ACKNOWLEDGEMENTS:

I would like to thank those people that have helped me with this thesis project through their knowledge and advise.

John Wyman - Thesis professor
Art Schaller - Outside critic
John Russell - Landscape critic
Darrell Stultz - Richmond schools contact
When deciding upon a thesis project I had three main objectives to satisfy. These were, to choose a project that would have various functions, be located in a place that I was familiar with and be of a type that would keep my interest high during the three quarters that I was to work on it. With the possibilities infinite I went to the card catalogue on past thesis projects in the College of Architecture Library to try to limit the selection. From this inspection I was able to see that there are certain types of projects that have been done quite frequently such as hotels and country clubs. Schools which I had figured would be numerous were actually very few in number. The idea of a high school came out of this thinking because it would definitely have a wide variety of functions. Having grown up about forty miles from Richmond, Indiana I had heard that at one time the city had considered building a second high school so a familiar location was found. I also felt that a high school would be very interesting and could keep my interest high for a long time. Thus a high school for Richmond, Indiana was chosen as my thesis project.

In order to pick a site for the high school I went to Richmond and talked to the business manager for the Richmond School Corporation as well as looking up the latest census information. I discovered that the school corporation had actually bought land for a new high school. This site was located in an area that seemed to be the most likely spot for future growth of the city. Another site close to the new Indiana University extension was also considered but decided against because the area was becoming too commercial. Also the city could be more easily divided into school districts to provide a well balanced student population of racial and income types by using the site that was owned by the school corporation. All of this is how I came up with the site that I used in my thesis.

Having decided upon a project and a site for it to be built on I was ready to start into the thesis process set up by my professor, John Wyman. The remainder of this...
book explaining my thesis will show this process as it was done. The table of contents on the next page gives a complete outline of the process.
CONTENTS

SUMMARIES OF THE WORK DONE

THESIS 404
1. Program
2. Site Analysis
3. Building Type Study
4. Concept Development

THESIS 405
1. Design Development Stage One
2. Design Development Stage Two

THESIS 406
1. Detailed Design Development
2. The Book A Final Conclusion

THE COMPLETE PROGRAM

THE COMPLETE BUILDING TYPE STUDY

BIBLIOGRAPHY

EAST RICHMOND HIGH SCHOOL - A THESIS
Knowing what type of building, the size needed, and who it is for are the first step in any design process so a program was written. Gathering the facts about the city of Richmond and its people are the largest part of my program for the high school. Since a high school becomes a major symbol representing the community to others, it is important to make the proper image. It is quickly seen that Richmond is a small city with a lot of pride. For a city of its size, culture is important to the citizens and there is a desire to compete with the surrounding cities of comparable size. An actual program for such a high school should involve an intense study of the people and what they would want their school building to be. Time did not allow this to be done so a lot of assuming was done on my part since I am familiar with the city.

The needs of a high school as far as spaces go can vary greatly. Having decided that the student population would be 1500 based on population data for the city, I used this as a limiting factor in my project size. Size and numbers of the different elements in a school can vary greatly depending upon the attitudes of the school board and administration as to what they consider to be important. Knowing this, I used space requirements recommended in Nickolaus L. Engelhardt's Complete Guide for Planning New Schools. The total space suggested for a high school of 1500 students is 277,300 square feet. I added to this figure because I knew a much larger gymnasium would be needed than in the sample space requirements and I wanted to provide more social space for the students. I considered about 300,000 square feet as the gross square footage needed for the high school.

EAST RICHMOND HIGH SCHOOL - A THESIS
The next step in the process I used to develop my thesis project was to analyze the site. This was done in various ways. I obtained maps from the county surveyor's office of the property as well as aerial photographs and information on soil types. I also went to the site and did a lot of general observation. To understand the area around the site and what the future would most likely bring I talked to some local people about the area.

It can easily be seen that the site is very heavily covered by trees and brush. It has a hill on it and one looks up at the site from the road. All these facts become very important when thinking about the building. A high school needs a lot of large cleared flat areas for playing fields and the building itself would have to be large. I wanted to save as many trees as possible and try and preserve the atmosphere of the site. Since the site is quite large and the surrounding area is a low density residential area I thought a low level structure that would not dominate the site would be best. With this information in mind more limitations were put on the high school building and thus more direction was given to the project.
PHYSICAL AND DEMOGRAPHIC:

Location: Eastern Indiana
- 69 miles east of Indianapolis
- 92 miles south of Fort Wayne
- 63 miles northwest of Cincinnati
- 40 miles west of Dayton

Longitude: 84° 53.6' W
Latitude: 39° 49.8' N
Elevation: 979 ft.

