POLECAT RIDGE
A MUSICIANS RETREAT/RECORDING FACILITY

TO FULFILL THE REQUIREMENTS
FOR ARCHITECTURAL THESIS
BALL STATE UNIVERSITY
COLLEGE OF ARCHITECTURE
JOHN HARTLEP
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INTRODUCTION
OPERATION

The retreat would operate primarily on the activity of the retreat. However, there would also be limited commercial users from the local area. The recording artist and his entourage, which would include fellow musicians, production staff and traveling companions or friends, would be housed within the retreat housing and given 24-hour access to one of the studios. Library and rehearsal areas would be accessible on a regular basis such as 7 a.m. to 10 p.m. daily.

The scheduling of studios would be such that the recording artist could have extra time above what was scheduled if necessary. That is, a few days would be used as buffer between schedules. This buffer if not needed could be used by the commercial user on a day to day basis.

GOALS

The retreat in essence is an artists' retreat; the artist in this instance being the recording artist. The facilities included would allow the artist the tools necessary for the development and creative recording of his music. The owner/operator of the retreat would be a large recording company which could use the retreat as a drawing card...
to sign popular artists to company contracts. The attractions of the retreat would be:

--Relaxed atmosphere
--Best possible equipment
--Highest quality acoustics
--Quality personnel
--Isolated/natural environment
--Artistic community with similar interests

These attributes should be guarded within the overall quality of the complex as the essential user needs.

USER

The typical recording session of the popular artist, which would be the primary user and around which the facility would mainly be designed, is an intensive work session. The musicians would typically set up and play within the studio space for as much as two to three days just to get used to the acoustics and to allow the engineer time to balance and tune the mix for an optimum recording. The set once tuned should not be disturbed throughout the recording session which could last as long as two to three weeks.
The primary function of the facility is to record music and the retreat provides relief from the intensive work session on a basis of once every two or three days rather than a day to day basis.

The commercial user would be attracted by the technology of the facility, its digital recording systems, computerized control boards, electronic synthesis and mastering, and film score coordinating equipment. The commercial user would be scheduled on a day to day basis when the equipment was not being used by the contracted users.
THE STUDIOS

Flexibility is the major emphasis within the studio space. At any given time anything from a set of Scottish warpipes to a steam Calliope could walk through the door and the studio is expected to respond graciously. The problems of flexibility are two-fold, one being the constantly changing flow patterns within the control room and studio from task to task, which has been eased by the complex switching systems on the market today. The other, acoustical flexibility, is a matter of preference and is either custom tailored to specific needs or eliminated in lieu of the less expensive electrical processing equipment. The studios within this complex are to be overdesigned acoustically so as to provide the ultimate in performance for the widest range of applications, the major application being popular music.

The major function of the studio is isolation. Above all other criteria the studio must be capable of isolating the musicians acoustically so that they can record without interference from external noise sources as well as internal sources such as mechanical systems. This requires an NC level not to exceed 15. Major factors involved in reaching this level are discussed under the Acoustical Design section. Square footages within the studios are not as important as the cubic footage. A chart discussing this is included in the addenda. The largest of the three
studios must have the capabilities of supporting a full orchestra. The largest orchestra to date would be that organized to play Richard Strauss' *Ein Heldenleben* which would require 105 pieces. The normal orchestra would average 98.

The acoustical configurations and volumes should vary from studio to studio so as to provide the greatest range of characteristics. Parallel surfaces should be avoided to minimize the chance of standing waves and harmonics.
THE CONTROL ROOM

The control room is the antithesis of the studio as far as acoustical philosophy. The control rooms need to be identical as you move from one to the other. This is due to the possibility of having to move from one control room to another during the mixdown phase of recording, thus the acoustics need to be identical. Visual contact with the studio is essential to provide the means for visual cues during recording when audio cues would interfere. Guests would also be welcomed to view the recording sessions from the control room. To alleviate the problems that could be caused by guests conflicting with the engineers ability to perform, a hierarchy should be established within the control room. An evident controlling vantage point should be established so that the engineer can control everything that happens within the control room. The sight levels should also be on differing levels. This suggests the configuration of a raised control panel from which the engineer can control the space.
Contained within the space of the control room would be the digital recording equipment, a computerized processing panel, signal processing equipment, electronic mixing and editing equipment, playback and monitoring capabilities and the storage and retrieval system that compliments the processing panel and its digital recording counterparts. This all adds to an investment at today's market (summer 1978) of around $1.5 million per control room in equipment costs. Thus the utmost care must be taken to provide the atmosphere, temperature and humidity, that will preserve it.

