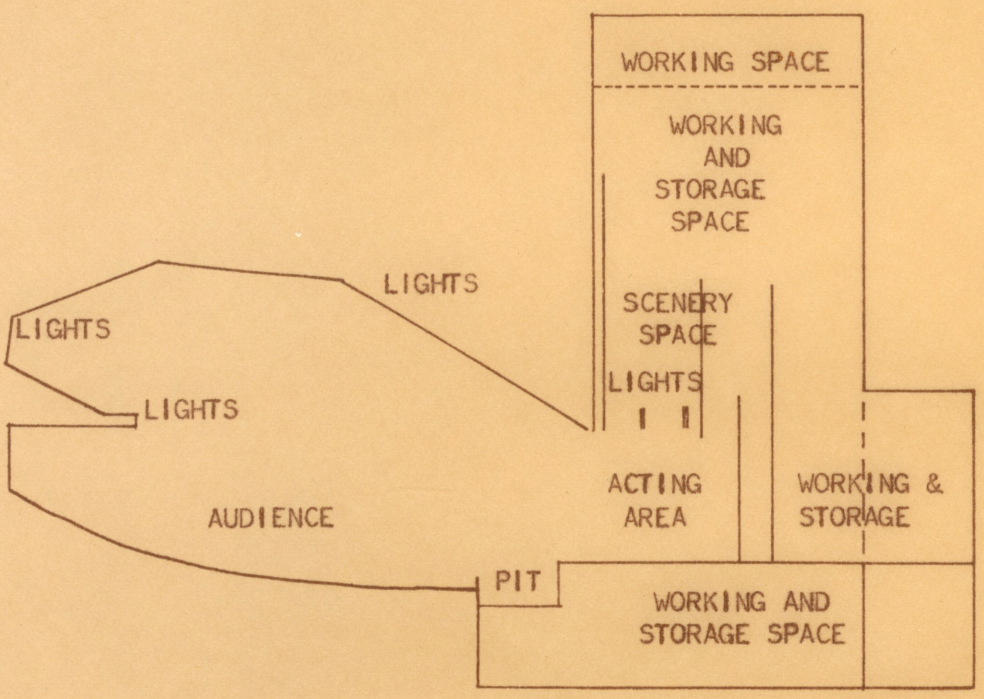


DIAGRAM OF ARRANGEMENT OF SPACES NOT TO BE INTERPRETED IN TERMS OF SIZE ROR SHAPE

B. NON PUBLIC AREAS:

1. STAGE

OF THE NONPUBLIC AREAS OF AN OPERA HOUSE THE STAGE IS THE MOST IMPORTANT. THIS IS THE PART OF THE THEATRE WHERE THE PERFORMANCE TAKES PLACE. THE TYPE OF PERFORMANCE WILL THEREFORE DETERMINE THE SIZE, SHAPE, AND ARRANGEMENT OF THE STAGE. GRAND OPERA REQUIRES A LARGE NUMBER OF PERFORMERS, IN BIG SCENES THERE WILL OFTEN BE AS MANY AS 70 OR 80 ON STAGE AT THE SAME TIME. THE PRINCIPALS WILL USUALLY PERFORM DOWNSTAGE CENTER, EITHER AS SOLOISTS, IN DUETS, OR IN GROUP SCENES. THE CHORUS AND THE BALLET NEED SPACE UPSTAGE. THE MOVEMENT IS OFTEN IN MARTIAL PROCESSIONS OR GROUP DANCES, AND THE AUDIENCE MUST BE ABLE TO SEE THIS MOVEMENT IN TWO DIRECTIONS. MANY OPERAS REQUIRE CROWD SCENES WHERE BALLET, CHORUS, AND "SUPERS" FILL THE ENTIRE ACTING AREA. THE PERSON IN THE AUDIENCE IS USUALLY AN OBJECTIVE SPECTATOR AND THE PERFORMANCE WILL NOT NECESSARILY BENEFIT BY INTIMATE CONTACT BETWEEN PERFORMER AND AUDIENCE.

THE LARGE NUMBER OF PERFORMERS USED IN MANY OPERAS, REQUIRE A LARGE ACTING AREA, BETWEEN 2500 AND 3500 SQ. FT. THE SHAPE SHOULD BE RHOMBOID WITH ASPECT RATIO BETWEEN 1 TO 2 AND 2 TO 3. THE SIDES MUST CONVERGE TOWARD THE BACK OF THE STAGE FOLLOWING THE SIGHT-LINES FROM THE OUTSIDE ROWS OF SEATS. THE WIDTH OF THE PROSCENIUM SHOULD BE EQUAL TO THE LONG DIMENSION OF THE

ACTING AREA, USUALLY BETWEEN 60 AND 70 FEET. IN MANY MODERN THEATRES THE PROSCENIUM ARCH IS NOT AN IMPORTANT DESIGN FEATURE, IN SOME HALLS IT IS LEFT OUT ENTIRELY. THE MOVEMENT IN THE ACTING AREA IS IN TWO DIRECTIONS, PERPENDICULAR TO, AND ALONG, THE SIGHT LINES OF THE AUDIENCE. THIS TWO DIMENSIONAL MOVEMENT IS VERY IMPORTANT, AND THE SEATING MUST BE ELEVATED TO MAKE IT CLEARLY VISIBLE.

2. ORCHESTRA PIT

ORCHESTRA PITS CAN BE CLASSIFIED INTO THREE TYPES:

A. SUNKEN, COVERED PIT.

B. SUNKEN, OPEN PIT.

C. OPEN PIT.

A. SUNKEN, COVERED PIT

THIS PIT WAS DEVELOPED BY RICHARD WAGNER FOR HIS "FESTSPIELHAUS" IN BAYREUTH, GERMANY. A LARGE PART OF IT IS BURIED UNDERNEATH THE STAGE, AND AN OVERHANG COVERS THE REMAINING PORTION. THE PURPOSE OF THIS PIT WAS TO CREATE MYSTICITY, BOTH VISUALLY AND ACOUSTICALLY. WAGNER FELT VERY STRONGLY THAT THIS QUALITY WAS IMPORTANT TO HIS OPERAS, WITH ALL THEIR SYMBOLISM. THE SUNKEN, COVERED PIT IS NOT VERY SUCCESSFUL FOR OPERAS THAT ARE NOT IN THE WAGNERIAN STYLE, WITH ITS LARGE ORCHESTRATIONS. TOO MUCH OF THE SOUND IS LOST WHEN, FOR INSTANCE, THE SMALLER ORCHESTRA FOR ITALIAN OPERA IS USED.

B. SUNKEN, OPEN PIT

THERE IS VERY LITTLE DIFFERENCE BETWEEN THE SUNKEN, OPEN PIT AND THE ONE IN BAYREUTH, PART OF IT IS STILL BURIED UNDER THE STAGE, BUT THE COVER IS TAKEN OFF. THE ACOUSTICS OF THE TWO ARE MUCH THE SAME, THE SOUND IS VERY MUFFLED. IN ADDITION, ANOTHER DRAWBACK IS ENCOUNTERED IN THIS PIT; SOME OF THE INSTRUMENTS ARE EXPOSED, AND SOME ARE COVERED BY THE OVERHANG, THUS THE BALANCE OF THE ORCHESTRA IS NOT VERY GOOD.

C. OPEN PIT

IN SPITE OF THE DRAWBACKS OF THIS PIT, IT IS GENERALLY PREFERRED. THIS MAINLY BECAUSE OF THE NATURAL SOUND WHICH IT GIVES TO THE ORCHESTRA, IT HAS NO OVERHANG AND ALL THE INSTRUMENTS ARE EXPOSED. THE DRAWBACKS ARE: 1. WITH NO OVERHANG, THE DISTANCE BETWEEN THE EDGE OF THE STAGE AND THE AUDIENCE WILL BE QUITE LARGE, MORE THAN 20 FEET WHEN THE PIT IS DESIGNED TO ACCOMMODATE FULL SIZE ORCHESTRAS. 2. THE MUSICIANS AND THE CONDUCTOR MUST HAVE LIGHTS ON THEIR MUSIC STANDS, THESE WILL OFTEN, IN SPITE OF CAREFUL PLANNING, HAVE A DISTURBING VISUAL EFFECT. HOWEVER, AS MENTIONED ABOVE, THIS TYPE OF PIT IS USUALLY CONSIDERED THE MOST SUCCESSFUL, AND WILL BE USED FOR THE PROPOSED OPERA HOUSE AT STAMFORD.

THE FIRM OF BOLT BERANEK AND NEWMAN INC. HAS DESIGNED AN ORCHESTRA PIT FOR THE PROPOSED METROPOLITAN OPERA HOUSE,

LINCOLN CENTER FOR THE PERFORMING ARTS IN NEW YORK. THE SAME FIRM DID THE ACOUSTICAL CALCULATIONS AND DESIGN FOR PHILHARMONIC HALL. THIS PIT HAS AN AVERAGE WIDTH OF 21.5 FEET. THREE ELEVATORS COMPOSE THE FLOOR WHICH FLOOR-AREA CAN BE VARIED FROM 1420 TO 1220 SQ. FT. THERE IS NO OVERHANG ON THE STAGE SIDE. THE NEW METROPOLITAN OPERA HOUSE WILL BE APPROXIMATELY TWICE THE SIZE OF THE PROPOSED HOUSE FOR STAMFORD. THIS WILL NOT BE TRUE OF THE ORCHESTRA PIT, HOWEVER, SINCE THE OPERA HOUSE FOR STAMFORD WILL BE DESIGNED TO ACCOMMODATE FULL SIZE PRODUCTIONS. THE MAXIMUM FLOOR AREA WILL BE ABOUT 1000 SQ. FT. BY MEANS OF ADJUSTABLE ELEVATORS THE PIT WILL BE VARIABLE WITH A MINIMUM FLOOR AREA OF APPROXIMATELY 750 SQ. FT.

