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An Urban High School for Atlanta, Georgia

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AN URBAN HIGH SCHOOL
FOR ATLANTA, GEORGIA
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A terminal project submitted to the faculty of the College of Architecture
Clemson University in partial fulfillment of the requirements for the degree of

College of Architecture

Architectural Studies

Major Advisor

Committee Chairman

Larry F. Sweat, Jr.
August 1976
To my parents for their sustaining confidence and encouragement.
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The following academic study is concerned with an urgent situation that confronts the American public each day. Prevalent to all states, in both urban and rural environments, this problem plays a vital part in our nation's productivity and makes a profound influence upon each individual during his or her years of adolescence. This aforementioned problem is an American high school. Looking back on one's own years while experiencing this part of our public educational system, in a small southern city during late 1960's, the author became convinced of the sub-optimum success of something so influential to our social, economic, physical, and environmental means. Questions raised when analyzing our present facilities successes in preparing us for a changing society, have created in the mind of the author justification for explorative investigation into the processes and facilities of our secondary schools. Familiarity and urgency of the situation made Atlanta, Georgia a logical place for this endeavor to be initiated.

In the summer of 1975 Atlanta was characterized with the paradoxical problem of having some of the most dynamic, innovative schools in the nation while at the same time harboring some of the worst. Out of this established need for secondary school improvement in the city, one specific situation in Southwest Atlanta was selected for the purposes of this study. An urban situation was chosen over a rural setting with the
understanding that the problems confronting a city high school would be diversified immediate, and complex, and that a suitable solution to such a multi-faceted problem would better prepare the author in the future for similar encounters. Another reason for selecting such a complex problem was to attempt to organize an appropriate problem solving process for which an architectural solution of such magnitude could be realized.

The scope of this project encompasses the research, analysis, and schematic design of a comprehensive high school facility and is culminated in a graphic demonstration of an actual building. Although it is the author's contention that a thorough investigation questioning specific areas such as problem need, site selection and political implications should be carried out by the designer, this study because of restrictions of academic scheduling and previous analyses made by the present school system have rendered these influences of secondary importance. The question of how the design of such an educational facility would be affected by users from a particular ethnic background, in this case a wealthy black neighborhood, was not given a high priority due to the inavailability of a conclusive data base.

The design of an urban high school is a decisive problem touching many aspects of our society and one that very well needs constant inspection and direction. It is
hoped that from this study a better understanding of how our secondary schools can become more beneficiary educational and social environments will become apparent to both the author and its readers.
NATIONAL EDUCATION
"The true test of a civilization is not the census, nor the size of the cities, nor the crops, but the kind of man the country turns out." Ralph Waldo Emerson

We are living in an age of rapid and widespread social, economic and political change. The character of American society is being shifted by the overall pattern and specific nature of these changes. Never before in any society have more people been employed in services than in goods-producing industries. Our culture has been transformed into a service economy with the majority of this growth being accounted for in the public sector - health, education, research and government. Professional and technical employment has become the second largest occupational category in American society, second only to semi-skilled workers. Since 1956, white collar workers have outnumbered blue collar workers, and this trend is expected to increase in the future. This "post-industrial" society is dependent upon knowledge, for purposes of social control and the political management of innovation and change. Consequently, educational issues are now significant public issues. With our basic existence contingent upon the white collar occupational sector, education provides the primary access to positions of social, economical, and political importance.
"The public schools are quite literally destructive of human beings. They are the most grim, joyless places on the face of the earth."\textsuperscript{2} Charles L. Silberman

We are presently in the midst of a total reevaluation of the philosophies and processes of our educational system. This upheaval has resulted out of necessity from our schools continually failing to fully prepare the American population for its turbulent environment. James J. Coleman, author of "The Children Have Outgrown the Schools," has offered that schools of the future should perform a role more like one of the community and home 100 years ago, when young people were brought into the usefulness of society by new experiences and responsibilities. He discounts the usefulness of schools as information-giving devices and emphasizes their application as a strategy for learning, to utilize the information rich-environment.\textsuperscript{3} Educator, Ivan Illich, has agreed that today's schools are obsolete because they are still trying to perform this information-giving capacity in a society now rich with other information sources. "Today's kids have watched 15,000 hours of TV by the time they finish high school compared with 11,000 hours spent in classrooms."\textsuperscript{4} As a result of the exposure of "real-life" and "street" experiences, kids today see more, do more and know more than their predecessors.\textsuperscript{5}
Often in the past, the student had been perceived as an inert and passive receptacle of knowledge being capably processed for different predetermined niches in our culture. Many of our problems stemmed from our utilization of a system of education developed in a more stable, permanent society. In our present situation it became impossible to teach anyone attending school all the facts relevant toward a satisfying and productive life and to impart all of the information accumulated in the past. We no longer deal primarily with the vertical transmission of the established information by an inflexible, mature and experienced teacher to the young, immature and inexperienced pupil. In a world of increasing rapid change, we need a lateral transmission of what has been and continues to be discovered, invented, created, manufactured or marketed. "The whole teaching and learning continuum, which was once the growth of the child into man, this process has exploded into our faces." 

Whereas institutions of any society are an authentic appraisal of the culture itself, the American society of today is no different. Only the diversity and intensity with which our culture is constantly tearing at the foundations of our educational system can rightfully explain our present predicament. Listed below are but a few illustrative examples of society's components that imply influence upon the educational processes:
Rapid population and demographic changes

Urbanization, megalopolis, and recycling

Increased density of living

Multiple purpose and coordinated land use planning

New forms and systems of transportation

Increased mobility

New discoveries in science and technology

Continued growth in the gross national product

Increased ecological and environmental problems

New forms of centralization and decentralization of government

Emergence of new leisure classes (old and young, affluent, unemployed, uneducated, technically obsolete)

Increased problems of mental health

Increased demands for human rights

Continued lag in human arts communication and conflict resolution

Increased polarization and alienation of diverse cultural, economic, and age groups

Increased international competition for productive intelligence

Changing values
Issues focusing on war and peace

Increasing apathy with our system's processes at every level of environment

Acceleration in the rate of change

Man's basic survival\(^{10}\)

With these and other problems confronting our educational programs either directly or indirectly, it is inevitable that even the most farsighted educational systems remain several steps behind the fulfillment of their goals. Among the most pervasive and insidious effects of this rapidly changing society is the social-psychological-economic trauma of increasing high density. A catastrophic resultant of this influence is the personal dehumanization which embodies itself most obviously in our highly urbanized areas. Characteristically, survival becomes the primary concern of inhabitants, life styles become drastically altered, and service agencies are rendered almost totally inoperable. The technology-science-automation syndrome so prevalent in our future-oriented world has succeeded in shaping a society that is disturbingly numbers oriented, holding little substance for personal experiences that are essential to adequate human growth and development.\(^{11}\) Our public schools have often emplified this dehumanizing attitude. Designed for everyone without regard for individual needs, they have been rationalized as the most efficient and economical way of handling the masses.
These dehumanizing aspects of our civilization have in past decades emerged through American education as participants seemed to be unwillingly locked into roles that inhibited learning and offered few possibilities for change. "They are needlessly authoritarian and repressive -- not because teachers and principals are stupid or venal, but because nobody ever asks, why?; why the rules; or why the curriculum?" Our institutions of learning have been structured to screen out those qualities or functions deemed irrelevant to what our society has defined as its purposes. These institutions have always stood as a barrier to classes or individuals of our population who are not in control of the system or don't conform to the roles or functions that society has imposed upon them. Very often these people are in the most immediate need of the services which optimum education can provide, yet we have sometimes misdirected the standards for our school users. In respect to the author's particular intentions a brief identification of the adolescent users of our secondary schools is deemed necessary.

One of the most critical maladies apparent in our secondary schools is that the body of traditional knowledge about adolescence, which was developed in the first half of the twentieth century and still forms the basis for the organization and operation of
high schools, is of little practical value today. The youth of today differ from
generations of youth that preceded them as much as Andy Hardy differs from
Abbie Hoffman. 15

Physically, youth today mature at an earlier age. The average age of menarche
now begins at least two years and as many as five years earlier than in the past for
adolescent girls. The average age of voice in boys is thirteen compared
with as late as eighteen in the eighteenth century. Men, at the turn of the century,
stopped growing about twenty-six; now little if any growth occurs after seventeen or
eighteen. Among unmarried girls, more than one-fourth of them are not virgins by the
time they graduate from high school. Last year, there were over 200,000 pregnancies
among high school age girls and over one-quarter of all female students were
married. 16 High school kids of today drive, travel, have considerably more buying
power, initiate trends, vote, marry, drink, and, indeed, these increased trends of early
experiences suggest that VD may replace chicken pox as a childhood disease. 17

They have experienced extraordinary growth in both affluence and residual
poverty; the social damages they have witnessed have been mammoth. All of these events
have philosophically changed the viewpoint of our youth; as they are becoming ever
pessimistic about their future. 18
Most high school administrators continue on as if business was normal. Often meaningless choices are given to what students want to study, when, where and how they may do so and these restrictions continue past the academic areas as controls are exerted over such things as appearance, and unscheduled time. "The high school is the only institution in the United States, except the prison, where they count the inmates seven times a day to make sure no one has escaped." 19

Advanced experiences outside the classroom have overshadowed many attempts at reforms in curriculum, organization, and logistics during the last thirty years. "We paid too much attention to organizational aspects of the institution and not nearly enough attention to the doubts and fears and motivations and problems of young people." 20 Young people between twelve and eighteen change mentally, emotionally, and physically, and to really completely prepare our children for today's world, a realization of the adolescent, who he is, how he thinks and learns is deemed necessary. The first common ground established by today's educators is the immediate adjustment of "dejuvenilizing" our high schools. Although apparently no one solution can alleviate our current dilemma, one of the most crucial improvements necessary becomes the honoring of each student's individuality, even if it isn't the easiest, least expensive, and most efficient means of preparing our youth for the world around them. 21 This
major intent of our nation's high schools can be expressed in social, mental, and physical terms in every school as part of the total commitment needed by everyone involved with our school system.

Recognition of these discrepancies have been exhibited through recent profound changes in educational theologies as well as changes in physical designs of facilities. Fortunately, our society is starting to change its attitudes toward ways in which children develop and grow about the processes of education. In this academic upheaval, the emphasis shifts from teachers teaching to learners learning. From infant school to university, the teacher's role is changing from that of authoritarian dispenser of information to a guide unobtrusively helping his pupils to explore their physical and intellectual environment in a potentially profitable manner. This better equips children for the process of continuous re-education that our modern technological society requires of every individual.22

In contrast to past conventional models of education, this approach to the individual asserts that the primary goal of education is to instill in children the desire and capacity to continue to learn throughout life rather than to produce completely "educated" people. This new attitude is combined, with other basic goals that have
evolved in our educational system, to provide the hope for future generations in a world of complexity and change. They are as follows:

To equip our young with the ability to cope with and to live in an increasingly complex world. This may include training and options for careers, and development of sound attitudes toward health, environment, etc.

To find joy in their own existence. As we cannot always promise pupils that virtue will always be rewarded and evil always punished in a changing world, we must help them achieve personal integrity which will be its own reward.

To enable them to contribute to the common good as they develop into socially responsible citizens.

To teach people to live together in harmony and peace. It becomes most critical to help them learn to communicate with their fellow man and to love, understand, and be compassionate toward him.

What man's needs are in the uncertain future and what turns education may take to combat them are very much conjecture for even the most knowledgeable experts.

The only constancy that we can rely on is change itself. To help gain some insight into where American education will turn in the years ahead, a look at five leading educators predictions may help to provide us with a relative overview of future situations. These predictions are:
Dwight Allen - Education will become cross generational - a focus for interaction among all ages in society.

- Newspapers, movies, and TV which are all major societal sources of information, will become diverse educational experiences.

- Educational facilities will be expanded into industries, homes, public meetings to where they can take place anywhere in the community.

- Students will play a larger role in societal functions.

- Textbook teaching will become obsolete.

- Prescribed time units on courses of study will be abandoned.

- Time oriented advancement of teachers will be dropped.

- We may eventually move to a de-schooled society.25

Harry J. Broudy - The amount and depth of general education will be measured for the bulk of the population.

- A high degree of vocational specialization will make highly differentiated vocational education in post-secondary years routine.26

Theodore W. Hipple - Financing of education will be enlarged and its tax base broadened by federal government as more teachers and better facilities are provided.

Alternative forms of education will flourish as vocational, academic, engineering and science fields will be expanded upon.
- Students will be given more responsibility to teach other students.

- Problem solving will replace pure content in the teaching emphasis.27

Max Rafferty - Better education will develop in our cities without busing.

- State-wide standardized tests will be universal for high school degrees.

- More people will become involved in vocational studies.

- More informative textbooks will be provided in our schools.

- Longer school years and school days will be planned.

- More part-time students will be attending our secondary schools.

- School and teacher accountability will be demanded for their performances. 28

Edward Meade - Greater participation by students in decision making about their schools and the modes of their education; such as being able to schedule their own classes.

- Having more freedom of choice and more responsibility for their own work. Thus, eliminating academic competition and focusing on the individual's goals.

- Working with a range of adults and kids of other ages.

- Serving in the community and holding jobs.
- Being able to spend more time by themselves.
- Realization of the importance of social interaction with their peers.
- Getting paid for work, with the school’s sanction.
- Staging athletics for lifelong participation for both sexes.
- Maintaining a more dedicated student body by eliminating forced schooling.\(^{29}\)

Very few people in today's world will live all of their lives in a culture into which they were born. Modern philosopher, Max Ways, predicts such acceleration in our environment in years to come that understanding and reacting to change will actually become our basic industry. Present aesthetic and ethical values are expected to become largely irrelevant standards to judge the next century's eventualities. Experts are constantly transformed into learners as social patterns and life styles are changed dramatically and development of new knowledge has rendered our present educational system somewhat non-functional.\(^{30}\)

In these times of rapid change, education becomes our primary instrument of human adjustment. The traditional 5-17 year old school age group is rapidly becoming an anachronism as continuing education becomes a necessity.\(^{31}\)
Old and young alike must be taught how to learn, how to utilize tremendous amounts of data available to us, how to reason and how to think. This new educational direction must be considered a purpose worthy of man's enormous and expanding capacity.32
NATIONAL SCHOOLS
During colonial times in America, the educational system was embodied in the tutor with his individualized instruction for those who could afford it, and later in the utilization of the one-room schoolhouse. Until recent changes this arrangement had provided the basis for our educational process for close to two hundred years. One teacher was assigned to as many students as could be accommodated in each schoolhouse. Children were rigidly organized to receive basic instruction in the essential elements of the three "R's". Situated elbow to elbow, knee to knee, the catechism, primer, psalter, testament and Bible became the principal tools for instruction as our ancestors learned by rote and drill while being encouraged by the rod. This satisfied the needs of an essentially immigrant, agricultural society for its business transactions, social events, religious ceremonies and its basic understanding of man's immediate and far-reaching environments.

A typical one-room schoolhouse of this period consisted of an ordinary wooden structure, equipped with primitive, simple furnishings. Wood or oil lamp heat, poor ventilation, and little if any sanitary facilities characterized the state-of-the-art in the late 1700's and early 1800's.

In the early 1800's, the growing population of eastern seaboard towns required a more efficient qualitative means of providing better education for more pupils.
In 1806, the Lancasterian system was adopted for a period of about thirty-five years. Borrowed from England, its premium was placed on the regimented disciplinary unit, as this military system confined one head teacher to instruct fifty assistant teachers who, each in turn transmitted the material to ten students. Comfort was disregarded as an unessential element to proper educational techniques and five hundred students were choked into a fifty foot by one hundred foot area, sitting at benches and tables.36

Fortunately, this stringent authoritarian process was abandoned and in 1847 the landmark Kalamazoo Case all but settled the issue of a public tax supported educational system. American public education was first initiated at Quincy Grammar School in 1851, as free elementary schools made their appearance in the eastern states. West of the Alleghenies, education evolved more slowly but eventually adopted this system of free education.37

In the second half of the 1800's, major changes emerged in techniques of education and facilities. The influence of educators such as Dewey, Pastaloni and James resulted in changes toward creative participation and learning by doing in contrast to the memorization and recitation of years past. New areas of study and increased activities prompted larger teaching areas and better methods of space division. However, too often one room schoolhouses were merely stacked and auditoriums added
inside as Victorian and Greek revival influences depicted the exteriors of our nation's schools during this period. 38

Also at this time, kindergartens and secondary schools instilled improvements later utilized by our modern system. In these pre-school classrooms, emphasis on the individual was first commenced as the concept of space utilization began to change. In secondary schools, it was becoming evident that continuing education and more specialized education should take a significant role in our thinking. In 1900, manual training, physical education, college preparatory work and commercial instruction unfolded as major functions in our system. Junior high schools were also founded and by 1917 the federal government recognized the importance of both vocational and physical education by lending substantial financial support. 39

Architecturally, many of the Victorian facades began to be retracted, leaving only minimal brick exteriors. Following the depression years and shortly after World War II, education was characterized by unprecedented growth in school plant planning. New concepts for school planning such as the cluster, finger, and campus plans indicated the increasing realization that educational facilities were responding to their educational challenges. 40
The most significant changes in the 1940's were made in the advancement of school plant support functions. Specialized areas such as auditoriums and gymnasiums were added. Technical improvements were realized in construction materials, lighting, acoustics, and teaching equipment. The earliest schools had consisted of load bearing, wood framed walls with corridors fixed in the middle. New structural developments replaced these bearing walls with columns of steel or concrete as longer spans and different plan arrangements became realities.

