DOCUMENT RESUME

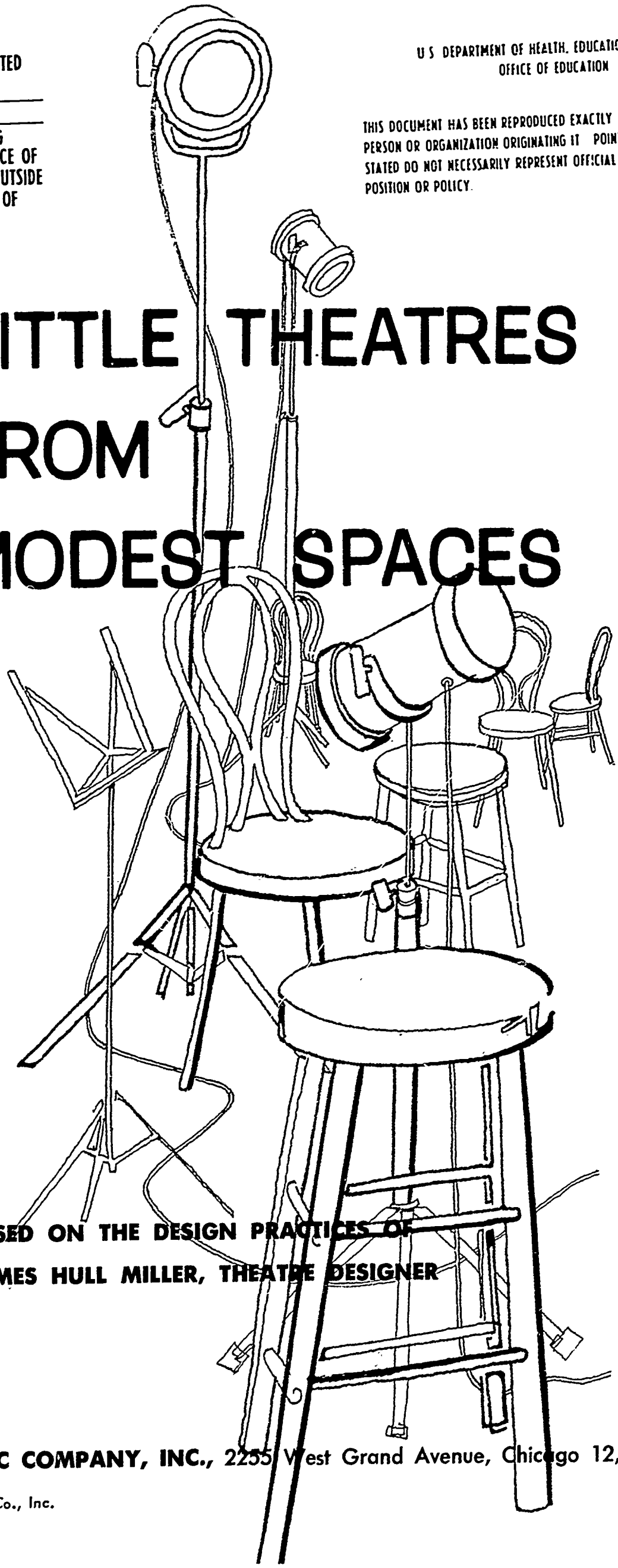
ED 028 611 EF 002 698

Little Theatres from Modest Spaces, Based on the Design Practices of James Hull Miller.
Hub Electric Co., Inc., Chicago, Ill.
Report No-BULL-107
Pub Date 62
Note-32p.
EDRS Price MF-$0.25 HC-$1.70
Descriptors-Acoustics, Costs, *Design Needs, *Economic Factors, *Equipment, Facility Guidelines, Lighting, School Improvement, Space Utilization, Specifications, *Stages, *Theater Arts

A reference manual of principles for renovation or new construction of small theaters in schools, community centers, and churches. Contents include--(1) turning space into small theaters, (2) rules of thumb, (3) an example of remodeling, and (4) three budget theaters--an 80-seat elementary school classroom theater--a 90-seat school or community drama center and a three-sided platform stage to serve 150 people. Design details for economic construction of stage scenery is also included. These small theaters can serve as indispensable aids to libraries, art museums, schools, and industrial firms as second theaters. Community groups can begin with these chamber stages and build their larger auditoriums later. (RH)

BULLETIN NO. 107

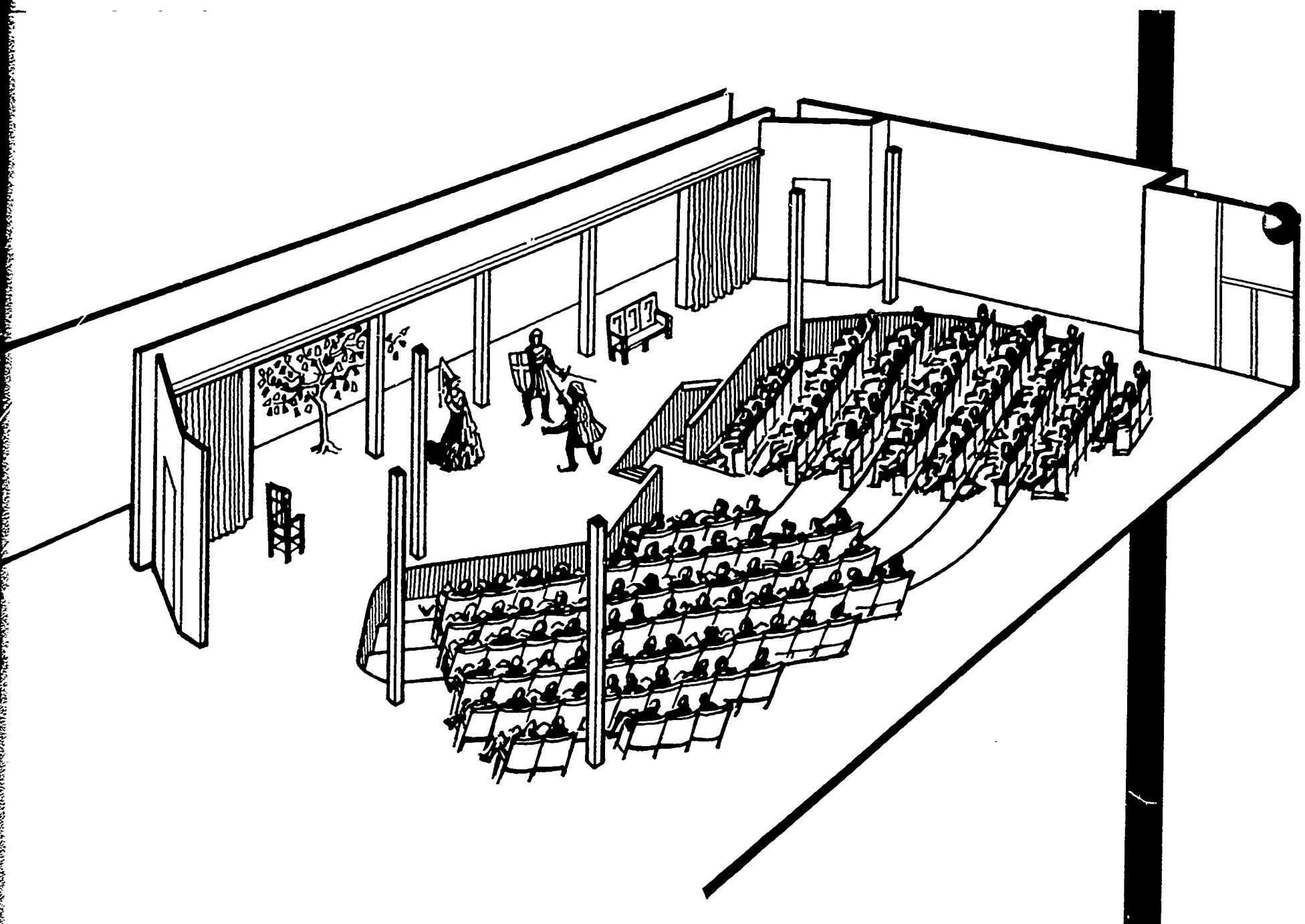
LITTLE THEATRES FROM MODEST SPACES



BASED ON THE DESIGN PRACTICES OF

JAMES HULL MILLER, THEATRE DESIGNER

HUB ELECTRIC COMPANY, INC., 2255 West Grand Avenue, Chicago 12, Illinois



LITTLE THEATRES FROM MODEST SPACES

Based on the design practices of James Hull Miller

Illustrations by Richard Leacroft, M. S. I. A., author of THE THEATRE, Informative Reference Series, Roy Publications and CIVIC THEATRE DESIGN, Dobson.

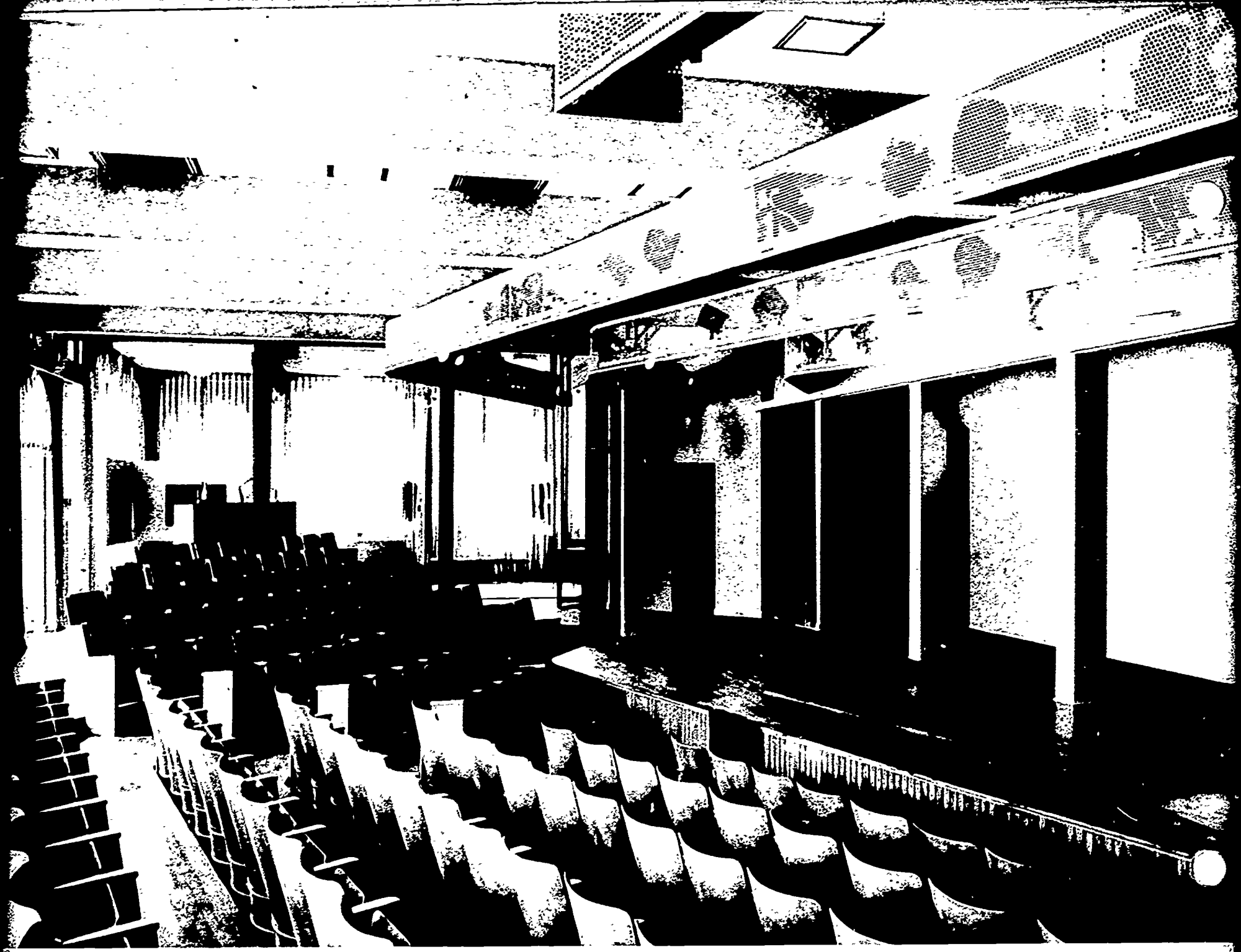
HUB REFERENCE MANUAL

PRINCIPLES OF REMODELING AND NEW CONSTRUCTION IN SCHOOL, COMMUNITY & CHURCH

INDEX

HUB ELECTRIC COMPANY, INC.

2255 West Grand Avenue, Chicago 12, Illinois



Courtesy Swarthmore College, Swarthmore, Pa.

Turning Space into Small Theatres

One of the most adventurous and exciting forms of contemporary drama is the chamber theatre. This form combines audience and actor in one room, the audience seated on terraces before an acting platform on one, two or three sides, with space for flexible set pieces and with facilities for good lighting.

Though the seating capacity is naturally modest, usually from 75 to 150, the advantages of the chamber theatre are many; including a simple stagecraft, a moderately priced lighting system, and a rectangular plan, applicable both to new construction and remodeling.

A good theatre chamber depends on architectural surroundings to provide a dynamically focussed acting platform, motivation for entrances and sheltered areas, and neutral backgrounds. Within this ideal space, properties and scenic pieces may be positioned as required and the acting area may be large or small depending upon the area of illumination and the extent of the production decor.

Rules of Thumb

Don't:

DON'T partition off a stage area with a permanent proscenium wall

- the permanent frame limits the use of the room
- the permanent frame encourages more elaborate scenery
- the permanent frame restricts the size of the acting area

DON'T build a high stage platform in conjunction with a flat floor for audience

- sightlines are never satisfactory
- the perspective of the stage is poor for live, three-dimensional drama
- seating is limited to one side of the stage only

Do:

DO expect to add a completely new terraced floor

- perfect visibility is assured
- levels are highly dramatic
- audience may look upon the stage from many angles

DO expect

- to decorate the entire room in subdued warm colors
- to equip the room with adequate dramatic lighting
- to furnish flexible curtains and folding screens for space arrangements.

An Example of Remodelling

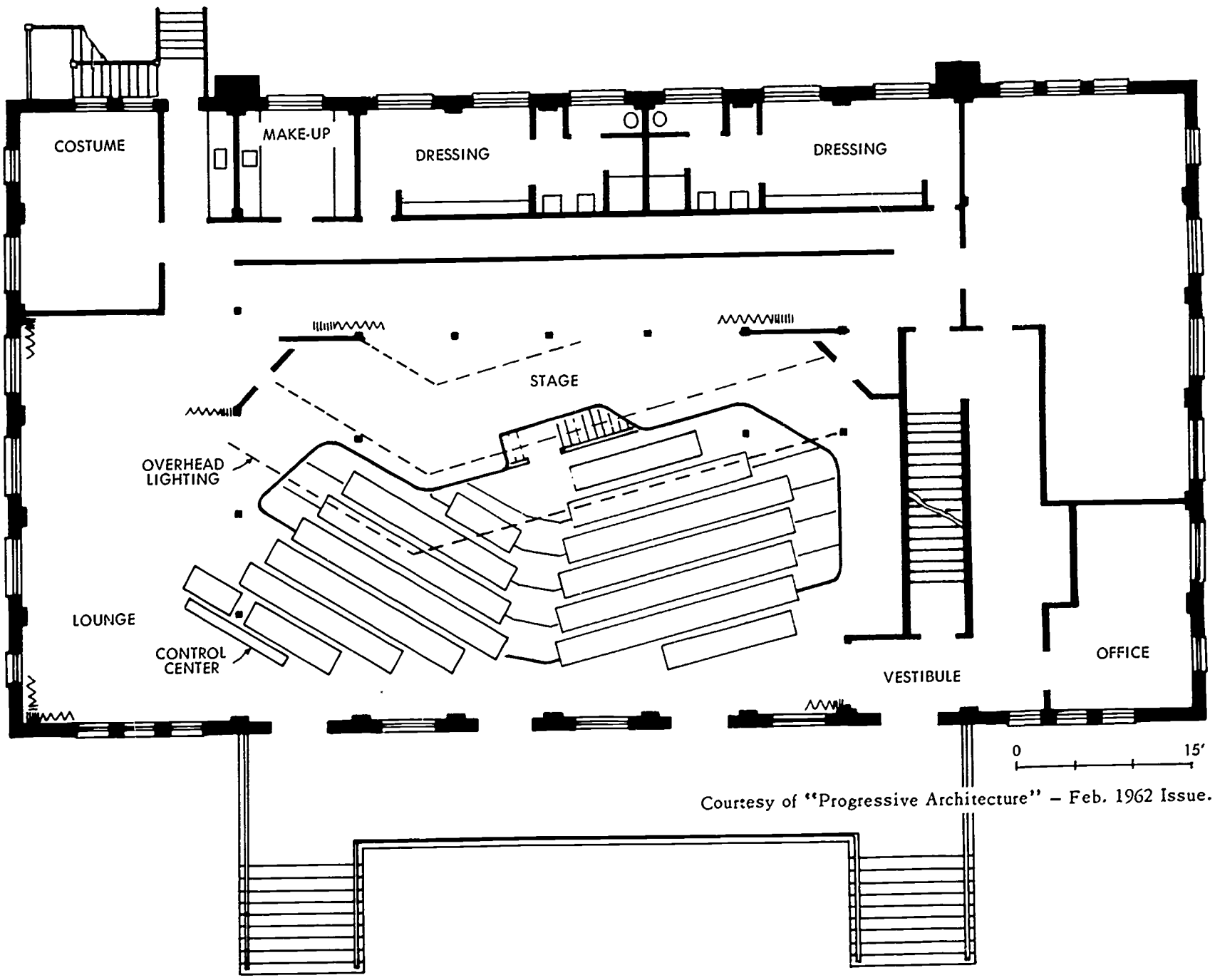
40′ x 75′ - 140 Seats

In 1961, a former chemistry hall at Swarthmore College, Pennsylvania was converted into a Student Activities Building with the first floor becoming a 140 seat theatre.

The total area of the theatre, exclusive of dressing-rooms, is approximately 40 by 75 feet or 3000 area feet. The stage is asymmetrically shaped, projecting slightly into the audience area. Side stages form a complete caliper embracing the audience.

On the left the caliper broadens to provide an intermission lounge; it can also be used for the exhibition of art works or for musicians. Column that could not be removed run across the stage and form an arcade.

Scenery, translucent panels for rear projection, or curtains may dress the openings formed by the arcade. The openings also form bays which can be set as different areas for multiple time-space



Courtesy of "Progressive Architecture" – Feb. 1962 Issue.

