Montana State University
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Approved:

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Lynn E. Taylor
MUSC Collage
Lindbergh Lake

Lynn e. Taylor
To my parents.
For as long as I can remember the majority of my summers have been spent swimming, sailing, hiking, and exploring the Swan Valley. I have fond childhood memories of living at my family’s summer cabin near Lindbergh Lake. Among these recollections are memories of attending the annual Margaret Scales Kotschevar Concerts on Lindbergh Lake. Listening to a piano sonata echo across the lake is an unforgettable musical experience. Music has always been an important part of my life. I have studied the flute for fourteen years and participated in numerous music ensembles throughout this time. I chose to study the relationships between music and architecture and design a musician’s residence near Lindbergh Lake for my architectural thesis because it integrates three primary interests of mine: architecture, music, and Lindbergh Lake.
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The Clients
Karen and Alan Leech are musicians. Their music encompasses a collage of styles and idioms, spanning several centuries of written and improvised musical forms. The musical vitality they possess comes from improvising and composing their own music. The Leech's also have interests in other art forms. Their large art collection consists of paintings, etchings, and sculpture from a variety of styles and periods. They also have an expansive library of literature and poetry. The Leech's have a special interest in the relationships of composing in music and architecture. They want to create a residence that architecturally responds to musical form and content. Their residence must include living spaces and music studios for themselves and their two children—ages 6 and 13. It must also respond to future change regarding their children's growth and departure. The residence's mountainous site was chosen because of the family's active outdoor lifestyle and the site's relatively close proximity to air transportation.
Alan Leech

Professor of Music at Montana State University

Instruments:  • bassoon, saxophone, recorders, keyboards, synthesizers, nadaswaram, percussion.

Education:  • Cincinnati College-Conservatory of Music (B.M., M.M.)
• Teachers: Otto Effert - bassoon
  Max Rudolf - conducting
  Erich Kunzel - conducting
  "Oregon" - improvisation

Chamber Music:  • Gallatin woodwind quintet, Montana Consort, music college, University of Tennessee
  • Faculty woodwind quintet, Attas woodwind quintet, Cincinnati Pro Musica
  • Baroque Ensemble, Cincinnati Collegium
  • Musicum, Others

Orchestras:  • principal bassoon with: Bozeman Symphony, Great Falls Symphony, Montana Chamber Orchestra, Knoxville Symphony, American Wind Symphony Orchestra, Pierre Monteux Domain Orchestra, Lexington Chamber Orchestra, Others.
Karen Leech

Associate Professor of Music at Montana State University

Instruments: • flutes, recorders, ethnic flutes, dulcimer, tamboura, percussion.

Education: • Smith College (B.A.)
• Cincinnati College - Conservatory of Music (M.M.)
• Teachers: George Hambrecht
  William Hebert
  Julius Baker
  Marcel Marce
  William Bennett

Chamber Music: • Gallatin Woodwind Quintet, Montana Consort, Muscicar, Knoxville Old Instrument Ensemble, Cincinnati Pro Musica Baroque Ensemble, Bozeman Flute Choir, others.

Orchestras: • Bozeman Symphony, Pierre Monteux
  Domain Orchestra (Principal flute)
  Cincinnati Pro Musica Chamber Orchestra (Principal flute)
  Knoxville Symphony, American Wind Symphony Orchestra.
Lifetime Scenario

Present (1988)

The Leech's live permanently at their residence near Lindbergh Lake. Their two children--ages 6 and 15--attend Seeley/Swan Public School. During the winter months, the Leech's access road is plowed by a contracted road maintenance company. Karen and Alan reserve space for their airplane at the local airstrip in Condon to provide convenient transportation to their numerous music engagements.

