Project:
Tri-County Recreation Center

Location:
Koontz Lake, Indiana

Student:
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Date:
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I would like to thank Mr. Charles Sappenfield, Mr. Jeff Culp and Mr. Les Smith who all have contributed to this thesis in making it a successful project.

Thanks also to Mr. Robert Taylor for his helpful information about recreational facilities as well as Don Stetson for his professional advice as executive director of the YMCA, Muncie.

I would like also to express appreciation to Miss Laura Jones for her constant support and encouragement during the last nine months of this project.

Thanks to all who have helped in this my Thesis Project.
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The idea of public land for a recreational purpose is relatively a new concept in our time. Prior to the time of increased urbanization and industrialization land was only set aside for the pleasure of the nobility. With the change in ideas on city planning also came the idea that the parks could be used as open space for anyone. The parks would be open to people of any class or background and could be used with minimum restrictions. Public parks were first considered for only places of passive enjoyment and quiet pleasure. Parks were areas where people could have relief from their employment. This idea led to a new concept of parks as being a place for active enjoyment, sports and recreation. With this new concept though came the problem of areas lacking in their ability to satisfy all of the users needs. This problem was solved by combining parks of different functions into one park where all activities would be contained.

With the greater amount of time that people spent on leisure or in a recreational activity also came better and larger park facilities. With this demand for new and more modern facilities ever increasing, new areas of recreation must be designed to meet these demands of the users. Today there are special recreational facilities that serve the needs of the majority of the people. These facilities range from private clubs which require a membership in order to participate to public parks which are available to the general public and are publically owned and operated.

According to Webster's these are the definitions of recreation, leisure and sport.

Recreation: to create anew, restore, refresh. Refreshment of strength and spirits after toil; diversion, also a means of refreshment or diversion

Leisure: freedom provided by the cessation of activities; especially time free from work or duty

Sport: a source of diversion. Sexual play. Physical activity engaged in for pleasure, a particular activity so engaged in

According to the recent survey, "The Miller Lite Report on American Attitudes towards Sports", only 3.7% of the American public does not participate or attend as few as one athletic event once a month. The following results were obtained from the survey:
<table>
<thead>
<tr>
<th>Participatory Sports</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>swimming</td>
<td>33%</td>
</tr>
<tr>
<td>calisthenics</td>
<td>29%</td>
</tr>
<tr>
<td>jogging</td>
<td>29%</td>
</tr>
<tr>
<td>bicycling</td>
<td>28%</td>
</tr>
<tr>
<td>softball/</td>
<td>21%</td>
</tr>
<tr>
<td>baseball</td>
<td></td>
</tr>
<tr>
<td>weightlifting</td>
<td>15%</td>
</tr>
<tr>
<td>basketball</td>
<td>15%</td>
</tr>
<tr>
<td>football</td>
<td>12%</td>
</tr>
<tr>
<td>racket sports</td>
<td>12%</td>
</tr>
<tr>
<td>boating</td>
<td>11%</td>
</tr>
<tr>
<td>pool</td>
<td>11%</td>
</tr>
<tr>
<td>aerobics</td>
<td>10%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spectator Sports</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>football</td>
<td>28%</td>
</tr>
<tr>
<td>baseball</td>
<td>18%</td>
</tr>
<tr>
<td>basketball</td>
<td>8%</td>
</tr>
<tr>
<td>gymnastics</td>
<td>5%</td>
</tr>
<tr>
<td>wrestling</td>
<td>4%</td>
</tr>
<tr>
<td>boxing</td>
<td>4%</td>
</tr>
<tr>
<td>tennis</td>
<td>4%</td>
</tr>
<tr>
<td>auto racing</td>
<td>4%</td>
</tr>
<tr>
<td>skating</td>
<td>4%</td>
</tr>
<tr>
<td>others</td>
<td>20%</td>
</tr>
</tbody>
</table>

In 1978 the Bureau of Economic Analysis published these findings on "How Consumers Spend Their Dollars". The average consumer spent 6.8% of his money in some form of recreational activity. The total breakdown and ranking is as follows:

- food: 17.8%
- housing: 15.7%
- household operations: 14.4%
- transportation: 14.2%
- medical care: 9.7%
- clothing/jewelry: 8.0%
- recreation: 6.8%
- personal business: 5.3%
- alcohol: 2.3%
- private education: 1.5%
- personal care: 1.3%
- tobacco: 1.3%
- religious activities: 1.3%
- foreign travel: 1.4%

According to this research the U.S. consumer spent $91.2 billion on recreation in 1978 as compared to $3.8 billion in 1940.
The area chosen for this recreation center is Koontz Lake. Koontz Lake is located primarily in Starke County and partially in Marshall County in northern Indiana. In 1979 the Indiana Department of Natural Resources published the "1979 Indiana Outdoor Recreation Plan". This plan did analyze the whole state by breaking the state into 16 zones. The plan also did the forecasting of the projected need analysis for the years 1980-1995.

The people using this facility would come from the zones 1B and 2. The 1995 projection for these two areas is as follows:

- bicycling- 658 miles of trails
- boating- 27,000 acres of water
- fishing- 57,360 acres of water
- golfing- 3 golf courses
- hiking- 830 miles of trails
- horse-back riding- 26 miles of trails
- hunting- 160,000 acres of area
- ice skating- 13 acres of water
- off road vehicles- 1049 miles of trails
- playfields- 1100 acres of land
- playgrounds- 100 acres of land
- sledding- 75 acres of area
- swimming- 34 acres of water
- tennis- 131 courts

All of these figures are in addition to all of the existing facilities.

