

# A RECITAL HALL IN PROVINCETOWN

by Stephanie Wingfield

B.S.A.D. Massachusetts Institute of Technology, 1982

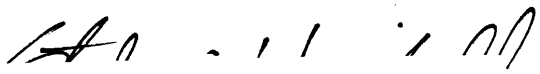
Submitted to the Department of Architecture in partial fulfillment of the requirements of the Degree Master of Architecture of the Massachusetts Institute of Technology.

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# ABSTRACT

A Recital Hall in Provincetown

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Submitted to the Department of Architecture on 30 January 1987 in partial fulfillment of the requirements for the Degree of Master of Architecture.

This is a design thesis. The project is a recital hall seating one hundred twelve people in Provincetown, Massachusetts. The most important issues in the design process were: 1) how to spiritually prepare the listeners and musicians for a performance; 2) what polysensory qualities must the space have in order to support that preparation; and 3) what physical relationship between stage and audience best promotes an intimate exchange between performer and listener. Economic constraints usually preclude these issues from becoming serious design considerations for most contemporary concert halls. The absence of this kind of consideration typically leads to undesirable consequences for the audience, the performer(s), and for the music being played. This project proposes an alternative.

Thesis Supervisor: Imre Halasz  
Title: Professor of Architecture

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# INTRODUCTION/BACKGROUND

This thesis is a synthesis of my experiences as a musician and as a designer. I have been a cellist for fourteen years and an architecture student for six. Having a background in music made some design concepts easy to understand. Silence bears music much in the same way space supports form. Scales are analogous to building systems. Whole notes, half notes and quarter notes are comparable to walls, panels and columns. Improvisation, theme and variation, rubato (slack) and rhythm are all musical concepts which are parallel to those in architecture. However, possessing a vague, intuitive grasp of the relationship between music and architecture wasn't enough for me. I wanted a more comprehensive understanding which could directly explain and transfer itself to physical form.

The search for more connections led me to many conversations with composers and artists, to writings by philosopher Susanne Langer and composers John Cage, Karlheinz Stockhausen and Pierre Boulez. Although more associations and connections were certainly made, they were ultimately unsatisfying for me because the act of making the connections reduced each field to highly abstract, intellectualized concepts.

In the midst of the search for similarities, the fact was overlooked that a musical idea and a musical form are identical, but an architectural idea is a far cry from an architectural form. It is not

possible to truly experience a space, with all of its inherent strengths and weaknesses, until it is actually built and inhabited. On the other hand, a piece of music is often 'heard' first. The composer hears it before s/he writes it down. The performer sees, hears and feels it before playing it. Of course, hearing a piece in one's head is different from hearing it live, but the two sensations are much more similar to each other than, say, the feeling of looking at a model to that of actually being in a space. The products and processes in architecture and music are very similar, but they are also vastly different.

To continue the search for some ultimate, theoretical connection between architecture and music would, for me, be a phenomenal waste of time. The time spent playing and/or designing has been and will continue to be much more rewarding. Architecture and music aren't any more related to each other than any art form is to another. They are linked, along with dance, painting, literature, etc. by the fact that they are all media created by a basic human need for self-affirmation through self-expression. Humanity is the connection, not theory.

Dismissing a theoretical approach to architecture and music brings me back to the mundane world of simply being an architect or a musician, coping with the problems common and particular to each field. Both are highly skilled yet dismally low-paying professions.

The very culture which supports progressiveness in music and architecture is also the one which often insists upon the degradation of its architects and musicians. As a result, many musicians and designers become, over the course of their careers, unable to sustain the expressive energy which brought them to their field in the first place. They gradually bring superficial, exaggerated, and affected sensibilities to their work instead of honest expression. Many factors contribute to this kind of demise, and the particular built environment in which a musician must work is one of them.

As twentieth century economic demands for large audiences have greatly increased the average size of concert halls, the contemporary musician is faced with the dilemma of how best to deliver a satisfying live performance. Consider, say, the inappropriateness of a string quartet performing Haydn on baroque instruments in a concert hall holding three thousand listeners. It is doomed from the start. The emotional impact, as well as a visual sense of involvement with the music is diminished considerably.

Even a cursory historical study of concert rooms shows that early composers were very conscious of the spaces for which they were composing.

"Purcell distinguished between the style of music he wrote for the Royal Chapel and the music he wrote for Westminster Abbey; both styles differ from that of his theatre music, written for performance in completely "dead" surroundings. The forms used by Mozart and Haydn in the orchestral and chamber music are identical, but the details of style (counterpoint, ornamentation, rhythm, the layout of chords and the rate at which harmonies change) vary according to whether they were writing room-music, concert hall music, or street music."<sup>1</sup>

Such sensitivity to the relationship between music type and space has been largely lost on contemporary musicians and concert-goers. Media technologies facilitate sensationalized, mass viewing events for millions of people at a time. Listening events shared by a moderate-sized group of one hundred people or less are not readily available to the culture at large, unless in the context of smoke, chatter and the din of conversations.

My desire to design a recital hall specifically for the performance of chamber music is in direct response to this state of affairs.

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<sup>1</sup> Michael Forsyth, Buildings for Music, p. 77.