Ten years (1998)

The Leech's permanently reside at their residence near Lindbergh Lake. Their oldest child (now 23) has moved away from home. Her bedroom has been changed into an office/study for Karen and Alan. Their youngest child (now 16) still attends Seeley/Swan High School. Their access road is still plowed in the winter months. Airplane space is still reserved at the local airstrip for transportation to the Leech's numerous music activities.
Future (2013+)

The Leech's have retired from regular music engagements. They still permanently reside near Lindbergh Lake. Both their children have moved away from home. Their youngest child's bedroom has been changed into another guest room to accommodate increased visits from family and friends. The Leech's still reserve airplane space at the local landing strip to provide transportation to special music engagements and frequent leisure travel.
Project Definitions
Project Scope

The Music Collage is a permanent residence for two musicians and their family in a mountainous environment. The residence contains:

- Public spaces
  - Living space
  - Eating space
  - Food preparation space
  - Listening/reading space
  - Outdoor recreation space

- Private spaces
  - Master suite
  - Bedroom/office space
  - Bedroom/guest room
  - Guest room
  - Study space/TV room

- Music spaces
  - Large studio
  - Small studio
  - Instrument repair/reed making space
  - Computer composing space
  - Recording studio

- Auxiliary/service spaces
Project Intent

The intent of this project is to study the theoretical relationships between music and architecture. These relationships will be reflected in the architecture to create a unique residence for Karen and Alan Leech.

Project Focus

The focus of this project is to create a collage of spaces that respond in form and content to the client's requirements of function and aesthetics. The emotional themes of relaxation/tension, repetition/contrast, statement/response, and symmetry/change will be reflected architecturally in select individual parts of the residence's overall composition.
The Place
Montana's Northern Rocky Mountain Front, from the Canadian Line southward along the Continental Divide 175 miles, is an area designated as "The Crown Jewel of America." It consists of spectacular mountains, high lakes, river canyons, and large blankets of forests. This area includes Glacier National Park, five national wilderness areas, and a state game preserve. The Mission Mountains, Swan Mountains, Swan Valley, and Lindbergh Lake are associated with "The Crown Jewel" because of their magnificent scenery, lakes, and forests.

The Mission Mountains were named after St. Ignatius Mission. Founded in 1854 by Father Pierre Jean DeSmet, the St. Ignatius Mission (now a National Historical Site) lies on the Flathead Indian Reservation forty miles north of Missoula. Forming a 60 mile
long wall of rugged glaciated peaks, the Mission
Mountain Range divides the Swan Valley from the
Flathead and Mission Valleys. Most of the range
lies within the Mission Mountain wilderness Area.
Sections of the Range, though, are also held by the
Burlington Northern Company. The Mission Mountains
consist of numerous craggy peaks, over two hundred
high lakes, and several active glaciers. Access to the
Missions is limited. Primary entrance is from the
east (Swan Valley) through Forest Service roads
and trails. wilderness use is limited to the summer
months because of deep snow levels and the
threat of avalanches. The majority of the Mission
Mountains is above timberline with its jagged peaks
constantly snow covered. The lower mountain slopes
are covered with western larch, douglas fir, and spruce;
higher meadows contain alpine
larch and alpine
fir. 4
The Mission Peaks

The Mission Peaks, these many years
Have kept my faith and stilled my fears.
When days are darkened in despair,
I only lift my eyes, and there
Like mighty sentinels they stand
Above the peaceful, fruited land.
Mute symbols of eternity,
Full clothed in all celestial beauty,
They relate to me, as mountains can:
I am a part of God's great plan.

Clive C. Klehr
East of the Mission Mountains, defining the opposite edge of the Swan Valley, is the Swan Mountain Range. Named for the large number of trumpeter swans in the area, the Swan Mountains form an unbroken line of mountain peaks for over 100 miles. Rising abruptly from the valley's floor, the mountain range rarely drops below 6,500 feet. Because of impressive vertical relief, passage through the Swan Mountains is limited to several pack trails originating near Holland Lake. East of the Swan Mountains lies the Bob Marshall Wilderness, a pristine wilderness preserve untouched by man's modern technology.