The present need analysis showed that these percentages of people participated in these recreational activities. This also shows the percentage of existing facilities that met the 1980 demand.

<table>
<thead>
<tr>
<th>Activity</th>
<th>1980%</th>
<th>1980%</th>
</tr>
</thead>
<tbody>
<tr>
<td>bicycling</td>
<td>24%</td>
<td>20%</td>
</tr>
<tr>
<td>boating</td>
<td>26%</td>
<td>75%</td>
</tr>
<tr>
<td>camping</td>
<td>25%</td>
<td>100%</td>
</tr>
<tr>
<td>canoeing</td>
<td>8%</td>
<td>100%</td>
</tr>
<tr>
<td>fishing</td>
<td>40%</td>
<td>54%</td>
</tr>
<tr>
<td>golf</td>
<td>16%</td>
<td>100%</td>
</tr>
<tr>
<td>hiking</td>
<td>3%</td>
<td>21%</td>
</tr>
<tr>
<td>horseback</td>
<td>8%</td>
<td>65%</td>
</tr>
<tr>
<td>hunting</td>
<td>21%</td>
<td>27%</td>
</tr>
<tr>
<td>ice skating</td>
<td>10%</td>
<td>77%</td>
</tr>
<tr>
<td>off road</td>
<td>11%</td>
<td>42%</td>
</tr>
<tr>
<td>picnic</td>
<td>38%</td>
<td>100%</td>
</tr>
<tr>
<td>playfields</td>
<td>32%</td>
<td>39%</td>
</tr>
<tr>
<td>playgrounds</td>
<td>17%</td>
<td>81%</td>
</tr>
<tr>
<td>sledding</td>
<td>13%</td>
<td>23%</td>
</tr>
<tr>
<td>snow skiing</td>
<td>2%</td>
<td>50%</td>
</tr>
<tr>
<td>swimming</td>
<td>47%</td>
<td>73%</td>
</tr>
<tr>
<td>tennis</td>
<td>15%</td>
<td>68%</td>
</tr>
<tr>
<td>water skiing</td>
<td>10%</td>
<td>100%</td>
</tr>
</tbody>
</table>

The top 6 outdoor recreation activities for this area are

1) swimming
2) fishing
3) picnicing
4) hiking
5) playfields
6) boating
The Tri-County Recreation Center is a community recreation center for a three county area in northern Indiana. The facility is to serve the active and passive recreational needs found in the variety of age groups in the area. The facility encompasses both outdoor as well as indoor activities and will be in use year round. Planned and organized sporting activities will be able to use all of the areas at stated times. Family and open-used times will also be set. Leagues for both youth and adults will be arranged with schedules will be assigned for the outdoor sports of basketball, football, soccer and softball. A variety of indoor leagues will also be set. All leagues will be financed through either donations or in sponsorship of a team for a particular activity. Besides spaces for recreational activity, the center will also provide for social, groups and club activities.

Financing for the Tri-County Recreation Center will come from tax revenues generated in the three counties served. Additional support will come from yearly membership fee required for participation in various activities. The need for this facility has grown out of the desire to have a recreational center. Walkerton, a town four miles north of Koontz lake has tried to raise money for such a center. Many local clubs such as Lions and Jaycees have helped to raise these funds but all of the attempts have been unsuccessful. Walkerton has been used as the area to extract the program from as the majority of residents in the town would be able to use the facility.

In July of 1980 the "Walkerton Comprehensive Development Plan" was prepared and these results were then established. The Plan recommended that more space be acquired to meet the increasing demands for recreational activity. There are presently five public parks in the Walkerton area with a total acreage of 12 acres. These parks as well as school grounds contain:

- playgrounds 7
- basketball courts 8
- tennis courts 10
- baseball fields 4
- softball fields 4
- football fields 2
- horseshoe pits 3
- volleyball courts 2
- track and field 1
This Thesis picks up the ideas of the town and carries them into a complete building. The Tri-County Recreation Center is to meet the ever increasing demands of the local residents. Walkerton has been chosen as the sample area because it is the largest town in the area being served. In order to realize the needs of the area residents a questionnaire was developed and then published in the local newspaper. After collecting the returned questionnaires these results were then obtained.
THESIS PROGRAM QUESTIONNAIRE

Please circle your answers or fill in the blank where provided.

Age: 7-13 14-18 19-25 26-35 36-45 46-55 56-65 over 65
Sex: Male Female
Residence location: In Town Country Own Rent
Years in area: 0-5 6-10 11-15 16-20 21 or more
Number of dependents

Place of employment
Highest grade of education: 8th 12th 4 yrs. col. post grad.
Do you feel that your social/recreational outlets are met in Walkerton? Yes No

How much time do you spend in a recreational activity during an "Average" week?
1-3 hrs. 4-7 hrs. 8-15 hrs. 16 or more hrs.

What percent of this time is spent in doing the activity with at least one member of your family?
0% 1-10% 11-25% 26-49% 50-74% 75% or more

What activities do you enjoy participating in?

What activities would you like to participate in if offered?