During the 1950's audio-visual machines and other types of teaching aids pointed the way toward new educational attitudes. The addition of business and industrial education initiated the trend toward specialized teaching and non-college prep curriculum. Conceptually, most schools were still built with classrooms lined up along corridors in a finger plan as teaching methods changed very little. Classroom procedures during this period consisted of a teacher standing in front of a group of approximately thirty students, asking questions and lecturing. A thirty by twenty foot sheltered box was all that was required for each classroom. Flexibility of spatial definitions was first initiated by the use of occasional folding wall partitions as an alternative to a completely fixed plan.
During the years 1962-1967 the School Planning Laboratory at Sanford University and the University of California, Department of Architecture, Berkeley, acting under a grant from the Ford Foundation's Educational Facilities Laboratories, jointly attempted to develop new approaches to the design and construction of school facilities. This project (SCSD) sought to apply industrial techniques of standardization and systems analysis in an attempt to develop a new and more economical building technology. A system was developed where the need for standardized components was tested and used in the construction of several secondary schools in California. Flexible column-free learning spaces were provided economically, yet technical problems proved minor compared to the political ones of getting these structures built. Project personnel were forced to devise new procedures for getting acceptance of these technical solutions within the complex sphere of individuals and organizations involved in the design and construction of the school plants. The SCSD project has now successfully demonstrated the possibilities of developing standard components for schools and ways of assembling them while producing variety in building design.

In the last fifteen years both educational theories and facilities have undergone other emphatic changes. New educational goals were developed as the importance of each student learning at his own pace was recognized. Teachers are now inclined
to teach the subject in which they are most competent and learning situations have now become modified for given situations. Educators today have turned to non-graded, team teaching, independent study, and self-starting techniques as we are slowly becoming aware that lock-step, grade-by-grade education simply is no longer applicable for present or future educational needs.\textsuperscript{45} As a result of these educational changes, we have witnessed the traditional single classroom evolve into an open plan teaching environment. Creative developments in commercial office space layouts have helped lead the way toward making the open plan a reality. These flexible instructional areas have been designed recognizing the need for specific areas in each school which cannot function properly without certain degrees of isolation. The extensive use of air-conditioning and carpet in recent facilities has also aided in the development of the open planned school.\textsuperscript{46} Presently, education facility design has seen an innovative and economic utilization of standard building systems applied. As we look toward the future, our nation's school buildings constitute change in many specific areas, with a major concern evolving around their maximum flexibility for the adaptation of future educational changes.
After two hundred years of an evolving educational process, we have arrived at focusing on the learner. The individual's needs and differences have long been the topic of discussion among our psychologists and educators, but only recently have concrete changes been initiated into our educational principles and facilities. Too often in the past planners and designers have focused their design considerations upon the neatly packaged space of the traditional classroom. With the development of the open plan school, we have been able to transcend this classroom arrangement that resulted in so many sterile learning environments through the 50's and 60's.

In the past American education had been dominated by teaching patterns executed in rigid, unchanging buildings. Students received predetermined amounts of education disregarding their interest or capacity for handling it. If they had passed through a particular room for a certain number of hours they qualified for the next step of learning and if not ready, they were reprocessed or lost interest in the system. It became possible to never learn to think throughout one's entire school experience as the student at best acquired certain basic skills and facts which formulated an insufficient preparation for our changing world. The time spent gaining this knowledge could very well have been shortened dramatically in a more realistic process of education.
In the classroom itself teachers lectured, gave directions, or criticized behavior. Parallel seating rows and aisles enforced students to look straight ahead, becoming psychologically and physically uncomfortable. The teacher was enabled the only mobility as she used the black board or walked along the aisles. Intimidated by physical perception alone, the child's world was cluttered, disorganized, and full of people's shoulders, heads and body movements. Discipline in the environment was maintained around order and organization, as the child appreciated advantages of conformity. The no man's land between the students and teacher formed an invisible barrier from the blackboard, a creditable means of spontaneous expression. The conflicts between the effective utilization of recent innovative teaching techniques and the restrictions of a conventional classroom have, in recent years, prompted new manipulations of educational space.

These innovative teaching techniques, to be discussed later, resulted from changes in attitudes about how students learned. Listed below are several of these new attitudes:

Non-verbal communication greatly influences the learning process.

No one teacher/student ratio is appropriate for all learning situations.

Chronological age does not indicate educational ability.
Education need not start and stop at the school house door.

I.Q. responds to stimulus; it can atrophy if neglected.

Humans are highly adaptable to a wide latitude of environments, but at some cost in comfort, responsiveness and ability.

Both the conscious and unconscious minds respond to education.

Emotional security affects educational ability.

The fifty minute classroom is a desperately ineffective and restrictive scheduling of student and faculty time.

Teachers can no longer be the sole source of information.

Children learn from each other.

There is a sharp competition for information.

Children learn in a variety of ways.48

Open space schools are designed to specifically meet these individual needs, not just curricula requirements. Personal differences and variable rates of learning are accepted as these schools encourage each student to make his own decisions, to recognize his own interests and exploit them to his own capabilities. He progresses under teacher supervision from one assignment to the next. This self-direction and freedom to make choices gives each student responsibility for himself. Student
growth and progress is measured as part of his individual development and evaluation no longer becomes a standard for an entire class. 49

One's continuous interaction with adults and fellow students, an important aspect of any educational facility, becomes easily facilitated in an open plan school. Whenever we inhabit a space, we are an integral part of a communication experience. Whom we can see, interesting circumstances, and turning points in daily life are results of provocative encounters with other people or information. Random patterns are encouraged and functionally compatible groups and teaching environments have access to one another, as these diversified activities share zonal territories providing both visual and audible stimuli. Circulation is constant and informal, as an open plan classroom becomes a setting of constant activity. Self-directed study areas are integrated within this environment to provide for private conferences, studying, or places to think. 50

"Generally, there are fewer discipline problems in open schools because children like what they are doing. They accept and enjoy self-directed responsibility. They are pleased to be treated as equals. They delight in independent discovery, and they take pleasure in doing their own thing. Indeed, they desire to share and the cooperative spirit engendered when children tell one another about some newly grasped idea or bit of knowledge add joys to the process. It is a festival of learning. Children are happy here."

51
Open plan schools allow for numerous advantages in instructional alternatives available to both educators and students. Some of these new possibilities are described in the following categories:

Educational options - traditional teaching approach

- differentiated staffing
- team teaching
- programmed learning
- nongraded arrangements
- instructional media for individual users
- experimentation with future methods and techniques

Student's options - varied activity spaces

- increased student/teacher interaction
- increased interaction between older and younger classmates
- accessibility to a variety of teaching materials
- a rich sensory environment

Initially, support of open space facilities had not been overwhelmingly received, as it had encouraged and in some instances forced teachers, students, and administrators to modify perceptions and behaviors. However, recent notable examples
have demonstrated the success of this concept in providing a more effective means of accomplishing individualized learning. Once properly planned, staffed, and equipped, open plan schools facilitate the pursuit of education in a flexible and diversified learning environment.

The open plan school is a dynamic school. Utilizing proper furniture and equipment it can change constantly. Broad expanses of enclosed space, usually free of supports and fully carpeted, depend upon movable elements such as panels, screens, plants, casework and learning equipment to define spaces. No longer are classrooms rigidly fixed as they allow each occupant to flow easily from one place to another. The fixed rectangle of the traditional classroom is replaced with variable spaces that support change. This ever changing environment can only be effective if the open space is acoustically prepared, visually appealing, and appropriately sited for its specific function. 53

Less committed space, which because of noise, odor, etc., generates a need for enclosure, is needed in an open plan school. A listing of such flexible and inflexible areas is categorized below:

Uncommitted - learning areas for language arts, social studies, mathematics
- instructional materials center
- resource centers
- dining halls
- circulation spaces

Committed
- mechanical equipment rooms
- custodial spaces
- toilet rooms
- stairways
- kitchens
- gymnasiums
- locker rooms
- swimming pools
- music rooms
- lecture auditoriums

Variables
- foreign language units
- vocational shops
- administrative office suites
- counseling units
The teacher in open plan schools has to be prepared for the challenge of this wallless environment. No longer performing an isolated role with one's class, the teacher now achieves the role of activator, guiding and suggesting paths for the learner. Each student's relationship with his teachers is paramount to the success of this system, as faculty frankness and honesty when discussing a student's shortcomings and achievements become vital to the student's realistic evaluation of himself.

Under constant observation from her peers and students alike, the teacher must be receptive to criticisms and suggestions and flexible enough to improve. Rigidity and an unyielding attitude make it most difficult for her to succeed in an open plan school. Effectiveness can be improved by acquiring skills from fellow teachers, while still demonstrating one's own particular instructional strengths. Each is encouraged to specialize and develop specific areas for which they are most competent.

"Teachers in open space schools are upward bound. They are working continually to improve themselves and each other, and the quality of education they provide for each child in their care. It takes a special person - one who is dedicated, who is willing to devote a great deal of time and energy, and who cares very deeply for children."

As the educational leader, the guiding coordinator and the generating catalyst for the open plan school, the principal fulfills a most important role. Through his mediation with parents, students, and faculty and community, he perpetuates
understanding and support for the program. It is the principal who recognizes and
instills the spirit of a strong, successful program to everyone involved. His skills,
assurance and belief in the open plan schools are paramount to its achievements. 58

Working as personal advisors for each student, counselors are another important
benefit to open plan educational programs. With the interest and well being of each
of his students his major concern, the counselor guides students toward selecting academic
programs which play major roles in determining directions for their adult life. These
programs may differ from students who are coached through learning curriculums with
little choice to students who decide daily what they will investigate. In weekly or
daily sessions the counseling system displaces the traditional home room situation as
students discuss independently or as a group their educational processes. 59

There are basically four learning environments which our open plans schools have
utilized for successful instructional purposes. These include individual study, social
group, seminar or small group, and large group areas. Each has its own particular
purpose for giving a student total exposure to different social and academic functions.

Independent study allows each student to experience his own successes and
failures. It allows him to build confidence in his ability to locate, organize, and
present information in a problem solving process. It is comparable with physical exercise in that it is something you must do for yourself. 60

A social group context allows the possibility for an intimate exchange of one's own thoughts and ideas. The advantages for optimum working efficiency are very likely to surface in this context. Very often an increase of more than 2, 3, or 4 members into this group can restrict group input. In this size interactive group is found the most likely number for casual or out-of-class social conversement.

The seminar or small group with approximately ten or twelve members becomes one of the most difficult to maintain in a conventional school. Research in the behavioral science fields have shown conclusively that small group confrontations offer unique opportunities for intellectual growth through the function and stimulation of genuine conversation. This assembly can perform with or without tutorial guidance, as interaction can be promoted through controversy, debate, side-taking or opinion forming. Utilization of learning devices for both individualized groups (tape recorders, microfilm, books, maps, globes) and large group presentation (rear screen film projector, telephone, phonograph, TV, slides) can be most beneficiary. 61

The economics of large group presentations is an obvious benefit, as thirty students can be instructed as effectively as a hundred students. Groups of this size can release
both faculty and students for individual study or study in small groups and enable other methods of instruction to flourish. Given the fact that a body of students is ready to receive the information, large group instruction can provide these students with information of general importance to everyone. In this context technological advances can compliment or totally sustain this basically one-way communication to a passive audience. 62

When utilizing these instructional groupings, several new methods of teaching have been developed to initiate spontaneity, creativity, and individuality on the part of students and teachers. Team teaching, non-grading, individualized education and programmed instruction provide some of the most successful answers to these education needs.

Team teaching is derived from the concept of the student/teacher balance being a dynamic relationship. In comparison with the one teacher to thirty students of the traditional classroom, the entire student body utilizes the faculty in constantly changing arrangements. The staff is organized and assigned to the more experienced and capable teachers who have exemplified their proven high qualifications. Income is determined by credentials and performance, as individual teachers are compelled to specialize in specific subjects. Practice teachers, aides and parent helpers augment this team. 63
According to the educational status of the individual, type of instruction, and difficulty of material, the student body is correspondingly organized at variable instances. If administrated properly, the staff can maximize opportunities for intensive small group or individual instruction by numerous teachers throughout the day. With each teacher's capabilities being fully exploited, information is synthesized into a more comprehensive basis of knowledge for each student. In addition to a wider exposure of teachers to students, team teaching allows instructors to climb up the administrative ladder according to their performances. Financial rewards and increased responsibility encourage quality instruction and guidance for the entire educational system.

A conflict immediately arises between this new teaching method and how it functions in a situation characterized by double loaded corridors and compartmentalized classrooms. The following reasons predicate the demands put upon the spaces and facilities that support team teaching:

The space must accommodate groups of various sizes.

The space must allow constant shifting of group size and rapid changing of the participants of each group.

The space should include a semi-private teacher work space for preparation of special instructional materials.
Non-gradeness is a natural evolution from teaching. As children learn in a matrix of experience, it becomes most difficult to specify a particular instance and allocate grades for it. Accepting the point that children learn in many diversified ways and schedules, an absolute value becomes irrelevant in this age of information explosion. Evaluation, however, is deemed necessary and each student is graded in respect to his own potentialities which are established and continually upgraded by testing. Open plan schools are now incorporating evaluation reports that combine with parent and teacher input into a sustained counseling process for one's entire experience in school. 67

Individualized scheduling is another outgrowth of educational change. Beyond a basic knowledge of the three "R's" it provides children and young adults with a choice to establish and develop their own interests. Talented child prodigies have always had this choice of selecting their own curriculums. Students accepting the opportunities open to them through this system can refine their interest and awarenesses toward potentialities in any chosen field. 68

Programmed instruction is a method of facilitating the individualized learner. As children not only learn at different rates of speed, the individual, himself, may move through fast and slow periods of receptiveness. In this system, a student contracts
a particular assignment with an instructor, as he delivers the finished work and is free to
select broader choices of curriculums. No student is penalized for his difficulties
or deficiencies in a particular subject. By "declassifying" subjects the student can study the equivalent of fourth and fifth grade materials simultaneously without suffering social degradations for being held back. 69

Although usually not considered an actual teaching technique, environmental education becomes another avenue open to us through the use of open plan school facilities. Environmental education is defined as learning about one's surroundings. Investigation of how the actual educational building works is the initial step as the process expands toward an awareness of the school grounds and how all these environmental factors affect the quality of life in the community. A bit further a field additional sources of knowledge radiate toward the local environment into the city limits, then to the region and beyond. Very seldom do we realize the potentialities of our total environment for educational purposes or the important effects of the designed environment on the natural processes of our life-supporting ecosystems. 70

The following are recognized as goals of environmental education:

To learn from life as well as about life. The concrete problems of the child's everyday environment provide an immediate and relevant focus for learning by doing.
To provide learning opportunities that allow the child to see the world as an interrelated whole.

To develop an awareness of how the natural and man made environment affects and is affected by human values, activities, and decisions.

To foster an action orientation to collective environmental problems and provide the skills necessary for their solution now, and later as aware, concerned, and competent adults.71

The justifications for environmental education have traditionally been for our citizenry to understand their environment and for each American to maintain an appreciation of the natural aesthetic. To fulfill these and other purposes of our environment, we must realize that all educational situations contribute to environmental education. Regulations for a single subject or single teacher to be the only source of information are gross misunderstandings of the education process. In his article, "The Need for Environmental Education," Mark Teny suggests that it should begin by the examination of what effect the school building itself has on its surroundings. He even focuses on the classroom as an environmental unit.72

Designers and planners can do much to invite environmental education as an integral part of any school. An honesty of expression in how the building works and how it influences the school grounds will impede an enthusiastic beginning as to how
all these factors can build upon one another to influence the quality of life in our
community and beyond.

"Clearly the problem of man and nature is not one of providing a
decorative background for the human play or even ameliorating the
grim city: it is the necessity of sustaining nature as source of life
milieu, teacher, sanctum, challenge, and most of all of rediscovering nature's corollary of the unknown in the self, the source of
meaning."73

Another important factor influential in the success or failure of open plan schools
is the use of its interior elements. Furniture replaces walls, rooms, and corridors
and it becomes no longer necessary to fit learning into a container. This school has
the opportunity to shape its educational environments and to suit the demands of the
current educational processes and programs.

"If the recitation and reproduction of lessons is considered the chief
aim of teaching, the traditional equipment of the classroom is perhaps
sufficient. But if teaching is guiding children to do their own thinking,
purposing, planning, executing, and appraising, as recent educational
philosophy maintains, then the classroom becomes a workshop, a library,
a museum, in short a learning laboratory."74

This philosophy was being conceived in 1940 and is just now starting to become
a reality in our public schools. Individualized learning, the changing role of the
teacher, large and small group instruction and the increased use of audio-visual aids
have affected the need and function of school furniture in its recent metamorphosis.

The student's comfort and space definition for current activities should complement acoustical and aesthetic capacities while creating a flexible environment. Six major design considerations for open plan school furniture included:

- **Durable**: easily cleaned, solid construction, easy repair
- **Simple**: caution should be exhibited for pieces that have multiple functions and pieces that can fall or break off
- **Useful**: can it have a multiple use?
- **Useable**: who can use it; is it too small or large or too complicated for children's easy purpose?
- **Moveable**: can it be moved, skiddable, on wheels or is it too heavy?
- **Compact**: does the piece wander? have extraneous arms? waste unnecessary space in the room?  

One fallacious misconception about the open plan school is that they are cheap. Without interior walls, the money saved on the actual building shell must be reinvested into the school's furniture and equipment tally. A large open space without proper interior design elements is potentially abravise, and schools that forward this essential furniture simply do not work. Thus, with these interior elements costing more and
because of their demanded high quality and diversity, one should expect no less than an even trade off in price for an open plan school. 77

Just as with the creation of systems building, systems furniture was established as a result of the need for easily interchangable standard parts. This concept can and has succeeded when designed upon rigid architectural performance specifications. Currently, many different possibilities are offered from different manufacturers, and the buyer has a choice of the entire system or certain pieces. 78 Some furniture buyers are mixing traditional school furniture with a large variety of items not specifically designed for the school market. Depending upon individual needs, this eclectic approach results in exciting, variable furniture while lending itself to daily change. Much new furniture is designed specifically for no purpose but so simple that it serves numerous functions. 79

When all schools were conventionally constructed with rigid walls, partitions functioned as space dividers. Space division, however, is no longer viable in today's schools as users need space defining elements. These subspaces provide both orientation and conditioners for the visual and auditory interaction of a specific group. 80 Some of the present open plan school furniture includes:
partitions - relocatable, skiddalbe, folding or sliding

carpet - floor covering and seating purposes

visual dividers - storage cabinets, chalkboards, tackboards, movable fabric screens, panels, display boards, plants, study carrels, banners, graphics

chairs and tables

technical learning equipment

Furniture is becoming more and more an integral part of the design of school buildings. Improvements can be expected to continue in its noise absorbing qualities, its design as a part of a systems production and in its shape, weight and mobility. But more than any other direction, its proficiencies in helping to create a warm, inviting environment for learning need to be accomplished.

