Charleston Recreation Center

Wade E. Macfie

Clemson University

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CHARLESTON RECREATION CENTER
WADE H. MACFIE

A TERMINAL PROJECT SUBMITTED TO THE FACULTY OF THE COLLEGE OF ARCHITECTURE, CLEMSON UNIVERSITY, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARCHITECTURE

APPROVED

COMMITTEE CHAIRMAN

HEAD, DEPARTMENT OF ARCHITECTURE

DEAN, COLLEGE OF ARCHITECTURE
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PROBLEM STATEMENT

The subject of this terminal project is the design of a major recreation center to serve the people of Charleston, South Carolina. The City of Charleston is, by any measure, lacking in sufficient public facilities planned for active recreation. While there exists in the city a bounty of fine public parks which are extensively used by citizens and visitors alike for mostly passive enjoyment, the possibilities for indoor recreation in public facilities are severely limited.

The design study detailed herein seeks to propose a solution to that problem - a solution which is in some senses a dream. Because there exists no precedent in Charleston for the expenditure required to bring such a project to realization, this study has not been limited to a program tied to Charleston's actual plans for recreation development; rather, a program has been devised to address Charleston's needs in this area. It is hoped that such an approach might demonstrate possibilities which would help lead to a greater commitment by the city in meeting the recreational needs of its citizens.

Furthermore, a second major decision was made early on which does not necessarily adhere to present reality in Charleston. This decision was that the center should be sited on the Charleston peninsula despite the fact that the current political climate might dictate consideration of a West Ashley site. Peninsular Charleston has been and remains the geographical, commercial and institutional center of the metropolitan area, and it is strongly felt that any major facility intended to serve the entire city should most appropriately be located there.

CLIENT

The Department of Leisure Services of the City of Charleston has provided input in the form of planning data for programming. It is assumed that such a facility, if built, would be owned and operated through this department by the City of Charleston, possibly in partnership with the County of Charleston.

Master planning for the Department of Leisure Services and other cognizant recreational authorities in the Charleston area has in the past been handled by the County of Charleston's Department of Parks, Recreation and Tourism. Significant input by this agency was made in the form of the Department's five-year Action Program for Parks, Recreation and Open Space, established in 1975.

It is the desire of both of these authorities to go significantly beyond their currently perceived resources in planning
such a project. For this reason the study has not been confined by the five-year Action Program which was based upon the actual and projected financial and personnel resources available in Charleston. Rather, the Action Program has been used as a framework in which the recreation center would have a key role.

EXISTING SITUATION

In recent years the allocation of recreational funds in the Charleston area has been strongly oriented toward outdoor recreation following a national trend in this direction. Despite nationwide advocacy of indoor community/recreational centers during the 1960's, no large project of this nature has been undertaken in the public sector in Charleston in more than a score of years. The Charleston Community Center located on the west side of the peninsula is the sole step in this direction. This building, completed in 1973, provides one indoor gymnasium, but suffers from a lack of shower and dressing facilities, and from its inability to attract users from city areas not hard by its site. The recently opened East Side Community Center is a valuable addition to the city's recreational resources, but its size and location preclude its serving the entire city, and it provides limited opportunity for athletic recreation.

The current strategy of recreational planners in the city involves employment of high school and junior high school facilities to meet the need for indoor recreation. This approach has the inherent disadvantages of requiring supervision at numerous scattered sites, precluding use during school hours by users other than students and failing to provide locker space for the general public. It also falls short in offering recreational facilities of a non-athletic nature to the community.

Charleston is blessed with a number of parks and playgrounds, providing passive and active recreational opportunities respectively, but recreational buildings at The Citadel and College of Charleston are the only indoor facilities of significant size, and their use is limited to faculty and students of those institutions.
STRATEGY

The first step in approaching this project has been a general familiarization with the City of Charleston, its facilities and the people in government who administer them. Paralleling this, readings of a general nature on recreation planning and facilities provided the background necessary to develop a strategy for the project. This strategy centers around the identification of issues affecting the planning and programming phases. These issues are noted in Appendix A, which has been used as a checklist throughout the project at major decision points. From this list, those issues deemed most important to the programming effort are discussed in greater detail below.

IDENTIFICATION AND ANALYSIS OF ISSUES

ISSUE: USER NEEDS - This most important of issues involves the whole citizenry of Charleston both as perceived and as potential users. Perceived users are those for whom recreational provisions are obviously needed. These include youth, the economically deprived and a special population bloc at the Medical University of South Carolina, which has no significant recreational facilities of its own. Potential users are more difficult to describe, as their identification depends on observation of their participation in presently non-existant recreational opportunities in the city. They include all those who would take advantage of such opportunities and cover the whole spectrum of social and economic strata. A comprehensive survey of Charleston's population of seventy thousand for purposes of advocacy planning is not within the scope of this study, but would be a most desirable effort in identifying and establishing the needs of these potential users.

Of the seventy-thousand citizens of Charleston thirty-four percent are below the age of twenty. Because of their number and the fact that they are a perceived group of users, these youths must be regarded as the primary user target group. Their needs are a dominant factor in determining the nature of the facility in question. The goal for them is growth into a successful adulthood, the primary objective along the way is personal gratification in their own lives.