From this questionnaire came the final program for the Tri-County Recreational Center.
SECOND LEVEL

FIRST LEVEL

PROGRAM ANALYSIS
### INDOOR SPACE SUMMARY

<table>
<thead>
<tr>
<th>Location</th>
<th>Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>lobby/entry</td>
<td>1240</td>
</tr>
<tr>
<td>display</td>
<td>500</td>
</tr>
<tr>
<td>info./control</td>
<td>550</td>
</tr>
<tr>
<td>offices</td>
<td>1860</td>
</tr>
<tr>
<td>public meeting</td>
<td>3400</td>
</tr>
<tr>
<td>restaurant</td>
<td>1000</td>
</tr>
<tr>
<td>lounge</td>
<td>1000</td>
</tr>
<tr>
<td>atrium</td>
<td>2000</td>
</tr>
<tr>
<td>gameroom</td>
<td></td>
</tr>
<tr>
<td>viewing</td>
<td></td>
</tr>
<tr>
<td>swimming pool</td>
<td>8400</td>
</tr>
<tr>
<td>locker areas</td>
<td>5700</td>
</tr>
<tr>
<td>mechanical (pool)</td>
<td>500</td>
</tr>
<tr>
<td>first aid</td>
<td>225</td>
</tr>
<tr>
<td>gymnasium</td>
<td>7910</td>
</tr>
<tr>
<td>weightlifting</td>
<td>2500</td>
</tr>
<tr>
<td>racquetball</td>
<td>2400</td>
</tr>
<tr>
<td>mechanical</td>
<td>3000</td>
</tr>
<tr>
<td>circulation</td>
<td>6000</td>
</tr>
<tr>
<td>restrooms</td>
<td>900</td>
</tr>
<tr>
<td>janitorial</td>
<td>120</td>
</tr>
<tr>
<td>storage</td>
<td>1240</td>
</tr>
<tr>
<td>exercise court</td>
<td>1000</td>
</tr>
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</table>

**Total:** 52,000 sq.ft.

### OUTDOOR SPACE SUMMARY

<table>
<thead>
<tr>
<th>Location</th>
<th>Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>parking</td>
<td>45,000</td>
</tr>
<tr>
<td>docking</td>
<td>13,500</td>
</tr>
<tr>
<td>boat rental</td>
<td>1,300</td>
</tr>
<tr>
<td>swimming</td>
<td>15,500</td>
</tr>
<tr>
<td>tennis</td>
<td>18,720</td>
</tr>
<tr>
<td>softball</td>
<td>40,000</td>
</tr>
<tr>
<td>soccer/football</td>
<td>64,350</td>
</tr>
<tr>
<td>basketball</td>
<td>4,700</td>
</tr>
<tr>
<td>picnic</td>
<td></td>
</tr>
<tr>
<td>park</td>
<td></td>
</tr>
<tr>
<td>winter activity</td>
<td></td>
</tr>
</tbody>
</table>

**Total:** 203,070 sq.ft.

### TOTAL SPACE SUMMARY

<table>
<thead>
<tr>
<th>Location</th>
<th>Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>outdoor space</td>
<td>203,070</td>
</tr>
<tr>
<td>indoor space</td>
<td>52,000</td>
</tr>
</tbody>
</table>

**Total:** 255,070 sq.ft.
MAIN LOBBY and ENTRY

the major open public space

direct access into the spaces such as the lounge, restaurant and atrium are available as is to the outside

total level and up one level into the lobby by using the ramp system or the stairs

total control/information point at entry

lobby is a large open space with views outside as well as within

lobby looks out across the depressed areas onto the park and lake

entry is point of decision for passive recreation

active recreation

seating areas on both levels of the lobby

entry flows in from the outside and becomes the lobby

lobby is a very active space with many activities going on within it

use of natural light from the southern exposure as well as the open space to highlight the space and the activities there in

use of natural vegetation in the form of trees to link this space with the outside areas

interior views from the second level lobby into the pool, gym and also the racquetball courts
DISPLAY AREA

part of the main lobby on the passive level which is the second level

area to have works of art and other individual expressions shown for public display

the works are to be hung from the ceiling or on panels resting on the floor

use of track lighting in this area so that the lighting system can meet the various demands of the different types of displays

display area is to be out of the direct circulation path but yet very visible from this area

display area can be used for group showing by clubs or organizations as well as by individuals

schedule for displays will be arranged by the management of the facility

the facility will supply the various materials for displays but the groups are responsible for the set up and take down of the displays
INFORMATION/CONTROL

point of control into the building from the main entry which is from the southern side of the building

this point controls the entry into the active participation areas of the sporting zone

this point and a wall separate the two zones of recreation on the first level of the building

controls visually the entry into the recreational area and controls electronically the entry into each locker area

area of information in letting the people know when they can use the areas and also letting the people know what activities are going on in the center

information station is also the place where people call in order to make reservations for use in the areas that require such reservation

payment for use of specific areas is also done here at the information area
OFFICES

open office and director's office are directly off of the main lobby on the second floor

offices located so they have a view out across an area of the facility and so they also have some level of southern exposure

director's office houses the director

the director is located in the director's office and he controls as many events and activities that are happening at the center as is possible, the director does the scheduling of the spaces that are rented out and sees to it that the spaces are used properly

directors position is an appointed position by the board which controls the recreation center

the open office is for 2 or 3 people who help the director run the areas of the facility; these people are accountable for accounting, purchasing, payroll, and operation of the facility; both of these people are under the direct supervision of the director

offices are adjacent to the lobby as well as the public meeting space

entry into the director's office is through a door into the open office and the people in the open office have control over how people enter the directors office
PUBLIC MEETING SPACE

This space contains 3 meeting rooms:
- 1000 sq.ft.
- 500 sq.ft.
- 300 sq.ft.