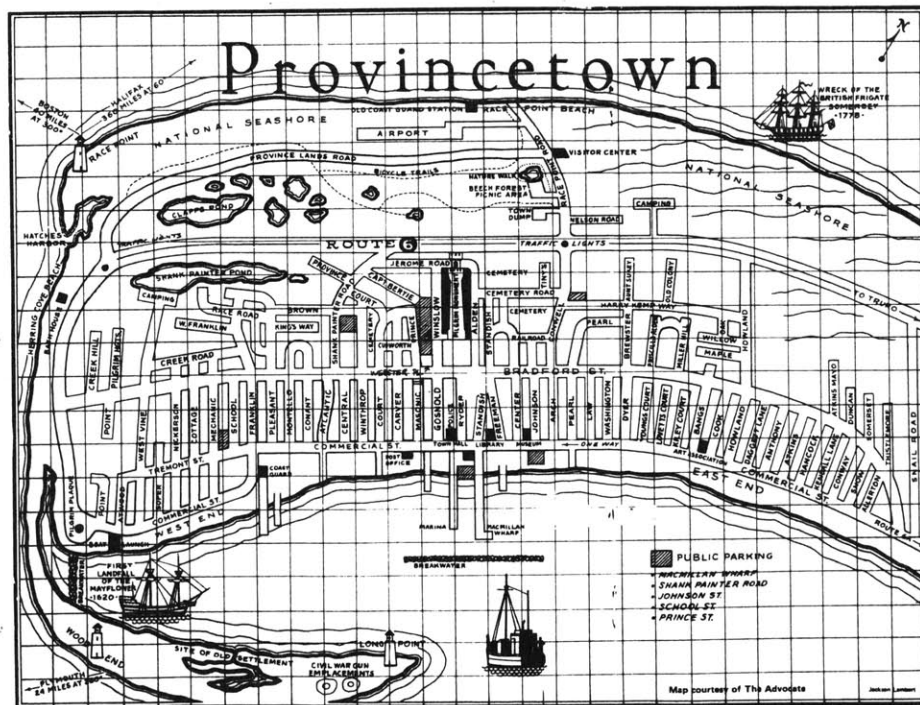


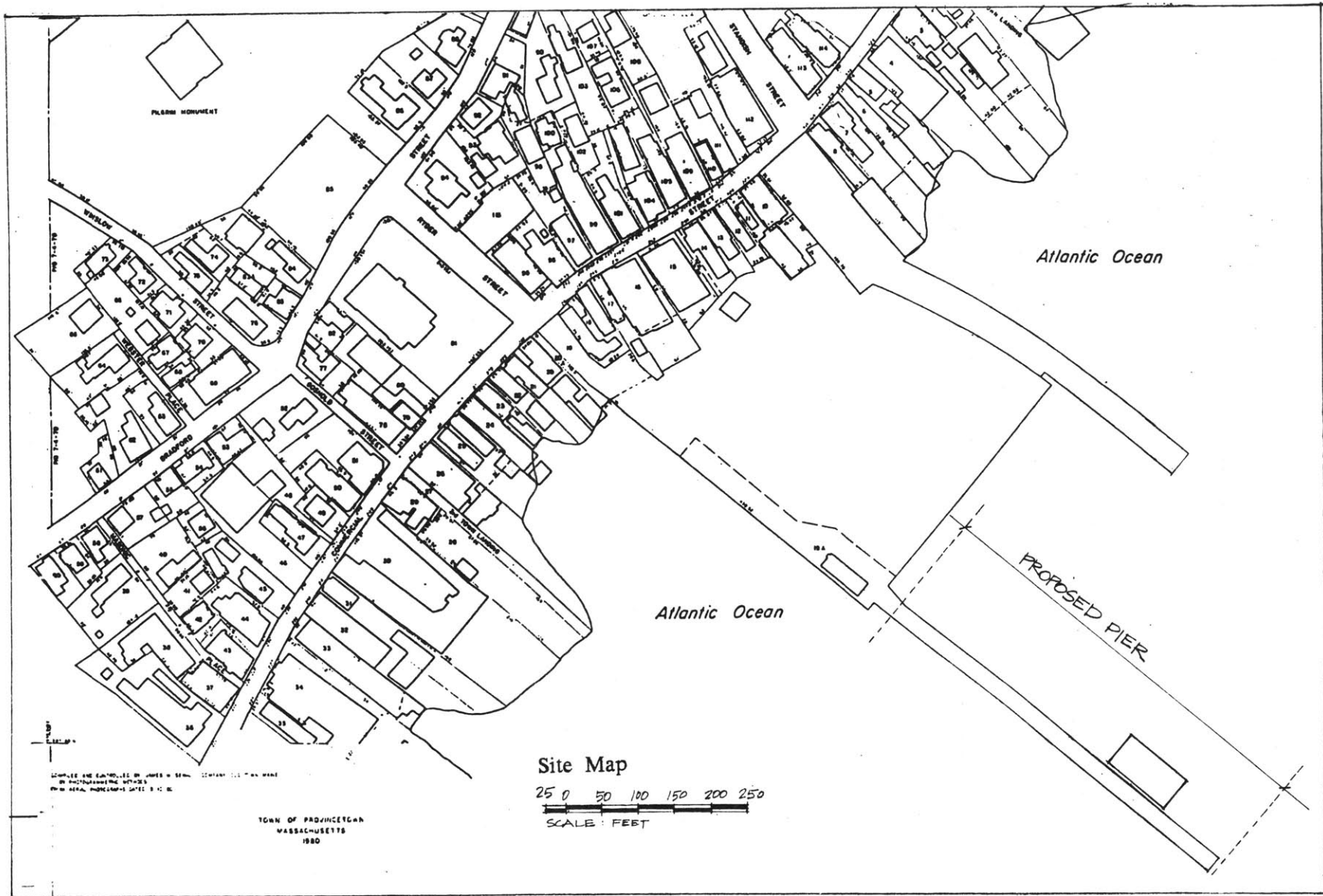
I am completely aware of the fact that no space, no matter how warm, intimate and inviting it may be will ever cure depression or stagefright, or miraculously sensitize a listener to nuances of expression s/he inherently cannot feel. The capacity for emotional candor of course varies with each performer, and there is no way of knowing how many people are really listening to the music instead of merely hearing it. One never knows. But I believe that creating a more responsive setting for a performance will help. It begins to put the emphasis of concertizing back where it belongs, on the music and its magic instead of on profits and a capacity crowd.

# SITE DESCRIPTION

Provincetown, Massachusetts is an old New England fishing village at the tip of Cape Cod. It is the site of the first landfall of the Mayflower in 1620. Provincetown used to be an important port for the northeast whaling industry, and is now an artists' colony as well as a popular summer resort. The area of Provincetown is 1 X 3 miles. Its primary organization is defined by Commercial Street, which is parallel to the coast and runs east/west along the entire length of the town.