Perhaps the most pressing need of youth in reaching these ends might be labelled a role to play. This role must be acceptable to the youth and to his associates of all ages, must be a source of fulfillment, and must be one over which he has some control. Such roles include student, athlete, worker, creator and renderer of service. Because limitation of these roles for the individual occurs naturally as a result of interest and physical and mental talent it is important that the broadest feasible exposure to potential roles be available to him.
From a recreational standpoint this means that those areas of
dead that are available through the home, work or normal educa-
tional channels must be stressed, though not to the exclusion
of roles identified through these channels but limited by re-
"ources or extent of participation (as in the case of an ath-
"lete who is no longer in school).

The obvious suggestion here is that various forms of arts and
crafts, music, social and intellectual activity and sports
not offered in school programs join those more familiar and
apparent athletic activities usually seen as the core of a
recreational program.

Along with the primary user group we must consider those for
whom recreation offers the exercise of an alter ego: adults
who would take advantage of the opportunity for a lunch-hour
workout or participate on weekends or evenings in activities
ranging from chess games to square dances and beyond. Again
we must consider primarily those recreational activities not
available elsewhere. Availability here has a bivalent mean-
ing; absolutely not available, and not available to a signifi-
cant proportion of the population for reasons of social or
economic constraints. In many cases these people may be the
potential users referred to above. Their needs are substan-
tially the same as those of the primary group, though perhaps
of a less pressing nature.

As mentioned previously the opportunity for service will be
a need for some. Just as the facility must attempt to antici-
pate and respond to the needs of potential users, it must pro-
vide both for those who will instruct and supervise established
activities and be flexible enough to accommodate those who
might bring expertise in unusual areas and stimulate unantic-
pated interest and need.

ISSUE: USER LOCATION - Geographical analysis of perceived users
has been accomplished on the basis of demographic information
compiled in the census data for the city updated to 1974.
Demographic information from the census was extracted and sorted
into particular categories for the various neighborhoods in the
city by the County of Charleston's Youth Community Coordination
Project. This information has been further analyzed and synthes-
ized into a pattern of perceived need for recreation by neigh-
borhood in this study. The results of this synthesis follow.

Seven categories of data have been selected as indices of need
for public recreational facilities. While no one of the cate-
gories alone constitutes as absolute index of recreational
need, the composite picture presented by their amalgamation is
deemed accurate in relative terms. Within each category ranges
have been established to rate each neighborhood's need on a
scale of four, from high to low. The categories and their
ranges are as follows:

**YOUTH** - Percentage of neighborhood population under twenty years of age.
- 33% - 53% -- high
- 25% - 32% -- medium high
- 21% - 24% -- medium low
- 0 - 20% -- low

**HEAD OF HOUSEHOLD** - Percentage of neighborhood families with female head of household subtracted from percentage of families with husband and wife heads of household.
- 0 - 30% -- high
- 31% - 50% -- medium high
- 51% - 70% -- medium low
- 71% - 100% -- low

**EDUCATION** - Percentage of neighborhood population enrolled in college plus median number of school years completed by persons over twenty-five years of age minus percentage of population having dropped out of school after the age of sixteen.
- minus 20 - minus 39 -- high
- minus 5 - minus 19 -- medium high
- plus 5 - minus 4 -- medium low
- greater than plus 5 -- low

**INCOME** - Median income of all families in the neighborhood
- $3000 - $4500 -- high
- $4500 - $6000 -- medium high
- $6001 - $8000 -- medium low
- above $8000 -- low

**MARITAL STATUS** - Percentage of neighborhood population in single marital status
- above 75% -- high
- 66% - 74% -- medium high
- 56% - 65% -- medium low
- 40% - 55% -- low

**NUMBER IN HOUSEHOLD** - Median number of persons per occupied neighborhood housing unit
- 2.9 - 3.6 -- high
- 2.7 - 2.8 -- medium high
- 2.3 - 2.6 -- medium low
- 1.7 - 2.2 -- low

The synthesis of neighborhood ratings in each category is shown in Figures 1 and 2. The results of the synthesis in
terms of relative perceived need for recreational facilities among the peninsula city's neighborhoods is presented graphically in Figure 3. Because the populations of the various neighborhoods are fairly uniform, no correction for total population has been applied.

In addition to the eighteen peninsula neighborhoods examined in this analysis, eight city neighborhoods lie west of the Ashley River. Substantially fewer problems in the areas of health, education and welfare exist in this district than in the peninsula, and its population is more mobile. Because of these facts this area has not been included in the analysis, but the fact that one-third of the city's population resides there dictates that the study address the existence of a significant bloc of users to the west.

ISSUE: USER BEHAVIOR - The behavior of users will play an important part in the acceptance and success of the recreation center. It will also have an impact on the internal function of the facility. Much physiological and psychological data is applicable to any architectural project and has considerable effect on such design aspects as circulation, scale, lighting, material selection, relationship of spaces and environmental control. In addition to these generally accepted and applied parameters several aspects of human behavior are particularly important to this project.

The most critical of these factors is community acceptance. Aside from satisfaction of the psychological and physiological criteria mentioned above the most important point here is access. In a physical sense this means that the center must be located so as to be readily approached by the community as a whole, with particular regard to the primary user group, and that it must be cognizant of the various means of transportation used, providing adequate parking for the automobile commuter without deterring the walk-in user or bus rider. In a psychological sense it must not appear to cater to a particular age, social, economic or racial group to the extent that rejection or even vandalism is encouraged.

