

**A STUDY OF THE
ARCHITECTURE AND CURRICULUM
OF
VIRGINIA HIGH SCHOOLS**

by

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(ABSTRACT)

The purpose of this study was to document pictorially the exterior architectural style and the interior configurations of Virginia high schools, and to relate these designs to major curricular trends. This study, using historical research methods, will preserve Virginia's secondary educational institutions for future resource. A history of the high school in Virginia was developed as a background for the study of school architecture.

The methodology used in this study produced a selection of high school buildings which best represented an architectural period, beginning with the oldest high school building still in use to the most recently constructed schools. All 284 public high schools were surveyed to obtain data on the date of construction, condition of the structure, presence or absence of additions, and other pertinent data concerning the building. From this population, seventeen schools were chosen to represent school buildings in each of the decades covered. Selection of the schools was based on the following criteria:

- 1) Date of original construction;
- 2) Completeness of original structure (The pristine element of an existing building is dependent upon the absence of major renovations, changes, or additions to the structure which would drastically alter the architectural style.);

- 3) Overall rating by the building principal (condition, design, and functional ability to serve students, staff, and community);
- 4) Noteworthy architectural or unique educational features; and
- 5) Subjective comparison, (examining floor plans and photographs).

Each of the buildings in the sample was visited to obtain data relating to curricular emphasis in the design. Each architectural period was researched for significant educational and curricular trends that may have influenced high school design.

The outcome of this study was a document containing a written and pictorial history of the architectural and curricular features of Virginia high schools.

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DEDICATION

This study is dedicated to:

My loving wife and best friend, **Susan**,
who put my dreams before her own.
She has taught me the true meaning of love and family;
without her, my life would have no meaning, nor joy,
she makes it all worthwhile.

To my mother, **Kathie**,
who taught me my first lessons, including the most important:
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she instilled in me my work ethic and inspires me to do the best in all that I attempt,
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he has been my life-long coach, teacher, but most importantly, my dad.
His commitment to his students, education, the college and Virginia Tech is great,
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I hope they realize how much I admire their abilities and accomplishments.

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A STUDY OF THE ARCHITECTURE AND CURRICULUM OF VIRGINIA HIGH SCHOOLS

Introduction

The Commonwealth of Virginia is rich with a history of architecture. Individuals and groups from around the world flock to Virginia to study and experience the many different types of examples that abound. Included are: the log cabins of southwest Virginia, the classical Greek and Roman style buildings of nearby Washington D.C., the architecture of colonial Williamsburg, the antebellum designs of Richmond, and of course, the modern and contemporary structures of steel and glass that spring up around our cities and towns.

Since 1619, school buildings in Virginia have been designed and constructed to reflect specific and combined architectural styles. Many influences have played a part in the conception and architectural design of the Virginia high school. Society believes that buildings are a representation of our ideals on how we live. Federal and state structures throughout the United States are styled in Roman and Greek revival to express our imagery of government, permanence, justice, and history. We, as citizens, believe that our prominent buildings must reflect these ideals through domes, columns, and white marble. Banks and post offices are another example; although both are evolving architecturally, they tend to be massive and adorned with columns, pediments, balustrades, Palladian windows, and other classical architectural trappings. These designs have convinced most people that these establishments are permanent, solid, and dependable.

What images do Virginia high schools present to students, parents, and the teachers who work there? Elliot Eisner of Stanford University states:

School architecture has come a long way since the days when many urban... secondary schools were built during the 1910s and 1920s. The best of contemporary school architecture is as congenial to the senses as almost anything else that has been built. However, most school buildings, particularly those in cities, are characterized by long vacant halls with nests of well-insulated rooms opening onto them. The rooms are usually identical: strong rectangular boxes, drab in color and not given to amenities. The rooms speak of functionality but do not address themselves to the aesthetic needs of either students or teachers. They are not places in which one would choose to spend a lot of time. What do such places say to students? What values do they convey? How do they affect the student's image of the school itself and the experience of schooling? These questions, too, are appropriate ones for educational criticism (Eisner, 1979, p. 223).

The local high school represents a focal point of the community and serves many functions besides the educational. Most Virginia high schools serve as a hub of the community for social, political, recreational, and entertainment functions. In the mind of many citizens, the high school represents everything important in life. The Commonwealth of Virginia has a noble heritage in the buildings that serve as high schools. It seems as though these buildings that mean so much to respective communities should be recorded and documented.

Research Questions

Educational historians have identified definite periods of curriculum development concomitant with the history of public schools. The questions posed concerning the influence of the curriculum on the architecture of the Virginia high school building are: "Have the curricular emphases been reflected in the type of structure that was constructed to fit the educational needs of that period of time?"; and "Has the architectural design of the high school limited the implementation of educational programs, or have the educational programs limited the architectural design of the building?"

Purpose of the Study

The purpose of this study was to develop a pictorial document of the history of Virginia high school architecture. The focus of the study was on the exterior architectural style and interior configurations of Virginia high schools and the relationship of these styles to major curricular trends. The development of the building that houses this educational institution has been documented and recorded through the use of historical research methods. Historical research of this nature requires the use of both primary and secondary sources of data. Primary sources were photographs, original architectural plans, footprint maps, and archived demographic information. Secondary sources were obtained through the collected data from high school principals, reports from the Virginia Department of Education, self-studies, interviews, and school handbooks.

Significance

The product of this study is a document containing a pictorial and textual history of the development of Virginia high school buildings since 1911. Complete information about the construction date, additions, major renovations, building enrollment, building capacity, and building-rating has not been compiled before on this level or to this magnitude. The Facilities Division of the Virginia State Department of Education is in need of these data long-range planning for school facilities for the twenty-first century. This study will serve as a record of the architecture of twentieth century Virginia high schools. It also will be a resource for future research as school buildings are eventually abandoned, demolished, or renovated beyond recognition. This heritage should be

preserved for future educators and educational facility planners as they may learn from the evolution of school building design and avoid some of the errors made in the past.

Definitions

For purposes of this study, the following definitions apply.

1. **Construction date** refers to the date a school was originally constructed. As a rule this is the date the school opened its doors for students.
2. **Schoolhouse** refers to any school building. Before the Mann Act of 1906, high schools were generally classes of students studying the "higher branches" within an elementary, primary, or grammar school (Buck, 1952, p. 130).
3. **Additions** are major additions to an original building or the construction of satellite buildings connected to or separate from the original school building.
4. **Building rating** is the assessment of the high school building by the principal using one of the five descriptors: excellent, good, adequate, lacking, or unfit. Each principal was asked to rate the high school building after considering the building's design, age, condition, and its ability to serve the students, staff, and community.
5. **Facility capacity** is as the maximum number of students a school building can accommodate considering the educational program housed within. It was

determined by the high school principal according to his/her expertise with student enrollment, building design, and the curriculum.

6. **Noteworthy architectural or educational features:**

- a) Noteworthy architectural features were any design features found on the exterior or within the high school structure that would be considered extraordinary as compared to other high school buildings.
- b) Noteworthy educational features may be any defined educational program, lab, shop, or classroom considered unique to a high school. Principals were given a great deal of latitude with their definition of "noteworthy architectural or educational features."

7. **Educational program and curriculum** are interchangeable terms for the same construct.

8. **Existing high school** is a school building mentioned, depicted, or studied that currently houses a public high school program.

Delimitations

1. The restriction of this study to existing public Virginia school buildings that currently house high school programs is based on the fact that many former high school buildings currently house other programs. Generally, most school systems have built a new structure for the high school program, while the old structure is converted into a junior high school, intermediate school, or middle school. Later, these buildings

may be "handed-down" as elementary schools, central office facilities, storage facility, or sold to be used in some other capacity. There are several examples of older, former high school buildings still in use as feeder schools, recreation facilities, fine arts centers, and even apartment buildings. Many were simply abandoned with resultant wasteful deterioration. None of these structures will be included in the study, as there are too many incidents of school consolidation, expansion, and renovation of former high school buildings to cite.

2. In 1994-95, there were 284 public schools that housed high school (9-12) programs. Various titles followed the name of the school, these included:

High School,
High & Middle School,
Middle & High School,
Combined School, and
Secondary School

The variation of grade levels housed in these school buildings included: 9-12, 10-12, 8-12, 7-12, 6-12, K-12, and 9-11. However, the Virginia Department of Education defines the Virginia Public High School as grades 9, 10, 11, and 12. Regardless of the label, only high schools with grades 9-12 were included in this study. Private and parochial high schools were not considered for this study.

Limitations

1. The survey instrument required high school principals to assess their buildings. Any questionnaire requiring self-survey has a limitation on objectivity of data.
2. Many older existing Virginia high schools have undergone major renovations, retrofitting programs, cosmetic changes, and the erection of new additions. The older the high school building, the less likely the possibility for a "pristine" example of the time period.
3. High school principals do not always know the exact date of original construction, additions, and major renovations. Many administrators do not stay in one building long enough to become familiar with the building's history.

Organization of the Study

This study has four chapters.

Chapter I contains the introduction, the research questions, the purpose of the study, the methodology, the significance, the definitions, the delimitations and limitations, and the organization of the study.

Chapter II contains a history of the high school in Virginia. This is a brief historical description of architectural and curricular trends in the evolution of the public high school in Virginia. Throughout this chapter, the reader will find quotes from early manuscripts, reports, and other original documents and letters. The style and use of grammar, spelling, and punctuation have been presented as they appeared in the original

document. These actual quotes may provide the reader with a legitimate representation of the period. While no written account of history is ever complete, the chapter does document the evolution of the high school and its relation to secondary curriculum and architecture.

Chapter III contains the study's methodology and a pictorial history of Virginia's high school architectural evolution. The search for appropriate examples best representing architectural design involved surveying each of Virginia's 284 public high school principals.

Chapter IV contains the results of the survey which provided the data for the criteria used to select the representative sample. The criteria for building selection were as follows:

- 1) Date of original construction;
- 2) Completeness of original structure (additions or major renovations);
- 3) Rating of the principal (condition, design, and functional ability of building);
- 4) Noteworthy architectural or unique educational features; and
- 5) Subjective comparison.

The schools selected are featured by photograph, school floor-plan, and individual vignette. Each vignette is a description of the initial architectural concept of the building, its educational history, and updating of its current status in reference to the educational program, or curriculum to the existing design configuration.

CHAPTER TWO

HISTORY OF HIGH SCHOOLS IN VIRGINIA

For years, little attention has been given to the buildings of education. Education has been envisioned primarily as people--teachers and students. The school buildings that housed these people were incidental to the learning process. "Wherever a teacher could conveniently hold a discussion with a small group of students, that was where the *school was*" (Castaldi, 1994, p. 2). In the Commonwealth of Virginia, a state rich with history and heritage, little is formally recorded concerning the architecture of its high school buildings. This chapter is a historical record of Virginia's high school buildings. Emphasis is on the architectural designs and the conditions that influenced those designs.

Basil Castaldi (1994) prefaced his historical perspective on educational facilities with:

Space for learning has undergone dramatic changes over the past two thousand years. In the beginning there were no educational facilities at all. There were no classrooms, and there were no desks and chairs. Plato and Aristotle met with students to exchange and discuss ideas in the open air at any convenient location, perhaps in the shade of a temple or a wall. Since then, educational facilities have become effective laboratories of learning, where teachers and students benefit from the latest advances in educational technology and instructional methodology. The once rudimentary space for learning is now a complex enclosure that controls the environment and supports the learning process (p. 5).

Schools were not considered architectural entities until the end of the nineteenth-century. Until quite recently, little or no attempt was made to design school facilities for specific educational functions. It is interesting to compare the lack of development of our educational facilities over the centuries to the corresponding changes in educational practices. "In fact, school buildings did not attract the serious attention of architects until

mass (public) education was established in many countries about a century ago" (Castaldi, 1994, p. 5).

From 1609, when the first party landed on Virginia soil at Jamestown, until 1619 there were no children in Virginia; therefore, no need for schools (Heatwole, 1916). In this respect, the colony of Virginia differed from the new England settlements where entire families came from England to make permanent homes in the new world. The earliest educational interest among Virginians concerned itself with orphan children who were sent from the hospitals and asylums of England. The Poor Laws and Apprenticeship Laws of England made attempts to care for these children. Many English colonies throughout the world, including Virginia, received their quota of orphans. In 1619, one hundred children were sent to the Virginia colony from London. With them came five hundred pounds for their apprenticeship among the colonists with the stipulation that they be taught "some good trade" by their masters. It is assumed that this must have been a successful and satisfying endeavor as the colony requested more children in 1620 (Heatwole, 1916).

In 1619 or 1620, while the London Company still had control of the colony, the first attempt to establish a Free School in Virginia was promoted by an anonymous individual who gave a sum of nearly \$14,000 in gold with the direction that the money be used for the instructing of a "convenient number of Indian youth in the art of reading and in the principles of the Christian religion" (Heatwole, 1916, p. 41). The London Company instead invested the entire sum of money to the erection of an iron works; the profits went to pay for the education of thirty Indian children. The great Indian massacre of 1622 brought an untimely end to the "laudable scheme of education for the Indian youth and the ironworks" (Heatwole, 1916, p. 42). In 1622, a second attempt was made to establish a free school, known as the "East India School", it was intended for the white

children of the colony. The plan had its origin from the passengers of the *Royal James*, a ship returning from the Indies. Steps were taken to build a house in Charles City on 100 acres of land. This effort met the same fate as the Indian Free School; it was brought to a premature end by the previously-mentioned Indian massacre of 1622. No information exists concerning the buildings used by either school.

The Symms-Eaton Academy, which later became a part of the Virginia public school system, had its beginnings from two early free schools. The Symms Free School was established in 1634 as a result of a "bequeathment by Benjamin Symms of two hundred acres of land, the proceeds from the sale of milk, and the increase of eight cows" (Wilson, 1988, p. 21). This school was located in Elizabeth City County to afford free education to the children living within the bounds of the county. In 1647, the school was working on a firm foundation with a completed house for the purpose of educating children (Heatwole, 1916). The Eaton Free School was established when:

Dr. Thomas Eaton gave for the establishment of a free school five hundred acres of land stocked with two negroes, twelve cows, two bulls, and twenty hogs. The estate must have been under a high degree of cultivation, and therefore of considerable value, for the bequest included a lot of furniture. This school was located somewhere in Elizabeth City County and was designed to give training to the children residing within its bounds" (Heatwole, 1916, p. 45).

In 1902, part of the original endowment was used to erect Symms-Eaton Academy, which became part of the Virginia public school system. The Symms and Eaton Free Schools were permanent institutions and served as models for other sections of the Virginia colony, they were: the Free School of Northumberland County, 1652; the Free School of Isle of Wight, 1655; the Lower Norfolk Free School, 1666; the Gloucester County Free School, 1675; the Lancaster County Free School, 1675; and the Middlesex Free School, 1685 (Heatwole, 1916, p. 46).

There are large tracts of land, houses, and many other things granted to free schools for the education of children in many parts of (Virginia), and some of these are so large that of themselves they are a handsome maintenance to a master; but the additional allowance which gentlemen give with their sons render

them a comfortable subsistence. These schools have been founded by the legacies of well-inclined gentlemen, and the management of them hath commonly been left to the direction of the country court, or the vestry of their respective parishes (Heatwole, 1916, p. 47).

During the colonial period, Virginia's eastern plantation society was aristocratic. "Education at public expense was viewed as intended for paupers" (Buck, 1952, p. 24). Thus efforts to establish schools during this period were minimal, private, and elitist. "Plantation Schools" were established by planters on the premises of one of the well-to-do land-owners. Also known as the "Tutorial System", this system of schooling was quite effective in England. The families of upper classes in the mother country employed tutors for their children. Often the tutors were among the class known as indentured servants. These tutors were males who taught the girls of the families as well as the boys. Later, after the beginning of the eighteenth century, many planters began to employ ladies as tutors. This was the beginning of the custom of hiring "governesses" in families, and the nearest approach in Virginia to the Dame Schools of New England (Buck, 1952, p. 24). Plantations with many children would always have a schoolhouse on site. Most often, an unused building or guest-house was used to house the school and the tutor, who generally lived in the rear room. Blair Buck noted that the close of the colonial chapter in Virginia history in 1776 found opportunities for free education still confined to the poor and that ideas about public education were colored by the feeling that attendance at a free school was "fraught with social stigma" (Wilson, 1988, p. 28). Most school buildings were provided by private sources--donations of funds or donations of facilities.

Community schools, more commonly referred to as "Old Field Schools", were perhaps the places where the greatest proportion of children received an education during the latter portion of the seventeenth century and the whole of the eighteenth century.

These school buildings were constructed by members of the community in an abandoned "old field" or a lone spot convenient to every boy and girl in the vicinity. During the hours school was not in session it remained locked and vacant. The parents of the community cooperated in the raising of funds to employ a teacher at a stipulated sum or fee for each pupil. Ellwood P. Cubberley (1934) described the "Old Field" school as:

. . . a rude building erected in some unused cleared field, or an outstanding [building] on a plantation . . . termed "old field school" from their location (p. 359).

Professor Edward S. Joynes described an "Old Field" school in Accomac County in 1847:

The Building. "But at intervals, as I have said, I went to what was often called at time, the 'old field' school. This name was doubtless due to the fact that the neighborhood school house was usually built on some piece of land which, left out as an 'old field', now exhausted and usually growing up in small trees, was of little pecuniary value, and at the same time furnished a grateful shade. In this case, however, the school house stood in a grove of fine oaks, near the roadside, and only a quarter of a mile from the county town, or court house; hence it was a better structure and style than was usual in the country. It was built of boards not logs. It had a great open fire place, for wood of course. There were benches, with backs and without backs. Around the wall were sloping and planed plank boards, which served as a desk on which we wrote; but no one had the privilege of occupying permanently a seat at the desk. The teacher sat in a big armed chair. The classes, as they recited; and here too, was the awful spot at which 'discipline' was administered." (Heatwole, 1916, p. 110).