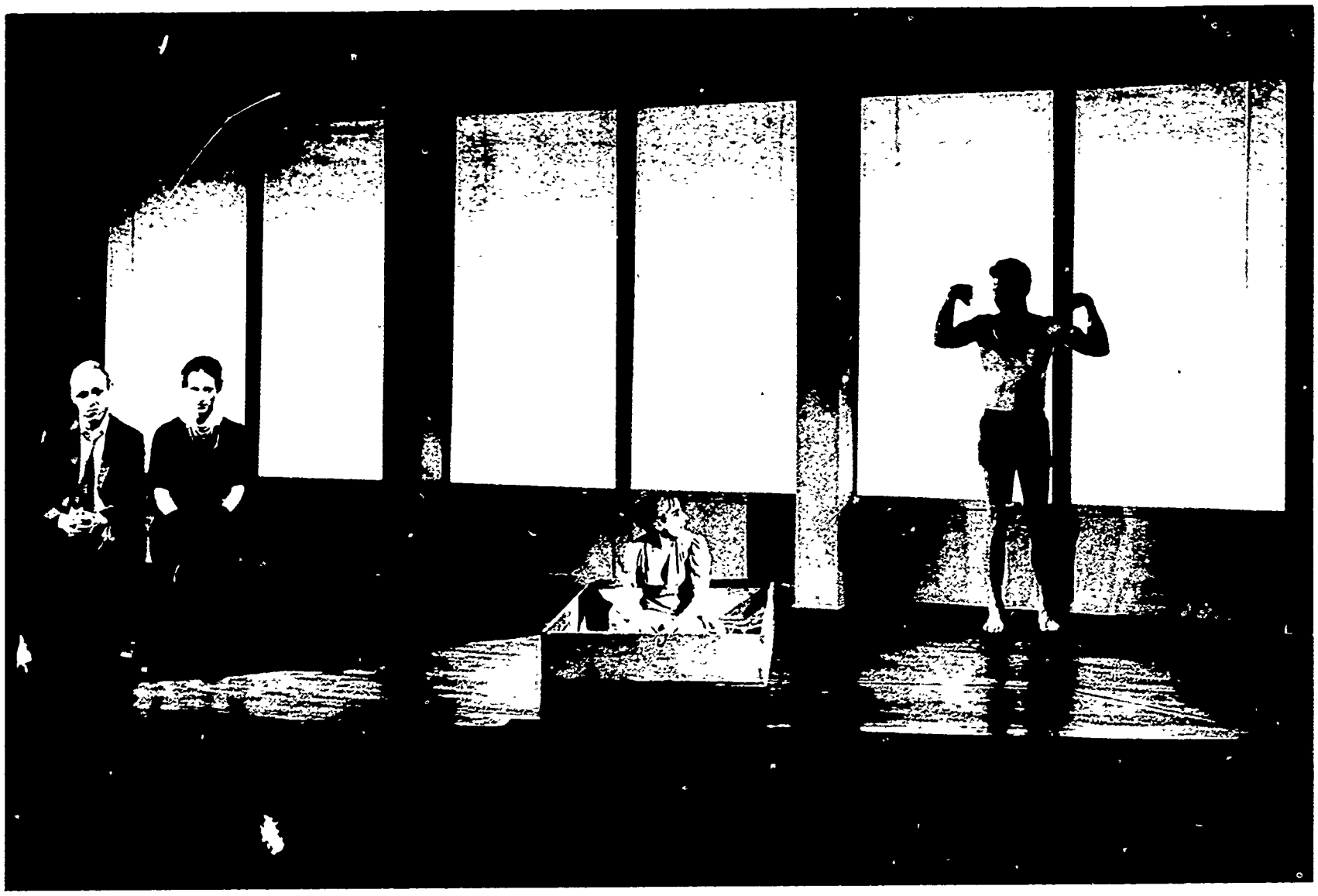
use. This theatre is an example of a carefully designed architectural space which can be used in a variety of ways and which gives an impression of physical flexibility.

Stage lighting is by 30 250 watt Fresnel spotlights and 15 400 watt "baby" spotlights, plus 12 200 watt floodlights and 4 500 watt projection units.

The two latter items were part of the experimental equipment of James Hull Miller from which the Hub designs were taken.

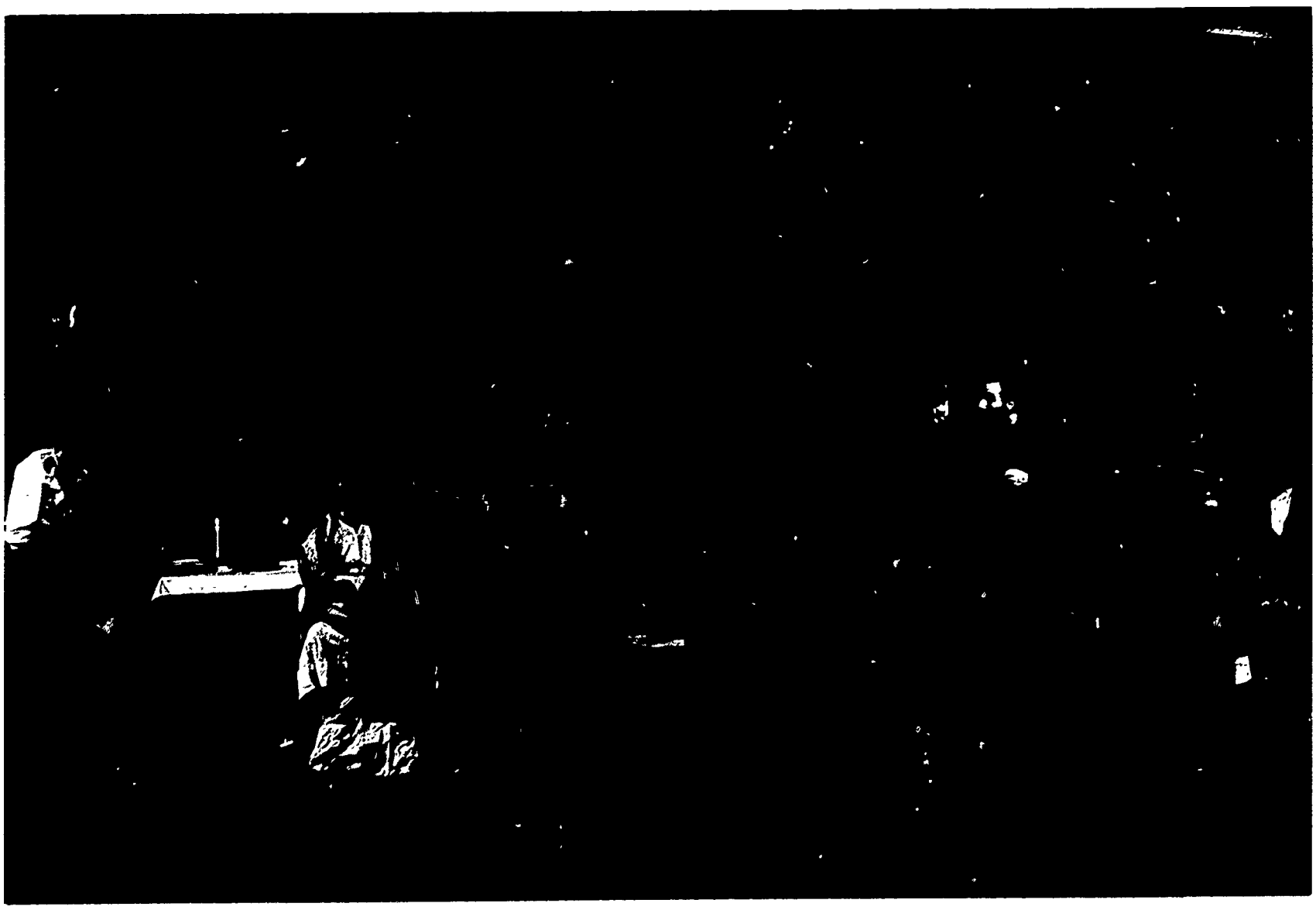
Each Fresnel spotlight contains a very diffuse lens in conjunction with a large lamp reflector.

Lounge adjacent to the theatre is used for art display and relaxation. The two areas flow into each other without partitions.



Scene from the play "Sand Box" produced by the Swarthmore College theatre group.

Scene from the play "Tevya" – also produced in new Paul M. Pearson Theatre of Swarthmore College.



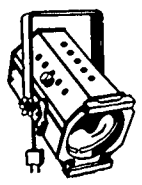
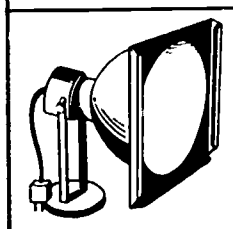
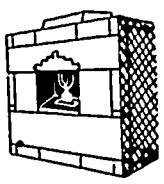
This resulted in a great amount of light in proportion to the wattage and in a soft-edged field of light for the combined architectural and scenic backgrounds. Because of the short throw involved, the 400 watt baby spots offered the most flexible illumination for accent and highlighting.

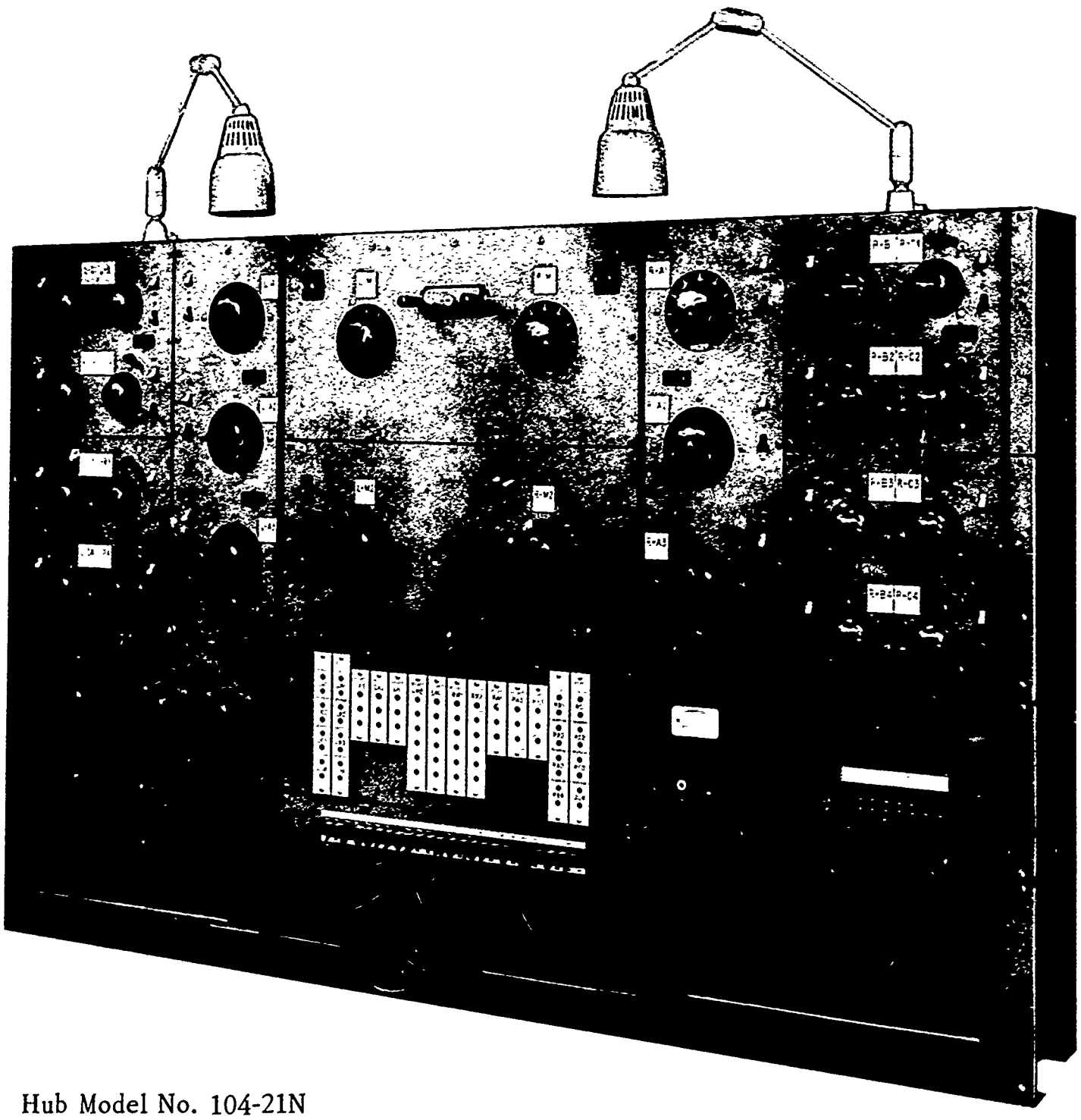
The mounting bars with the semi-opaque screening (of industrial machinery guard supply) were designed and built locally. These expanded metal screens, following the line of the U-shaped stage, subdue but do not conceal the lighting function.

A Hubcustom-designedauto-transformer dimmer board controls the stage illumination. There are four 500 watt, four 1200 watt and three 2500 watt individual dimmers on each side, these being interconnected by selector switches to either of the two 6000 watt master dimmers or to independent feed. A four-scene pre-set may be achieved.

Dial control is used throughout not only for economy in space and cost but for the precision control of illumination where the audience is so close to the stage.

THEATRICAL LIGHTING USED FOR SWARTHMORE

	HUB CAT. NO.	QUAN.	DESCRIPTION & WATTAGE	PURPOSE	LOCATION
	8786	30	6" Fresnel Spotlights 250-W.	General acting area	ceiling above audience
	8767	15	4½" condenser lens 400-W.	Special acting area	ceiling above audience
	8365	12	10" wide beam flood lights 200-W.	Projection screen color	Stage Rear
	79032	4	Beam Projection Unit 500-W.	Image Projector	Stage Rear



Hub Model No. 104-21N

- ELECTRIC DATA
  - 50 Stage lighting branch circuits
  - 8 Utility circuits

- SWITCHING FACILITIES
  - Single cascade switching of stage lighting.
  - House transfer switches for dimmers to non-dim circuits.
  - 3-Way switches for house lights.

- DIMMING FACILITIES
  - Four proportional dimming groups, each with one 6000 watt proportional master dimmer.
  - Six 2500 watt, eight 1,200 watt and eight 500 watt minor dimmers can operate through the proportional master dimmers or independently.
  - House lights controlled with specified size and number of dimmers.

- CROSS-CONNECTING FACILITIES
  - Integral plugging panel with 50 SAFETY-TYPE captive cord and plugs, one for each stage branch circuit.
  - There are four multifinger jacks for each 2500 watt dimmer, three for each 1200 watt dimmer, and two for each 500 watt dimmer and non-dim circuit.

- Baked gray-green wrinkle enamel finish.
  - Engraved bakelite nameplates, designation plates, and inscription plates.

- Overall size:
  - 96" x 60" x 12" deep.

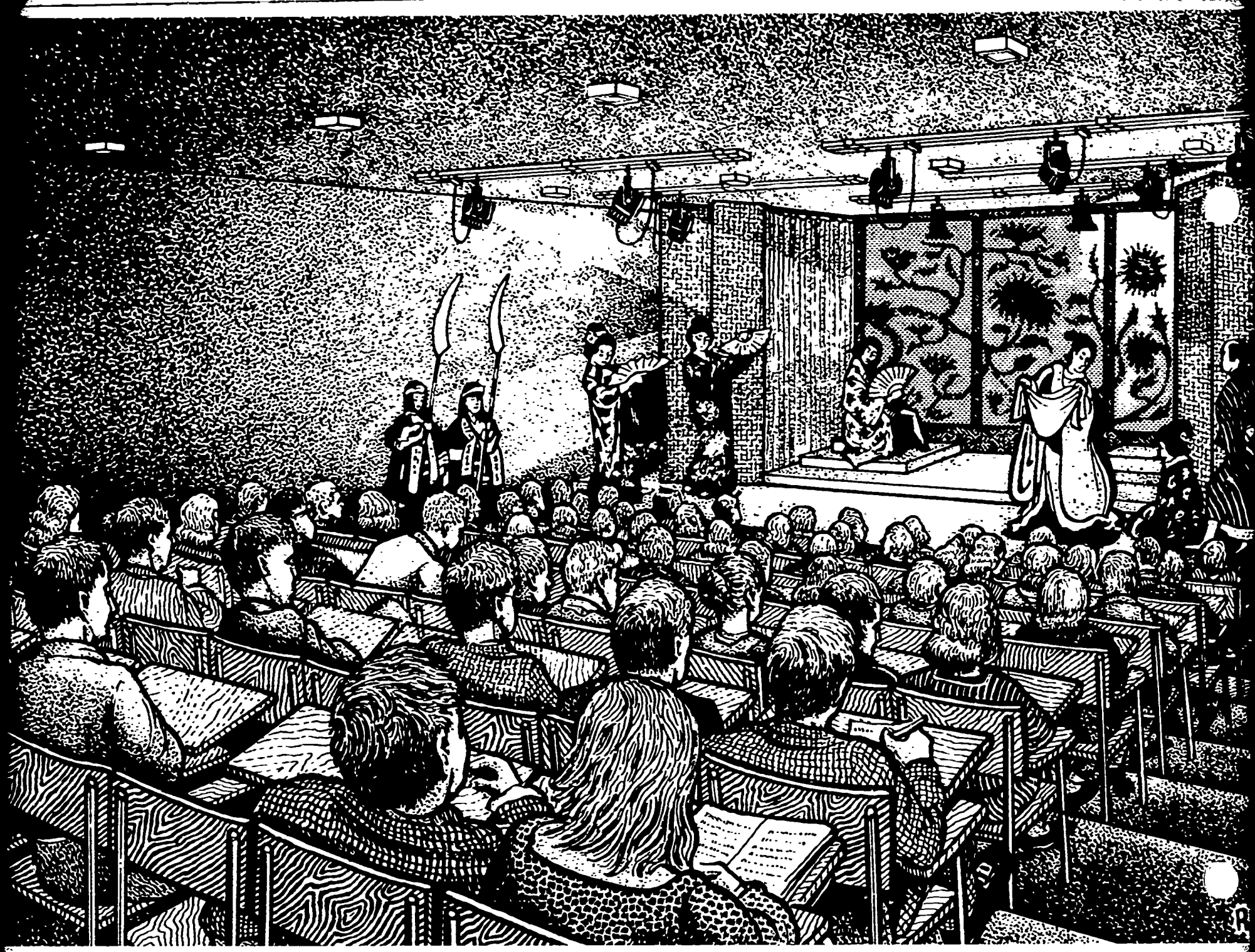
THREE BUDGET THEATRES

Hub commissioned the contemporary theatre designer JAMES HULL MILLER to create three theatre schemes using small rectangular room shapes which would have application to remodelling projects as well as to new construction. As all of these schemes are designed to be a part of a school or community facility, only the actor-audience chamber cores are presented.