Lobby
Public restrooms

Lobby can be entered both from the exterior and from the interior of the facility.

Internal entrance is used during the regular hours that the facility is in use.

External entrance is used when the facility is closed and in case of an emergency, located just off of the external entrance is a dock which is used to filter people or is used as places for people to meet prior to going into the area.

Meeting rooms are rental spaces of various sizes for groups or large organizations capable of handling groups from 30 to 100 people.

All furniture is supplied by the center and organizations are to be responsible for setting up as well as taking down the equipment.

Room reservations are made by calling the director's office and by placing such a reservation.

The facility does not cater any banquets so any catering must be done professionally.

Male and female restrooms are in this area and they each have a capacity of 90 people each.
RESTAURANT

rental space for some type of small fast food restaurant

area is composed of 4 major parts
  seating
  pick up and ordering of food
  kitchen
  food storage

hours of this area are to be set by the rental company

seating available is for 80 people

restaurant is split level with one level being a half level below

deck area for sitting is off of the lower level

views from the restaurant are both internal into the area of the atrium and lobby and external onto the lake and lake activities

seating in this area is available as long as the facility is open, but if hours of the restaurant are longer than the hours of the facility the restaurant can be closed off from the rest of the area

restrooms for this area are off of the public lobby

lighting for this area is a mix of natural light and artificial light, natural light is allowed to enter the area through the glass areas to the outside
LOUNGE

passive seating area for talking and meeting of friends

lounge is split level with one level being a half level below

views from this space are into the lobby as well as out across the lake area

the lounge will function more like a soda fountain as it will be a place of interaction and high levels of activity

people of all ages will be allowed to use this space as there will not be any alcohol served here

plenty of seating for people to talk at tables or sit at stools and then communicate

music is played in this area by use of a juke box in the area, dancing is allowed for in this area as there is a dancing floor and a small stage for a band.

lower level of the lounge opens out onto a deck which eventually goes down to the level of the lake

lighting for this area is a mix of natural light and artificial light, natural light is allowed to enter the area through the glass areas of the facade
ATRIUM

passive seating area for talking and meeting of friends

views out across the site into the park and across the lake are highly important

seating in this area is on built-in benches which are around the planters

this space is totally a half level below the passive recreation level

atrium opens onto a deck which goes down to meet the lake, this deck is tied into the deck off of the restaurant and also the lounge

the atrium functions as a point of entry into the facility on the passive level from the lake and park area

the atrium is primarily glass which allows for views as well as letting in natural light to light the space

the space is very open and will be highly colored and vegetated especially with tree and plant material
GAMEROOM

The primary function of this area is a meeting area for the youth activities in this area are:
- pool
- ping pong
- electronic video games
- board games

Youth activity area for after school, weekends, and summers.

Hours when classes are in session will be from 3 p.m. until the total building closes.

Summer hours will be from when the building opens until closing time.

Off of the gameroom is a seating deck for people to sit and talk or as a place for people to meet.

Youth tournaments will be set up as well as clinics in which the people will learn more about the sports as well as learning how to play better.

Viewing into the gym area is through a wall of glass on one side of the gameroom.

The gameroom is open on one side and flows out into the large space for circulation and becomes the area for viewing into the racquetball courts from the passive level.
SWIMMING POOL and SUN DECK

indoor pool for year round use

hours set for general swimming as well as hours set or families, lessons, lap practice and also for competition

pool is actually 3 pools
diving pool (12')
racing and general pool (4'-8')
non-swimming pool (3')

form of the pool is Z shaped so the 3 pools are formed with the diving pool being the farthest from the lockerrooms

in the diving pool there will be 2 diving boards, one 1 meter board and one 3 meter board

height from the pool deck to the bottom of the structure is determined by the height of the 3 meter board, height to bottom of the structure is 26'

pool has an integral gutter system and has concrete walls and floor which have tile laid over them

the racing pool area has the starting stations at the 8' deep side

there is a minimum of 12' around the pool for the deck area

seating in the form of permanent bleachers is in the one corner, the seating is for viewing as well as for instruction and resting

an exterior sun deck is on the west side of the pool area, this deck is only accessible from inside the pool area to minimize maintenance and to act as a control over who enters the pool from this area

buoys are used to show the physical divisions of the 3 pools and also as dividers for the 6 racing lanes in the racing area of the pool

tiles of different color other than the bottom or sides are laid in the concrete to also show the divisions
LOCKERS/SHOWERS/RESTROOMS

one such area for each gender

dis area is the core of all of the actual recreation areas as there is only 2 lockerrooms that serve the total facility

ten into these areas is controlled by the main information/control point on the first level

the locker areas are adjacent to the pool area and have direct access into the pool area as to keep the wet/dry barrier in one area

circulation into any other area other than the pool is through the entry into the lockers

each locker area is capable of holding 70 people and their garments

showers and restrooms are tile walls and floors while the floor of the locker area is carpet

lockers are provided but each one who uses the lockers must bring their own lock

no personal hygiene supplies are supplied except for the standard facility of this type
POOL MECHANICAL

area used for the operation and maintenance of the pool and its supporting area

the filter and all water equipment is located in this room as is all of the equipment to treat the water prior to its use

equipment for the pool has an 8 hour turn over rate with a filter that is 7'-2" x 5'-6" x 5'-6"

an overhead door is on the one wall to facilitate the removal of any equipment in case of a breakdown