The Apprenticeship Laws of 1643 were established "regarding the care of orphans" (Heatwole, 1916, p. 32). These laws provided that these children be brought up in the "Christian religion and in the rudiments of learning and to provide for their necessities according to the competent of their estate" (Heatwole, 1916, p. 32). The Apprenticeship Law of 1646 contained a description of the school building required and is the first account of a Workhouse School in America: ". . . there (shall) be two houses built by the first of April next, forty feet long apeace, eight foot high in the pitche, and a

stack of brick chimney standing in the midst of each house, and that they be lofted with swane boards and made with convenient partitions" (Heatwole, 1916, p. 30). It is not certain that this industrial school at Jamestown was ever put into actual operation. There were other schools of this nature established in other Virginia counties during the middle of the seventeenth century.

In colonial times, the established church was responsible for public education of the orphan and poor. Many churches set up schools in conjunction with the teachings of the church. Latin grammar schools were the model and the parish minister, along with a tutor, embodied the colonial church's predisposition of the professional teacher. Wilson (1988) quotes from William Arthur Maddox, The Free School Idea in Virginia Before the Civil War: "[In 1724], in most parishes there are schools, little houses being built on purpose where are taught English and writing" (p. 25). Churches were considered to be the main conveyers of education before the founding of public schools (Wilson, 1988). The church was a convenient building centrally located to many families, designed for the purpose of lecture, with seats, ample lighting, protection from the elements, and built for the purpose of enlightenment. The Separation Act of 1802 separated the church from either a direct or indirect participation in state affairs. The Separation Act also provided for the confiscation by the state of land owned by the church know as "glebe" land. Because the church had controlled a greater portion of education in the colony, its property went quite naturally to the education of the poor.

The descriptions of school buildings of the seventeenth and eighteenth century, are sketchy at best. Castaldi (1994) describes the "Early American Period" of school architecture:

During the first part of the seventeenth century in America, shelter was the primary concern of the early settlers. There was little choice in construction materials, so builders used whatever materials were available. In the eastern part

of the country, stone was used for foundations and wood for the upper levels. In the west, masonry, stucco, and adobe were the major materials used for construction. Shape and form were of lesser concern to the builders of Early American structures.

Toward the end of the seventeenth century, there was some evidence of interest in architectural design. For the most part, Early American architecture followed whatever was in vogue in England at the time. The lack of trained architects, inexperience of the builders in working with classical forms, and the necessity of using wood and bricks instead of stone produced an architecture that was interesting but undistinguished.

American school buildings were so simple and so utilitarian in this period that they failed to attract the attention of architects. In all probability, the practical and resourceful citizen in the seventeenth century felt no need of architectural advice in planning a school anyway. To him, a school was a simple structure with a fireplace on one end, chalkboards on the west wall, and windows on the east wall. Since natural illumination was the only source of lighting, the visual environment was far from satisfactory on overcast days (p. 9).

Virginia's early schools did not provide a stimulating learning environment. They were frequently drab, crowded, poorly ventilated, and most likely equipped with a whipping post. Andrew Gulliford (1984) pointed out that "the interior arrangements and equipment [of early American schools] did not lead particularly to attentiveness or order in the classroom" (p. 159). Castaldi (1994) goes further to state that "seventeenth- and eighteenth century American schoolhouses had progressed very little beyond the ancient notion that they were simply shelters in which pupils and teachers might come together, include some furniture: benches and tables for the pupils and podium for the teacher" (p. 12).

In 1779, Thomas Jefferson submitted before the Virginia Legislature, the "Virginia Bill for the More General Diffusion of Knowledge" (Wilson, 1988, p. 29). This bill was considered the first American proposal for a modern state school system. In 1796, the General Assembly passed the act providing for a system of primary schools similar to the first section of Jefferson's plan, but it was amended in such a manner as to defeat the purpose of the bill. Jefferson felt if people were given a chance, they would

embrace education and demand that the state implement a system of public education. He may have been right, but the members of the state legislature were wealthy members of the counties, and, "as the expenses of the schools [were] to be defrayed by a contribution aggregate of other taxes which every one pays, they consider it as a plan to educate the poor at the expense of the rich" (Wilson, 1988, p. 30). No schools were established or built under this act.

The Literary Fund was established by act of February 2, 1810. "This act ordered all escheats, confiscations, fines, penalties and forfeitures, and all rights accruing to the state as derelict, shall be set aside for the encouragement of learning" (Heatwole, 1916, p. 104). At first none of the Literary Fund could be used for building schoolhouses or for equipment. In 1829, the General Assembly passed an act providing that ten percent of the allotment could be used for building schoolhouses, or if the local community should pay three-fifths of the school, \$100 of the Literary Fund could be used provided that the patrons should raise a like amount. In such cases, the school was required to be free to all. From 1829 to 1860, much of the Literary Fund was appropriated to institutions of higher learning, such as the University of Virginia, Virginia Military Institute, Hampton-Sidney, and the Medical College of Richmond (Heatwole, 1916). According to Heatwole:

In 1861 the income from The Literary Fund was appropriated to the defence of the state. Much of the fund was invested in Confederate bonds and other uncertain paper, which resulted in a loss of a great part of the fund. Between 1810 and 1871, \$440,837 was lost by bad investments (Heatwole, 1916, p. 108).

From the latter part of the eighteenth century until 1860 a number of private schools with names such as the "Latin Grammar School", "Classical Schools", and "Academies" (Heatwole, 1916, p. 124), operated in Virginia. These schools taught the classics, higher mathematics, and sciences. Elementary subjects were presented to the

younger students, because they were a necessary preparation for this secondary instruction. This early "secondary" school had its beginnings in New England and New York State. According to Heatwole (1916), "the graduates of Princeton and Yale colleges came down into Virginia and established these schools" (p. 124). These academies and classical schools represented the embryonic stages of secondary schools in Virginia.

In 1817, Charles Fenton Mercer proposed to the Virginia Legislature a bill providing for a Board of Public Instruction and a secondary system of academies. This bill passed the House, but failed in the Senate. According to Wilson (1988), "the academies had proved so well their efficiency that almost all proposed legislation regarding educational matters included this type of school" (p. 55). Hunt (1984) comments:

It has been written that had Mercer's plan been adopted by the General Assembly, Virginia "[would have] been far ahead of her sister States in education of all grades, primary schools, academies, colleges, and university". Why, then, had the plan gone down to defeat? Several reasons have been advanced, foremost among which are

1. the fear that financial support of the entire system would have led to taxation of property of the well-to-do, and
2. the inability of the state to finance such a system, with the accompanying feeling that, since the university was last in order of execution, it would not have been created.

Thomas Jefferson, for one, expressed the latter sentiment, regarding this order of execution as "a serious objection to the bill". In a letter to Joseph C. Cabell, he wrote:

A serious perusal of the bill (i.e., Mr. Mercer's bill) for the purpose, convinced me, that unless something less extravagant could be devised, the whole undertaking must fail. The primary schools alone on that plan could exhaust the whole funds, the colleges so much more, and an university would never come into the question (p. 341).

It seems quite ironic that Thomas Jefferson, supposedly one of Virginia's greatest proponents of education, actually impeded the establishment of a free and public education system in the Commonwealth.

The General Assembly passed into law on February 21, 1818, an act that provided for a Board of Commissioners, "to consist of twenty-four discreet and intelligent persons, one from each senatorial district" be appointed to take steps towards the realization of the University of Virginia (Buck, 1952, p. 31). Thomas Jefferson was a member of this commission. The Board was charged with the responsibility of reporting to the General Assembly on: "a proper site, plan of building, branches of learning to be taught, number and descriptions of professorships, and such general provisions as might properly be enacted by the legislature for the better organization and governing of the university" (Buck, 1952, p. 31). In regard to the plan of building, the ranges of separate houses or pavilions on the lawn of the University of Virginia were recommended for the purposes of privacy and sanitation. Aside from the importance of planning the physical plant of the University of Virginia, the Rock Fish Gap Commission also presented an interesting discussion of the scope and objectives of the primary schools set up by the legislature and then proposed that the University program start where the primary schools stop. There follows in the commission's report, a plea for some intermediate schools to which boys might go to study "branches" to prepare them for the University. "Ancient languages would be the subjects of primary importance, and it was proposed that the boys might then come to the University thus relieving the University of running a grammar school for younger boys" (Buck, 1952, p. 32). The Rock Fish Gap Commission's recommendation of "intermediate schools" influenced Virginia's educators and legislators as to the importance of the secondary school.

In 1829, the Virginia General Assembly authorized the local school commissioners, *under certain conditions*, to appropriate funds for school buildings. This authorization was a result of the District Free School Act of 1829:

Whenever the inhabitants of any one of the said (school) districts shall, by voluntary contribution, have raised three-fifths of the amount necessary to build, either in the centre, or such other part of the district as may be agreed on with school commissioners of their county, a good and sufficient schoolhouse, of wood, stone or brick, it shall and may be lawful for the said school commissioners to appropriate, out of the annual quota of their county, the remaining two-fifths of the amount requisite for said building: Provided, such appropriation shall in no case exceed ten per centum on said quota: and provided, the buildings erected, together with the ground on which it stands not exceeding one acre, shall forever thereafter be vested in the President and Directors of the Literary Fund, to be held for the exclusive use of the district in which it shall have been so erected (Acts of Virginia Assembly, chap. 14, pp. 13-14).

The District Free School Act required that "a good and sufficient schoolhouse" be erected "of wood, stone or brick". However, the definitions of "good" and "sufficient" were left to the imagination of the builder. Generally, the free school or "old field" school design was described by Heatwole (1916):

Beyond the Blue Ridge schools are very scarce. . . the school [was] in default of a better, and accordingly a hut of logs was erected near a spring.

The school was held in an outhouse, which in all its appointments was as plain and meager as the other--[the Old Field school] a few benches--no wall maps or blackboards" (pp. 132-133).

At the Educational Conventions of 1841 in Clarkesburg and Richmond, plans were submitted for a better system of education for the state. Included in the convention reports were suggestions, all characteristic of modern public education. Those pertaining to architecture were: (10) school libraries, and (11) better schools. Heatwole (1916) writes:

. . . nothing came of all this full and abundant wisdom. The academies went on furnishing, for the most part, the training for the boys and girls of Virginia until 1869, when the present school system was inaugurated. In 1860 there were 13,204 pupils attending academies in Virginia, with 720 teachers. Our present system of high schools in the state grew by gradual stages out of these academies so well distributed over the state (p. 131).

Governor Henry A. Wise, a most ardent supporter of the idea of state-supported public schools, recommended at the Virginia Educational Conventions of 1856 and 1857 that funds be appropriated for a system of common schools and that 100 high schools be established throughout the state. Such an appropriation was never made as the threat of a civil war was on the immediate horizon (Maddox, 1918). High schools would not be introduced in structure or principle until after the Civil War.

Virginia's Superintendent of Public Instruction, R. R. Farr provided a general view of educational facilities in Virginia before 1860. This report from each county superintendent, printed in 1885, provides a pre-civil war description of school buildings, usually crude log structures:

Roanoke County - M.P. Frantz

Roanoke's tale of education can be read in that of many other counties. The log school-houses, few and far between, scattered here and there over the county, if permitted to speak, would tell a sad tale of ignorance to the masses, and of education and culture only to a few. Under the "old field system," a scholar was considered remarkably well educated if he had (the opportunity for a blackboard, as) a blackboard in a school-room was rarely, if ever, seen (Virginia School Report [1884-85], part iii).

The typical pre-Civil War schoolroom was described by Paul Monroe (1940) as:

A rude and uncomfortable place, intermittently cold in winter and hot in summer, overcrowded, unventilated except when broken windows or defective room or floor afforded too little shelter. With insufficient light and air, no playgrounds and frequently no sanitary provisions (p. 222).

Throughout the war years and up to 1869, Virginia schools languished. Student enrollment dropped greatly, school buildings were destroyed or sequestered by both federal and confederate troops, financial support was gone, and the need for education was overshadowed by the war effort in general. Those schools that were able to continue were temporarily housed in tents, basements, churches, barracks, or any available structure where a teacher might conduct class. Public instruction in Virginia during and immediately after the Civil War was lacking at best.

According to Wilson (1988), "efforts for free schooling for the blacks began during the Civil War and, after the war, came under control and supervision of the Freedmen's Bureau when it was established in 1865" (p. 74). Crude school houses were built by the Freedmen's Bureau and Union soldiers as areas in Virginia came into possession of federal troops. Black children were also instructed in churches, vacated homes, and barrack-buildings (Wilson, 1988). The Freedmen's Bureau owned 592 of these school buildings by 1870. Seventy-four of these schools were reported as high schools or normal schools. The efforts of the Freedmen's Bureau were probably the first organized attempts to provide educational opportunities to freed slaves; however, there are many accounts of whites, including slave owners, who established school settings for this portion of Virginia's population long before 1865. Hunt (1988) describes two notable examples:

As a young man in the 1840s, William Henry Ruffner had organized the first Sunday school for blacks in Lexington where "some hundreds, young and old, were taught reading and the fundamentals of religion by white teachers" including Presbyterian deacon Thomas "Stonewall" Jackson (p. 2).

There were many such schools established throughout Virginia before the Civil War; most were established by churches, some by planters, and others by free blacks. Most often students met in barns, homes, churches, and outside if the weather permitted.

It was rare when a structure was built specifically for the purpose of housing a school for blacks. These schools were generally drafty log huts, with few, if any, textbooks, desks, or equipment. Towards the end of the 1850s, the education of slaves became illegal and schools were shut down; but still some continued in secret.

On December 3, 1867, a constitutional convention was convened to "reconstruct" a new state constitution for Virginia. This constitution, nick-named the "Underwood Constitution", after president Judge John C. Underwood of New York, was resented by many Virginians, as this provisional state government was made up of "carpetbaggers". The convention completed its work on April 17, 1868, and the constitution was adopted on July 6, 1868. This new state constitution contained the first provision for a complete state system of public education (Wilson, 1988). "The act of Congress by which Virginia was admitted into the Union in 1870 provided that 'The Constitution of Virginia shall never be so amended or changed as to deprive any citizen or class of citizens of the United States of the school rights and privileges secured by the Constitution of the said State.'" (Heatwole, 1916, p. 214).

After nearly a century, the educational scheme first set forth by Thomas Jefferson, in modified form was made law. The educational provision for public schools as described in the State Constitution is as follows:

Constitutional Provision for Education. - (1) The general assembly shall elect in joint ballot within thirty days after its organization under this constitution, and every fourth year thereafter, a superintendent of public instruction. He shall have the general supervision of the public free school interests of the State, and shall report to the general assembly for its consideration, within thirty days after his election, a plan for a uniform system of public free schools.

(2) There shall be a board of education, composed of the governor, superintendent of public instruction, and attorney-general, which shall appoint and have power to remove for cause and upon notice to the incumbents, subject to confirmation by the senate, all county superintendents of public schools. This

board shall have, regulated by law, the management and investment of all school funds, and such supervision of high grades as the law shall provide.

(3) The general assembly shall provide by law at its first session under this constitution a uniform system of public free schools, and for its gradual, equal, and full introduction into all the counties by the State by the year 1876, or as much earlier as practicable.

(4) The general assembly shall have the power, after a full introduction of the public free school system, to make such laws as shall not permit parents and guardians to allow their children to grow up in ignorance and vagrancy.

(5) The general assembly shall establish, as soon as practicable, normal schools, and may establish agricultural schools and such grades of schools as shall be for the public good.

(6) The board of education shall provide uniformity of text-books, and the furnishing of school-houses with such apparatus and library as may be necessary, under such regulations as may be provided by law.

(7) The general assembly shall set apart as permanent and perpetual "literary fund" the present literary fund of the State, the proceeds of all public lands donated by Congress for the public school purposes, of all escheated property, of all waste and unappropriated lands, of all property accruing to the State by forfeiture, and all fines collected for offenses committed against the State, and all such other sums as the general assembly may appropriate.

(8) The general assembly shall apply the annual interest on the literary fund, the capitation tax provided for this constitution for public free school purposes, and an annual tax upon the property of the State of not less than one mill nor more than five mills on the dollar, for the equal benefit of all the people of the State, the number of children between the ages of five and twenty-one years in each public free school district being the basis of such division. Provision shall be made to supply children attending the public free schools with necessary text-books in cases where the parent or guardian is unable, by reason of poverty, to furnish them. Each county and public free school district may raise additional sums by a tax on property for the support of public free schools. All unexpended sums of any one year in any public free school district shall go into the general school fund for redivision the next year: Provided, That any tax authorized by this section to be raised by counties or school districts shall not exceed five mills on a dollar in any one year, and shall not be subjected to redivision, as herein before provided in this section.

(9) The general assembly shall have the power to foster all higher grades of schools under its supervision, and to provide for such purpose a permanent educational fund.

(10) All grants and donations received by the general assembly for educational purposes shall be applied according to the terms prescribed by the donors.

(11) Each city and county shall be held accountable for the destruction of school property that may take place within its limits by incendiaries or open violence.

(12) The general assembly shall fix the salaries and prescribe the duties of all school officers, and shall make all needful laws to carry into effect the public free school system provided for by this article.

County organizations. And there shall be appointed, in the manner provided for, in Article VIII, one superintendent of schools: Provided, That counties containing less than eight thousand inhabitants may be attached to adjoining counties for the formation of districts for superintendents of schools: Provided also, That in counties containing thirty thousand inhabitants there may be appointed an additional superintendent of schools therein. All regular elections for county officers shall be held on the first Tuesday after the first Monday in November, and all officers elected or appointed under this provision shall enter upon the duties of their offices on the first day of January next succeeding their election and shall hold their respective offices for the term of three years....

School Districts. Each township shall be divided into as many compactly located school districts as may be deemed necessary: Provided, That no school district shall be formed containing less than one hundred inhabitants. In each school district there shall be elected or appointed annually one school trustee, who shall hold his office three years: Provided, that at the first election held under this provision there shall be three trustees elected, whose terms shall be one, two, and three years, respectively (Constitution of Virginia, 1869, art. VIII, sec. 1-12).