All three schemes use a simple finished ceiling and prefabricated plug-in busways such as the Bulldog Universal Lighting Ducts and General Electric Co. Busway which both feed and support the stage lighting equipment. These busways provide the necessary flexibility for stage lighting without the usual overhead clutter of separate mounting grids, electrical outlets and extension cords which occurs when a more elaborately designed ceiling lies beyond the budget. Bulldog Ducts are design-compact and shallow for clean super mountings while G.E.'s can be flushed in the ceiling. Other items of equipment such as special curtain tracks may also be attached to the weight supports which are standard auxiliary equipment.

Where permanent curtain tracks are specified, the aluminum I-beam tracks such as Automatic Devices Flex-I-Trac Model 132 is recommended. This track is designed for "walk-along" curtains, that is, curtains move by hand. This is necessary in order to control the initial selection and universal positioning of a variety of curtain panels. Since the chamber theatre with its open stage is based on production design principles quite different from those of the proscenium stage, no purchase-line curtain tracks are required.

There is one item of equipment essential to the operation of the open stage, the folding screen set, which serves both as an additional masking control and often as a design link between architecture and scenery. The arrangement of these screens controls the use of the uncommitted theatre space, as to whether it will be off- or on-stage, and even furnishes simple dramatic backgrounds. Notes to the theatre worker on the construction of these screens will be found in the technical section at the rear of this Bulletin.



SCHEME A: 30'x 45'-80 SEATS

Elementary School Classroom Theatre

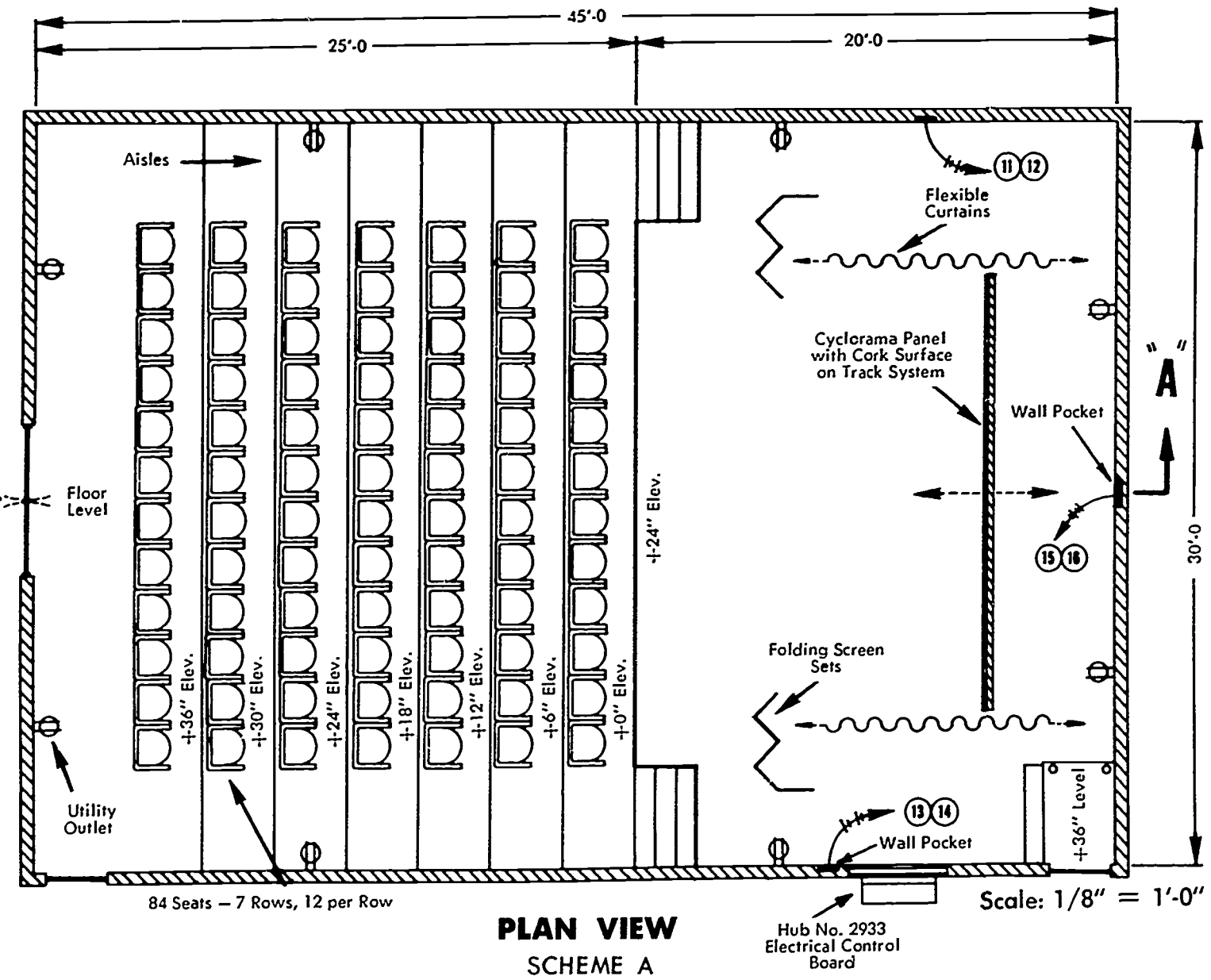
Of the three budget theatres this scheme uses the smallest area, 30 by 45 feet, an ideal size for the development of an open-end stage with 80 odd seats on terraces, not unlike a science lecture room. By selecting seats with folding writing arms an excellent classroom-theatre space is possible. The stage is 2 feet in elevation over the first row, the terraces being 6 inches by 3 feet.

In new construction, the main floor level of the containing building should intercept this plan at the 36 inch plaza level at the rear. In remodeling, the first row, elevation "0" on the plan, will be at the floor and corridor level of the original building. Scheme A (1) shows some of the adjustments which can be made for entrances and exits under remodeling conditions.

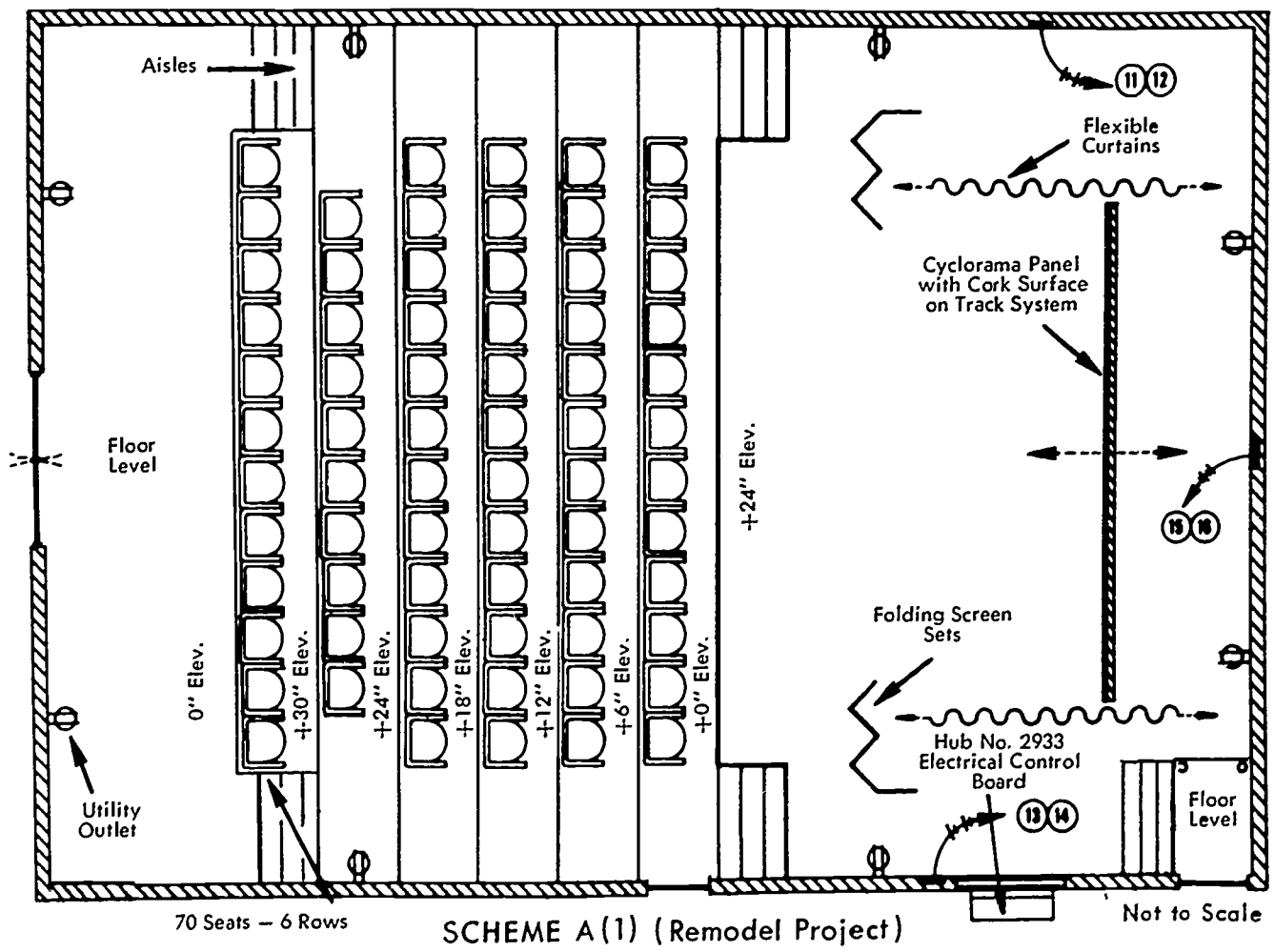
Where a flat floor in the audience area is absolutely essential to other activities, there are folding platforms available commercially which will provide the identical terraces. However, by designing a stage platform which lends itself to a variety of activities and which may

enjoy continual use, permanent terraces can be justified.

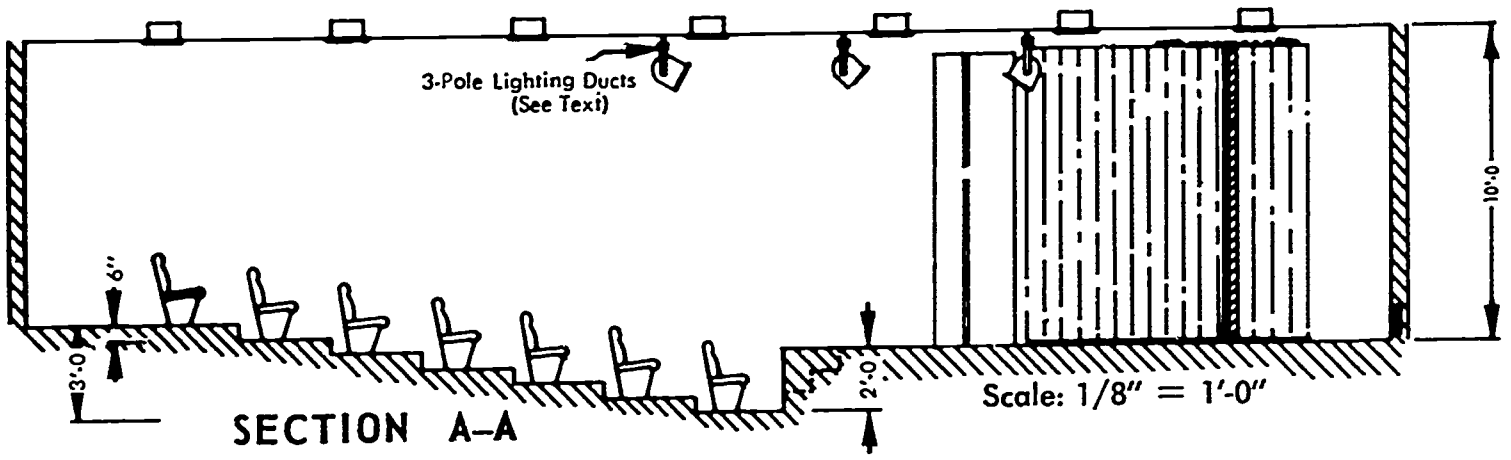
The open end stage platform is framed by portable screens. The cyclorama unit is a large cork board mounted to up-and-down stage tracks, flanked by curtains, also on tracks. Scenic backgrounds of paper may be thumbtacked to the corkboard.

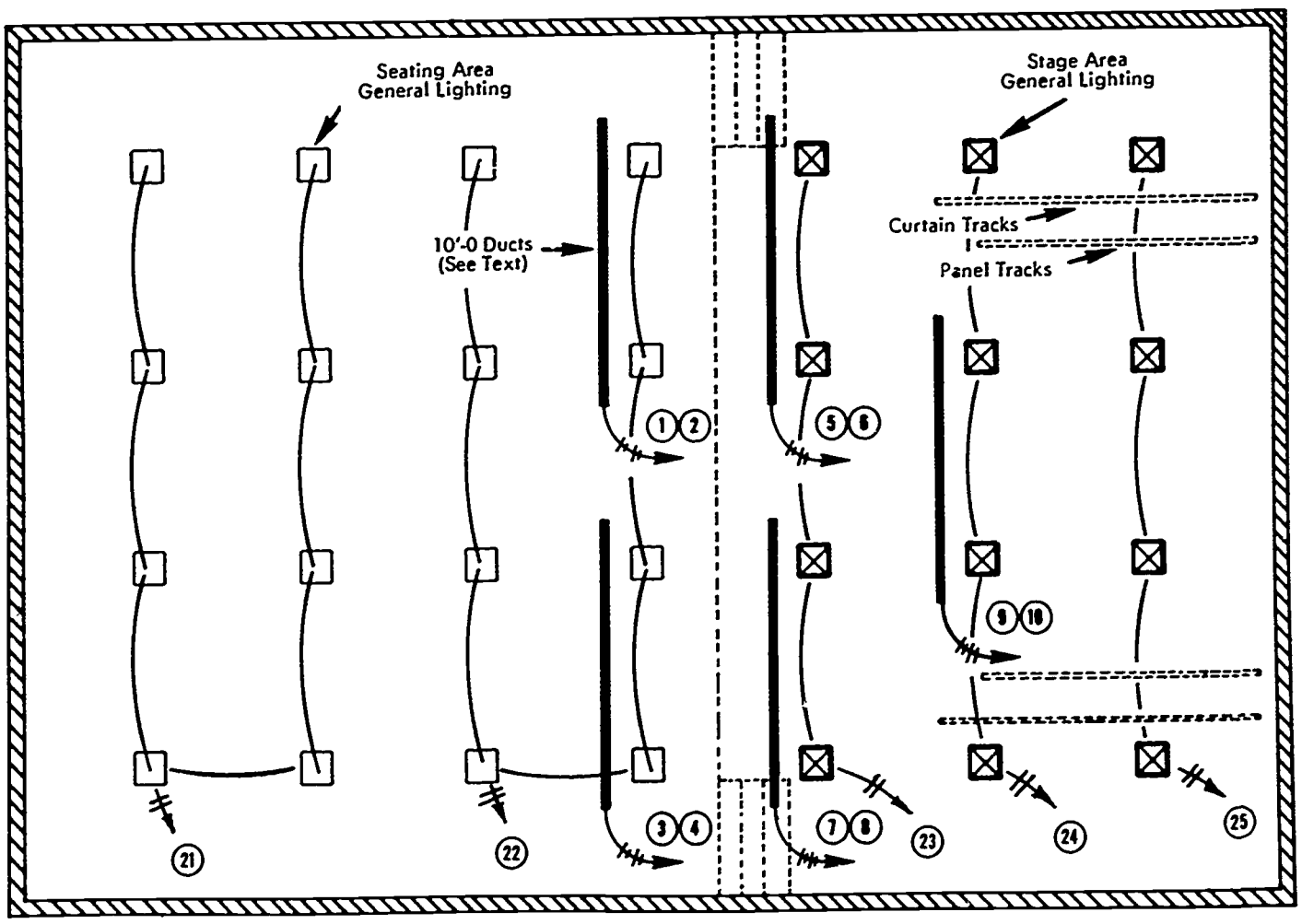


PLAN VIEW
SCHEME A



SCHEME A(1) (Remodel Project)

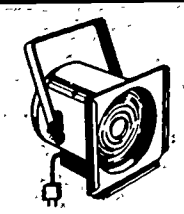
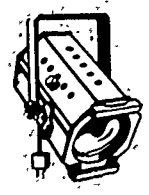


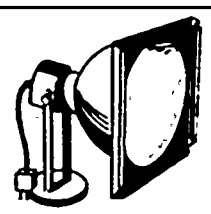
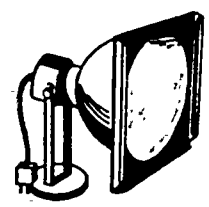
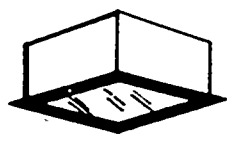
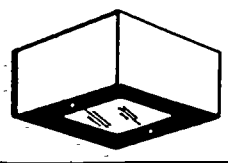


CEILING PLAN
SCHEME A

Scale: 1/8" = 1'-0"

Theatrical Lighting Equipment For Scheme "A"

	Hub Cat. No.	Quan.	DESCRIPTION & WATTAGE	PURPOSE	Circuit No.
	8786	8	6" Fresnel Spotlights 250 W.	Downstage Spotlight	1-8
	8767	2	4½" Condenser Lens Spotlights 250 W.	Special acting area	

	8365	4	10" Wide Beam Floodlight 200 W.	Color toning for acting area	9-10
	8365	4	10" Wide Beam Floodlight 200 W.	Upstage special area	11-16 See Page 13 Plan View.
			Spare Circuits in Switchboard		17-20
	6136	28	Recessed Controlens Units 150 W.	16 units for general lighting seating area. 12 units for stage area	21-22 23-25
	6708		These surface mounted 150 watt units may be substituted for the recessed No. 6136 units above.		

Hub Catalog No. 2933

Scheme A Manual Flexible Lighting Control Switchboard:

- **Electrical Data**

  16-20 Stage Lighting circuits

  5- 6 General Lighting circuits

  4- 6 Utility circuits

- **Switching Facilities**

  Direct switching – circuit breaker or fuse on each dimmer input with pilot light.

  Transfer switches for general lighting to dimmers or to non-dim circuits.

  3-way switches for general lighting.