This leads in to the second factor: that of a mixed population of users. While a whole spectrum of users might be found vying together on a basketball court, the practice sessions of a teenaged rock band and a seniors' chess tournament are patent-ly incompatible. In the case of many activity areas this will lead to a necessary separation and buffering, but to the maximum extent possible such segregation should be on a voluntary basis, allowing the possibilities of territorial zoning or interaction.

A third factor is that of disadvantaged users. The most obvious case in point concerns the physically handicapped. In ac-
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Figure 2

○ Low  ○ Medium Low  ○ Medium High  ○ High
Figure 3
Neighborhood Analysis
Key From Figure 2
cordance with both state law and simple humanitarian principles the center should be architecturally barrier-free. Economic handicaps must also be considered, with provision for storage and use of equipment, including appropriate clothing, being made. The socio-culturally deprived must be accounted for. Activities not familiar to users should be accessible to view-in and walk-in participation, in an architectural sense as well as a managerial one.

ISSUE: THE NATURE OF RECREATION - Volumes have been written on this subject. Essentially recreation is voluntary leisure-time engagement in an activity for the sake of pleasure. This statement illustrates the breadth of activity such a center must accommodate, and translates in the simplest English possible as fun. In architectural terms it dictates a variety of spatial experience and the opportunity of privacy as well as participation. While addressing certain aspects of the character of the peninsular city discussed below the facility should not exhibit an unnecessarily formal demeanor.

ISSUE: FACILITY FUNCTION - The ability of the center to function begins with the problem of access, as suggested above. While the peninsular city is geographically limited, it is not so small as to make access to any point within it feasible by foot for all, or even most, users. Moreover the inhabitants of the portion of the city west of the Ashley will necessarily arrive in the peninsula by automobile or bus. It is also to be expected that some users who are within reasonable walking distance will resort to vehicular transportation at times because of the pressure of daily schedules. This would be particularly true of working adults who made use of the facility during lunch hours. It must then be assumed that considerable provision for parking will be made. This requirement might be reduced by a comprehensive, efficient and well-accepted public transportation system, but the prospect for such a system in Charleston in the near future is not bright. Not only will parking be required on the site, but the site itself must be situated so as to take advantage of existing and projected arterials.

Within the facility the relationship of various components will be critical to the center's success. Beyond the zoning and buffering noted above, easy relationships must be established among kindred activities, and zoning of wet/dry and loud/quiet areas must be accomplished. Another factor to be taken into account here is the requirements of supervision and management. Control points must be provided and adequate space for staff and management functions allotted.

The building must be efficient in the long run also. Two key points here are energy efficiency and maintenance. While Charleston's climate is a moderate one, heating and cooling
of the center will be required. To the maximum extent possible this should be accomplished by natural means. Not only must a substantial portion of windows be operable; they must be so placed as to facilitate optimum control of ventilation. Orientation, selection of materials and selection and zoning of HVAC systems will be of utmost importance. From the standpoint of maintenance the building must be durable and easy to clean.

ISSUE: ENVIRONMENT - Environmental issues fall into two categories: those of the natural environment and those relating to the built environment. Charleston's geographical location makes it susceptible to both hurricanes and tropical storms and to earthquake. While no major earthquake has occurred in the area in this century, the risk factor is deemed comparable to that of the San Andreas Fault near San Francisco. A type of construction appropriate to this risk is demanded.

From the standpoint of climate the ability to "button up" the center against cyclonic storms must be provided. Large unprotected areas of glass are to be avoided, particularly to the South and East. Less violent aspects of climate also have a bearing on design. Charleston's high annual rainfall suggests that protected links between any physically separated components be created. The corrosive quality of the air due to industrial pollution and high salt content dictates a careful selection of materials, both interior and exterior.

Aspects of the built environment which establish design parameters are primarily those of scale and character. The scale of Charleston, particularly in a vertical sense is quite moderate. Not only is a tower patently out of the question, but any approach to monumental scale in the horizontal plane must be carefully broken down. In terms of character, Charleston is most obviously an historical and slowly-evolved city. Spatially it is rich and intimate. The predominate building materials are brick masonry, wood and stucco. The size of the building and the high maintenance requirement of wood virtually eliminate it as an appropriate material, thus practically dictating a masonry or stucco-clad structure. The design should be contemporary yet sympathetic to its environment in the larger sense of Charleston as a whole and in terms of its immediate surroundings.
SITE SELECTION
CRITERIA AND SELECTION - The task of site selection for a facility of this size is a difficult one in the Charleston peninsula. Little open space on buildable land exists in the city beyond that occupied by parks and other designated public outdoor areas. From the outset an urban renewal approach to siting the center has been dismissed. No areas currently marked for urban renewal projects are appropriate to this type of facility, and the proposal of additional demolition for the sake of the study raises problems of displacement and possible interference with historic areas which are beyond the study's scope.

In screening possible sites a number of criteria have been employed. The most important of these are adequate space to accommodate the facility and associated off-street parking, accessibility by users and environment surrounding potential sites.

The pattern of user need established by the geographical analysis of users above suggested consideration of several sites on the east side of the peninsula. None of these sites met final screening requirements for two basic reasons. One is marginally adequate accessibility from the area of the city west of the Ashley. The other concerns certain demographic constraints involving transfer of property ownership. No potential sites exist along the North-South spine of the peninsula, which is the city's most densely developed area.