Highway Distances:
- Chicago, Ill.: 250 miles
- St. Louis, Mo.: 305 miles
- Birmingham, Ala.: 544 miles
- Detroit, Mich.: 252 miles
- Cleveland, Ohio: 225 miles
- Pittsburgh, Pa.: 284 miles
- Atlanta, Ga.: 493 miles
- Kansas City, Mo.: 554 miles
- Minneapolis, Minn.: 655 miles
- New York City: 644 miles
- Dallas, Texas: 934 miles

Climate:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan.</td>
<td>36.0°</td>
<td>19.4°</td>
<td>33°</td>
<td>-20°</td>
</tr>
<tr>
<td>March</td>
<td>48.7°</td>
<td>29.0°</td>
<td>77°</td>
<td>14°</td>
</tr>
<tr>
<td>May</td>
<td>71.8°</td>
<td>48.7°</td>
<td>91°</td>
<td>32°</td>
</tr>
<tr>
<td>July</td>
<td>83.6°</td>
<td>61.0°</td>
<td>96°</td>
<td>53°</td>
</tr>
<tr>
<td>Sept.</td>
<td>75.4°</td>
<td>51.7°</td>
<td>90°</td>
<td>44°</td>
</tr>
<tr>
<td>Nov.</td>
<td>49.9°</td>
<td>31.4°</td>
<td>73°</td>
<td>12°</td>
</tr>
</tbody>
</table>

Annual days over 90° F: 21
Annual days under 32° F: 122
Annual avg. Heating degree days: 5,897
Annual avg. cooling degree days: 702

Precipitation:
- Annual average rainfall: 38.4 in.
- Annual average snowfall: 24.0 in.

Relative humidity averages: Jan. 75% Apr. 65% July 75% Oct. 72%

Annual number of clear & partly cloudy days: 191
Percentage of available sunshine: 58% (70% summer; 58% fall; 56% spring; 44% winter)
VEGETATION and MEASUREMENTS

Site - 1350 ft x 2025 ft
EAST RICHMOND HIGH SCHOOL - A THESIS

55 acres
Sections Through Center of Site

Scale $\frac{1}{16}$ in. = 10 ft.

SITE
PROFILE
SECTIONS
and
SUN
ANGLES
EAST RICHMOND HIGH SCHOOL - A THESIS
In order to know more about the general ways that a high school building can be designed a building type study was done. To research this I used books that showed many different high schools that have been built across the United States. I also looked into the history of school buildings. All this was done so that the process of so called reinventing the wheel would not take place. I was able to make some conclusions that I discovered from my research on this building type. I saw that there were three basic floor plan types. I also found that few buildings were made in any regular form as far as over all plan or facade. One major problem was the meshing together of huge spaces with high ceilings and intimate spaces with low ceilings. Dividing up spaces as far as noise levels is important too. One of the most critical of all parts of a school though is how students move between spaces. My knowledge of how to put a school building together was greatly increased by this research. I decided to use the simple plan around an open court and the circulation system as a basis for my project.
To finish thesis 404 a concept for the project was to be developed. This involved defining my philosophy for the design and the basis on which to start the design. My philosophy was that a high school is a place where young people learn all about life academically and socially. Much more goes on in a high school than just classes. I wanted to provide for the social needs of the students which is rarely done. Also deciding that circulation was about the most important element in a high school I chose that to organize my spaces. All of this input together with the decisions made in the site analysis further narrowed the direction of my design. Other major concerns were handicapped students and natural lighting for obvious reasons.

Early decisions on the concept were then made. These involved the organization of activities, where to place the building on the site, and the shape of the circulation system. These decisions can be seen on the following pages. The hardest part was to get an actual fix on the size of the building and its spaces when put together.