Thus far, the reader has summarized an impressive collage of reasons for the open plan school facility and how it can work. This concept has not yet been an absolute success as many administrators, faculty, parents, and students have provided valid criticism for its deficiencies in particular situations. The most prevalent problems that have been recognized are an inability of certain teachers to instruct in open learning environments, and the lack of sufficient interior design elements available.
The misuse of many open plan facilities is very often the result of the staff not being prepared. John LaRowe, executive planner for Atlanta Public Schools, provided the following breakdown of why teachers haven't handled the open plan with maximum success.

No completely effective system is being utilized on a large enough scale in our college and universities for training high school teachers. Specifically for open plan teaching.

Local school systems haven't prepared these instructors for their task at hand as to the peculiarities of the system.

And finally, many teachers resisting to their increased responsibility and their loss of authoritarian control haven't prepared themselves.

The creation of suitable learning and working conditions is now almost totally in control of the teacher. If properly administrated, a major rearrangement of work center furniture can be shifted to meet a completely different group or individual needs in as little as 1.4 minutes. Lack of refinement in manipulating this situation can create large expanses without landmarks or human scale reference points, and definitions of territorial edges can become exceedingly difficult to inhabit. This ongoing management for environmentally sensitive spaces must become part of teacher preparation.
The other major problem, a lack of appropriate equipment, arises when architectural firms and/or administrators build raw open spaces without provisions for furnishings, merely as a means of cutting the budget. To realize optimum success for an open plan learning space, the following suggestions were concluded from successful interior business layouts which used this concept for business functions:

Teachers should cooperate and plan for specific periods each day.

Students utilizing quiet areas must not be scheduled near noisy large group instruction.

A resource library and auxiliary spaces in the school could help unload the density of teaching spaces.

The resource library can be centrally located to act as a baffle between work areas. This same procedure can be carried out to screen distractions of work and individual study areas.

The variety of space dividers should be detailed so that they can all receive similar components allowing maximum flexibility.

When these questions of spacial definition are not studied, an entire new set of problems arise and these school buildings can foster educational havoc. President of Educational Facilities Laboratories, Dr. Harold Gores, has said that, "the best school right now is the open plan with some necessarily restricted space; people must not be deprived of their sense of place, of territoriality."
As is the case when any innovative advancement or creative direction is first instigated, there are problems to be ironed out. But overwhelming evidence has shown us that the potential for truly motivating space within our educational system through open plan schools far out weighs the problems at hand.
With America's faith in the power of education, our school buildings seem a logical instrument in the fight against urban decay, racism, crime, and unemployment. Schools can play an integral part in the process of reversing urban deterioration, as their presence accentuates the positive attributes of any part of a city or, on the other hand, it can remain isolated inviting some other institution to take its place. The attractiveness of any neighborhood or community is often indicative of the vitality and strength of its educational facilities. Acting as a magnet, preventing groups of people from fleeing our cities, our schools can reflect physically as well as philosophically, optimism in an urban renaissance. 

The time is upon us when we should recognize our cities are built-up conglomerates of different communities. These fractions of our urban centers have many ethic and moral personalities which need expression in the present situation of overextended governmental control. Of utmost importance is the control or influence of each community's educational services. The new and expanded concept of community education recognizes that people belong not only to many communities but also to many subcultures that may actually function as communities. It also recognizes each individual's unique needs and desires to contribute to community improvement, after
all, it is a combination of collective individual needs, desires, and potentials upon which communities evolve. While attempting to consolidate social, economic and intellectual characteristics between individuals, groups and communities, these educational services are predicated upon preserving the unique cultural heritages of each community within the larger and more pluralistic whole. Only in accomplishing these two diverse directions can our communities at all levels increase the individual's potential for geographic and social mobility within the city, state, national and even international community.89

"Schools function socially only when they function in a community for community purposes." -- John Dewey90

To successfully carry forth this modern community, the school of today is required to become of the community rather than just in it. All phases of its program, its organization, and its operation should emphasize unity with community life. A community school inevitably becomes a community service center of which the actual academic program is an integral part. This center must draw upon all of its resources - people, institutions, organizations, business - for planning, operation, and sustenance. In every aspect of educational planning the unique character of the community should determine to a considerable degree the nature of the services the school provides to the people of the community.91
Unfortunately, many of our nation's schools are not designed or administered to facilitate these purposes. Very often citizens wishing to utilize community matters are thwarted because of their remoteness and unavailability. Schools and individual homes should be in a constant partnership which can become both integrated and complimentary. Educational buildings should be available around the clock for education, recreation, social meetings and other uses by each citizen of the community.

With as many positive attributes as there are involving community schools, there has been relatively little impact upon our national school system. One reason for this minimal improvement is that the members of the community who most need education and services of all kinds are the least likely to turn to schools and the least likely to be involved in their planning. Other reasons for the relatively limited community schools include lack of leadership on the part of educational administrators, school board members and other governmental officials who do not find it in their self-interest to concede decision-making influence to community fractions. However, all of the blame cannot be attributed solely to our leaders, as widespread apathy throughout communities usually increases the chances of very little being accomplished through reform. General ignorance by the neighborhoods of the pros and cons involved in community education facilities inhibits progressive action.
Community education and schools have traditionally been highly localized. "The best community school programs tend to be decentralized in their organization and administration. To make community involvement and commitment effective, even possible in the larger metropolitan areas, decentralization of school organization and administration is apparently necessary."

This concept is actually not new at all.

The first American public schools were founded on the notion that society could be improved only if its individual members were able to achieve their maximum capabilities in community enterprises. These schools were almost totally responsive to community need as they became organized, staffed, housed, operated and maintained through cooperative community efforts. Their limited curriculum was observant of the moves of the community and instruction was non-graded as classes often included young adults. School calendars were arranged so as to compliment community planting and harvesting seasons. Even daily sessions were focused around milking, feeding livestock and other daily chores. Many of the teacher's salaries were paid by the community and the donation of land for the schoolhouse and actual construction was primarily provided by the community members. These early schools served as social, cultural, and recreational centers, and the school master or school marm
wrote and read letters, settled arguments and generally served as an arbitrator in public matters. School buildings also served as emergency shelters in times of crisis. 97

As the country began to grow, America's urbanization and technological advances created an expansion of the basic curriculum. Demands from society for universal, comprehensive, and uniform public education increased and schools accomplished more formal structures for operation. With this first move toward bureaucratic consolidation, education moved under the jurisdiction of local government, with state and federal aid assuming overall support and implementation. 98

This type of organization lent itself easily to a community institution, but as city's populations grew such diversity became undesirable, as areas without schools became more isolated and less attractive. Consequently, city boards of education were founded, but such centralized control of education became too powerful and irresponsible to community's needs. In rural areas, schools were usually placed under county boards of education. 99

As education moved farther away from the hands of the general population, course curricula became increasingly specialized, structured, and compartmentalized, and more professionals gained control of administrative positions. Since the late 1800's
these types of community segregated schools have dominated our townships and cities. Despite the administrative advantages of these public schools, widespread dissatisfaction was expressed toward curricula and the facility itself. Outside of sufficient formal academics personnel, time or money was not donated to community needs during this period. 100

Throughout America, by the 1930's, educators had recognized the potential of the community oriented school, and the Society for Curriculum Study appointed a Committee on the Community School. That study published in 1938 defined community education as a necessary and responsive instrument toward achieving social, intellectual, spiritual and physical fulfillment of community needs. Educators and communities became more receptive toward the advantages of this concept, and schools began to be constructed and operated for these purposes. This interest in community education increased during and immediately after World War II and has continued until the present. 101

One of the especially successful examples of community education has taken place in Flint, Michigan since 1935. Fifty-six city-wide community schools have positively influenced many favorable trends in the community. They are as follows:
Positive aspects increased - adult education, voting, literary, tax levels, health guarded.

Negative aspects decreased - days absent from work, juvenile delinquency dropped, drop-outs, prison returnees. In the 1970’s there have been continued improving and successful community schools. These facilities in all areas of the nation have accomplished many of the goals and objectives set forth by educators and community spokesmen. A comprehensive and widely applicable listing of community aims by which to evaluate community schools was developed by Lenardo Covello who pioneered this system in New York City. Covello states that a community school should be a (an):

1. Explorer of community social backgrounds, research agency and medium for the practical application of the knowledge acquired through these means to the community school program.

2. Coordinator of student and community activities with school departments, personnel, and extra-curricular activities.

3. Planner for the actual needs of the child within the community patterns and interests.

4. Direct channel of communication between school and community.

5. Participant in community activities as educational media for students and community residents.

6. Instigator of community participation in the conduct of the school and in use of the school’s resources.
7. Base for experiments dealing with solving community problems.

8. Socializing agency in intercultural relationships and the expansion of the local social world, and in development of community consciousness and communal cooperation efforts.

9. Center for adult education in fields of objectively evaluated community needs.

10. Educational guidance center mainly for pupils but also for adults and community groups.

11. Testing ground for leadership with both the school and the community.

School buildings serving as components of neighborhood life are capable of delivering more services than they usually do. With careful planning and good community oriented design, they can perform a combination of essential services to a broader range of citizens for very little additional cost. Several advantages of the building process can be utilized if these schools are jointly designed, used, operated, maintained and funded facilities shared by community and school. These advantages include:

Maximizing the use of available land and facilities

Minimizing the economic burden on taxpayers

Providing a series of essential services for a broad range of patrons at a single address.
This coming together of the community is the most important element of our community schools and results in students becoming assets to the community, and the community becoming an extension of the school. These people mixing through healthy community interaction can utilize many different activities both during and out of regular school hours. The following activities are considered compatible with our educational programs and facilities:

- public branch libraries
- human resources departments - health, medical and dental, social services, environmental health
- community action programs - preschool programs, family services, counseling services
- recreational and leisure time - community centers, indoor and outdoor sports, meeting rooms, informal use of shops and other specialized areas or merely a "place to be"
- cultural programs such as performing arts center, display galleries, lecture halls

The ultimate success of community education is contingent upon the complete cooperation and active participation of community residents and also the beneficiary input by local organizations, agencies, and social groups concerned with building a better local environment. In short, for community education to be successful, programs
must be geared to community needs and must change with them; total available resources - educational, social, economic, political and physical must be brought to bear in a concentrated effort.107
OBJECTIVE
STATEMENT
The Atlanta Public Schools, the controlling body for public education in the city of Atlanta, in the summer of 1975 realized the need of a high school facility for the community of Southwest Atlanta. Definite preparations were initiated toward the development of this new school from its nebulous planning stages to the final completion of construction in the fall of 1976. The Atlanta architectural firms of Finch, Alexander, Barres, Rothschild and Paschal, Inc. and Edward E. Miller Associates were selected by the school board to be designers of this proposed facility in conjunction with the school system and the community of Southwest Atlanta.

The site selected for this new facility, located on Sewell Road at I-285, had been previously purchased by the Atlanta Public Schools for the specific purposes of an educational facility. Definite needs for this new school were perpetuated from the present overcrowding conditions at Southwest High School and a limitation of recreational and cultural amenities in the community. The facility itself was to become a comprehensive high school for 1,800 students in grades nine through twelve. It is from this situation upon which the following design study is predicated.
Before analyzing the people, activities, spaces, and location involved in designing this high school, a clear understanding of the history, methodologies, and philosophy employed by Atlanta's secondary school system becomes necessary.

The following historical outline of Atlanta's school history from its inception to the present was based upon an interview with Walter Bell, Historian of Atlanta's Public Schools.
1872 - First high schools were founded as twice as many girls as boys enrolled.
- Two parallel curriculums were set up.
- Annual revenue allotted to educational services by the city were not sufficient to provide a public school system.
- Segregation was still a Georgia law and it influenced all social limits, but in many cases contact existed between blacks and whites in homes, at work and play.
- The State Board of Education took control of and founded two black elementary schools. Many whites thought there was no reason for educational services of blacks past an elementary school level. Black colleges, Spellman and Morehead, provided the only chance for blacks to have higher education in the area.
- White elementary schools were also established by the city as educator, Daniel O'Kay corresponded with fifteen other school systems and managed to find better ways for a "cheap and efficient" education system.
- Because of the city governments lack of outlay revenue, it was most difficult obtaining funds for new school facilities.

1886 - The first structure in Atlanta designed specifically for the purpose of education was erected for girls.
- The boys high school was continually shifting locations. It was upheld by a slight attendance and was moved ten times in twenty years.

1887 - The Freedman Bureau and different church groups started several free schools that were instrumental in bringing about Atlanta's public school system.

1890 - In the girl's high school, commerical courses were taught. They were very well received, and due to overcrowding, expansion again became necessary.
- The boy's high school also started business oriented courses such as financial law, bookkeeping, etc.

1892 - Blacks voted in the democratic primary and gained some control over their educational plight for the first time.

1894 - The first actual high school for boys was erected.

1896 - High school teachers had been teaching all subjects, but departmentalization was put into effect in self-contained classrooms with 40-49 students assigned to one teacher.

1900 - Practical courses with mechanical drawing, blacksmithing, and wood work flourished as boy's facilities could not maintain the student volume.

1905 - Girl's schools also experienced tremendous growth problems as the new high school expanded.

1909 - Growing rapidly to 2,400 students, the major emphasis at the boy's high school turned toward more technical courses although under no official authorization.

1910 - Until this time, the girl's high school had prepared and provided teachers for local elementary schools. Now, this changed to a special post-graduate program while remaining under the control of the high school.

- Money was first allotted for school building through a city bond issue.

- Yet, only one black grammar school evolved from this aid, and the black community became very agitated toward city hall.

- The first black high school, Booker T. Washington, was established. Financial problems accompanied its construction and facilities were limited to classrooms only, however, this co-ed institution became very strong academically and gained a positive reputation throughout the state.
1915 - The first co-ed white high school was implemented, as it became commercial-business curricula oriented.

1917 - Compulsory attendance was demanded for the first time in Atlanta's schools.

1920 - Learning by doing was first implemented as an instructional technique in elementary schools in Atlanta.

1921 - A large bond was granted by the city for educational facilities, and coupled with the WPA labor force, helped to renovate and build several schools.

- The junior high school was brought into being as Atlanta's public school system went to a K633 organizational structure. There were now seven elementary schools, four junior high schools, and four high schools included in Atlanta's public school system.

1924 - Washington High School, which was totally black, was gaining national recognition, as it supported a 4,000 student body. One of its most famous students was Martin Luther King.

1947 - Black high schools, Howard and Booker T. Washington, became five year schools and led the way to the development of community middle schools.

- All white public schools became co-ed.

1948 - Grade school teacher training programs were taken out of the jurisdiction of the high schools and were shifted to colleges and universities.

- The South still very much maintained its strong ideas about education being the responsibility of the family in addition to public education.

1950 - "The separate but equal" court ruling strengthened segregation. If a black attended a white school, state money would be discontinued for black educational programs.
1952 - Large expansion of facilities for both blacks and whites were put into action.

1954 - Brown vs. Topeka court ruling initiated the first legal action toward desegregation.

1957 - The Board of Education taxed themselves to gain a steady tax base for new schools.

1958 - Floating bonds started to provide 7.5 million per year for new school plants.

1960 - Dr. J. Leston instigated the first comprehensive school units.

1961 - A supreme court ruling started total desegregation from the top down each year.

1973 - Forced integration created a number of superfluous administrative jobs in order to fulfill the court mandate.

- Busing solely for ratio detonated many neighborhood fabrics and the lower quality of education caused by busing prompted the flux of private schools to organize.

- Communities began wanting a voice in school board decisions.

1976 - A court settlement ended a fifteen year disagreement between black and white community leaders on racial integration. This compromise called for a black superintendent and more black administrative jobs, while busing reinforcement was to be relaxed for city schools.
Ten years ago only ten percent of the students came from families below the poverty line. Now that figure has increased to seventy percent of the students enrolled. There are presently enrolled approximately 86,000 students with eighty-eight percent of them being black compared with the sixty-five percent figure of 1965. In the last ten years, 40,000 white students have left the system for suburban or private schools. Typical methods of integration — busing, freedom of choice plan, majority-to-minority pupil transfers, and pairing of black and white schools — have been tried, but to no avail.

Fifteen of the forty academically worst schools in the state of Georgia are located in Atlanta. Every year level from the second grade on has academically been below the national average.

Racial violence has dropped considerably in the last two years.

There are 4,300 faculty members and seventy-two percent of them are black compared with fifty-seven percent white faculty members two years ago.

Future — Increased revenue from Atlanta's downtown building boom is expected to one day make the city school system very rich. These new tax revenues coupled with a dwindling student enrollment places Atlanta's schools in the enviable position of having more money to spend on fewer students.
Under the jurisdiction of the Atlanta Public Schools, the secondary schools are the third step in the educational continuum of the city's public educational system. Curriculum programs provide more broadened exposure and specialization than in the general subject areas offered in the middle and elementary schools. The processes described hereafter pertaining to the proposed facility in Southwest Atlanta are standard for all Atlanta Public Schools programming of comprehensive high school.

The teaching program for the new Benjamin E. Mays High School will be characterized by a departmentalized organizational pattern. This learning concept divides the school into separate learning spaces for each subject, as students change subjects, and spaces, according to their own particular schedules. All subjects classified according to a particular curricular area will be embraced in centralized departments allowing maximum interaction of grade levels and an efficient utilization of equipment and lab areas.