chemicals that are used to control PH, and bacterial growth are pre-mixed and control is done by an electronic metering system that monitors the water constantly

access into this space is via the pool area
SUPPLIES

this area is used to store chemicals that are to be used in the water system of the pool as well as any and all equipment that will be used in the pool such as paddle boards, life preservers, buoys, small boats and all life saving equipment

chemicals such as chlorine, alum and lime are to be stored for use in the permanent media water filtration system
LIFE GUARD and FIRST AID

office and rest area for life guards either on or off duty

this is a supplemental area as there are life guard stands at the areas of the pool

these areas are in between the 2 locker areas

direct access into the pool area is through this space from the exercise court

emergency first aid equipment is stored in this area in case of an emergency

emt's have direct access into this area as well as the pool area

all life guards are trained and must maintain certification
GYMNASium

multi purpose area for basketball, volleyball, gymnastics, indoor soccer, etc

basketball goals are attached to the walls and retract to be nearly flat against the wall

height in gym is determined by the height required for volleyball

ceiling structure height is 26' above the floor

there is a 10' clearance around the courts to the walls

structural depth is 4'

there are the window/vent system installed in all of the walls at the structural level and above

these lites allow light to enter as well as help in the cooling of the space

open play is planned for in the morning and afternoon with league play in the evening

the gym space is also used for the various clinics that are to be offered during the winter months

industrial league games are to be played in this area with playing floor is synthetic material

mercury vapor lights are used to help illuminate the space for the playing of sports
WEIGHTLIFTING

area for weightlifting and also for riding exercise bikes

a variety of nautilus equipment will be available for observed lifting and exercise

an area is set aside for the very purpose of stretching out so no injury will happen during the exercise

trained instructors will be there to assist the people in the workouts that they will have set for them

there are mirrors on the walls so that the people may watch themselves during the workout

lifting procedure will be stressed with the use of the nautilus equipment as it works both on the positive as well as the negative muscle reactions
RACQUETBALL COURTS

3 indoor courts for either racquetball or handball

courts are white with recessed light fixtures

wood flooring with painted lines on the floor showing the zones

courts are for general, lesson, league and tournament play

courts are reserved by calling a day in advance

cost of the courts is by the hour

can only reserve a court for an hour at a time

waiting for use of a court is in the exercise court area outside of the courts

judging and viewing of the games happens from above the court on the passive level in the viewing area

court toward the gymnasium has two walls of glass on the second level as is set aside as the primary viewing court, this court will be titled the "center court"
EXERCISE COURT

a large court with access into all of the sporting areas

dthis court area is used for exercising, stretching and waiting to use a space

matted areas are on the floor for the comfort of people doing the exercises

pull-up bars and fixed weights are on the walls for an exercise workout

jump ropes are available and may be used in this area

seating is also found in this area and is used by people as they wait for an area to become available

there will be stations with a graphic description showing how to do the exercise in certain zones of the exercise court

this area also functions as the main circulatory spine for the people who are on the participation level and are moving between areas
PARKING

for 150 cars @ 150 sq. ft. each
split up into two sections
building
outdoor activities
visual buffer between parking and other areas
use of existing intersections as points of entry and exit
drop off point for entry into the building
45° parking on two sides of drive
lighted for security
service drive to dock and water treatment facility
use of existing trees as visual buffer accented with planter trees between the parking wings
stalls are 9' wide by 19' deep with a 25' main drive width
parking as close to major points to minimize paving and free up the central area of the site
parking areas to be available only during the times the facility or outdoor areas are in use
reserved parking near building entry for
director
handicapped
service vehicles
bus parking

parking areas to be used by all users of the center as well as by all personnel required to operate the facility
DOCKING

for 20 boats @ 300 sq. ft. each

to be on the east side of the site
on the larger lake, this lake has
been defined as the "fast lake"

to be a defined entity separate
from the boat rental and lake
swimming

to be the first focal point when
approaching the site from the lake

having a strong connection with
the building and also closely
related to the outdoor activities

dock form and location in response
to necessity and convenience of
the people approaching from the
lake

dock to be visible from the water,
park and from the building

individual stalls for all types of
boats with posts available to lock
up the boats

dock located adjacent to the path
around the site so people can walk
out onto the docks and view the
lake and the site
BOAT RENTAL

rental area for people to rent a boat and go out into the lake area
rental charge done by the hour or by a charge for all day and is a set fee for each type of boat that is rented
dock in this area is in the slower lake area and is only for rental boats
boat rentals will be stored in a storage building located adjacent to this dock area
rental boats include
10 canoes
5 row boats
3 sailboats
dock area to hold
6 canoes
3 row boats
3 sail boats
boats are to be rented during the months from May to October and will be placed in the storage area when not in the rental months
SWIMMING

lake swimming in a dredged area in the "slow lake" area

beach area for 100 people with some area with a southern exposure for sun bathing

volleyball court located adjacent to the swimming and beach areas

swimming area is its own lake and will have at least 2 life guards on duty during regular hours of the center

walking path runs along the area of the beach

at intersection of path with entry into the swimming area is a bathhouse for changing and showering

this bathhouse is to serve swimmers as well as participants in other outdoor sports as well

changing areas for both men and for women will be provided as will a storage area for related equipment

swimming will only be allowed when the conditions are favorable and when the center is open, swimming will not be allowed when the center is closed
TENNIS COURTS