The juggling of spaces around the grid circulation system was very difficult at first. Knowing that north light would be best for the classrooms and that not all classrooms could be on the north side I angled them 45° to the north-east and northwest off the corridors. Then I added rooms around the exterior that needed light and filled in between until I came up with the configuration that I show as the final product of this phase of my thesis process. This basic outline of spaces was studied with sections and a perspective to show the essence of the building I was working toward. Thus I was ready to start the next phase of the project.
The goal of the second phase of the thesis process was to take the concepts and information gathered in the first phase and make them into a building. This meant developing all three dimensions of the major problem with a high school though is that the plan is so large and the elevation is so small that the two are hard to develop to gather. Being a student that designs mainly from plan anyway I had a difficult time making my elevations work. I first devised a saw tooth roof plain to cover the major portion of the building which would be faced north to allow natural light through the roof all the time. I was very against a flat roof but found it hard to have any consistent economic roof that was not flat.

In a short sketch problem I came up with a facade element for my classrooms which I liked and from there I worked on the rest of the building.

The floor plan was rearranged and advanced from the basic outline I had at the end of the 404 phase. I needed to draw the building as close together as possible, put it on a structural grid and make a more efficient circulation system. The large central space had too much emphasis put on it and the entries were too weak to handle the large flow of traffic in and out of the building. The solutions to these problems can be seen on the first floor plan in this section. Some of the major elements of the building were pulled closer together the circulation grid revised, entrances changed and the majority of the building put on a forty foot structural grid. A central circulation core was also added to pull the building together.

The facade and site was also worked on at this point. The idea of making the roof plains stack up gradually with the highest in the back at center was devised here. Sloped roofs were used to create a playful effect with the roofs. The largest problem with the site was the parking and getting cars in and out. It was decided to use one street rather than both as in the concept so the site would not be so
divided up by traffic flow.

At this point the building still had a traffic flow problem which was mainly due to the entries again. Too much emphasis was put on the one corridor leading from the entry at the parking lot to the central space. Also the facade was too haphazard and underdeveloped. The parking lot also needed to be broken up.

The last fine tuning of the building is illustrated by the quick sketch of the entire building showing the roof rearranged and provisions for entries at both sides of the gym into the central space. These changes seem to solve all the problems that were present in the building before and pull it together as more of a total unit. The roof lines were changed to be more consistent and the site plan was changed to add greater utilization of the space provided.

At the end of the second phase of the thesis process the building was to be developed as far as possible in an over all sense. Dealing with such a large project with no repetition in any area of the building meant that the design was not able to be developed to a very fine and precise level. Many elements such as roofs and windows were only taken to the beginning stages of their design. The essence of many of the spaces were not fully worked out either. The biggest question in the minds of the critics at the final jury in this phase was what the area beside the gym was really like and was it too large or too small. This was the area that I chose to further my design effort toward in the final phase of the thesis process.
THESIS 406

PHASE 3

EAST RICHMOND HIGH SCHOOL - A THESIS
Studying an area of my project in detail was the assignment for the detailed design development phase of the thesis process. Taking out the one area shown on the plan, I built a model of this area at a scale twice the size of my floor plans. This study helped me to figure out the exact roof structure, know what the space would be like, and assure myself that the space would be successful.
This book is an accumulation of all the work I have done on this thesis project. From deciding upon a project through the nine months of work done on it, there has been a lot of knowledge gained on my part. The experience of handling a large project like this one showed me the scope of work that is involved as well as how to get a handle on a project of this scale.

The discussion of whether I satisfied the goals I wanted to in the building could be debated back and forth forever. I feel that the final outcome of the project was successful and I am sure there is someone that would disagree. The real success of the project is that I learned more than I knew before about architecture and that is what the college's purpose is, to teach people about architecture. I do wish I could have been able to get farther with the design and explored the three-dimensional structure more. With the time given and my means of work, though I was not able to delve into the project an farther. I am now finished with the project and I have a good feeling about it. However, my true feelings about it cannot come out until sometime after I have actually completed the entire work.
In this hypothetical project a second public high school for Richmond, Indiana is proposed. This facility would be a complete complex with all the educational, public and auxiliary needs of a high school incorporated in it. There would be no need for use of the existing high school by city residents in the new school district. Located on the extreme east and central part of the state of Indiana, Richmond is the county seat of Wayne County a largely agricultural area. The site chosen for the project is a 67 acre wooded area on the southeast side of the city boarded on the north by Hodgins Road, the south by Wernie Road, the east by Henly Road and the west by 23rd Street.