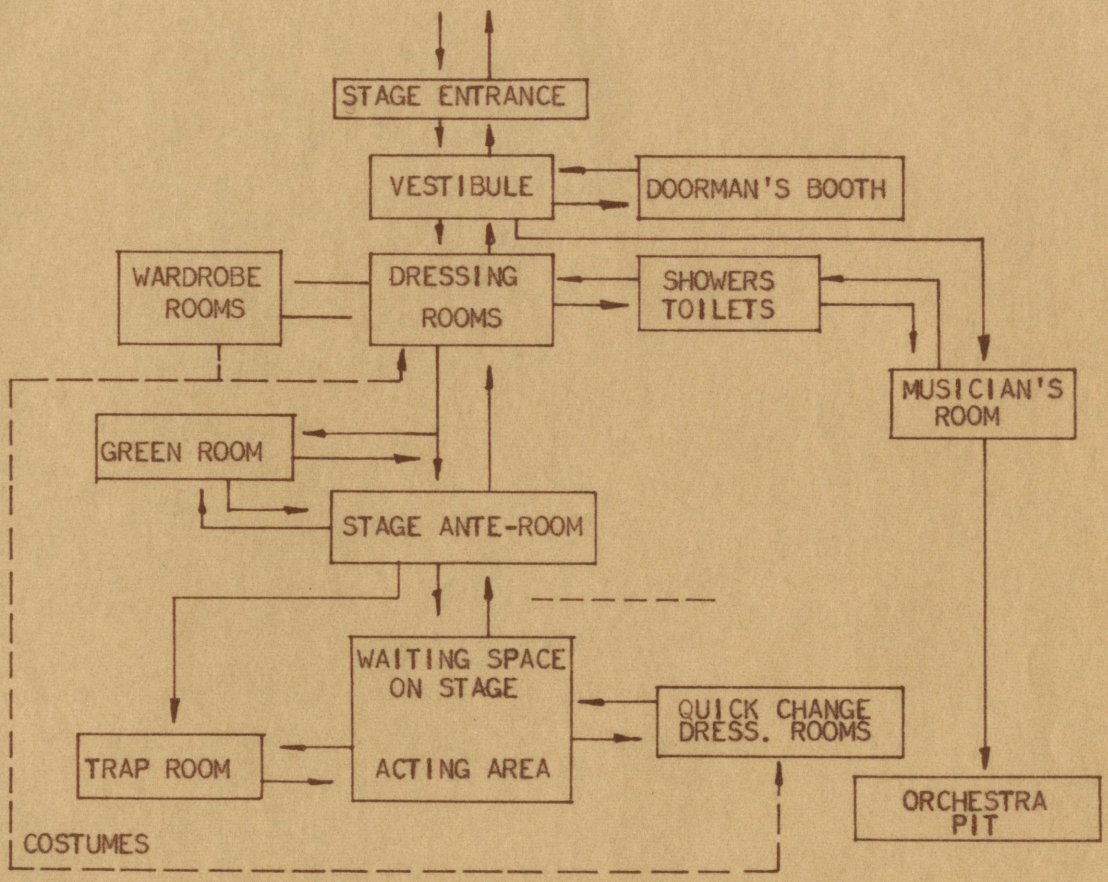
3. BACKSTAGE WORKING AREAS

ALTHROUGH THIS SECTION IS THE LAST TO BE CONSIDERED UNDER THE FUNCTIONS OF THE BUILDING, IT IS OF UTMOST IMPORTANCE TO THE EFFICIENCY AND "PERFORMANCE" OF THE THEATRE. THE FLOW CHART ON PAGE SUGGESTS THE RELATIVE LOCATIONS OF THE VARIOUS SPACES USED BY THE PERFORMERS (THE WORD PERFORMERS WILL HENCEFORTH BE INTERPRETED TO INCLUDE EVERYONE WHO IS DIRECTLY INVOLVED WHEN A SHOW IS BEING PUT ON, SINGERS, DANCERS, ACTORS, MUSICIANS, ETC.)

A. STAGE ENTRANCE AND VESTIBULE

THIS ENTRANCE IS USED BY EVERYONE WORKING IN THE THEATRE

FLOW CHART FOR PERFOPMERS IN THE THEATRE



SOLID LINES ——— PERSONNELL
BROKEN LINES - - - MATERIALS

ADAPTED FROM FLOW CHART, PAGE 90, THEATRES & AUDITORIUMS

AND MUST BE CENTRAL TO ALL BACKSTAGE DEPARTMENTS. TIME CLOCK, BULLETIN BOARD, AND MAIL BOXES ARE REQUIRED HERE, A TELEPHONE BOOTH MAY BE INCLUDED IN THIS AREA.

B. DOORMAN'S BOOTH

TRAFFIC TO ALL BACKSTAGE AREAS OF THE BUILDING ARE CONTROLLED FROM HERE, EQUIPMENT SHOULD INCLUDE COUNTER, MAIL BOX, DESK, AND KEY RACK.

C. DRESSING ROOMS

INDIVIDUAL DRESSING ROOMS MUST BE PROVIDED FOR AT LEAST 8 PRINCIPALS, THE MINIMUM FLOOR AREA IS 70 SQ. FT. EACH. LARGE DRESSING ROOMS MUST BE PROVIDED FOR ABOUT 70 SINGERS AND DANCERS WITH AT LEAST 50 SQ. FT. PER PERSON. EACH PERSON NEEDS 2 LINEAR FEET OF CLOTHES HANGER ROD AND SHOE RACK. MAKE-UP TABLES MUST BE 18 IN. WIDE WITH 30 IN. PER PERSON. MIRRORS SHOULD BE CONTINUOUS ABOVE ALL MAKE-UP TABLES, AND EACH DRESSING ROOM MUST HAVE AT LEAST ONE FULL LENGTH MIRROR. A LARGE NUMBER OF LAVATORIES IS REQUIRED, ONE IN EACH SMALL DRESSING ROOM AND ONE PER FOUR PERSONS IN THE LARGE ONES. TOILETS ARE USED DURING SHORT PERIODS OF TIME BEFORE THE SHOW AND DURING INTERMISSIONS, BECAUSE OF THE HIGH PEAK LOAD A MINIMUM OF ONE PER 6 PERSONS IS REQUIRED. AT LEAST ONE SHOWER PER 6 PERSONS MUST BE PROVIDED, ALL PRINCIPALS' DRESSING ROOMS SHOULD HAVE SHOWERS.

D. GREEN ROOM AND STAGE ANTE-ROOM

THIS IS THE PERFORMERS' LOUNGE AND SOCIAL ROOM. IT SHOULD BE FURNISHED AS A LOUNGE WITH COMFORTABLE FURNITURE. THE GREEN ROOM SHOULD BE LOCATED NEAR THE STAGE AS IT IS THE AREA WHERE THE STAGE MANAGER CHECKS THE CAST AND ASSEMBLES THE CHORUS BEFORE THE SHOW. THE STAGE ANTE-ROOM WHICH IS SHOWN ON THE CHART CAN USUALLY BE LEFT OUT IF THE GREEN ROOM IS LARGE ENOUGH AND ISLOCATED ADJACENT TO BOTH DRESSING ROOMS AND STAGE. THE PASSAGE FROM DRESSING ROOM TO GREEN ROOM AND STAGE MUST BE DIRECT AND SHORT WITH NO STAIRS.

E. WAITING SPACE ON STAGE

PERFORMERS ARE RESPONSIBLE FOR THEIR OWN RE-ENTRANCES, THE WAITING AREA MUST HAVE CHAIRS OR BENCHES AND BE LOCATED SO THAT THE PERFORMANCE CAN BE HEARD. THE QUICK CHANGE DRESSING ROOMS CAN BE ELIMINATED IF THE REGULAR DRESSING ROOMS ARE NOT TOO FAR REMOVED FROM THE STAGE.

F. MUSICIANS' ROOM

MUSICIANS ENTER THEATRE THROUGH THE VESTIBULE AND GO DIRECTLY TO THE MUSICIANS' ROOM. EQUIPMENT HERE MUST INCLUDE: LOCKERS AND MUSIC CABINETS, ALSO CHAIRS FOR REST AND RELAXATION BETWEEN ACTS. THIS ROOM IS OFTEN PUT IN THE BASEMENT UNDER THE STAGE, SO THAT THE PASSAGE TO THE PIT IS AS SHORT AND DIRECT AS POSSIBLE. A SEPARATE ROOM FOR FEMALE INSTRUMENTALISTS MUST BE PROVIDED. IT CAN BE MUCH SMALLER THAN THE GENERAL ROOM FOR MUSICIANS. THE CONDUCTOR SHOULD HAVE PRIVATE DRESSING ROOM WITH TOILET FACILITIES AND SHOWER.

G. STAGE HANDS' LOCKER ROOM AND LOUNGE

MUST BE LARGE ENOUGH TO ACCOMMODATE AS MANY AS 25 STAGE HANDS. THIS ROOM IS USED TO CHANGE CLOTHES IN BEFORE AND AFTER THE SHOW, AND AS A WAITING LOUNGE BETWEEN SHIFTS. IT MUST THEREFORE BE LOCATED NEAR THE STAGE. TOILET AND SHOWER FACILITIES MUST BE PROVIDED.