This was the legal vehicle set into motion for the running of a system of free schools for all children in Virginia. In accordance with the constitutional requirement, the Legislature elected the Rev. William H. Ruffner, of Lexington, Virginia's first State Superintendent of Public Instruction. According to Heatwole (1916), "This proved to be a wise choice, for the work of Dr. Ruffner in inaugurating a public school system and overcoming the long, traditional prejudice of the people of Virginia against such a plan of education was a remarkable example of knowledge, wisdom, clear vision, and statesmanship". (p. 218)

In his first year as state superintendent, Dr. Ruffner provided a report on "School Houses" which stated:

No reports on this subject have been received from Fairfax, Fluvanna, Frederick, Matthew, Page, Richmond, and Warren counties. The whole number of school houses used during the year in the other counties and in the cities was 3,036, of which 1,725 were log, 988 frame, 170 brick, and 21 stone; 300 were provided with outhouses, 2,089 had suitable grounds, 702 contained good furniture, 147

were furnished with wall maps, 91 with globes, 87 with reading charts, 27 with arithmetic charts, 1,063 with blackboards, 2,067 were comfortable, and 452 were unfit for use. Of the whole number used 190 were owned by the districts. The rest were either rented or furnished free of charge (Virginia School Report, 1871, p. 5).

Ruffner stated that the responsibility of providing school buildings was placed with the District School Trustees at the local level by Virginia's constitutional provision establishing free public schools in 1870 (Wilson, 1988). Ruffner spoke to this matter in his first report under the heading of "District Affairs" in which he remarked:

The cost of school houses will vary even in cases in which they must be built. Whether built, or rented, or donated, allowances must be made for suitable repairs and for such outside appliances as may be needed to comply with the law in every particular. Under the head of school furniture must be included comfortable seats and desks for pupils, with a table and chair for teacher and a few extra seats for trustees and others who visit the schools. A platform for teacher and visitors, raised a few inches above the floor is desirable. Bucket and ladle, brooms and brushes, will be provided of course. Blackboards, wall maps, charts, and other valuable helps to instruction should be furnished when practicable. In building new houses, the walls all around should be prepared as blackboards (Virginia School Report, 1871, p. 5).

Ruffner goes on to say:

...because of the various and irregular means by which the school accommodations and appliances were obtained, . . . schoolhouses were often obtained free of charge . . . the accommodations furnished in most cases were by no means satisfactory, but were as good as could have been expected the first year. Suitable buildings and improved furniture and apparatus are very much needed, and are indispensable for proper and highly successful instruction; but can only be supplied gradually. The people, however, will not rest until the schoolhouse becomes the delight of the children and the pride of the community (Virginia School Report, 1871, p. 5).

With these comments, Superintendent Ruffner set the stage for a "marriage" between the school building's architectural design and the educational program housed within the school. This is described further by Castaldi:

During the second half of the nineteenth century, the decline of architectural conception and creative thought was approaching the lowest possible level characteristic of a deeply uprooted and contradictory epoch. The architects in that period held on to certain vague traditions which in no way correspond to modern times. The fact that school building became a state concern (during this period) furthered their erroneous development from the start.

No evidence of any distinct relationship between schoolhouse design and architecture appeared until the latter part of the nineteenth century. In big cities, where the structurally complex buildings needed could no longer be planned by laymen, the advice and services of architects were sought at last.

In its incipient stages, school architecture was more or less an adaptation of other forms of architecture without much regard to the needs of education. As Roth says, "The design of the ordinary school building took no account of its nature or various functions. The solution adopted was nothing but an addition of classrooms, one exactly like the other."

During the latter part of the nineteenth century, schools were designed as architectural works of art rather than as educational facilities. Schoolhouses of that period were outsized buildings, characterized by unfunctional and undifferentiated space organization and unfunctional and noncreative design. Many such schools are still in use with their large corridors and imposing lobbies, stately columns, and useless parapets. Architectural emphasis was clearly on shape, form, and style, not on the functional aspects of school plants (Castaldi, 1994, p. 13).

Wilson (1988) writes that, "The local superintendents were requested by the State Superintendent to answer the questions of 'any improvement, or prospect of improvement in school houses' in the 1872 report". (p. 109) These excerpts from the responses paint a picture of the progress made in providing school facilities in the first few years of Virginia's public school system:

Accomac.--"The school houses are improving, quite a number of them have been repaired.... Two new houses have been built in Lee the past year for the use of our schools, though they are yet private property. The trustees are preparing, and in a few weeks will commence, to build a new and commodious house on Chingoteague island for their school."

Augusta.--"Many of the old school houses have been repaired.... and a few good new ones were built."

Bath and Highland.--". . . only one new frame school house having been erected in Bath at district expense, and one large and commodious frame building, seating fifty-six pupils. I have failed to notice any marked improvement in school houses not belonging to the districts in which schools were taught, and account for it partly from the fact that, with one single exception, every board of trustees of the two counties determined to expend no public money upon old houses, but to expend every dollar in the erection of new ones . . ."

Bland.--"Some of our schools were repaired last fall. Others will be repaired shortly. Three new school houses have been erected this year, all log buildings."

Caroline.--"There have been built four or five houses during the year, costing \$100 to \$160 each. These belong to the system, and are better than any house we have had yet."

Charlotte.--"There has been a gradual and progressive improvement in our school houses, those last built being more attractive in appearance and comfortable than the first. The hideous looking old-field school house is becoming unlovely, even in the eyes of an average school trustee."

Clarke.-- "The district boards are building as fast as the proceeds of the district school tax will allow. Eight new houses, commodious, comfortable, neat and tasteful in design and construction and well furnished."

Fairfax.--"School houses have been improved, and in some instances new ones erected. The trustees will build where it is necessary as rapidly as they can raise the means."

Pittsylvania.-- "There is a good deal of improvement on school houses. In District No. 1 the trustees have bought one nice log house, built a neat frame house, and have contracted for another. In No. 6, the trustees have built a neat log house. In No. 7, one neat log house is built and another under contract; and a frame house has been given it the trustees, which will be nicely fixed up."

Richmond City.--"The brick buildings spoken of in my last report were completed and occupied January 1st, 1872. An additional brick building to accommodate eight schools in process of erection."

Roanoke.--"There has been great improvement in school houses, and the prospect of continued improvement is very encouraging. In Big Lick district especially is this advance observed, several roomy and comfortable buildings have been recently erected. Four excellent houses have been erected in the county for colored schools."

Russell.--"Great improvement. The trustees are, as a general thing, abandoning the old log hut and erecting neat frame houses." (Wilson, 1988, p. 109).

While not all of the counties were able to repair, or provide new school buildings for their students, eighty-seven school systems reported improvements (Wilson, 1988).

During Ruffner's administration, an important act was passed by the Legislature to encourage teaching of the "higher branches", as secondary education was then called, in public schools. This Act of 1875 reads as follows:

Act of 1875 - An Act specifically authorizing "instruction in any branches necessary to qualify pupils to become teachers in the public schools, or to enter with advantage any of the colleges or higher institutions of the State: and for instruction in any other branches than those provided for in section sixty-one of chapter seventy-eight of the Code of Eighteen Hundred and Seventy-three. The said board of trustees may require a fee to be paid, monthly or quarterly in advance, not exceeding two dollars and fifty cents per month for each pupil, provided that the introduction of such higher branches in any school shall be first sanctioned by the county school board, and shall be discontinued whenever the said board shall think advisable (Buck, 1952, p. 81).

This act allowed for the operation of "higher branches", which eventually evolved into high school programs. In addition to introduction of higher branches to free public schools, a rather high number of private secondary schools were in operation during Ruffner's term (1870-1886). Some of these schools were discontinued after a period of operation, others became colleges, some are still in operation today as private schools or institutions, and still others were absorbed into the public school system. "Of the total number 1,017, the schools were classified as follows: 229 academies for boys; 231 seminaries for girls; 117 co-educational schools; 335 'home schools'; 13 military schools; 9 university schools; 24 college preparatory departments (in colleges); 15 schools offering specialized training; 7 technical and industrial schools; 12 schools for Negroes; 10 authorized by special legislation and semi-public schools; 15 normal schools and 10

high schools" (Buck, 1952, p. 83). The "10 high schools" listed were presumed to be town and city public high schools. Buck qualifies these numbers with, "This imposing array may be misleading for less than half of these schools were operating in any one year" (Buck, 1952, p. 83).

Those "town and city public high schools" were built in one of the "Revival" styles prevalent during the late nineteenth century and early twentieth century. Georgian Revival was the preferred style for the high school building of the Virginia city and town, in and around the turn of the century. Poppeliers, Chambers, and Schwartz (1977) define the popularity of Georgian Revival:

. . . late 19th-century American architects inspired by post-Centennial zeal began to look to their own national past for appropriate models. In their eagerness to insure that the design heritage would be recognized, the architects often exaggerated their case. They also had to find ways to apply 18th-century details to buildings that were decidedly 19th-century in size and function--such as railroad stations and public schools. To accomplish this, elements of Georgian style were emphasized in various ways--by change of scale, by combining features in ways unknown to the 18th-century or simply by repetition . . . While the Georgian revival enjoyed its greatest vogue and most vigorous expression in the last decades of the 19th-century and the first of the 20th, it is still a part of the architectural scene (p. 9).

Other architectural styles utilized in the design and construction of Virginia high schools at the turn of the century and up until the latter part of the 1920s were Jefferson or Roman Revival, Greek Revival, the Classical Revival of the beaux-arts, and the American style influenced by the Chicago School. In 1929-30, Thomas Jefferson High School, in Richmond was designed using the Art Deco style. This building is still in use as a public high school today and was designated a National Historical Landmark. These styles were primarily found in Richmond, Norfolk, Lynchburg, Winchester, Roanoke, and the northern Virginia areas. Only areas of dense student population and a significant tax-base could afford to construct and maintain such large structures. The high schools

of small town and rural Virginia were either wooden or brick structures, generally mixing styles or scaling down from the Second Empire style (Grant style) or Classical Revival style. High school buildings exemplifying these styles of architecture will be depicted in chapter three of this study. The best representation of existing high schools have been chosen from 1910 until 1994.

In the State Superintendent's Annual Report for the year ending July 31, 1890, John E. Massey reported from the findings of the Superintendent's Survey. Of the question: "How can the efficiency of the public schools of your county or city be improved?". The fifth-most frequent response was, "Improved Buildings" (Buck, 1952, p. 110). Thus, school leaders recognized that there was a link between the educational program of the school and the building in which it was housed. It was during Massey's term as State Superintendent that high schools began to emerge as separate educational entities within the public school system. This is evident from a report made by Superintendent Massey to Dr. J. L. M. Curry, the General Agent for the Peabody Fund, in 1895:

History will show that Virginia has made more progress in education during the past quarter century than in all other affairs of State. The next quarter must be studied for results. The statistics alone show remarkable growth in the State's educational operations. In 1872, 3,695 schools were conducted by 3,853 teachers; 166,377 pupils were enrolled; school property was valued at \$387,672; the annual school revenues amounted to \$816,812.02; not a dollar was invested in normal schools; there was no system of examining or licensing teachers; no public high schools; few school houses were adapted to their purposes; school apparatus and appliances were almost unknown; public sentiment was strongly antagonistic. Contrast the system of 1872 with that of today: 8,384 schools employing 8,417 teachers; 362,133 pupils enrolled; 11,876 studying the higher branches; 6,977 school houses in use, 4,684 of which are supplied with good furniture; \$3,070,000 invested in school property; \$1,833,760 annual revenue of which the State raises \$980,413; \$1,393,534 expended for teachers wages; average duration of the school term 5.95 months, and \$170,000 invested in "permanent improvements" (Buck, 1952, p. 119).

"According to a statement in Massey's report, Virginia then had sixty high schools, most of which were connected with the public schools" (Heatwole, 1916, p. 257). The end of the report included recommendations for "the greater efficiency of the schools . . . (6) school libraries, (7) county high schools, and (9) better schoolhouses" (Heatwole, 1916, p. 258), were recommendations concerning high school architecture.

Castaldi (1994) writes that by 1900, "the size and shape of American schoolhouses were greatly influenced by the consolidation movement that spread rapidly throughout the country" (p. 14). In 1902, State Superintendent Joseph W. Southall reported that consolidation of schools along with the issues of transportation of pupils, and location and erection of school-houses were top priority concerns of superintendents around the state (Wilson, 1988). With the turn of the century came a rapid increase in the growth of schools, and the "Educational Renaissance" (Buck, 1952, p. 121), in Virginia. Several educational conferences were held throughout the south and in Virginia between 1898 and 1906 to improve education. These conferences included: the Capon Springs, (West Virginia) Conference of 1898, 1899, 1900, and 1901; the Richmond Educational Conference of School Superintendents of 1902; and the Sixth Annual Conference for Education in the South of 1903 in Richmond (Buck, 1952). One of the outcomes of these conferences was the establishment of the Cooperative Education Association (Wilson, 1988). The Cooperative Education Association was developed, and lead by Governor Montegue beginning in 1903. In 1904, Montegue and four men met in Richmond to "perfect an organization that would carry forward some definite plan by which the people of Virginia would realized the necessity for more democracy in education" (Buck, 1952, p. 125). The Cooperative Education Association's platform covered the following eight planks:

- 1) Nine months of school for every child;

- 2) High Schools within reasonable distance of every child;
 - 3) Well trained teachers;
 - 4) Agricultural and industrial training;
 - 5) Efficient supervisors;
 - 6) Promotion of libraries;
 - 7) Schools for the defective and dependent; and
 - 8) A citizens education association in every county and city
- (Buck, 1952, p. 125).

1902 was the year that Virginians adopted a new state constitution. The new constitution, reaffirmed in the words quoted below, the unequivocal mandate for public support of education given in the Underwood Constitution of 1869:

Free Schools To Be Maintained - The General Assembly of Virginia shall establish and maintain an efficient system of public free schools throughout the State" (Buck, 1952, p. 126).

Sections of specific interest to high schools and school architecture were:

Section 133. This section reduced the number of small school districts by making each magisterial district a school district unless otherwise provided by law and it provided for three school trustees for each district who were to be elected as provided for by law.

Section 149. White and colored children shall not be taught in the same schools (Buck, 1952, p. 128).

Section 133 promoted the idea of consolidation, thus hastening the demand for high schools, and providing a purpose to the multi-roomed school house. Section 149 required separate facilities for white and non-white students. This mandate created the separate and unequal facilities issue that would be addressed in Virginia during the late 1950's with integration.

Wilson (1988) reports that, "one of the most significant developments in the early 1900s on providing [for] school [buildings] was the impetus for establishing high schools (p. 135). Although a secondary education system had been authorized in the Commonwealth as early as 1875, Buck (1952) observed:

At the turn of the century, the opportunities for getting a high school education in a public school were limited. Though secondary education in public schools had been authorized as early as 1875, statistics for the biennial report, 1897-98, 1898-99, show that only 10,210 white students and 1,031 Negro students were "studying the higher branches". This represents about four percent of the whites and about seven-tenths of one percent of the Negroes enrolled in public schools. The tables at this time do not reveal the exact number of high schools. The 60 high schools reported by Massey for the year ending July 31, 1897, had certainly increased, but it is probable that many of those were classified as studying the higher branches were doing so in elementary schools which had established limited opportunities for a limited number of pupils to continue with some high school work after finishing the elementary school.

The distribution of the pupils classified as studying the 'higher branches', appears to be quite widespread and not confined to the cities. It is assumed, though without objective evidence, that the term, 'studying the higher branches' used here does not include those [students] in colleges (pp. 129-130).

State Superintendent, Joseph W. Southall, (March, 1898 - February, 1906), remarked in his report of 1902-03 "the importance of making the school house the most attractive house in the community" (Wilson, 1988, p. 150). Wilson quotes from Southall's report:

It is the home, for the time being, of the children of the neighborhood It should be not only sightly on the outside, but also comfortable and attractive on the inside An unsightly, uncomfortable schoolhouse is a standing lesson in ugliness to the children and older people of the community, but more especially to the children, whose tastes are thereby vitiated to such an extent as to make them satisfied with common things (Virginia School Report, 1902-03, xxx).

Southall quoted the following statistics in 1902 relative to school buildings:

The statistics for the past year show that of the 7,412 public schools-houses in the Commonwealth, 187 are brick, 49 stone, 177 frame, and 999 log. It is rather humiliating to think that Virginia still has one thousand log school-houses, but by examining the comparative statistics of former years it will be seen that these discredited relics of antiquated school architecture are fast disappearing. According to the reports of the local superintendents, 6,895 of the schools have suitable grounds, 4,501 have good furniture, and 2,650 are furnished with patent desks and seats. It is earnestly hoped that the people of every community will manifest an increasing interest in their construction, ornamentation, and preservation of their school buildings. When the people demand better

schoolhouses, their demand will be heeded (Virginia School Report, 1902-03, xxx).

Southall made this plea for county or district high schools, and stated:

We need these high schools to articulate the common schools with the University of Virginia and the other high institutions of learning. We need them also to prepare teachers for the common schools. The proportion of college and normal school graduates who are teaching in the public schools is very small (Buck, 1952, p. 130).

Southall reported in his 1904-05 Superintendent's Report that, five hundred and five public schools were either high schools or grade schools teaching high school branches. These schools were "scattered over 92 counties and 18 cities, but it is clear from certain reports preceding this period and from the quotation which follows that about eighty percent of them were not designated officially as high schools" (Buck, 1952, p. 131).

Southall states in his analyses of school of 1904-05:

From this list it appears that there are about one hundred public high schools in Virginia; but many of them do not reach the requirements established by the State Board of Education for a standard high school; while there are about four hundred graded schools in the State doing some high school work (Buck, 1952, p. 131).