The southwestern section of the Swan Mountains is a moist climate with sharp mountain peaks and active glaciers. Below timberline and
covering the Swan Valley, ponderosa pine, douglas fir, and lodgepole pine grow in the lush lower elevations. 6

"Ah, those Swan Mountains... everyday I study them, the higher and higher they grow, and the shorter and shorter I seem to get." 7

(Swan River Pete Rovero)

Situated between the Mission and Swan Mountains is the Swan Valley. Its lush forests and numerous lakes are popular recreation
Areas, especially in the summer months. The Swan Valley lies north-south from Swan Lake south 60 miles to Salmon Lake. The Valley contains three small communities: Swan Lake, Condon, and Seeley Lake. These communities contain grocery and gas services, a public school system, and a local air strip. Summer homes and permanent residences occupy property near the glacier-fed lakes as well as several resorts and camps.

Included among these glacier-fed lakes is Lindbergh Lake, set against the Mission Mountains on the west side of the Swan Valley. "Lindbergh Lake used to be called Elbow Lake, some people still call it that, but after Charles Lindbergh made his famous flight, he and Kelley Evans of the Anaconda Mining Company spent two weeks on the lake. After that it was referred to as Lindbergh Lake." Only 1/5th of Lindbergh Lake's shoreline is privately owned. The majority of the long and narrow lake is held by the National Forest Service and the Burlington Northern Company.
One thousand feet above Lindbergh Lake is the site where the Elbow Lookout Station once stood. Originally built in 1941 by the Civilian Conservation Corps, the Elbow Lookout Tower served as a fire lookout for thirty years. In the 1950's the tower was rebuilt to provide better sightlines of the Swan Valley. The Lookout Tower was closed in the early 1970's because twice daily fireplane flights provided better fire surveillance. Proclaiming it a public hazard, the National Forest Service disassembled the Elbow Lookout Station in 1978.
The People
The types of people in the Swan Valley and Lindbergh Lake community consist of three categories: campers/backpackers, permanent residents, and summer residents. Of the three types, the backpackers/campers contain the smallest population. They inhabit National Forest camp sites and back-coun try wilderness areas. Their small population is dependant upon the number of campsites available in each specific area. Although the majority of Lindbergh Lake property is held by the National Forest Service, the development of campgrounds in the area has been minimal due to limited access and rugged topography. The five campsites provided are usually only occupied during summer weekends because of poor signage and long distance from the highway relative to other campsites in the Swan Valley.

The Swan Valley has a population of approximately 500 permanent residents. Most of these residents' occupations relate to providing services for the summer recreationists and residents. Some of these occupations include grocery store/gas station owners,
outfitters, and resort owners. There are 50 to 60 retired individuals, many who began as summer residents while raising their families, permanently living in the Susan Valley. Included as permanent residents are numerous affluent individuals living near Lindbergh Lake; among them is a prominent clothing designer and a United Nation's consultant. The remainder of permanent residents consist of young families living on small farms—many without electricity or indoor plumbing. A large majority of these families are well educated people who choose to live naturally in the quiet valley environment. Unemployment levels are high, especially during the winter months. Many of these families depend upon summer residential construction for subsistence.
Summer residents of the Swan Valley constitute the largest population group. Most of these residents are from Montana cities or northwestern states. There are also many retired individuals who reside in the Swan Valley during the summer and migrate to warmer climates in the winter. Lindbergh Lake has approximately forty summer homes. The majority of its residents are retired individuals or professionals with older children (teenagers and college students).
Activities
Activities in the Swan Valley Vicinity:

- hiking in numerous wilderness areas
- pack trips through the Bob Marshall Wilderness
- mountain biking on abandoned logging trails
- Glacier National Park
- Flathead Lake
- Lake recreation
  + trout fishing
  + sailing
  + swimming
• Swan Valley Art Festival in Seeley Lake
• Annual Margaret Scoles Kotschevar Concert
• Bigfork Summer Playhouse
• St. Ignatius Mission
• Golfing at Bigfork
• Big Mountain Ski Resort
• Cross-country skiing
• Airplane landing strip near Condon
• Missoula/University of Montana (70 miles)
• Kalispell (70 miles)
Music and Architecture