3 courts of championship size so tourney play will have a place to play
court orientation is 220 north-east which is the best direction for tennis
courts slope 1' from end of paving to end of paving, this is to allow water to drain off the courts and not pond up in certain areas
during the winter months the nets and poles will be removed and the courts flooded in order to have an area for ice hockey
courts are lighted for evening play
a 10' fence encloses the courts to keep all equipment within an enclosed area, wind screens are also tied to the fence in order to cut down on the amount of wind that whips across the playing areas

play on the courts is open play with first come first serve up until 4 p.m., after this time the courts are reserved for organized league play
evening reservations must be made in order to use the courts at night

reservations must be made a day in advance and playing time is limited to 2 hours

open play is free of charge to all players, evening fees are $5.00 per court per hour, league fees may be slightly higher

nets are placed on courts as soon as spring arrives and will be removed in the fall, nets are to be of stranded cloth
court material is colored asphalt done in layers to help reduce the chances of cracking to the courts
during the summer months clinics will be run for participants of all ages
SOFTBALL DIAMOND

a ball field especially for softball playing

grass infield and outfield with sand base paths

well watering system to keep the field in top quality

the field will be open for general play during the day and will be reserved for league playing in the evenings

field to be lighted so that games may be played in the evenings

a building combining concessions, restrooms, and scorers booth will be in a position behind one foul line

building is to serve both players and spectators of softball, soccer and basketball

a chain link fence will be behind home plate to serve as a backstop

a 5' fence will run in the outfield at a radius of 200' from home plate, this fence defines the homerun area and is to be tree lined

light poles are to be placed at the foul lines and along the fence

lights are controlled from the main building serving this area

all equipment is to be removed every evening and is to be stored in the concessions area
SOCcer/fOotball

field for both soccer and football playing but not at the same time

size of this field is soccer size as a football field is smaller

chalk lines will be used to determine yard lines or zones

leagues will be organized for youths of all ages in both sports

flag football will be played to reduce the possibility of injury

both activities will be under the close supervision of trained persons who can teach the youth the sports

the football field will not have any goal posts but one will be placed behind the east end of the soccer field zone

soccer goals will be portable and will be stored when not in use

no lighting of this field will be used as only day play will be planned

well watering system to keep the field areas in top quality, the watering will be done in the evening
BASKETBALL COURT

one college length basketball court
concrete slab floor for court
use of painted lines to define the zones of the court
single pole support for boards and goal
clear plastic boards
cloth nets for goals
lighted for evening play
open play in the day with league play in the evenings and on weekends
placement of trees around the court to act as a visual and wind barrier

playing surface construction to use reinforcement in order to reduce the possibility of cracking in the slab
court evenly lighted with the use of 4 light stations, these stations are controlled by a timer which will turn the lights off at 11p.m.
PICNIC AREA

incorporated into the park area on
the site with views across the site
and also views out across the lake
in an area close to outdoor events
as well as indoor activities

a tree area with open spaces in
which the tables and cooking units
are located

in some form of a central location

in this area are 2 horseshoe pits
so this sport may be played

a playlot is also in this area,
play equipment to be of poles that
are bolted together to form spaces
that children can climb, run, walk
and sit on

play lot is a sand area as is the
pits for horseshoes

there are 15 cooking and eating
stations in this assigned area

as well as this defined area for
picnic there are tables throughout
the site in the area of the sport-
ing events so people can watch the
activity as well as eat and relax
PARK

an extension of the existing tree grouping into a massive grouping of trees at the point of the site where the two lakes meet

the park takes the role of being the introduction to the center and so assumes the primary point on the site

the park is in such a location that it has views in all directions

the path that goes through the site wanders through the park area

the primary purpose of the park is to allow people to get back into nature in an urban setting

there are no structured activities that go on in the park area so all people are free to come to this area any time that they like

the park offers
  a place of sanctuary
  a place to view nature
  a quiet place to be by yourself or with a few close friends
  a place to sit and take in the natural beauty the area has to offer

along the path system that goes through the site there are nodes of areas where people may sit or nodes along which the exercise stations are located

the park is available year round at any time during the day
WINTER ACTIVITIES

as well as summer sport activities many areas are set aside or double as winter sport activity areas

one such doubling area is the tennis courts which are flooded to form an ice hockey rink

the body of water on the site will be used for skating when the water is frozen enough, the lakes will also be used for skating at the same time

the highest point on the site is 25' above the level of the lake and this is the area used or sledding and innertubing

the sledding area is all open and is used as a main viewing node when driving a car around the site

sledding is restricted to this area and is not allowed to flow into the summer sports areas as this activity will tear up the other areas

during winter time the outdoor league activities are moved inside the main building

winter leagues include
ice hockey
basketball
volleyball
racquetball

leagues for all ages are formed
CONCESSIONS/RESTROOMS

inexpensive building of concrete block and metal roof

concessions for purchasing of the soft drinks, and foods associated with sporting events

concessions to be sold only during league or tournament activities of softball, soccer/football and also basketball

concessions to be operated by the leagues and to be run by volunteers

announcing booth is only in operation during softball games played for in a league or tournament

changing and restroom areas are open all the time that outdoor recreational activities are in season and are to be heated so that they can be used during winter by the people participating in a winter sport activity

structure to be two story with the restrooms and concessions and the changing areas on the ground level with the announcing and viewing decks on the second level
WALKING PATHS

a walking path is used to circle
the majority of the site

it stays outside of the field areas
and connects them externally

the path follows the contours of
the site and wanders through the
park and picnic areas

the path is composed of sand base
held in place by wood side runners

the path is 8' wide and has points
where seating nodes are placed as
well as nodes for the 18 stations
of the fitness trail

the paths also connect some of the
various sporting areas internally

seating for viewing of the sports
is also connected into this path
system

the seats are earth berms in which
wood benches are constructed, these
are a total of 5' high and are
located throughout the site at the
points where viewing is required

the path system turns from a soft
surface into a wood surface at the
area where the main system goes
toward the building

this hard path forms into the area
for the main entry into the building
when entering from the south
Site Selection