On March 14, 1906, the Mann Act was passed by the General Assembly to, "establish and maintain a system of public high schools" (Wilson, 1988, p. 135) in Virginia. The Mann Act provided for \$50,000 annually to the Literary Fund. According to Buck, "this act represented the first serious attempt to establish a system of public high schools" (Buck, 1952, p. 143) in Virginia. The Mann Act also authorized:

- a) the establishment of these high schools by single districts or by two or more districts combined;
- b) separate buildings for such high schools or operation in the same building as the elementary or grammar school;

c) a state appropriation of \$50,000 annually from which any district or combination of districts, appropriating for \$250 to \$300 or more for this specific purpose would be given an equal sum by the State (Buck, 1952, p. 143).

Finally, the Mann Act allowed for the provision of inspection and regulation of these Virginia public high schools by the State Board of Education. The 74 public high schools reported in State Superintendent Joseph D. Eggleston's 1905-06 report increased to 218 by the 1906-07 report (Buck, 1952, p. 143).

A companion piece of legislation to the Mann Act was the Williams Act, also passed by the General Assembly in 1906. This act established the practice of providing Literary Fund loans to the local school districts for construction of school buildings. Loans were approved, only after approval of the building plans by the State Superintendent. This practice of submitting building plans to the State Department of Education for approval continued for eighty years, until 1992 when plans no longer required approval.

The Strode Bill was passed by the General Assembly on March 11, 1908, "for the purpose of regulating the construction of public school buildings in order that health, sight and comfort of all pupils may be properly protected" (Acts of Virginia Assembly, 1908, chap. 187, 266). The Strode Bill provided regulations for newly constructed school rooms. Some of the provisions were:

... fifteen square feet of floor space and two hundred cubic feet of pure air a minute for each pupil; facilities for exhausting foul air, twelve foot high ceilings, exit doors to open outward, light to come from the left and rear, light space [windows] to be equal to 25 percent of the floor space, and at least two closets or outhouses (Wilson, 1988, p. 140).

Several other recommendations during the first decade of the twentieth century provided for educational opportunities for high school students and helped to shape the

requirements for high school building design. These include the: Industrial Training, or Life Fitting Curriculum, Agricultural Education, Manual Training, Domestic Economy, and Elementary Business Courses recommended by State Superintendent Joseph D. Eggleston in 1905. In 1908, the General Assembly passed a law to match funds for the establishment of libraries in all public high schools, with books selected from the approved list of the State Board of Education. Health and Physical Education was introduced as, the five point program for the improvement, in the physical condition of school children, especially with respect to abnormalities of eyes, ears, teeth, throat, and weight in 1907-08. In 1910, the Course of Study for the Public High Schools of Virginia was published by the State Board of Education (Buck, 1952). This plan was later a cooperative effort in which representatives from Virginia high schools and colleges participated for the purpose of regulation and consistency of course work. Buck (1952) reported:

The 1910 course of study for first grade high schools prescribed minimum requirements of English, 4 units; mathematics, 3 units; history, 2 units; and science, 2 units. The 5 units of elective studies to complete a total of 17 units were to be chosen from the following: Latin, German, French, Spanish, history, physical geography and agriculture, manual arts, botany and zoology, physics, chemistry, and mathematics (p. 145).

Virginia's movement to consolidate schools, establish high schools, unify the secondary curriculum, and provide appropriate environments for public instruction mirrored the educational movement around the country at the turn of the twentieth century. Castaldi (1994) wrote:

. . . the size and shape of American schoolhouses were greatly influenced by the consolidation movement that spread rapidly throughout the country. Thousands of one-room schoolhouses were abandoned immediately . . . The consolidation movement was directly responsible for the rapid development of multiclassroom school buildings. They appeared in various shapes and sizes. For the most part,

they continued to serve primarily as shelters designed to protect students from the weather. The interiors remained simple and rudimentarily, with copious blackboards and screwed-down furniture (p. 14).

In 1906-07, when the Mann Act and the Williams Act were passed by the General Assembly, there were in existence, 74 public high schools in Virginia. Six years later, in 1912-13 there were 448 public high schools. By the end of World War I, 575 public high schools were in operation. To clarify these statistics Buck (1952) stated:

... schools doing less than two years of high school work, despite the fact they might be called high schools by the patrons, were apparently not officially designated as high schools. The schools doing two years of high school work were recognized and classified at third grade high schools; those doing the first three years of high school work as second grade high schools, and those doing four years of work as first grade high schools.

In the annual report for 1914-15, Superintendent Stearnes says: There is no part of our work which is more interesting than the development of high schools. This work was begun in 1905 with seventy-four high schools and an enrollment of five or six thousand pupils and we now have 572 high schools with an enrollment of 24,945 pupils, if, accepting the popular definition of a high school, we include those schools having only one year of high school work.

In the same section of the report, it is said that 446 of these high schools were recognized by the State Department as first, second, or third grade high schools and that 126 of them were "duly accredited" by the State Department of Education (p. 168).

Castaldi (1994) speaks to the architecture of school buildings of this period:

... school houses were, for the most part, not architecturally exciting. The effect of European architecture was noticeable in some school buildings, and a few schools built earlier in the century did reflect the classical influence, but the majority of them were structures without architectural character. Many looked like large boxes enclosed by red brick walls and covered by a steep slanted roof. The large boxes were subdivided into four or eight smaller, uniform cubicles called classrooms. Sometimes the attic space under the slate roof was used as an assembly hall. At that time, these buildings undoubtedly represented the best conceivable answer to the school housing problem (p. 16).

After World War I, the emergence of school architecture began to change the way that educators and the public perceived the way that a high school should look. Castaldi

(1994) quotes, Alfred Roth as he describes the architectural renaissance for school buildings:

. . . schools were either castles or palaces and their architectural style either Gothic, Renaissance, or Baroque, or a combination of styles. Whatever their shapes or forms were, they in no way resembled a school [in the functional sense]. The child's own scale was not taken into consideration, either practically or emotionally. Out-sized entrances, corridors, stairways seem to be particularly selected by the architect for his "artistic" effects with the well meant aim of contributing to the child's education in art.

It would be wrong and unfair to blame the architect alone. The absence of unbiased pedagogical conceptions, and of a curriculum based on them were as much a cause of mistaken evolution, as was the lack of close collaboration between the architect, educator and building authorities (p. 15).

While the one-room school house may still exist in portions of the United States, the multi-classroom school building became the norm for school design for Virginia high schools at the turn of the twentieth century. High schools in metropolitan areas were the first to utilize facilities with more than one room:

As towns grew, their schools often expanded to two rooms, merely adding a duplicate unit. Many of these larger schools were distinguished by a bell tower [reminiscent of the church steeple] and later by facade decorations in the Greek Revival, Queen Anne, or other styles.

After unification of these separate schools, the final step was sorting and grouping the children by age into seven, eight, or nine grades with a separate teacher for each grade and a system of promotion from one grade to the next with a corresponding progression of subject matter.

The ultimate organizational step came about naturally, as the course of instruction slowly expanded . . . The graded school [and high school] was a child of the cities. Rural areas continued for many years to lump all their young hopefuls in one ungraded collection (Graves, 1993, p. 24).

The first public high school in the United States, the English Classical School opened in Boston, Massachusetts in 1821 (Boyer, 1983), as a free, and publicly supported alternative to academies. The first fully graded public school to sort students into groupings according to age was Boston's Quincy Grammar School built in 1848:

The design response was a four-story building with a basement and an attic. The building was designed to house 660 students. The first three floors had a series of four classrooms opening onto a common corridor. Each classroom housed 55 students in rooms measuring 31 by 26 feet. There is no apparent reason for the dimension of the room other than the maximum number of people [55] that could be accommodated in the space. Each classroom had an attached closet. Individual desks - an important innovation - were bolted to the floor, seven rows of them, eight to a row, less one seat in the back row made necessary by a structural column. The top floor was a large assembly hall with benches to seat the entire student body. An administrators office was located on the first floor (Graves, 1993, p. 24).

Boston's Quincy Grammar school is generally considered to be the first public school in the United States to adopt the double-loaded corridor design of construction. The double-loaded corridor has been credited to the French architects of the 1790s who developed the design for prisons and asylum. The design was practical and reduced construction costs (Donna Dunay-Virginia Tech School of Architecture, Interview, January 26, 1995).

In researching Virginia's educational system and secondary school buildings, one cannot dismiss the notion that both were patterned after the Commonwealth of Massachusetts. William Ruffner's plan for Virginia's public education system mirrors that of the treatise developed by Horace Mann. Mann was the pioneer secretary of the State Board of Education in Massachusetts, and the earliest organized free schools in America were located there. The architectural design of elementary and secondary school buildings was pioneered in Massachusetts and copied by state departments of education throughout the United States. Frank Martin Gracey (1937) commented on the Boston English Classical School, America's first public high school:

While the financial stringency of the times had caused the other towns of the state, [Massachusetts] to lower their standards, resulting in the establishment of academies, Boston had still a very good system of public schools. They still

maintained the Boston Latin School for the exclusive purposes of fitting boys for Harvard College. In 1818 the town had extended its control downward by taking in the primary or "women's schools" [dame-schools] and in 1820 proposed an extension upward by establishing an English Classical School. The subcommittee appointed to investigate said:

"A parent who wishes to give a child an education that shall fit him for active life, and shall serve as a foundation for eminence in his profession, whether Mercantile or Mechanical, is under the necessity of giving him a different education from any which our public schools can now furnish. Hence many children are separated from their parents and sent to private academies in this vicinity, to acquire that instruction which can not be obtained at the public seminaries. Thus, many parents, who contribute largely to the support of these institutions are subjected to heavy expense for the same object in other towns.

The Committee, for these and many other weighty considerations that might be offered, and in order to render the present system of public education more nearly perfect, are of the opinion that an additional school is required. They therefore recommend the founding of a seminary which shall be called the English Classical School, and submit the following as a general outline of a plan for its organization and of the course of studies to be pursued:

- 1st. That the term of time for pursuing the course of studies proposed, be three years.
- 2ndly. That the school be divided into three classes, and one year be assigned to the studies of each class.
- 3rdly. That the age of admission be not less than twelve years.
- 4thly. That the school be for Boys exclusively.
- 5thly. That candidates for admission be proposed on a given day annually, but scholars with suitable qualifications may be admitted at any intermediate time to advanced standing.
- 6thly. That candidates for admission shall be subject to a strict examination, in such manner as the School Committee may direct, to ascertain their qualifications according to these rules.
- 7thly. That it be required of every candidate, to qualify him for admission, that he be well acquainted with reading, writing, English grammar in all its branches and arithmetic as far as simple proportion.
- 8thly. That it be required of the Masters and Ushers, as a necessary qualification, that they shall have been regularly educated at a University.

(Then follows a quite revolutionary course of studies, all in English)"

This first high school was not called that, but was "an English Classical School" to distinguish it from the "Latin classical school" in the same system. Sometimes it was called "a free academy", to distinguish it from the tuition academies, sometimes a "union school", since it often resulted from a union of several districts. The name "high school" may have come to Massachusetts from Pennsylvania where the more advanced schools were patterned after the German Hochschule.

Another plausible theory is that this school was often located on the third floor of a building which also housed the primary and elementary schools, so the "high school" was quite literally above the school before it. The first official use of the term is in the report of the Boston School Committee for June 23, 1824, when it was

Voted that the school house which the city is now building on Pinckney Street be appropriated to the use and accommodation of the 'English High School' (pp. 24-25).

In 1831, the American Institute of Instruction conducted a contest with a prize for the best essay on the construction of schoolhouses. Mr. William Alcott was awarded first prize, but another essay, submitted late was considered so good that it was published alongside Alcott's. The author, the Rev. William Woodbridge, a Connecticut educator prepared suggestions for an ideal schoolhouse, revealing the many deficiencies of the schoolhouses of his day:

- LIGHT. Windows for a school room ought to be high, for several reasons:
1. When low, the light is interrupted by every intervening object, and throw the pages of the reading and writing book into shade.
 2. Low windows, when opened, bring a current of air directly upon the pupils, and expose them before it.
 3. Low windows incline the scholar to look out. At least one upper sash ought to be hung with a weight, that it may be let down in order to allow the hot and lighter exhalations, which rise to the ceiling, to escape.
 4. The saving of glass would be a serious advantage in point of convenience and economy: for lower windows are often broken, and often go for a long time unmended, for the neglect of committees.

5. The same quality of glass in a skylight, would produce double the quantity of light. The skylight also might be hung so as to air the room often and easily.

HEAT. Heat in a schoolroom ought to be equally diffused through every part. This can rarely be done without a stove. No seats or benches ought to touch the floor therefore, to prevent the free circulation of warm air to the feet. Such seats also would interrupt the sweeping, which ought to be done daily and well. The fire ought to be kindled early in the morning; otherwise children become uneasy and fretful, and nothing goes on well. When the warm air of stove heat meets the scholars' cheeks as he enters the school, he is at once pleasant and easy. On the other hand, too great a degree of heat renders the scholars uneasy, listless and fretful, and the teacher becomes more languid. There ought to be a thermometer in every schoolroom, and the heat regulated to fifty-five or sixty degrees. When the room is well warmed in the morning, little if any additional fuel will be necessary until noon. The breath and perspiration of a school will keep up the temperature of the room until nearly noon, when the heat ought to abate to prevent to great a change in passing into the cold air. The same regulations should be observed in the afternoon, and especially in the evening school. There should be a footboard about the stove, of to set with wet feet for several hours produces uneasiness. An open fire is sometimes dangerous to children dressed in cotton. I have two or three whose clothing has taken fire. The fire should not be renewed without the teacher's direction.

AIR. The quality of fresh air necessary to life amounts to more than one gallon for each person for every minute. In looking back over the langor of fifty years of labor as a teacher I attribute a greater proportion of it to mephitic air. I cannot doubt that this has been the great cause of the sickly habits and untimely decease of many worthy teachers. A few have prolonged life until death has given them a fair discharge, but it is virtue or necessity, Why not be more liberal of space and air?

GENERAL CONSTRUCTION. I would place the teacher on an elevated platform, 18 to 24 inches above the floor, from which his eye can easiest view every part. This platform may serve as a stage for speaking select pieces. Up front, on either side of the teacher's desk, should be a board ten inches wide, for a class to rest their books upon when they are receiving lessons, or occasionally to

place an idler at, to study. Behind the teacher's platform ought to be a book closet for maps, apparatus or instruments. A clock costing as much as five dollars would save its cost every week, besides fixing the habit of punctuality. Time is money. Every minute lost in a school of forty-five scholars amounts to three-quarters of an hour. And all this may be saved by the punctuality which a clock makes (Gracey, 1937, p. 42).

Woodbridge's plan for the ideal schoolhouse made such a profound impression upon Horace Mann, that he included it in his own report on the conditions of schoolhouses as he found them in Massachusetts upon becoming its first Secretary of the Board of Education. Mann provided a "fifty-three closely printed page" (Gracey, 1937, p. 47), report on his views on how a schoolhouse should be planned in 1838. Within his report he stated:

. . . when it is considered that more than five-sixths of all the children of the State spend a considerable portion of the most impressionable period of their lives in the schoolhouse, the general condition of those buildings and their influence on the young stand forth at once as topics of prominence and magnitude. The construction of schoolhouses connects itself closely with the love of study, with proficiency, health, anatomical formation, and length of life. These are great interests and therefore suggest great duties. It is believed that, in some important particulars: their structure can be improved, without the slightest additional expense; and that in other respects, a small advance in cost would be returned a thousandfold in the improvement of those habits, tastes, and sentiments of our children, which are so soon to be developed into public manners, institutions and laws, and to become unchangeable history (Gracey, 1937, p. 46).

Mann also addressed the fact that little difference is evident in building design between an elementary school and a secondary school:

I do not propose to describe a perfect model and to urge a universal conformity. It is obvious that some difference in construction is necessary, according to the different kind of school to be kept. In each case it must be considered whether the school room be that of an academy or of an infant school . . . (Gracey, 1937, p. 45).

Mann's report on the condition of Massachusetts' schoolhouses prompted Henry Barnard to write an article on School Architecture in 1838 in the *Builder's Guide*. He later collaborated with Henry Austin, an architect, and wrote the book, *School Architecture* in 1842. Jean and Robert McClintock prefaced Barnard's book with:

School Architecture, Or Contributions to the Improvement of School-House in the United States was an ungainly work. It had grown by accretion, beginning in 1838 with the text of an address on the disgraceful condition of the average school hours, and becoming by 1842 a major manual on the art of building and equipping schools.

In form, *School Architecture* was a pattern book, which was not an unusual layout for a building manual published in the 1840's. At that time such publications on architecture became popular, and they continued to be the companion of prospective builders until the end of the century.

Barnard stated that, "A schoolhouse was a work of architecture to the degree that the building itself enhanced the school's performance of its cultural task: to be an emblem for its pupils of high ethical and rational standards. From the point of view of architecture, it was less important to ask what children would learn at school than it was to ask what they would learn from the schoolhouse.

By meticulous depiction of the inadequacies in school buildings of every sort, Barnard gave educational reformers across the country the means to rouse the complacent citizen from his pedagogical lethargy (Barnard, 1970, p. 4).

Between 1839 and 1900, thousands of copies of Barnard's *School Architecture* were printed and distributed to educators throughout the country. Reprints of his articles were published in every conceivable educator's journal to spread the word of educational reform and its relationship to school building design and architecture. Examination of Virginia State Superintendent, William Ruffner's 1870 report on conditions of schoolhouses in Virginia reveals a remarkable similarity to Mann's report of 1838. Superintendent Southall plea for public high schools in Virginia borrowed directly from that of the goals of the Massachusetts public high school system. Finally the Mann Act of 1906, for the purpose of establishing and maintaining public high schools in Virginia,

provides yet another connection with the educational and architectural high school design originating in Massachusetts.