The site is presently owned by the Richmond School Corporation and has been considered as a real site for a new high school. It is surrounded by a new residential area on one and cultivated fields on the other.

In the last twenty years the state of Indiana has seen a large percentage of its school systems build new high school facilities. This has come about because of the concern for a higher quality of education through out the state. Many small schools were forced to consolidate and large ones divide. Most cities around Richmond that are comparable in size such as Kokomo, Muncie, Anderson, Connersville, New Castle, and Marion all have done extensive building of new high school facilities in the past twenty years. Richmond itself though has not done any construction at the high school level since 1972 when they built a pool and the last renovation or addition of the existing facility was in 1964 which was a total of $640,000 worth of construction. Comparing high school facilities in Richmond with those of near by cities a need is seen to improve Richmond's facilities. New Castle, a city of 22,000 people has a basketball fieldhouse that will seat over 8,000 spectators while Richmond's largest basketball arena will seat 4,300 spectators. Muncie a city of 80,000 people with four high schools, and a large university has three high schools with auditoriums that will seat over 1,000 people besides the city's and uni-
versity's auditoriums; while the Richmond high school auditorium seats only 500 people with fewer such facilities in the city than Muncie. Also three of the Muncie high school buildings were built after 1960 while the Richmond high school building was built in the 1930's. In speaking with administrators within the Richmond high school system they agree that the classroom teaching facilities at the high school are in much need of updating. This is not to say that a new facility needs to be built for all of the high school students in Richmond but that if a second school was built the problems faced in the old building would be greatly relieved and more easily solved.

In 1972 the Richmond Community Schools' Board of Trustees formed a building Study Committee made up of 80 residences of the Richmond community. The Executive Committee of this larger committee wrote up a report with recommendations for the Richmond School Systems concerning building in the years from 1973 to 1984. In this report a section dealing with the senior high school stated that: "After studying the growth of the community and discussing the needs of the high school age children in the Richmond school system, and realizing that there has been much discussion about a second high school over the last few years, we recommend that the efforts of the Richmond Community Schools be directed toward the improvement of the present Senior High School rather than building a second high school in the next twelve years." Later in the same section of the report it was suggested that a large lecture hall, a modern media center, and expanded parking facilities be built. The Attitude of the School Board has not changed since that time, but as yet nothing has been done to the high school building. The decision to build another high school still could be made although it is unlikely. With a broader look at the city of Richmond the proposal of a new second school appears very feasible.

The 42,500 residence of Richmond, Indiana, which is who this proposed high school would serve,
make up a very solid, proud community. In recent years the city has totally renovated its downtown area with a successful mall, a library, municipal building, and county courthouse annex. There is a great pride in the city's heritage too, shown by the Old Richmond and Starr districts which are both in the National Register of Historic Places. The city is home for a well respected Quaker College, Earlham, founded in 1847, a Regional Campus of Indiana University, and the Earlham School of Religion. Together the three institutions have an enrollment of about 2,500 students. There is also a very real concern for culture in Richmond as it has the oldest Art Association in the State of Indiana, an active Civic Theater, an Orchestra, and Opera Company. There are nineteen city parks covering 1,000 acres and one of which has a very vital children's zoo. The city also operates two golf courses, ten tennis courts, six ball diamonds, twenty-seven horseshoe courts, three basketball courts, an Olympic sized pool, and a 177 acre reservoir.

Information gathered in the 1978 Community Audit shows that the population of Richmond is 91 percent white, and 8 percent black. The median family income is $9,280, compared to $9,590 for the U.S.

The major employers in the city which employ over 1000 workers are Belden Corporation, an electric wire cable manufacturer; Dana Corporation, an automotive parts manufacturer; and Wayne Transportation a maker of school bus bodies. Other large employers range from a record company, to a kitchen cabinet manufacturer, to an aluminum bottle manufacturer, and to a parts manufacturer for induction heating equipment all of which employ 600 or more people. By category the work force is broken down like this:

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>45% Manufacturing</td>
<td></td>
</tr>
<tr>
<td>22% Retail Trade</td>
<td></td>
</tr>
<tr>
<td>4% Wholesale Trade</td>
<td></td>
</tr>
<tr>
<td>4% Construction</td>
<td></td>
</tr>
<tr>
<td>16% Services</td>
<td></td>
</tr>
<tr>
<td>5% Finance, Insur. &amp; R.Est.</td>
<td></td>
</tr>
<tr>
<td>4% Misc.</td>
<td></td>
</tr>
</tbody>
</table>

College graduates make up 11.7 percent of the population, exactly one percent higher than the U.S. average.