The recital hall is at the end of a proposed six hundred foot pier which extends from the center of Provincetown into Provincetown Bay.

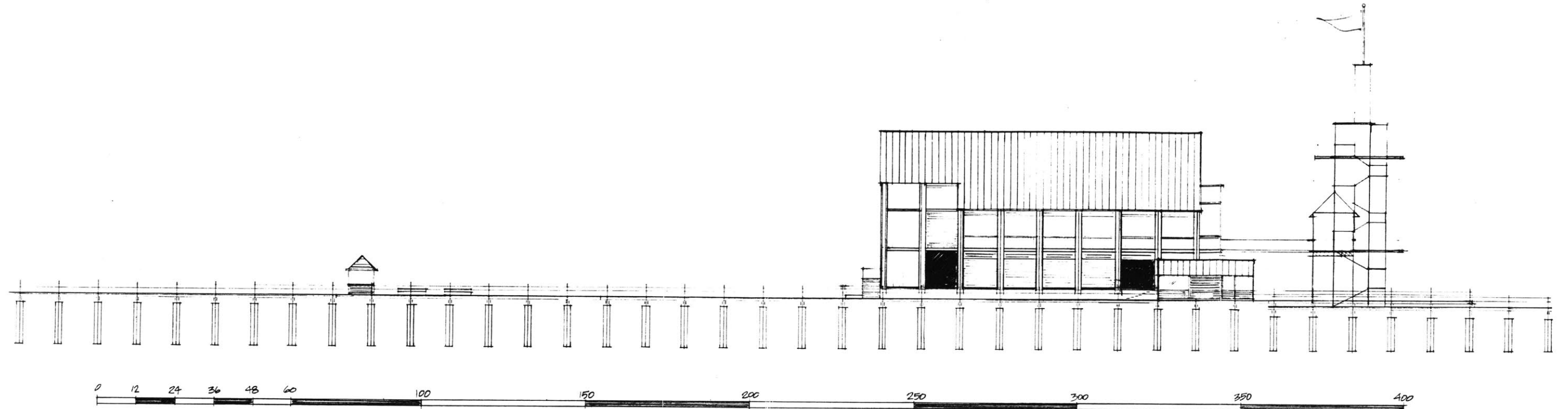




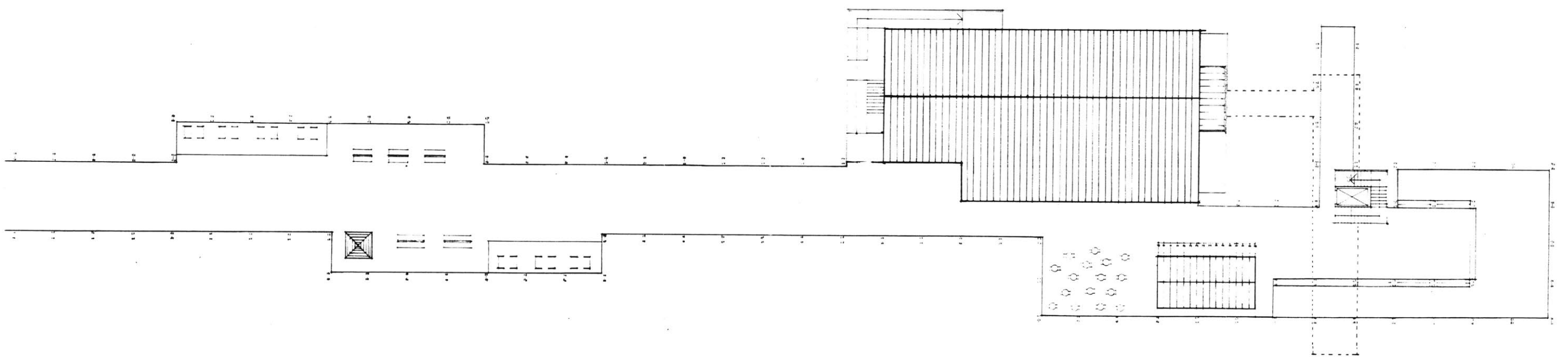
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 IN PROVICETOWN, MASSACHUSETTS  
 FROM AERIAL PHOTOGRAPHS DATED 1978