Architecture could be thought of as frozen music. Related to each other more than any other art, music and architecture share basic elements—proportion, movement, emotion—that combine to form a musical or architectural composition. Music applies principles such as proportion, movement, and emotion, to develop a short-lived, aural atmosphere that cannot be created by any other means. This type of atmosphere is defined as “abstract” because it is considered apart from literal objects. Architecture, also applies the same principles to develop a unique environment. An architectural environment is permanent and constitutes solid, visual elements. Except for its functional components, architecture is “abstract” since solid, visual elements potentially have no literal meaning. Architecture, though, must integrate function into its environment. By integrating function, the “abstract” atmosphere becomes a “permanent” environment. Architectural and musical moods can be created by manipulating similar elements. For example, emotion is expressed as humor in one movement of Malcolm Arnold’s Symphony No. 3 and humor is created in the design of Charles Moore’s Piazza d’Italia." Through the study of the similarities and
dissimilarities of process, and integrated structure in music and architecture, the analogy between architecture and music can be warranted.

The process that is implemented to create architecture is similar to the process of creating music. Max Lock, in his essay on music and architecture, stated that "...the keyboard (is) merely the reverse side of the drawing board." In music, the composer uses a system of notation to record his or her literature. The music staff, notes, and time signature, can be compared to the architectural notation—lines, dimensions, labels—a designer uses to symbolize their building. Like architectural plans and elevations, music is recorded in various sections to correspond with different instrumentation, i.e. trumpets, flutes, and violins. From each instrumentation, the individual interprets the recorded notations and music is created.

The building contractors are similar to individual musicians. Through construction documents, the contractors interpret architectural notations and construct a building. Simulation in both architecture and music also have a close alliance. Both works must be reproduced into a smaller scale in order to be studied. The axonometric drawing and architectural model represents the scaled version of the building, while condensed instrumental scores

30.
represent the musical reality. The architectural and musical processes do have a clear relationship to each other: there exists a definite dissimilarity, though, in the final product.

The dissimilarity between architecture and music exists because architecture (with function included) becomes a permanent expression and music is only an abstract expression. If a piece of music is unfitting or not approved by its listeners, it never has to be performed again. It can be refined and revised continually until the piece reaches perfection. With architecture, though, a poorly designed or constructed building cannot easily be revised or forgotten. It is usually financially difficult to repair the design flaws and correcting the flaws is either a slow process or does not occur. These mistakes are usually what is first noticed about buildings. An example of this is I.M. Pei’s John Hancock Tower. Because of a window detail flaw, the tower’s glazing was separated from the mullion frames. The glazing had to be removed and replaced with plywood. Until the design flaw could be corrected, the plywood cladding on the Hancock Tower was the center of attention and caused Pei to lose future commissions for many years.

The internal structures of music and architecture are
made up of integrated subsystems that compose their entirety. Subsystems such as harmony, melody, meter, and rhythm, merge to form a complete piece of music. To the average listener, these subsystems are not individually identified. The listener only perceives the overall musical impact. Typically, the more complex the structural subsystems, the larger the musical work. Large works such as symphonies and operas are constructed of many complex subsystems. The size of the musical work, though, does not have to be large to be complex. Small works such as Beethoven's piano sonatas contain a higher complexity than many symphonies and operas. Like music, architecture is composed of integrated structural subsystems such as design, research, analysis, and evaluation. Large building types usually increase in complexity, but small building types, i.e., churches and homes, may be more complex in structure than highrise offices. The average user of the building is not aware of the structural subsystems involved to create the total architectural form and environment. 14

Stated earlier in this paper, music creates an "abstract", short-lived environment and architecture creates a "permanent", tactile environment. The sole
purpose of music is to communicate an emotional message through an aural atmosphere. In its pure form, "absolute" music's--chamber music and symphonies--only intention is to communicate a distinct emotional state as compared to "support" music that is supplementary to other mediums or activities--films and dancing. "Support" architecture has a direct analogy to its musical counterpart. A shopping mall, where the major emphasis is on the individual store fronts, and nightclubs, whose impact relies primarily on surface configuration, are examples of "support" architecture. There is not a true alliance, though, between what is considered "absolute" music and "absolute" architecture. Architecture must not only generate an emotional atmosphere; it must also serve a functional purpose. 17 A major difference between an art (music) and architecture is that architecture must be responsible to the public in addition to the individual. "Absolute" architecture does not exist. Communicating a distinct emotion state in architecture is only one step towards defining architecture. Function must be addressed in architecture in addition to integrating structure and process.