The population has been some what varied in the past twenty years:
39,539 1950 census
44,149 1960 census
43,099 1970 census
42,500 1976 estimate

Although the past few years have seen about a five percent decline in population for the city the projected population for the next twenty years shows a slight increase.

The Richmond Community School System itself has a population of 9,941.

<table>
<thead>
<tr>
<th>GR.</th>
<th>ENROLL.</th>
<th>NO./SCHOOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-6</td>
<td>5,067</td>
<td>15</td>
</tr>
<tr>
<td>7-9</td>
<td>2,535</td>
<td>5</td>
</tr>
<tr>
<td>10-12</td>
<td>2,062</td>
<td>1</td>
</tr>
<tr>
<td>Spec.</td>
<td>277</td>
<td>1</td>
</tr>
</tbody>
</table>

There are also two parochial schools, both Catholic, in three different locations offering education from kindergarten to eighth grade. Their total enrollment is 360 students. The local vocational school has an enrollment of 150 students in six occupational courses.

In the senior class 53% enroll in universities with an average of 875 National SAT/ACT combined scores which compares with 899 as the national average on these tests. Financially the school system is doing very well with a yearly operating budget of $10,793,535.00, no bonded long term debt and almost $5 million in the building fund. The corporation builds all of its schools on a cash basis with a .75¢ cumulative tax levy for future building. The total school tax levy is $3.93 and the school corporation has not been in debt for many years.

The whole community takes pride in the high school and the many activities that the students participate in. Sports are very big with football probably being the most popular since Richmond is so close to Ohio, basketball is a very close second of course because of the Hoosier emphasis put on the sport. Almost every season Richmond has its football and basketball teams ranked in the top twenty of the state. In music the marching band usually finishes in the top ten at the Indiana State Fair marching contest, considered to be the most prominent contest in the state. A great tradition of many years and a strong pride follows the Richmond Red Devils where ever they go and in whatever endeavor they pursue.

Some of the administrators in the Richmond Community School System feel that the high school
building should house the ninth through twelfth grades instead of just the tenth through twelfth because of the way academics, sports, a good size high school class. The and other factors are set up state-wide. For instance in athletics freshmen can play varsity sports but in order to do so at Richmond he has to go to a different school to practice. If a second high school was added then both of the schools could house grades nine through twelve and one of the four old junior high buildings could be let go for other uses. The present high school building has a capacity of 2,500 students with about 2,000 enrolled now. If a second high school was built to divide enrollment in half and add the ninth grade to both, the enrollment of each would be about 1,300 in each. This would make each class average about 325 students which is still new school building should have a capacity of about 1,500 students.

As stated before, the new high school would be completely independent of the present high school facilities. This means all types of academic requirements such as art, business, industrial arts, music, home economics, lecture rooms, foreign language, physical education, science, dramatics, special education, and library must be included. All teacher and administrator needs must be meet such as offices, storage, and lounges. Student auxiliary needs must be served such as food service, dining area, lounges, nurses' station, restrooms, and storage space. Also all the sports and community spaces must be incorporated such as football, baseball, basketball, wrestling, tennis, soccer, track, swimming, volleyball, gymnastics and an auditorium must be considered. Parking to support all the needs of the school is also important. The large variety of uses in a high school complex must be incorporated for the most effective and efficient use possible. The important fact that the structure built will have a huge effect on the attitudes that the students, teachers, staff, and community have toward the educational system and life itself is something that must be constantly thought of while designing a high school.
In order to get an idea of the exact size of a high school with a capacity of around 1,500 students, the square footage requirements for the different areas in a high school of this size are listed below. These figures come from the book *Complete Guide for Planning New Schools* by Nicholas L. Engelhardt published in 1970. The major spaces are listed, and a further breakdown can be gotten from the book itself on pages 116 to 122.