In 1920, the Division of School Buildings was established within the Virginia State Department of Education, "to help local school boards and superintendents with the planning of more appropriate buildings" (Buck, 1952, p. 347). The Division of School Buildings provided the services of furnishing school plans, advising on school-sites, writing school specifications for buildings, and supervision of school construction. This service saved school boards large sums in architects' fees and gradually established high standards of construction and school design throughout the state. The Division of School Buildings published school specifications for all rural schools in the September, 1922 Bulletin of Virginia State Board of Education:

1. Building and Equipment.

The building shall conform to the State plans as to minimum requirements. Each school room shall provide fifteen square feet of floor space and two hundred cubic feet of air space for each pupil, based on a minimum of thirty-five pupils. The lighting shall be 25% of the floor area.

The heating and ventilation shall meet the requirements of the law, In the simplest type of building, the jacketed stove with fresh air ducts constitutes the minimum requirement. The protected fire place, as provided in new types of buildings, adequately meets the ventilation requirements for rural schools. In all buildings proper escapes for foul air must be provided.

The building shall present a reasonably neat appearance and must be kept clean and sanitary.

At least two sanitariums must be provided for each school building. The simplest type which will meet the minimum requirements is the fly-proof privy. Sanitary requirements must be studiously observed in order to secure the special fund.

A water cooler with individual drinking cups, or with a sanitary fountain attachment, must be provided.

The school yard should consist of not less than two acres of ground, properly drained and furnishing sufficient space for playgrounds.

Each school room should be provided with at least forty linear feet of blackboards, with one or two reference maps for the study of geography and history, and shall be furnished with acceptable school furniture (Bulletin of Virginia State Board of Education, Vol. V, No. 2, September, 1922).

This publication addressed the differentiation of school facilities in the rural areas as compared to the school buildings in cities and towns of Virginia. There was a marked difference in the quality and expectations of a school structure in rural Virginia as opposed to the more modern structures in urban areas. Schools in the cities were designed to accommodate specific grade-level and age groups, while the country schools were more apt to be combined schools, primarily housing elementary pupils and some students studying higher level courses. The services of the School Building Division steadily increased in "both variety and quality until the second world war compelled curtailment" (Buck, 1952, p. 348). In 1937, a landscape architect was added to the staff of the division, which at that time included five architects in addition to the director.

As it was mentioned earlier, school buildings were designed for centuries as rudimentary shelters that merely protected teachers and learners from the elements. "Not until the first quarter of the twentieth century did educators begin investigating the possibility that there might be a relationship between learning and the design of instructional spaces within a school building" (Castaldi, 1994, p. 17). Some educators of this time sought to determine whether the design of a school structure imposed limitations on the quality of the instructional program. Castaldi (1994) wrote that these early studies did suggest that there was a relationship between the design of the school and the educational program within. These studies prompted the formation of educational facility planning groups:

In 1921, three concerned educators, Samuel Challman of Minnesota, Charles McDermott of New Jersey, and Frank H. Wood of New York, met in a hotel room in Atlantic City to discuss the possible formation of an organization to deal with the problems of school plant planning. The original intent of the proposed organization was "to promote the establishment of reasonable standards for school buildings and equipment with due regard for economy of expenditure, dignity of design, utility of space, healthful conditions, and safety of human life.

. . . together with other concerned educators (they) met a year later, in 1922, and created a national organization to develop minimum standards of school building construction and equipment from the standpoint of meeting educational needs. The members of the group agreed to meet from time to time to share ideas and collectively prepare specifications to serve as national standards . . . The founders named this embryonic organization the National Council on Schoolhouse Construction.

For over a quarter of a century, the Council, as it was often called, served as an information center for anyone engaged in the planning of school buildings. Its primary function was to develop minimum standards for school building construction and make them available to school plant managers.

In 1930, however, the Council introduced a new service for school administrators . . . it began publishing guides for the use of anyone engaged in a school building program. These guides focused primarily on the dissemination of specific minimum standards for the planning and construction of school buildings.

The impact of these guides on the planning of school buildings was overwhelming. School districts began to rely more and more on the Council for technical information concerning the planning of school buildings. Under these circumstances, the Council felt that it had an obligation to reexamine the content of its guides and to reevaluate its goals and objectives. Thus, in 1946, the Council set new policies and guidelines for material contained in its publications. Fearing that minimum standards might become maximum practice, the Council de-emphasized minimum standards and promoted basic principles of sound educational facility . . . The main thrust of the new policies was to encourage innovation and creativity in the planning of educational facilities.

Over the years, the National Council on Schoolhouse Construction has been a positive and dynamic force in the field of educational facility planning. The Council has been flexible and innovative in meeting the challenges of an unsettled society. The influence and membership of the Council has grown dramatically. The name of the National Council on Schoolhouse Construction was recently changed to the Council of Educational Facility Planners International (p. 18).

Frederick Mayer (1973) described yet another group formed about the same time dedicated to the planning of schoolhouses:

In 1925, the National Education Association appointed a Committee on School House Planning. In its report the Committee mentioned nine standards for an adequate schoolhouse:

Adaptation to educational needs

Safety
Healthfulness
Expansiveness
Flexibility
Convenience
Durability
Economy
Aesthetic fitness
(p. 434).

Mayer (1973) commented on the objectives that the Committee on School House Planning established for their organization:

In the style of architecture, modern schools emphasize informality and functional design. The ideal is to make them as cheerful as possible. The traditional school often looked like a jail and featured rather austere colors. The features of educational organization will often determine the architectural design of the school. Thus, when rooms in the high school are set aside for laboratory work, shops, art, and music, special provisions should be made in the design of the school.

Many schools today are community centers. Thus, the auditorium may be used for visiting lecturers, and the playground may be utilized by adults as well as children. The question always is: Can the facilities of the school be expanded? What will be the building needs twenty years from now? In states where the school population is constantly expanding the consideration of future needs is especially important.

Schoolhouse construction has become a big business affair. Some of the great architects of our time, like Gropius and Wright, have made constructive suggestions for the development of truly modern school buildings. Even colleges are abandoning the traditional styles of construction, and in many cases, they have lost the Gothic look (p. 435).

These groups were the pioneers of the marriage of educational programs and school building design.

The O'Shea Survey and Education Commission Report of 1928 was commissioned by act of the General Assembly in 1927 (Special Session), "to survey the educational system of Virginia" (Buck, 1952, p. 274). This survey provided specific

information on the condition of Virginia's high school buildings. The survey indicated that, in general, Virginia high school facilities were lacking:

School buildings that have been erected within the last few years are, for the most part, spacious, safe and possessed of many features of modern architecture. Most of these newer buildings are provided with an auditorium and some have gymnasiums, shower baths, cafeterias, and similar attachments.

However, when attention is called to the older structures, a disheartening sight often meets the eye. Not only are many of these buildings wholly without modern improvements but they, too often, are not kept in even decent conditions. Many of them are dark, dingy and inexcusably dirty. Wall plaster and wall paper frequently hangs in great patches; window glass is broken out; window shades are in tatters . . . , basements are cluttered up with discarded school benches, rags, old stoves, and junk of various kinds . . . Toilets emit a nauseating odor; the library is a hole in the wall; paper and other refuse litter the stairs and school grounds; laboratories are in a condition of disorder; playgrounds (if they exist) are uneven and their usefulness often spoiled by the existence of boulders, boards and other obstacles. While it (these conditions) does not characterize the majority of the older schools, it does characterize many of them. Moreover, parts of the indictment would apply to almost any one of the very old structures. There is, in general in the Virginia schools a lack of appreciation for the aesthetic. The schools and equipment for the colored students were in even worse condition (O'Shea, 1928, p. 193).

Many recommendations which would effect the future design and architecture of the Virginia high school were made by the commission, these included:

9. The commission recommends that the compulsory attendance laws be amended:
 - a. So as to provide for the compulsory attendance of children who have reached the seventh birthday and have not passed the fifteenth birthday (present ages are eight and fourteen);
 - b. So as to establish a minimum school term of one-hundred and sixty days;
 - d. So as to abolish exemption on the basis of the ability to read and write;

15. The commission recommends more and more wise consolidation as good roads increase.

19. The commission recommends that the district levy for school maintenance be discontinued in favor of a county levy, but the district levy be retained to meet existing district indebtedness and future capital outlay.
20. The commission recommends that the State Department of Education study the problem of free high school education and propose measures which will afford equal opportunity in every community to all children qualified for high school work (Buck, 1952, p. 280).

The recommendation amending the compulsory attendance laws provided for a longer school year, increased the age-range for students by two years, and a discontinuation of the practice of excusing "student-aged" youth who were previously exempt after establishing proficiency in reading and writing. Thus establishing a larger student population for high schools to house. The recommendation of wiser consolidation of schools as Virginia's roads improved, addressed the problem of too many small high schools which had been established in Virginia. In some cases "as many as five small high schools within a solitary school district" (Buck, 1952, p. 237), had been established, none of which could meet the standards for an appropriate high school program alone. The shifting of responsibility of funding for building maintenance and capital outlay from the abolished district levy to a county levy enabled localities to raise more money for their community high schools and encourage consolidation. Finally, the recommendation of the study of the problem of free high school education to all students in each community provided further impetus for high school consolidation and the upgrading of the quality of each school's educational program and building. Buck (1952) summarizes by stating, "It is safe to say . . . that the O'Shea Survey of 1928, furnish[es] priceless records of the status of public education in Virginia.... and [that it] had a profound effect on education in Virginia" (p. 288).

The Annual Report of Superintendent of Public Instruction, (1930-31) addressed concerns of the Division of School Buildings of the Virginia Department of Public

Instruction relative to the fire safety of Virginia's schools. References were made concerning the need for the construction of only fire resistive type buildings and it is noted "that of the twenty-six buildings erected from plans furnished by the division, costing over \$10,000 each, nine were of Class B construction, or so-called fireproof, four were Class C with fireproof corridors and stairs, and thirteen were of Class D or the usual exterior walls and wood inside" (Wilson, 1988, p. 153).

During the 1930s and through the depression years, despite declining enrollment and limited funding education in Virginia experienced substantial progress in many areas, which included a rapid increase in new school facilities (Wilson, 1988). Between the years of 1934 and 1941, a vast program of public works and civic improvement had been started in Virginia through the Public Works Administration and the Works Progress Administration. Buck (1952) commented that, "Virginia was ready to take full advantage of the federal funds available for education, for the Division of School Buildings had been wisely devoting the time when the depression had reduced building operations to a low level, to long range planning involving population studies and surveys" (p. 348). Through the efforts of the State Planning Board and the Division of School Buildings, sites for consolidated schools and the sizes and styles of high school buildings needed in a number of counties had already been planned, and were therefore ready for consideration by the federal government as projects for the Work Progress Administration. While the W.P.A. was not designed specifically to assist education, it did contribute significantly to the funding of some of Virginia's high school buildings. The Annual Report of Superintendent of Public Instruction, (1938-39) stated that:

The program of school buildings for the past year has greatly exceeded in volume and in cost that of any one year in the history of school building development in Virginia . . . This is largely accounted for by the unusual and very

generous distribution of grants from the Public Works Administration to the school building program (Wilson, 1988, p. 157).

Many of the W.P.A. project school buildings still exist and operate as public high schools in Virginia today. The architectural style used in Virginia was a mixture of Georgian Revival and the Colonial Style. These buildings were generally characterized by Palladian windows, hipped roof, cupola, and a massing of several other classical elements.

During the decade of the 1940s, World War II and a striking increase in births had great effects on the design and architecture of Virginia high schools. Few high school buildings were constructed during this time due to war-time shortages of materials, and manpower. Graves (1993) describes the 1940s high schools as, "brick boxes with holes for windows in a style which can only be described as neutered" (p. 25). Gone were the imposing Gothic, Colonial, Art Deco, or Victorian architectural treatments. High schools now sported the International Style, where artificial symmetry was studiously avoided. Balance and regularity were admired and fostered. This style evolved and was repeated from 1948 to the early 1960s. With each year, the architecture of the high school became more sterile and devoid of exterior, nonessential decoration.

The National School Lunch Act of 1946-Public Law 79-396, the Milk Program for Children-Public Law 85-478, and Virginia's School Lunch Program of 1938 were acts that provided state and federal funds which created a demand for school cafeteria facilities (Wilson, 1988). Many of the existing high schools were not built with cafeterias, and were required as additions due to the new laws. Quonset huts and other surplus property structures dotted the Virginia landscape after World War II as Congress passed Public Law 78-457, the Surplus Property Act (Wilson, 1988). This act authorized the transfer of surplus property to educational institutions, which became a significant resource to many Virginia high schools.

In 1944, the General Assembly created the Virginia Commission of 1944, headed by Dr. George H. Denny, retired President of the University of Alabama. The purpose of the Denny Commission was, "to make a thorough and complete study of the public free schools in Virginia, including the subjects taught in said schools, the curricula and their method of establishment, the degree of existing centralized control over the conduct and operation of the schools, the method of distribution of state funds, and such other matters as the Commission may deem proper" (Acts of Virginia Assembly, 1944, p. 822). The Commission reported its findings concerning high school architecture in Virginia:

Plant and Equipment. --The study revealed a striking deficiency in both building and equipment. The committee's survey showed that 50 per cent of the buildings in the counties are deficient in classrooms, 73 per cent in gymnasiums, 38 per cent in auditoriums, and 41 per cent in sanitary toilet rooms. In the high schools, 78 per cent were found to lack adequate library rooms. Such conditions indicate that the problem of providing fully adequate plant and equipment facilities for the entire state is one of huge proportions and one that cannot be accomplished except on a long-term basis (Wilson, 1988, p. 167).

The Report of the Denny Commission noted the inadequacy of Virginia public school buildings in respect to size and number. These findings were mirrored by the Gray Commission of 1949, which verified these same findings, but with greater intensity after World War II. Following the war, the United States experienced massive increases in the birth total; 3,699,940 live births in 1947 was the highest in record. In Virginia, the increases in births are shown in the table below:

Total Births in Virginia for the Years 1940-1950, inclusive

YEARS	BIRTHS	YEARS	BIRTHS	YEARS	BIRTHS
1940.....	56,658	1944.....	68,365	1948.....	81,566
1941.....	60,789	1945.....	66,362	1949.....	82,761
1942.....	67,695	1946.....	74,980	1950.....	82,740
1943.....	70,844	1947.....	84,732		

(Buck, 1952, p. 394).

This birth increase in the Commonwealth prompted the regular day school enrollments in the public high schools in Virginia to rise proportionately. Forecasts made from census data for the United States as a whole indicated that secondary school enrollment, which declined from 1947-48 to 1951-52 by approximately 3.5 percent, would rise approximately 30 percent from 1951-52 to 1960-61. Virginia was expected to follow this national pattern, and actually exceeded the national average (Buck, 1952). State Superintendent Dowell J. Howard reported in 1947 that, "the need for new school housing facilities in some localities is urgent and in many other localities it is acute" (Wilson, 1988, p. 178). Governor John S. Battle, provided the much needed assistance by making an unconditional grant, known as Battle Funds, available to assist the counties and cities in the construction of needed public school buildings (Wilson, 1988, p. 179).

The Denny Commission recognized the need of extending the consolidation movement on the elementary and high school levels:

It is properly pointed out (1) that consolidation should never be an end in itself by a means to greater efficiency, better teachers, better offering of vocational education, and better equipment; (2) that the very young children should not be made to spend long periods away from home, and that there are limitations to the distances such children should be required to travel in order to reach their school; (3) that plans for consolidation should include a program to inform the school patrons of the advantages, so that the majority of them will support the consolidations (Buck, 1952, p. 481).

Buck (1952) further described the events that helped shaped the decision to consolidate existing high schools and build entirely new high school buildings:

Shortage of homes and of various other buildings, including churches and schools, has existed in the United States since a drastic restriction on buildings not essential to the war effort was imposed by World War I. The attempt to catch up with the accumulated need for new buildings, and for repairs and improvements in other buildings, was cut short by several years of depression. After a "revival" which continued for a few years in the latter part of the period 1930-40, the exigencies of World War II forced another long period of restriction

in building. The tremendous increase in births following the cessation of hostilities in World War II soon established a much greater need for more homes, schools, and church buildings which when coupled with the accumulated need due to this suspension of normal building operations, confronted Virginia and probably all other states in the union with a staggering problem. . . . the spurt of school building in Virginia due to the federal programs to provide opportunities for employment during the depression of the nineteen thirties . . . was a great boon to Virginia schools and colleges, but the buildings provided fell far short of the needs with which the State was confronted in the latter part of the nineteen forties.

A report of a study made in 1948 through questionnaires sent by the State Superintendent of Public Instruction to the division superintendents showed a need during the next ten years in Virginia of \$396,014,204 for school buildings (p. 455).

A bulletin entitled *A Comprehensive Program of Education for Virginia Schools*, was issued May, 1947. This bulletin formed the basis for the estimates of the division superintendents on school building for the next ten years. The average costs of school buildings in 1949 was 100 per cent greater than the previous decade. Due to the estimation of nearly four-hundred million dollars, a greatly inflated figure as compared to construction costs before the war; the Commission on State and Local Revenues and Expenditures of the General Assembly engaged the firm of T. Coleman Andrews and Company to validate this estimate:

In 1949 the Commission on State and Local Revenues and Expenditures of the General Assembly received a 491-page report from T. Coleman Andrews and Company, a well-known firm of auditors and accountants, entitled "Proposed Virginia Public School Building and Improvement Program Survey of Estimated Costs." The Commission had engaged this firm to make the survey as a check on the estimates previously made by the school superintendents . . . The estimate of \$396,014,204 was checked by the survey staff with records in the State Department of Education. . . . As a result of this, the estimates made by the division superintendents, a number of whom had discovered need for additional buildings, was raised to a total of \$401,633,904.

The Bureau of Population and Economic Research at the University of Virginia had estimated that a maximum school population of 849,978 would be reached by 1959. The elementary enrollment was expected to increase rapidly until 1953-54 and then to decrease, but the high school population was expected to begin

increasing at this time and to reach a peak in 1959. The survey staff accepted an average of 30 elementary pupils per teacher, and a ratio of 25 pupils per room for the high school.