TOWN OF PROVINCETOWN  
 MASSACHUSETTS  
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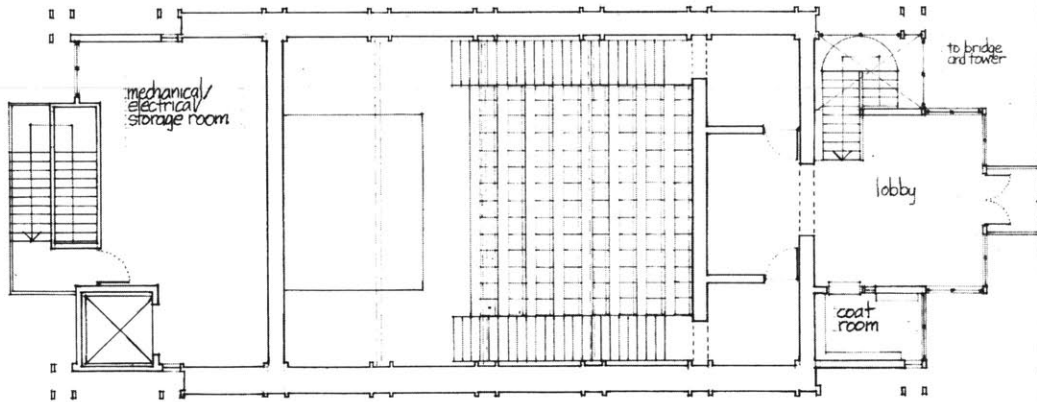
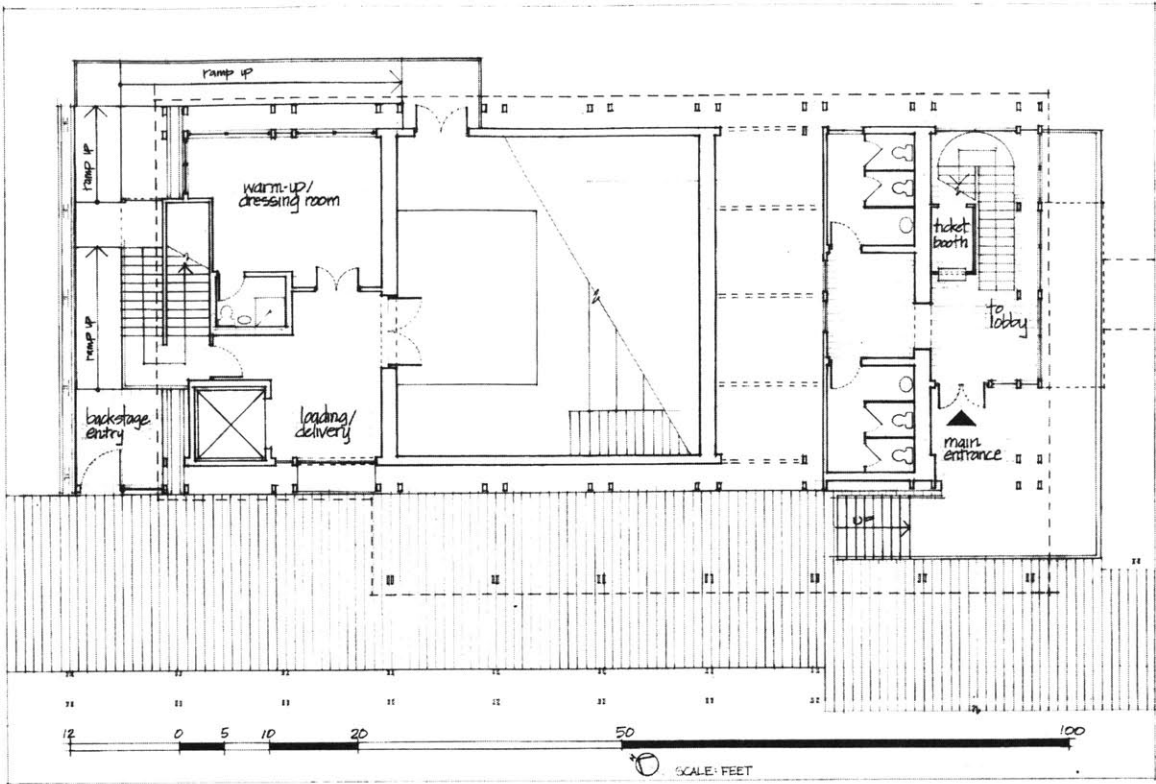
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Site Elevation

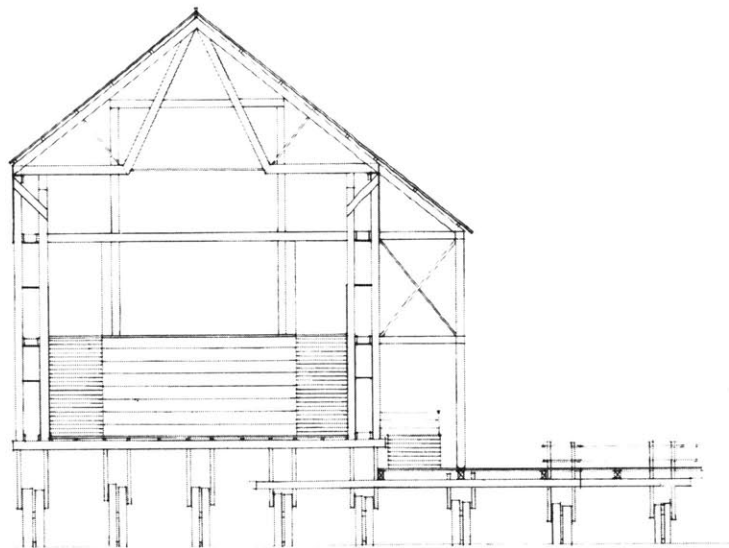
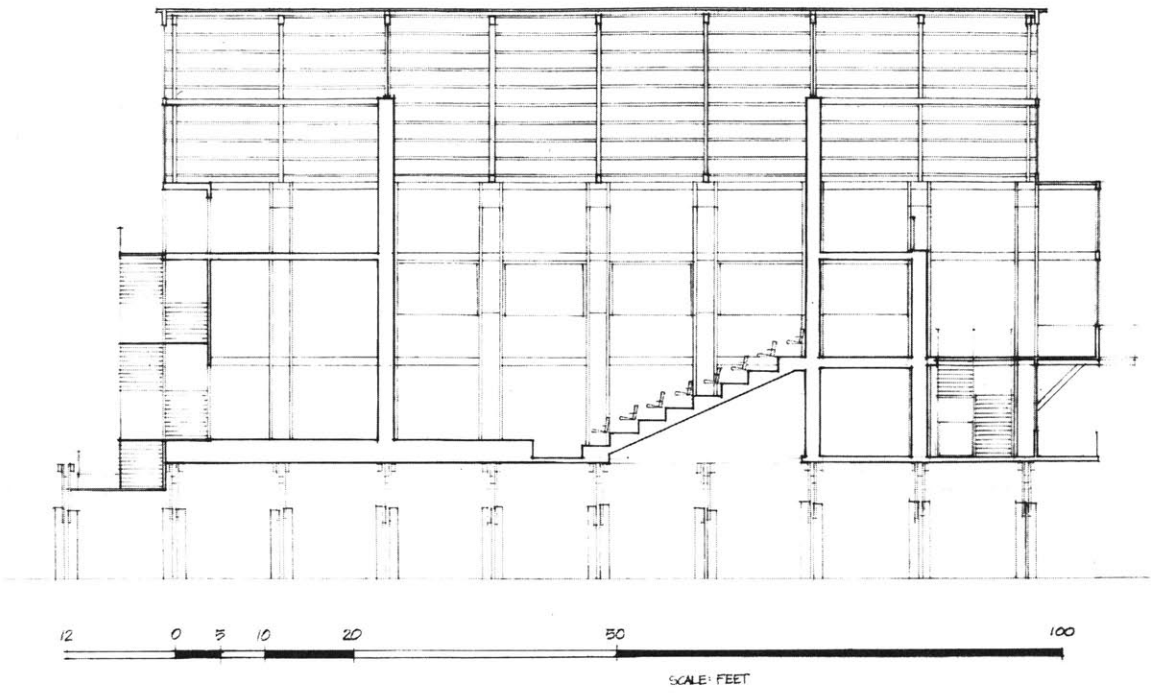