The western half of the peninsula presented two possible sites. One lies at the east end of Hampton Park, the city's largest public green space. This area is presently occupied by Hampton Playground, a children's recreation area which is minimally equipped and under-used. The Department of Leisure Services plans a renovation of the park itself in the near future, and such a facility could provide a needed spatial definition at the east end of the park. Accessibility is acceptable, if not optimal, via the North-South arteries Rutledge Street and Ashley Avenue from major crosstown streets. The Citadel Military College at the opposite end of the park offers a potential source of instructors and part-time staff from among its faculty and students. An additional advantage is the location of the headquarters of the Department of Leisure Services within the park.

The principal disadvantage of this site is its limited size. While it would accommodate the center, a parking deck would probably be required, and the complete loss of Hampton Playground would result in any case. While presently under-used, its inclusion in park renovation plans could make it more successful.

The second site lies several blocks south of Hampton Park and includes the outdoor recreation area known as Harmon Field,
which fronts to the East on President Street and runs west for one block, with additional undeveloped land to the West. This site is more readily accessible than the Hampton Park area, especially from west of the Ashley and the southern and eastern parts of the peninsula. It is also closer to a concentration of potential users at the Medical University of South Carolina. The Citadel and Leisure Service offices are only slightly further removed than from the previously discussed site. The presence of adjacent open property offers the opportunity of maintaining playing fields hard by the center itself. Existing development around the site begins to suggest the character of a recreational node. Within two blocks are located a tennis court complex, a stadium with playing field and track and the aforementioned Charleston Community Center gymnasium, all city-owned. The first two of these would strongly complement the center, and although some redundancy might be inferred in the case of the Community Center, it in fact would benefit greatly from the locker and shower facilities which would become available at the new center.

On the basis of this comparison the Harmon Field site to the South was selected as the site for the new recreation center.
CASE STUDIES - A number of recreational facilities have been studied during the course of predesign research. These studies have served as the backbone of the programming effort, partly due to the dearth of current planning data on indoor recreational facilities. Three of the buildings studied have been presented graphically in Appendix B, the first two as illustration of some of the principles involved in such planning and the third as an example of a fresh and somewhat radical approach to the idea of public leisure space.

Of these three the Jewish Community Center in St. Paul, Minnesota is considered the most successful from a functional viewpoint. The principles of zoning and buffering described above have been handled admirably. Though depicted only in schematic plan form, the center gives some clues to massing as well, with bulky functional areas being surrounded by smaller ones.

In addition to these projects a new recreational complex for the Springs Company in Fort Mill, South Carolina, done by Gill, Wilkins and Wood of Florence, South Carolina has been studied in depth. Many of the principles noted in the previous projects have been employed in the design of this building. Much information regarding space allocation and interior planning has also been gleaned from this study and applied to the programming of the Charleston Center.

ACTIVITIES - From among a host of possible recreational activities and with the performance standards established under ISSUES as criteria, the activities to be incorporated in the center have been designated below.

ATHLETICS

- BASKETBALL - Indoor courts to supplement those contained in the Charleston Community Center. Six goals should be provided. Court space should be multi-purpose.

- VOLLEYBALL - A minimum of two courts to be accommodated with encroachment to allow a minimum of two basketball courts for simultaneous use.

- HANDBALL - Five courts.

- WEIGHT TRAINING - This should be accommodated in a room providing standard barbell and dumbbell equipment and exercise tables. Boxing speed bags and heavy punching bags should be included.

- EXERCISE ROOM - Exercise tables and both wall-mounted and freestanding power-training equipment should be provided.
GYMNASTICS - Parallel bars, side-horse and rings should be accommodated. Additional floor exercise space will be necessary.

SWIMMING AND DIVING - A natatorium providing 25-meter size pool and separate beginner and intermediate training pools and diving tank with one and three-meter boards will be required.

JOGGING - The main gymnasium should provide a warm-up track of a minimum 100-yard length. The main court perimeter may serve this function.

JUDO, KARATE AND WRESTLING - These may be accommodated in the main gymnasium space, but should not encroach on court areas.

CREATIVE ACTIVITY

CRAFTS STUDIOS - Multipurpose space for various crafts work should be provided. Specialty studios will be required for fiber and fabrics, pottery and sculpture and graphic arts.

COOKING - A kitchen which can accommodate classes and demonstrations as well as serve as a reheat and cleanup space for meetings will be included.

MUSIC - Four practice rooms with appropriate acoustical insulation should be provided.

DANCE - A dance studio will be included.

PERFORMANCE - A flexible area for solo and small-scale productions should be separate from athletic areas. Movable seating will be required.

GAMES AND PLAY

TABLE GAMES - Pocket billiards and ping-pong should be provided for.

ELECTRONIC GAMES - Pin-ball and flipper type games and console games should be accommodated. This is a potential source of revenue and will serve as an attraction for the center.

PARLOR GAMES - Cards, checkers, chess and similar games should be accommodated. Lounge space will serve this function to some extent, but the opportunity of using "found" space should be considered in addition.
SOCIAL ACTIVITY

MEETINGS - Highly flexible meeting space should be provided to accommodate up to six simultaneous meetings of twenty-five persons each. The flexibility should allow the entire space to be opened for large meetings and should provide the possibility of division into rooms of different sizes.

PASSIVE RELAXATION - Lounge space will be required along with a snack bar providing refreshments. This may take the form of vending machines.

