"A RECREATIONAL RESORT AT LAKE MONROE, INDIANA"

AN ARCHITECTURAL THESIS
THE COLLEGE OF ARCHITECTURE AND PLANNING
BALL STATE UNIVERSITY

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There is a definite need for designers involved in any type of environmental design to create a surrounding comfortable to man and the creatures he co-exist with. I believe this can best be accomplished by incorporating into the design process such things as:

- Strong sense of space.
- Variety of spaces.
- Human scale characteristics.
- Natural elements complementing the man-made elements.
- Simple circulation patterns.

Naturally, this short list does not cover every early design input or concept, but I believe these five points best describe my own outlook toward this project. A brief project description will follow after touching upon the above with more detail.

Preface
CHOICE OF SITE

SOUTHERNLY ORIENTATION TOWARD SUN AND SUMMER BREEZES.

WESTERN SHORE FOR NATURAL WIND PROTECTION.
LOCATION OF A SMALL MARINA OUT OF MAIN FLOW OF LAKE TRAFFIC.

LAKE FRONT SITE WITH NO EXISTING BUILDINGS.

VISTAS IN MANY DIRECTIONS ACROSS LAKE.
THE SITE

FLOOD CONTROL
POOL RANGE: 538'-556'.
LOW FLOW REGULATION
POOL: 515'-538'.
ABOVE SEA
LEVEL.

SITE ANALYSIS
A TEMPERATE CLIMATE

2400 HOURS OF MEAN ANNUAL SUNSHINE.

24" MEAN ANNUAL RAINFALL.

10 DAYS AVERAGE SNOWFALL.

TEMPERATURES:
AVE. 60°F MIN. TO AVE. 90°F MAXIMUM.
SUNLIGHT & SHADE

WARM SLOPE: MOSTLY SUNNY DURING ALL SEASONS EXCEPT FOR EARLY MORNING & LATE EVENING.

COOL SLOPE: NORTHERN SLOPES, PRIMARILY SHADOED EXCEPT FOR MIDMORNING THROUGH MID AFTERNOON.

SITE ANALYSIS

THE SUBJECT MATTER DISCUSSED IN THE PREVIOUS PAGES SHALL STRONGLY INFLUENCE THE DESIGN APPROACH AND FINAL PHYSICAL CHARACTERISTICS OF THE RESORT. I MUST STRESS THE IMPORTANCE OF THE RECREATIONAL FACILITIES IN THIS PROJECT. RECREATION CAN SERVE AS A STRONG FOUNDATION AND BUILDING BLOCK TO DEVELOP THIS PROJECT.
Co-existing with nature is stressed by Ian McHarg, not competing.

His book stresses the "power and importance of sun, moon, and the stars; the changes of seasons, seed time and harvest; clouds; rain and rivers; the ocean and the forests; the creatures and the herbs."

Man should be steward of the ecosystem.

The world of plants are the dominant force on earth. The sun/plant relationship gives life to all organisms, man one of those dependent.

The Naturalist
The Sun is the chief worker of the universe.

Water cycle caused by sun.

The environment we live in:

Major elements and compounds:
- Carbon
- Hydrogen
- Oxygen
- Nitrogen

Chloroplasts

Decomposers
FORM IN NATURE

A STRONG LESSON CAN BE LEARNED BY INVESTIGATING
THE ORGANISM IN FORMS CREATED IN NATURE.

FORM IS A SIGN OF FITNESS, AN IDENTIFIER.
"FORM IS A COMMUNICATION, THE PRESENTATION OF
MEANING."

FORM IS INDIVIDUAL THINGS

FORM IS SYSTEMS

A SYSTEM CAN BE AN ORGANISM.

FORMS BECOME SYMBOLS, ASSUMED
MEANINGS, A LANGUAGE.

THE NATURALIST
Creating human scale on the site involves projecting man's image into the size, shape & spirit of the indoor & outdoor spaces.

Man's size & dimensions can determine the scale of the space.

Hopefully, man will interpret the spaces as his own, specially designed for him. The individual or group of individuals should never feel uncomfortable or lost in a space.

No feeling of scale

A sense of scale

Human Scale
The Modulor by Le Corbusier as a system for uniformity, totally related to man.