Again, as in the studios, parallel surfaces should be avoided and the shallowest distance in the control room should be 1/4 of a 24 Hz wave (aprx. 3.7m). The double glass between the studio and control room should also not be parallel and of differing densities so as to avoid sympathetic vibrations.
LOUNGE AREAS     APPX. 1000 SQ. FT./STUDIO

These could be either separate lounges for each studio or a shared lounge or a combination of both. It is to provide an area to relax and possibly snack for a few minutes between takes. The intensity of the recording session does not allow many breaks and those which happen are sometimes brief so it should be within close proximity with restroom facilities. Natural light and ventilation are preferred as well as access directly outside.

OUTSIDE LOUNGE STUDIO

LOUNGE FLOW DIAGRAM
ADMINISTRATION AREA  APPX. 2900 SQ. FT.

This area would consist of five smaller parts broken down as such:

- MANAGER'S OFFICE  300 sq. ft.
- ASSISTANT MANAGER  300 sq. ft.
- ENGINEERS' OFFICE  800 sq. ft.
- SECRETARIAL/RECEPTION  500 sq. ft.
- RETREAT DESK  350 sq. ft.

To join these office areas it will take an appx. 650 sq. ft. of circulation space which gives the total of 2900 sq. ft.

The offices are self-explanatory. The manager requires room for personal meetings with personnel as well as public relations people, agents, etc. The assistant manager, whose responsibility mainly lies in the management of the retreat facilities, needs room for small conferences. The secretarial/reception area will include two desks, file and storage areas, a work table and photocopier. The engineers' office would include office space for three staff engineers. The retreat desk is the area where users of the retreat check in; that is, they are assigned housing. They also pick up mail, etc. from this point. An office for a staff member is included with the desk area.
STUDIO SUPPORT FACILITIES        APPX. 3400 SQ. FT.

The two major spaces which comprise this part of the complex consist of:

SHOP                      1200 sq. ft.

TECHNICIANS' AREA          500 sq. ft.

The shop is used for making portable isolation gobo's as well as individual isolation containers for non-portable instruments. These are usually ad hoc designs which are developed for express situations by the recording engineer during a recording session. The materials used are usually wood, plexiglass and fiber insulation. The shop should have access to a loading area as well as the studios. This access should be wide enough to accommodate a 9 ft. concert Bossendorfer grand piano.

The technicians' area contains work space for two electrical technicians who would be responsible for the repair and upkeep of the recording equipment. This space should have a controlled atmosphere for the protection of the equipment.

The rest of this part of the facility contains the latent functions of:

MECHANICAL                400 sq. ft.

JANITOR                   300 sq. ft.

STORAGE                  1000 sq. ft.
The mechanical area would service the studios, control rooms, technicians' area, the shop, and storage areas. The storage area would contain electronic equipment as well as instruments and would therefore need atmospheric controls.
RECREATIONAL FACILITIES       APPX. 2200 SQ. FT.

These facilities would include:

<table>
<thead>
<tr>
<th>Facility</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>RACKETBALL COURT</td>
<td>800 sq. ft.</td>
</tr>
<tr>
<td>SMALL GAMES ROOM</td>
<td>800 sq. ft.</td>
</tr>
<tr>
<td>BAR</td>
<td>800 sq. ft.</td>
</tr>
<tr>
<td>GYM</td>
<td>300 sq. ft.</td>
</tr>
<tr>
<td>MEN'S LOCKERS</td>
<td>300 sq. ft.</td>
</tr>
<tr>
<td>WOMEN'S LOCKERS</td>
<td>300 sq. ft.</td>
</tr>
<tr>
<td>SAUNA/WHIRLPOOL</td>
<td>300 sq. ft.</td>
</tr>
</tbody>
</table>

The small games room would contain space for games such as ping pong, billiards, foosball, etc. Direct natural lighting is desired in the game room. The Bar would contain a small kitchen with grill, refrigeration and storage spaces as well as dining area for 20. The gym contains weight lifting and exercise equipment. The locker rooms need space for dressing, rest room and showers.
STABLES

The stable area would include:

<table>
<thead>
<tr>
<th>Category</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stalls</td>
<td>1000 sq. ft.</td>
</tr>
<tr>
<td>Tack Room</td>
<td>150 sq. ft.</td>
</tr>
<tr>
<td>Feed Room</td>
<td>150 sq. ft.</td>
</tr>
<tr>
<td>Storage</td>
<td>400 sq. ft.</td>
</tr>
<tr>
<td>Grooming</td>
<td>100 sq. ft.</td>
</tr>
<tr>
<td>Clean Up</td>
<td>100 sq. ft.</td>
</tr>
<tr>
<td>Recreation Storage</td>
<td>200 sq. ft.</td>
</tr>
<tr>
<td>Service Area</td>
<td>1800 sq. ft.</td>
</tr>
</tbody>
</table>

The stables would also require an indoor walking area for the horses. This could double as circulation if the stalls are arranged on a single axis. The stalls should be arranged so that the horses can't see one another.

The service area consists of space for three four-wheel drive courtesy vans and a tractor for manure spreading and groundskeeping. Outdoor recreational equipment is also stored within the stable area, i.e., bicycles, skiing equipment, etc.
The units themselves contain the essentials for living such as, bath, sleeping, study area, eating area and a kitchenette. These units should be simple in construction and easy to maintain. They should provide as much natural light and exposure to the natural beauty of the site as is possible. The individuality of clusters should be emphasized to identify different groups yet interaction between these groups should be made easy. A community area for each cluster, as well as the housing as a whole, is desired.
IMAGES

The purpose of the retreat is to provide the musician with the creative atmosphere that natural surroundings can yield for the creation and recording of music. To accomplish this the natural beauty of the site should be emphasized for its inspirational qualities and the perspective its timelessness provides.

The complex is composed of two contrasting elements, one being the massive electronic equipment and engineered spaces of the recording studio compared to the second element or the living and recreation areas. The living area should be in harmony with its surroundings and contrasted against the studio which should look as out of place as it actually is, a machine in a wilderness. These gestures could be described as being the most basic of comparisons of different organizations; the living area being the more common and naturally understood organization, the studio being the more exacting organization which is less familiar. The two organizations overlap at natural intervals where they momentarily come into harmony, as the scale of just intonation and scale of even temperament would compare musically.
These two organizations are brought into architectural expression through the contrasts of formal and informal geometries. Very basic examples of the geometries are

FORMAL

INFORMAL

When expressed architecturally as spacial organizations they become:

FORMAL

INFORMAL

The strengths of the formal geometry being an inherent ability to create a strong central focus, this focus dominates the organization of the space to the point that it is often the only reason for its existence; a dogmatic and almost static form.
The strength of the informal geometries is its ability to create a hierarchy of focus. This can then lead into off-center focus on a central space which starts a flow and begins to give direction to the space. At other points the flow may completely bisect the space, thus creating a major axis and subordinates which dictate a hierarchy. These geometries have independent strengths and may stand on their own merits, yet when combined create even stronger organizational possibilities which can respond to a myriad of situations.

COMBINATION GEOMETRY

A brief glance at the progression through a combination shows the possibilities of:

1. FORMAL FORESHADOWING
2. FORMAL EXPRESSION

3. INFORMAL EXPRESSION

4. INFORMAL ADDRESS
This basic organization of geometries is then combined with texture and metaphor to create the images of the retreat. These geometries as well as textures and metaphors are generated from understood prejudices of the user.

The basic structure of the geometries is a combination geometry with the most formal space being the administrative areas and the least formal the housing units, with the studios in between.

![Diagram](admin -> studios -> housing)

MOST FORMAL          LEAST FORMAL

The textures are best expressed, going from most formal to least formal as slick to rough.

![Diagram](slick -> coarse -> rough)

The metaphors suggested are as follows:

**ADMINISTRATION:**  OFFICE  
**STUDIOS:**  MACHINE  
**HOUSING:**  CABIN
PHYSICAL ANALYSIS

LOCATION

Longitude  86° 18' 24.6"
Latitude   39° 13' 51.15"

Northern tip of Polecat Ridge 3.5 miles WNW of Nashville, Indiana.
USGS Belmont Quadrangle

SOIL TYPE

Predominantly organic plastic clay. Depth unknown. Very heavily wooded, thus a heavy cover of organic matter.