SPORTS ACTIVITIES

MANAGEMENT AND STAFF SPACE - Offices will be included for full-time staff and management. Control points will be necessary, as will lockers and support space for part-time and volunteer staff.

RECEIVING AND STORAGE - These activities will be covered under space allocation below.

DRESSING AND SHOWERING - Locker rooms, showers and toilets to serve athletic functions will be required.
## SPACE ALLOCATION

### ATHLETIC AREAS

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<tr>
<td>Circulation @ 10%</td>
<td>1,900</td>
</tr>
<tr>
<td><strong>Auxiliary Total</strong></td>
<td>13,090</td>
</tr>
<tr>
<td><strong>Natatorium - Pool</strong></td>
<td>5,000</td>
</tr>
<tr>
<td><strong>Natatorium - Training and Diving Tank</strong></td>
<td>2,400</td>
</tr>
<tr>
<td><strong>Natatorium Deck Area</strong></td>
<td>6,000</td>
</tr>
<tr>
<td><strong>Natatorium Support</strong></td>
<td>3,000</td>
</tr>
<tr>
<td><strong>Natatorium Total</strong></td>
<td>16,400</td>
</tr>
<tr>
<td><strong>Exercise Rooms (2 @ 960)</strong></td>
<td>1,920</td>
</tr>
</tbody>
</table>
ATHLETIC SUPPORT FACILITIES

MEN'S LOCKER ROOM AND CHECKOUT 6,500 sf
WOMEN'S LOCKER ROOM AND CHECKOUT 6,500 sf
LOCKER ROOM SUBTOTAL 13,000 sf
CIRCULATION AND SUPPORT @ 20% 2,600 sf
ATHLETIC SUPPORT TOTAL 15,600 sf

SPECTATOR AND TABLE GAMES AREAS

SPECTATOR GALLERY 5,000 sf
NATATORIUM SEATING AREA 1,500 sf
BILLIARDS ROOM 2,500 sf
PING PONG ROOM 3,600 sf
TOTAL 12,600 sf

ATHLETIC COMPONENTS GRAND TOTAL 73,030 sf

CRAFT STUDIOS

SCULPTURE AND POTTERY STUDIO 2,000 sf
STORAGE AND MIXING 880 sf
KILN ROOM 240 sf
FIBER AND FABRIC STUDIO 2,000 sf
FIBER AND FABRIC STORAGE 880 sf
GRAPHICS ARTS STUDIO 2,000 sf
GRAPHICS STORAGE 600 sf
STUDIO TOTAL 8,600 sf
## Social and General Use Areas

<table>
<thead>
<tr>
<th>Area</th>
<th>SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lounge</td>
<td>3,000</td>
</tr>
<tr>
<td>Library</td>
<td>1,600</td>
</tr>
<tr>
<td>Kitchen</td>
<td>800</td>
</tr>
<tr>
<td>Multi-use Program Rooms (2 @ 800)</td>
<td>1,600</td>
</tr>
<tr>
<td>Photography Studio</td>
<td>1,600</td>
</tr>
<tr>
<td>Music Practice Rooms (4 @ 100)</td>
<td>400</td>
</tr>
<tr>
<td>Meeting Room Area (Subdivisible)</td>
<td>5,600</td>
</tr>
<tr>
<td>Subtotal</td>
<td>14,600</td>
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<tr>
<td>Circulation and Support @ 10%</td>
<td>1,460</td>
</tr>
<tr>
<td>Social and General Use Total</td>
<td>16,060</td>
</tr>
</tbody>
</table>

**Non-Athletic Components Grand Total 24,660 sf**

## Facility Support Areas

<table>
<thead>
<tr>
<th>Area</th>
<th>SF</th>
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</thead>
<tbody>
<tr>
<td>Main Mechanical Room</td>
<td>7,000</td>
</tr>
<tr>
<td>Lobby and Display Area(s) With</td>
<td></td>
</tr>
<tr>
<td>Associated Support</td>
<td>5,000</td>
</tr>
<tr>
<td>Support Grand Total</td>
<td>12,000</td>
</tr>
</tbody>
</table>

**Support Grand Total 12,000 sf**

## Summary

<table>
<thead>
<tr>
<th>Component</th>
<th>SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletic Components</td>
<td>73,030</td>
</tr>
<tr>
<td>Non-Athletic Components</td>
<td>24,660</td>
</tr>
<tr>
<td>Support Components</td>
<td>12,000</td>
</tr>
<tr>
<td>Recreation Center Grand Total</td>
<td>109,690</td>
</tr>
</tbody>
</table>

SITE ENVIRONMENT

The immediate neighborhood of the site is a mixture of relatively stable and unstable elements. In the block to the north across Fishburne Street lie Burke High School, Johnson Hagood Stadium and, on the southwest corner of the block, a large open lot which serves as overflow parking for the stadium. The scale of these elements is large; monumental in the case of the stadium. The portion of the high school which fronts on Fishburne includes a gymnasium and a central energy plant, both of which present a heavy, almost industrial character. It was obvious from the first that the more massive portions of the proposed development should front these neighbors and that any views out of the site or the buildings in this direction should be carefully modulated. All of these elements are to be regarded as stable for the intermediate future, including the open lot, which is an unlikely candidate for development because of its essential role in handling stadium traffic.