This plan contemplated consolidation according to carefully made studies which would reduce the total number of (school) buildings in the State from 3,280 to 1,851, but would increase the number of rooms from 21,305 to 33,001. In this plan the 854 one-room schools would be reduced to 86; the 791 two-room schools would be reduced to 105; the three-room schools from 221 to 55; the four-room schools from 212 to 80. The number of schools of five or more rooms would *increase* from 1,202 to 1,525. The plan involved abandoning 2,002 unsuitable schools (5,453 rooms). Of these schools 1,460 were one- or two-room schools. It proposed 573 entirely new schools to be built over the next ten years (Buck, 1952, p. 457).

The continued improvement of Virginia's road system by the Division of Highways greatly facilitated the progress of consolidating schools. "Larger schools with 12 or more teachers are particularly advantageous in the case of high schools, because only in such schools can the pupils be offered the variety of courses, the athletic and social activities, the libraries and laboratories which children now need" (Buck, 1952, p. 459). Buck (1952) continued by stating while "rural communities have often been strongly opposed to the abandonment of the small schools, . . . the movement has been steadily gaining momentum" (p. 459). The number of high schools of various sizes in Virginia had dwindled from 624 in 1939-40, 556 in 1949-50.

In 1944-45, the Division of Instruction began to report the development of the twelve-year school system as one of its desirable objectives. The addition of another grade would indeed add to the high school curriculum, and require additional facilities within the high school building. At this time, thirty school divisions had developed or were in the process of developing a twelve-year program. "By 1946-47, there were 77 high schools in 41 school divisions reporting a twelfth grade, and by 1948-49, seventy-six school divisions had adopted the plan" (Buck, 1952, p. 460). The extra year added was the eighth grade as part of the high school, rather than adding to the elementary program.

"The program for this 'new' grade or year is to emphasize careful guidance procedures and opportunities for pupils to explore their interests and talents thoroughly enough to make wise decisions about their future courses and vocations" (Buck, 1952, p. 461).

The Denny Commission made an additional recommendation that affected future school building design in a major way. The Report recommended that an Advisory Board be set up with the State Department of Education:

. . . consisting of the Director of School Buildings, a representative of the State Planning Board of the State Department of Finance, and a private citizen selected on the basis of his practical experience with such problems. The Board is to cooperate with local school boards, boards of supervisors, and city councils in making plans for sound local building programs (Buck, 1952, p. 480).

Eventually, through recommendations of this board, and legislation by the 1950 General Assembly, as amended in 1952 and 1958, this board evolved into the Advisory Research Committee on School Buildings. Members of the Board were appointed by the Governor, with the purpose set forth in the statutes by the General Assembly to:

. . . assist the State Board by advising it as to efficiency of school building design with due regard to economy, operation, maintenance, design, function, as the same relate to the safety and health of the school child; and advise with the State Board of Education in the preparation of a school construction manual and on standard school building plans.

The committee held a number of hearings and developed a proposed manual which was adopted by the Virginia State Board of Education and became effective April 1, 1955. The School Planning Manual contained the regulations of the State Board of Education applicable to school sites and the planning and construction of school buildings (School Planning Manual, 1959, preface).

According to the Virginia Department of Education archives, the Advisory Board considered the adoption of standard building plans, or "stock plans" for all school buildings in the Commonwealth. This notion was abandoned for secondary school buildings, as the local high school was traditionally the show piece of the community.

Localities prided themselves on the individuality and diversity of the architectural design and character of their own high school. The School Planning Manual would be revised and re-adopted by the Virginia State Board of Education in 1959. Later nicknamed the Blue Book, or Blue Pages, this revision remained unchanged for thirty-five years until a recent revised draft of the School Planning Manual was completed September, 1994. At the writing of this study, the draft was still under review by division superintendents and school architects (Boddy, 1995, Interview). The General Assembly, concerned with the lighting of school buildings and fire safety, passed legislation in 1950 and 1960 respectively:

. . . requiring that all public schoolhouses shall provide 'ample light--natural or artificial--for pupils, and the total light area for admission of natural light had to be at least twenty per centum of the floor space.' A fire inspection program in the schools was begun in 1960 in cooperation with the State Fire Marshall. A manual of instructions for periodic inspections of schools was developed for local fire departments (Wilson, 1988, p. 181).

These acts of the General Assembly gave cause to educational facility planners in Virginia to carefully plan for the lighting needs for students and staff in school buildings, and to consider appropriate floor plans, exits, and building materials for schools in the event of fire or other such emergencies.

In 1954, the United States Supreme Court ruled that racially segregated schools were unconstitutional-- ". . . that in the field of education the doctrine of separate but equal has no place" (Brown v. the Board of Education of Topeka, 347 U.S. 483 p. 873; 74 S.Ct. 686, 1954). The decision of the Supreme Court voided the provision in Virginia's Constitution relative to separate schools for non-white students and reversed the United States Supreme Court's decision of Plessy v. Ferguson (163 U.S. 537, 16 S.Ct.

1138; 41 L.Ed. 256, 1896), upholding separate but equal facilities. Virginia's reaction to Brown v. the Board of Education of Topeka was less than conciliatory. In 1956, Virginia's General Assembly enacted legislation to provide massive resistance to the integration of the public schools (Wilson, 1988, p. 182). Public schools were denied state funds and were closed if their division integrated schools. A system of tuition grants was provided for attendance of white students at nonsectarian school private schools in such divisions. Not until the Virginia Supreme Court ruled in Harrison v. Day (106 SE 2nd. 636, 200 Va. 439, 1959), that the massive resistance laws were unconstitutional, did all of the closed public schools in Virginia reopen. All but Prince Edward County Schools, where the County Board of Supervisors refused to levy any taxes for the support of schools. Prince Edward County Schools eventually reopened in 1964 after a ruling by the United States Supreme Court found the county in violation of the equal protection clause of the Fourteenth Amendment (Griffin v. County School Board, 377 US 218, 267, 1964). The court ruled that Prince Edward County school children were entitled to their constitutional right to an education "equal to that offered by public schools in other parts of Virginia" (Wilson, 1988, p. 183).

Integration of all of Virginia's students into the same schools had major implications for public school facilities, especially for the black students. During the late 1950s, and for many succeeding years, school divisions were found to be maintaining school buildings which were not properly suited, or otherwise suitable to meet the needs presented by integration. Many schools were closed, existing buildings were expanded and renovated, and new schools were erected to meet the needs of the larger, diverse student populations.

"Despite the accelerated school building program of the 1950s, the need for more and better school facilities across Virginia and the United States was still acute as the

decade of the 1950s came to a close" (Wilson, 1988, p. 189). The expanding birth rate, integration, consolidation, and the addition of another grade to the secondary level had created a situation in the Commonwealth, as well as nation-wide. Finis E. Engleman, Executive Secretary of the American Association of School Administrators remarked in 1958, "that in spite of the heroic efforts by many local communities to adequately house the school children, the great backlog of shortage continues" (Wilson, 1988, p. 189). For centuries, students have been taught in graded groups. This organization of students for instructional purposes has proven to be "more efficient and cost-effective than teaching individuals" (Earthman, 1994, p. 135). In the late 1950s, J. Loyd Trump introduced the team-teaching organization:

This scheme divided a large group of students into various sized groups for different kinds of instruction throughout the day. This resulted in a school building with a number of different sized instructional spaces-large, medium, and small groups-as well as individual study spaces. Also-the Copernican Plan-(for restructuring high schools) that resembled the so-called Trump Plan (Earthman, 1994, p. 135).

The Trump Plan and the Copernican Plan resurfaced in Virginia, in the late 1980s and early 1990s with respect to the grouping of students predominantly in middle schools and the push to restructure high schools.

The 1960s were highlighted by more new construction of high school facilities in Virginia than previously recorded. Virginia school systems as well as the rest of the United States were attempting to meet school facility demands as "the American educational enterprise reached its high point in terms of enrollment increases and public support" (Worner, 1980, p. 3), during this decade. Earthman (1994) commented on the quality versus quantity aspect of the "baby boom" school construction response:

Many of the post-World War II buildings, and even those built as late as the early 1970s, were hurriedly constructed to meet the burgeoning student

enrollments. These buildings in many instances were poorly constructed, frequently with inferior building material, because good quality material was often not available. In addition, many school boards at that time were more interested in keeping the initial cost of buildings as low as possible than they were in the construction of high quality buildings. The result was an abundance of poor-quality school building which have not stood up well against the onslaught of, in some cases, half a century's use (p. 5).

The post-Sputnik era gave witness to America's race with the soviets and the rest of the world in space, and in education. The National Defense Education Act of 1958 gave rise to the Curriculum Reform Movement that swept the nation over the next decade, and marked the beginning of "the first wide-scale attempts by the federal government to influence what American schools taught and how they taught it" (Willis, 1993, p. 355). High school architecture and interior design configurations were influenced by this congressional act by the inclusion of sophisticated science laboratories, mathematics wings, and guidance suites. The Elementary and Secondary Act of 1965, Public Law 81-815 of the Impact Aid Program, and the Vocational Act of 1963 were additional legislation that provided federal funds for the construction of school facilities in Virginia during the 1960s (Wilson, 1988, p. 204-205). School divisions applying for the federal funds were required to agree to specific conditions, including building specifications, before the grants were dispersed, thus providing a foothold for future federally mandated programs whose strings were attached to the promise of federal money.

The 1960s were a time of rapid growth in the field of school curriculum, and school architecture. Graves (1993) commented on the influence of the curriculum and building design on each other:

A qualitative leap in school design took place in the[se] years . . . precisely because architects and educators responded to changing needs and philosophies in program Changes followed as architects scrambled to build schools to accommodate the postwar baby boom and keep up with changing social conditions. The need for flexibility led to the system approach to building school and then to the open plan. At about the same time, magnet schools were

developed as a response to segregation in education. The renovation of existing schools and the addition of portable classroom wings soon developed as typical solutions to the need to expand educational facilities (p. 27).

Architecturally, high school designs included: Campus-Style, International Style, Metabolistic Style, Caudill's Domed schools, and the Open-Plan school. Towards the latter part of the decade, school architects were straying from the traditional exteriors of brick and large banks of windows, and instead favoring non-traditional pre-cast concrete, a reduction of fenestration, and frontless facades. The interiors of these late 1960s school buildings included the terrazzo floor being replaced by tile or carpet, the double-loaded corridor modified in numerous ways, and plaster walls were replaced with metal partitions of little or no substance. In some cases, the interior changes were a reflection of new curricular concepts. In other instances, increasing construction costs prompted the use of newer and cheaper building materials. The era of designing and constructing boxes to house students had passed, the concept of designing educational spaces to accommodate the educational program had arrived; although the age of school design trial and error was just beginning.

In the school year 1975-76, Virginia public school enrollments were at a record high of 1,142,998 students (Wilson, 1988). This record enrollment began a gradual decline shortly thereafter. This enrollment fluctuation had a significant effect on school building construction and design. As Earthman (1981) remarked in his article published in the *Journal for Educational Manager*, *Alternative Methods of Projecting School Enrollments*, ". . . student enrollments have a direct bearing on the four 'Fs' of school administration: facilities, faculty, funding, and function" (p. 11).

Since the oil embargo in 1973, the cost of fuel oil, electricity, coal, and natural gas has resulted in a radical approach to the architectural design of high school buildings in Virginia. Wilson (1988) wrote:

Quoting a study by the Schoolhouse Energy Efficiency Demonstration Program, Worner and Pusey observed that energy costs had increased from \$20 per pupil per year in 1973 to \$60 per pupil per year in 1979. A sound energy management program was recommended for local school divisions to include: commitment by the superintendent and local school board to energy conservation through a basic energy policy with certain goals for energy savings; conducting an energy audit to identify the quantity and cost of each energy source being used; an inspection of equipment and facilities; and cost analysis and evaluation of certain energy conservation actions. Earthman also recommended an overall energy management plan and reported that some financial assistance was available through the Energizing Act and the Virginia Department of Education. Federal grants were on a 50 percent cost participation basis as evidenced by a grant of \$9,743 . . . to Roanoke County.

Since the mid-1970s, new buildings have been designed to facilitate sources of solar energy, proper insulation, and other means for energy efficiency. Fairfax County, Virginia received a \$700,000 grant from Saudi Arabia in 1975 to finance and underground elementary school heated by solar energy. In recent years, energy audits, proper maintenance of temperature controls, computer monitoring systems, retrofitting of buildings, and other undertakings have been made to existing schools to make them more energy efficient (p. 306).

Conservation of energy introduced total environmental control of buildings, therefore windows were all but eliminated. Teachers no longer could control the fresh air and ventilation in their classroom, but were slaves to a thermostat. Natural light from the side was replaced almost exclusively by the florescent variety from above, many complained that the lack of natural shadows caused eyestrain.

The double-loaded corridor, which for decades had limited the interior design of the school building, was abandoned as new approaches to classroom configurations were implemented. Open-Plan high schools were designed and constructed during the mid-1970s, and almost immediately retrofitted with walls due to lack of success that the educational program suffered. Earthman (1994) commented:

Open space education plan, was employed in many elementary schools and unsuccessfully in some secondary schools. The open education or open classroom teaching strategy and the open space classroom teaching strategy are

often thought of as being the same. Open education is based upon the philosophy of the British Primary School model. The idea behind this grouping pattern was that a large group of elementary students would be under the instructional responsibility of a group or team of teachers who planned cooperatively for the instruction of the entire group.

The buildings that were designed for open space education, however still exist. The internal structure of these buildings have been modified over time to reflect more current thinking regarding the grouping of students (p. 135).

The open-plan high school in Great Britain was to follow the open-plan elementary schools by several years. "The design was to come into use at the beginning of the school process and worked its way up because it is easier to change the learning styles of children who haven't had eight or nine years of experience in another tradition" (Graves, 1993, p. 30). The high schools in Virginia which were originally designed in the open-plan concept began putting walls back up almost immediately. Educational planners did not train the instructional staff in the open-plan concept. Teachers had always been trained to look forward to the time when they would get their own private classroom, their teaching domain where they could close the door and be in charge of their own students. Graves (1993) quoted one observer to say of teachers using bookcases and file cabinets to create more traditional settings in a new open-plan high school, "They're putting up their wagons in a circle to protect themselves from attacks" (p. 30).

In the previous decade, the United States Congress passed the Architectural Barriers Act of 1968. This act was created to assist in ensuring a barrier free environment for disabled persons. This had major implications for the architectural design of new schools, or additions to existing school buildings. Virginia school systems and their architects were now responsible for designing school which were accessible to the handicapped. The Architectural Barriers Act had no discernible effect on existing school buildings until the Emergency Jobs Bill, Public Law 98-8 was passed by Congress in 1983:

The Emergency Jobs Bill. Public Law 98-8, enacted on March 24, 1983, appropriated funds on a one-time basis for the purpose of altering existing buildings and equipment in an effort to help school remove architectural barriers that impeded the mobility of disabled students, employees, and parents. The program for the removal of architectural barriers to the handicapped was authorized in 1983 under Section 607 of the Education of the Handicapped Act, as amended by Public Law 98-199 (Wilson, 1988, p. 217).

The Rehabilitation Act and Public Law 94-142 were passed by the United States Congress in 1973 and 1975, respectively. Both laws worked together to prohibit discrimination by public schools against children because of their handicaps. Wilson (1988) explained that:

To be eligible to receive funding under the provisions of Public Law 94-142. A school system agreed to certain conditions that guaranteed a free and appropriate education for handicapped students. Virginia received a grant of \$2,294,680 under Public Law 94-142 in 1975-76. Localities in Virginia have used limited amounts of 94-142 funds to provide renovations--ramps and restrooms--for the handicapped (p. 216).

Section 504 of the Rehabilitation Act states, "No otherwise qualified individual with handicaps in the United States, . . . shall, solely by reason of her or his handicap be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance or under any program or conducted by any Executive agency" (S.Rep. No. 318 93rd Congress, 1st Session, 1973). Section 504 of the Rehabilitation Act provided additional protection for persons with disabilities seeking to achieve a barrier-free society. Indeed, one of the primary goals of Congress in enacting Section 504 was to eliminate architectural barriers. Among the stated reasons for the passage of Section 504 was: "the lack of action in areas related to rehabilitation which limits a disabled individual's ability to function in society, e.g., employment discrimination, lack of housing and transportation services and architectural and transportation barriers" (S.Rep. No. 318 93rd Congress, 1st Session, 1973). These federal laws were to be the precursor for the

Americans with Disabilities Act which has had a major effect on the design of the Virginia high school during the last decade of the twentieth century. This civil rights legislation was signed into law by President Bush on July 26, 1990. It was intended to reduce or eliminate the occurrence of restriction to individuals with handicapping conditions. It was designed to prohibit discrimination by state and local government entities against those with disabilities and generally provides the same remedies as afforded those encountering racial or sexual discrimination. It carries forward the concepts and approaches of the Rehabilitation Act of 1973, but eliminates the proviso that federal funds must be involved. Virginia school districts are particularly impacted by the federal programs of Title I and Title II. Title I affects employment practices and Title II affects virtually all public school district programs and activities. Therefore, all Virginia school districts are subject to the school facility design criteria set forth by the Americans with Disabilities Act. Examples of significant school design requirements included:

- Area of Rescue Assistance (once known as areas of refuge) are required in all buildings without fully automatic sprinkler systems or exits served by ramps to grade.
- Accessible parking space ratio include a requirement for van-accessible spaces.
- Tactile and braille signage is required at each permanent room identification sign, including such pictograms as the "triangle" at a boys toilet.
- Assistive listening device systems are required in all assembly spaces, including those without fixed seats.
- Visual alarm devices are required in each area of common usage, including classrooms.

The inclusion of students, staff, parents, and community members in various programs of the school requires specialized facilities. The high school buildings

designed and constructed near the end of the 1970s and thereafter would be required by law to provide such facilities in their architectural plan.