WATER

No existing water bodies on the site; however, an existing wildlife pond is located just to the south. Drainage is all natural and adequate with the exception of the road along the edge of the site, which puddles severely after a rain. The water table is appx. 700 ft. above sea level.
TOPOGRAPHY

Varies from 940 ft. above sea level along the road on the northwest corner of the site to less than 760 ft. in the northeast corner of the site. Maximum grade of 25% lies along the northern border and a minimum of 2.1% from the center of the site going south.

CLIMATE

Average annual temperature:

  Min.  5° F
  Max.  89° F

Prevailing summer winds are from the southwest and prevailing winter winds are from the northwest. The majority of the wind is deflected by the dense forest surrounding the site and the effect of being on the leeward side. The winter wind comes across a ridgeline while the summer winds cross a series of hollows.

NOISE

Intermittent (60-70db) road noise from the clay road on the northwest corner. Nearby hunting could produce as much as 120db along the edges of the site.
CIRCULATION

Existing circulation consists of a wagon or four-wheel trail winding down the west side of the site and a foot trail which runs east to west across the site to a clearing on the ridge. Access to the site is via an unimproved clay road which is not cleared in the winter but due to light snows remains navigable.

SENSUOUS QUALITIES

Most striking is the focus of the trail just by its lack of forest and the vista provided by the clearing at the edge of the site versus the vertical thrust of the clearing in the center of the site. The trail across the site gives a feeling of stepped focus as it changes direction.

OVERALL FEELING

Quiet, rural and natural. The site to a great extent has little evidence, other than the trails and some spent shotgun shells, of man's intrusion. Its being bordered on three sides by Yellowwood State Forest seems to insure that the immediate vicinity will remain preserved for some time.
CULTURAL

SURROUNDING POPULATION

Sparse; only two residences are in the immediate area. Traffic on the clay road is at the rate of approximately one vehicle every 20-30 minutes.

The economy of the area is mainly tourist traffic; museums, craft shops, trinket and souvenir sales in Nashville.

Many of the houses in the immediate vicinity are summer and vacation houses for upper middle class. The land is poor for farming, both the qualify of the soil and the topography, thus there is little farming.

SITE VALUES

The wagon trail is frequently used by horseback riders and should allow this to continue unhindered. Hunting would have to be curtailed on the immediate site but should be planned for in the state forest.
FUTURE IMAGES

Development of the site should accent the already existing natural elements. The contrasting elements are the horizontal thrust of the trails compared to the vertical gesture of the trees.
SITE SELECTION

MACRO

The reasons for the Brown County site are its proximity to a major metropolitan area, Indianapolis. It is close to one of the country's prominent schools of music; that being Indiana University in Bloomington. It is on a naturally beautiful and secluded site which promotes the objectives of the retreat. It is located near the site of a national folk and bluegrass festival in Bean Blossom. And it is surrounded by communities which welcome the traveler and pride themselves in respecting and appreciating art.

MICRO

The complex is situated just at the upper edge of a ravine on the leeward side of Polecat Ridge. This tucks the complex into the site and plays down the dominance of the massive studios. The complex makes a subordinate gesture to the site and the housing especially tries to become a part of the terrain.

The complex's location also provides noise isolation from the road and occasional hunter, as hunting is not allowed by the State Forest near the wildlife pond.
ACOUSTICAL DESIGN

SITE SELECTION

NOISE CLIMATE

SITE CLASSIFICATION (GENERAL)
Quiet

NOISE SOURCES
The clay road at the northwest corner and occasional hunting on the north side.

VIBRATION SOURCES
Thunderstorms. Possibility of jet aircraft in the future.

SURVEY
See site plan (next page)
NOISE FROM PROPOSAL

ADVISORY LIMITS
Due to the wildlife pond on the south side of the site the NC level at that border should be no greater than 30.

NOISE BREAKOUT
Breakout would be of an external nature in the form of external rehearsals. These should be designed to maintain the 30 NC at the southern border.

LAYOUT AND FORM OF BUILDING

EXTERNAL NOISE SOURCES

SITE PLANNING
Outdoor rehearsal areas in communal spaces near the studios or on a smaller scale within the housing area should be depressed, bermed, or walled so that excessive noise does not reach the southern border. Noise from the road and the northern border coming onto the site will be dissipated and absorbed by the rolling terrain and heavy forestation.
VIBRATION
Vibration from thunderstorms and air traffic must be reckoned with via absorptive enclosure design of the studios. The siting can provide little relief unless the building is buried.