Likewise, adjacent development to the south can be expected to remain mostly unchanged. Here, for the full length of the Line Street block, is located a large subsidized housing project. This complex is, in general, well maintained, and constitutes a lively neighbor which can be expected to contribute many users to the recreation center. The low vacancy rate, maintenance of the project and current construction of new units all indicate the stability of this area. The scale of this complex is much smaller and of a residential nature which calls for buffering from any expanse of building which might face it.

On the east across President Street a potentially unstable situation exists. This block is currently occupied by a rather motley collection of residences, most of which are in some state of disrepair. The area in which they are located is not designated as Old and Historic, nor are the structures themselves of significant historic or aesthetic value. It is, therefore, reasonable to assume that they will at some point be replaced by new development. The most likely future for the block seems to be gradual replacement by individual demolition and construction of infill housing. Here again the requirement for buffering any monumental building mass exists.

The land to the west, stretching from Hagood Avenue to the Ashley River, is beginning to be developed for the first time. Most of this current development and what is predicted for the area consists of fairly large-scale, contemporary buildings of a commercial or institutional nature. The block adjacent to the site is currently used only as a parking lot with shuttle service to the Medical University, but it can be assumed that eventual development of the land is inevitable.
One consequence of current building to the west of the site is that the proposed project will eventually be the interface between a new, large, contemporary and public neighborhood and an older, smaller, residential one. It is hence imperative that the project address both characters in an appropriate manner.

Traffic around the site is not currently high. President Street would be considered the street upon which the site fronts because of its historical use as a secondary north-south route and its current traffic count. Fishburne Street and Hagood Avenue can be expected to carry increasing amounts of traffic, but most of this will constitute transit traffic entering or leaving the growing public complex to the west. No factor in the emerging traffic pattern appears likely to take precedence over President Street's claim to being the front of the site even though other streets may eventually carry more traffic.

Line Street, because of its low traffic count and its nature as a convenient east-west link between Hagood and President, appears to be the best entry to the site for users' vehicles. This would also allow the on-site parking area, appropriately landscaped, to serve as the aforementioned buffer between the proposed project and housing to the south.

SITE CHARACTERISTICS

On the site itself, several physical factors have significance for the project's design. Approximately the western third of the block comprises relatively recent marshland fill. This strongly suggests that the building occupy the eastern portion of the site.

The topography, typical of Charleston, is practically flat and low-lying. Flood plain regulations require that the first floor of the center be elevated an average of four feet above existing grade. This opens the possibility of viewing the building as occupying a four-foot platform of earth which may then be carved out between and around building elements to enrich the quality of associated outdoor spaces.

The block on which the building will be situated is roughly a rectangle with the long axis running east and west. This fact, in consideration of sun angles and prevailing breezes, and coupled with the required buffer to the south and addressal of large, forbidding masses to the north, begins to shape the proposed scheme as an east-west linear arrangement of large elements to the north and smaller ones to the south.

Withal, the site presents some clear parameters for the design,
but exhibits no characteristics which make constraining demands or dictates. Rather, there is an opportunity to attempt to mesh a large-scale, contemporary building with one of Charleston's old neighborhoods without the need to provide any artificial justification for the effort.
DESIGN DECISIONS
PRELIMINARY DESIGN DECISIONS

Based on the case studies noted in Appendix B and independent analysis of facility function, an early decision was made to clearly separate activities within the center into three distinct zones: The athletic and spectator area, the specifically oriented crafts studios and the more loosely defined general crafts, lounge and meeting areas. As the design evolved, these took the form of three independent building masses joined by a large roof canopy over a shared arrival point. This approach accomplished several desirable things: it separated related activities from those differing markedly, giving each element freedom to be molded in a form appropriate to its use; it provided the necessary acoustical and mechanical system zoning in a clearcut fashion; it allowed for the operation of the various units of the center on different time schedules while maintaining optimum security; and it opened the opportunity of providing a variety of common open spaces defined by the individual building elements.

The discussion of the site's environment detailed above under "Site Analysis" makes obvious the decision that the major building elements - meaning the main gymnasium and natatorium - should be ranged along the north side of the site to counter the adjacent large structures and to shield the center's smaller, more exposed components. Function further suggested that the locker and dressing facilities occur between these units, being a shared activity. This arrangement became the backbone of an east-west linear scheme with the smaller building components lying to the south and beginning a scaling-down process that proceeds through the parking area to Line Street.

With the parking area situated now to the south and the complex of building elements located in the eastern portion of the site because of soil conditions, the western third of the site could be designated as playing fields, with the provision that a link be made to the aforementioned Charleston Community Center to knit the two facilities into a complementary arrangement.

DESIGN EVOLUTION

Once the general parti described above was arrived at, the consideration of physical form and detailed arrangement proceeded. The first step was the fulfillment of demanding functional necessities.

With respect to the individual zones, it was quickly apparent that the athletic area was the most functionally complex. This complexity is a creature mainly of the varieties of segregation required: spectator from participant, wet from dry, male from female, all at some point or points in a flow of activity that also includes common usage of areas and functions. At the
hub of this swirl of activity is the locker and dressing facility. Assuming that spectators are separated from athletes at the lobby checkpoint, every athlete-user of this facility will move through this area with a particular destination and particular characteristics.