Open plan learning spaces are to be provided throughout major academic facilities with consideration given to specific areas warranting isolation. Such activities as industrial arts, physical education, music activities, and large group assemblies will be separately provided for. Team teaching will be utilized and an emphasis toward
individualized learning programs will allow forty percent of the student's daily schedule for individual study in this new facility.

More than 800 different courses have been approved for inclusion into the secondary school catalog. Each school varies its selected courses according to the needs and interests of each composite student population. The system's unique course offerings provide subjects such as oceanography, aviation, mechanics, archeology, nuclear science, law education, urban studies, horticulture, youth symphony, computer math, and a variety of other subjects in foreign languages and art.

The comprehensive guidance program assists students in the development and utilization of their potentials. The problem solving process of the student is enhanced by the relationship between academic counselor and student as they plan, follow through, and evaluate his educational program. The major types of guidance services provided are:

1. educational, vocational and personal counseling
2. pupil appraisal
3. pupil information to assist school personnel in understanding each pupil
4. orientation activities to help pupils move in the right direction in new situations and eliminate problems before they occur
5. educational and vocational placement

6. follow-up activities of former pupils to evaluate the guidance program.

Grade levels as goals can be removed permitting each student to make progress in the various subjects as rapidly as his ability, initiative and perseverance will permit. Learning is programmed toward a continuous non-graded basis, which offers the possibility of an "unified educational curriculum." Ideas and concepts can be related across disciplines rather than being compartmentalized.

Health services, providing a comprehensive health program of both preventive and rehabilitative services, aims to promote and maintain the health of all pupils. Assuring them of receiving optimum benefit from the educational program these services provide for:

1. health appraisal,
2. prevention and control of communicable diseases, and
3. caring for emergency illness or injury.

Each high school employs trained personnel to implement this program.

Food services are provided for each high school student and staff offering a balanced, nutritional hot lunch in accordance with the federal lunch program.
Individual kitchens are employed by trained staff and food stuffs are obtained from federal commodities and local suppliers.

Athletic, club, and publication activities are all co-curricular activities that involve pupils in intellectual, physical, social, and service experiences apart from the regular instructional program. The athletic program consists of interscholaristic and intramural sports which include football, soccer, baseball, golf primarily for boys and basketball, track and field and tennis to both sexes. Club activities ranging from fine arts to community service functions are available to interested members. There are also various scholastic discipline clubs which offer enrichment in selected subject areas. Publication activities in Atlanta's high schools consist of productions of school yearbooks, newspapers, and literary magazines.

Community education in Atlanta focuses on the community school and realizes the importance of the students' total environment. The school must have an influence on the entire community to make it the best possible. Extension of services beyond the regular school day are provided for children, youth, and adults who voluntarily participate in programs fitting their needs and desires.
Children are able to participate in enrichment programs, recreation, and group activities in conjunction with regular school activities. Adults can benefit from adult education, special study groups or clubs, and recreational facilities. Frequently activities involving the entire family are organized. These activities maintain the school as the center of community life while promoting continuing education.

The educational philosophy of the Atlanta Public Schools is expressed in the following statements:

- Belief in the students served and in the future they represent.

- Belief that the public schools can and should encourage responsible participation in a constantly changing democratic society.

- Belief in the dignity and worth of each individual and in his right to know and feel his own worth... that as an individual recognizes his own dignity and worth, he will respect the rights and privileges of all other persons.

- Belief that students must have opportunities to develop ways of evaluating what they experience and of drawing conclusions concerning ways either to make an orderly change in their environment or to adjust to the situation.

- Belief that learning is continuous and is effective only in terms of its relevancy to life. School is but one part of the educational process and should be positively related to the student's total world. Continuous commitment of the community through involvement in the entire educational program is vital.
- Belief that continuous evaluation of the program and constant professional and personal growth of school personnel must be integral parts of an effective process.

- Belief that the best possible physical setting, material, equipment, professional and community leadership must be provided.

- Belief that man can plan for and guide change. The educational program should be shaped in a way that will facilitate reaching the ultimate goal of the educational system — the development of self-disciplined, free man.
Generate a mix of people of all ages which coupled with a strong planning concept and the ability of the individual to progress at his own pace, would insure the individual's exposure to the flow of ideas and methods around him.

Create a facility that will become a community center for all ages and will be a symbol for the importance of education and community achievement.

Provide a facility suitable for the present educational program and flexible enough to accommodate future educational changes.
## CASE STUDIES

<table>
<thead>
<tr>
<th>CASE STUDY PROJECT:</th>
<th>Columbus East High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>OWNER:</td>
<td>Bartholomew Consolidated School Corporation</td>
</tr>
<tr>
<td>LOCATION:</td>
<td>Columbus, Ohio</td>
</tr>
<tr>
<td>USER VOLUME:</td>
<td>2000 Students</td>
</tr>
<tr>
<td>DATE:</td>
<td>1974</td>
</tr>
<tr>
<td>ARCHITECT:</td>
<td>Mitchell/Giurgola Associates</td>
</tr>
<tr>
<td>EDUCATIONAL PROGRAM:</td>
<td>Open plan, team teaching, individualized learning and scheduled, nongraded system.</td>
</tr>
<tr>
<td>DESIGN CONCEPT:</td>
<td>The linear building is divided vertically according to its function. The largest number of students use the first floor which consists of: lecture halls, a bookstore, TV studios and a planetarium which separates the bus loading areas from those used by administration and from the open commons/cafeteria, all of which are connected by a linear pedestrian mall. An auditorium, a music room, and the industrial center are other functions located on the ground level as well as a gymnasium and pool. The second floor houses more flexible spaces such as studios, laboratories, independent study carrels and teacher stations. Quiet areas, green houses, seminar rooms, and terraces are on the third floor.</td>
</tr>
</tbody>
</table>
TEACHING MODULES: Open plan classroom areas are supplemented by enclosed labs, seminar rooms, and independent study spaces, while library references are dictated by these adjacent open plan learning spaces. On the ground level, lecture rooms add large group spaces to the teaching environment. Teaching stations and counseling areas are adjacent to open plan instruction areas, forming a linear semi-open learning environment.

COMPONENT RELATIONSHIPS: Cafeteria/Commons - These spaces are combined into one open student activity space along the student mall.

Gymnasium/Pool - They are both separated from the major building forming the formal outdoor entry court for the administration area and for gymnasium crowds.

Lobby - All functions (lecture rooms, administration, auditorium and book store) have a consolidated lobby space which forms the student mall.

Restrooms - They are coordinated with the four major stairwells to service variable functions.

Lockers - Below grade, these spaces are visually in contact with student mall and enhance its activity by easy access from it.

Auditorium/Music - These two facilities are combined for acoustical and functional reasons into one wing of this main building.
CIRCULATION:

Industrial Arts - Spatial and acoustical needs facilitated a separate wing utilizing the activity of the cafeteria as a buffer.

Vertical Circulation - Four major stairwells along the student mall provide three levels of instructional areas with access and entry into the building and also functions as the firestairs.

Horizontal Circulation - Movement and activity focuses on the student mall as this linear connector ties all components together on the ground level. In upper academic areas circulation runs through the library and along teacher stations on either side of study areas.

PEOPLE:

Administration - Their offices positioned along the student mall while allowing contact with daily student activity, enable favorable relationships with major interaction spaces such as commons/cafeteria, library, auditorium lobby and main entry courts.

Visitors - An efficient controlled access is achieved with gymnasium, administration, auditorium and lecture rooms for the public use. Two major entries can be used for these purposes.

Students - Maximum interaction is tied to the student mall from all components as it forms the major space for the entire school.
- Formal entry
- Student entry
- Gymnasium
- Open court
- Pool
- Planetarium
- Administration
- Commons
- Dining
- Kitchen
- Industrial arts
- Stairs
- Lecture rooms
- Bookstore
- Lobby
- Auditorium
- Music
- Laboratories
- Library
- Teacher stations
- Learning space
- Individual study
CASE STUDY PROJECT: Parkway North Senior High School

LOCATION: St. Louis County, Missouri

OWNER: St. Louis County School Board

USER VOLUME: 2200

DATE: 1972

ARCHITECT: Hoffman/Saur & Associates

EDUCATIONAL PROGRAM: Open plan, team teaching, open curriculum, nongraded system

DESIGN CONCEPT: The concept stems from a compact plan punctuated by four major court yards on two levels. The focus of the scheme is generated by the resource area which is centrally located on the upper level, and is enclosed by science, math, languages, English, and social studies learning spaces. On the lower level, the student commons occupies the central space, openly connected with the guidance area. Lower level departments include art, music, home economics, business, industrial arts, gymnasium/pool areas, and four major entries through the court yard.

TEACHING MODULES: Most academic areas are free and flexible utilizing open concepts with each department defined as a separate curriculum. Counseling areas are consolidated adjacent to the commons on the lower level and teaching stations, references, and display areas are provided as a part of the resource subcenters immediately located in each learning space.
RELATIONSHIPS:

Auditorium/Gymnasium - Activities share the same entry courts on different levels and each has its own small lobby.

Library - This major facility opens indirectly onto all instructional areas as very few corridors exist.

Courts - These areas are in constant activity from circulation use, student lockers, and restrooms located nearby. Major entries prevail in these courts, and on upper levels they become the transition between the library subcenters and the actual learning spaces.

Commons/Library - Stacked and surrounded by courts this space provides a concentrated location of interaction needs.

CIRCULATION:

Vertical Circulation - Eight firestairs are connected to various departments along the exterior and four stairs are located in courts with multiple departments facing each court on both levels. The chances of people using these exterior collection spaces are very high.

Horizontal Circulation - Upper level circulation passes through the library area and by courts directly to departmental learning areas. The lower level makes direct use of courts and commons as major circulation spaces.
Administration - Administrators have promoted interaction with their attitudes and their easy relationships with student activity areas. Students are encouraged into this space as an integral part of "open administration."

Visitors - The entry courts provide easy access and control for community use to related areas.

Students - Because of concentrated planning of courts, central major spaces, lockers, restroom and interior stairs, students have excellent chances for interaction possibilities.

Faculty - To arrive at teacher stations the faculty can use major entry spaces or exterior stairwells to gain direct access to their departments. With guidance and teacher stations completely open in policy and access, it is common to see students and faculty in open discussions over lunch in the commons area.
<table>
<thead>
<tr>
<th>CASE STUDY PROJECT:</th>
<th>Anniston Educational Park/High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION:</td>
<td>Anniston, Alabama</td>
</tr>
<tr>
<td>OWNER:</td>
<td>Anniston School Board</td>
</tr>
<tr>
<td>USER VOLUME:</td>
<td>1200 Students</td>
</tr>
<tr>
<td>DATE:</td>
<td>1968</td>
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<tr>
<td>ARCHITECT:</td>
<td>Caudill, Rowlett, Scott</td>
</tr>
<tr>
<td>EDUCATIONAL PROGRAM:</td>
<td>Open plan, team teaching, individualized learning and scheduling, nongraded system</td>
</tr>
<tr>
<td>DESIGN CONCEPT:</td>
<td>An academic street respects contours and connects all components in a linear pattern. One enters between these separate buildings that frame controlled courts and vistas. Industrial arts, pool, maintenance, and gymnasium/auditorium dressing rooms are located on the ground level. The most used level is the first floor as the resource center, a large lobby space and food service area become the major space that connects the gymnasium, auditorium, administration, and the math/science departments. The second level activities - lecture rooms, liberal arts, art and physical education learning modules - become loft spaces opening into the academic street, each with their own character.</td>
</tr>
<tr>
<td>TEACHING MODULES:</td>
<td>Open and semi-open plan learning areas are housed between auditorium and lecture halls providing large group spaces. Independent study areas and seminar rooms enclose</td>
</tr>
</tbody>
</table>
the more open plan instructional spaces for each curriculum subject. Centrally located, yet integrated, the resource center is able to provide specific references and texts in each department. It becomes utilized as a home base or commons for all students, as resource subcenters facilitate counseling and test areas.

**Resource Center/Commons/Food service** - All of these areas are combined on the same level forming the central space.

**Gymnasium/Auditorium** - These two components efficiently share the same entrance and lobby spaces.

**Courts** - The library fronts on a major court space, as administration, food service, and art studios form the formal entry through another major outdoor space.

**Restrooms** - Restrooms off of the commons area and between the gymnasium and auditorium facilitate the entire school.

**Lockers** - The commons/food service area houses the majority of student lockers as another activity that adds to the space while an often used ramp provides good surveillance.

**Industrial/Commercial Arts** - Buffered by the pool and gymnasium/auditorium complex, they remain in contact with the rest of the school along the academic street.
CIRCULATION:

Lecture Halls - These concentrated large group spaces maintain a close proximity to the two liberal arts buildings for effective accessibility.

Vertical Circulation - Multiple ramps and stairs create constant movement into major courts through the academic street, while giving various options of circulation and spaces.

Horizontal Circulation - Connecting multiple building components together on the same level, pedestrian bridges circle the loft space allowing an upper level focus toward the academic street.

Administration - Opening directly into the resource center from upper loft spaces, administrators are constantly aware of and in contact with student activity on both levels.

Visitors - Through the formal entry court visitors are allowed separate access to administration without getting lost in school activity. Community use of gymnasium, auditorium, and pool facilities is easily provided allowing a concentration of activity for after hours use.

Students - With all components accessible to one major link, the academic street, and with upper academic areas opening into this space, the student is exposed to an optimum amount of people, spaces, and academics.
Faculty - Multiple entries into teaching areas allow easy access for teachers who want direct entry into their specific disciplines. They can experience interaction possibilities from students and fellow teachers from the proximity of resource subcenters connected together by this continuous major space.
- Formal entry
- Student entry
- Gymnasium
- Auditorium
- Lobby
- Library
- Open court
- Administration
- Dining
- Learning space
- Art
- Physical education
CASE STUDY PROJECT: Walter F. George High School
LOCATION: Atlanta, Georgia
OWNER: Atlanta Public Schools
USER VOLUME: 2000 Students
DATE: 1974
ARCHITECT: Morris Hall and Peter Norris
EDUCATIONAL PROGRAM: Open plan, team teaching, individualized learning and scheduling, nongraded system
DESIGN CONCEPT: Eight facility components in four decentralized wings originate from central commons and library areas. Each facility is located around a major court space. This three story school built on a difficult hilly site contains the art, music, science and boys physical education on the lowest level. The second floor consists of a central student dining room and administration area with math, business, vocational area, two gymnasiums, and auditorium components working off of it in three different wings. The upper story consists of the resource center in direct contact with the language, English and social studies departments.
TEACHING MODULES: Both vocational and academic instructional areas are receptive to an open plan teaching method. These spaces have corridor access to the central resource center, with offices and counseling areas closely located on the perimeter of instructional spaces.
at each level. SGI and LGI have the flexibility to be formed in a range from a rigid to a completely open arrangement of teaching modules depending on the group or activity.

**RELATIONSHIPS:**

**Gymnasium/Theater** – These activities focus on the same interior court and share lobby and concession functions.

**Cafeteria/Resource Center** – Centrally located, these areas are stacked, opening to major courts which concentrate on major study activity areas.

**Courts** – Two distinct courts and a resource/commons area form outdoor/indoor interaction space creating the major focus for all the major components of the school. These areas are extensively landscaped for student and faculty use, each with its own identity.

**Industrial Arts** – Its noise and equipment distraction is buffed by a major circulations route and major court location.

**CIRCULATION:**

**Vertical Circulation** – Because of contours, multiple stairs are involved in each component of the level wings. Each adapting to its immediate site location.

**Horizontal** – Every level of the three wings cul-de-sac into open or semi-open teaching spaces. Extending from the administration/commons/resource core, one wing includes recreational facilities and an auditorium. One is basically for industrial arts and the other for business and liberal arts.
PEOPLE:

Administration - Forming the formal entry and backed up to the commons/resource spaces the administrators have an optimum location for contact with student activities.

Visitors - Community use of recreational and auditorium facilities is easily accessible and controlled excellently by separation from the academic buildings. This separation forms its own entrance. Access and convenience into administration is maximized with the location of administrative offices.

Students - Although the ample size of court yards do not force interaction, it allows for many areas where social and individual situations can flourish. Eating and library areas also function to bring students together for rich group and individual mixing, while allowing a variety of choice in how students relate to their environment.
<table>
<thead>
<tr>
<th>CASE STUDY PROJECT:</th>
<th>Dykes High School</th>
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</thead>
<tbody>
<tr>
<td>OWNER:</td>
<td>Atlanta Public Schools</td>
</tr>
<tr>
<td>LOCATION:</td>
<td>Atlanta, Georgia</td>
</tr>
<tr>
<td>USER VOLUME:</td>
<td>1500 Students</td>
</tr>
<tr>
<td>DATE:</td>
<td>1969</td>
</tr>
<tr>
<td>ARCHITECT:</td>
<td>Finch, Alexander, Barnes, Rothschild and Paschal, Inc.</td>
</tr>
<tr>
<td>EDUCATIONAL PROGRAM:</td>
<td>Open plan, team teaching, individualized learning and scheduling</td>
</tr>
<tr>
<td>DESIGN CONCEPT:</td>
<td>The building, a four story bridge between two hills that is entered from the lowest level, contains open-air commons, amphitheater, administration/music and auditorium components. The second level contains kitchen, service, and dining facilities while the upper two floors consist of a focal library surrounded by flexible, instruction spaces for liberal arts, vocational and science courses.</td>
</tr>
<tr>
<td>TEACHING MODULES:</td>
<td>All instructional areas are open-plan spaces defined by stairs and lockers. These areas have the flexibility to hold large, medium or small group spaces. Independent study areas are included in the library with teaching stations on the third floor. Library stacks are adjacent to the instructional area of that specific subject. Fixed equipment will be tied in with toilet/wet units and the remainder of the furniture and equipment will be free standing.</td>
</tr>
</tbody>
</table>
COMPONENT RELATIONSHIPS:

**Cafeteria** - Dining is stacked directly under library to allow easy interaction for students utilizing both areas.

**Lobby/Courts** - Administration efficiently shares an outdoor loggia space with the theater and the amphitheater at the main entrance. This covered lobby area also doubles as an outdoor student commons.