Through research it was seen that the most desirable location for such a structure would be a body of water. The closest lake in the area is Koontz Lake. Koontz Lake was at one time a milling pond for the Koontz mill. Over the last few decades the area has developed into being a residential town sited around the lake. The majority of the structures on the lake front are residential with very few commercial buildings. The primary commercial structure is the marina on the southern side of the lake. This marina is the primary docking station on the lake.

In reviewing the aerial photos it became evident that there were four possible sites located on the lake shore or adjacent areas. All four sites were analyzed and rated according to a variety of criteria.
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The most appropriate site was the site on the south western end of the lake. The existing site had on it

3 houses
3 cabins
1 mobile home
1 restaurant/lounge
1 garage

The site also contained a road that paralleled the lake shore. This existing road had two points of interaction. The road also made a sharp turn after coming down an incline. This curve has been the site of many accidents including cars driving off into the lake water.

In referring to the 1982 "Soil Survey of Starke County, Indiana" we find that the site is mostly composed of Plainfield soil.

Plainfield (PIB)

slight erosion hazard
slight equipment limitations
severe seedling mortality
slight windthrow hazard

common trees
black oak
white oak
black cherry
scarlet oak
northern red oak

trees to plant
red pine
eastern white pine
jack pine

trees having a 20 year average height
less than 8' - siberian peashrub
8' - 15' - eastern redcedar
radiant crabapple
16' - 25' - red pine
austrian pine
jack pine
26' - 35' - eastern white pine

recreational development
camping - severe, to sandy
picnicking - severe, to sandy
playgrounds - severe, to sandy
paths/trails - severe, to sandy
golf fairways - severe, to sandy

building site development
shallow excavations - severe, cutback cave
dwelling without basements - slight
dwellings with basements - slight
small commercial buildings - slight
local roads and streets - slight
lawns and landscaping - severe, droughty
sanitary facilities
septic tank absorption field-
severe, poor filter
sewage lagoon areas-
severe, seepage
trench sanitary landfill-
severe, seepage to sandy
area sanitary landfill-
severe, seepage
daily cover for landfill-
poor, too sandy seepage

construction materials
roadfill- good
sand- probable
gravel- improbable, too sandy
topsoil- poor, too sandy

water management
pond reservoir area-
severe, seepage
embankments, dikes, levees-
severe, seepage piping
aquifer fed excavated ponds-
severe, no water
drainage-
deep to water
irrigation-
droughty, fast intake,
soil blowing
grassed waterways-
droughty

engineering index properties- depth
0"-7" - sand
7"-74" - sand
25"-60" - sand
low shrink-swell potential

soil and water features
flooding
frequency- none
duration- none
months- none
high water table
deep- greater than 6'
kind- none
months- none
bedrock
deep- greater than 60"
potential frost action-
low
risk of corrosion
uncoated steel- low
concrete- high

From the report "Climate of
Marshall County, Indiana" we find
that the area has cold winters and
hot summers. The average tempera-
tures are:
winter- 27°F
summer- 72°F

The annual precipitation is 37"
with 22" of this coming in the
months from April to September.
Thunderstorms occur about 43 times
a year primarily in the summer.
The average seasonal snowfall is
36".

The average relative humidity
is about 60% in midafternoon. The
sun shines for about 40% of the
winter and about 70% of the summer.
The prevailing winds are from
the south-southwest at an average
of 12 miles per hour in the spring.
After the site had been selected and a program written I started to analyze the program of the individual outdoor spaces to see where the best location was for each. In looking first at the lake and water activities such as swimming and boating it was seen that these two activities were not compatible. The site had two sides of water and each one was if a separate lake. The "lake" just north of the site is the smaller of the two lakes and seemed best if it was the slow lake and the lake for swimming. The lake to the east of the site was the larger and was the lake where speed boating was popular. This lake became the side where people coming by water would dock their boats.

The road that ran through the site separated the site into two zones. In order to make the site one area the road was removed and another road constructed at the edge of the site. The points of entry into the site were not to be changed as entrances were formed by the road to be removed. This was chosen because the entries were existing at points of intersection with other roads that would serve the people coming to the site by car. This also meant that no other points of entry would be required on to the site.

The area outside of the new road would be the area of future expansion for the lake area. Both residential and commercial structures would be located in this area as it is in the area of the town's growth patterns. When this would occur the site chosen for the project would take on a more impor- 

Looking at the site itself and the program, I had two basic types of recreational activity, outdoor and indoor. It was natural to zone the site into these two areas. The outdoor recreational areas required flat land that was unobstructed. The indoor recreational facility could be about any where so it became a very important design issue. It seemed that the facility should be in a central area but, not in an area of supreme importance.

The facility should be adjacent to the lake as well as close to the road and playfields. On the site there was an existing pocket of trees that were a part of the tree band that went around the lake. This pocket seemed to be a great place in which to buffer the recreational building. In zoning the site there where two zones as well as two entry points so there was one entry for each zone. Besides each zone having its own entry it
seemed as if each zone should also have its own parking.