TOPOGRAPHY
In conforming with the topography at the particular point of site selection and building within the ravine, it allows use of the contours to protect the complex.

DESIGN REQUIREMENTS
The design requires maximum NC levels within the spaces as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>OFFICES</td>
<td>25-35</td>
</tr>
<tr>
<td>STUDIOS</td>
<td>15</td>
</tr>
<tr>
<td>DINING</td>
<td>30-45</td>
</tr>
<tr>
<td>REHEARSAL</td>
<td>25-30</td>
</tr>
<tr>
<td>LIBRARY</td>
<td>25-30</td>
</tr>
<tr>
<td>HOUSING</td>
<td>25-45</td>
</tr>
<tr>
<td>SHOP</td>
<td>25-45</td>
</tr>
<tr>
<td>RECREATION</td>
<td>25-45</td>
</tr>
<tr>
<td>STABLES</td>
<td>45</td>
</tr>
</tbody>
</table>
INTERNAL NOISE SOURCES

IDENTIFICATION
The most important internal noise source which could cause problems is the mechanical system. It must be designed to maintain a NC rating of 15 while moving massive quantities of air within the studios.

LAYOUT
The mechanical room itself should be located remotely from the studios which supply the greatest mechanical demand.

BREAKOUT
Due to the design demand to isolate the studios, the breakout will be negligible.

DESIGN REQUIREMENTS
The mechanical system must work at a low velocity possibly feeding from the floor and returning at the ceiling, thus using as large an area as possible to keep air rush to a minimum.
DETAILED DESIGN

NOISE CONTROL IN THE STUDIOS

BUILDING FORM
The form of the studio can take many shapes, the major requirement being to avoid parallel surfaces. This is sometimes easiest accomplished by using more than four planes for the walls, such as a pentagon plan, and a single plane for the ceiling. The floor, needless to say, would be the reference plane off which everything is kept unparallel.

PARTITIONS
The glass between the studio and control room.

- piano hinge
- compression seal
- 3/8" glass
- 1/4" glass
- glazing bedding
- acoustic lining
- mastic sealant

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LOAD BEARING STRUCTURES

The walls of the studio would create a double envelope, thus isolating structure-borne sound as well as airborne, and rest on separate foundations.

DOORS

Typical door seals

DROP SEAL

COMPRESSION SEAL

POLEC AT RIDGE
CEILINGS
Both studio and control room ceilings should be suspended and of an open configuration to allow air return. The suspended ceiling allows for a slope so as not to parallel the floor.

FLOORS
The floor within the control room should be of an elevated grid type; not for acoustical but electrical switching considerations. Thus the flooring material must be of an absorbent character.

The floors of the studio would be of a reflective character which could be altered to absorptive with a membrane when desired.
Floated Floors

The studio floor would be suspended above a concrete slab to provide the vibration isolation from the structure.

Vibration Isolation

The entire enclosure of the studio needs to be a double shell to provide the necessary vibration and acoustical isolation. These shells would be structurally independent.

Studio Acoustics

Design Objectives

The major acoustical objective within the space of the studio is flexibility. The recording engineer should have as many options for acoustical creation as are possible. This means flexibility in the volume as well as the surfaces.
The production emphasis within the studios is to use natural acoustics. The use of dead or on line recording techniques would not require this type of facility but still may easily be accomplished here.

OCCUPANCY
The occupancy of the studios ranges from a possible 105 musicians within the largest studio to a useable maximum of 40 in the smallest studio. 70 musicians would be able to use the intermediate studio.

FORM
The development of the forms is better discussed under the Design Development section. It can be said here that they were simply an exaggeration of the need for non-parallel surfaces.

REVERBERATION TIME
The reverberation times within the studios should be as follows:

- LARGE STUDIO: .75-2.4 seconds
- MEDIUM STUDIO: .75-1.8 seconds
- SMALL STUDIO: .75-1.8 seconds

The reverberation will be somewhat limited by the volume of the studio but it is also a function of surface treatment. See the chart in the addenda for references with the volume and surface absorption.
ABSORPTION AND REFLECTION SURFACES

The flexibility of changing surfaces within the studios is accomplished with a series of triangular columns on a rotating axis which are recessed into the interior surface of the studios.