Through the study of the similarities and
dissimilarities of process and integrated structures, direct analogies are found between music and architecture. The creation of music and architecture each must be simulated through a system of notations and models or condensed scores. Structural subsystems must also be integrated into the formation of both music and architecture. Architecture begins with direct analogies to music's "abstract" forms in regard to its creative process and structure, but it also moves beyond these analogies and addresses the problem of function and permanence. As in all the arts, music and architecture have similarities and dissimilarities between each other. Music cannot be forced to relate directly to architecture, and architecture cannot be forced to relate directly to music in every aspect. From this study, though, we can learn where analogies occur and attempt to integrate them into our architectural designs and musical compositions.
Form - Content

There exists two schools of music philosophy—the "Formalists" and the "Expressionists." The "Formalists" believe that the beauty of music is based on an "arabesque of sound"—sound patterns intricately but logically interwoven and interrelated. Their theory consists of musical form (rhythm, melody, harmony), nothing else. The "Formalists'" objective philosophy states that "...music is simply what is heard or, more accurately, what the ear receives; and the whole content is the technical data which the musician discovers in his analysis of various compositions." The "Formalist" theory in music can be related to architecture's "Functionalists," where architectonic forms and systems provide the machine for living—an approach based on the objective analysis of technological data.

The other school of musical thought is the "Expressionists" philosophy. The "Expressionists" feel that there is more to music than an "arabesque of sound." This school regards
music as" ... a symbolic expression of inner states of feeling, the richest and deepest the mind can know. Its power, its significance, its glory are due to the directness and accuracy with which it can express the yearning and longing and exultation of consciousness in its various moods. "21 The "Expressionists" use the term "language of the emotions" to describe musical content. These aesthetic emotions are what gives a composition individuality and spirit.22 The composition's form (rhythm, melody, harmony) is only the symbol or sign of its inner emotions. Emotional themes such as tension/relaxation, repetition/contrast can be reflected in architecture. By studying an architectural space's characteristics, significance, and function, its inner spirit and content can be expressed through architectonic forms, colors, and materials.
"The most beautiful work is that whose external form corresponds entirely to its internal content."

Vasily Kandinsky

...from his essay on Content and Form (1910-1911)

"Improvisation 28" (1911-12)
Methodology
The overall theme for Karen and Alan Leech's residence is a music collage. This "collage" theme reflects the client's eclectic music and lifestyle. A collage is a type of surrealist art in which elements are placed together in diverse relationships for a symbolic or suggestive effect. The composition will respond to the overall "collage" by means of the elements' content, form, and structure. Within the overall composition are emotional themes that respond in form and content to the "Expressionists'" philosophy. The emotional themes of relaxation/tension, repetition/contrast, statement/response, and symmetry/change serve as a basis in responding architecturally to music. These themes are characterized in select individual parts of the overall composition and are regarded both in isolation and in relation to the other parts. The following pages contain architectural examples of the four themes.
Tension/Relaxation
Repetition / Contrast
Precedents
The Correlation Between

Baroque Music & Architecture

Baroque music and architecture share diverse elements that lead to dramatic, theatrical culminations. J.S. Bach's Six Suites for Unaccompanied Cello contains a diverse assortment of movements. Bach blended...
polyphony (grouping of individual, harmonizing tones) with French form and Italian melody in his cello suites. His use of ornamentation creates colorful musical passages. The Préludes are spontaneous and imaginative in character. Following the Prélude are numerous dances contrasting in rhythm and character. Included in these dances is the Allemande which is slow in tempo and soothing in character. Concluding each suite is the rapid and spirited dance called the Gigue. Johann B. Fischer von Erlach's Karlskirche in Vienna (1715-1735) expresses baroque space through plane surface manipulations and dynamic lighting techniques. Its wide ornamental facade is punctuated by small towers, historiated columns and arches. These elements culminate in the tall drum and dome over the central interior oval. The interior space's dramatic lighting contrasts emphasizes a direct focus on the main altar at the end of a long, dark choir.
Karlskirche — Vienna, Austria
Johann B. Fischer von Erlach
Johann Sebastian Bach
6 Suites for Unaccompanied Cello
Anner Bylsma
Baroque Cello – Matteo Goffriller, 1699