H. STAGE MANAGER, DESIGNER, AND DIRECTOR

ALL OF THESE NEED OFFICES IN THE THEATRE, ADJACENT TO THE BACKSTAGE AREA. IT WOULD BE DESIRABLE TO HAVE THEM CONNECTED TO A COMMON CONFERENCE ROOM THAT WOULD BE ACCESSABLE FROM THE LOBBY OF THE THREATE. THE STAGE MANAGER(S) NEED(S) A DESK ON STAGE FROM WHICH HE CAN MANAGE THE SHOW, THISIS THE NERVE CENTER OF ALL BACKSTAGE ACTIVITY. AN ELABORATE INTER-COM SYSTEM IS NECESSARY, BOTH TO THE DIFFERENT AREAS OF THE STAGE AND TO DRESSING ROOMS, GREEN ROOM, MUSICIANS' ROOM, AND STAGEHANDS' LOUNGE.

4. STAGE MACHINERY

IN MOST EXISTING THEATRES AND OPERA HOUSES THE STAGES, AND THEIR EQUIPMENT, IMPOSE LIMITATIONS ON THE SET DESIGNER AND THE PERFORMER. MUCH TIME AND ENERGY IS SPENT CREATING SETS THAT WILL FIT THE STAGE, RATHER THAN THOSE WHICH ARE SUITABLE TO THE PLAY OR OPERA. IF MODERN CONSTRUCTION METHODS AND TECHNOLOGY WERE UTILIZED TO THEIR UTMOST LIMITS, THE PERFECT, OR NEARLY PERFECT THEATRE COULD BE REALIZED TODAY. THE REASONS WHY THIS HAS NOT BEEN ACHIEVED IN THEATRES BUILT DURING THE LAST DECADES, ARE SEVERAL. ECONOMY AND THE PROBLEM OF FINANCING IS PROBABLY THE FIRST ONE. VERY OFTEN A LIMITED BUDGET PUTS SEVERE RESTRICTIONS ON THE ARCHITECT AND ON THE FACILITIES THAT CAN BE INCLUDED. THE SPONSORS DO NOT REALIZE THAT THEY ARE ALSO PUTTING RESTRICTIONS ON THE FUTURE PROFITS OF THE THEATRE, BECAUSE OF INFERIOR SHOWS. HOWEVER, ECONOMIC CONSIDERATIONS SET ASIDE, THE ARCHITECT AND THE DESIGNER PUT LIMITATIONS ON THEMSELVES. THEY ARE AFRAID OR UNWILLING TO TAMPER WITH TRADITIONAL THEATRE, UNCHANGED FOR OR MANY YEARS, IN SPITE OF ITS SHORTCOMINGS. THE CHANGES THAT HAVE OCCURED IN THEATRE DESIGN DURING THE LAST 50 YEARS ARE NOT MANY, AND THOSE THAT HAVE OCCURRED HAVE BEEN CONCERNED MOSTLY WITH THE PUBLIC SPACES. THE BACKSTAGE AREAS, AND ESPECIALLY THE STAGE MACHINERY, SO IMPORTANT TO THE SUCCESS OF THE THEATRE, HAVE BEEN TERRIBLY NEGLECTED. THESE AREAS SHOULD NOT BE INFERIOR TO THE REST OF THE THEATRE, RATHER, THEY SHOULD BE THE MOST ADVANCED AND WELL EQUIPPED.

THE EQUIPMENT OF THE STAGE IS GENERALLY DIVIDED INTO TWO PARTS, THAT WHICH IS ON THE STAGE PROPER, AND THAT WHICH IS SUSPENDED FROM THE GRIDION.

I. STAGE MACHINERY: ON THE STAGE FLOOR

THERE ARE TWO METHODS OF HANDLING SCENERY. THE TRADITIONAL ONE, WHICH IS STILL IN USE IN MOST THEATRES, COULD BE CALLED THE "CAST-IN-PLACE" METHOD. ALL THE DIFFERENT SIZE PIECES THAT MAKE UP A SET ARE MOVED TO THE ACTING AREA AND ASSEMBLED THERE. A REVERSAL OF THE PROCESS IS USED WHEN STRIKING THE SET. THIS METHOD IS SLOW AND ALTHOUGH A LARGE NUMBER OF STAGEHANDS MAY BE EMPLOYED, THE TIME FOR SET CHANGES WILL STILL BE ON THE ORDER OF SEVERAL MINUTES. THE OTHER WAY OF CHANGING SETS COULD BE CALLED THE "PRECAST" METHOD. THE WHOLE SET, OR LARGE PARTS OF IT, ARE BROUGHT INTO, AND TAKEN OUT OF, THE SCENERY SPACE EITHER IN ONE UNIT OR IN LARGE SECTIONS. A LARGE BACKSTAGE AREA IS A PRE-REQUISITE FOR THIS METHOD. THE SET MUST BE ASSEMBLED PREVIOUS TO ITS USE IN AN AREA ADJACENT TO THE SCENERY SPACE. WHEN TIME COMES TO CHANGE THE SET, ADDITIONAL SPACE IS NEEDED INTO WHICH THE SET ALREADY IN THE SCENERY SPACE CAN BE MOVED. THE SET CHANGE CAN BE CUT DOWN TO 15 SECONDS WHEN THE THEATRE IS FULLY EQUIPPED FOR THIS METHOD, AND THE PERSONNEL IS WELL TRAINED. THE "PRECAST" METHOD REQUIRES LARGE, FLAT, MOVABLE PLATFORMS, BE THEY ROLLING WAGONS, REVOLVING STAGE FLOOR, OR REVOLVING DISCS.

ROLLING WAGONS WILL BE EMPLOYED IN THIS PROJECT SINCE THEY ARE VERY SUCCESSFUL IN THE THEATRES WHERE THEY HAVE BEEN USED. THEY ARE VERY FLEXIBLE, WITH INGENUITY THEY CAN BE USED FOR SETS AND SET CHANGES OF EXTREME EFFECTIVENESS.

SPACE, SPACE, AND MORE SPACE IS WHAT IS NEEDED IN THE BACK-STAGE AREA IF THE THEATRE IS TO BE A GOOD ONE. THE IDEAL SETUP WOULD INCLUDE ADEQUATE SPACE FOR TWO WAGONS, ONE ON EACH SIDE OF THE ACTING AREA. (SEE ILLUSTRATION PAGE 4.) THESE SPACES SHOULD EACH BE AS LARGE, OR LARGER THAN THE ACTING AREA, TO ACCOMMODATE A FULLSTAGE WAGON PLUS STORAGE OF SCENERY. THE WAGON ROOMS MAY BE USED AS SHOP, REHEARSAL ROOMS, DANCE PRACTICE ROOMS, OR CLASSROOMS, WHEN THE STAGE IS NOT USED FOR PERFORMANCES. THE WAGONS WILL BE SELF PROPELLED AND RUN ON RUBBER WHEETS DIRECTLY ON THE STAGE FLOOR OR ON TRACKS. THE TRACKS CAN BE EITHER PORTABLE ONES, LAID OUT ONLY WHEN NEEDED, OR PERMANENTLY INSTALLED IN THE STAGE FLOOR. IF THE LATTER ARE USED THEY MUST BE COUNTERSUNK AND EASILY COVERED FOR SHOWS REQUIRING A SMOOTH FLOOR. THE TRACKS MUST ALSO BE LOCATED SO THAT THEY DON'T INTERFERE WITH STAGE FLOOR TRAPS.

2. STAGE MACHINERY: IN THE FLIES

MOST STAGE PRODUCTIONS HAVE EQUIPMENT, SUCH AS SCENERY, LIGHTING EQUIPMENT, TEASERS ETC, SUSPENDED OVER THE SCENERY AND ACTING AREA. THE MAIN ITEM FACILITATING THIS SUSPENSION IS THE GRIDION. IT IS "AN OPEN-WORK FLOOR OF STEEL LOCATED UNDER THE ROOF OF THE STAGE ON WHICH SHEAVES MAY BE FASTENED EITHER