Golden of Le Corbusier:

1) Use of human dimension:

2) Use of right angles:

3) Use of the Golden Section:

Le Corbusier went to great extremes to create a system which could be use internationally. This dream was never finalized, but his can be quite helpful to the designer to keep in mind the importance of human size and shape.

Human Scale
WHAT ARE THE LIMITATIONS OF THIS SYSTEM?

WHAT AMERICAN BUILDINGS HAVE BEEN DESIGNED BY THIS SYSTEM?

Human Scale
The need of recreational activity comes from man's need to get away from the everyday routine of work, home life, traffic, etc. Recreation is actually formed by the words re-creation. This type of activity gives man a rest, a chance to concentrate on something new or different; a chance to dream.

Types of recreation can be categorized:

inactive/active
individual/group
young/old
specific/nonspecific
small/large
flat/sloped

Things to consider when designing recreational spaces:

access
distribution
movement
safety/comfort
time, temperature, weather
preservation/construction
maintenance
It is essential to develop the program on the basis of how a space reacts to a certain activity. Two primary criteria are the physical dimension of the activity and the human perception of the space. For example; how large is a tennis court? What materials are needed? What does a tennis player expect a tennis court to look like?
Recreational activities existing on and around the site are generally outdoor activities of man dealing with the natural elements. The natural elements can quickly be covered in the list below.

**Natural Elements**

**Soil**

**Terrain**

- Open Hills

**Plants**

- Mainly oak-hickory forest with undergrowth native to Indiana.

**Water**

- Suitable for recreational activities. Fine fishing.

**Animals**

- All native to Indiana. Many sport species, e.g. duck, pheasant, quail, deer and a number of species of fish.

**Recreation**
The existing recreational activities can be categorized into two groups: the first being activities on land, and the second being activities on and in the water.

**Land Oriented Recreational Activities:**
- Walks
- Picnicking
- Rolling / Jumping
- Frisbee
- Hunting / Trapping
- Sunbathing
- Horse shoes
- Snowball fights

**Open Hills**

**Water Oriented Recreational Activities:**
- Swimming
- Diving
- Boating
- Skiing
- Fishing
- Skating
- Wading

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**Recreation**
From the prior list, it is evident that a great majority of the activities go on during warm weather. It is also evident that there is a possibility to fill in some of the recreational activity gaps by creating additional activities.

Possible outdoor activities:
- Tennis
- Squash
- Volley Ball
- Badminton
- Basketball

Possible indoor activities:
- Cards
- Drinking
- Dancing
- Social Exchange
- Eating
- Reading
- TV/Music
- Gym activities
  - Sauna
  - Swimming
  - Diving
  - Squash
  - Hand Ball
  - Raquet Ball
- Pina Pong
- Volley Ball
- Tennis
- Basketball
- Billiards

Recreation
REST AND PRIVACY:

It is naturally agreed man must have periods of rest, and also just as important, periods of time by himself.

A predominant space can experience his time of relaxation is in a private unit. The unit is a space creating a private atmosphere and enough room for one to four persons.

The number of these private units will be determined later in the program.
LESS PRIVATE, BUT STILL CREATING AS MUCH INTIMACY AS
POSSIBLE ARE OUTDOOR SPACES. A SPACE WHERE A FEW
PERSONS CAN FEEL ALONE WITH THE ENVIRONMENT.

AN OUTDOOR SPACE TO BRING MAN CLOSER TO NATURE.
The need for food → Physical nourishment.

An environment should have facilities to supply man with the needed nutrients.

A well planned recreation area should offer a variety of eating experiences, hopefully in a relaxed atmosphere.

Informal / Formal
Morning / Afternoon / Evening
Private / Public
Quiet / Loud entertainment

Indoors / Outdoors

Protein
Carbohydrates
Fats
ACTIVITY CONTROL

Management of activities, whether private or public, will be almost all of the actual work required on the site. Services that allow a certain activity or group of activities are mandatory design considerations.

(Another possible work activity could be visiting seminars/office groups who use the site for weekend or weekly sessions.)

Management areas will be kept informal with adequate functional and storage space.
THE ORGANIZATION OF HOTEL MANAGEMENT BY E. ABRABEN.