Site Plan



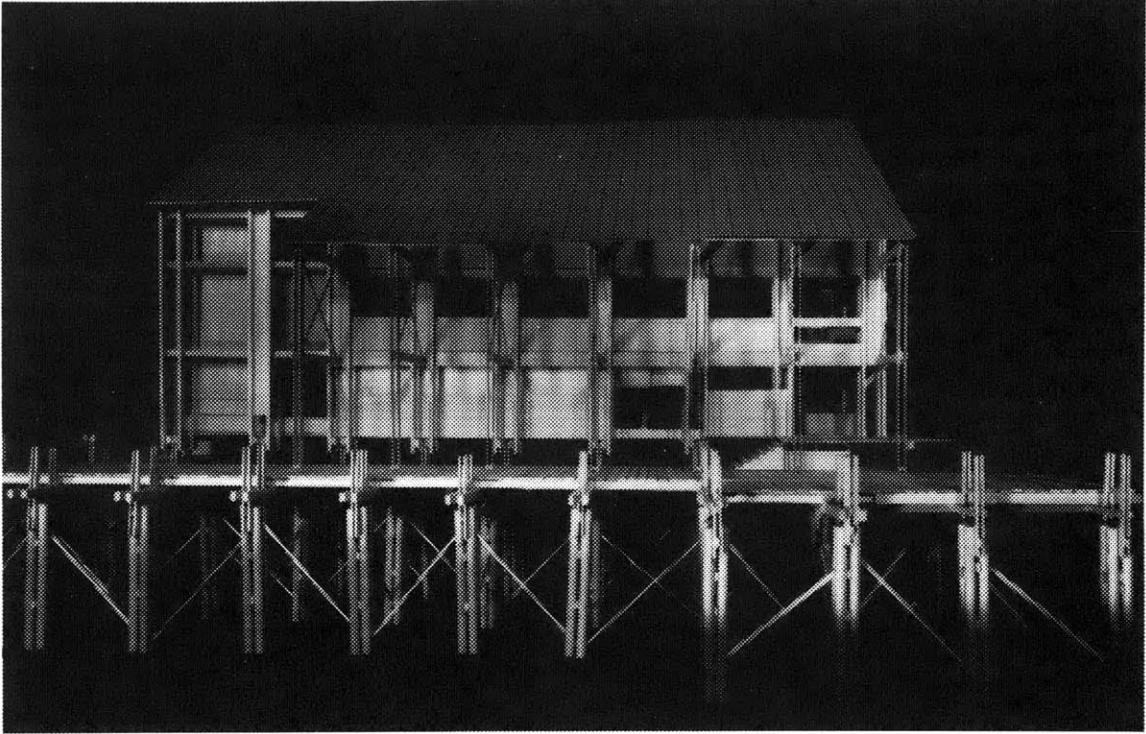
Plan at pier level

Plan at lobby level



Longitudinal section

Cross-section

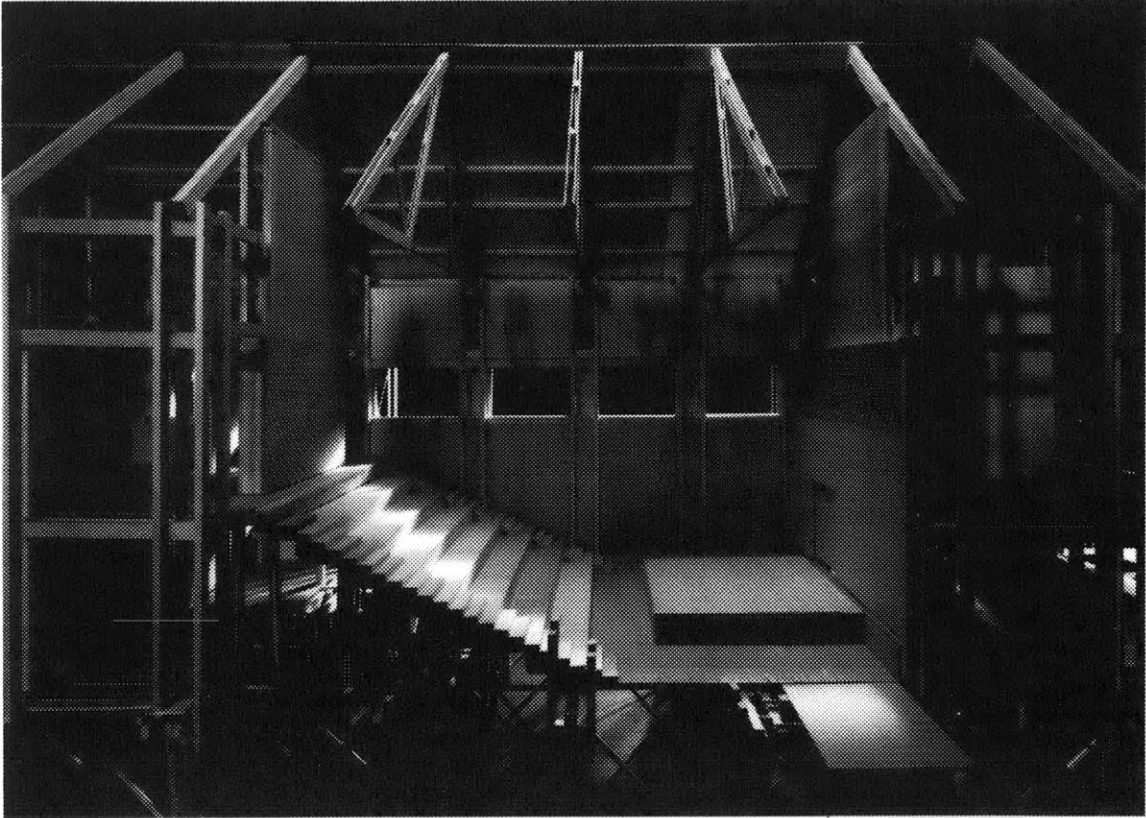


South elevation, model

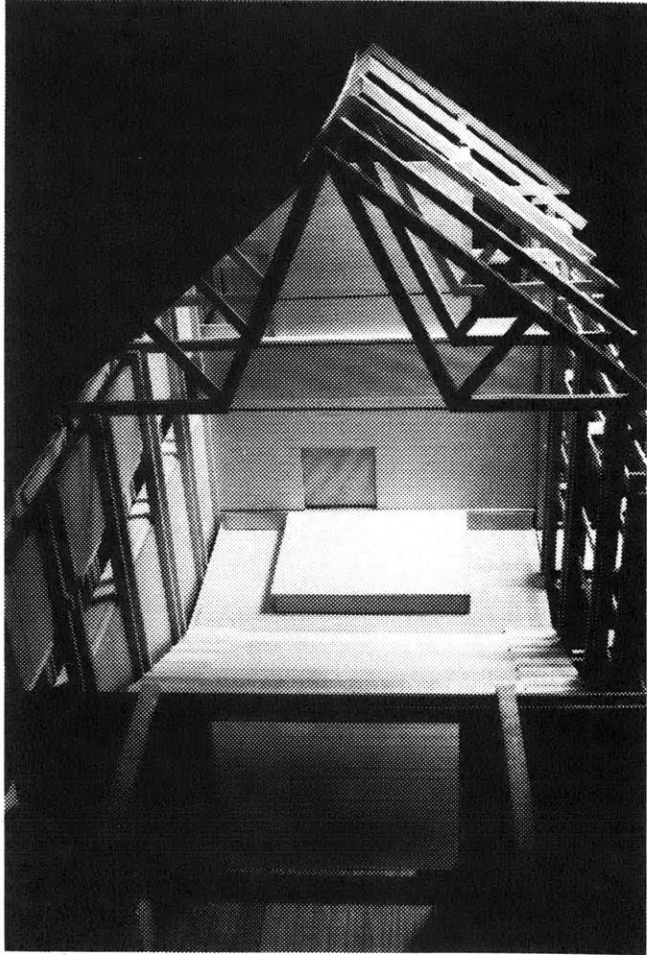


Night view of south elevation, model

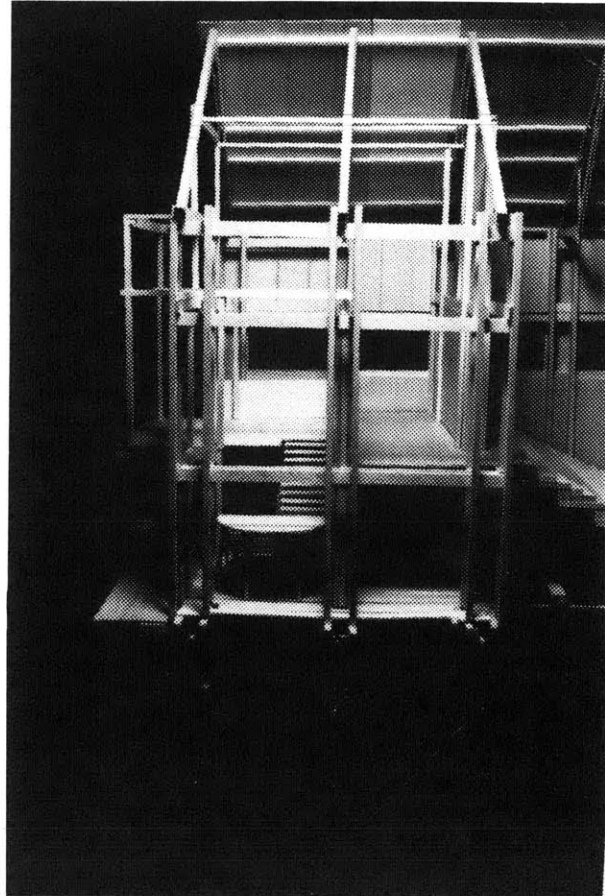




Interior view, model



Interior view from lobby, model

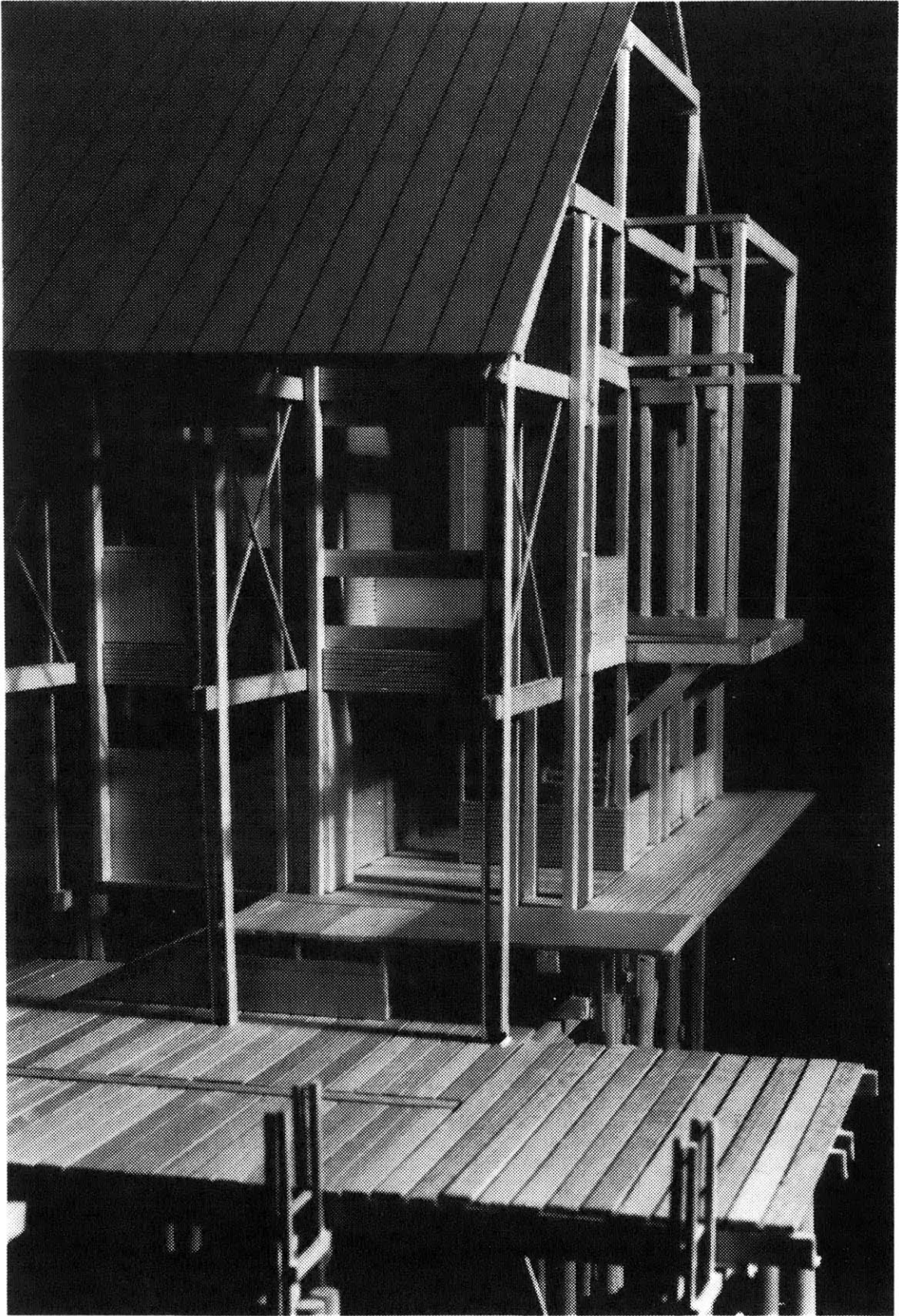


Staircase and lobby, model

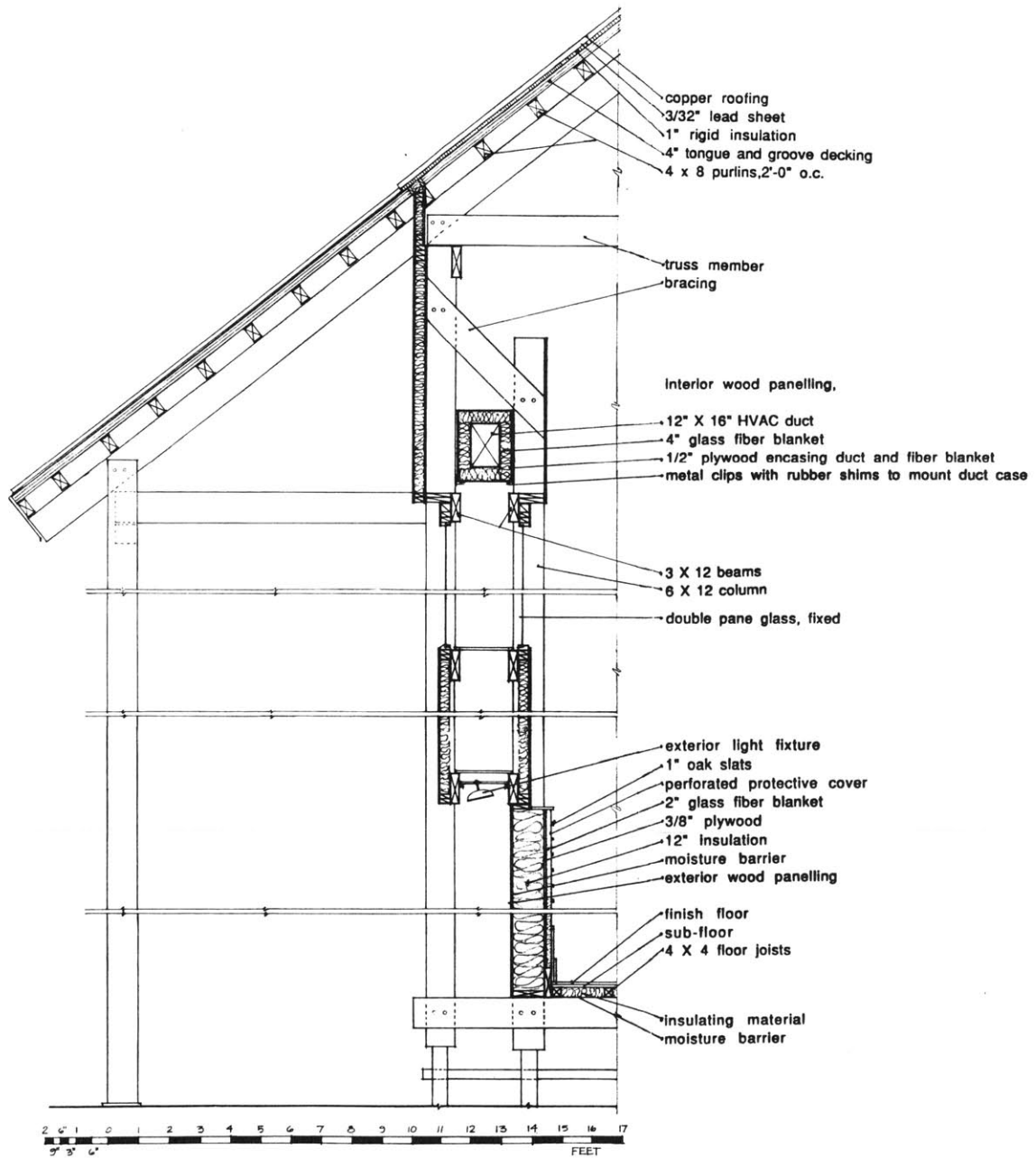


Lobby, model

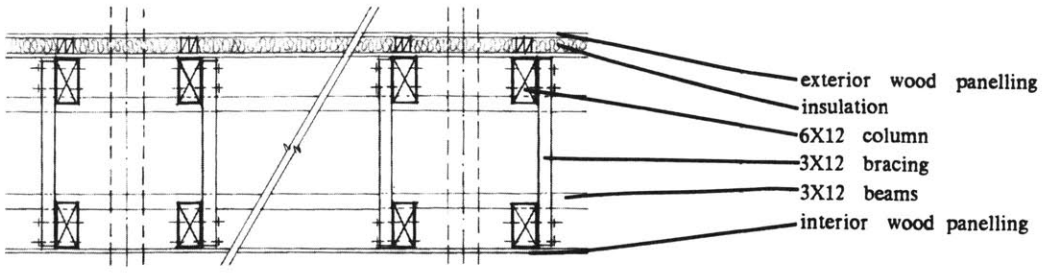




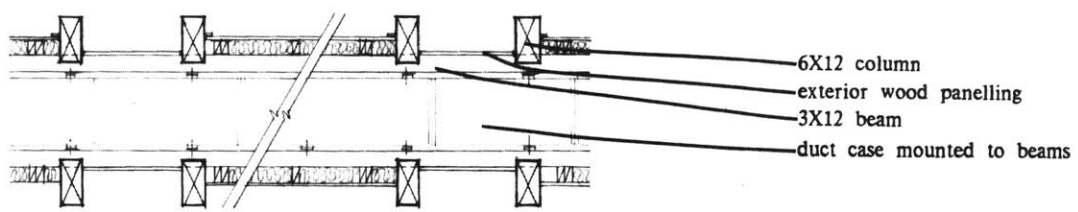
Detail at entrance, model



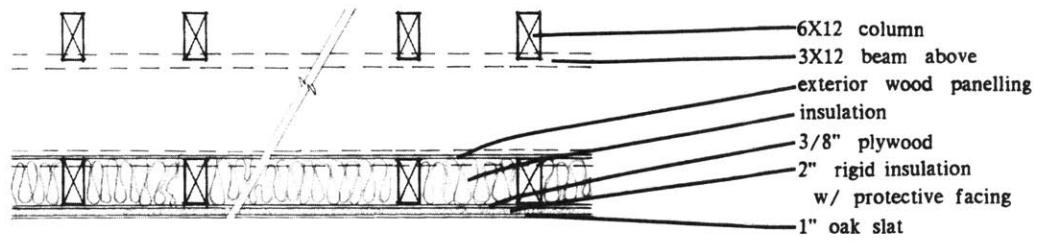
Wall Section



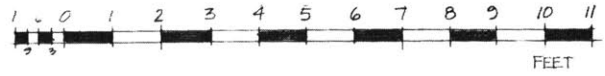
Typical upper wall detail, plan



Typical mid-wall detail, plan