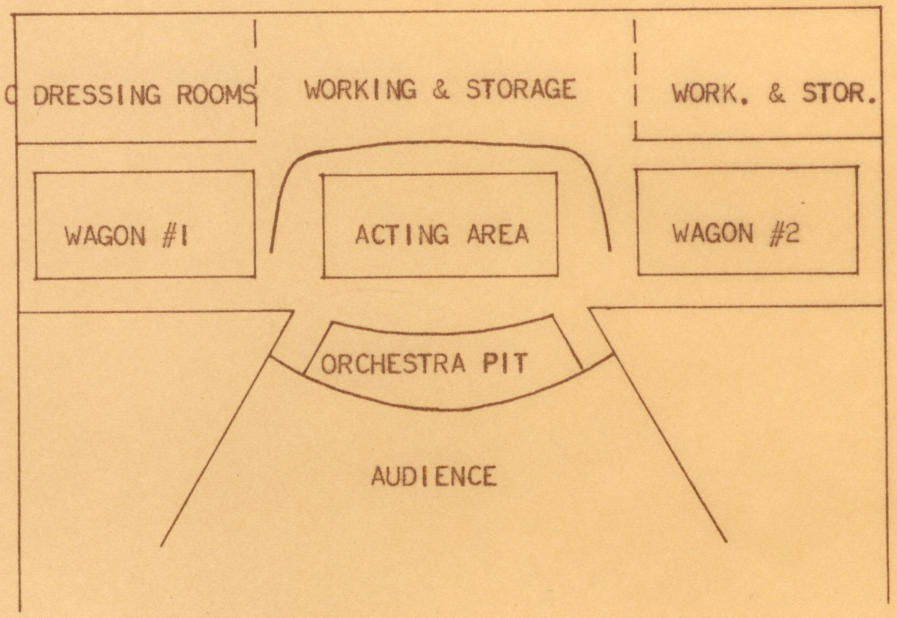


DIAGRAM OF POSSIBLE USE OF STAGE WAGONS FOR SET CHANGES

PERMANENTLY OR TEMPORARILY AND THROUGH WHICH ROPES, EITHER WIRE OR HEMP MAY BE DROPPED FOR THE SUSPENSION OF SCENERY, LIGHTING EQUIPMENT, ACTORS, AND ANYTHING ELSE WHICH THE PERFORMANCE MAY REQUIRE TO BE SUSPENDED". *) THE ULTIMATE SYSTEM FOR FLYING SCENERY WOULD BE THE ONE FROM WHICH ANY SIZE, WEIGHT, OR SHAPE OF OBJECT COULD BE SUSPENDED IN ANY PART OF THE SCENERY AREA IN ANY POSITION. THIS MAY SOUND RATHER UTOPIAN, BUT VERY SUCCESSFUL RESULTS CAN BE ACHIEVED WHEN USING A COMBINATION OF THE ROPE AND THE COUNTERWEIGHT SYSTEMS. THE ROPE SETS WILL BE USED TO FLY LIGHTWEIGHT PIECES OF SCENERY AND OTHER EQUIPMENT WHICH CHANGES WITH EACH SHOW SINCE THEY CAN EASILY BE MOVED TO OTHER AREAS OF THE GRIDION. THE COUNTERWEIGHT SETS, WHICH ARE IN FIXED POSITIONS, WILL BE USED FOR HEAVIER EQUIPMENT, CURTAINS, CYCLORAMAS, HEAVY LIGHTING STRIPS ETC. FOR STORAGE PURPOSES THE GRIDION WILL EXTEND OVER ONE OR BOTH OF THE WAGON ROOMS. LARGE PIECES OF SCENERY CAN BE SUSPENDED AND STORED HERE UNTIL THEY ARE USED AGAIN.

3. LIGHTING

THE MAIN PURPOSE OF STAGE LIGHTING IS TO MAKE IT POSSIBLE FOR THE AUDIENCE TO SEE THE ACTION ON THE STAGE. THROUGH THE USE OF VARYING LEVELS OF INTENSITY AND DIFFERENT COLORS, ATTENTION OF THE AUDIENCE CAN BE DIRECTED TO PARTICULAR PERFORMERS AND AREAS OF THE STAGE, OR TO THE ACTING AREA IN GENERAL. THE LIGHTING AND ITS USE IS JUSTLY CONSIDERED AS

*) THEATRES & AUDITORIUMS, PAGE 136

PART OF THE STAGE DESIGN, WHEN USED CORRECTLY IT CAN BECOME JUST AS CONCRETE A PART OF THE SET AS SOME PROP WITH ACTUAL PHYSICAL DIMENSIONS. THE PERFECTION OF EQUIPMENT HAS GREATLY IMPROVED STAGE LIGHTING. THERE HAVE BEEN PRODUCTIONS WHERE CHANGES IN LIGHTING HAVE CONSTITUTED THE ONLY "SET CHANGES". THE DESIRED MOOD CAN BE ACHIEVED THROUGH AN INFINITE NUMBER OF VARIATIONS LIMITED ONLY BY THE AVAILABLE FACILITIES AND THE DESIGNER'S INGENUITY.

THE STAGE AREA SHOULD BE DESIGNED SO THAT INSTRUMENTS FOR LIGHTING COULD BE PLACED IN VIRTUALLY ANY POSITION. IN ADDITION TO THE LIGHTS ON STAGE THERE MUST BE FACILITIES FOR SPOTLIGHTS IN THE CEILING OF THE AUDITORIUM AND ON THE BALCONIES.

THE SWITCHBOARD AND CONTROL PANELS HAVE TRADITIONALLY BEEN IN THE STAGE AREA, CLOSE TO THE PROSCENIUM. WITH PRESENT DAY FACILITIES FOR REMOTE CONTROL, THEY COULD BE PUT ELSEWHERE, WITH ADVANTAGE. IN SOME THEATRES THEY ARE FOUND BEHIND THE AUDIENCE IN ENCLOSED AREAS, THIS IMPLIES, OF COURSE, THE LOSS OF DIRECT COMMUNICATION. HOWEVER, WITH A GOOD INTERCOM SYSTEM THIS PROBLEM COULD EASILY BE OVERCOME.

AESTHETIC CONSIDERATIONS

THE COMMITTEE FOR URBAN RENEWAL FOR STAMFORD HAS BEEN VERY ACTIVE SINCE 1957 WHEN IT WAS ORGANIZED. SOME OF THE CHANGES PROPOSED BY THIS COMMITTEE HAVE ALREADY TAKEN PLACE, AND WORK ON A VERY LARGE SCALE IS SCHEDULED TO START DURING THE SUMMER OF 1963. THE SITE FOR THE PROPOSED OPERA HOUSE IS IMMEDIATELY ADJACENT TO THE AREA WHICH WILL BE AFFECTED BY THE FIRST PHASE OF THE RENEWAL PROGRAM, THE CENTRAL BUSINESS DISTRICT. THE SURROUNDINGS OF THE NEW OPERA HOUSE WILL THUS CONSIST MAINLY OF MODERN COMMERCIAL ESTABLISHMENTS. THE ARCHITECT FOR THE REDEVELOPMENT IS VICTOR GRUEN ASSOCIATES. SKETCHES OF THE PROPOSED SOLUTIONS SHOW LARGE HIGHRISE OFFICE BUILDINGS AND SMALLER UNITS GENEROUSLY SPACED WITH LARGE, OPEN AREAS. ONE OF THE GOALS WHEN DEVELOPING THE SITE FOR THE PROPOSED OPERA HOUSE MUST BE TO CREATE THIS SAME FEELING OF OPENNESS. TO ACHIEVE THIS THE ELEMENTS OF THE BUILDING MUST BE CAREFULLY BALANCED WITH THE LANDSCAPING AND THE NEARBY BUILDINGS.

THE CHARACTER OF THE BUILDING COMPLEX ITSELF MUST FIRST AND FOREMOST BE THAT OF AN OPERA HOUSE, IN OTHER WORDS, IT MUST GIVE AN OUTWARD EXPRESSION OF THE THRILLING, DRAMATIC EVENTS THAT TAKE PLACE INSIDE. WE HAVE BOTH TRAGIC AND COMIC OPERA, THE BUILDING COULDN'T POSSIBLY EXPRESS ALL THE HUMAN EMOTIONS INVOLVED IN AN OPERA, RATHER IT SHOULD BE KEPT SIMPLE SO THAT THESE EMOTIONS WILL FIT INTO IT. SO OFTEN WHEN A DESIGNER TRIES TO CREATE A DRAMATIC BUILDING, HE ENDS UP WITH "AMUSEMENT-PARK-ARCHITECTURE" INSTEAD. THIS QUALITY MUST BE CAREFULLY AVOIDED IN THE DESIGN OF THE STAMFORD OPERA HOUSE, IT SHOULD BE DRAMATIC, BUT SOMEWHAT RESERVED, ALWAYS TASTEFUL, AND NEVER SENSATIONAL. IT MUST BE THE KIND OF BUILDING IN WHICH

THE PUBLIC CAN TAKE PRIDE, AS IT MUST BE CONSIDERED A PUBLIC BUILDING WHETHER OR NOT IT IS FINANCED BY PUBLIC FUNDS.

SINCE THE BUILDING IS IN THE EARLY PLANNING STAGE YET AND NO ACTUAL DESIGNING HAS BEEN DONE THIS DISCUSSION ON AESTHETICS HAS TO BE KEPT TO GENERALITIES ONLY. AS MENTIONED BEFORE, IT IS ALL IMPORTANT THAT THE BUILDING "WORKS", THEREFORE, "THEATRICAL FUNCTIONS MUST BE THE PRIMARY DETERMINANTS OF THE SIZE, SHAPE, AND ARRANGEMENT OF THE PARTS OF THE THEATRE BUILDING --- --- --- IN NO OTHER KIND OF BUILDING IS SUITABILITY OF FORM TO FUNCTION MORE PRECISELY DEMANDED". *)

THE INTERIOR SPACES OF THE BUILDING MUST BE TREATED IN THE SAME MANNER AS THE EXTERIOR, THAT IS TO SAY, THE CONTRAST MUST NOT BE TOO SHARP BUT GRADUAL SO AS TO LEAD THE PATRON INTO THE THEATRE. MUCH TASTE MUST BE USED IN THE SELECTION OF MATERIALS. RATHER THAN USING APPLIED DECOR, THE TEXTURES AND COLORS OF THE MATERIALS USED SHOULD ENHANCE AND COMPLEMENT EACH OTHER TO THE POINT THAT NO OTHER DECOR WILL BE NEEDED. SIMPLICITY MUST BE THE KEY WORD, NOT ONLY IN THE OUTER PUBLIC SPACES, BUT ALSO IN THE AUDITORIUM. NOTHING HERE SHOULD DETRACT FROM THE PERFORMANCE. AN ATTEMPT MUST BE MADE TO DESIGN A THEATRE WHERE THE STAGE AND THE AUDITORIUM ARE VERY FLEXIBLE. IT SHOULD BE POSSIBLE TO STAGE PRODUCTIONS IN THE TRADITIONAL STYLE WITH OR WITHOUT PROSCENIUM ARCH. IN ADDITION