**RESERVATION**
- ASST. MANAGER
  1) CLERKS INDEX
  2) VERIFICATION AND HISTORY
  3) REPLY AND CONFIRMATION
  4) CONVENTION MANAGER

**CONTROL SHEET**
1) TYPE OF FACILITY
2) CHECK-IN DATE
3) CHECK-OUT DATE
4) CONTROL NUMBER
5) SPECIAL FEATURES

**RESERVATION CHART.**
1) ROOM BLOCKED
2) ALLOWANCE FOR OVERBOOKING

**ROOM CLERK**

**HOUSE KEEPING**
1) ROOM RECORD

**LINEN ROOM SUPER**

**ACCOUNTING**

**TELEPHONE DEPARTMENT**

**SECURITY**

**CHECKOUT**

**OUT**

SMALL RESORT DEMAND MORE FROM A SMALLER GROUP OF PEOPLE.

SERVICE SHOULD BE INTIMATE AND FRIENDLY.
MANAGERIAL FUNCTION CATEGORIES

A. ROOM'S MANAGER, ASSISTANT MANAGER
   1) ROOM CLERK
   2) MAIL AND INFORMATION
   3) CASHIERS
   4) BILL CLERKS

B. FRONT OFFICE
   1) OPERATORS
   2) MESSAGE ATTENDANTS

C. TELEPHONE SERVICE
   1) OPERATORS
   2) MESSAGE ATTENDANTS

D. SECURITY OFFICER

E. HOUSE KEEPING DEPT.
   1) FLOOR HOUSEKEEPER
   2) MAIDS
   3) CLEANERS

F. VALET AND LAUNDRY SERVICE

G. UNIFORMED SERVICES
   1) SUPERVISOR
   2) DOORMEN
   3) PORTERS

A. FOOD AND BEVERAGE MAN

B. FOOD DEPARTMENT
   1) CHEF
   2) BUTCHERS
   3) WASHERS

C. STEWARDING
   1) EXECUTIVE STEWARD
   2) ASSISTANTS
   3) DISH WASHERS
   4) KITCHEN CLEANERS

D. SERVICE
   1) HEADWAITERS
   2) WAITERS
   3) BUSBOYS

MANAGEMENT
LIGHTING:
Natural light shall be used as much as possible. Warm sunlight should enter the spaces in a pleasant manor, giving warmth in the winter, but, unfortunately heat gains in the summer.

CONTROL DEVICES FOR THE SUN:

![Diagrams of curtains and blinds, overhangs, and sun louvers.]

Artificial light will be incandescent and fluorescent, giving adequate brightness for the particular task and lighting effect desired.

Good use of natural light should minimize electrical costs.
LIGHTING LEVELS FOR HOTELS:

- LOBBY ...................... 10 to 30 Foot Candles
- BATHROOMS ..................... 10 to 30
- DINING AREAS ..................
  - CASHIERS ...................... 50
  - FORMAL AND BARS ........... 10 to 30
  - CAFE AND QUICK SERVICE ... 50 to 75
- OFFICES ...................... 75 to 100
- KITCHENS ..................... 75
- STORE ROOMS AND MAINTENANCE AREAS .... 10 to 100
- CORRIDORS AND STAIRS ....... 20
- GUEST ROOMS .................. 10 to 75
- STORE INTERIORS ............. 30 to 100
  - DISPLAYS .................. 200 to 500
Hotel HVAC:

Available systems:

Self contained units... outmoded
Single duct... high cost
Dual duct... used in dining
Fan coil units... used in guest rooms
Induction systems... used in most hotel

The induction system:

Three or four pipe system
Closer degree of control
Slightly quieter than fan coil system
Very effective in intermediate season (40° to 50°F).

Further information is available in Time Saves Standards by Callander, 5th Edition.
PLUMBING:

A. RESTAURANTS, BAR, LOBBY:
- Hotel Toilets: 1 Man to 1 Woman
- 2 Urinal and 1 Lavatory / 2 W.C. for Men; / 2 W.C. for Women
- 1 Water Closet / 15 People in Rest; / 50 People in Lobby.

B. BALL ROOM/AUDITORIUM: 2 Men to 1 Woman
- 2 Urinals and 1 Lav. / 1 W.C. for Men; / 1 Lav./ 2 W.C. for Women.
- 1 W.C. for Each 50 Persons.

Location can be divided by this grouping (A and B).
Location should be in least valuable areas.
Close to cloak room.
Women's toilet should have adjoining lounge.