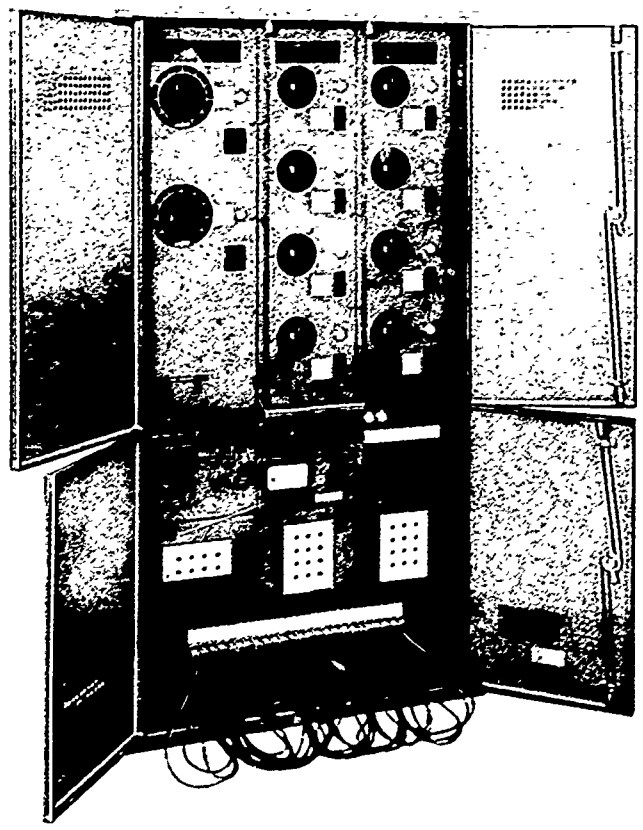
- **Dimming Facilities**

  (4) 500 watt and (4) 1200 watt auto-transformer dimmers for stage lighting equipment, and (2) 2500 watt for general lighting – each manually operated independently, with dial type control.

- **Cross-Connecting Facilities**

  Integral plugging panel with 20 captive cord and SAFETY-TYPE plugs, one for each flexible stage branch circuit.

  Three multi-finger jacks for each 1200 watt dimmer, and two for each 500 watt dimmer, and two for each of two non-dim circuits.



Hub Catalog No. 2933

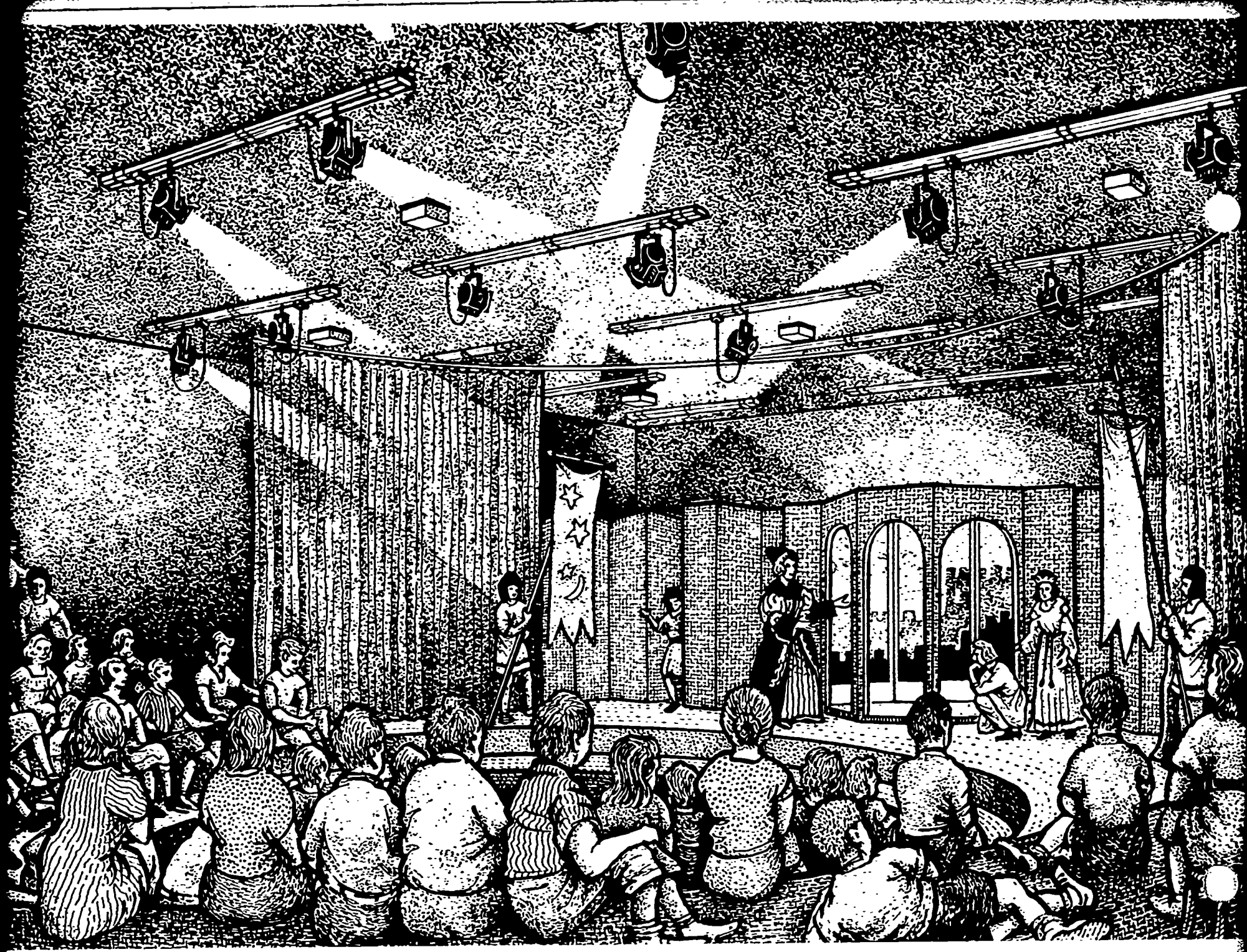
- **Physical Data**

  Baked gray-green wrinkle enamel finish.

  Engraved bakelite nameplates, designation plates and inscription plates.

  Four doors – two over cross-connecting panel and two over the dimmers.

  Overall size: 33" x 72" x 12" deep, either flush or surface mounting.



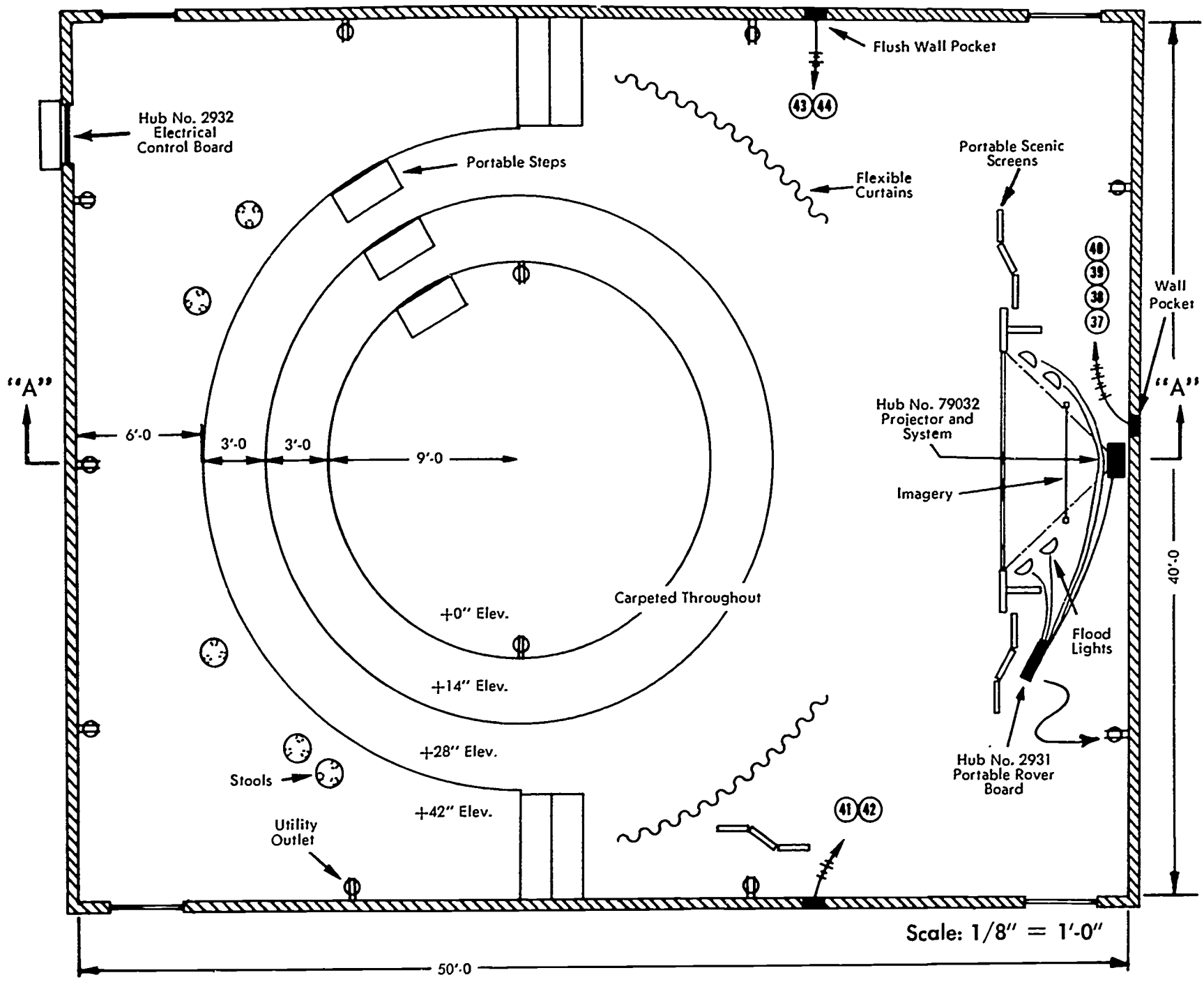
SCHEME B: 40'x 50'- 90 SEATS

Small School or Community Drama Center

Moving to a 40 by 50 foot space, approximately 40% larger than Scheme A, a more flexible theatre plan is possible, with many variations of actor-audience arrangements: arena, open end, proscenium, classic and three-quarter, to name a few of the styles. This theatre is designed primarily for an audience of about 90 young people, with the majority of seating furnished by the carpeted terraces themselves, with the remainder on cushions, stools, and portable chairs.

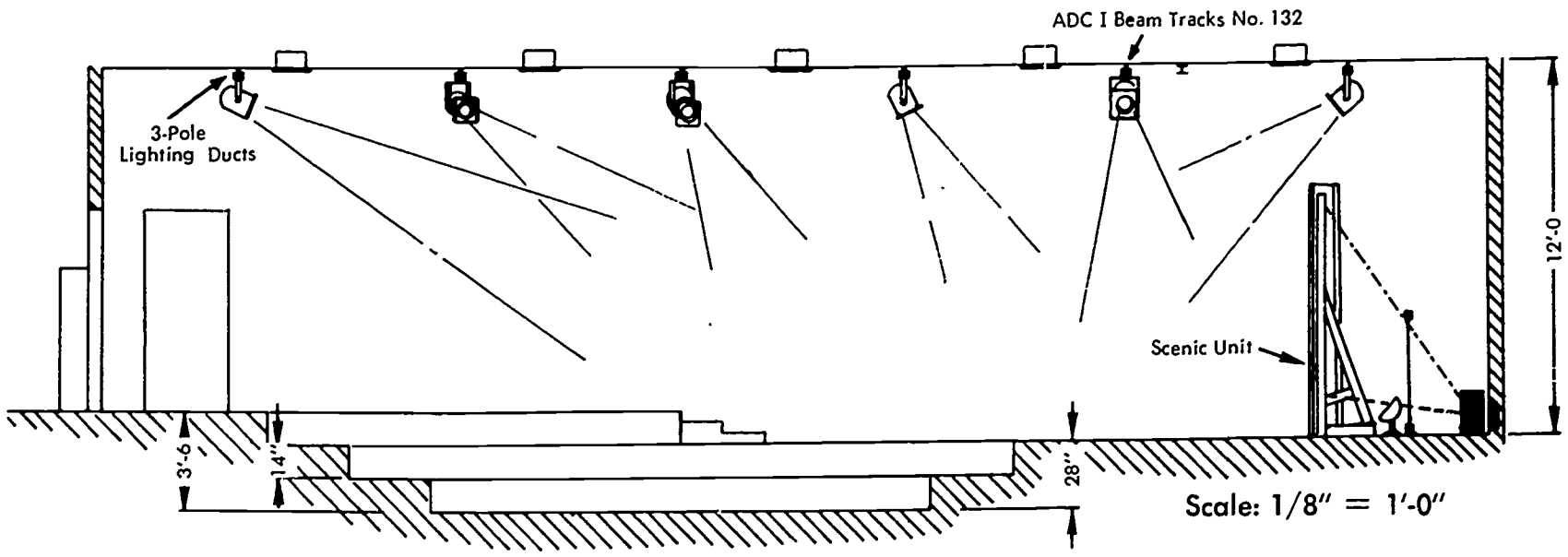
The basic plan is very simple, being an area of circular terrances sunken into the bi-level plateau of a rectangular floor plan. For remodeling, the basic floor level would be at Zero inch elevation rather than at 28 or 42 inches, and there is sufficient area at each of the four corners of the chamber for steps to the plateau.

The arbitrary staging areas demand a flexible stagecraft, with emphasis on the use of folding screen sets, clamp-jointed set pieces, pavilions, and translucent panels for rear projection, as described in the stagecraft notes. The only permanent scenic equipment for the initial installation are the curtains and curved I-beam track.

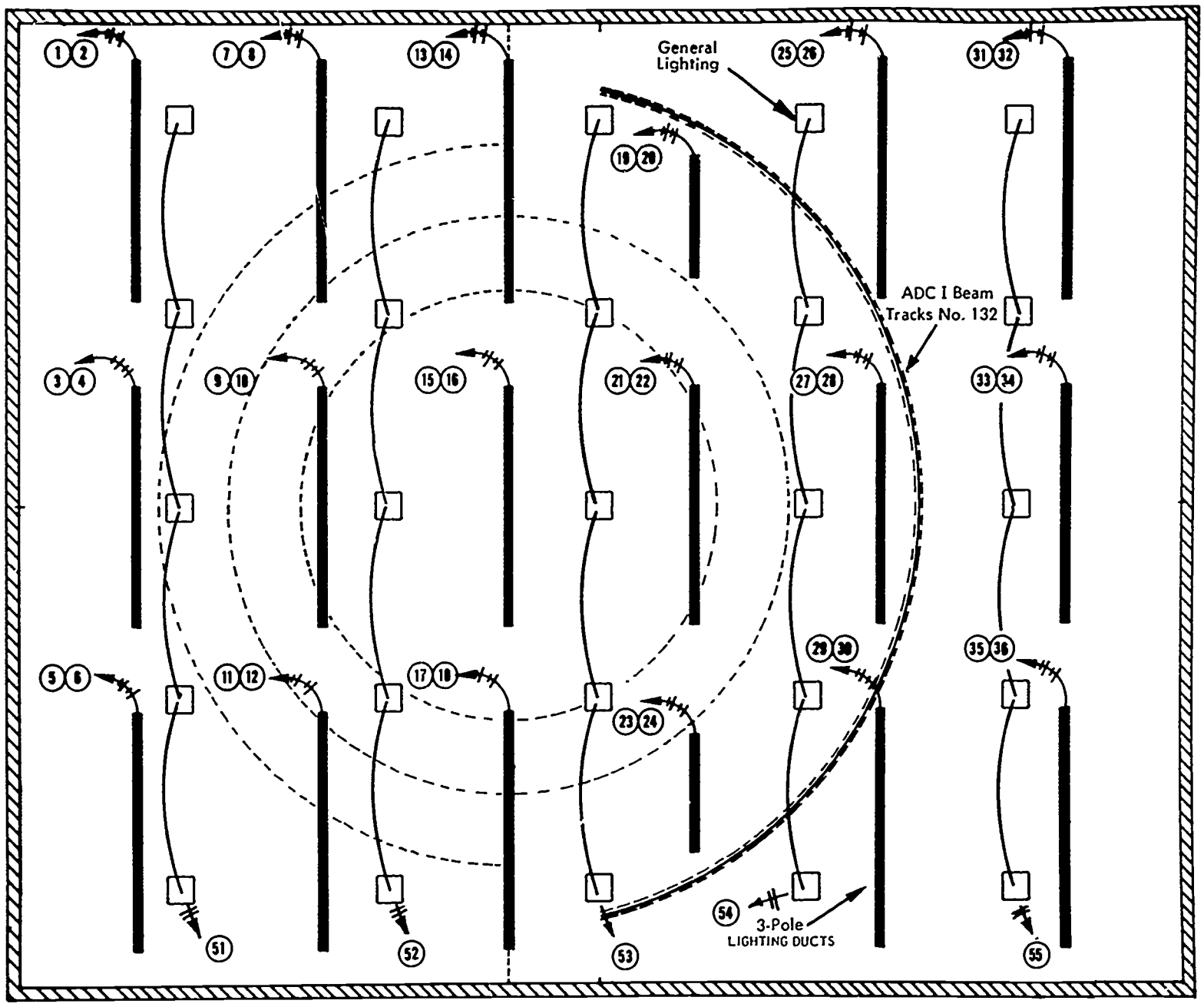


PLAN VIEW

SCHEME B



SECTION A-A

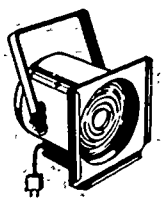
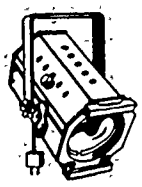
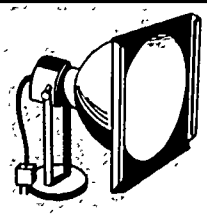


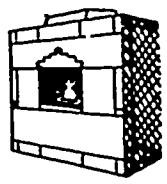
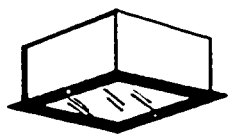
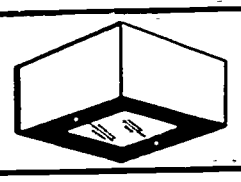
CEILING PLAN

SCHEME B

Scale: 1/8" = 1'-0"

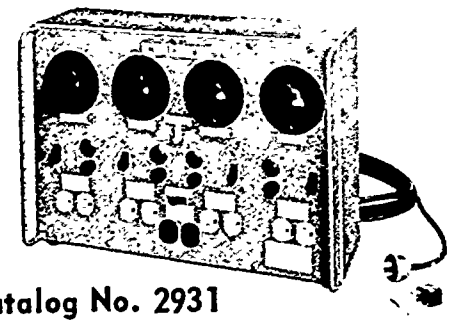
Theatrical Lighting Equipment For Scheme "B"

	Hub Cat. No.	Quan.	DESCRIPTION & WATTAGE	PURPOSE	Circuit No.
	8786	16	6" Fresnel Spotlights 250 W.	General acting area	1-36
	8767	6	4½" Condenser Lens Spotlights 250 W.	Special acting area	
	8365	6	10" Wide Beam Floodlights 200 W.	Projection screen color	Plugged into No. 2931 Portable Switchboard fed by wall outlet.