*) THEATRES & AUDITORIUMS, PAGE 204

TO THIS THERE MUST BE ROOM FOR EXPERIMENTAL STAGING, "IN TODAY'S THEATRE, STAGE AND SPECTATOR ARE TOO MUCH SEPARATED, TOO OBVIOUSLY DIVIDED INTO ACTIVE AND PASSIVE, TO BE ABLE TO PRODUCE CREATIVE RELATIONSHIPS AND RECIPROCAL TENSIONS". *) DURING THE LAST 50 YEARS THEATRE STAGING HAS UNDERGONE RADICAL CHANGES. SOME OF THESE ARE DEVELOPMENTS OF THE TWENTIETH CENTURY, OTHERS ARE METHODS THAT WERE IN USE 1500 - 2500 YEARS AGO, F. INST. THE THEATRE-IN-THE-ROUND. OPERA HAS REMAINED STRANGELY UNTOUCHED BY THESE CHANGES, AUDIENCE AND PERFORMER HAVE BEEN CONSIDERED TWO STRONGLY SEPARATED GROUPS, ONE ACTIVE AND ONE PASSIVE. THE PROPOSED OPERA HOUSE MUST HAVE FACILITIES ENABLING THE DIRECTOR TO STAGE PRODUCTIONS WHERE BOTH PERFORMER AND AUDIENCE TAKE ACTIVE PARTS IN THE CREATIVE EXPERIENCE THAT OPERA SHOULD BE, IF HE SO WISHES,

*) THEATRE OF THE BAUHAUS, PAGE 67

ACOUSTICAL CONSIDERATIONS

""But I don't want to hear a pin drop," exclaimed Eugene Ormandy, throwing his hands up for emphasis, "I want to hear the orchestra!"" *) This explosive remark was made to the manager of a world-famous concert hall, he claimed that it had perfect acoustics because the sound of a pin dropped on stage could be heard anywhere in the auditorium. This quality does not always constitute good acoustics for music however. The problem is considerably more complicated than that of projecting faint sounds.

There is no single, ideal architectural solution that can guarantee perfect acoustics in a concert hall or an opera house. Excellent results have been achieved with rectangular, fanshaped, horseshoe, and even asymmetrical plans. Leo L. Beranek, a renowned acoustical expert and consultant, has written a most valuable book called Music, Acoustics & Architecture. For a period of six years, he traveled in twenty nations and heard music in over 50 halls. "The acoustical behavior, the architectural drawings, the thoughtful comments of musicians and critics, together with my own (Mr. Beranek's) experience listening in the 54 concert halls and opera houses, are the meat of this book." **)

*) Music, Acoustics & Architecture, page 1

**) ibid., page 3

THE TABLES LISTING TECHNICAL AND ARCHITECTURAL DATA OF THE 54 HALLS ARE VERY COMPLETE. THIS BOOK WITH ALL ITS INFORMATION WILL PROVE EXTREMELY HELPFUL WHEN THE DESIGN OF THE PROPOSED OPERA HOUSE FOR STAMFORD IS UNDERTAKEN.

BECAUSE OF THE COMPLEXITY OF THE ACOUSTICAL CALCULATIONS AND CONSIDERATIONS, ONLY GENERAL RECOMMENDATIONS WILL BE INCLUDED HERE, AND MR. BERANEK'S BOOK WILL BE USED AS A GUIDE AND REFERENCE BOOK TO THE ACOUSTICAL DESIGN OF THE PROPOSED BUILDING. A LIST SHOWING MUSICAL QUALITIES AFFECTED BY ACOUSTICS WILL BE INCLUDED HERE. (PAGE 39)

SIZE IS THE MOST IMPORTANT FACTOR INFLUENCING THE ACOUSTICS OF AN AUDITORIUM, HALLS WITH LESS THAN 2000 SEATS CAN BE DESIGNED FOR GOOD ACOUSTICS MUCH EASIER THAN THOSE THAT ARE OVER 2500. SINCE THE SEATING CAPACITY OF THE STAMFORD OPERA HOUSE IS SET AT 1800, HALF OF THE BATTLE IS ALREADY WON. THIS RELATIVELY SMALL NUMBER OF SEATS MAKES IT POSSIBLE TO RATHER GENEROUS WITH THEIR SPACING AND CHIEVE MAXIMUM COMFORT, WITHOUT THEREBY INCREASING THE VOLUME TO A SIZE THAT WOULD AFFECT THE ACOUSTICS ADVERSELY. A TABLE IN MR. BERANEK'S BOOK SHOWS AUDIENCE AREAS IN 18 HALLS THAT HAVE BEEN BUILT SINCE 1930. THE AREAS PER PERSON RANGE FROM 5.1 SQ. FT. TO 8.0 SQ. FT. WITH A MEDIAN OF 6.6 SQ. FT. THE STAMFORD OPERA HOUSE WILL BE DESIGNED WITH APPROXIMATELY 7.0 SQ. FT. PER PERSON.

THE REVERBERATION TIME (T), ALTHOUGH IT IS DIFFICULT TO CALCULATE ACCURATELY BEFORE THE HALL IS COMPLETED, SHOULD BE

MUSICAL FACTORS	ACOUSTICAL FACTORS
FULLNESS OF TONE CLARITY	REVERBERATION TIME RATIO OF LOUDNESS OF DIRECT SOUND TO LOUDNESS OF REVERBERANT SOUND SPEED OF MUSIC
INTIMACY (AUDIBLE)	SHORT INITIAL-TIME-DELAY GAP (EIGHTEENTH CENTURY MUSIC ROOM) MEDIUM INITIAL-TIME-DELAY GAP (LATE NINETEENTH CENTURY CONCERT HALL) VERY LONG INITIAL-TIME-DELAY GAP (CATHEDRAL)
TIMBRE AND TONE COLOR	RICHNESS OF BASS RICHNESS OF TREBLE TONAL DISTORTION TEXTURE BALANCE BLEND DIFFUSION IN HALL ATTACK
ENSEMBLE	MUSICIANS' ABILITY TO HEAR EACH OTHER
DYNAMIC RANGE	LOUDNESS OF FORTISSIMO RELATION OF BACKGROUND NOISE TO LOUDNESS OF PIANISSIMO

FROM: MUSIC, ACOUSTICS & ARCHITECTURE, PAGE 43

CLOSE TO 1.4 SECONDS. (MR. BERANEK RECOMMENDS BETWEEN 1.3 AND 1.6 FOR ITALIAN OPERA). THE CUBIC VOLUME (V) REQUIRED TO GIVE THIS VALUE FOR T CAN BE FIGURED FROM THE RATIO V/S WHICH SHOULD BE 28.9 FOR T=1.4 SECONDS. S IS THE TOTAL SOUND ABSORBING AREA, AUDIENCE, ORCHESTRA, AND PROSCENIUM OPENING. THE AUDIENCE AREA FIGURED FOR 1800 SEATS AT 7.0 SQ. FT. EACH, WILL GIVE 12,600 SQ. FT. FOR THE ORCHESTRA AN AVERAGE AREA OF 900 SQ. FT. WILL BE TAKEN. SINCE NO ACTUAL DESIGN HAS BEEN DONE AS YET, THERE IS NO ACCURATE FIGURE FOR THE AREA OF THE PROSCENIUM OPENING, AN AREA OF 1900 SQ. FT. CORRESPONDS FAIRLY CLOSE WITH THOSE IN EXISTING OPERA HOUSES OF APPROXIMATELY THE SAME SEATING CAPACITY. THE TOTAL VALUE OF S WILL THUS BE ABOUT 15,400 SQ. FT. BY SUBSTITUTING S IN THE EQUATION V/S-28.9 WE ARRIVE AT A VOLUME (V) OF 444,260 CUBIC FEET. THIS COMPARES VERY FAVORABLY WITH FOUR OPERA HOUSES WHICH MR. BERANEK CONSIDERS FIRST RATE: LA SCALA IS 397,000 CUBIC FEET, VIENNA IS 377,000 CUBIC FEET, BAYREUTH IS 364,000 CUBIC FEET, AND THE PHILADELPHIA ACADEMY OF MUSIC IS 530,000 CUBIC FEET.

NOT ONLY THE SIZE, BUT ALSO THE SHAPE OF THE HALL IS VERY IMPORTANT TO ITS ACOUSTICAL QUALITIES. TO ACHIEVE INTIMACY THE HALL SHOULD BE RATHER NARROW, SO THAT THE INITIAL-TIME-DELAY GAP, TIME BETWEEN THE DIRECT SOUND AND THE FIRST REFLECTION OF THAT SAME SOUND, IS SHORT. WHEN THE INITIAL-

TIME-DELAY GAP IS SUFFICIENTLY SHORT (BETWEEN 15 AND 25 MILLISECONDS) THE SUCCESSION OF REFLECTIONS REQUIRE CAREFUL ATTENTION. IN ORDER TO HAVE GOOD TEXTURE OF SOUND THERE MUST BE AT LEAST 5 REFLECTIONS WITHIN 70 MILLISECONDS AFTER THE ARRIVAL OF THE DIRECT SOUND. THESE SHOULD BE UNIFORMLY SPACED IN REGARDS TO TIME AND DECREASING IN INTENSITY. THE MAIN PROBLEM CONCERNING UNIFORM DISTRIBUTION OF SOUND THROUGHOUT THE HALL WILL BE SOLVED WHEN SATISFACTORY INTIMACY AND TEXTURE ARE ATTAINED AT ALL LOCATIONS.