The first degree of segregation accomplished in this area is by sex. Locker facilities for males are located on the first floor; for females on the second. It is noted that this is neither an arbitrary nor a prejudicial assignment; rather it is based on the observation that among likely user groups there are more potential problems with Peeping Toms than with Peeping Thomasinas and that the relative isolation of the second floor provides an opportunity to weed these out.

Within the locker rooms themselves, which are virtually identical except for a higher proportion of stall showers in the women's facility, an early segregation is made with respect to wet and dry sports. Lockers for swimmers are separated from those for dry-side participants and their circulation path feeds directly through associated showers to the natatorium. This not only allows, but promotes, the rinsing off of street dust before entering the pool and the rinsing off of highly treated pool water after swimming.

On the dry side the path from equipment checkout to locker to activity area is uninterrupted by wet spaces. On returning from the gymnasium and associated activity areas, participants arrive first at the locker area, then proceed to the showers. A drying area between showers and lockers is meant to ensure that the separation of wet and dry is maintained.

Access between the second-floor women's locker rooms and both wet and dry first-floor activity areas is by two glassed stairwells facing the lobby. This arrangement is intended to give a feeling of activity and participation to the lobby and to discourage preadolescents from skulking about entrances to the locker room not under direct surveillance from the internal control point.

Spectators are routed directly from the lobby to a second-floor gallery running the length of the complex. This gallery overlooks various recreation spaces in several different fashions. At the natatorium it connects directly to tiers of fixed seating over the pool deck. On the dry side it becomes a balcony opening onto the main gymnasium. When telescoping seats folded under this balcony are extended, one may step down and take a bleacher seat facing the main court area. Opposite the gymnasium the balcony looks into five handball courts. These have glassed rear walls above the playing surface, and the balcony is held back four feet from this glass to minimize distraction to the players. On its west end the gallery terminates in a game room overlooking the playing fields.
An open-air sun deck adjoins the natatorium and a repetition of its form is suggested further to the west along the pedestrian path by the stepped facade of the general crafts, meeting and lounge building.

This building houses a major two-story common lounge space in addition to more specific activity areas and general offices for the complex. At the second level a balcony corridor looks across the lounge and into a courtyard formed by the building's shape.

The studio spaces which complete the southeast corner of the complex are served by an open-air, canopied access corridor from the lobby control point. This lobby is oversized to provide display space for the products of crafts classes in the studios. The canopy connecting it to the studios themselves is flanked by a raised courtyard which serves as auxiliary studio space. Linking the individual studios are storage and equipment rooms.

INFRASTRUCTURE

Because the proposed project as conceived represents a significant extension beyond the presently programmed financial resources of Charleston's recreational programs, and because the maintenance and operation of such a facility can constitute the bulk of its ultimate life-cycle cost, every effort was made to economize in terms of the building's infrastructure. In life-cycle terms, such economy cannot be truly realized by capital savings resulting from mere cost-cutting, but must be achieved by integrating structure and mechanical systems with building design so as to optimize efficiency.

In consideration of the horizontal spans involved in major athletic spaces and the potential savings to be realized by the use of a single structural system throughout the complex, the decision was made to employ a precast concrete structural system. Major spans would be accomplished with double tees and lesser spans with a precast beam and plank system. In order to maximize the economies of using a single supplier and a limited number of trades, precast structural elements will be used also for vertical support members and piles.

The mechanical system selected is for the greater part of the complex an all-water system supplying chilled or hot water to fan-coil units of sizes appropriate to the spaces served. For major athletic and public spaces control is central. For smaller spaces whose use will be less regular, control is local. Thus a high degree of flexibility is provided.

The sole exception to the all-water system is the locker room complex. The number of air changes per unit of time demanded
in this area and the requirement for additional exhaust of moisture-laden air would require extensive ducting regardless of the system chosen. This, coupled with the adjacency of the main mechanical space, favors an all-air system for this portion of the center. The units serving this area would be located on a mezzanine in the main mechanical room and would be supplied by the same hot and cold water system serving the remainder of the complex.

Selection of primary energy sources in today's ergonomics climate is a chancy move at best, but certain choices seemed to present themselves as most favorable. For heat, natural gas is currently available from South Carolina Electric and Gas, and there are no serious indications that this situation will change over the expected life of a gas-fired boiler. This choice was therefore made.

For cooling, reciprocal chillers were chosen. Heat exchange for a facility of this size would require a rather large cooling tower, however, and this alternative was deemed undesirable. The decision was therefore made to complement the chillers with a spray pond which could serve an alternate role as a landscape element.

The mechanical system is substantially integrated with the structural system. In the gymnasium and natatorium, air handling units atop the roof feed ducts running between the webs of the double tees. In the smaller spaces units are housed either between ceilings and the flanges of structural members or in wall cavities.

Taken as a whole, the mechanical system is designed to provide a reasonable level of comfort for a variety of spaces, using central control in large spaces programmed for nearly constant use and local control for smaller spaces programmed for intermittent use.
SUMMATION

This document has sought to present the issues, methods and major decisions involved in the design process for a hypothetical building project of significant size and complexity. As a complement to the drawings which present the design itself it can be viewed superficially as a *fait complet*, a product, a work finished in and of itself. As such, however, it is not to be mistaken for architecture, nor are the accompanying drawings. This is no disclaimer based on the hypothetical nature of the study or on its role as a part of an educational process; it is simple fact.