	79032	1	Beam Projection Unit 500 W.	Projection image	Plugged into 2931 Portable Switch-board
		3	Wall Pockets	For additional Equipment	37-44
			Spare circuits in Switchboard		45-50
	6166	25	Recessed Controlens Units 200 W.	General lighting for seating and stage area.	51-55
	6709		These surface mounted 200 Watt units may be substituted for the recessed No. 6166 units above.		

Hub Catalog No. 2931

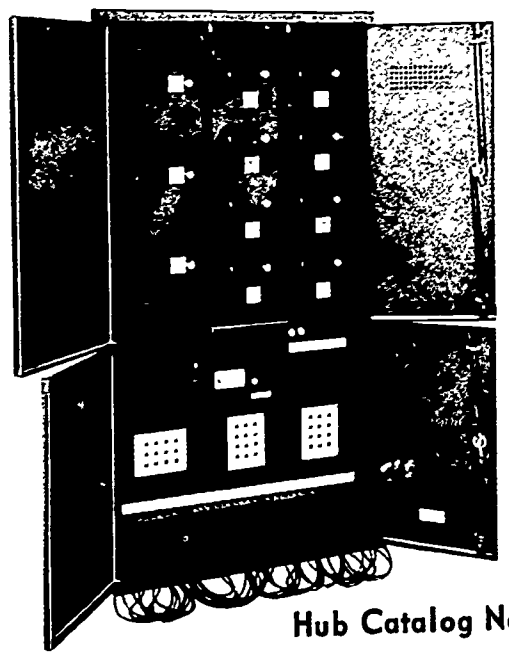
Portable Dimmer Switchboard (Rover) for Projection System, consists of four 500 watt auto-transformer dimmers with two output receptacles per dimmer. Complete with two 25 ft. three-conductor cords with male and female connectors.



Hub Catalog No. 2931

Hub Catalog No. 2932

Scheme B Manual Flexible Lighting Control Switchboard.



Hub Catalog No. 2932

- **Electrical Data**

50 stage lighting circuits

5-6 house and stage general lighting circuits

4-6 utility circuits

- **Switching Facilities**

Direct switching – circuit breaker or fuse on each dimmer input with pilot light.

Transfer switching to utilize dimmers for stage or for house and stage general lighting.

3-way switches for general lighting.

- **Dimming Facilities**

(3) 2500 watt, (4) 1200 watt, and (4) 500 watt auto-transformer dimmers for stage lighting equipment, each manually operated independently with dial type control.

The output of the 2500 watt dimmers connect directly to the general lighting circuits, or through transfer switches, to respective group of stage branch circuit jacks in the cross-connecting panel.

- **Cross-Connecting Facilities**

Integral plugging panel with 50 captive cord and SAFETY-TYPE plugs, one for each flexible stage branch circuit.

Four multi-finger jacks for each 2500 watt dimmer, three for each 1200 watt dimmer, two for each 500 watt dimmer and two for each of two non-dim circuits.

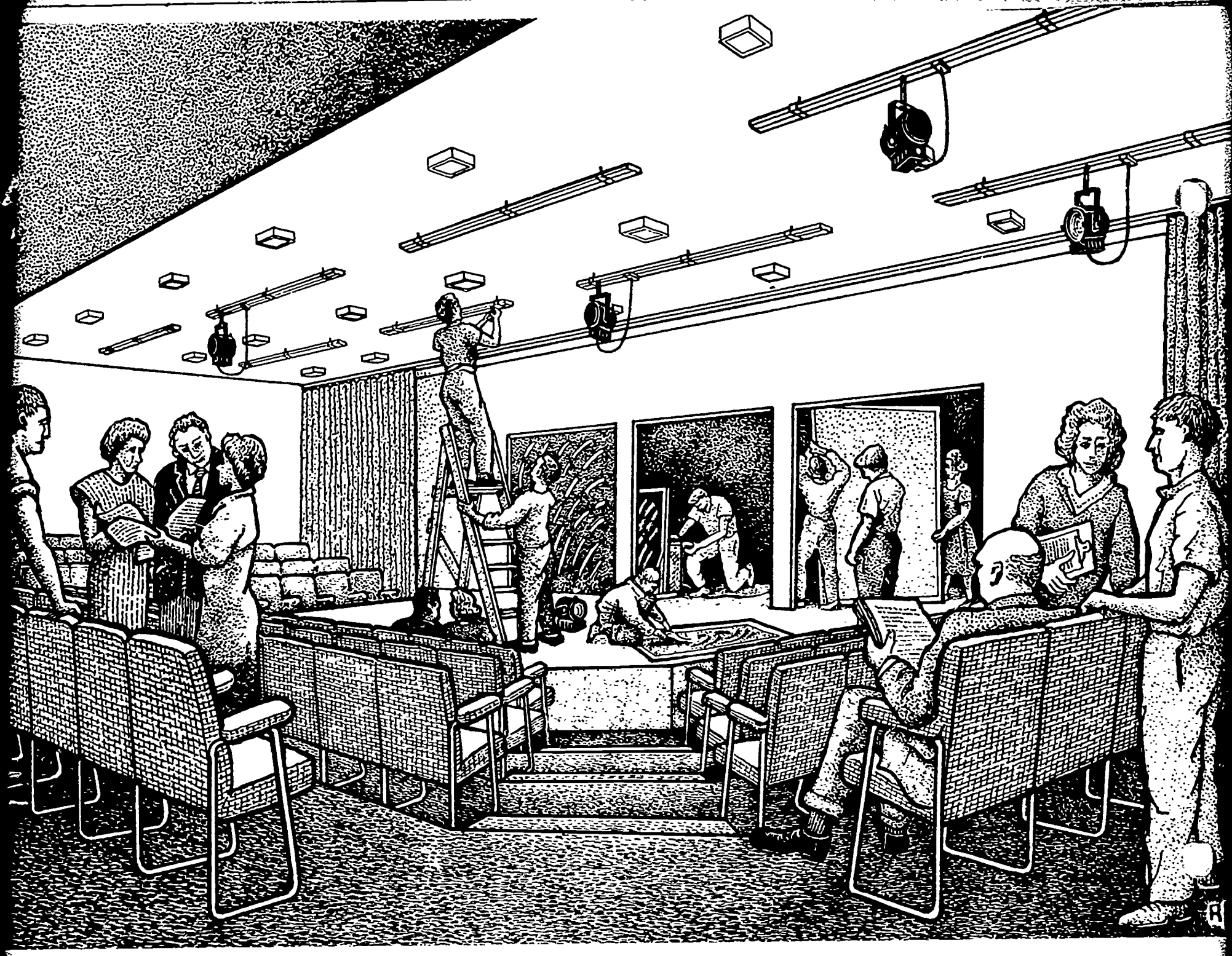
- **Physical Data**

Baked gray-green wrinkle enamel finish.

Engraved bakelite nameplates, designation plates, and inscription plates.

Four doors – two over "cross-connecting" panel and two over the dimmers.

Overall size: 33" x 72" x 12" deep either flush or surface mounting.



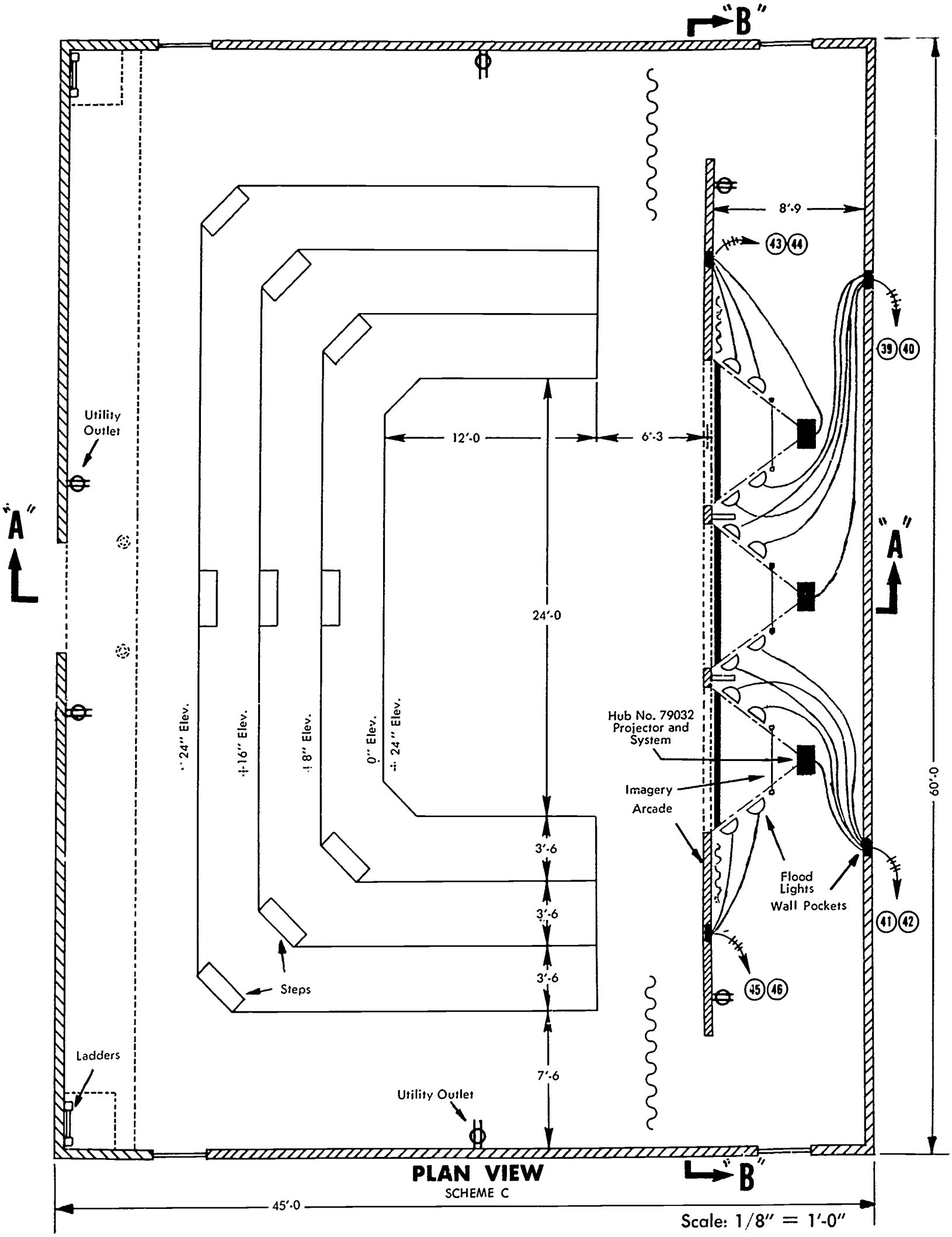
SCHEME C: 45'x60'-150 SEATS

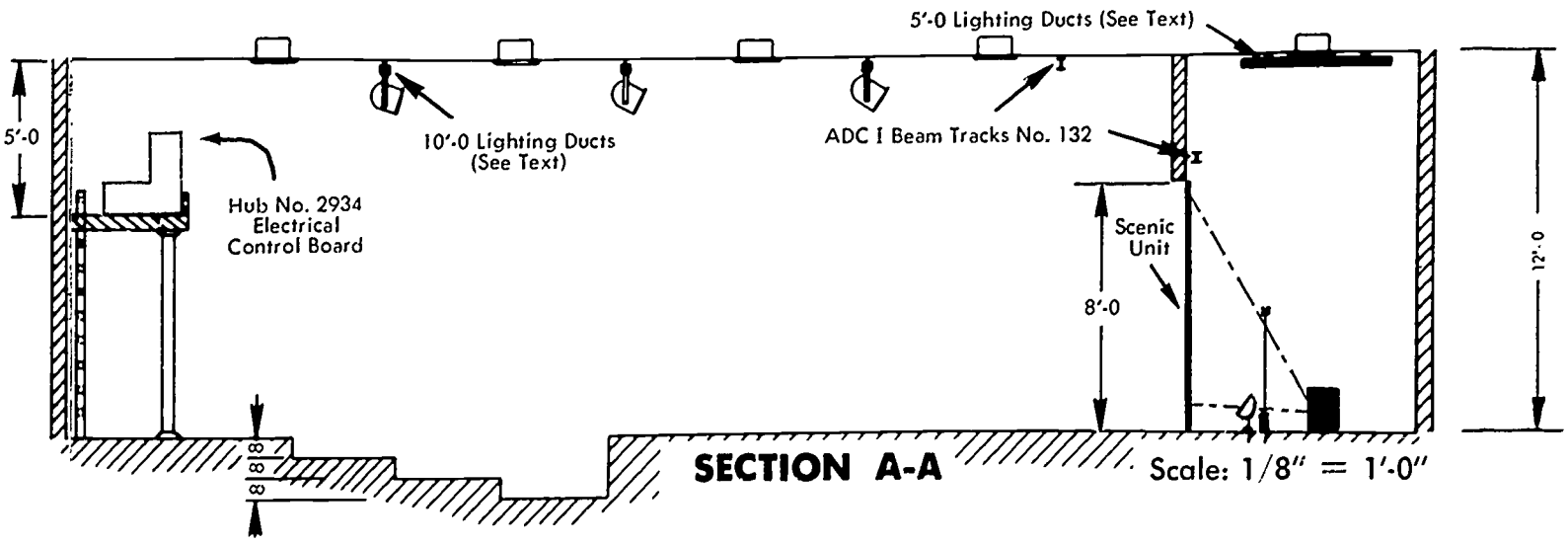
Three-sided Platform

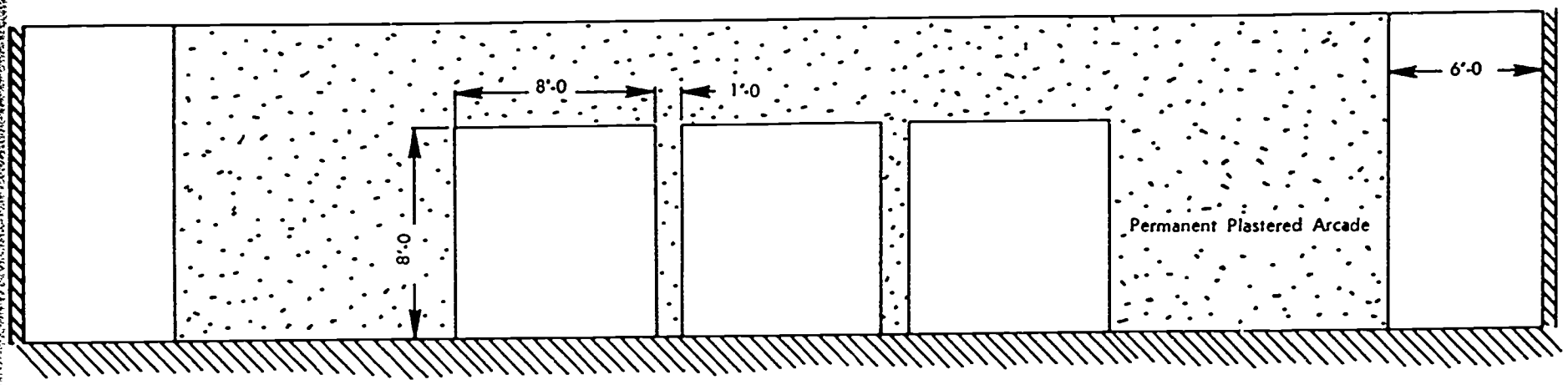
By increasing the total area from scheme B's 40 by 50 feet to 45 by 60 feet it is possible to develop a 150 seat theatre with an acting area comparable to most college and community theatres across the country.

This theatre chamber is based on a simple shape, a rectangular plan, with plateau floor cut only by sunken terraces for several rows of seats. The addition of a stage arcade similar to the Swarthmore College design provides a natural off-stage area and portals which are useful for stage movement and support of scenic panels. The wall-to-wall curtain track set three feet in front of the arcade provides for a variety of curtain positions.

If Scheme C is created by remodelling an existing space, the original floor level would be the Zero inch level, with steps by entrances at all four corners of the room leading to the new 24 inch plateau level.