<table>
<thead>
<tr>
<th>Space</th>
<th>Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Center Library</td>
<td>25,770</td>
</tr>
<tr>
<td>Teachers' Work Center</td>
<td></td>
</tr>
<tr>
<td>Lecture Room Audiovisual</td>
<td></td>
</tr>
<tr>
<td>Academic Units</td>
<td>34,760</td>
</tr>
<tr>
<td>Science Center</td>
<td>14,450</td>
</tr>
<tr>
<td>Business Education</td>
<td>5,350</td>
</tr>
<tr>
<td>Arts Center Auditorium</td>
<td>35,150</td>
</tr>
<tr>
<td>Music Art</td>
<td></td>
</tr>
<tr>
<td>Home Economics Industrial Arts</td>
<td></td>
</tr>
<tr>
<td>Driver Education</td>
<td>1,400</td>
</tr>
<tr>
<td>Special Education</td>
<td>1,000</td>
</tr>
<tr>
<td>Physical Education</td>
<td>47,955</td>
</tr>
<tr>
<td>Dining Hall</td>
<td>11,405</td>
</tr>
<tr>
<td>Central Administration and Health Suite</td>
<td>3,025</td>
</tr>
<tr>
<td>Total Net Area</td>
<td>180,265</td>
</tr>
<tr>
<td>Estimated Gross Area</td>
<td>277,300</td>
</tr>
</tbody>
</table>

The type of educational system desired and the system for running the high school must also be decided before the design process is too far along. With all the different theories on education in today's society there is a need for a set direction to follow so as not to hinder the educational system used in a high school. A more open concept would aid a liberal innovative philosophy of education while a very symmetrical, linear concept would facilitate a more conservative philosophy. Also there is the periods verses module systems of running a school that must be decided upon. It is very important that definite decisions on the type of educational philosophies be made in order to design the best facility possible.

Planning for the future is a requirement for any type of design work, but for a high school the importance of this is magnified because of the many years that most high school buildings are used. Energy, economics, as well as student population in the years to
come are very pertinent in our fast changing society. Dealing with the environment in the proper way can save money and more important energy which will both become bigger problems for people to deal with in the years to come. By using the most innovative ideas in designing a building the longer that building will stay useful.

In general the codes for a high school building are not too strict. Since schools are usually in a large open area that at first is not heavily populated a typical school is in a number three fire zone. A school can be any construction type that correlates with the height and area needed. The nearness to other structures will determine the need for specific types of construction. On the site a school must have a direct access route to the street that is at least twenty feet wide with no obstructions and one of the building's exits opening onto it. The location of exits must be that so all spaces have two ways in which to leave the building, this must be remembered especially when doing an open plan school.

The major code concerns for a school are for sanitation, light, and ventilation. There are ratios of people to facilities needed. From the Plan Review Manual of the International Conference of Building Officials are the following minimum ratios for secondary schools:

<table>
<thead>
<tr>
<th>MALE</th>
<th>FEMALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Closets</td>
<td>Water Closets</td>
</tr>
<tr>
<td>1:100</td>
<td>1:45</td>
</tr>
</tbody>
</table>

Urinals 1:30
Lavatories 1:2 W.C.
Lavatories 1:2 W.C. & Ur.

At least one drinking fountain on a floor is required. The areas that surround sanitation facilities must also be finished with a durable surface that will not harbor germs. Light and ventilation can be supplied by mechanical or natural means. If a natural system is used then the floor area to window or skylight area ratio must be eight to one and one half of the windows or skylights must be capable of being opened.

If a mechanical system is used then the light needed will depend on the use of the space and the ventilation system must be able to supply fifteen cubic feet of air per minute.
The physical facility called a school building has gone through many changes just in the past century. Having a history of a few thousand years, the complete story of the development of the school building could fill many books. In relevance to the situation at hand though the time that has elapsed in just the present century will do.

Starting in 1900 the American school building was a strict institutional type structure dressed in the classical revival style of architecture. The plan was very formalized, wide halls with symmetrical rooms on both sides. Very little thought was given to the humanistic aspect of the student, teacher, or staff. A school was considered a
Most have a variation of this floor plan...

place to learn and not to have a good time. This philosophy continued with very little change for over fifty years. Ceilings were lowered, details removed, and the furnishings were scaled more to the size of the students; but little else was done to change the actual school building until the 1960's.