**RECORD 1**

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### Baroque Period

#### Cultural Calendar

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<td>1745</td>
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<td>A.L. d'Espagnet</td>
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<td><strong>SCIENCE</strong></td>
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<td>Isaac Newton</td>
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<td>1725</td>
<td>1688</td>
<td>Charles XII</td>
<td>1744</td>
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<td><strong>POLITICS</strong></td>
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The Douglas House, by Richard Meier, expresses an abstract architectural statement by contrasting with the surrounding environment and articulating its spaces. The verticality of the house responds to the site's characteristics of steep topography and towering trees. Movement into and through the house is implied by means of a structured arrangement of solid and void spaces. Entrance to the house is through the solid back wall. Once inside, the spaces open up and outward views are articulated by varied column placement and window mullion patterns. The vertical space separation is unified by a central light shaft through the house. Curved stair railings, thin steel columns, and cantilevered floors create tension within the house's unified white exterior. Through vertical and contrasting elements, the Douglas House enhances its environment and articulates spatial movement.
Sculptural Collage
Winton Guest House
Minnesota
The Klinker Guest House by Frank O. Gehry is a collage of solid sculptural forms. It is an ensemble of impeccable forms sitting adjacent to a Miesian brick box house by Philip Johnson. The guest house consists of six minimally connected pieces of one-room building forms including a black metal central tower; a fish-shaped, dolomite limestone clad block; and a toad-like form clad in Finnish plywood. Gehry's composition draws its individual forms together with an elegant force - not through a collision. The interior spaces are equally elegant with spaces varying from a soaring light-filled living room to a cozy brick inglenook.

Gehry's collage is a celebration of the unity of diverse, unique forms manipulated both independently and within the whole composition.
Tension — Relaxation
Ashley House
California
The Ashley House, designed by Coy Howard, contains paradoxical themes of tension and relaxation that are often associated with classical music compositions. Distinct shapes interrelate between each other with dynamic force. Elements in tension (torn ceilings and broken marble tables) respond energetically with relaxed, calm elements (elegant wood cabinets and uniform grey exterior walls). By establishing a paradox of tension and relaxation, opposing shapes and elements respond to each other with dynamic energy and spirit that fuses into a unified, complex composition.
Villa Pisani - Revisited
Schwartz Residence
Massachusetts
Architect-owner klarven
Schwartz drew inspiration
from the baroque qualities
of Vincenzo Scamozzi’s
Villa Pisani when designing
his home. By establishing
a twenty foot governing
dimension, Schwartz was
able to contrast and
ornament his home without
losing the basic geometry
of an octagon placed
on a square base. The
house’s symmetry is changed
with the stair tower
penetrating one wing of
the square base. Ornamental
flourishes—aluminum “eyebrows”
around windows and jagged
rain spouts—are focused around the grand
octagonal conservatory. These flourishes create
tension within the stable octagonal form. The
diverse baroque elements establish the house’s
“timeless” quality by making references to both the
past and future.
House for a Musician
San Diego
The San Diego musician's home by Rob K. Quigley consists of two stucco boxes separated by a deck and small garden. One large rectangular box contains the entry, kitchen, dining room, and living room. These spaces are juxtaposed so that the dining room can be used as a stage for chamber music concerts. The adjacent living room (two stories in height) provides audience seating with overflow crowds sitting along the stairway leading to the house's second box. For outdoor concerts, the cantilevered, elevated patio provides a stage with an arch framing the patio to suggest a proscenium.
Without losing the house's residential character, a stage is created on the elevated dining room and cantilevered patio to provide a unique musical function.
Catalyst for Artistic Activities
Hagano, Japan
Placed in an ancient Japanese graveyard, the postmodern home by Kunihiko Hayakawa was built for two musicians involved in the international music scene. The clients desired a home that would function as a catalyst for local artistic events. Without losing a residential character, the musicians wanted a place where performers and audience can interact without the barriers of a proscenium arch. The vaulted ceiling of the music hall provides a framing element for the performer without separating the audience or losing the house's residential character. 32
Goals
MusiCollage