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PLAN

Each side of these columns is surfaced with a differing material. One side, the major face, is wood. The two back, or lesser faces, are of wood slat backed by felt, and a light carpet construction. Behind these columns is a block wall surfaced with Wilton carpet on a felt overlay. This allows three major reverberation times without altering the reverberation characteristics.
WOOD SURFACE OUT
REFLECTIVE

WOOD SLATS AND CARPET OUT
DISSIPATIVE ABSORPTION

CARPET OUT
MEMBRANE/CAVITY ABSORPTION

WOOD SLATS OUT
CAVITY ABSORPTION

POLECAT RIDGE
BUILDING TYPES
BUILDING TYPE STUDY

In researching building types it was found that, although the idea of combining recording studios with natural surroundings and recreational options is a popular idea, none exist in the United States. Because of this another similar building type needed to be found. The requirements of seclusion and work within a community toward a common end was found in monasteries. The early monasteries, however, did not use housing similar to what was needed for the retreat but rather communal dormitories for the monks.

While these first monasteries, which belonged to the Benedictine order, used dormitories a later order called the Carthusians had a different life style. The Carthusian Monk never left the monastery; thus the need for privacy within the monastery was more important. The Carthusians developed what was to become known as the Charterhouse. It is the Carthusian Monk's cell and its arrangement in the Charterhouse Monasteries which I used for a building type for the retreat. Two other housing configurations of contemporary design as well as Le Corbusier's monastery, La Tourette, are also included.
A TYPICAL CARTHUSIAN CELL

A small self contained house and garden off of a walk way.

1. Cloister walk
2. Corridor, isolating the monk from the noise of the cloister
3. Ante-room
4. Main room
5. Second room
6. Corridor to latrine
7. Latrine
8. Garden
9. Aperture in wall, through which food was passed
10. Door to garden
11. Larder
The Carthusian cell formed a kind of housing estate strung out round the passage or cloister(1). House and garden were even shielded against the slightest noise in the cloister by a corridor(2). A conversus used to put the bare minimum of nourishment through a slit(9). Even this slit communicated only with a closet. The prior alone was allowed to pass through this corridor to the door of the garden(10). The layout took account of the monk’s need for solitude in every particular. He did not only want to be alone, but also to feel alone. The house itself consisted of three rooms—the heated ante-room(3); the cell(4), in which stood four pieces of furniture, and a small chamber(5). (11) was used as a larder, and (6) was a corridor leading to the latrine(7). The garden(8) was three or four times as large as the whole house, and surrounded by a high wall. What each monk might posses was narrowly laid down—a straw mattress and pillow and two blankets for the bed, little and simple table ware, tools for repairs, sewing-kit, a comb and a razor, writing utensils, and no more than two books to read. A crucifix was the only artistic object available.
CONCEPTUALIZATION

Early approaches to organization show three differing concepts, one being to surround the studios with the support functions of administration and shop areas. The rationale being that these support functions could provide acoustic insulation for the studios. The shared activity of dining was used as a bridge between what became known as the working areas, that is, the studios and their support functions and the living areas, or housing.

![Diagram showing the relationship between admin, studios, housing, and dining.]

This was then situated on the contours so that the dining area was actually a bridge over a courtyard which led to the recreational areas on the site.
Another scheme was to create a super-flexible studio which could be expanded from three smaller studios to one huge studio. This was situated at the top of the ridge. A stone wall ran the distance of the west elevation in an attempt to organize the facility according to shared functions with the outside world and the internal functions of the retreat activities; the wall was the boundary between these functions. The studio and caretakers' quarters penetrated the wall and became shared objects.

The third scheme, and the one that was chosen to be fully developed, was the organization of the functions off of a central spine. The spine ran between the two community properties of the retreat; the
dining area and the recreational center. The recreational center was situated to look out over a man made pond and the dining area became the entrance into the retreat.

The studios were located on one side of the axis and the housing units on the other. This provided maximum exposure to the site for the housing and created a boundary between the relaxed and informal areas of the housing and the machine of the studios.

The elimination of the first scheme came when it was realized that the studios were just too massive to be surrounded without sinking them into the ground. Sinking them was impractical due to the limestone deposits close to the surface; the studio would have had to be quarried in.
The circulation patterns also began to suggest conflict in having the administration so strung out and a focus or node of activity was missing. The joint of the dining areas between the administration and the housing seemed appropriate and was used through design development.