**Restrooms/Lockers** - Restrooms are located near stairwell-locker areas and multiple instructional areas as they define library spaces on the upper two floors.

**Auditorium/Music** - They are separate but on the same level relatively close to each other for convenience of concerts, chorals, etc.

CIRCULATION:

**Vertical Circulation** - Four major stair towers and one elevator facilitate good vertical circulation to central major spaces and to all instructional areas while combining major circulation and firestair functions.

**Horizontal Circulation** - Movement on each level from different subject areas is through a library or commons space.

PEOPLE:

**Administration** - This department is quite some distance from instructional learning spaces or interaction areas such as library and dining but it provides a good relationship with commons areas.
Visitors - An excellent relationship with administration, auditorium, and gymnasium is planned for convenience and control.

Students - Vertical relationship of commons, dining and library invite excellent chances for student interaction on all four levels.

Faculty - Combination of teaching stations near the library offers interaction with other faculty and necessitates students to utilize the library space more frequently for testing and counseling purposes.
CRITICAL FACTORS
USER NEEDS

Our institutions have a habit of existing for themselves and not for people. They have tried for administrative and economic reasons to provide for a median ideal solution for all instead of for each individual's needs. Evidence points to our over-institutionalized interiors and exteriors reflecting anti-life attitudes as most of our school buildings are excellent protection from rain, cold, heat or noise, but their emotional coldness often harbors feelings of loneliness, adulation and lack of purpose.

"If you should ask me what is the common denominator, what is wrong with modern design, I would have to say that they (schools, public housing projects, etc.) are designed for a way of life that is empty. That at best it (architecture and design) engineers life instead of nurturing it."

Involved to the point of making raw engineering meaningful, the architect needs social engineering to become a major design determinant, as he focuses his attention on people rather than things; on process of building use rather than form. Many of our problems of behavior, learning, and vandalism could be eliminated if this attitude were realized.

The fatal misconception of infinite human adaptability is reflected in the designs of our housing developments, offices, schools, and streets. The price paid for our toughness in functioning under these less than optimum situations is being brought to our attention as children and adults are questioning how successfully our schools are
satisfying our emotional stimulations. Such intangible qualities as a sense of mystery or romantic quality which comply with each individual's needs are often forgotten as we build our very rational and four-square schools.112 Students cry out for color, diversity, and natural beauty in their learning environments and request some degree of input and control.113 Whether or not their frustrations and dissatisfactions are openly expressed (vandalism), people psychologically suffer in environments which are built for a standard model of impersonal humanity in the most durable and antiseptic condition.114

Man is often perceived as a very protected, delicate species in his twentieth century setting, but the fallacy of this misconception can be quickly realized with a glance at his past. The same idiosyncrasies of the natural environment that have determined man's evolution should also be studied in his present artificial environment. To adequately replenish these needs, our present environments should include variety and surprises to engage man's intellect into constant challenges. Although by no means all inclusive, the following checklist is an empirical anthropological account of man's basic spatial needs in his artificial environment of today. These elements present a number of clues, both operational and architectural, as to how our schools can better understand the human factors in their design. These human requirements are:
spaces for each citizen to call his own
spaces for meetings of different sized groups
landmarks in space
variations in light, color, acoustics, and the olfactory environment
acceptable forms of peripheral stimulation
differences in fixes, semi-fixes, and dynamic space
variety in the size of enclosure by light and shadow
open spaces for eyes to rest
varieties of visual tasks
provision for man's social needs
a variety of contexts to learn in
multiple recreation activities

Often our theologies concerning how children learn and teachers teach have not been augmented by the development of educational building designs or manufacturer's products for school environments. The dignity of our learning process needs to be reinforced by humanizing rather than mechanizing space, as extensive research in this direction has produced numerous suggestions generally overlooked as necessities of a motivating environment. The following architectural criteria, by no means forming a complete
list, are intended as a point of conjecture for considering the user's needs in a school facility. These criteria include spatial variety, choice of materials, human scale, and discernable character. It is the author's contention that these and other devices in each component of a school plant can play an integral part in the success or failure of supportive interior and exterior educational environments.

Institutions very often place people in situations they would otherwise choose. The speculative market very often derives buildings from the public's preferences where as institutional environments are very often entirely fixed from predetermined functions. Both flexibility and variety inherently increase an individual's choice in this institutional setting. Spatial diversity, a major part of the personalization of space, permits a selection of the appropriate architectural environment for difference groups and activities. Educational design must provide for both individual and group expression and for the needs of privacy and territoriality. The vitality and success of the group activity will depend upon the individual group members' choice to become affiliated with this group or not, and his ability to exercise this choice. Providing one the ability to act as an individual in his own right predicates the ability of this person to perform as an integral group member. Being alone to think our problems, to create, to fantasize,
to reconsider, to plan ahead, or to just enjoy being alone are universal needs that justify spatial provisions. 119

A need for privacy is also justified for group functions. Most assuredly, the intrusion of individuals or other groups or periods of group formation, confirm a need for privacy. Differences in physical site, in the ability to communicate verbally and in the skill to manipulate physical objects in a conversational setting suggest the importance that visual and spatial configurations play in group and individual communication. 120 These roles need to be provided for all levels of interaction throughout the school, for a facility that allows itself to be manipulated gives its users a sense of possession and instills a comfortableness to learn in. 121

Variety and accessibility to these activity spaces can very often alleviate problems resulting from positional or activity freezes. Alertness, vitality, and comprehension can be sharply reduced by excessive short term durations of prolonged sitting. Kenneth Kenniston has discovered motion in itself to be a primary concern of most young adults. School administrations and architects can recognize this thinking and respond to it by designing programs, schedules and physical settings that provide maximum mobility to all students. 122
Geometry of architectural employment can also restrict interaction. The dynamics involved with the way people use spaces should also be considered as high schools very often do not fulfill their obligations as social scenes. They are often thought of as serious learning centers not for socializing, but for adolescents; serious learning encompasses socializing. Instructional spaces need to be designed as soft intimate settings, conducive to informal talk of people in smaller subgroups. Auxiliary spaces must also enhance informal acquaintances in a crowd. Circulation routes cafeteria areas, student commons all need to be planned as inviting spaces that encourage meetings and one-to-one conversations.

The majority of our public school environments consist of hard, edgy, cold and unrelated surfaces and materials. By nature, people are more adapt to use materials and elements which are roundish, soft and warm to touch. The selection of materials, textures, and elements of furniture that portray qualities of comfort and non-traumatic wear often are overlooked. Familiar materials such as wood, leather, brick and textiles are satisfying to use and remain pleasant in advanced states of wear, in contrast to synthetic materials which can become unattractive and wear traumatically. The school itself should express wear so elements can become used up and replaced.
The physical setting in relationship to the human body must satisfy the need of a sense of identity. The interior space of educational facility should be governed by a careful relationship with its user through an appropriate scale response. Exterior spaces defined by building masses, should be an extension of the school itself in relationship to the number of users and its significance toward the total design. The entire facility should provide support to a particular community context by responding to scale characteristics of its surrounding environment.

Our school facilities should become a showplace for society's functioning. Its symbolism should be of the hope that parents place in the future of their children and in community pride. Discernable character becomes another of these indispensable elements as the school building must portray as a friendly, attractive, and stimulating setting for learning.

To stimulate teachers to interact and students to learn, design has led us away from the conventional school. Intangible qualities which confer integrity and dignity to everyone involved with them are often realized when designers look at the school through its users eyes and realize that total success occurs only when architecture achieves emotional, functional, and technical solutions in concert.
"Man of the future barring a nuclear holocaust, will adapt to hydrocarbons in the air, detergents in the water, crime in the streets and crowded recreational areas. Good decision becomes meaningless if we consider that man will be reshaped to fit whatever environment we want. The long question is not so much what sort of environment we want, but what sort of man we want."
An optimum visual environment is a balance between the properties of the objects we look at and the way they are illuminated. Our functional and emotional responses to any setting are to a large degree affected by how they are lit. As people require varying stimuli to remain sensitive and alert to their surroundings, monotony and uniformity often produce effects of distress, fatigue and oversimplification impairing a good visual performance. "What is needed is variety and contrast within reason." A good visual environment combines variation in shape, texture, color, tonality, intensity and pattern. Schools in the past have tended to be visually bland producing mental fatigue which resulted from boredom and dullness. Several major considerations involved in the planning and design of lighting as an instrument of environmental manipulation are described below:

**Tonality** - Tonal warmth can render a space either comfortable or stark. A mix of both fluorescent and incandescent lighting makes for the most pleasant tone.

**Zonality** - Lighting should be used to define zones of space. Brightly lit zones have a magnetic effect that can draw people and suggest activity as dimmer areas create boundaries around them. Light modulated according to zones provides clues as to a sense of place. To produce this zonality multiple switches, controls and relocatability of light sources are needed. An appropriate example would be for each individual's study carrel to have its own light and have control of it with a dimmer. The student
could then facilitate his environment according to activity, mood, and amount of daylight.134

Source – The proper stage of interest belongs in the lower two-thirds of a vertical teaching space. Overall effect, not light sources, should dominate as overpowering ceiling lighting has in the past often turned the proper focus of interest upside down. An introduction of sources at different levels may also give the individual the opportunity for a more controllable micro-environment.

Because of the particular tasks accommodated by educational programs emphasizing individual study and the use of technological equipment, instructional areas now require large amounts of vertical wall space for learning or display purposes. These new school interiors have nearly eliminated the need for natural lighting in academic areas. Technical advantages resulting from windowless classrooms include a minimizing of dust, eye strain, outside noise and distractions, provision of full temperature control, greater efficiency in heating and cooling, reduced maintenance, lower ceiling heights enabling inexpensive construction costs, and generally better flexibility, control, and quality of light sources for the tasks at hand.135

However, an awareness of the exterior environment is necessary. If a school utilizes an open plan education arrangement, glazed areas need to be properly located to allow visual contact through controlled vistas without distracting the learning spaces.
Skylights and celestories can also be used to provide controlled natural light into interior spaces while creating a constantly changing illumination and emphasizing major spaces.

Controlling sound in our educational environments has become another important part of making our learning spaces successful. Groups should be able to pursue their activities uninterrupted by noise from others. Zonal management by situating compatible functions near each other is of the utmost importance as auditory zones require their own standards of intimacy, privacy and vista. These zones are listed below:

Macro-auditory zone - environment of the entire school, providing lively tone and masking content

Micro-auditory zone - characterized by specific message, content, and privacy objectives

A school’s noisy activities should be located nearest the outside noise source. In this way the areas housing the most disturbing activities can shield to some degree the quiet areas.

In open plan schools the attitude toward noise has changed considerably. Our orientation in the past has been so mis-directed toward removing sounds that we have failed to realize the desirable content laden sounds which express the culture of a place. Sound expression now merits the same attention we give to sound suppression as we find
that the acoustic flavor we want in our schools is more animated and vigorous than the "quiet" of the past. Heights

High frequency and intensive comprehensible noises are acoustic problems which are continuously detrimental toward an open learning environment. Furniture, carpet, acoustical ceilings, space definers, and movable walls all can help reduce unwanted sounds, as can the steady low hum of mechanical equipment which provides a masking backdrop for piercing sounds in addition to sealing the interior against exterior distractions.

In summation, an adequate understanding of acoustical factors, careful planning and design, skillful manipulation of interior elements, the correct amount of soft, absorbent materials and proper execution of background noise all combine to produce an environment that is both acoustically successful and educationally stimulating.

The State Board of Education on January 15, 1969 approved that all new school buildings shall contain provisions for year-round climate control. The state requires that the following indoor temperatures be maintained in school buildings:

- a. classrooms 72°F
- b. assembly rooms 70°F
- c. gymnasium 65°F
- d. toilets 70°F
e. locker rooms 70°F
f. cafeteria 70°F
g. on cooling, the inside conditions shall be maintained between temperatures of 75°F D.B. to 78°F D.B. and the relative humidity shall be between 50% and 55% at the outside conditions selected as design conditions.

In order to achieve these conditions a central climate control system which includes heating and air-conditioning or an equivalent system should be installed.

Schools now are used year round and should have air conditioning for summer use.

Other reasons for year round climate control include community use after school hours and the necessity of open plan schools to utilize space greater distances from windows. In view of the educational concept to be implemented, the need for flexibility and control over multiple learning spaces, and the utilization of background noise as a positive addition to the interior environment, an all-air, heating, and cooling mechanical system is concluded as a logical choice for the highest productivity.

Exterior climatic considerations include orientation of the school facility utilizing appropriate sun control, shading devices, and adequate choice of exterior materials for optimum thermal comfort. The solar angle during school hours and the direction of prevailing winds for ventilation should also be considered.
Control, personalization, and choice of lighting, acoustical and climatic comfort can often be as important as physical attributes of the environment when considering performance, morale, interest and fatigue of users. "In any situational context, the individual attempts to organize his physical environment so that it maximizes his freedom of choice." These environmental variations are healthy in that they allow control for each particular situation whether people are acting individually or in concert.
VANDALISM

Vandalism costs the nation's schools a total of $100 million annually, not including the salaries of security guards and alarm systems.\textsuperscript{141} This leaves the school architect today in a most difficult dilemma of producing an open learning environment conducive to spontaneity and yet invulnerable to vandalism. Obviously, consideration needs to be given to the causes and to methods of prevention, relieving these needless expenditures of taxpayers' money.

To a certain extent, vandalism in schools has always existed. Examples are often part of the folklore of schools (graffiti, scratching names on desks, flooding sinks, defacing books, etc.).\textsuperscript{142} The modern school somehow doesn't seem to handle this wear as favorably as those of the past.\textsuperscript{143} Architects, teachers and administrators are perplexed as institutions which they see as inviting, creative and exciting are viewed by their users as prisons. Many of our public buildings antagonize their users into tearing it down. Listed below are five types of vandalism which have most often characterized our schools:

- breaking and entering to steal
- destroying some school property to reach some other end
- publicizing a message by scrawling on the walls
getting revenge on a teacher or principal or the system as a whole by destroying school property

winning a "game" 144

In combating vandalism the importance of the children's opinions and the voice of the community when planning their schools is being recognized. This user input has proven successful in providing a key toward revealing, previously unknown design problems, and enabling the facility to live up to the people's expectations. Most damage inflicted upon our schools has been to public and semi-public rather than private property. This voice in determining their own schools, enhances the chances for each individual to regard the new facility as his property instead of as an anonymous public facility. 145

If property tends to be derelict, incomplete or badly kept, or if schools are found in areas with low occupational status of fathers, high transiency, and instability, vandalism has been shown to be a prevalent problem. Within these schools, the faculty and administration has shown a definite lack of interest in the student's welfare. Other characteristics prevalent in these badly vandalised schools include:

high staff turnover

low staff morale
little identification among parents, teachers, students with the school
record of adverse publicity and a bad reputation
dissatisfaction with the administration
obsolete school apparatus
overcrowding

Many of these outbreaks of vandalism are inevitably blamed on tangible ends such
as planning and design defects or inefficiencies. Although these acquisations are often
valid, security from attack is generally less a matter of locks and walls than it is of
dealing with root social causes or increasing effective social controls.

"Smashed schools are statements made by people who have few other
opportunities for self expression, they are as meaniful and as lacking
in abnormality as the scrawling done by the mental patient."147

All factors constituting any environment produce sociological, psychological,
and physical reactions within its users. Designers are indeed responsible for providing
a functional humanistic environment, as both interior and exterior spaces need to be
given considerable attention as to their sizes and relationships to each other.

Attacking problems of school vandalism at early design stages often alleviates or
eliminates later problems involved with finishes, materials, and details.148 Each part
of the school should encourage a feel of responsibility and should enhance supervision and maintenance, the two most successful factors involved in combating vandalism.
DESIGNING FOR THE DISABLED

When designing for the handicapped, the architect or planner must foster a complete understanding of the human user. These new demands upon designers are continuously opening up unexplored or ignored criteria for educational facilities. Reasons for these ingrained design procedures are observed as follows:

Intuitively the architect has an insufficient expertise for minimum requirements through which the normal person can adapt to.

Very often normal people can adapt to an ill-fitting environment and do not always recognize buildings that don't necessitate their needs.

Very often design problems have been presented to architects a number of times and solutions have evolved without repeated investigation into the basic solution. Today, initiated by recent court decisions, more services for the disabled individual are becoming available through our public schools. A major trend is also occurring in the "mainstreaming" of children with special education needs into our educational system as opposed to past isolation for advantages and of economical parameters, aesthetic limitations, physical and equipment arrangements. The eleven types of exceptional learners now involved in our public schools includes:

1. educable or slow learners
2. mentally retarded
3. blind
4. partially blind
5. deaf
6. hard of hearing
7. crippled
8. chronic cases
9. speech impediments
10. emotionally disturbed
11. socially maladjusted.
All of these disabled individuals can be adapted to ordinary school environments with a few specific provisions. In fact, design criteria for disabled and normal individuals is equally applicable in selection of furniture and equipment if consideration is given to the handicapped individual's greater dependency upon the adherence of careful design. 152
Located amid the foothills of the Appalachian range in the northwest center of Georgia known as the Piedmont Plateau, Atlanta is a metropolitan area of over 1.5 million people. The capital of Georgia, Atlanta, has risen to become a major commercial, industrial, transportational, and cultural center for the southeastern United States. One of the fastest growing cities in the nation in recent years, it has provided an example for inner city rejuvenation and viability.

The city has evolved into approximately thirty different neighborhoods each having its own distinguishing characteristics, sense of community and identity. Since 1823, during its formation, neighborhoods in Southwest Atlanta have been a part of the city limits and in 1952 the city enlarged its city boundaries as the neighborhoods now making up the Southwest Atlanta Planning Unit were included. It is this area in particular that will be pertinent to the purposes of this study.