As all of American society began to look at itself and question why everything was the way it was in the 1960's so too did school administrators and designers. Many new philosophies about school buildings; the way they work and how they are managed were formed in the 1960's which has lead to a large variety of building designs. Both interior and exterior changes...

1950-60 box with glass block
have taken place that mark a very distinct difference between the school buildings of today and those of twenty years ago. A feeling of humanistic awareness can be seen in today's schools and a desire to make all the facilities pleasant in order that students enjoy their educational training better.

Roughly the high school buildings of today can be put into three broad categories as to their plan. The range of exterior facades and interior facilities is too broad to try and breakdown. The ideas of fitting the site, attitudes of the city around it, and economics all play a large part in how a school will look in the end, but the plans of schools are somewhat similar. These categories are the compact plan, the campus plan, and the simple plan around an open court. There are of course exceptions to all three categories too. Examples of each shown on the following pages.
Putting as much space as possible in as little room as possible is the ideal of the compact plan. For use on a small site in an urban area for instance is where the advantages of this type of plan are seen. All the areas of the school are put as close together as possible in a very efficient way which usually means in a rectilinear form. This plan is good for a small student body and helps in the control of the students as well as the environmental control systems.

Compact Plan

EAST RICHMOND HIGH SCHOOL – A THESIS
ESTANCIA HIGH SCHOOL
NEWPORT BEACH, CALIFORNIA
WILLIAM E. BLUROCK AND ASSOC.
ARCHITECT

Completed in 1965 this school building features a covered "great court" around which all the departments are grouped.

SITE PLAN

EAST RICHMOND HIGH SCHOOL - A THESIS
FIRST FLOOR

JOHN F. KENNEDY SENIOR HIGH SCHOOL
SILVER SPRING, MARYLAND
JOHANNES AND MURRAY & ASSOC.
ARCHITECTS

This school for 1,200 students shows a tight organization that seems to work well together. It was first occupied in 1964.
Separating the different areas of a school into different buildings is the concept of the campus plan. Usually this plan is put on a large spacious site and is for a large student body. The benefits of this plan are that noise levels are easily controlled and that light and ventilation can easily reach all spaces. Circulation paths are critical between the buildings in a campus plan and protection from the elements is also needed.
MISSION SAN JOSE HIGH SCHOOL
MISSION SAN JOSE, CALIFORNIA
FALK AND BOOTH, ARCHITECTS

In order to fit in with the Spanish architecture of the area, the high school finished in 1964 is made up of small low roofed buildings. All departments are broken down to fit into these structures with covered walks between.

EAST RICHMOND HIGH SCHOOL - A THESIS
WEST HIGH SCHOOL
KERN COUNTY, CALIFORNIA
WHITNEY BIGGAR, ARCHITECT

This unique structure was completed in 1965. The hexagonal shapes of the structure create many useful and unusual spaces. Located in an arid climate the breezes can more easily penetrate the facility.
A simple plan around an open court is a cross between the two former plans discussed. It can be for a large or small student body, light and ventilation can easily reach the rooms, and noise control can be successfully handled. Circulation is usually the biggest problem in such a plan because of getting around the open court. Often these courts become dead space even though it is the very center of the school building, too.

Simple Plan Around Open Court

EAST RICHMOND HIGH SCHOOL - A THESIS
CHARLES W. WOODWARD HIGH SCHOOL
ROCKVILLE, MARYLAND

JOHANNES AND MURRAY, ARCHITECTS

The open court in this school building allows for light and ventilation to more easily enter all the spaces in the building. Finished in 1966 the school is a very formal plan for 1,200 students.
MC PHERSON HIGH SCHOOL
MC PHERSON, KANSAS
BOSWELL AND PLAINVIEW, ARCHITECTS

This is an example of an exception to all three categories discussed before. The plan here is very efficient. The noisy and quiet areas are divided into two sections which become two intersecting shapes. With the use of hexagons team teaching clusters can be formed and about half the usual amount of space is used for hallways.

EAST RICHMOND HIGH SCHOOL - A THESIS
BIBLIOGRAPHY


Guide for Planning Educational Facilities, Council of Educational Facility Planners, Columbus, Ohio, 1969.


Schools of Prestressed Concrete, The Prestressed Concrete Institute, Chicago, 1968.


These Are Your Schools, Montgomery County Public Schools Maryland, Lester J. Welch Director, 1968.