- To study the theoretical relationships between music and architecture.
- To reflect the theoretical relationships in a unique musician's residence.
- To create a collage of spaces that reflects music's form and content.
- To develop a permanent residence for two musicians and their two children.
- To provide spaces for the musicians where they can create, compose, and study in a mountainous environment.
- To establish musical spaces, public spaces, and private spaces.
- To create a separation between the music spaces, public spaces, and private spaces.
- To create a residence that enhances the surrounding natural environment.
• To retain as much of the natural landscape as possible.
• To utilize natural building materials.
• To integrate acoustically appropriate materials into the music spaces.
• To establish an acoustic barrier between the music studios and adjacent spaces.
• To provide spaces that are versatile for change and growth.
• To establish an outward view of the Swan Mountains in select spaces.
• To utilize natural sunlight as much as possible.
Site Analysis
- Precipitation (inches)
  - max. prep. in 24 hours.
  - normal monthly prep.

- Snowfall (inches)
  - max. snowfall in 24 hours.
  - normal monthly snowfall.

- Skycover (days)
  - 100% overcast sky condition.
  - 50% overcast sky condition.
  - clear sky condition.
**Sun Angles**

- June 21: 165°
- December 21: 18°

**Sun Path**

- Summer: 125°
- Winter: 53°

North → East
West ← South
The Program
Public Spaces

Central Living Space

form:
- family gathering area for four people
- hearth/fireplace as focus
- spacious sitting area for ten people
- intimate quiet area for two people
- outlook view of mountains
- expansive wall and floor space to display artwork

content:
- open/airy atmosphere
- diverse environment
- versatility

possible solution:
- Allow the diverse art collection to create change and contrast within the balanced form and white wall surfaces.

Eating Space

form:
- adjacent to living space
- room for eight people
- adjacent to food preparation space
- wall surface for art display

content:
- unity
- inward focus
- airy/open atmosphere

possible solution:
- Unify the eating space by repeating material and surface patterns that contrast to adjacent space characteristics.
Food Preparation Space

Form:
- Preparation area for two persons
- All modern appliances
- Storage for large utensil, and service collection, and two-week food supply.
- Informal eating space for four people.

Content:
- Participation
- Open, airy atmosphere
- Interaction

Possible Solutions:
- Allow dynamic colors and surface materials create tension that reflects the participative and interactive activities in the food prep. space.

Listening/Reading Space

Form:
- Storage (shelves) for book and music collection (500 volumes)
- Extensive sound/listening system
- Sitting area for four people
- Space to display artwork
- Fireplace alcove

Content:
- Light filled/airy
- Solitude
- Tranquility

Possible Solution:
- Create an intimate environment with calm/serene colors that express a tranquil response to the residence's collage statement.
Entry / Foyer

form:
- main entry into residence
- closet / storage space
- space for art display

content:
- arrival
- anticipation

possible
solution:
- Create a sense of anticipation of the overall collage through introducing materials found within the composition.

Outdoor Recreation Space

form:
- adjacent to both private and public spaces
- covered and open spaces
- area to facilitate small informal recitals for four people
- spa area - hot tub, sauna, shower

content:
- blend with nature
- outward views
- relaxation

possible
solution:
- Create an outdoor space that responds to the overall collage statement and to nature.

HL/C

form:
- ¾ bath to serve public spaces.
Music Spaces

Large Studio Space

form:
- asymmetrical, high ceilings
- rehearsal space for six people
- space for grand piano
- acoustically appropriate materials
- space to display instrument collection of 50 instruments.

content:
- light/airy environment
- inward focus

possible solution:
- provide an environment that focuses on the user's musical creativity and composing.