In the recent history of this neighborhood, there have been significant changes in its racial and economic texture. Racial tensions resulted, in a gradual at first, and then intensive "white flight" out of Southwest Atlanta into the suburbs. During this period, 1962-1972, the racial composition of the area residents went from ninety percent white to ninety percent black. Many white families even moved at the expense of sizeable losses in homes and property.
Within the last four years these trends have, in fact, been redirected as an influx of both black and white families have redefined the racial balance at sixty-five to seventy-five percent black and twenty-five to thirty-five percent white. Reasons for this stabilization and termination of mass transience are primarily an aftermath of the nationwide economical recession and to a lesser degree a newly acquired better understanding of the people involved. Recent migration of residents into apartment complexes has increased the number of single occupants while boosting the present population of Southwest Atlanta to approximately 90,000 inhabitants.

A demographic profile of the average southwest resident would find him living in a single family detached house of $35,000 - $100,000 in value. The median income in the area is over $15,000 annually and most home owners are between thirty-five and fifty-five years of age with two or three children in the seventh grade or above. They hold professional, governmental, or educational jobs in downtown Atlanta, commuting to work as few industrial or commercial jobs are found in the immediate area. Schools and the Southwest Hospital are the only exceptions to this rule.

In social competition with white influential areas of Northwest Atlanta this southwest part of the city has maintained its reputation as a "wealthy" black
neighborhood. Residents have shown a tremendous amount of community pride and concern over factors effecting the well-being of their neighborhood, and indeed, the entire metropolitan area of Atlanta.

Population trends in Southwest Atlanta have shown a general increase in density for the neighborhoods surrounding Cascade Heights and West Manor. This is evidenced in an overcrowding of schools, libraries and recreational facilities for both children and adults in the area. The neighborhoods of increased population include Westwood Terrace, Harland Terrace, Adamsville and Ben Hill and focus on the area of both the existing Southwest High School and the proposed new Benjamin E. Mays High School on Sewell Road.

Future trends for the area include a recent MARTA decision for a proposed rapid transit stop in the area, although no firm convictions have been placed on site selection. However, one of the most favored options by both MARTA and the community is near the Southwest Hospital at the intersection of Sewell and Fairburn Road within a half mile of the new high school along a present Sewell Road busline.

In a recent planning consensus held last year by the Atlanta Bureau of Planning for each community, Southwest Atlanta expressed certain recommendations. These
suggestions include commercial development restriction to present shopping nodes and proposed MARTA stops; natural preservation of vacant land use area (open space and parks) for natural park areas; restoration and retro-fitting of noteworthy historical buildings; the establishment of a day-care center for the area by the City of Atlanta; an expansion of existing libraries and consideration for park recreational facilities for adults and children in the West Manor Park area; alleviation of present school overcrowding; and considerations for a new community center.

Benjamin E. Mays High School proposed for this area will provide total or partial solutions to all of these community needs, serving the communities of Adamsville, Southwest, West Manor, Cascade Heights, Bouler Park and Harland Terrace. Its student body will be directly received from the present Southwest High School, which includes a total enrollment of 1,254 students of grades eight through twelve. The student profile now consists of over ninety-nine percent black students, 615 males and 639 females, and the grades are broken up accordingly: eighth/304 students, ninth/274 students, tenth/245 students, eleventh/216 students, and twelfth/219 students. The present Southwest High School will be converted into a middle school accommodating grades six through eighth as soon as the new high school is completed. Very little outside
busing will be enforced as kids in the community will arrive at school on foot or bicycles, in automobiles and through the services of two existing community bus routes under the jurisdiction of MARTA.

In several community participation meetings with the school board, the architectural firms, and the designer, student and parent users have voiced the following planning criteria.

1. The new high school will facilitate an academic or college preparatory emphasis (over 75% of courses) although certain vocational and industrial arts options will be available.

2. High community priorities will be given to library, day care, and recreational usage.

3. Preservation and utilization of natural terrain for a stimulating, learning environment and informal community recreation purpose will be a major design criteria.

4. Exposure of the new school from I-285 as "model" example of community pride and accomplishment is hoped for.

5. The incorporation of natural lighting is to be considered.

Community input has also been utilized to gain insight into curriculum needs for the students. Parents, students, teachers, and administrators have aided in determining the user/activity programs and the square footage requirements have been translated from these needs through State Board of Education standards.
SITE ANALYSIS

The seventy-acre site (approximately 3000 x 1100 rectangle) selected for the Benjamin E. Mays High School is located in the West Manor community of Southwest Atlanta. In close proximity to existing neighborhoods, the site is found in a largely underdeveloped area and while no buildings exist on or directly adjacent to it, five neighborhoods are within relatively easy automotive or pedestrian access. The hospital and the present Southwest High School which are both on Sewell Road are the only major buildings in the immediate area although two small warehouses, an apartment complex (about 1000 feet away) and a railroad line are within visual contact from the upper elevations of the site. With surrounding areas zoned almost entirely residential, current growth trends are starting to focus around the site from all directions.

The character of local neighborhoods consists of one or two story single family detached homes made from clapboard siding or brick. Colonial motifs are the rule and each house usually enjoys an ample lawn area. With a density of approximately two to fifteen units per acre these neighborhoods typify a comfortable suburban setting.

Although no direct automotive access is available to it from the site, I-285, a six-lane ring road encompassing the metropolitan area of Atlanta, forms the eastern boundary of the site. Sewell Road, a two-lane surface road serves surrounding
residential areas and forms the northern boundary. Overpassing I-285, this secondary road has been restricted from commercial development and expansion by the surrounding neighborhood residents.

Extreme variation in slopes and elevations are prominent characteristics of this beautiful site. Two major hills, one steeply sloped and a smaller one moderately sloped, are located along the eastern edge of the site dropping as much as 155 feet in elevation to a flat meadow. This area was found to collect drainage water and is classified in the 100 year flood plain. A small stream, the North Utoy Creek, flows east to west on the site between two hills. This pleasant water amenity changes to a north-south direction once into the meadow. Soil boreings down to forty feet reveal no rock foundations although surface outcroppings are prevalent at the top of the largest hill. Other major utility services (electricity, water, sewer, gas) are located on the site.

The trees on this untouched site are one of its most positive amenities. Bordering on the western side of the meadow and completely covering both hills are a bountiful combination of birch, maple, sweet gum, pine, oaks, and others. The primary hill is blessed with 60-100 feet hardwoods while the secondary hill consists largely of smaller pines and shrubs. The meadow is completely clear of any trees except on the creek bottom.
The climate is generally mild and wet with some freezing in the winter. The temperature ranges from 68-88 degrees in July to 35-52 in January. There is a minimal amount of snow and sleet during the winter. The moderately heavy rainfall averaging 54 inches per year is responsible for the lush foliage throughout the area. Prevailing winds in the summer are southwesterly while winter breezes come predominantly from a northeasterly direction.

Sensory contact within the site indicates no annoying odors but noise levels from I-285 are prevalent, especially during rush hour traffic. The two hills on the site shield much of its western part from this disturbance but the upper slopes of these land forms fronting the highway are heavily affected. Visually, an expansive view of the rolling North Georgia landscape provides a pleasant but rather nondescript skyline. Views to the site from surrounding areas are controlled by quick glimpses from I-285 and Sewell Road. On the site, the most stimulating vista appears looking north over the creek through the dense foliage.

Present pedestrian and automotive circulation through the site is now nonexistant and an approximate five-minute trek from the top of the largest hill to the meadow is possible. Pedestrian circulation onto other parts of the site is relatively accessible. Most students will arrive from the east over I-285 on Sewell Road which easily handles
bus and automotive circulation. The traffic flow from and returning to the east of the site will keep incidents of cross-traffic down, yet safety of approaches may be questionable for pedestrians and cyclists.
SITE ANALYSIS
DRAINAGE

--- 100 year flood plain

← direction of natural water

○ collection points of natural water
FOREST VALUE

SITE ANALYSIS
WIND/SUN

▲ winter breeze

▽ summer breeze

SITE ANALYSIS
VISUAL CHARACTERISTICS

- public off site views
- existing on site views
SITE SELECTION
# Site Selection

<table>
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<tr>
<th>PROS</th>
<th>CONS</th>
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<td>Distance from highway noise</td>
<td>Vistas on the site</td>
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<td>Visual relationship with I-285</td>
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<tr>
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<tr>
<td>Moderate slope</td>
<td>Relationship with creek</td>
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- **A**
  - Contour change to flood plain
  - Location from Sewel Road
  - Moderate slope
  - Vistas on the site
  - Visual relationship with I-285
  - Utilization of scenic forest area
  - Relationship with creek

- **B**
  - Distance from highway noise
  - Location from Sewel Road
  - Moderate slope
  - Vistas on the site
  - Visual relationship with I-285
  - Utilization of scenic forest area
  - Relationship with creek

- **C**
  - Vistas on the site
  - Moderate slope
  - Utilization of scenic forest area
  - Distance from highway noise
  - Location from Sewel Road
  - Relationship with creek
  - Contour change to flood plain
  - Visual relationship with I-285
A linear student street will be created to directly link all components within the school, providing an optimum degree of interaction for all users.

The educational faculty will contain a departmentalized open plan educational concept except for specific areas which require isolation.

Within the complex, facilities open to community use will be planned for easy assess.

A centralized prefabricated structure will satisfy the following criteria:

1. Flexibility
2. Cost
3. Control
4. Security
5. Acoustics
6. Time of Construction

Educational faculty components will be zoned within the school both horizontally and vertically according to acoustical roles, frequencies of activity, and similarity of functional relationships.

The environmental qualities of the site will be both utilized and preserved.

Natural light and exterior vistas will be brought into the student street and glazing will be restricted from academic spaces providing a more controllable artificial environment.
SPACE\RELATIONSHIP

PROGRAM

1. The teaching/learning space (includes the departments of Social Science, Language Arts, Foreign Language, Math, and some Music and Art areas.)

A. Activities

1. Individual reading.
2. Group reading.
3. Discussion.
4. Working with programmed material.
5. Writing.
6. Solving problems by both vertical and lateral thinking.
7. Listening.
8. Doing exercises or drills.
9. Data collecting or research.
11. Utilizing the following instructional materials available in the Atlanta public schools, alone or in groups:

   a. Filmstrip slide projectors.
   b. 16mm projectors.
   c. 8mm projectors.
   d. Overhead projectors.
   e. Television sets.
   f. Tape recorders.
   g. Record players.
   h. Radios.
   i. Previewers.
   j. Language masters.
   k. Controlled readers.
   l. Listening stations.
   m. Audio flash cards.
B. Space Requirements

1. Teaching stations will be provided for a designated number of teachers in each department (see teacher/space chart.)
2. Male and female restrooms.
3. Teacher's office, preparation and conference rooms.
4. Equipment storage for reproduction equipment, general materials, and coat storage.
5. Book storage.
6. Approximately five enclosed quiet areas of seminar rooms for each department.
7. Large group instructional spaces are to be available from within the learning space or through separate facilities.
8. Individual study areas will be provided in conjunction with each learning space and the media center.

C. Functional Relationships

1. Teaching/learning spaces should have easy access to the commons area, the media center, equipment storage, teacher's offices and restrooms.
2. The teacher's offices should be in a position to allow easy contact with teaching areas and the entrances to the storage areas. One section, however, should be closed off to view from outside areas for private conferences. The offices should be arranged so that teachers can have a semi-private space of their own.
3. It is important that the storage rooms be placed in central areas so that heavy equipment does not have to be carried far.
4. The entrance to the instructional area should be through a commons area so that any of the teaching areas can be reached without going through any other teaching area. Counseling, testing, or teaching offices may also be located in this area.
5. Private areas should be in an area conducive to individual study needs.
6. The toilets should be off the commons area near the entrance.
7. The English Department will include the Speech and Drama areas.
8. Student government offices are near the Social Science Department and the school newspaper offices are near the English Department.
9. Commons sub-area or Media sub-center should have an appropriate number of individual half-lockers in close proximity to the main entrance of the particular learning spaces so students can leave things in them on the way in, but noise from lockers must cause a minimum of distraction.

D. Lighting, Acoustic, and Climate Factors

1. 100 ft. candles are required throughout the learning areas and offices with 150 ft. candles at the chalkboards.
2. As mentioned in the section on research into the open-plan, acoustics is one of the main problems that must be dealt with.
   a. Control will be achieved through the following means:
      1. Acoustical ceilings.
      2. Carpet.
      3. Acoustical wall panels.
      4. Furniture and partitions.
   b. Present methods of sound control are adequate, only if they are coupled with the correct location planning of each learning space in relationship to similar areas of activity, noise, etc.
3. Being able to vary the light throughout the teaching space is important in order to be able to show films and TV to one group without disturbing the rest.
   a. Separate light controls for each teaching area are required.
   b. Some of the lights should have dimmers.
4. The desirable proportion of space in the learning/teaching area should be of equal length and width for acoustical purposes.

E. Building Construction Considerations

1. Critical dimensions: the teaching stations should be no less than 20 ft. wide.
2. It is possible that the present educational theories will be abandoned and schools will return to the old layout. If so, the building must be structured so as to allow walls to be placed inside the learning spaces.

F. Equipment and Furnishings

1. Carpet should be used exclusively.
2. A large screen, either a pull-down or a special section of wall, should be in each teaching area.
3. Each teaching space should be sufficient for individual movable desks.

II. Science Department

A. Activities basically consist of lab work, individual and small group study. Physics, Chemistry, Biology, and Photography are major curriculum activities that allow in-depth or general study.

B. Space Needs

1. The major teaching space should be a large open area which can easily be temporarily subdivided by portable furniture, movable walls, rolling carts, etc., to suit various instructional areas.
2. Plant room.
3. Animal room.
4. Teacher preparation room.
5. Open specialized rooms need to be provided: central storage, preparation rooms, small conference rooms, staff conference and workroom with two-way intercom, greenhouse, small group areas (for A-V testing, etc.).
6. Two conventional lab spaces need to be considered for physics and chemistry and their special needs.
7. A photographic darkroom should be included.
8. Other spatial requirements are similar to the conventional teaching space (see teaching/learning space.)

C. Functional Relationships
1. Science should be easily accessible from the academic areas of social science, mathematics, and computer technology.
2. The teacher preparation room should be located adjacent to storage rooms, with direct access to the teaching areas.
3. All science disciplines should be located in one general area, on one floor and planned for flexibility.

D. Lighting, Acoustical and Climatic Factors
1. Special ventilating requirements are needed throughout the major science work space.
2. Separate heating, cooling, and ventilating controls are required in both the plant storage and animal storage rooms.

E. Building construction considerations are the same as in a conventional teaching station.

F. Equipment and Furnishings
1. Within the open space, two kinds of lab facilities are to be used: established peripheral lab tables, and/or movable service islands.
2. The teacher's preparation room will require a work counter, sink and gas outlet.
3. The photographic darkroom must be provided with hot and cold water, electrical outlets, and counter space for up to ten students and instructor at one time.
4. Student counter spaces should be acid resistant.
5. All counters should provide hot and cold taps, gas outlets, and electrical outlets.
6. The floor should be tile.
7. Other items required in regular teaching areas are also needed in the Science Department.

III. Media Center

A. Activities
1. Obtaining, reading, watching or listening to printed material, films, or tapes as individuals and groups.
2. Group discussions containing 2 to 30 people.
4. Informal reading.
5. Media repair.
6. Professional research.
7. Use of teaching machines.

B. Space Needs
1. Stack area including space for books, tapes, film, records, pictures, periodical specimens.
2. Main reading area and study area (seating at least 10% of the student body.)
3. Research reading area.
4. Research material shelves.
5. Informal reading lounge.
6. Media specialists, office, workroom and restroom.
7. Terminal area (large enough for 25 students.)
8. Independent study area (15 students.)
9. Index and card catalogue area.
10. Media production, Xerox, laminating, transparencies.

These areas are all part of one large area differentiated from each other by the equipment in them. They do not all have to be single areas, but can be divided into smaller units and spread amongst each other.

11. Machine assisted learning area.
13. 2 conference rooms.
15. 2 librarians' offices.
17. TV studio.
18. Recording room.

C. Functional Relationships

1. The Media Center itself should be centrally located in relationship toward learning and activity areas so students can get to it easily at all times.
2. Inside the Media Center:
   a. The control area should be centrally located where it can survey the entire Media Center and be adjacent to the librarian's office.
   b. The informal reading area should be near the main entrance.
   c. The index and card catalogue area should be adjacent to the control area.

D. Lighting, Acoustic and Climatic Factors

1. Sound is a very important problem. As in the teaching spaces, several different activities have to go on at the same time without interfering
with each other. Not only should carpet and acoustical tile be used, but furniture should be placed to break up the room into smaller units and act as a sound barrier.

2. Extra acoustical insulation is required in the TV studio.
3. Proper lighting is extremely important because of the nature of various activities. Windows can create special problems by allowing direct sunlight to harm materials.

E. Equipment and Furnishings
1. The shelves and cabinets need to be kept in one area, but can be scattered throughout the Media Center on the walls and used as space dividers and sound absorbers.
2. Individual carrels will be used in the reading areas, the research areas and the electronic media areas as the main piece of furniture used by those in the library for study of materials.
3. The informal reading lounge should contain comfortable chairs and sofas with a display cabinets for current magazines and new books, and newspapers.
4. The control area will contain a large desk for checking books.
5. The machine assisted learning area will consist of wet carrels where programmed instruction machines will be used.

IV. Administration

A. Activities
1. Reception.
2. Office work.
3. Storage of records.
4. Counseling and guidance.
5. Teacher relaxation.
7. Medical services.

B. Space Needs

1. Reception
   a. Waiting room for these offices should accommodate 50 persons who could have appointments for these services. An area for a receptionist should be included to receive these visitors and phone calls.
   b. Should be near to the main entrance and directly adjacent to the office areas.