C. INDIVIDUAL GUEST ROOMS:
- 1 Water Closet
- 1 or 2 Lavatories
- 1 Bath with shower head.

SYSTEMS
THE PHYSICAL DESCRIPTION OF THE RECREATIONAL FACILITIES.

TENNIS:

NUMBER OF COURTS
FOR PROJECT: 1/30 PEOPLE.
& 8 COURTS, 4 INDOORS.

DRAINAGE:
Porous 1/20'
Non-Porous 1/10'

POSSIBLE SURFACES:
CLAY
GRASS
FAST DRY
CONCRETE
ASPHALT
WOODEN
ASPHALT BOUND
SYSTEM
SYNTHETICS
REMOVABLE

RECREATIONAL FACILITIES
POSSIBLE LIGHTING:
IN CANDESCENT
MERCURY VAPOR
MULTI-VAPOR OR METAL HALIDE.


REGULATION SWIMMING POOL:
A 25 YARD POOL MEETS INTERSCHOLASTIC AND INTERCOLLEGIATE REQUIREMENTS.
SHOULD BE AT LEAST 8 LANES TOTALING 60 FEET.
Swimming Pool Necessities:
Misc. Rope and Floatation Equipment
Safety Devices
Cleaning Equipment (Sweeper, net, etc.)
Pool Filtration Devices*

Other Pool Side Equipment:
Chairs
Lounges
Tables
Tables with Umbrellas

*More detailed information for filtration systems is available in Architectural Graphic Standards.
Volleyball:

Indoor or outdoor courts = 2 courts

22' 0"

7' 0"

22' 0"

30'

Min. 6' clearance on sides.

Volleyball can be a relaxing friendly sport played by all, or a highly competitive game played by either sex.

Basketball:

Min. 3' edge

7' 0"

8' 0"

9' 0"

12'

84' for high school

94' for college

6' outside radius

½ court inside, 1 court outside.

Recreational Facilities
SQUASH:

INDOOR COURT

* MAY USE SPECTATOR CLASS WALL PANELS.

BADMINTON:

INDOOR COURT AND 1 OUTDOOR COURT.
HANDBALL:

ALL LINES RED OR BLACK 1½" WIDE.

OUTDOOR
SINGLES COURT.

2 OUTDOOR COURTS

REAR

FRONT ELEVATION

A.A.U. STANDARDS

2 INDOOR COURTS

INDOOR
HORSE SHOES:

10' 40' BETWEEN STAKES

PITCHE'S BOX 6X6'

ALLOW 10' BETWEEN LANES

2 Lanes Outside

SHUFFLE BOARD:

12' 8', 6', 3', 3' 15' 6' 6'

2 Inside Courts, 2 Outside Courts

Recreational Facilities
A private space for single people, couples or families. A resting space with comfortable facilities and a relaxing atmosphere.

Each room is equipped with reading, resting, writing, lounge, dressing, storage, sleeping, hygienic spaces.

It is important that the guest units are not boring or monotonous as a whole. Units with different shapes, sizes, materials and spatial relationships which still combine to make pleasing whole should be investigated.

Many units shall have semi-private decks.
STANDARD HOTEL ROOMS:

THE CONVENTIONAL ROOM LAYOUT HAS DEVELOPED FROM YEARS OF HOTEL/MOTEL DESIGN.

ECONOMICAL
PRACTICAL
SERVICABLE

~ OR ~

~ OR ~

GUEST UNITS
Office space is kept with some privacy by louvers or fixed panels. All administrative activities should be close together, relating directly to the reception area.

A separate entrance could be included in the design criteria.

Actual office space includes a secretarial office, hotel manager's office and a storage/work room.
Dining facilities should carry on the character of the site and resort by being activity oriented, relaxing, and capable of changes. Capable of seating 100 people at one time.

The main kitchen shall be closely connected to the dining area. Work stations include main cooking, vegetable preparation, refrigeration, storage, salads, sandwiches, dishwashing, pantry, employee restrooms.
In 1963 one out of every twenty-four persons owned a boat. Since one of the main activities at the proposed resort will be water sports, accommodations for boats is needed. Slips and related facilities are required for the hotel guests only.

Possible Marina features:
- Covered slips
- Open slips
- Storage closets
- Boat service and repairs
- Fishing and water sports supplies
- Cafe or lunch bar.