Small Studio Space

form:
- asymmetrical, high ceilings
- rehearsal for one or two persons.
- space for upright piano
- adjacent to large studio space
- acoustically appropriate materials

content:
- light/airy environment
- inward focus
- contemplation

possible solution:
- provide an environment that focuses on the user's musical creativity and composing.

Instrument Repair/Readmaking Space

form:
- counter space for instrument repair
- sink
- storage for tools
- adjacent

possible solution:
- reflect the space in the overall collage composition.
Computer Composing Space

form: • space for computer terminal and printer, /adj. to large studio
      • storage for computer supplies

possible solution: • Reflect the space in the overall collage composition.

Recording Studio Space

form: • adjacent to large studio
      • space for recording equipment
      • acoustically appropriate materials

content: • inward focus

possible solution: • Provide an environment that focuses on the user's musical creativity and composing.

Storage

form: • storage for performance equipment
      • storage for instrument cases

W/C

form: • ½ bath to serve music spaces
Private Spaces

Master Suite

form:  • sleeping space with king size bed
        • intimate sitting area with fireplace
        • private outdoor area
        • full bathroom
        • spacious dressing/closet space

content:  • airy/open
         • tranquil
         • outdoor view
         • repose

possible solution:  • create an intimate environment with calm/serene colors that express a tranquil response to the resident’s collage statement.

Bedroom - 13yr old daughter

form:  • sleeping space with double bed
        • liberal closet/storage space
        • eventually Karen & Alan’s office space

content:  • light/airy atmosphere
         • private
         • versatility

possible solution:  • create a versatile space that will respond in function to the client’s changing needs.
Bedroom - 14 yr. old Son

**Form:**
- Sleeping space with twin beds
- Liberal closet/storage space
- Eventually extra guest room

**Content:**
- Light/airy atmosphere
- Private
- Versatility

**Possible Solution:**
- Create a versatile space that will respond in function to the client's changing needs.

Central Study Space

**Form:**
- Adjacent to children's bedrooms
- Space for studies, books, etc.
- Eventually TV room

**Content:**
- Inward focus
- Contemplation
- Versatility

**Possible Solution:**
- Create a versatile space that will respond in function to the client's changing needs.

Guest Room

**Form:**
- Sleeping space with double bed
- Minimal closet space
- Outward views

**Content:**
- Private
- Light/airy atmosphere

**Possible Solution:**
- Create a private environment that responds to the residence's overall collage statement.

k/v

**Form:**
- Full bathroom to serve bedrooms
- Spacious closet/pantry storage
Service/Auxiliary Spaces

Laundry
form:
- washer / dryer
- large sink
- near private spaces

Mechanical

Storage
form:
- personal storage
- artwork collection
- books

Garage
form:
- space for two vehicles
- storage for recreational equipment
- wood, supply storage
- miscellaneous tool storage
- easy access from road and residence

possible solution:
- Reflect the space in the overall collage composition.
Endnotes

1 Interview with Alan Leech, Montana State University, Bozeman, Montana, April 1986.


4 Reese, Montana Mountain Ranges, p. 77.

5 Ibid., p. 81.

6 Ibid., p. 81.


8 Ibid., p. 20.


10 "Music and Architecture in the Environment of Man," AIA Journal, June 1957, p. 120.


13 Radoslav Zuk, p. 4.

14 "Music and Architecture in the Environment of Man," p. 120.

15 Radoslav Zuk, pp. 2-3.

16 Ibid., pp. 2-3.
19 Ibid., p. 3.


20 Ibid., p. 19.

21 Ibid., p. 20.

22 Ibid., p. 20.


24 David Engle, Six Suites for Unaccompanied Cello, postscript on record album, J.S. Bach.

25 Ibid.


28 Douglas Brenner, "When Opposites Attract," Architectural Record, Mid-April 1988, p. 120.

29 Ibid., p. 120.


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Leech, Alan. Montana State University, Bozeman, Montana. Interview, April 1988.