2. Office Work
   a. Principal's office with space for personal files, restroom facilities, small group conferences.
   b. Assistant Principal's office, similar to facilities in the Principal's office.
   c. Work space for 2 secretaries with administrative files, duplication equipment, work area, sink, refrigerator, and powder room for secretaries.
   d. Conference room for 25-30 people.
   e. The work space for the secretaries and the Principal's office should be located adjacent to the reception area. The Principal's office should have 2 entrances and the Assistant Principal's office could be near the reception area or in the guidance and counseling area. The conference room should be adjacent to the Principal's office connected directly to the reception area and an outer hall.

3. Storage or Records: will be utilized by Registrar, Social Worker, Assistant Principal, Principal, Attendance Officer, and Counselors.
a. Must offer security of original records for students and for files which may be held for seven years.
b. Both areas should be accessible from the Principal's office and the secretary work area.

4. Pupil Personnel Services: includes private conferences between counselor or psychologist and student or parent, waiting for such conferences, and psychological testing; Registrar and Attendance Officer.
   a. Office areas for accommodating family groups of eight person and counselor.
   b. 5 counselors, 2 social workers, 1 secretary should be assigned a work suite accommodating confidential files, duplication equipment and storage.
   c. A conference room is needed for groups having 10-30 members and is to be placed convenient to the Pupil Personnel Suite and the Assistant Principal's office.
   d. The Attendance Office should accommodate three or four persons, the attendance officer, and space for computer form processing and storage.
   e. The Registrar's Office must accommodate storage, file space and office space for four people.

5. The Clinic Suite
   a. Should be separated yet convenient to the Pupil Personnel Suite and opening to a major circulation artery.
   b. Should be convenient for parents who must check out an ill student.
   c. Should have a close relationship with an exterior entrance for ambulance cases and for community Public Health Programs.
   d. Combination examination-treatment room
   e. Three rest areas
   f. Office area for nurse (can be part of examination-treatment room)
   g. Bathroom
   h. Storage for first aid equipment.
6. Teacher Relaxation
   a. General relaxation area.
   b. Secluded area with phone.
   c. Male and female bathrooms.

C. Functional Relationships
   1. The entire Administration area should be easily reached by major academic circulation and interaction spaces, and in constant visual contact with the students daily schedule.
   2. It is both traditional and feasible that it remain near the main entrance to the school facility.

D. Special Design Considerations
   1. Reception - this area should exhibit warmth and friendliness for the benefit of visitors and students.
   2. Office work - these areas should be as convenient and spacious as possible to work in.
   3. Counseling and guidance - the stigma often associated with a visit to the counselor by students must be considered.

V. Art

A. Activities
   1. Lectures in Art History, Design Courses, Textile Design
   2. Printmaking
   3. Ceramics
   4. Sculpture
   5. Painting
   6. Drawing
   7. Photography
   8. Research
B. Space Needs

1. Two multi-purpose or common rooms
   a. Separated by movable partitions
   b. Wall cabinets
   c. Counters
   d. Two double sinks
   e. Display areas
   f. Spaces for visual presentations

2. Painting and drawing area
   a. Storage
   b. Display area
   c. Two individual studio areas for Senior Art Majors, which are equipped with sink, storage and locker space.

3. Printmaking
   a. Storage
   b. Display

4. Photography
   a. Dark room accessible to students outside the art department

5. Ceramics
   a. Room for kiln
   b. Storage
   c. Show cases
6. Sculpture
   a. Double door exits to hall and courtyard
   b. Storage

7. Space for an Art Library
8. Work room for three teachers
9. Storage room for A-V equipment
10. Critical dimensions: darkroom should be a minimum of 7 ft. wide

C. Functional Relationships

1. Locker spaces for students in the general area
2. Restrooms for boys and girls should be near
3. Preferred location is a ground floor corner with exits to courtyard from painting, drawing, and sculpture studios and provisions for as much natural light as possible in each studio.
4. Should be located in the proximity of the Industrial Arts area
5. For possible community use after regular hours, easy access should be planned for from the outside

VI. Industrial Arts

A. Activities being accommodated

1. Electrical electronics
2. Mechanical and architectural drawing
3. Graphic arts
4. Health occupations and child development
   a. cooking
   b. washing dishes
   c. washing clothes
   d. child care
   e. lectures
5. Occupational home economics
   a. Cooking
   b. Washing dishes
   c. Washing clothes
   d. Making clothes
   e. Grooming

6. Home Economics
   a. Food lab area
      1. Six unit kitchens
      2. Two family size units
      3. One apartment size unit
      4. One unit with microwave oven
      5. One unit with portable appliances
      6. Walk-in pantry with freezer
      7. Storage for student projects
      8. Display area
   b. Clothing lab area
      1. Sewing area - 20 machines
      2. Movable fitting area
      3. Grooming area
      4. Display area
      5. Adequate student and teacher storage
   c. Home management area
      1. Apartment living room
      2. Laundry with washer and dryer
      3. Adjoining apartment kitchen in food lab area
d. Storage and office space

1. Work room and office for four teachers
2. Storage for books and audio-visual equipment
3. Male and female bathrooms

e. Critical dimensions: at least 48" of straight counter work space should be allowed in each work space in the kitchen area.

f. Decorating
g. Lectures

B. Space Needs

1. Electrical Electronics

a. Large shop space accommodating at least 25 students
b. Instructors office and library
c. Work area should give the instructor a command view of all equipment and students

2. Mechanical and architectural drawing

a. One large room with individual drawing stations, in which the teacher can at times give lectures without the students having to move their desks is needed along with a teacher office for one teacher in direct view of all of the lab.
b. This area should be in the same general area as the math department

3. Graphic Arts

a. A lab is required for various machines along with a small darkroom
b. The darkroom should be divided into an area for film developing and one for picture developing and printing. Each should be accessible to the other and to the outside.
c. Proper ventilation is an important consideration
d. Water and chemical resistant floor should be used

4. Child development
   a. Amphitheatre classroom adjoining child development lab to accommodate young children; located near home economics and home management area; used by the school for occupational classes to observe work experience of students being trained for jobs in child care and pre-school programs
   b. Provide kitchen and pantry area
   c. Office for two teachers
   d. Storage with washer and dryer
   e. Toilet

C. Functional Relationships
   1. For the possibility of community use as a day-care center child care and home economics should be easily accessible to the public use.
   2. The three lab areas should be interconnected but separate
   3. The teachers preparation room should be in direct observation of the three lab areas

D. Special lighting, acoustical considerations
   1. Natural light must be restricted in the industrial arts and drafting areas to cut out glare that could be very dangerous when working with mechanics
   2. Special lighting must be provided in the sewing lab
   3. Lighting in the home management lab should be left to movable lamps and incandescent lamps
   4. The great amount of noise produced by the industrial arts area must be considered. Special acoustical insulation should be included between the industrial arts lab and any teaching area adjacent to it.
E. Equipment and furnishings

1. Industrial arts equipment
   a. Equipment should be arranged to isolate machine operators from traffic and to provide adequate aisles to travel between various areas of the shop
   b. Storage should be decentralized to immediately serve particular areas
   c. Special consideration needs to be given to height and width of shop doors

2. Home economics: arrange appliances in a "V" or "L" shape kitchens

F. General Comments

1. The main psychological factor related to the unified arts area involves a stigma concerning art on one hand, and industrial arts on the other, saying that the same students do not take courses in both. Since the purpose of this area is to give all of the students a chance to be involved with all of these areas, it is important to emphasize the unified creative nature of all of these activities. The best way to do this architecturally is to enhance interaction between them as much as possible

2. Because of the relatively small emphasis put on the vocational arts department, it becomes necessary to consider future expansion in this department of the school as a strong possibility.

VII. Business Education

A. Activities

1. Typing
2. Taking dictation
3. Using business machines
4. Using a computer
5. Listening to lectures

B. Space Needs
1. Typing room
2. Office machines room
3. 5 teacher preparation rooms
4. Equipment storage room
5. Dictation laboratory
6. Conference room

C. Functional Relationships
1. Should be located near the math department
2. The teacher's preparation room should be easily accessible to both the classroom and the typing room and be in visual contact

D. Lighting, acoustical and climatic factors
1. High levels of light are required in the typing room and the classroom, about 150 feet candles.
2. Noise is a great problem in the typing room, requiring the use of sound controls on the floor, walls, and ceilings

E. Equipment and furnishings
1. Portable electric typewriters on desks in the typing room with an electric outlet for each
2. Desks with adjacent electrical outlets for business machines
3. The teacher's preparation room should contain the same equipment that similar rooms in other departments have.
VIII. Special Education

A. Activities

1. Therapy and instructional help for learning disabilities, behavioral disabilities, and educably mentally retarded students. In addition to providing facilities for 75 students in these categories, facilities will be provided for approximately 15 students with speech disorders, 5 visually handicapped students, 5 hearing handicapped students and 6 physically handicapped students.

2. All of the educational activities described in the section on teaching spaces.

3. Typing on braille typewriters

4. Physical exercise

B. Space requirements

1. Learning disability classroom
2. Behavioral disability classroom
3. EMR classroom
4. Miscellaneous classroom
5. 3 storage rooms
6. Conference room
7. Private outdoor work area
8. Office for 5 teachers
9. Male and female bathrooms

C. Functional relationships

1. These classrooms should, while not necessarily together, be located in a spot convenient to the rest of the school, and in particular Business Education.

2. The outdoor work area and the bathrooms should be open directly off the EMR classrooms.
D. Lighting, acoustical and climatic factors

1. The deaf students' classroom requires a special "floating door" to cut down on the transmission of vibrations which often distract deaf students.
2. It is also very important to protect the deaf students' classrooms from outside noise. If it is located on a major corridor, extra acoustical insulation should be provided.
3. The students in all three of these areas tend to be very nervous. For this reason, extra ventilating equipment is often required along with very sensitive control equipment.
4. The blind students' classroom, because of the use of braille typewriters, will require acoustical insulation.

IX. Theatre

A. Activities

1. Plays, musical performances, etc., for the student body, and for community use.
2. Lectures and other classroom activity for class sized groups. (Dance, speech and drama classes)

B. Space Needs

1. 600 seat auditorium; tiered arena-type seating arranged as teaching theatre.
2. Stage
3. Stagecraft storage
4. Dressing rooms and make-up rooms
5. Male and female restrooms

C. Functional Relationships

1. The outside should be directly accessible from a corridor onto which the main exits of the auditorium open.
2. The dressing rooms should be directly accessible to the rear of the stage and to the outside.
3. The stage storage should open onto the stage most directly, but should also open onto the main auditorium floor.

D. Lighting, acoustical and climatic factors

1. Lighting
   a. The stage requires, in addition to regular overall lighting, lighting of heavy intensity.
      1. Footlights in the front of the stage
      2. Manually operated, portable spotlights in rear of the auditorium
   b. The rest of the auditorium requires regular intensity overall lighting that can be varied in intensity in separate parts of the room. Separate controls are required for each of the separate parts of the auditorium seating.

2. Ventilation must be sufficient to handle the large numbers of people who will be there from time to time.

3. Acoustical
   a. The ceiling should be of a sound reflecting material.
   b. The backwall and any movable partitions that form a backwall should be sound-absorbing.
   c. The rear part of the ceiling should be angled downward 20-30 degrees.
   d. Large expanses of smooth parallel walls should be avoided.
   e. The rear wall should be made as irregular as practicable to stop reflection of sound.
   f. All parts of the mechanical equipment, especially fans, should have insulated attachments to any structural members of walls that are likely to vibrate.
g. Desired proportions for the theatre include between 2:1 and 1.2:1. 
   Height proportions 1:3 large rooms ex. 100X150 ceiling 30-35
   2:3 small rooms ex. 18X24 ceiling 10-12

E. Economic factors

1. An auditorium provides a perfect place for large lectures to be held, if it can be properly managed. Efficient scheduling and movable accoustical insulating panels can allow auditorium to be used efficiently throughout academic hours.

F. Equipment and furnishings

1. The auditorium seats should be fixed with folding seats and writing tables that fold up or down
2. At least part of the stage should be able to be closed off by a curtain
3. The auditorium floor should be stepped at each row of seats, allowing a 5" rise per row
4. Elaborate equipment over the stage is not required
5. The seats should be upholstered and as much of the floor as possible should be carpeted

X. Music Department

A. Activities

1. Instrumental activities
   a. Individual
   b. Small group (2-6)
   c. Large group (band or orchestra)
2. Choral activities
   a. Individual
   b. Small group (2-12)
   c. Large group

3. Music appreciation
   a. Class sized lecture
   b. Classes listening to music produced from records or tapes

4. Storage
   a. Instruments
   b. Robes

B. Space Requirements
   1. Instrumental room - seating 200 students
   2. Four practice rooms
   3. Choral room - seating 100 students
   4. One practice room - seating for student and one piano
   5. Instrument storage room
   6. A-V storage
   7. Uniform and robe storage room
   8. Storage room holding pianos
   9. Orchestra director's office with small conference area
   10. Choral director's office with small conference room
   11. Ensemble practice room - 2 classrooms for music classes
   12. Music Library with listening rooms
C. Functional relationships

1. The instrument storage room shall be located on the way into the instrumental practice room with the doors arranged in such a way as to allow students who are picking up instruments to enter at one end, pick up their instrument and go out the other end with smooth one-way traffic flow. The flow would be in the opposite direction when the instruments are being put back after practice.

2. The uniform and robe storage should be easily accessible from both of the large practice rooms

D. Lighting, acoustical, and climatic factors

1. Acoustics is extremely important in the instrumental room
   a. In addition to carpet and acoustic tile on the ceilings, some acoustical absorbers will be required on the walls.
   b. The room should be rectangular with a wall dimension ratio of roughly 5 to 2. The ceiling should be a minimum of 14 ft high
   c. All ventilation equipment must have a sufficient sound insulation to keep it from making any noises

2. The choral practice room has the same requirements as the instrumental room except that its ceiling should be a minimum of 14 ft high

3. The humidity in the instrument room should be carefully controlled

E. Equipment and furnishings

1. The instrumental room will use mostly portable chairs which can be stacked when not in use

2. The choral room will contain demountable risers

3. The instrumental room choral room and ensemble practice room require a wide space between the front row of chairs and the wall for the director, an upright piano or a record player and speakers
XI. Physical Education

A. Activities in the area: indoor exercises and games, dressing, equipment storage, office work, and health education.

B. Space Requirements

1. Gymnasium

   a. Interior exercises and games - here students would be involved with such things as volleyball, basketball, tumbling, gymnastics, involving horses and parallel bars, and dancing.

   1. One classroom combined with driver education classroom and ample storage space.
   2. Regulation basketball court area (with tartan or pro turf flooring) with the following court markings:

      a. Volleyball
      b. Badminton
      c. Tennis
      d. Shuffleboard

3. Instructors office (minimum of 4 instructors)

   a. Showers
   b. Individual lockers
   c. Restroom

4. P.E. storage area

5. Heavy apparatus storage area that is easily accessible to the court area

6. Student shower area

7. Restrooms (male)

8. P.E. locker room (male)
9. Weight room
10. One classroom with ample storage area
11. Dance room
12. Locker room (female)
13. Shower room with individual stalls (female)
14. Restroom
15. Instructors office
16. P.E. Storage area
17. Heavy apparatus storage area that is easily accessible to the court area

2. Health Education
   a. A large classroom is required
   b. The room should be of a shape so that it can be divided into two rooms by movable partitions. This room should be located in the same general area as the rest of the physical education areas. Sufficient storage areas for all types of resource materials should be provided.

C. Functional Relationships
   1. Public use of these areas should be easily facilitated by its relationship to parking.
   2. Location of the gymnasium in relationship to the locker and shower space for both girls and boys should be convenient.

D. Lighting, acoustical and climatic factors
   1. Extra ventilation is required in the dressing area
   2. The use of beams, purlins, and strips of acoustically absorptive material will avoid echoes.
E. Equipment and furnishings. Equipment required

1. 8 basketball backstops
2. Ropes and rings hanging from the ceiling, movable sets of parallel bars, horses for leaping over and large floor pads for gymnastics
3. Use a resilient rubber floor instead of wood
4. Dressing areas should contain benches among the lockers
5. Windows should be restricted within contact of game activities and when they are used they should be guarded with heavy wire.

F. General Comments

1. At least 10 ft. needs to be provided between the edge of the basketball court and the outer walls.
2. Area should be accessible to public after school hours, with separate mechanical systems and alarm system.
3. Provide the Parks Department with one office accessible from the outside
4. Eventual planning of an AAU standard size swimming pool will be proposed and consideration should be given to its future location.

G. Athletic outdoor facilities

1. Easily accessible to the Physical Education Department but located so distractions and noise will not affect academic areas.
2. All weather track (to metric measurements)
3. Football, softball, baseball, soccerfield, and asphalt tennis courts (3-5)
4. Outdoor recreation facilities should be correlated in conjunction with parking areas for community use.

XII. Food Services

A. Activities
1. Food preparation
2. Storage
3. Serving
4. Eating
5. Dishwashing

B. Space requirements

1. Actual requirements
   a. Food preparation
   b. Serving and eating area
   c. Dishwashing area
   d. Food storage

   1. Two separate areas for dry storage
   2. Three compartment freezer cooler area

   e. Storage closet
   f. Staff locker room and restrooms
   g. Student dining area with restrooms
   h. Office for dietician with storage area 150 sq. ft.
   i. Garbage area away from dining area
   j. Storage for student books
   k. Service court not connected with parking area

2. Critical dimensions - the space requirements for the cafeteria are determined by the School and Food Service Facilities Guide published by the Georgia Department of Education.

   a. The serving area should be between 9 and 12 wide.
   b. Walk and work spaces in the kitchen between two pieces of equipment should be at least 6 ft. wide.
C. Functional relationships

1. The lines going to and coming from the serving areas and the return window should not be in the way of each other.
2. The Dietician's office should be in visual control of the entire kitchen area.
3. The food storage area and garbage storage area should have direct access to truck pick-up and delivery.
4. The entrances to the food service area should be positioned so as to keep congestion down when students are going to and from eating.
5. The food storage area should be directly adjacent to the kitchen.
6. The freezer and the refrigerator should be adjacent to the kitchen.