The decade of the 1980s would see the beginning of social movements to improve education on the local, state, and national levels. In August of 1981, the National Commission on Excellence in Education was created by the Secretary of Education, T. H. Bell. The Commission was created as a reaction to the public's perception that something was seriously remiss in our education system. This Commission's charter contained several specific charges, which included:

- Assessing the quality of teaching and learning in our Nation's public and private schools, colleges, and universities;
- Comparing American schools and colleges with those of other advanced nations;
- Studying the relationship between college admissions requirements and student achievement in high school;
- Identifying educational programs which resulted in notable student success in college;
- Assessing the degree to which major social and educational changes in the last quarter century have affected student achievement; and
- Defining problems which must be faced and overcome if we are successfully to pursue the course of excellence in education (A Nation at Risk, 1983, p. 1-2).

The Commission's charter directed it to pay particular attention to teenage youth, and they did so by focusing on high schools. This Commission published, A Nation at Risk - The Imperative for Educational Reform in April of 1983. In this report, the Commission assessed the educational system in America to be lacking in the areas of curriculum content, expectations, time utilization, and teachers. Recommendations by the Commission mapped strategies for improvements, both immediate and long term. This report was the first of many to address the shortfalls of the educational system.

The report A Nation At Risk prompted the National Governor's Association to form seven task forces at their 1985 meeting in Idaho to address the national concern over our public education system. The seven task forces addressed: Teaching,

Leadership and Management, Parent Involvement and Choice, Readiness, Technology, College Quality, and School Facilities. The Task Force on School Facilities was summarized by Governor Ted Schwinden of Montana:

The most startling thing that we found is that our nation's public school buildings represent a quarter-trillion-dollar investment, yet these facilities are often underused and poorly maintained. That situation is unacceptable.

Most educational reform seeks to change what happens inside school buildings, not how the buildings are used. But we found the overwhelming majority of America's schools are used only five days a week, nine months a year, and are restricted to the formal education of people between the ages of five and eighteen. This makes no sense to us. There are several things that can be done that do make sense.

We now have proof that many students learn more when they do not have three-month vacations, and that a year-round school calendar can be less expensive for districts with growing enrollments that putting up new buildings.

We can make sure our laws and bureaucracies do not stand in the way of districts using their facilities to respond to the broader needs of their own communities while at the same time helping themselves. Schools used for community purposes are less prone to vandalism.

Buildings do not bargain collectively and they have paid the price. During the last decade, millions of dollars for capital repairs were shifted to other expenses, including staff salaries, energy, pollution control, and asbestos removal. A 1983 estimate put the cost of catching up on repairs and maintenance of school buildings at \$25 billion dollars (Time For Results-The Governors' 1991 Report on Education, 1986, p. 18).

The Task Force made five formal recommendations for improving school facilities:

1. States should focus existing "community education" initiatives on the shared use of facilities. Particular attention should be given to community groups providing day care and latchkey services.
2. States should encourage school districts to make more efficient use of school buildings, including the adoption of year-round school calendars.
3. States should act to restore school buildings in which maintenance needs or safety improvements have been deferred.
4. States should establish policies regarding the disposition of obsolete and excess buildings, based upon long-term goals and demographics, as well as the needs of adjacent districts for building space.
5. To provide continuing, in-depth information and technical assistance, states should encourage established educational organizations to develop

greater expertise in this field (Time For Results-The Governors' 1991 Report on Education, 1986, p. 147-148).

Governor Schwinden remarked that:

Regardless of how extensively they are used, school facilities are not as easily altered as textbooks, curricula, or graduation requirements. A community and its school system must live with past decisions about the location of school buildings and their number, size, and layout. Yet the demands on those facilities change as enrollments grow and decline.

If the quarter of a trillion dollars America currently has invested in public school buildings were cash in hand, earmarked for replacement of the existing system, would we rebuild what we have now or design something better? The question is not entirely rhetorical. The cash is not in hand, of course. But in the coming decades we will replace most of our school facilities (Time For Results-The Governors' 1991 Report on Education, 1986, p. 140).

In 1986, Governor Gerald L. Baliles convened the Governor's Commission on Excellence in Education. This Virginia Commission was charged "to bring . . . recommendations for specific actions to make Virginia one of the nation's top states in the quality of education it offers" (Excellence in Education-A Plan for Virginia's Future, 1985, p. 3). From this report, the following recommendations were made that would directly affect high school facilities and design:

We recommend that Virginia gradually reduce the number of students per teacher in grade 1 and in English classes in middle and high schools so that the average size of these classes will be 18 students per teacher in every school division by the year 2000.

We therefore recommend that Virginia employ an Assistant Superintendent for Technology to develop and direct a detailed five-year plan to make educational technology an integral part of public school education.

We therefore recommend that electronic classrooms be available to all schools from the state's five educational television stations... by July 1, 1988 (Excellence in Education-A Plan for Virginia's Future, 1986, pp. 8, 13).

The first recommendation would create the need for additional classrooms to facilitate the reduced teacher-student ratio in high school English classrooms. The second recommendation requires that space must be provided for Technology laboratories,

existing schools must be retrofitted for new technology, and that new buildings be planned for current and future applications of technology. In the Spotlight on Virginia Education (1989) it was reported that the third recommendation had been successfully implemented as:

. . . all 293 high schools in the state now have in place a satellite receiving dish, a video-cassette recorder, a television, a speaker phone, and a facsimile machine. Students can now take calculus, Latin, and other advanced courses. They can watch the teacher, listen to the lecture, and ask questions, as well as turn in quizzes and homework. More than 800 students are now enrolled in distance learning classes.

The same technology that can get Latin lessons to students can get training programs to teachers. Through "interactive teleconferencing," various panel discussions, lectures, and call-in shows can be offered to provide staff development for teachers and administrators.

With the growth of computerized databases, a student with a computer, telephone modem, and software now has access to some of the largest data bases in the world. A student's research project is no longer limited to the books on the shelf of the library (pp. 26-28).

The proliferation of such technology changed the way that architects designed schools. New teaching and learning technologies, such as computers, electronic notebooks, and CD-Roms are already changing the way that students learn, and they will continue to evolve. Graves (1993) commented on technological advances in regard to schools:

. . . in 1991, Sony introduced its Data Discman, a portable, palm-sized electronic book player, which provides on one disc access to *Compton's Concise Encyclopedia* and other resource books. One disk holds up to 100,000 pages. In other words, a student can carry a small library in one hand. Some of this technology will require special wiring and furniture, and school architecture will have to accommodate it. Architects will have to remember, however, that computers and video-display terminals are tools, not ends within themselves. They are the new kinds of "books" that will require proper "shelves." But just as bookshelves do not make a library, computers and video equipment will not make a school.

... such technology, however, raises some interesting questions. Will students continue to "go to school"? Or will they work at their computers at home? (p. 6).

While educational technology has advanced to a high level, there are limits to the effectiveness of machines. "And just as there are advantages to face-to-face communication in business, there are important educational reasons to maintaining the many human encounters-both planned and spontaneous-that can happen only in a formal school setting" (Graves, 1993, p. 7).

The social movement to improve education was accompanied by several books discussing the ills of the American educational system. Some of these books included: TheodoreSizer's *Horace's Compromise*, John Goodlad's *A Place Called School*, Ernest Boyer's *High School*, and *The Shopping Mall High School*. These books reviewed the evolution of American education, with extensive expository on where we had been, where we are, and in which direction we should move. The underlying theme of these reports on the health of education was very similar to the reform movement of the late 1950s. Ernest Boyer (1983) related:

In 1953, Arthur Bestor wrote: "The idea that the school must undertake to meet every need that some other agency is failing to meet, regardless of the suitability of the schoolroom to the task, is a preposterous delusion that in the end can wreck the educational system."

Bestor was almost prophetic. Since the English Classical School was founded over 150 years ago, high schools have accumulated purposes like barnacles on a weathered ship. As school population expanded from a tiny urban minority to almost all youth, a coherent purpose was hard to find. The nation piled social policy upon educational policy and all of them on top of the delusion that a single institution can do it all.

Today's high school is called upon to provide the services and transmit the values we used to expect from the community and the home and the church. And if they fail anywhere along the line, they are condemned. What do Americans want high schools to accomplish? Quite simply, we want it all (p. 57).

Again, schools were blamed for the country's slip in industry, commerce, and dominance in our ever increasing global community. The authors of treatises' were themselves educators, thus they were proactive in their writing about what schools could do to contribute to educational reform, as opposed to the all too familiar mandate by government. John Goodlad (1984) prefaced *A Place Called School* with:

The context of widespread disaffection with schooling in the United States has shifted to one much less easily characterized. Criticism abounds, to be sure, but the indiscriminate giving of it has become less fashionable. There is even a growing mood that some schools are now beginning to improve rather than continuing to get worse. If some schools are getting better, so can others. Criticism by those who use schools is focused less on these schools than on the system of schooling, it appears. Perhaps this is just part of the general decline of faith in our institutions and especially the bureaucratic insensitivity they are perceived to represent. There has been some shift away from the proposition that schools are most likely to be changed by mandates and strategies emanating from Washington or state capitals (p. xv).

Goodlad (1984) remarked on school architecture:

Only a few of the schools were architecturally pleasing-and then usually more by contrasts with the ugliness of others than by virtue of their own merits. One . . . senior high school-on a flat site was so drab, dirty, and unadorned with landscaping or color that I could only wonder about the impact on students who had to spend consecutive years of their lives there.

In another part of the country . . . one came to the red brick building through a fringe of trees. Did this aesthetic setting, the handsome building, and the terraced, landscaped, spacious grounds have any impact on those in attendance? They appeared higher spirited than those at the older (building), but perhaps my own sense of pleasure distorted my perceptions (p. 240).

Boyer's (1983) *High School-A Report on Secondary Education in America* addressed school facilities:

There remains one emergency that calls for a federal response. Many of our nation's schools have fallen into disrepair and are, in some cases, hazardous. The situation is as alarming as the decay of our highways, dams, and bridges. A 1983 survey of 100 school districts in 34 states showed:

- 71 percent of schools need roof repairs or replacements
- 27 percent need repair or replacement of heating and air-conditioning equipment
- 20 percent fail fire and safety standards
- 13 percent are not meeting building requirements for the handicapped
- 11 percent have not removed asbestos from buildings

Quality education does not require a luxurious setting, but surely it should provide adequate facilities. The schoolhouse itself should not place students in harm's way. More than that, it should be a place that is decent and safe.

The federal government has a leading role to play in rebuilding the nation's schools. A new federal program, the School Building and Equipment Fund, should be established to provide short-term, low interest loans to schools for plant rehabilitation and for the purchase of laboratory equipment.

In 1963, Congress passed the High Education Facilities Act to make available to the nation's colleges low-interest loans to accommodate the post-World War II enrollment boom. Today's emergency calls less for new buildings and more for the repair of existing facilities and the equipment of science labs (p. 295).

Goodlad's comment, "the schoolhouse itself should not place students in harm's way" was coincidentally brought to light in the 1980s by the: Asbestos School Hazard Detection and Control Act of 1980; United States Environmental Protection Agency rules of 1982; and the Asbestos Hazard Emergency Response Act of 1986 (Wilson, 1988, p. 276). These acts identified asbestos as a possible health hazard for students and school staffs. In particular, asbestos-containing materials which become flaky or friable may release deadly asbestos into the air as a result of damage, deterioration, or vibration. These laws prompted the removal of asbestos from Virginia school buildings at the expense of local school division since no federal funding was provided. As a result of this legislation, old and familiar asbestos-containing materials were abandoned for additions, renovations, and new building construction.

Virginia high school architecture began to take on a new flavor. The "Open-Plan" configuration of the 1970s was forsaken in the instructional areas, but many elements,

including: commons areas, auxiliary gymnasiums, and department wings or pods were retained and refined. Powell, Farrar, and Cohen (1985) wrote:

Many contemporary high schools even look like shopping malls. Blessed by a favorable climate, one is a complex of attached single story buildings whose classrooms open to the outdoors rather than to locker-lined corridors. Between periods students go outside to find their next destination, entering and leaving classrooms as if they were adjacent stores. Another school appears massive and mysterious from the outside, but its architecture looks inward: everything radiates from a lively covered promenade. This mall, in a less forgiving climate, is appropriately enclosed (p. 9).

It is ironic that high schools should be compared to "shopping malls", as the original concept of the shopping mall was conceived from the design of the traditional high school. Planners of the original shopping malls were looking for an environment where shoppers could walk from store to store, protected from the elements in a setting which would capitalize on space, (Dunay, 1995, Interview). Shopping malls over a period of time evolved in design to include: atriums, fountains, escalators, and non-traditional building materials. Architects have borrowed from these structures to make school buildings an interesting place for students to experience education. Graves (1993) stated:

Looking for a model to help shape an approach to public space that a typical student would respond positively to, many architects have turned to the shopping mall. Indeed, some architects even refer to the circulation spines in their school designs as "malls" or "educational shopping centers." A growing number of schools now use a mall-like space as the central organizing element in their plan, radiating other public spaces and classrooms wings from this activity hub (p. 71).

Graves (1993) continued by remarking, "that educational fads certainly affect the way schools are laid out, but certain basic floor plans (or variations thereof) surface over and over" (p. 71). These reoccurring floor plans included:

The Compact Plan- the most commonly used of all layouts, especially in an urban setting because it minimizes the amount of land needed. This two- or three story plan can be the most cost-

effective. Some architects relieve the monotony of this design by arranging the design around an interior courtyard.

The Loft Plan-

Large expanses of space, easily divisible and often lit from skylights above. This design allow for great economy and flexibility. In the 1960s and 1970s educators realized that the loft-plan lent itself naturally to the then popular open-plan and building-systems approach.

The Finger Plan-

A simple arrangement in which classrooms spread out from a central corridor, the finger plan can be easily expanded by merely continuing the circulation spine and adding more fingers. It provides all classrooms with direct access to the outside and allows natural ventilation.

The Campus Plan-

A series of individual buildings arranged on site, the campus plan can help break down the massing and scale of a large school. Modeled after colleges, the plan usually can be easily expanded by adding another individual building. The buildings can define quads and other outdoor spaces that can be used as important shared amenities.

The Cluster Plan-

A variation of the campus plan, this arrangement can be described as a collection of small schoolhouses linked by enclosed hallways. The enclosed connections eliminate the problems caused in harsh climates by the campus plan. Like the campus plan, this approach offers easy expansion possibilities. It can also reflect the organization of the school by subject, grade level, or "houses" (Graves, 1993, pp. 71-72).

School architects of the late 1980s and early 1990s understand the importance of indoor-outdoor relationships. Bringing into the high school building the natural light and views are special efforts to interweave indoors and outdoors together, using elements such as courtyards, plazas, light wells, and extensive glazing. "Today school architects are more sensitive to the growing trend toward regionalism in design" (Graves, 1993, p. 73), as schools are being designed to fit their surrounding environment.

Perhaps as a result of the social movement to reform schools, or a response to the polls, the executive branch of the United States become publicly interested in public education during the late 1980s, early 1990s. In October, 1989, President Bush met with all fifty state Governors in Charlottesville, Virginia to establish the National Educational Goals for America. Over the last few years, these goals have been added to, and modified. The National Educational Goals for America, has been renamed: America 2000-An Educational Strategy, and later, under another administration, yet another name: Goals 2000. These documents of expectations and goals for our schools are just a part of the ever changing public reaction to our schools. As Graves (1993) stated:

This is an important lesson for school planners. Curricula will change. Technology will change. Class size will change. Educational approaches will change. And school buildings should be able to accommodate these changes comfortably. A good school house is never "finished." It evolves and adapts as people and programs evolve (p. 7).

Earthman (1994) reiterates this point by commenting on how educational planners adapt the building to educational trends:

There are many examples of when people divorce the physical planning activities of a school building from the educational planning efforts of the school system. Planning physical facilities in isolation to the rest of the school system is detrimental to the planning done for educational improvement. This isolation is further carried on in the design phase when an architect has no educational specifications to guide his work.

Three major questions that must be answered in order to have an educational program:

- (1) What will the students be taught? (Curriculum)
- (2) How will the students be taught? (Methodology)
- (3) How will students be grouped for instruction? (Organization)

The curriculum is rarely scrutinized to determine relevance or purpose for the goals of the school. New courses are frequently added to the curriculum and different programs become the responsibility of the schools because of outside pressure upon the school system. Almost never is any subject area or program

deleted from the curriculum to make way for the new material or because the material is no longer relevant to the goals of the school system. This additive approach to curriculum reform puts more pressure on the teachers to include the new material and still include the regular subjects. The additive approach also dilutes the time devoted to some of the essential parts of the curriculum.

Nevertheless, what is taught-the subject matter of the curriculum-has and should have a tremendous impact upon the number of spaces that are needed and the way the interior of the building is configured. Obviously, the science, vocational education, physical education, and art programs, for example, determine greatly the characteristics of the spaces in which they are taught. Utility services needed in an educational program, the size and kinds of equipment used, and the unique spaces needed to house educational function all impact the interior of a building. Subject matter has the greatest impact upon the building shape when special equipment or technology is needed in the program (p. 134).

David Boddy, Director of Facilities Services, Virginia Department of Education paraphrased the famous American architect Louis Sullivan his description of an effective high school design in Virginia:

A high school building must adhere to the "form follows functions" theory to accomplish the goals of educating students. Most of the recently constructed high schools in Virginia have been designed by a half-a-dozen architects. The curriculum changes faster than they can respond. A particular educational movement may be hot while the design is on the drawing board, then by the time the building is constructed, new pedagogies are in vogue and the building is already lacking. High schools in Virginia today cannot afford to be wasted real estate (David Boddy, Director of Facilities Services - Virginia Department of Education, Interview, January 5, 1995).