With the whole parking question came the design issues associated with parking. One such issue was if these two parking areas should be connected? If such a connection was made the site would have once again been divided into two. If two elements some type of crossing would be required, a crossing over a vehicular path. Another issue was if people should experience the site internally instead of externally. The same devotion of the site would have occurred if such a solution was chosen. If such a connection was made or the site had a drive through it, an increase in the likelihood of an accident would occur. With cars going across the site in one direction and pedestrians across in the other a point of conflict would be formed. It seemed best to avoid this conflict and use a road on the exterior of the site and not connect the two parking areas. Points along this road would allow for viewing into as well as across the site. These viewing points would be selected to allow for a maximum opportunity to experience the site and activity.
The most important point on the site was the area where the two lakes intersected. The park area of the center required a highly visible and dramatic location. In placing the park at the intersection of the lakes, the park would make a dramatic entry point to the site and also a fine conclusion. A path system would run through the park area and interconnect the various activities of the site. This path would be the main walking/jogging path and would also have nodal points along its route for the fitness stations.

In placement of the other recreational fields or courts, size and orientation played a big role. With the area of the western part of the site being the flattest, it seemed best to have the sport areas over here. The orientation of these areas is directed towards the point of the peninsula which also corresponds with the 22° angle for the alignment of the tennis courts. All of the outdoor recreation fields are located in the western part of the site. The physical building is located at the eastern side of the site. The separation between these two elements is accomplished by use of the existing pocket of trees that is around the building. This grouping of trees will bud out and become the heavily forested area of the park.

The primary outdoor areas would also function during the winter months. The highest point on the site would be the starting point for the sled run when there was snow on the ground. The sled run would stay in its own area and would not penetrate the playing fields.

The physical building is also zoned into two major elements. Each element is located on a level. Upon entering the first level, the decision to either participate or watch was made. The first level is the active participation level in which people participate in a sporting event. Such activities as swimming, weightlifting, racquetball, volleyball, basketball, aerobics and gymnastics would be on the first level. The lockerrooms which serve all of the sporting activities would also be on this level.

On the upper level is the passive participation zone. On this level are located the general lobby, restaurant, lounge, gameroom, public meeting spaces, and viewing into the recreational spaces below. The two levels are connected visually and actively through the open spaces and ramping system. Reaching to the lake from both levels is a system of decks that step down to the lake shore. These decks serve specific areas within the facility and are used to bring people into the facility as well as egress from the areas.
Mechanical Systems

Lighting:
As in the structure, the building is divided into three zones.
- pool
- gym
- supporting spaces

The lighting in the pool and gym areas is a combination of natural and artificial light. The artificial light is from HID fixtures suspended from the ceiling. These fixtures are only above the actual recreational surface and are not over any deck or area out of bounds. Natural light is allowed to enter the space through a louver/vent glass panel in the facade. This light is controlled so that no hot sporting areas are formed. The natural light is reflected off of the louver and washes the ceiling with light as well as being reflected to wash the walls also. When there is not enough available natural light, artificial lights in the ceiling area will make up this difference so that the light is consistent.

The lighting in the supporting areas is a mix of various types of artificial light each suited to the given situation it is to illuminate. As well as using artificial light in these spaces, natural light is allowed to enter through glass planes on the building facade. Skylights are in the lobby and 2 open areas to allow light to flood into the central part of the building.

Structure

The structure of the facility is composed of two compatible, like systems.
- gym and pool
- all supporting spaces

In the gym and pool area a rigid frame structure is used with bar joists spanning in between the rigid frames. The rigid frames are on 20'-0" centers and span the short distance of both areas. The mechanical systems for these areas runs in the space taken up by the rigid frames. These systems are painted and exposed to be distinguished from the structure. The feed system is enclosed around the rigid frame vertical members and runs in the wall cavity.

In the supporting spaces a conventional steel beam and column is used. These columns and beams are on 40'-0" centers with bar joists running in between. As in the structural system of the pool and gym the mechanical systems for this area are enclosed in the area of the bar joists. These are also painted to be distinguished from the structure. The feed of these systems is from the enclosures that cover the steel columns and runs in the wall cavity.

Steel was chosen as the major structural element because of initial cost, speed in erection, flexibility of the system size.
HVAC

The heating, ventilation and air conditioning of the facility is also divided into the three zones. In the pool the most important issue is in dealing with the high humidity and chlorine levels of the air. This air must be allowed to be vented while not creating a drafting situation. This removal of air is accomplished by opening the louvered vents and allowing the air to flow through the top of this area and out the other side. The flow of air would cause the air to be removed to rise and then be carried away. The gym space is vented in the same way as the pool. Ventilation in the supporting areas is through direct venting of air to the outside.

Heating of these zones is done in different ways. The pool area is heated by the actual pool water and also by having pipes that carry hot water run in the deck. The gym and supporting areas are heated by forced air supplied from the ceiling and then returned at a lower level of the space.

Supporting Systems

All supporting systems of the facility are run in the wall cavity and through internal walls. The distribution of these is by using a mechanical shaft which then distributes these throughout the areas.
1 pool
2 mechanical
3 storage
4 lockers
5 weightlifting
6 racquetball
7 gym

FIRST LEVEL
1. public meeting
2. lounge
3. restaurant
4. atrium
5. restrooms
6. gameroom

SECOND LEVEL
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