D. Lighting, acoustical and climatic factors

1. All stoves require individual vents in addition to the regular kitchen ventilation. All exhaust from the kitchen should be directly to the outside.
2. The acoustics of the eating area will require special attention since carpet cannot be used while a great deal of noise is produced.
3. Care must be taken for garbage odors.

E. Equipment and furnishings

1. Proper seating for high school students; not necessarily long tables.
2. Carpet use exclusively in student dining area

XIII. Lecture Rooms

A. Activities
B. Space Needs

1. Three 50 seat lecture rooms
2. Two 100 seat lecture rooms
3. One 150 seat lecture room
4. Elevated stage areas for each
5. Enclosed back stage storage area for each
6. Entry vestibules

C. Functional relationship
   1. Should be accessible from all academic departments
   2. Should be easy to control for community use

D. Lighting, acoustical and climatic factors: basically the same as the theatre

XIV. ROTC

A. Activities

   Includes drill sessions, rifle practice and other activities prevalent in conventional areas.

B. Space Needs

   1. Major classroom area with both ends raised up
   2. Indoor rifle range combined into the Physical Education facilities
   3. Both girls and boys restrooms
   4. Club activity and conference room
   5. Two clothing rooms with provisions for changing

C. Functional relationship

   Easy access to ground and athletic fields
XVI. Parking

Provide 150 spaces for faculty and staff help
Provide 150 spaces for students

XVII. General building considerations

A. Windows on ground levels will be glazed with Lexan and on upper levels with Plexiglass
B. Use standard ceiling heights so all movable partitions can be interchangeable between rooms
C. The building must make provisions for the handicapped including an elevator for access to all levels. Inevitably this will be used for freight transportation and should be considered.
D. Critical dimensions involved in the safety requirements of the building codes should be followed.
### TEACHER\SPACE CHART

This list shows the number of teachers required in each subject with the number of spaces to be furnished, based on Chart II "Proposed Model for High Schools" from the Comprehensive Study of Atlanta Public Schools.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Faculty</th>
<th>Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>English - Speech/Drama</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Social Science</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Math</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Science</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Physical Education/Health</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Driver Education</td>
<td>1.75</td>
<td>2</td>
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<tr>
<td>Business Education</td>
<td>5</td>
<td>5</td>
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<td>3</td>
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<tr>
<td>Music</td>
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<tr>
<td>Foreign Language</td>
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<td>4</td>
</tr>
<tr>
<td>Industrial Arts/Trade &amp; Industry</td>
<td>6.40</td>
<td>9</td>
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<tr>
<td>Vocational Arts</td>
<td>1.20</td>
<td>2</td>
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<tr>
<td><strong>Subtotal</strong></td>
<td>82.35</td>
<td>82</td>
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<tr>
<td>Reading</td>
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<td>1</td>
</tr>
<tr>
<td>Special Education</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
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<td>89</td>
</tr>
<tr>
<td>Clinic (Nurse)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROTC - (1 CR/1 Rifle Range)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>90.35</td>
<td>90</td>
</tr>
<tr>
<td>Principal - (2 Secretaries)</td>
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<tr>
<td>Assistant Principal - (Secretary)</td>
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<td></td>
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<tr>
<td>Registrar - (Secretary)</td>
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</tr>
<tr>
<td>Counselors - (Secretary)</td>
<td>4.50</td>
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<tr>
<td>Social Worker - (Secretary)</td>
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<tr>
<td>Librarian - (1 Aide)</td>
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</table>
## INSTRUCTIONAL DISTRIBUTION OF TIME

<table>
<thead>
<tr>
<th>Department</th>
<th>Periods Required in 4-Week Module</th>
<th>Percent of Periods in a 4-Week Module</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LGI</td>
<td>SGI</td>
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<tr>
<td>English</td>
<td>4</td>
<td>8</td>
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<tr>
<td>Social Studies</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Science</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Foreign Languages</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Physical Education</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Industrial Commercial Service Arts</td>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>

### Southwest High School Instruction Programs by % of Active Enrollment (Grades 9-12)

<table>
<thead>
<tr>
<th>Department</th>
<th>Minimum Weekly Periods</th>
<th>Total Pupil Periods</th>
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<tbody>
<tr>
<td>English</td>
<td>5.0</td>
<td>5,520</td>
</tr>
<tr>
<td>Social Studies</td>
<td>5.0</td>
<td>5,220</td>
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<tr>
<td>Mathematics</td>
<td>5.0</td>
<td>4,560</td>
</tr>
<tr>
<td>Science</td>
<td>5.0</td>
<td>2,700</td>
</tr>
<tr>
<td>Foreign Languages</td>
<td>5.0</td>
<td>1,860</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>5.0</td>
<td>2,280</td>
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<tr>
<td>Physical Education</td>
<td>5.0</td>
<td>4,020</td>
</tr>
<tr>
<td>Industrial Commercial Service Arts</td>
<td>5.0</td>
<td>4,620</td>
</tr>
</tbody>
</table>

Average periods (30,780/1200) 25.65
Available periods per student per week (8 periods x 5 days) 40
Percent periods required time (scheduled on a mandatory basis) 64%
Percent periods selective time (scheduled by student and/or counselor according to student's needs or interests) 36%
<table>
<thead>
<tr>
<th>GRADE LEVEL</th>
<th>SQ. FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custodial/Restrooms</td>
<td>650</td>
</tr>
<tr>
<td>Industrial Arts</td>
<td>10,800</td>
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<tr>
<td>(Auto Mechanics, Electronics)</td>
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<tr>
<td>Mechanical, Electrical</td>
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<tr>
<td>Men's Lockers/ROTC</td>
<td>10,800</td>
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<tr>
<td>Multipurpose</td>
<td>2,800</td>
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<tr>
<td>Stairs</td>
<td>3,700</td>
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<tr>
<td>Vocational Building Trade (Future)</td>
<td>11,200</td>
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<tr>
<td>Women's Lockers</td>
<td>6,200</td>
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<tr>
<td>Circulation</td>
<td>5,000</td>
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<tr>
<td>Custodial/Restrooms</td>
<td>17,000</td>
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<tr>
<td>Graphic Arts</td>
<td>4,800</td>
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<tr>
<td>Gymnasium</td>
<td>21,600</td>
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<tr>
<td>Kitchen</td>
<td>6,700</td>
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<tr>
<td>(State Standard 6,498/1,800 Students)</td>
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<tr>
<td>Student Lockers</td>
<td>4,500</td>
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<tr>
<td>Vocational Arts</td>
<td>6,000</td>
</tr>
</tbody>
</table>

| FIRST LEVEL                                    |         |
| Circulation                                   | 5,000   |
| Custodial/Restrooms                           | 17,000  |
| Graphic Arts                                  | 4,800   |
| Gymnasium                                     | 21,600  |
| Kitchen                                       | 6,700   |
| Student Lockers                               | 4,500   |
| Vocational Arts                               | 6,000   |

<p>| SECOND LEVEL                                   |         |
| Administration                                | 2,000   |
| Art                                           | 8,000   |
| Auditorium (Storage)                          | 18,000  |
| Circulation                                   | 12,000  |
| Custodial/Restrooms                           | 1,450   |
| Dining Area                                   | 6,600   |
| Faculty Lounge                                | 650     |
| Horticulture                                  | 10,600  |
| Lecture Rooms                                 |         |
| 3 - 50 seats @                                | 1,300   |
| 2 - 100 seats @                               | 1,700   |
| 1 - 150 seats @                               | 2,500   |
| Lobby/Student Exhibits                        | 2,200   |
| Music                                         | 7,200   |</p>
<table>
<thead>
<tr>
<th>Area</th>
<th>Sq. Ft.</th>
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<tbody>
<tr>
<td>Student Commons</td>
<td>6,600</td>
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<tr>
<td>Student Store</td>
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<td><strong>THIRD LEVEL</strong></td>
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<tr>
<td>Administration/Counseling</td>
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<td>Business</td>
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<td>Circulation</td>
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<td>Clinic</td>
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<td>Computer</td>
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<td>Custodian/Restrooms</td>
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<td>Drafting</td>
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<td>General Storage</td>
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<td>Library (Media Center)</td>
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<td>Special Education</td>
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<td><strong>FOURTH LEVEL</strong></td>
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<td>Circulation</td>
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<td>Child Development</td>
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<td>1,600</td>
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<td>Individualized Study</td>
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<td>Language</td>
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<td>Math</td>
<td>5,400</td>
</tr>
<tr>
<td>Science</td>
<td>7,200</td>
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</table>
DESIGN PROPOSAL
AN URBAN HIGH SCHOOL
FOR ATLANTA, GEORGIA

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
SECOND LEVEL

SECTION BB

SECTION CC

PLAN + TRANSVERSE SECTIONS
This chart gives a listing of all academic areas and auxiliary spaces involved in the proposed Benjamin E. Mays High School which are to be used by the following people: students, faculty, administration, visitors, and after hour community users. These categories have been rated according to their importance of the design of the facility and their projected frequency of use of each of its parts. The spaces indicated are established as accommodating the most frequent activity by the school's users and require special design consideration in their planning to facilitate the optimum amount of interaction an optimum amount of times.

<table>
<thead>
<tr>
<th>English</th>
<th>Student</th>
<th>Faculty</th>
<th>Administration</th>
<th>Visitors</th>
<th>Community</th>
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<td>Social Studies</td>
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<td>Mathematics</td>
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<td>Fine Arts</td>
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<td>Business Education</td>
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<td>Cafeteria</td>
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<td>Student Commons</td>
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<td>Administration</td>
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<td>Lecture Halls</td>
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<td>Auditorium</td>
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<td>Gymnasium</td>
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<td>Athletic Fields</td>
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<td>Restrooms</td>
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<td>Exterior Spaces</td>
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In an exhaustive analysis of elementary school facilities across the nation, Research and Design Institute concluded the following proposals for non-graded teaching facilities to help de-institutionalize or humanize our school buildings. The following proposals are appropriate for secondary school situations and are, therefore, applicable to this study.

"By environment we refer to the space-defining shell around students, equipment and materials within. We agree that the space and materials about the student must contribute to his enlightenment, his understanding, his education. We propose that the school facilities play an active role in the student's awareness."

The suggestions defined in this study are as follows:

Floors - "The Landscape" - Progressive educators have accepted the contributions financially and psychologically that carpet can make on today's schools. Carpet should be employed for practical and educational results.

- In many areas carpet should not stop at the wall, but curve up making a natural back rest. This can be extended to envelop sitting areas and backed with foam for comfort.

- Work and play areas, aisles, and focal points can maintain a design woven into the carpet. This would define areas both graphically and dimensionally.

- Stairs and mounds will create activity seats; these may be natural or man-made.
Walls - "Many Vistas"

- A variety of weaves, material, texture and color can tell a youngster a great deal about the use of each space. This should be consciously attempted. Cutouts in the floor for walkways, rubber carpeted painting areas, tassels for formal places, a metal disc for recitations, or raised wooden platforms can heighten the variety of experiences the carpet offers.

- A variety of treatment can provide maintenance advantages when waterproof materials are placed areas open to the weather, long wear material at recital points, scuff proof carpet along baseboards.

Ceilings

- Varied heights of ceilings complementing level changes in the floor can define more appropriate spaces. Privacy
can be gained without the use of walls. Arbors or hanging plants can bring sun and nature into the space.

- Another way to save money and de-institutionalize interior spaces is to avoid covering up the structure with hung ceilings and walls with finished surfaces. This can also be educational by giving clues as to how the building works.

Other miscellaneous proposals include:

- Places for displays of art, work, and personal expression help manage and endorse a live museum function of both formal and personal things. This allows an identity for each student and a better view of how he views himself and others view him.

- Space should also be provided for storage of school projects. The lack of a saving system can have two serious negative effects: a low regard for personal achievements graduating only with a transcript and secondly, the student fails to learn vital skills toward an information resource bank.

- Experimention with eliminating the teacher's desk as an authoritarian figure at the front or rear of the room avoids direct "eye-confrontation" with the children and could be replaced by an adjacent teacher's station. Symbolically the teacher is elevated from the role of "guard to expert."

- To promote spontaneous discourse between students about everything from academics to personal concerns in a graphic manner, it is suggested that chalk, erasers, and
chalkboards be allotted at each student's individual study carrel. The teacher/student relationship is again altered to make it difficult for anyone to dominate the classroom communication media. This display of student communication is a motivating experience supporting each student's self-esteem.

- The conventional imposing administration counter should be replaced with a more comfortable, open administration area inviting both students, faculty and visitors.

In this planning context, the major areas involved in planning for vandalism will be categorized as interior and exterior. These guidelines cannot always be the rule, but they do offer, however incomplete, suggestive advice for many situations which can avoid an invitation to vandals.

**Interior/lighting**

- Provide as much natural lighting as possible:
  - it provides more varied and interesting spaces
  - allows better supervision of circulation areas
  - eliminates dark nooks and crannies

**ceilings**

- Acoustical tile ceilings tend to be easily damaged materials, as they invite dislodgement

**miscellaneous**

- Elevators in schools always cause problems.
- Venetian blinds provide easy targets for vandals.
<table>
<thead>
<tr>
<th>Exterior/play areas</th>
<th>- Ignorance of sophisticated temperature control systems result in overheating, complaints and vandalism. These sensors should not be accessible to all users.</th>
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<td>- These areas ought to provide for graffitti: examples would be the painting of goals for soccer games.</td>
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<td>- Large flat-surfaced areas should be avoided where it is not intended for children to play games. Service areas are a good example of space that is often used as an extension of play area, particularly if they aren't supervised by passers by or surrounding dwellings.</td>
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<td>- Because of kid's attraction to sunny, sheltered areas, southerly orientations should be avoided for restricted paved areas.</td>
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<td>- Large trash containers that invite burning contents should be avoided.</td>
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<td>- Unnecessary niches of planters often serve as trash disposals.</td>
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<td>- Planting that is easily damaged should be avoided.</td>
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<tr>
<td>paving vs. planting</td>
<td>- Grass and planting will be abused in small heavily used areas. Thus, hard surfaces are more appropriate.</td>
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<td>- Grass should never be located near sharp changes in the direction of circulation routes.</td>
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<tr>
<td>miscellaneous</td>
<td>- Thickness of glazing should not only vary with wind forces, but also with the degree of attack expected.</td>
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</table>
- At night, adequate artificial lighting needs to be used in areas of high risk such as recessed entrys, lift lobbies, etc.

- High proportions of vandalism occur in places where there is enough light to see by but not enough to be seen in.

- Reduce glazing to a minimum and consider planning the building so elements fronting high risk areas require little glazing.

- Should be treated as an extension of the outside whenever possible.

- Within reach of stairways, fenestration should be avoided

- Cantilevered commodes and lavatories have a tendency to be sheared off

- All glass mirrors are very susceptible to attack even in girl's restrooms. Stainless steel mirrors are recommended.

- Narrow wired vision panels have provoked increased attacks.

- Surfaces with a marked texture are relatively free from vandalism and graffiti in particular.

- Graphics or patterns utilizing relatively bold contrasting colors are less prone to attack than similar sizes of wall area having a pristine character. However, the scale of the graphic or pattern should not become too large or writing will occur within large areas of color and graffiti will become even more conspicuous.
Interior Partitions - Vandals often gain access into schools through the use of lightweight construction partitions which are containing expensive equipment.

Pedestrian Circulation - Avoid rigid circulation paths achieved with actual barriers. Allow pedestrians as much freedom of movement as possible.

- Avoid sharp direction changes.

- Use changes in materials or levels of landscaping to produce interesting by logical lines of movement.

- Avoid using feeble items such as litter bins or low walls to change the directions of paths.

Vehicular Circulation - Benefits of supervision of service areas may be gained by the integration of parts of pedestrian circulation with that of vehicles.

Screen and Fences - Where security and supervision are necessary, tall barriers should be "see through", unclimbable, sturdily constructed, and should deter graffiti.

- Have roll down metal screens over glazed entries.

Lighting - Position so it is inaccessible using recessed, flush mounted or concealed fittings.

Signs or Graphics - Large flashing signs proclaim their existence to vandals, and provide a most sufficient target.

- Reduce the size of attached signs or lettering to a minimum.
- Surfaces with glare properties cause eye fatigue and distractions should be avoided by the user of matte finishes.

- Time and energy for operating furniture and equipment should be minimized.

- Furniture should be resistant to staining, scratching, chipping and heating and should be composed of non-allergenic materials.
CREDITS

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The Faculty of the College of Architecture
The Clemson Architectural Foundation
Mrs. Carol Hood


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122. Ibid, p. 18.


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SCHOOLS FOR AMERICA


MAGAZINES AND NEWSPAPERS


"I'm an Architecture," Progressive Architecture, May, 1974, pp. 84-87.


**APPOINTMENTS**

**July 24**
Rod Jonas, Superintendent of Glynn County Public Schools

**July 28**
Nestor Siciliano, School Planning & Architectural Coordinator, Atlanta Public Schools

John Martin, Engineer, School Planning Department, Atlanta Public Schools

**July 29**
Walter Bell, Historian, Atlanta Public Schools

Dr. Darwin Womack, Assistant Superintendent, Facilities Development, Atlanta Public Schools

Bill Finch, Architect, Finch, Alexander, Barnes, Rothschild and Paschall, Inc.

John LaRowe, Facilities Coordinator, Atlanta Public Schools

Ed Kemp, Facilities Development Superintendent, Atlanta Public Schools

Community Participation Meeting - Southwest Neighborhood, Faculty of Southwest High School, FABRAP Inc., Atlanta Public Schools
October 15  Stark Hamilton, Jimmy Wong, Architects, FABRAP Inc.
John LaRowe, Facilities Coordinator, Atlanta Public Schools

December 23  John Martin, Engineer, School Planning Department

March 11   John LaRowe, Facilities Coordinator, Atlanta Public Schools
Shirley Harris, City of Atlanta, Bureau of Planning

March 12  Jimmy Wong, Architect, FABRAP Inc.
Barbara Coffey, Community Project, Southwest Atlanta