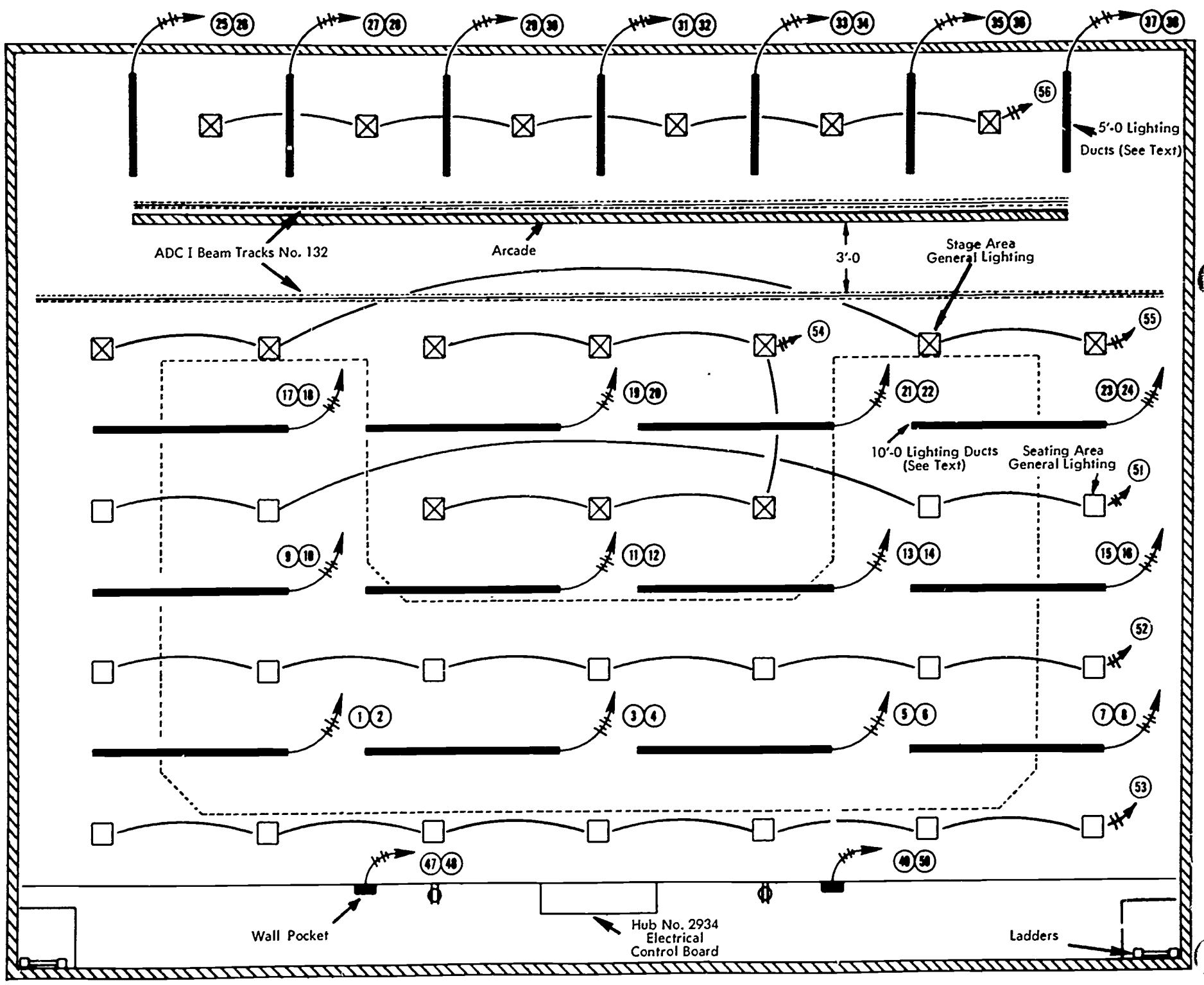

"B"
8'-9
43 44
39 40
Utility Outlet
"A"
12'-0
6'-3
24'-0
"A"
24" Elev.
16" Elev.
8" Elev.
0" Elev.
24" Elev.
Hub No. 79032 Projector and System
Imagery Arcade
Flood Lights Wall Pockets
60'-0
3'-6
3'-6
3'-6
7'-6
41 42
45 46
Steps
Ladders
Utility Outlet
"B"
PLAN VIEW
SCHEME C
45'-0
Scale: 1/8" = 1'-0"


5'-0 Lighting Ducts (See Text)
5'-0
10'-0 Lighting Ducts (See Text)
ADC I Beam Tracks No. 132
Hub No. 2934 Electrical Control Board
Scenic Unit
8'-0
12'-0
18
18
SECTION A-A
Scale: 1/8" = 1'-0"



SECTION B-B

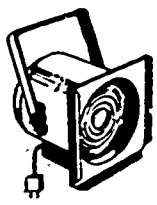
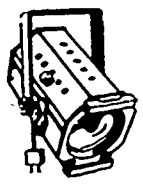
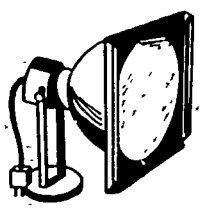
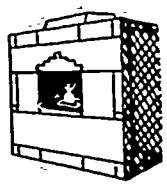
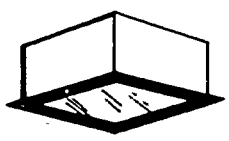
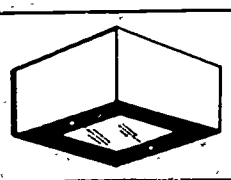
SCHEME C



Scale: 1/8" = 1'-0"

CEILING PLAN

Theatrical Lighting Equipment
For Scheme "C"

	Hub Cat. No.	Quan.	DESCRIPTION & WATTAGE	PURPOSE	Circuit No.
	8786	30	6" Fresnel Spotlights 250 W.	Downstage Spotlight	1-38
	8767	10	4½" Condenser Lens Spotlights 250 W.	Special acting area	
	8365	12	10" Wide Beam Floodlight 200 W.	Projection screen color	43-46 See Page 21 – Plan View
	79032	3	Beam Projection Unit 500 W.	Projection image	39-42 See Page 21 – Plan View
		2	Wall Pockets	For additional equipment	47-50
	6166	34	Recessed Controlens Units 200 W.	18 units for general lighting seating area 16 units for stage area	51-53 54-56
	6709		These surface mounted 200 watt units may be substituted for the recessed No. 6166 units above.		

Hub Catalog No. 2934

Scheme C Flexible Lighting Control Console Type Switchboard.

- **Electrical Data**

  50 Stage lighting circuits

  6-9 House and stage general lighting circuits

  9-12 Utility circuits

- **Switching Facilities**

  Single channel cascading of stage lighting.

  Transfer switching to utilize dimmers for stage or for general lighting.

  Switches for general lighting in locations as selected.

- **Dimming Facilities**

  4 Proportional dimming groups, each with one 3600 watt master and three 1200 watt minor auto-transformer dimmers.

  Each master dimmer serves a dual function; it can operate independently, or as a proportional master.

  Each minor control unit is of the modular, plug-in type having non-interlocking lever type handle.

  General lights dimmed with stage dimmers via transfer switches (or with motor-driven dimmers).

- **Cross-Connecting Facilities**

  Integral plugging panel with 50 SAFETY-TYPE retractable cords and plugs, one for each flexible stage branch circuit, with double engraved designations.

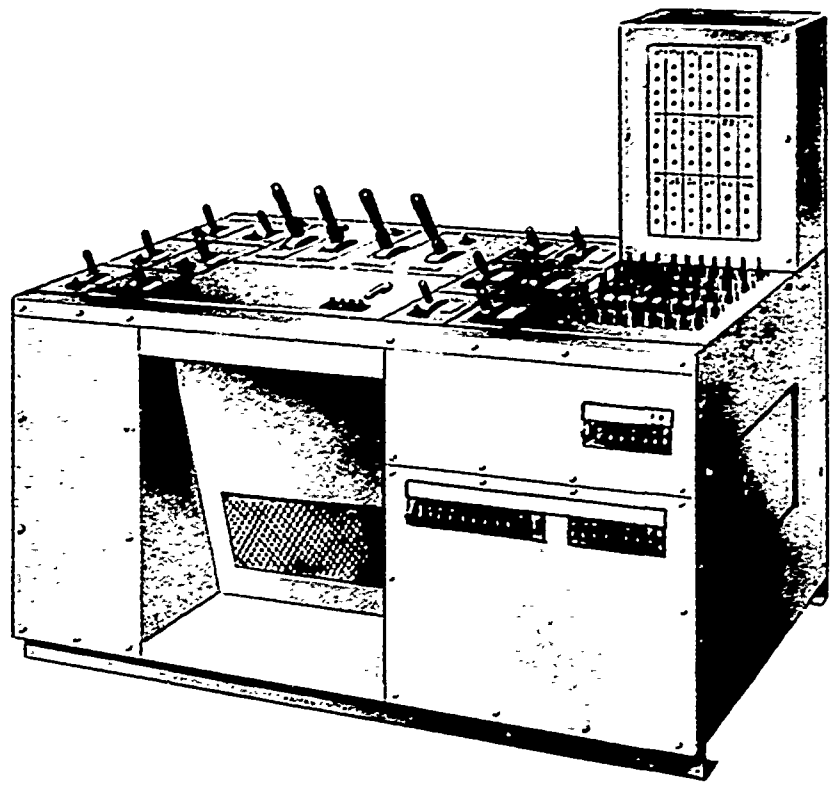
  Six multi-finger jacks for each 3600 watt dimmer, three for each 1200 watt dimmer, and three for each of four non-dim circuits.

- **Physical Data**

  Low console type with knee space.

  Baked gray-green wrinkle enamel finish.

  Engraved bakelite nameplates, identification and inscription plates.



HUB CATALOG NO. 2934

Overall size: 72" long x 30" deep x 30" High operating face. Cross-connecting. Vertical jack group housing 54" high located at right or left end as specified.

Summary

Schemes B and C, as well as the free-form Swarthmore plan, are all based on the idea of an enveloping plateau into which a portion of the seating is dropped. This design feature permits maximum circulation throughout the chamber theatre, adding immeasurably to the use of the theatre for general programs such as lectures, classes, meetings, small concerts and exhibitions.

Dramatic presentation is both heightened and simplified. It is heightened because the stage virtually embraces the audience, imparting an immediacy to the action of the players. It is simplified because the theatre space is architecturally complete, creating a finished space into which may be introduced a great many scenic items, only a few, or perhaps none at all, depending upon the requirements of the drama. This is in sharp contrast to the proscenium frame theatre, where the action is remote and the stage space a void which must be dressed completely for each production.

Small theatre chambers such as these are indispensable to libraries, art museums, schools and industrial firms, and to colleges and universities as well, for second theatres. Community groups can begin with these chamber stages and build their larger auditoriums later.

STAGECRAFT NOTES

A chamber theatre consists of a single, architecturally finished room, with stage and auditorium indistinguishable until lights, action, set pieces and properties define a playing area. Thus scenery consists of separate units, the majority of which must be self-supporting.

There are two forms of scenery which meet these conditions and are self-supporting by nature of their construction: folding screen sets, Illus. 1 through 6 – and clamp-jointed panels, Illus. 11, 12, also 7, 8, 10. A third form of scenery consists of panels which may be attached to arcades such as found on Scheme C and on the Swarthmore stage – Illustration 12

The folding screen set consists of a series of light frames of 1 by 2 inch wood strips covered with textured fabric, and jointed with cloth flaps of the same fabric in the manner of the Japanese folding screen. A sketch, Illus. 1 detail, shows the hinging arrangement, which is double-folding and crack-free.

These cloth flap hinges are attached prior to the covering of the screens. Needless to say, the frames must be constructed without the conventional plywood strapping over joints so that the screens will be truly double-folding. The specifications of parts and construction technique are shown by diagram, Illus. 1, 2.

Folding screen sets have several distinct applications. First and foremost, a series of opaque, pleated panels, properly arranged, may create necessary off-stage areas and furnish the actors sheltered access to the various playing areas, Illus. 6.

CONSTRUCTION DETAILS

COVERING DETAILS

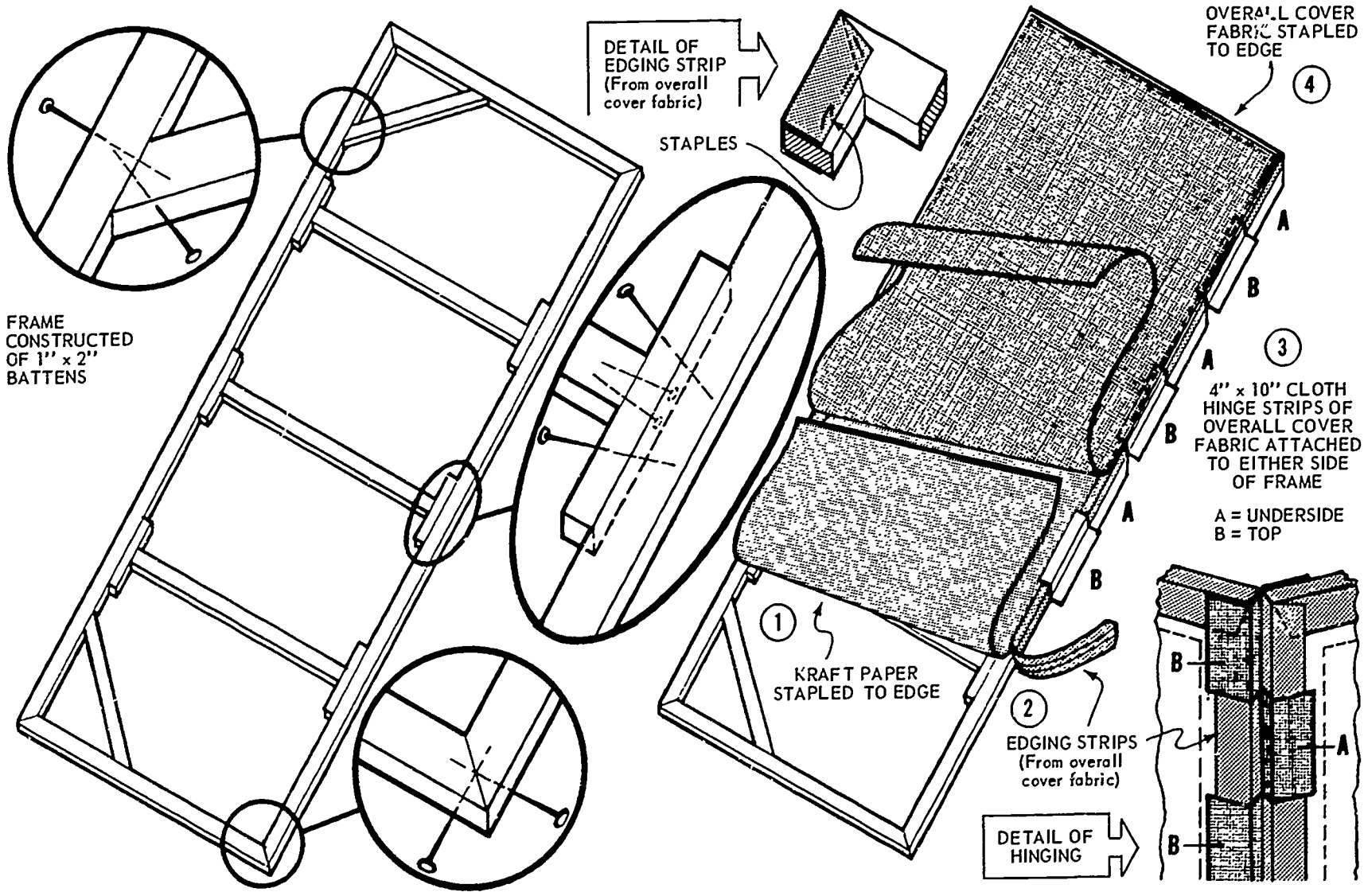


Illustration 1 – *How to construct the opaque folding screen set. This set consists of a series of light frames covered with textured fabric, and jointed with cloth flaps of the same fabric in the manner of the Japanese folding screen.*

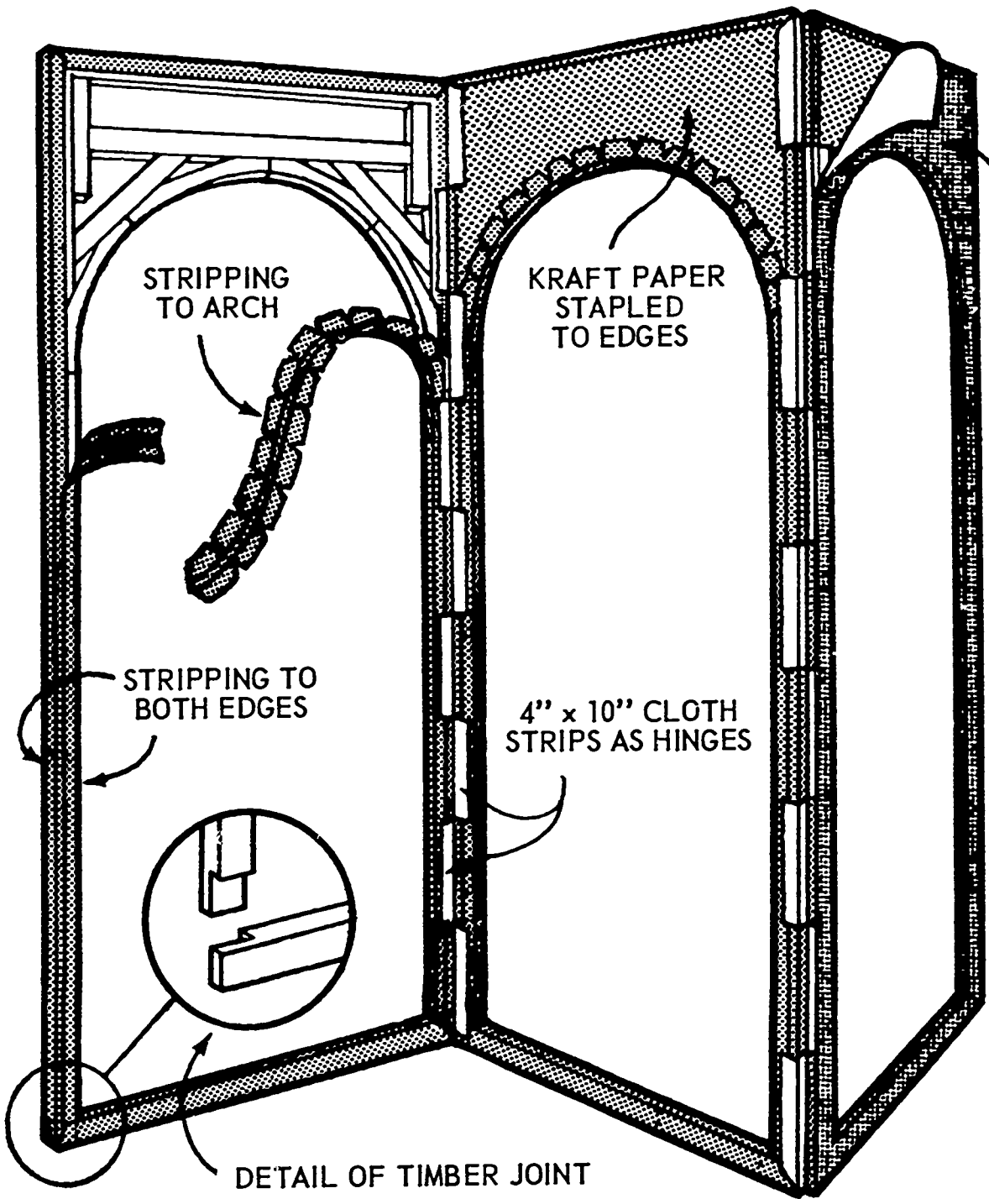


Illustration 2 – *The folding screen panel incorporating "open" construction. These too, are hinged with cloth flaps.*

Small screen sets may furnish backgrounds to playing areas. Next, combinations of opaque and open screens may create temporary arcades – Illus. 3, room interiors, and building exteriors. Third, a series of screens with arched openings may form a pavilion, a most useful three-dimensional unit of great stability, Illus. 4, 5.