Architecture itself, in its true sense, cannot be presented, judged or justified solely on the basis of verbiage or drawings, nor can it claim validity from the mere fact of construction. It is, instead, dependent for its success or failure upon the reactions of those who use it, delight in it or are appalled by it, find their needs met or thwarted by it and ultimately accept it or reject it.

This is the viewpoint from which this study has been undertaken. Many criteria have been employed in testing the documented solution to the stated problem and without doubt many more could - possibly should - have been brought to bear. Withal, the process has been educational.
CHARLESTON RECREATION CENTER

ARCHITECTURAL STUDIES 555

WACO H. MACFIE

1979
APPENDIX A - ISSUES

INTRODUCTION
The following issues have been identified as those most critical to the research phase of the project. The code described below indicates the stage during which each issue will first become an item of principal concern. Neither inclusiveness nor exclusiveness is implied by the code.

1 - First Phase - Problem definition
2 - Second Phase - Architectural programming
3 - Third Phase - Site selection and analysis

PEOPLE

USER NEEDS (1) As determined by demographics, existing facilities, advocacy if possible

CLIENT NEEDS (1) As determined by interviews and situation analysis

DISADVANTAGED USERS (2) Including the physically, economically and socio-culturally handicapped

COMMUNITY ACCEPTANCE (1) Absolutely essential to the success of recreational project

MIXED POPULATION OF USERS (2) By race, age, economic position and geographical location. Its effect on the facility

USER BEHAVIOR (2) Internally, its effect on facility function; externally, its effect on acceptance and use

NATURE AND SCIOLOGY OF RECREATION (1) What the facility is and how it will be used

PHYSICAL AND PSYCHOLOGICAL COMFORT (2) The impact of the facility's physical nature on the mind and body of the user
ENVIRONMENT

CLIMATOLOGICAL IMPACT (2) Sun, wind, rain, and particularly in this area, tropical storms

SEISMIC IMPACT (2) Design for a high-risk area

ADJACENT DEVELOPMENT (3) Both existing and projected. Its impact on the facility and possible expansion

CHARACTER (2) How the facility responds to the character of Charleston and to its own micro-environment

SCALE (2) In relation to people and to its environment

SOIL CONDITIONS (2) Design for an estuary peninsula

FACILITY FUNCTION

TRANSPORTATION AND PARKING (2) The ubiquitous auto versus a facility strictly for man

RELATIONSHIP OF COMPONENTS (2) Functionally, and from the standpoint of wet/dry and loud/quiet

ENERGY EFFICIENCY (2) The effects of design decisions on life-cycle costing

MANAGEMENT, STAFF AND OPERATION (2) Function-within-a-function and its needs

ACTIVITIES (2) What goes on in and around

EXPANSION (2) Provision for expansion and/or adaptive reuse

ADMINISTRATION

CHARLESTON ZONING ORDINANCE (2) The client's own regulations

STANDARD BUILDING CODE (2) The 1976 edition, as adopted by city ordinance
APPENDIX B - CASE STUDIES

JEWISH COMMUNITY CENTER
Portland, Oregon
Architects: Wolff, Zimmer, Gunsell, Frasca

This center constitutes a sort of split-level cluster arrangement of spaces, with the nuclei being the lobby and the lockers on the upper and lower levels, respectively.

The building seems to suffer some problems of organization and circulation. For instance athletes must ascend a flight of stairs from the lockers to the gym and descend from lockers to pool.

In addition there appears to be some liability in the building's acoustical zoning, or lack thereof. This is illustrated by the relationships of lobby and office to gym.
This building appears to offer excellent zoning from the standpoints of acoustics, activities, and age groups. The plan is essentially linear with athletic areas operating as a cluster around lockers. Circulation is used as a zoning buffer.
RECREATION CENTER
Agora, Dronten, The Netherlands
Architect: Frank van Klingeran

This building represents a rather unusual concept in recreation buildings. The ground floor on which one enters is a large open space in which an almost inconceivable variety of activities may take place. At the time of photographing it housed two volleyball courts and an apparent exhibition arranged on tables. The mezzanine surrounding this floor on two sides provides onlookers with amenities such as food and drink and live video screening of the theater's productions. Circulation is practically a laissez faire matter.

While this represents a concept of leisure often thought of as more European than American, it is in fact this ubiquitous "multi-purpose space" which is employed in most recreation centers being built today.

SCHEMATIC PLAN - AGORA
APPENDIX C - SOURCES

CLIENT/USERS

CITY OF CHARLESTON DEPARTMENT OF LEISURE SERVICES

Initial contact: Dan Hope (Director)

USERS

Not yet identified, but to include neighborhood residents as an additional category

COGNIZANT AUTHORITY

CHARLESTON COUNTY PARKS, RECREATION AND TOURISM COMMISSION

As above

BERKELEY-CHARLESTON-DORCHESTER REGIONAL PLANNING COMMISSION

Initial contact: Carl Rountree Planning data, maps and photos

U. S. METEOROLOGICAL SERVICE

Climatological data

SOUTH CAROLINA DEPARTMENT OF PARKS RECREATION AND TOURISM

Initial contact: Buddy Jennings

U. S. BUREAU OF OUTDOOR RECREATION REGIONAL OFFICE

Initial contact: Robert M. Baker

CLEMSON UNIVERSITY DEPARTMENT OF RECREATION AND PARKS ADMINISTRATION

Initial contact: Dr. Herbert Brantley

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