Typical lower wall detail, plan



# REVERBERATION TIME CALCULATIONS

Volume = 65,284 feet<sup>3</sup>

Number of seats = 135 maximum capacity (112 fixed, 23 free)

Reverberation Time = 1.62 seconds, unoccupied; 1.51 seconds, occupied

Using formula  $RT = .05V/A$ , where  $V$  = volume

$A$  = total absorption =  $\sum S\infty$

$\infty$  = coefficient of absorption at  
500 cycles per second

$S$  = surface area of material\*

	Material	Area S (ft <sup>2</sup> )	$\infty$ (500 cps)	$S\infty$
Ceiling:	wood on joists	2335.0	.10	233.5
Side Walls:	3/8" wood panelling	1440.0	.17	244.8
	glass	456.0	.10	45.6
Back Wall:	3/8" wood panelling	734.4	.17	124.8
	6" glass fiber blanket with perforated facing	489.6	.80	391.8
Front Wall:	3/8" wood panelling	1216.0	.17	206.7
	glass	304.0	.10	30.4
Floors:	cloth seats with perforated backing	837.0	(unocc.) .77	644.49
			(occ.) .80	669.6
	wood on joists	922.0	.10	92.2
	25 people in free seating		(1person) 4.75	118.75

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TOTAL ABSORPTION = (unoccupied) 2014.19  
(occupied) 2158.05

So, when occupied,  $RT = .05(65,284)/2014.19 = 1.62$  seconds  
and when occupied,  $RT = .05(65,284)/2158.05 = 1.51$  seconds

\* formula and coefficients of absorption are from Time Saver Standard for Architectural Design Data, ed. John H. Callender, McGraw Hill, 1974. Acoustics chapter by Robert E. Newman and staff of Bolt, Beranek and Newman, Inc.



# CONCLUSIONS/ASSESSMENTS

The act of walking along the pier, away from the clamor of Commercial Street, is meant to spiritually prepare the listener and the musician for the performance about to take place.

The room itself is very simple and contained.

The frontal orientation of audience to stage comes from the fact that acoustical instruments project focused and directional sound, and that most people wish to sit in front of the stage. There is more of a chance for an intimate exchange to take place if the listener is in a face to face relationship with the performer. Experiments with other orientations yielded a large number of seats which would be visually and/or aurally unsatisfying. The frontal orientation and steepness of the rake, along with an optimal reverberation time of 1.5 seconds, ensure clarity of sight and sound for each listener. The non-fixed seating is on the floor area around the raised stage. It is wheelchair-accessible.

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