IN THE ATTEMPT TO MAKE THE HALL NARROW ENOUGH, CARE MUST BE TAKEN THAT SOME OF THE LISTENERS ARE NOT REMOVED TOO FAR FROM THE STAGE. TO KEEP THE DIRECT SOUND AT A HIGH LEVEL, NO SEAT ON THE MAIN FLOOR SHOULD BE FARTHER THAN 100 FEET FROM THE PERFORMERS, IN THE BALCONY THE DISTANCE MAY BE INCREASED TO 140 FEET IF THE WALLS AND THE CEILING DIRECT PART OF THE SOUND IN THAT DIRECTION. THE PROPORTIONS OF AN OVERHANGING BALCONY CAN EASILY REDUCE THE INTENSITY OF THE SOUND THAT IS HEARD IN THE SEATS COVERED BY THE BALCONY. THE RECOMMENDATIONS ON PAGE MUST BE FOLLOWED CLOSELY.

THE WARMTH OF THE SOUND IN A HALL IS OF HIGH IMPORTANCE. A HALL IS SAID TO HAVE WARMTH WHEN THE RATIO OF REVERBERATION TIME AT LOW FREQUENCIES TO THAT AT MID FREQUENCIES IS LARGE, FOR OPERA IT SHOULD BE CLOSE TO 1.2 OR 1.3.

THE BEST WAY TO ACHIEVE THIS IS BY AVOIDING ALL THIN, LIGHT WEIGHT MATERIALS. PLASTICS AND WOOD LESS THAN 3/4 INCH THICK ARE VERY BAD UNLESS THEY ARE CEMENTED TO SOLID BACKING. THE WALLS AND CEILING OF THE AUDITORIUM SHOULD NOT CONSIST OF LARGE FLAT PLANES, RATHER, THEY SHOULD BE BROKEN UP WITH LARGE-SCALE IRREGULARITIES TO PROVIDE THE DIFFUSION THAT IS NEEDED TO REDUCE TONAL HARSHNESS.

AN OPERA HOUSE COULD BE DESIGNED WITH PERFECT ACOUSTICS AND WOULD STILL NOT BE RATED AS SUCH IF IT WERE NOISY. THE KINDS OF NOISE THAT MUST BE CONTROLLED COME FROM MANY SOURCES, INTERIOR HALLS AND LOBBIES, ON THE EXTERIOR IT MAY BE FROM THE STREET OR PASSING AIRCRAFT. THE WORST SOURCE IS OFTEN THE VENTILATING SYSTEM, THE TYPE MUST BE CHOSEN THAT WILL GIVE THE LOWEST LEVEL OF BACKGROUND NOISE IN THE AUDITORIUM.

THE PLACEMENT OF A SINGER PUTS HIM AT A DISADVANTAGE FROM THE START, HE HAS TO COMPETE WITH A LARGE ORCHESTRA WHICH IS USUALLY IN THE AUDITORIUM PROPER, WITH THE AUDIENCE, WHILE HE IS ON THE STAGE BEHIND THE PROSCENIUM AND ALMOST IN A SEPARATE ROOM. TO INCREASE THE LOUDNESS OF THE VOICE HEARD IN THE AUDITORIUM THE FOLLOWING SUGGESTIONS SHOULD BE HEEDED.

1. TO REDUCE THE SIZE OF THE STAGEHOUSE AND TO PROVIDE REFLECTING SURFACES, HEAVY STEEL DOORS SHOULD BE USED

TO CLOSE OFF THE SIDES AND THE BACK OF THE ACTING AREA WHEN SETS ARE NOT BEING CHANGED.

2. THE CYCLORAMA AND OTHER SUSPENDED DROPS SHOULD BE OF HEAVY MATERIAL, ALUMINUM, PLASTER OR PAINTED CANVAS, AND HARD, SO THAT THE SINGERS' VOICES ARE NOT ABSORBED, BUT REFLECTED.

3. SCENERY NOT IN USE SHOULD NEVER BE STORED OVERHEAD IN THE STAGE HOUSE WHERE IT WILL ABSORB SOUND, BUT MOVED ELSEWHERE.

4. TO FURTHER DECREASE THE ABSORPTION, WOODEN SETS SHOULD BE BUILT. WOOD HAS A LOW COEFFICIENT OF ABSORPTION. WHEN SETS ARE HIGH, THE NUMBER OF TEASERS SUSPENDED OVERHEAD CAN BE REDUCED.

PROGRAM

THE PROGRAM FOR A BUILDING OF THIS TYPE MUST BE VERY FLEXIBLE. SO MANY OF THE FUNCTIONS OF THE VARIOUS PARTS ARE RELATED. ONLY WHEN THE ACTUAL DESIGN IS UNDERTAKEN, CAN THE DIFFERENT AREAS BE ASSIGNED THEIR FINAL SIZE AND SHAPE. THIS IS ESPECIALLY TRUE OF THE NON-PUBLIC PART OF THE BUILDING, THE BACKSTAGE AREAS, EVERYTHING HERE DEPENDS UPON THE ACTING AREA, ITS SIZE, SHAPE, AND EQUIPMENT. WITH THIS IN MIND THE FOLLOWING PROGRAM SHOULD BE CONSIDERED A RECOMMENDATION ONLY, ADDITIONS AND CHANGES SHOULD AND WILL MADE WHEN THE FINAL DESIGN IS WORKED OUT.

A. PUBLIC SPACES

DESCRIPTION	PROPOSED AREA SQ. FT.	NO.
FOYER	1800	1
FUNCTION: RECEIVING PATRONS, TICKET PICK-UP, WAITING SPACE. EQUIPMENT: BOX OFFICE, CHANGE WINDOW. FINISH: GOOD QUALITY.		
LOBBY	3600	1
FUNCTION: DISTRIBUTION AREA TO LOUNGE AND HOUSE, ADJACENT TO CHECK-ROOMS. EQUIPMENT: FACILITIES FOR CHECKING TICKETS. FINISH: GOOD QUALITY.		
CHECKROOMS	180	2
FUNCTION: STORAGE OF PATRONS' OUTER GARMENTS DURING PERFORMANCE. EQUIPMENT: RACKS AND SHELVES. FINISH: SIMPLE AND DURABLE.		
LOUNGE	12000	1
FUNCTION: TO ACCOMMODATE AUDIENCE DURING INTERMISSION. EQUIPMENT: BAR, CONCESSIONS, SPACE FOR EXHIBITS. FINISH: GOOD QUALITY.		

DESCRIPTION	PROPOSED AREA	NO.
PUBLIC RESTROOM, MEN	500	1
EQUIPMENT: 15 W.C. 11 URINALS, 5 LAVATORIES. FINISH: GOOD QUALITY.		
PUBLIC RESTROOM, WOMEN	400	1
EQUIPMENT: 10 W.C. 5 LAVATORIES. FINISH: GOOD QUALITY.		
AUDITORIUM		
FUNCTION: HOUSE THE AUDIENCE DURING PERFORMANCE. FINISH: GOOD QUALITY. FOR DETAILS SEE PAGE		

B. NON PUBLIC SPACES

DESCRIPTION	PROPOSED AREA	NO.
STAGE	10,000	1
FUNCTION: TO HOUSE THE PERFORMANCES WITH ALL ITS NECESSARY SCENERY ETC. EQUIPMENT: ROOM FOR TWO STAGE WAGONS, GRIDION ABOVE ACTING AREA AND ONE WAGON ROOM. SEE PAGE FINISH: SIMPLE AND DURABLE.		
STAGE ENTRANCE	90	1
FUNCTION: USED BY EVERYONE WHO ARRIVES AT OR LEAVES FROM THE THEATRE. EQUIPMENT: TIME CLOCK, BULLETIN BOARD, MAIL BOXES, TELEPHONES. FINISH: SIMPLE AND DURABLE.		
DOORMAN'S BOOTH	35	1
FUNCTION: CONTROL ALL TRAFFIC TO THE BACKSTAGE AREA. EQUIPMENT: COUNTER, MAIL BOX, KEY RACK. FINISH: SIMPLE AND DURABLE.		
DRESSING ROOMS, INDIVIDUAL	70	8
FUNCTION: USED FOR COSTUME CHANGE, MAKE-UP ROOMS, AND WARM-UPS BY THE SINGERS. EQUIPMENT: CLOTHES ROD, LAVATORIES, MAKE-UP TABLES WITH MIRRORS.		

DESCRIPTION	PROPOSED AREA	NO.
DRESSING ROOMS	900	1

FUNCTION: USED FOR COSTUME CHANGE, MAKE-UP ROOM BY THE MEMBERS OF THE CHORUS OR THE BALLET.
EQUIPMENT: 2 LINEAR FEET OF CLOTHES ROD AND SHOE RACKS PER PERSON. MAKE-UP TABLES WITH CONTINOUS MIRRORS.
FINISH: SIMPLE AND DURABLE.

GREEN ROOM	350	1

FUNCTION: ASSEMBLY ROOM FOR CAST AND CHORUS. PERFORMERS' SOCIAL ROOM.
EQUIPMENT: LOUNGE FURNITURE, TABLES.
FINISH: GOOD QUALITY.

MUSICIANS' ROOM, MEN	300	1

FUNCTION: SPACE FOR MUSICIANS TO RELAX BETWEEN ACTS, ALSO FOR WARM-UP
EQUIPMENT: LOCKERS, LOUNGE FURNITURE.
FINISH: SIMPLE AND DURABLE.

MUSICIANS' ROOM, WOMEN	200	1

SAME AS ABOVE.

CONDUCTOR'S DRESSING ROOM

FUNCTION: DRESSING ROOM AND OFFICE FOR CONDUCTOR.
EQUIPMENT: CLOTHES ROD, LAVATORY, SHOWER.
FINISH: GOOD QUALITY.