Possible construction:
- Wood piles
- Steel piles
- Concrete pilings
- Float materials.

Marina
THE INDIANA STATE BUILDING CODES MUST BE FOLLOWED FOR ANY STRUCTURE TO BE BUILT. THERE IS NO SENSE TO RECORD EVERY REQUIREMENT, BUT I THINK IT IS WORTHWHILE TO MENTION IMPORTANT CHARACTERISTICS REQUIRED FOR A HOTEL / RESORT TYPE BUILDING.

* HOTELS ARE CLASSIFIED AS TYPE H OCCUPANCY.

* HOTELS MAY NOT BE MORE THAN 3 STORIES HIGH UNLESS CONSTRUCTED OF 'FIRE RESISTIVE' MATERIALS. STRUCTURAL FRAME CAN BE STRUCTURAL STEEL OR IRON, OR REINFORCED CONCRETE.

* AT LEAST 2 MEANS OF EXIT. ALL STAIRS AND EXITS MUST OPEN OUT TO STREET, ALLEY OR YARD NOT LESS THAN 4' IN WIDTH.

* TYPE H SPACES MUST BE SEPERATED FROM TYPE F SPACES (RESTAURANTS, OFFICE AND SHOPS) BY A ONE HOUR FIRE RATING WALL AND DOOR.

* ALL PASSAGEWAYS LEADING TO STAIRWAYS MUST BE 4'-4" IN WIDTH.
GUEST ROOMS:

80 DOUBLES 160 PERSONS @ 550EA. 44,000€
10 SUITS 40 PERSONS @ 750EA. 7,500€

ENTRY
RECEPTION
LOBBY
MAIN OFFICE
DIRECTOR'S OFFICE
TYPEING, WORK, STORAGE
KITCHEN
PANTRY
STORAGE
 DINING

FORMAL AND DANCE FLOOR
2 CAFÉS AT 500€ EA. 2,000€
2 BARS
LOUNGE / TV AND CARDS
MEETING ROOMS AND BANQUET SPACE

INDOOR RECREATIONAL SPACES:

TEennis
Swimming
Sauna
Gymnastics
Basketball / Badminton / Volleyball Court

Billiards 500€

Square Footages
<table>
<thead>
<tr>
<th>Facility</th>
<th>Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shuffleboard</td>
<td>1000</td>
</tr>
<tr>
<td>Handball</td>
<td>2000</td>
</tr>
<tr>
<td>Squash</td>
<td>1060</td>
</tr>
<tr>
<td>Children's Play</td>
<td>1000</td>
</tr>
<tr>
<td>Locker Rooms</td>
<td>800</td>
</tr>
<tr>
<td>Pro Shop</td>
<td>400</td>
</tr>
<tr>
<td>Other Shops</td>
<td>800</td>
</tr>
<tr>
<td>Public Restrooms</td>
<td>800</td>
</tr>
<tr>
<td>Mechanical</td>
<td>8000</td>
</tr>
<tr>
<td>Marina (Small Office and Shop)</td>
<td>800</td>
</tr>
<tr>
<td>Dock/Fish Cleaning Station</td>
<td>800</td>
</tr>
<tr>
<td>80 Slips (60 Covered)</td>
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</tbody>
</table>

**Outdoor Recreational Facilities**

<table>
<thead>
<tr>
<th>Facility</th>
<th>Square Feet</th>
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<tbody>
<tr>
<td>Tennis</td>
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<tr>
<td>Basket Ball</td>
<td>4050</td>
</tr>
<tr>
<td>Volley Ball</td>
<td>1800</td>
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<tr>
<td>Badminton</td>
<td>1100</td>
</tr>
<tr>
<td>Shuffleboard</td>
<td>1000</td>
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<tr>
<td>Horse Shoes</td>
<td>200</td>
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<tr>
<td>Sun Bathing</td>
<td>800</td>
</tr>
</tbody>
</table>

**Manager's Apartment (Living, Kitchen, Bedroom(2)): 1500**

Bath and Garage

Laundry Facilities with Linen Storage: 800

**Total: 169,100**
Design Development
RECREATIONAL RESORT
MONROE RESERVOIR, INDIANA
THESIS 1975
FINAL DESIGN
Final design
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