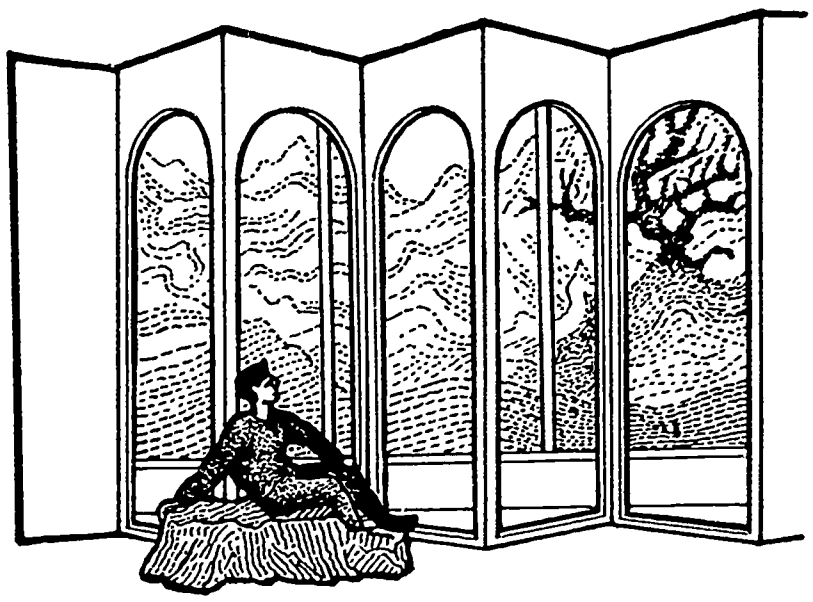
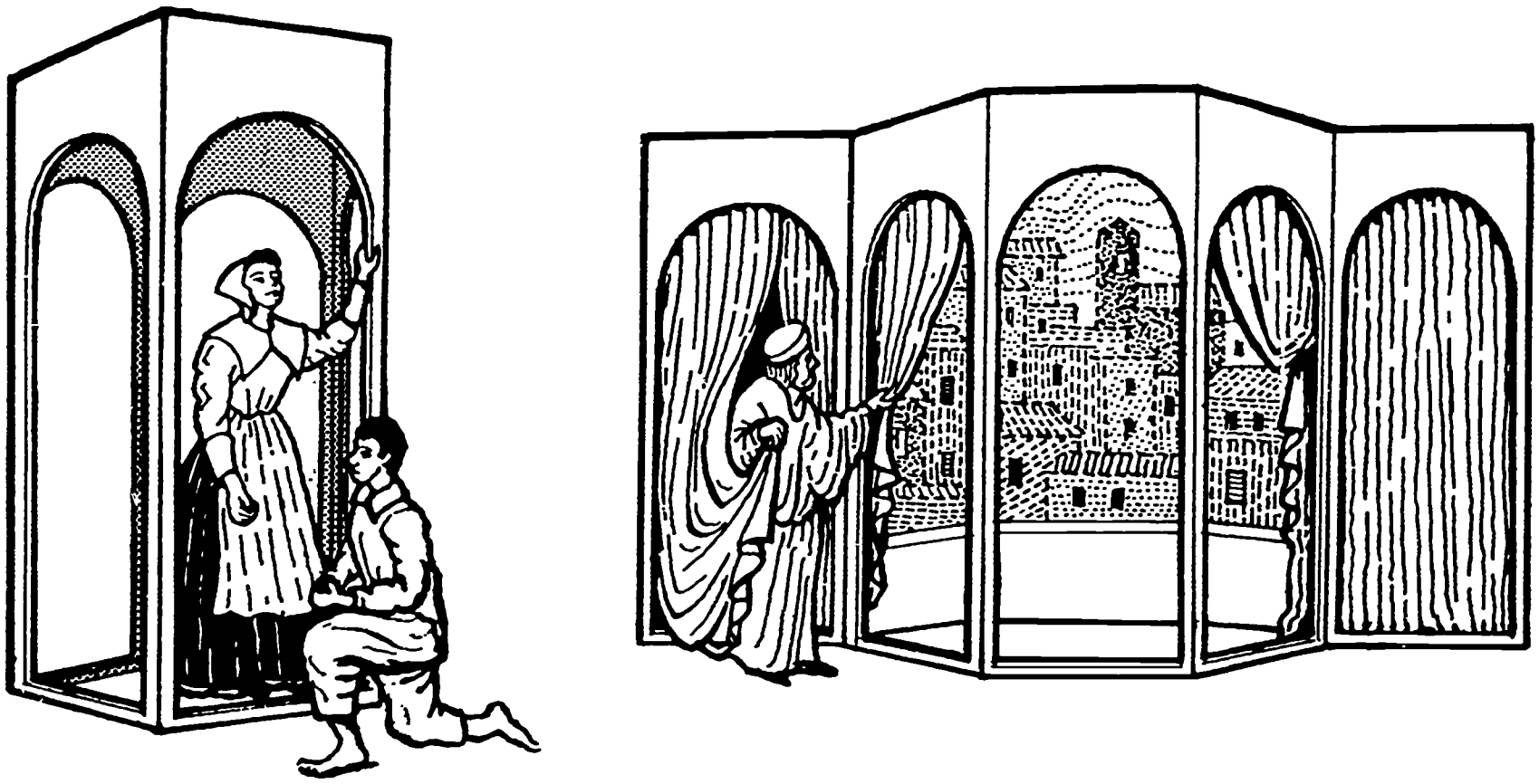


Illustration 3 – *Combination of opaque, translucent and open screens create temporary arcades, room interiors and building exteriors.*

Panels to be clamped together are built of frames of 1 by 2 inch wood strips turned on edge rather than flat, Illus. 7. The designer must arrange for groupings of panels, using the maximum number of L and T joints, Illus. 8. Strips of wood at right angles to the framing members are added where L and T joints are required for the seating of the C-clamps.

This construction technique does not lend itself to the conventional practice of muslin coverings which are later tightened by glue size and paint as the frames will be warped. However, painted muslin surfaces are not at all suitable to chamber stagecraft. They appear artificial to the closely seated audience. They do not blend well with the architectural environment.



Illustrations 4 and 5 – *A series of open screens may form a pavilion – a most useful three-dimensional unit of great stability.*

One series of folding screens may be joined to itself or another series with narrow (3/4" x 2") butt hinges, the pins of which have been removed and substituted for by nails of a smaller diameter for easy unlocking.

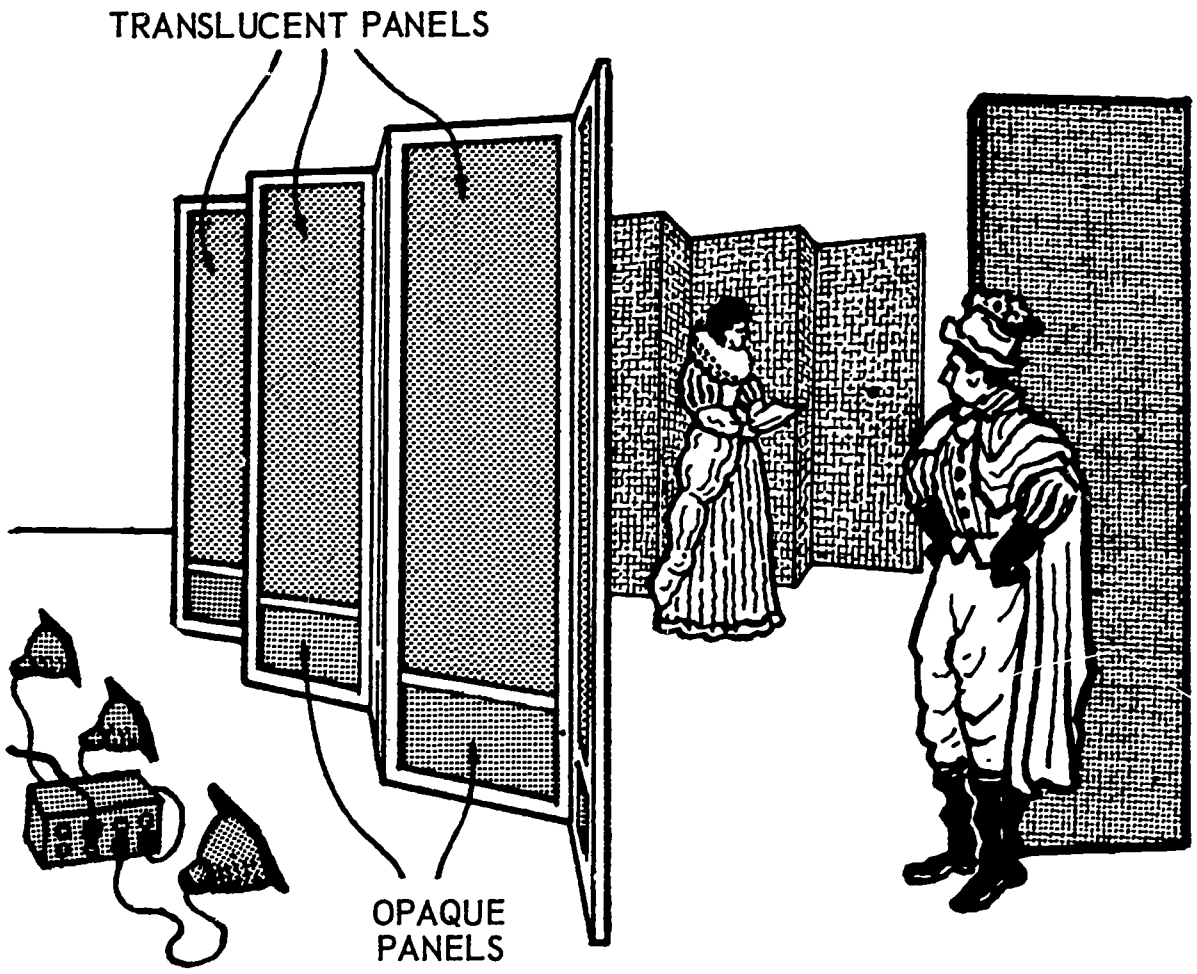


Illustration 6 – *Folding screens create necessary off-stage areas as well as sheltered access to the various playing areas.*

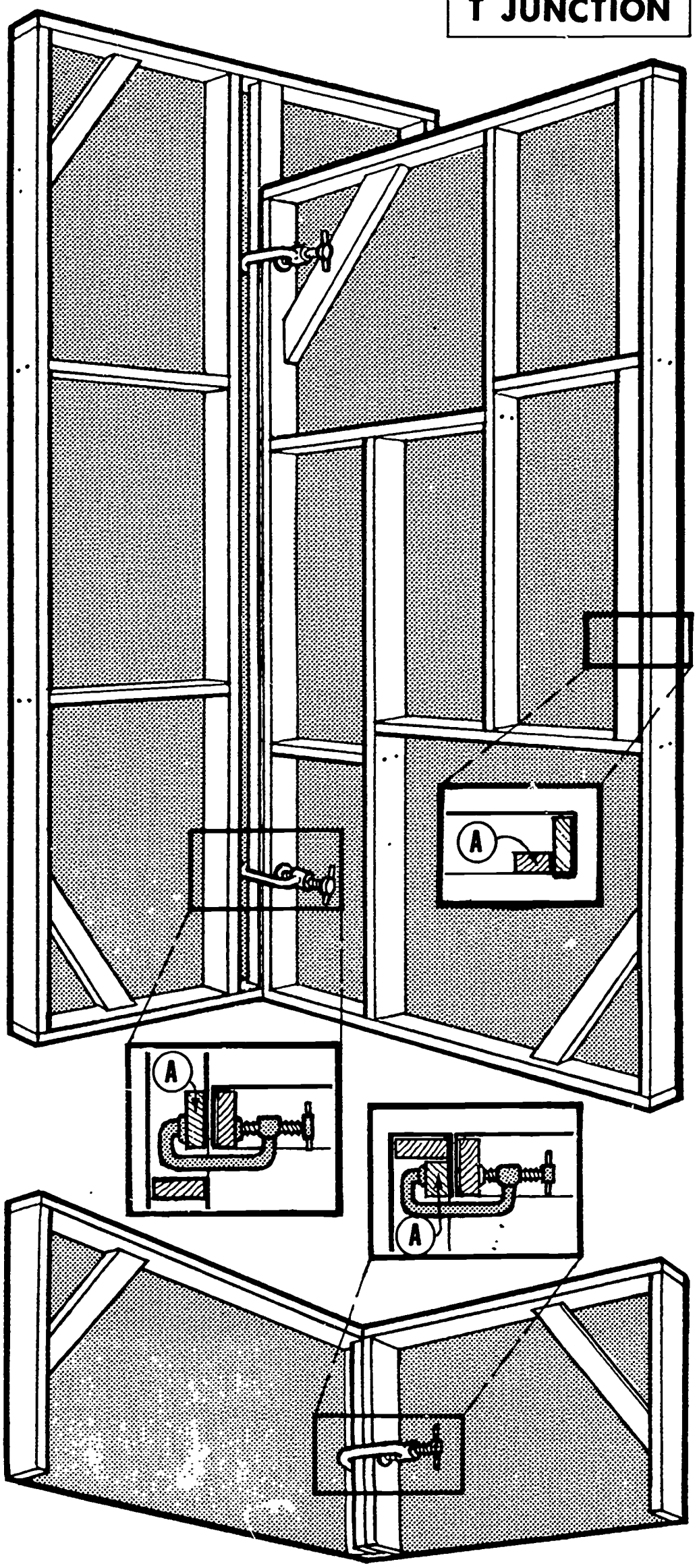
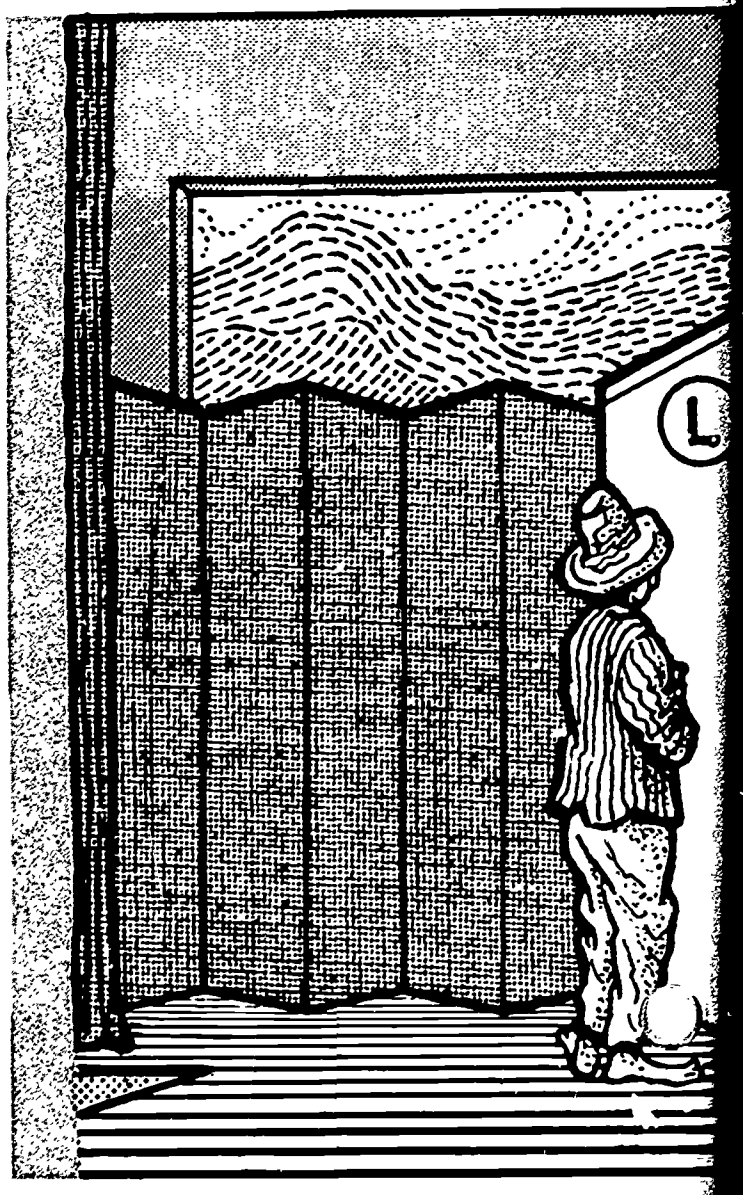


Illustration 7 – *Construction details of panels to be clamped together in "L" or "T" joints.*

Illustration 8 – *The designer must arrange for groupings of panels using the maximum number of "L" and "T" joints.*



Dyed fabrics, or textured fabrics dyed or sprayed are recommended for all theatre chamber scenery. These fabrics are applied over opaque undersurface materials and are attached by staples. Dyed burlaps obtained wholesale in large lots are inexpensive.

Panels for insertion into arcades and deriving support therefrom may be quite ambitious inasmuch as large doors can be swung and other practical features included. Another important panel form is the translucent screen unit, for coloring and image projection from the rear, Illus. 6, 9, 10, 11. Similar panels may be inserted in openings in pavilions and other open screen units, Illus. 3, 5.

The finest translucent projection is obtained by light passing into the fibers of high quality cotton dress fabric, such as Bates "Disciplined." However, this cloth does not prevent a line of sight to the lamp filament of the lighting equipment placed at ground level to the rear of the screens.