The reason for elimination of the second scheme was simply because it was impractical. Upon investigating the technology involved, with the massive moving partitions involved to provide acoustical isolation between studios, it became evident that you could build ten studios with fixed partitions for the price of one with movable partitions.
DESIGN DEVELOPMENT

The first decisions in the design development stage dealt with the configuration and form of the studios and the use of materials. The machine metaphor for the studios began a metamorphosis which took the studios from the almost cliché expression of 'high tech,' with its metal and glass sterile laboratory imagery, to a more abstracted expression of energy.

The 'high tech' approach was too formal. Both musicians and engineers felt that, although it was impressive at first glance, it would become oppressive after two to three weeks of intensive use. The clean and over-engineered imagery of 'high tech' did not respond to the need for a relaxed atmosphere. There needed to be more forgiveness for the ad hoc and improvised mood which prevails during a recording session. This mood of informality was thought to promote creativity during the session.

The alternate expression became one of energy of forms. The need was for an informal form which expressed a high level of energy. This had to also respond to the acoustical engineer's demands of the space.
The easiest means to gain non-parallel walls was to use either three or five or more rather than the standard four. It is impossible to get two parallel walls with only three, and easy to avoid with five, but the angles with three became very acute. With five or more it began to lose its dynamic qualities.

I must note here that it is quite possible to create a functional recording studio with parallel walls. This, however, limits the wall textures to mainly cavity absorption and dissipative absorption. Reflective surfaces could cause problems with resonance or standing waves; and, as reflective surfaces may be used in this facility, it was opted to have non-parallel surfaces.

Thus came the basic studio form of two opposing right angles; an informal geometry created by moving the formal cross within a square off axis.
These were then clustered so as to give strength and direction to their dynamic qualities.

Originally the two functions of commercial user and retreat user were separated with one studio being directly accessible from the administration area for the commercial user. Two studios, being clustered around a lounge area on a lower level, serve the retreat.

The material selected for the studio also was a response to both functional and aesthetic criteria. Structural tile was chosen because:
1) it has the ability to give scale to the huge masses of the studios
2) it provides the mass which is necessary for the acoustic isolation
3) it has the ability, with an exterior glaze, to provide the proper compromise between natural and manmade, which puts the studios in the proper contrast with the administration and the housing.

Using a 1'x1'x1' tile a dialogue was established between the contrasting materials of the tile and the fenestration of the rest of the material. All of the fenestration, with the exception of door fenestration, is laid out on a 1'x1' mullions of the fenestration.

The layout of the complex, in its first stages of development, consisted of the main axis which ran from the administration area to the library/recreational spaces with the housing grouped to one side and the studios grouped on the other. The axis became an elevated wooden walk which connected the library and housing with the administration area. The studios were accessible via exterior courtyards which were beneath the main axis.
Past the library the man-made lake was created, its main purpose being a recreational resource for swimming. It was to follow the natural contours. An earthen dam would be built across the ravine and then flooded.

The entrance, which opened into the administration area, was a punched opening in a small stone wall. The wall was used to give definition to the entrance. That is, it created a boundary between the exterior of the complex, the parking area, and the interior of the retreat.
In designing the housing units a single unit model was first developed and then a model for a multi-unit order.
These multi-unit groups were then organized along the main axis according to existing contours.

A section through the main axis shows the housing units on the same level as the studios. The courtyards between the studios provide the transition from one order to another.
The library/recreational facility at the end of the walk went through many differing configurations. The library was to be the focal point within the 'internal space' of the facility; that is, the exterior space the buildings are grouped around. A tower was created to give this focal point and also allow the user to gain a better vantage of the site.
After examination the tower seemed too self-serving and was omitted, and the library began to become an expression of compromise between the administrative areas and the housing.
Sketch of Library/recreational Facility (above)
Reexamination of the library/recreational facility showed it to be actually in the wrong place. It was stringing the heart of the complex out too much. It was also combining two conflicting activities; the quiet atmosphere of the library and the vigorous activity of the racketball court. These two functions were separated. The library moved into the group of administration spaces and the axis straightened out. The wall became a major factor, giving definition to the entire complex on that elevation. The interplay between the wall and the entrance and the caretaker's house became an integral part of the design.
The openings in the wall express differing attitudes in entry. The main entrance is expressed as a formal entrance and can be likened to the 'front door.' The larger opening between the administration and the caretaker is an informal entry. It is used for service to the kitchen and the stables. Riders will also use it when horseback riding.