DESCRIPTION	PROPOSED AREA	NO.
STAGE HANDS' LOCKER ROOM	200	1

FUNCTION: LOCKER ROOM AND LOUNGE FOR USE BEFORE AND DURING PERFORMANCE.
EQUIPMENT: INDIVIDUAL LOCKERS, CHAIRS OR BENCHES.
FINISH: SIMPLE AND DURABLE.

WARDROBE ROBE	150	1

FUNCTION: USED FOR INSPECTION OF COSTUME, REPAIR, PRESSING
EQUIPMENT: ELECTRIC IRONER, SEWING MACHINE.
FINISH: SIMPLE AND DURABLE.

WORKSHOP	150	1

FUNCTION: USED FOR SET REPAIRS, AND ANY OTHER REPAIRS NECESSARY.
EQUIPMENT: WORK BENCH, TOOLS FOR WORKING WOOD, IRON, TIN, SEWING, PAINTING, AND ELECTRICAL WORK.
FINISH: SIMPLE AND DURABLE.

OFFICES	150	3

FUNCTION: OFFICES AND CONFERENCE ROOMS FOR STAGE MANAGERS, DESIGNER, AND DIRECTOR. SHOULD BE ACCESSIBLE FROM BACKSTAGE AND FROM THE LOBBY.
EQUIPMENT: GENERAL OFFICE EQUIPMENT AND FILING CABINETS.
FINISH: GOOD QUALITY

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BIBLIOGRAPHY

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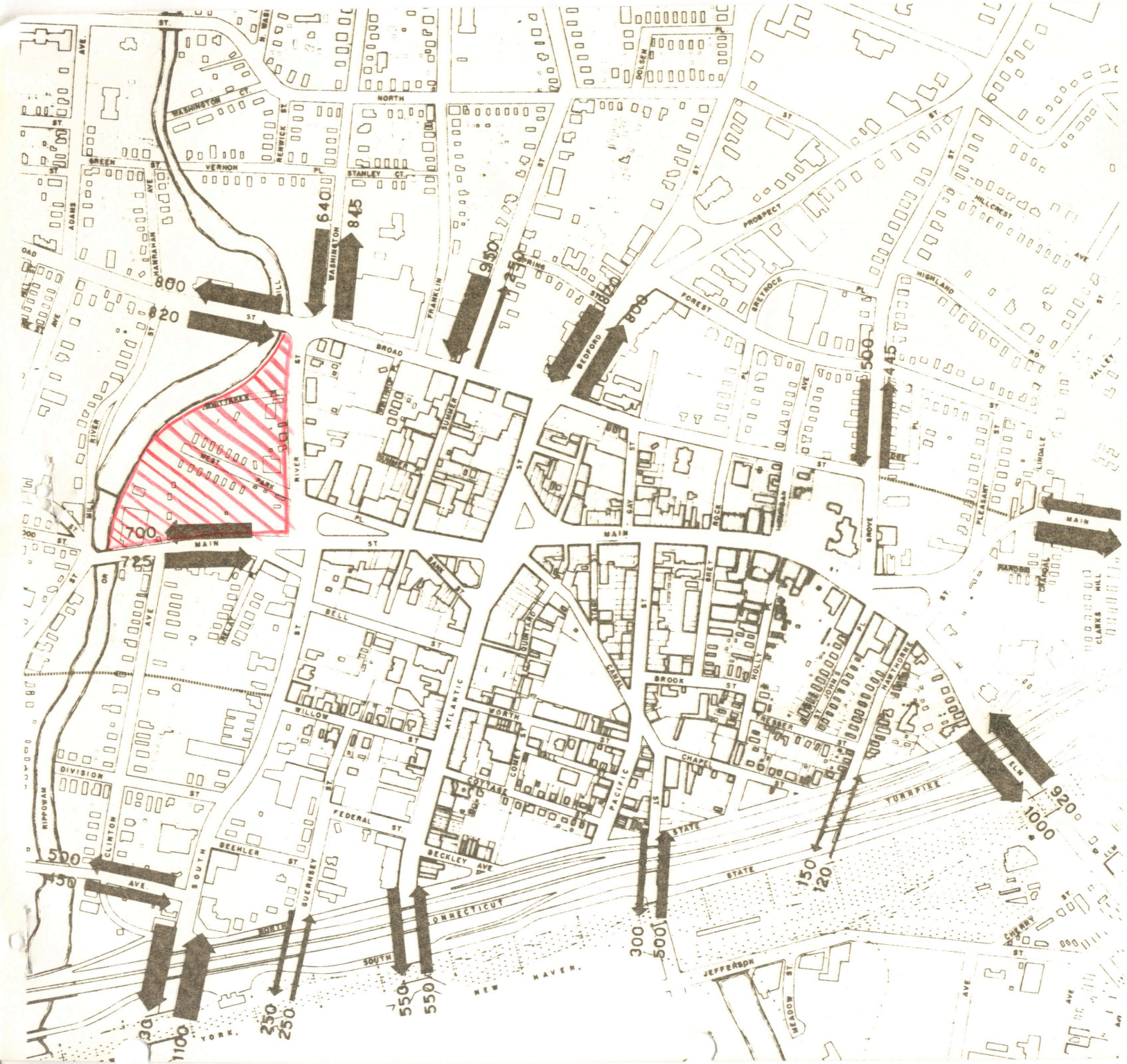
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APPENDIX



EXISTING STUDY A

STREETS — BUILDI

PEAK HOUR TRAFFIC LC

CITY OF STAMFORD, CONNEC

URBAN REDEVELOPMENT COMM

Mrs. Dwight Marshall, Chairr

Salem S. Shapiro, Director

STAMFORD CONNECTIC

SOUTHEAST QUADRA

(EXTENDED)

VICTOR GRUEN ASSOC

ARCHITECTURE — ENGINEERING — PLANN

ARCHITECTS AND PLANNERS FOR THE SPO

F. D. RICH COMPANY, INC. AND S. PIERRE

T.T. McCROSKY-SEELYE STEVENSON VALUE

ASSOCIATED CONSULTING ENGINEERS IN CO

PLANNING TO THE URBAN REDEVELOPMENT C

OF STAMFORD, CONNECTICUT

BROWN-HARRIS-STEVEN

REAL ESTATE CONSULTANTS TO THE UR

REDEVELOPMENT C[illegible]MISSION OF STAMFORD,

MAYOR
J. WALTER KENNEDY

PLANNING BOARD

CITY OF STAMFORD, CONNECTICUT

January 29, 1963

Mr. Knut Skram
Box 8, Langford Hall
Montana State College
Bozeman, Montana

Dear Mr. Skram:

With regard to your projected "Opera House" for Stamford, I hasten to reply that it is untimely that "the time limit on this project is very short", because the Stamford Planning Board is presently undertaking a complete review of the Master Plan (adopted in 1953) and all its elements, and will publish a report on same, probably in early summer of this year. Further, the present Master Plan has never been made available for public distribution.

I have included, for what it may be worth to you, the only report currently available for distribution, entitled "Downtown Stamford, A Guide For Future Development." You will note that on the colored map, on page 13, I have shown two circles. No. 1 is the location of an earlier recommendation of the Board as a new location for City Hall, together with a multi-purpose municipal auditorium. This location may have been precluded by recent developments. No. 2 is the suggested site of a "civic center" under current plans for the redevelopment of Stamford's "Southeast Quadrant - Extended" renewal plan.

I would suggest that you contact Salem S. Shapiro, Director of Urban Renewal, 308 Atlantic Street, Stamford, Connecticut, regarding the latter. Also, when you finally select a site, the City Engineer's Office can provide you with 5' contour intervals, and/or the Assessor's Office, 303 Main Street, Stamford, Conn., can provide you with aerial photos at 100'-1".

Your questions as to the availability of utilities should also be addressed to the City Engineer when you have selected a site, and questions regarding traffic, to Lt. George Harvey, Traffic Division, Police Department, Bedford Street, Stamford, Connecticut.

If I can be of further assistance to you, please do not hesitate to write.

Very truly yours,
STAMFORD PLANNING BOARD

Jan A. Smith
Associate Planner

JAS/her

COMMISSION

MRS. DWIGHT MARSHALL
CHAIRMAN

OUIS GREENBAUM
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JAMES E. CAREY, JR.

CITY OF STAMFORD, CONNECTICUT
URBAN REDEVELOPMENT COMMISSION
306 ATLANTIC ST., STAMFORD, CONN.
DAvis 4-1191

STAFF

SALEM S. SHAPIRO, A.I.P.
DIRECTOR OF URBAN RENEWAL

JOHN T. TOTH
ASSISTANT DIRECTOR OF URBAN RENEWAL

SUSAN PINCHOT
ASSISTANT TO THE DIRECTOR

PAUL A. PLOTKIN
STAFF COUNSEL

MRS. LEO E. PROMIS
ADMINISTRATIVE ASSISTANT

February 11, 1963

Mr. Knut Skram
Box 8, Langford Hall
Montana State College
Bozeman, Montana

Dear Mr. Skram:

We are in receipt of your letter regarding your plans for desigaing an Opera House for Stamford, as part of your degree requirements.

Enclosed is information on the proposed Urban Redevelopment Plan for the Southeast Quadrant.

The area that you have marked in red on the map adjoins the west side of the project. There are two parcels of land in that area which will be affected by the redevelopment plan. River Street will be widened to 100 feet and two substandard buildings along River Street must be demolished since the land must be incorporated into the widening of the road. This acquisition for street widening purposes involves the complete acquisition because it was more economical.

At present, that area contains a laundry, service station, car accessory store and several old houses. The area opposite has a hotel and motor hotel, service station and row of one story stores and service offices such as real estate and insurance.