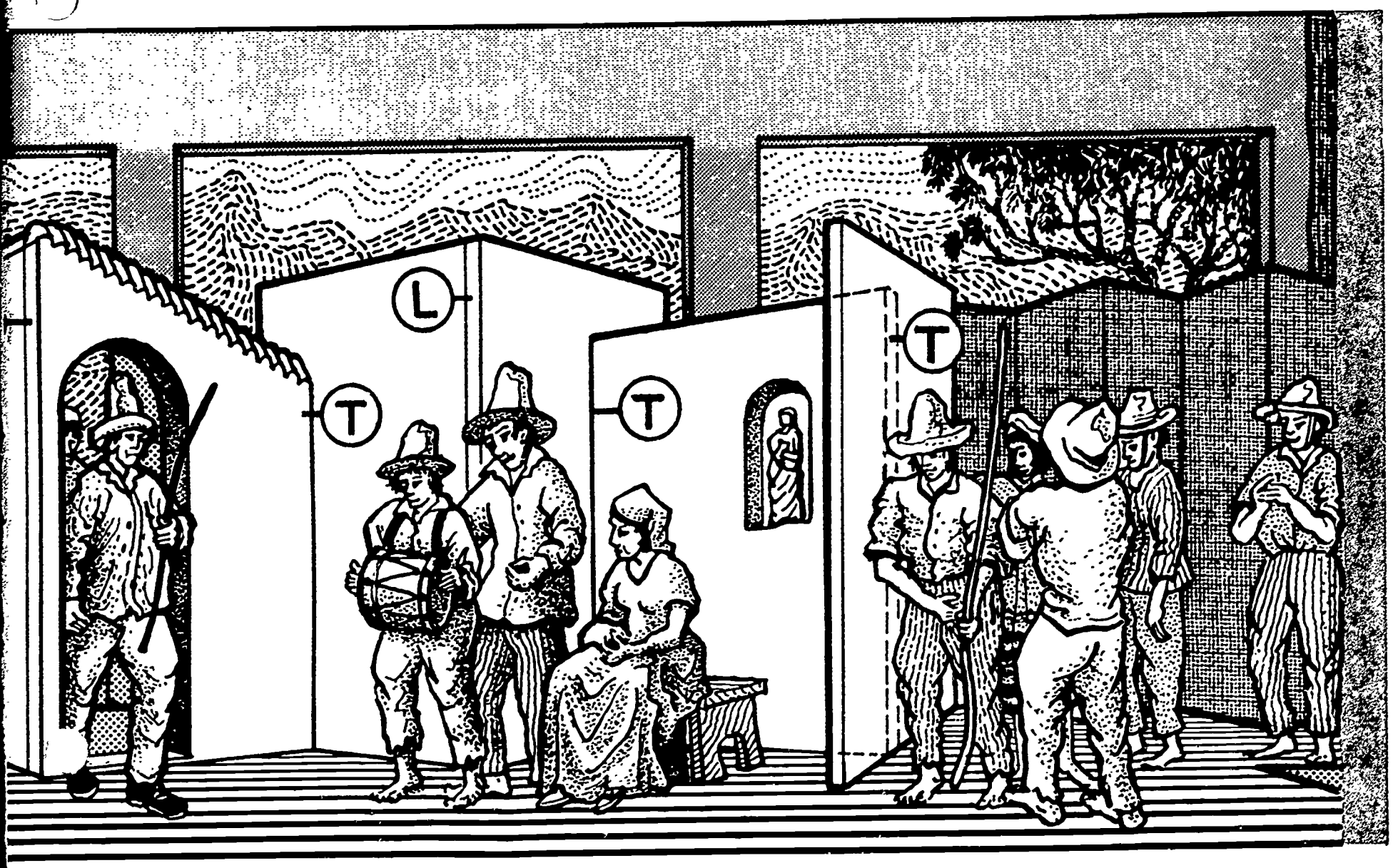
Opaque bottom sections must be designed into the panels, Illus. 3, 5, 6, 9, 10, 11, 12. Shower curtain material and the more expensive translucent plastic screens prevent such lines of sight, but these projection surfaces possess a glazed quality that is not as effective as the mat surface of the cotton fabric.

One method by which the projection of imagery is accomplished is a combination of floodlights upon the cloth and superimposed patterns of light created by cutouts through which light from the beam projection unit is passed.

These cutouts may be made in heavy wrapping paper which is then framed and placed parallel to the screens. These cutouts should be about thirty inches from the projection lamp, Illus. 10. Either the entire light beam may be colored at the projection unit or assorted color media may be attached to the cutout areas themselves, Illus. 14.

Another method of imagery projection is the preparation of silhouettes, Illus. 13. In this case the projector provides the basic screen illumination, while the floodlights provide the color fill in the shadow area. The use of screen wire, especially the 1/8 inch mesh, adds a gray factor to all colors, Illus. 13.

It is also possible to create images by applying lacquer, dye, or lamp dips to a sheet of transparent acetate, Illus. 15.



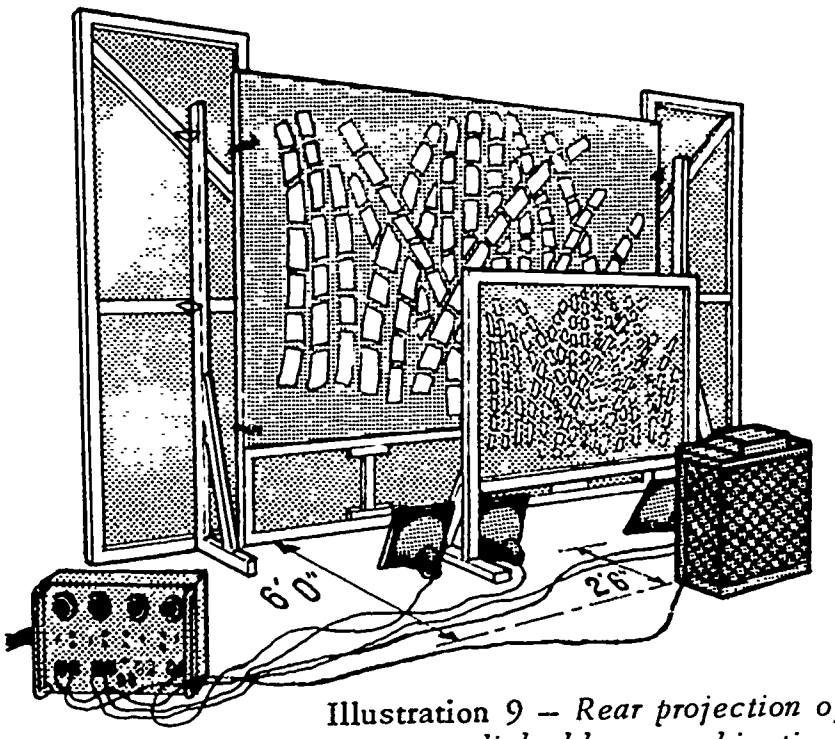


Illustration 9 — *Rear projection of scenery is accomplished by a combination of floodlights upon the panel cloth and superimposed patterns of light created by cutouts as shown in Illustration 10.*

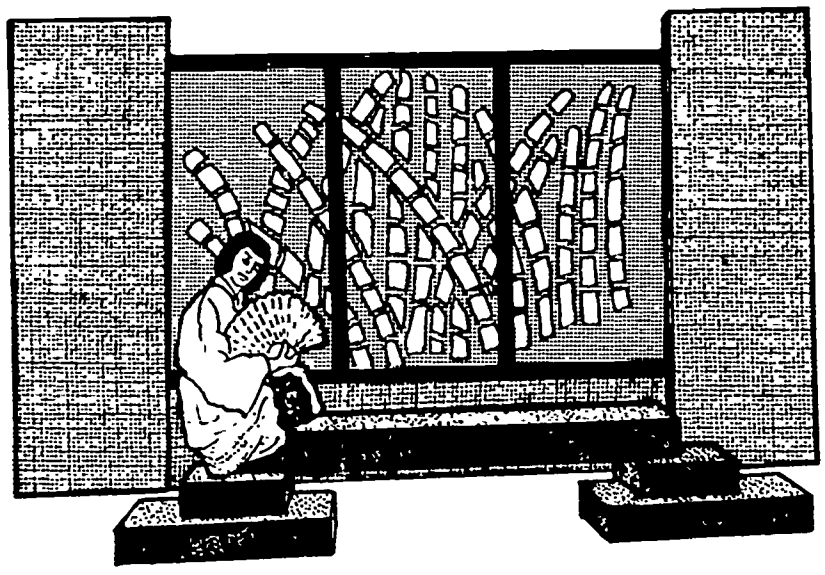


Illustration 10 — *Scenery projection cutouts can be made in heavy wrapping paper which is framed and placed parallel to the cloth screens.*

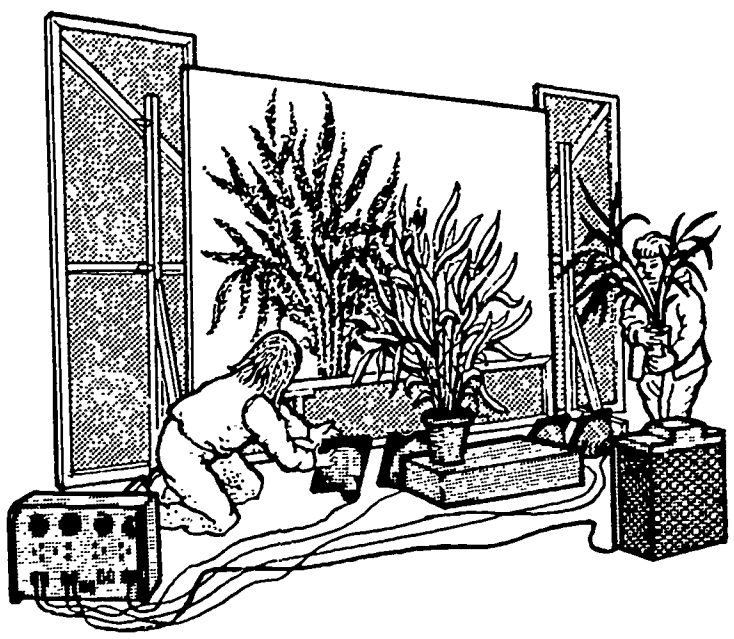


Illustration 11 — *Plants or other objects may also be used for scenery projection.*

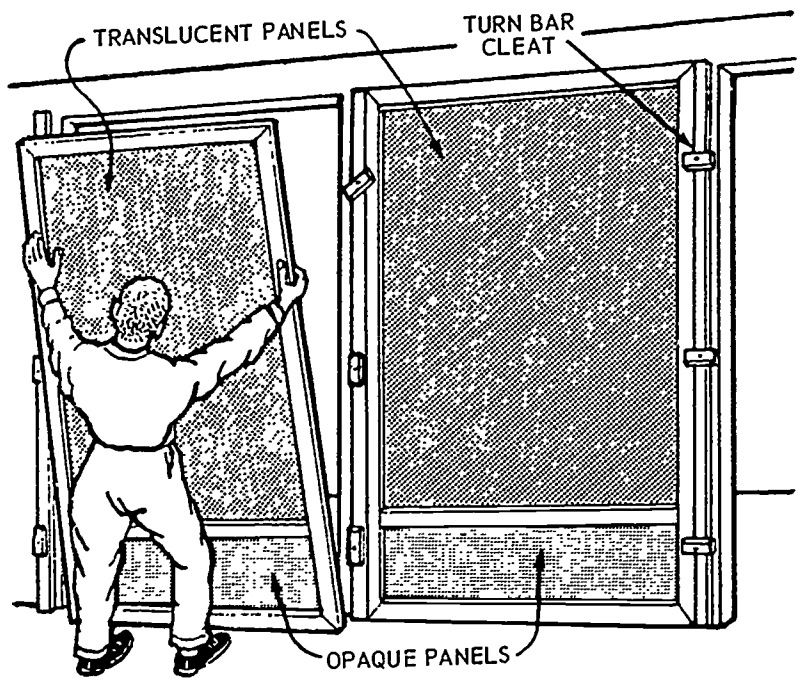


Illustration 12 — *Here we show how to insert panels in openings in partitions and other open screen units.*

Lighting for the chamber theatre is simple, if a few basic rules are kept in mind:

- Control equipment is equally as important as are lighting instruments.
- Shadows of actors are softened by the use of roughly textured scenic covering materials.
- Multiple shadows of actors may be reduced by using a minimum number of frontal lighting units and a maximum number of accent units from the sides and rear.
- The fewer the sources of illumination, the more dramatic the scene will appear.
- Lighting beams should be soft-edged, to avoid sharp cut-off lines. Architectural and scenic surfaces should be similar in texture for the same reason.
- Light falling on dyed or rough material appears more pleasant and realistic than light falling on smooth, painted surfaces.
- Scenery which possesses radiance in itself, through the use of translucent screens, windows, lanterns and concealed floodlighting, reduces the amount of light required for the actors.

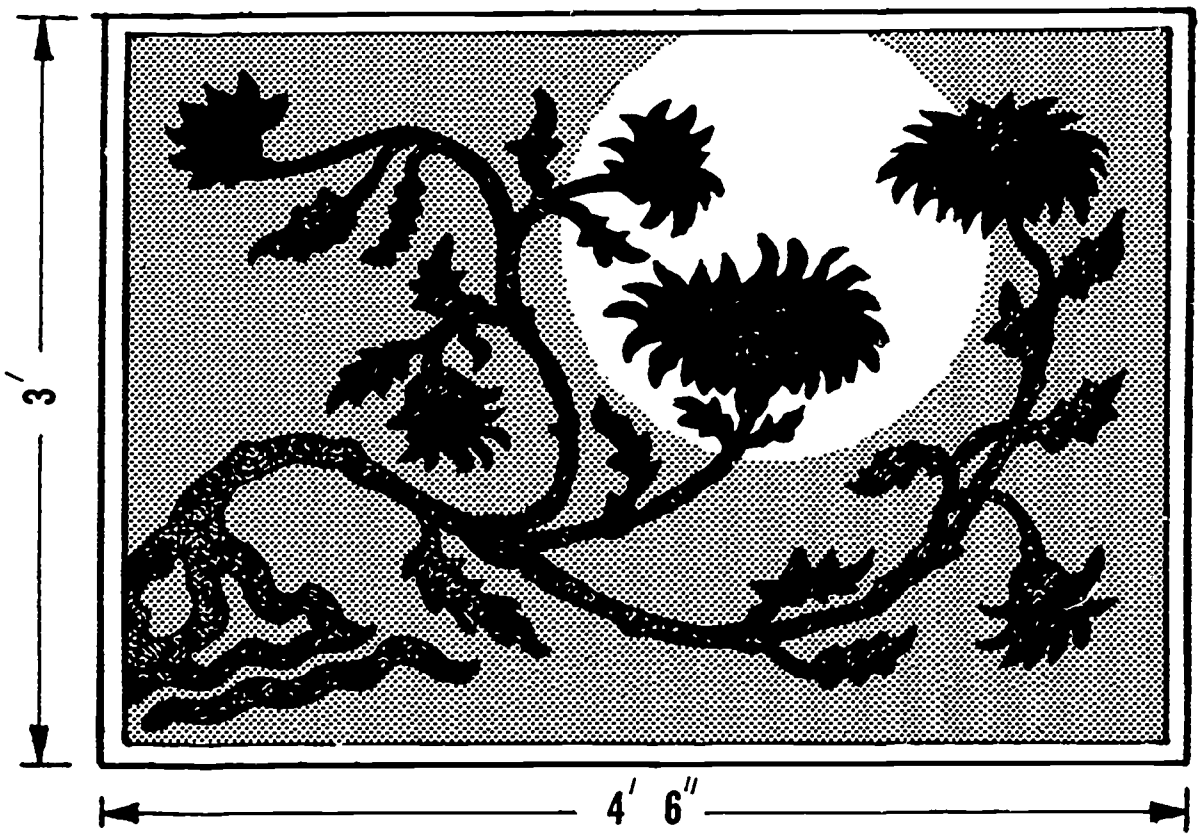


Illustration 13 – *1/8" screen wire mesh may be used for a silhouette projection image. Disc of mesh removed forms moon.*

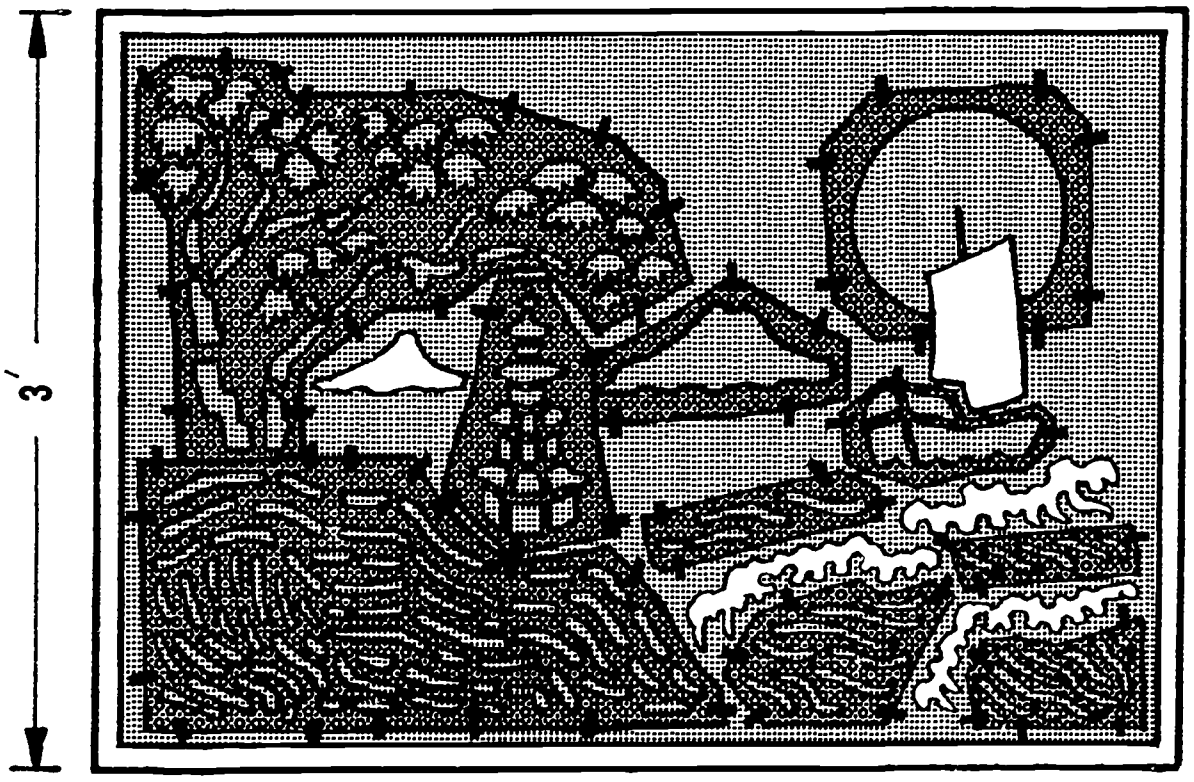


Illustration 14 – *Kraft paper cutouts in projection image may be colored by assorted color media attached to cut-out areas themselves.*

Illustration 15 – *It is possible to create projection images by applying lacquer dyes or lamp dips on a sheet of transparent acetate.*

STAGE AND AUDITORIUM PLANNING SERIES ARTICLE NO. 7

IS ANO[illegible] SERIES O[illegible] WRITTEN
G AUTH[illegible] THE FIE[illegible] RE DES[illegible]
AFT FOR[illegible] ON TO [illegible] ENGINE[illegible]
ON THEA[illegible] RS AND[illegible] S. THE H[illegible]
MPANY [illegible] THE I[illegible] CONTA[illegible]
GLE WI[illegible] SE WHO[illegible] ING NE[illegible]
O ARE [illegible] EXISTI[illegible] AND V[illegible]
RING TH[illegible] OF NEW[illegible] NAL EQ[illegible]
N THE [illegible] E ARRA[illegible] SPACE [illegible]
TISFACT[illegible] ENT. TH[illegible] EERING [illegible]
LL BE [illegible] ENDER[illegible] WRITE [illegible]
COMPA[illegible] 55 WES[illegible] VENUE, [illegible]
OIS.