If there is any additional material that you need, please don't hesistate to call upon us. We wish you every success for your project and if possible, we would very much like to see a copy of the completed work.

Sincerely,

Susan Pinchot

SP/bbm
Enclosures

Susan Pinchot
Community Relations

METROPOLITAN OPERA

METROPOLITAN OPERA ASSOCIATION, INC.

HERMAN E. KRAWITZ
Business and Technical
Administrator

NEW YORK 18, N. Y.

February 11, 1963

Mr. Knut Skram
Box 8 Langford Hall
Montana State College
Bozeman, Montana

Dear Mr. Skram:

Thank you for your letter of February 1st requesting information on the present opera house.

Unfortunately the only information readily available is the enclosed list of stage dimensions. I hope it is of some assistance to you.

Sincerely yours,

HEK:so
Enc.

BOZEMAN, MONTANA
JANUARY 22, 1963

CHAIRMAN
CITY-COUNTY PLANNING COMMISSION
STAMFORD, CONNECTICUT

DEAR SIR,

THE CULIMINATION OF THE ARCHITECTURAL STUDY AT THE SCHOOL OF ARCHITECTURE AT MONTANA STATE COLLEGE IS A THESIS, TO BE DONE DURING THE WINTER AND SPRING QUARTERS OF THE FIFTH AND FINAL YEAR. A GREAT DEAL OF FREEDOM IS GRANTED THE STUDENT, HE CHOOSES THE PROJECT HIMSELF AND SPENDS THE FIRST 10 WEEKS WRITING A DETAILED PROGRAM, THE DESIGN OF THE BUILDING IS DONE DURING THE LAST 10 WEEKS.

I HAVE CHOSEN TO DO AN OPERA HOUSE FOR STAMFORD. THIS AFTER VISITING YOUR CITY LAST SUMMER AND ALSO AFTER SPEAKING TO MR. GEORGE BUCKBEE OF THE M.S.C. MUSIC FACULTY. MR. BUCKBEE IS A NATIVE OF STAMFORD.

IN THE PROPOSED PROGRAM FOR THE BUILDING I HAVE TO WRITE EXTENSIVELY ON LOCAL CONDITIONS, SUCH AS GEOGRAPHICAL, ECONOMIC, SOCIAL, HISTORIC, CLIMATIC, ETC. ALSO THE SITE CONDITIONS MUST BE CONSIDERED CLOSELY. (ORIENTATION, ADJACENT ENVIRONMENT, TOPOGRAPHY, VEGETATION AND OTHER NATURAL FEATURES, ZONING REGULATIONS, AVAILABILITY OF UTILITIES, TRAFFIC PATTERNS, ETC.)

I HAVE TWO POSSIBLE SITES IN MIND, EITHER DOWN TOWN IN THE NEW "URBAN REDEVELOPMENT AREA", OR IN THE SUBURBS OF THE CITY IN CONJUNCTION WITH THE EZIO PINZA MEMORIAL PARK.

I WOULD GREATLY APPRECIATE ANY OR ALL INFORMATION YOU COULD SEND ME ON THE CITY OF STAMFORD IN GENERAL AND ON THE REDEVELOPMENT OF THE DOWNTOWN AREA IN PARTICULAR. IF A MASTER PLAN WITH ACCOMPANYING MAPS IS AVAILABLE, IT WOULD OF COURSE BE MOST HELPFUL. IF THERE IS A CHARGE FOR THESE, I WOULD BE HAPPY TO SEND THE NECESSARY AMOUNT BY RETURN MAIL.

IF YOU COULD SEND ME ADDRESSES OF INSTITUTIONS OR PERSONS FROM WHOM I MIGHT OBTAIN ADDITIONAL INFORMATION, I WOULD APPRECIATE IT.

AS MENTIONED ABOVE THE TIME LIMIT ON THIS PROJECT IS VERY SHORT AND I HOPE THAT YOU WILL BE ABLE TO SEND ME SOME OF THIS AS SOON AS POSSIBLE.

THANKING YOU IN ADVANCE,

YOURS TRULY,

KNUT SKRAM
BOX 8 LANGFORD HALL
MONTANA STATE COLLEGE
BOZEMAN, MONTANA

51

Box 8 Langford Hall
Bozeman, Montana
February 1, 1963

Office of Public Information
Metropolitan Opera Company
New York, New York

Dear Sirs:

The culimination of the architectural study at the School of Architecture at Montana State College is a thesis, to be done during the winter and spring quarters of the fifth and final year. A great deal of freedom is granted the student, he chooses the project himself and spends the first 10 weeks writing a detailed program, the design of the building is done during the last 10 weeks.

I have chosen to do an opera house for Stamford, Connecticut. This after having visited the city and also after having corresponded with city officials in charge of planning.

I have some practical experience in this field, I was a member of the Opera Company at Chautauqua, N.Y. during the summer season of 1962. However, my knowledge of the requirements for a modern opera house is entirely insufficient, and I am hoping that you will be able to supply me with some of these.

The building I am proposing would have a capacity of between 1800 and 2000 seats. The stage facilities should be adequate to handle medium and even large size productions. The possibilities of guest appearances by the Metropolitan Opera has been considered, and requirements for such appearances would certainly influence the design of the building.

I will not ask for information on specific parts of the project, but would be very grateful for all the information you could send me on any or all parts. If there is a charge for any of the material, publications, etc. I will, of course, be happy to send the necessary amount by return mail.

As mentioned above the time limit on this project is very short and I hope that you will be able to send me some of this as soon as possible.

Thanking you in advance,
Yours truly,

52

Knut Skram

Box 8 Langford Hall
Bozeman, Montana
February 6, 1963

Mr. Salem S. Shapiro
Director of Urban Renewal
308 Atlantic Street
Stamford, Connecticut

Dear Sir:

As partial fulfillment for the requirements for the Bachelor's Degree of Architecture at Montana State College I am proposing to design an Opera House for Stamford, Connecticut.

The Stamford Planning Board has been kind enough to send me some material and information which I requested. Mr. Jon A. Smith, Associate Planner with the Board, advised me to write to you for further information. On the accompanying sketch I have marked in red the site which I am considering. I realize that this area may be used or planned for something entirely different at present, but would like to ask for all the information you would have available on the area and how it will be affected by the Urban Renewal Program.

Any other information on the downtown area and its redevelopment would be greatly appreciated also.

If there is a charge for any of the material, publications, etc. I will, of course, be happy to send the necessary amount by return mail.

The time limit on this project is very short and I hope you will be able to send me some of this as soon as possible.

Thanking you in advance,
Yours truly,

Knut Skram

Box 8 Langford Hall
Bozeman, Montana
February 6, 1963

City Engineer's Office
Stamford, Connecticut

Dear Sir:

As partial fulfillment for the requirements for the Bachelor's Degree of Architecture at Montana State College I am proposing to design an Opera House for Stamford, Connecticut.

The Stamford Planning Board has been kind enough to send me some material and information which I requested. Mr. Jon Smith, Associate planner with the Board advised me to write to you for further information and maps. On the accompanying sketch I have marked in red the site which I am considering, I realize that this area may be used or planned for something entirely different at present.

Will you please send me 5' contour intervals of this area and also a description of available utilities and their location. Any other pertinent information regarding the site would also be greatly appreciated.

If there is a charge for any of the material, publications, etc. I will, of course, be happy to send the necessary amount by return mail.

The time limit on this project is very short and I hope you will be able to send me some of this as soon as possible.

Thanking you in advance,

Yours truly,

Knut Skram

Box 8 Langford Hall
Bozeman, Montana
February 6, 1963

Public Assessor
Assessor's Office
303 Main Street
Stamford, Conn.

Dear Sir:

As partial fulfillment for the requirements for the Bachelor's Degree of Architecture at Montana State College I am proposing to design an Opera House for Stamford, Connecticut.

The Stamford Planning Board has been kind enough to send me some material and information which I requested. Mr. Jon A. Smith, Associate Planner with the Board, advised me to write to you for further information.

On the accompanying sketch I have marked in red the site which I am considering. I realize that this area may be used or planned for something entirely different at present.

Will you please send me aerial photos at 1" - 100'. If there is a charge for this, I will, of course, be happy to send the necessary amount by return mail.

The time limit on this project is very short and I hope you will be able to send me this as soon as possible.

Thanking you in advance,

Yours truly,

Knut Skram

Box 8 Langford Hall
Bozeman, Montana
February 19, 1963

Office of Public Information
Seattle Civic Opera Company
Seattle, Washington

Dear Sirs,

As partial fulfillment for the requirements for the Bachelor's Degree of Architecture at Montana State College I am proposing to design an Opera House for Stamford, Connecticut.

I have some practical experience in this field, I was a member of the Opera Company at Chautauqua, N.Y. during the summer season of 1962. However, my knowledge of the requirements for a modern opera house is entirely insufficient, and I am hoping that you will be able to supply me with some of these.

The building I am proposing would have a capacity of between 1800 and 2000 seats. The stage facilities should be adequate to handle medium and even large size productions. I realize that this building will be somewhat smaller than your Opera House, but I will still be grateful for any information which would be available. I am especially interested in the backstage area, such as, dimensions of acting area, proscenium, orchestra pit, etc. number and sizes of dressing rooms and rehearsel rooms, stage machinery and storage of scenery.

Since your Opera House is famous for its excellent acoustics, a set of data pertaining to reverberation times etc. would be very helpful.

The time limit on this project is very short, and even though I am asking for a lot of information I hope that you will be able to send me some of this as soon as possible.

Thank you in advance, yours truly,

Knut Skram

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