Boddy stated that the Division of Facilities Services has provided services to school divisions in the planning and construction of high schools in the state of Virginia since 1920. For over seventy-five years, all school designs, plans, and drawings were submitted for approval to the State Department of Education. This review had saved school divisions thousands of dollars, and provided the required compliance of school buildings to safety standards, building codes, and educational practices. On August 28, 1992, Joseph A. Spagnolo, Jr., Virginia State Superintendent of Public Instruction revised

the long standing Williams Act of 1906. Superintendent's Memo number twenty-three reads as follows:

REVIEW AND APPROVAL OF SCHOOL CONSTRUCTION DOCUMENTS

In our continuing efforts to reduce mandates, regulations, and reporting requirements, Facilities Services will no longer require the submission and approval of school construction documents as prescribed by the State Board of Education in the School Building Regulations (blue pages). All references in these regulations that require approval by the Department of Education have been waived and include programs, preliminary drawings, final drawings, specifications, equipment layouts, and supplemental classrooms... Please note that only the requirements for review and approval have been waived, all other school building regulations are still in effect and compliance is necessary. Facilities Services will continue to provide technical assistance and will review your projects if voluntarily requested by the Division Superintendent, as time and schedule permit. This policy applies to all construction projects, including asbestos designs and projects funded through the Literary Fund (Virginia Superintendent of Public Instruction Memo #23, 1992, page 1).

This revision requires that "the submission of final plans and specifications (one copy), approval letter of plans and specifications by division superintendent, and architects statement 'that such plans and specifications are, to the best of his knowledge and belief, in compliance with the regulations of the Board of Education and the Uniform Statewide Building Code' " (Virginia Superintendent of Public Instruction Memo #23, 1992, pp. 1-2).

On December 31, 1993, the Virginia Department of Education released its findings from the School Facility Status Survey. The survey's foreword addressing the need for this accounting of school facilities in Virginia is paraphrased below:

Some school divisions in Virginia are able to provide adequate facilities for schooling. In these divisions, obsolete buildings are replaced, existing structures are maintained, classrooms are updated with the technology required to support programs, and safe environments are provided for education the children of the community. These school divisions have the financial resources needed to carry out their plans, even when the economy is declining. However, other divisions cannot finance capital improvements and are not able to provide even basic

maintenance when it is needed. In these divisions, teachers, administrators, and children are forced to accept conditions that are, at best, crowded and uncomfortable, or at the worst, dangerous and unhealthy.

When funds are not available to address critical problems through renovation and replacement of facilities, state and local officials are forced to tolerate situations in these schools that would not be allowed in other kinds of buildings.

Virginia is committed to providing an internationally competitive education system. Such a system must include educational environments that are conducive to learning (Virginia Department of Education-School Facilities Status Survey, 1993, p. i).

Some highlighted results of the survey included:

LEARNING ENVIRONMENTS

-Deferred maintenance in 48% of Virginia's schools indicates continuing economic distress. Delays in rectifying problems have serious consequences:

- *Long-range costs are needlessly increased due to shortages in funds.
- *Poorly maintained buildings are distracting to learners.
- *Student and teacher morale suffer when learning environments are in poor condition.

-40% of school facilities are not energy efficient, 37% need air conditioning, and 42% have temporary classrooms.

- *Temporary classrooms and buildings that are not energy efficient waste financial resources.
- *Energy efficiency is a prerequisite for air conditioning.
- *Closing schools because of hot weather decreases exposure to learning activities.
- *Air conditioning increases a division's length of school year options.

-One-third of Virginia's schools fail to accommodate handicapped parents and students--a critical standard for all public buildings.

-22% of schools are unable to accommodate present education program needs.

CRITICAL HEALTH AND SAFETY STANDARDS

-Environmental concerns including radon, lead, asbestos, indoor air quality, and underground storage tanks are evident in 34% of Virginia's schools.

-Emergency lighting should be required in all schools; 19% of Virginia's schools do not have emergency lighting. The *Code of Virginia* presently exempts older buildings from this requirement.

-Divisions have identified 12% of their schools as having structural defects that are in need of attention.

- 10% of schools do not even have manual fire alarms. The *Code* exempts older buildings from this requirement. Fire alarms should be required in all schools to protect the safety of Virginia's children.

AGE OF SCHOOL FACILITIES

- By the year 2000, 68% of Virginia's schools could be in need of major renovation or replacement.
- Buildings constructed prior to the 1960s require major renovation to accommodate new technology and to provide an adequate learning environment.
- Buildings constructed during the 1960s were designed for a 30-year life span, and will become obsolete in the 1990s.

4,075 CLASSROOMS NEEDED IMMEDIATELY

- There is an immediate need for a 7% increase in elementary classroom space, a total of 1,676 classrooms beyond those currently available.
- A 6% increase in middle school classroom space (835 classrooms) is also required at the present time.
- Even at the secondary level, there is a need for 3% more classrooms that currently exists (564 classrooms).
- These need levels are substantiated by division reports that more than temporary classrooms are in use and an additional 632 schools are overcrowded.

4,603 CLASSROOMS NEEDED OVER THE NEXT FIVE YEARS

- Currently elementary classroom space must be increased by 9% (2,221 classroom) to meet increased space needs over the next five years.
- Classroom needs in middle schools are also expected to increase by 9% (1,207 classrooms).
- Nearly 7% more secondary classrooms will be required to accommodate high school program needs (1,175 classrooms).

(Virginia Department of Education-School Facility Status Survey, 1993, pp. 3-13).

From these statistics, it can be assumed that educational facility planners in Virginia will be faced with a possible demand of nearly 9,700 additional classrooms by the year 2000. It is certain that new educational trends and technology will influence these future buildings and/or additions. Castaldi (1994) remarked, "it seems hopeless-and yet fascinating-to try to design a structure for functions yet unknown" (p. 164). Virginia school buildings will far outlast the current educational practices and must,

therefore, be designed with flexibility and adaptation in mind. Castaldi (1994) presented a perspective of school planning for the future:

School plant planners should design buildings that are easily adaptable to future practices . . . This concept is not new, by any means, but it needs to be taken more seriously by school designers. To be sure, a small number of outstanding school architects are already designing truly adaptable school buildings. Unfortunately, a larger number are still planning traditional school buildings, in accordance with the dictates of conventional boards of education. Boards of education want to avoid antagonizing or arousing citizens by introducing radical changes in school design. This is, of course, understandable. But such boards ought to realize that adhering strictly to conventional design can lead only to mediocrity. Designing *adaptable* school buildings requires boldness and imagination. In general,

1. all instructional spaces should be capable of being altered in size and shape at a reasonable cost.
2. all utilities should be easily accessible to all parts of a school building.
3. mechanical and electrical elements should be installed so as not to impede the relocation of interior partitions.
4. ceilings should be designed so as to facilitate changes within a school building.
5. the types of luminaries employed should not restrict the placement of interior walls within the building to any major extent.
6. the design of the building should facilitate the installation of electronic devices in all parts of the structure (p. 164).

While no one can predict the future of education in Virginia, one can anticipate what is to come by looking at what has already begun. The architectural design of high schools in Virginia to a large degree will be "a continuation of current concerns: accommodating community needs and new user groups, minimizing the impact of large facilities, and giving individual schools their own identities" (Graves, 1993, p. 157). The high school design of the future will be shaped by trends that are just now being recognized: incorporating new technologies, responding to a more localized decision-making process, equalization of educational opportunities, providing more services to a wider clientele, and the parity of school facilities. Based upon these principles, Virginia

high schools must be planned to meet the needs of the present with attention given to the future, or "the resulting building will always vaguely represent the school buildings of a century earlier" (Earthman, 1994, p. 135).

CHAPTER THREE

METHODOLOGY

Introduction

The purpose of this study was to document the history of Virginia high school architecture and curriculum in text and pictorially. This study concentrated on the exterior architectural styles and the interior configurations of existing Virginia high schools. Particular attention was given to the relationship between the educational program of the high school and its architectural design. The development of the building that houses this educational institution was documented and recorded through the use of historical research methods. The intention of the study was to preserve the past by means of an architectural record of twentieth century Virginia high schools.

Population

The population of the study was comprised of all 284 public high schools in the state of Virginia. To determine which schools might become part of the targeted population, schools identified as housing a high school program, generally grades 9-12 were inventoried. Each school was identified using the 1994-95 Virginia Educational Directory and the 1994-95 Virginia High School League Directory.

To select the sample of schools which would best represent each architectural period required collection of data about each school building in the identified population. The entire population was surveyed to collect data for the study. These high school

buildings ranged in age from 84 years to less than one year. They were located throughout the state of Virginia in cities, towns, and rural areas. See Appendix D for a complete list of the schools included in this study.

Data Needs

The design of the study permitted a comparison of existing public high school building data in Virginia. Original construction dates, dates and types of additions and/or major renovations, school number, grade-levels, current student enrollment, student capacity of facility, principal's rating of building capacity, number of temporary units on site, overall rating of the principal of the facility, and noteworthy architectural or educational features were determined by the researcher based on the information collected from the individual school. Floor plans or school maps were also provided by each high school.

The study required the researcher to assess the collected data from the study population and to select the school buildings which best exemplify an architectural period. Criteria for selection was:

- 1) Date of original construction;
- 2) Completeness of original structure (additions and major renovations taken into account and affecting the pristine element of the existing building);
- 3) Overall rating of the principal (building condition, design, and functional ability as it serves students, staff, and community);
- 4) Noteworthy architectural or unique educational features; and
- 5) Subjective comparison (examining floor plans, photographs, and visiting the school site).

Other demographic information about each school was obtained from the most recent Southern Association of Colleges and Schools (SACS.) - self-study reports, which contained detailed information about the schools' curriculum and facilities.

Instrumentation

An assessment instrument was developed to determine the construction date, additions, major renovations, building enrollment, building capacity, over-all facility rating, and any noteworthy architectural or educational features of each school building. The assessment instrument was reviewed by five individuals experienced in facility assessment. The assessment instrument, the *High School Building Survey* (Appendix A), was composed of ten questions and sent directly to each high school principal. The instrument was constructed so as to be responder friendly. The first three questions required a general knowledge of the history of the high school building. Questions four and five required basic knowledge of the student population. Questions six and seven were the best estimate of the principal concerning the building's student capacity. Question eight requested the number of temporary or mobile classroom units on site. Question nine requested that the principal rate the current high school facility, choosing one of the five provided descriptors: excellent, good, adequate, lacking, and unfit; an area for comments was provided. Question ten provided space for the description of any noteworthy architectural or unique educational features about the school building.

The instrument requested that the principal return the completed survey with a school map of the existing floor plan. The instrument was accompanied by a letter explaining the purpose of the survey, a request for participation in completing the

questionnaire, and a pre-addressed, stamped envelope for the convenience of the responding principal.

Data Gathering

Two hundred and eighty-four schools in Virginia were identified as public high schools (Appendix D). In early November, 1994, principals of each public high school were sent a letter (Appendix B), instrument (Appendix A), and pre-addressed, stamped envelope asking for their participation in the study. Each principal was instructed to return the survey and school map of existing floor plan to the researcher by Friday, November 25, 1994. Four weeks after the initial mailing, one hundred and seventy-seven (62.3%) of the completed instruments had been returned. A postcard was sent to those principals (fifteen or 8.47%), who had completed and returned the survey, yet neglected to return a school map of the existing floor plan with the completed instrument.

A second letter (Appendix C) was sent to the one hundred and seven non-respondents requesting that they complete the enclosed instrument and return it with a copy of the map of the existing floor plan in the enclosed pre-addressed, stamped envelope. A total of two hundred and fifty-three (89.1%), completed instruments were returned to the researcher. A postcard was sent to those principals (sixteen or 6.32%), who had neglected to return a map of the existing floor plan with the completed instrument.

The remaining thirty-one (10.9%) non-respondents were contacted by telephone. The researcher requested that the high school principal or a designee participate in the study by answering the questions on the instrument over the telephone. All thirty-one non-respondents agreed to participate by telephone interview. In addition each school

agreed to send the map of the existing floor plan. Six weeks following the initial mailing, one hundred percent (100%) of the public high school population had responded to the *High School Building Survey*. Two returned instruments were completed without a name or address. The identities of these respondents was discovered during the telephone interviews.

A total of two hundred and fifty-seven (90.5%) of the school maps of existing floor plans were returned to the researcher. Twenty-seven postcards were sent requesting principals a second time to send school maps of existing floor plans to the researcher. Three weeks after the postcard reminders had been sent, a total of two hundred and seventy-six (97.2%) of the maps of existing floor plans had been returned to the researcher. An additional eight postcards were sent requesting principals the third time to send the school maps. The postcards were accompanied by follow-up telephone calls. Eventually all two hundred and eighty-four (100%) of the school maps were submitted to the researcher.

Data Analysis

Upon the completion and return of the survey instruments and accompanying school maps, the data were analyzed using simple trend analysis to order high school buildings in a chronology, to record years and types of additions and renovations, building number, student grade-level, student enrollment versus building capacity, principal rating of student capacity and building condition, number of temporary classrooms, and noteworthy architectural, or educational features. High school buildings were organized in a chronological order according to the compiled data (Appendix D). Data from the completed instrument were displayed alphabetically according to high

school building name on a spread sheet (Appendix E) for analysis and selection of the best representative examples to exemplify the architectural period. In addition, the researcher visited and photographed one hundred and ninety-two (68%) of the two hundred and eighty-four school sites for additional data. From the compiled data, the researcher chose schools that best represented architectural periods. Seventeen schools were chosen using the established selection criteria. Each school was visited, photographed, and researched with respect to the school's original exterior architecture, interior configuration, and curriculum. A study of the current conditions of external design, internal arrangement, and educational program was developed through site visitation, interviews, and examination of recent self-study reports.

CHAPTER FOUR

FINDINGS

Introduction

The study focused on a combination of things: first, the architectural style of the exterior of the high school building; second, the interior configurations of the high school's floor plan or arrangement of instructional areas; third the demographics associated with the high school building; fourth the relationship between the building and the educational program at the time of construction; and finally, the updated curriculum and its association with the facility in 1995.

Data Spreadsheet

The data were first consolidated from the returned instruments (surveys) and transferred to spreadsheets for comparison of the entire population. The spreadsheets were used to determine the chronological order of the construction dates for each school building and comparisons of: frequency and type of building additions and renovations, building number, student grade level, principal rating of student capacity and building condition, number of temporary classrooms, and noteworthy architectural or educational features.

Item 1

Item 1 asked, "*In which year was your high school building originally constructed?*" A frequency distribution yielded a range of eighty-four years, with the

oldest extreme value being one school building constructed in 1911 (Maury High School, Norfolk) and the newest (most recently constructed) extreme values being five school buildings constructed in 1994 (James River High School, Chesterfield County; Liberty High School, Fauquier County; Ocean Lakes High School, Virginia Beach; Oscar Smith High School, Chesapeake; and Windsor Middle and High School, Isle of Wight). Two new high school buildings not included in the study population were under construction during the research period of 1994-95 (Hickory High School, Chesapeake, new school to open September, 1996; and Nottoway High School, Nottoway County, to replace current facility of same name). Two frequency distributions were established from Item 1 responses:

Table 1: Age Comparison of Existing High School Buildings as per Decade

Percentage		Decade	Age in Years
0.35	Virginia high school buildings, built before	1920	84
3.18	"	1930	≥65
9.80	"	1940	≥55
10.56	"	1950	≥45
36.61	"	1960	≥35
66.90	"	1970	≥25
85.56	"	1980	≥15
93.66	"	1990	> 5

Table 2: Number of Existing High School Buildings Built per Decade

Decade	Number of Existing Buildings	Percent
1910-1919	1	0.35
1920-1929	8	2.82
1930-1939	17	5.63
1940-1949	5	1.76
1950-1959	74	26.05
1960-1969	85	30.28
1970-1979	53	18.66
1980-1989	23	8.09
1990-1994	18	6.33

Item 2

Item 2 asked: *In which year(s), (if any), were additions or renovations made to the original high school structure? This may include major renovations, retro-fitting, and/or the addition of satellite buildings. (Please be as specific as possible):* Ninety-three (32.7%) of the principals reported that no additional construction (major additions, or renovations) had occurred since the original construction date of their school facility. Eighteen (6.3%) of these school buildings were constructed in the 1990s, sixteen (5.6%) in the 1980s, twenty-eight (30.1%) in the 1970s, nineteen (6.7%) in the 1960s, nine (3.2%) in the 1950s, and one (0.35%), each in the 1940s, 1930s, and 1920s. Of the ninety-three schools that reported no major additions or renovations, fifteen (16.1%) of these experienced some retrofitting within the building (window treatments, air-conditioning, elevator installation, construction of walls to modify open-plan space, and roof repair) to name a few.

Item 3

Item 3 asked, *"To your knowledge, is the building that currently houses your high school the first? Second? Third?"* From the returned data, one hundred and seventy (59.9%) of the principals reported that the building that currently housed the high school program was the first building named as such. Ninety (31.7%) of the principals reported that the building was the second named as such. Nineteen (6.7%) of the principals reported that it was the third. Four (1.4%) of the principals reported it as the fourth, and one (0.35%) principal reported that the building was the fifth building to be named as such. Five (1.76%) of the principals reported that the building housing their current high school program, was at one time a high school with a different name. Two (0.7%) of the principals reported that current building was originally an intermediate school, and one

(0.35%) principal reported that their building was originally an elementary school. The name changes were made to facilitate consolidation and/or integration.

Item 4

Item 4 requested that the principal respond by: *Please circle the appropriate category for your student population:*

- a. Grades 9-12
- b. Grades 10-12
- c. Grades 8-12
- d. Grades 7-12
- e. (Other) _____

Two hundred and eight (73.2%) of the principals reported that their school building housed the grade levels: 9, 10, 11, and 12, exclusively. Ten (3.5%) of the principals reported that their school building housed the grade levels: 10, 11, and 12, exclusively. Forty (14%) of the principals reported that their school building housed the grade levels: 8, 9, 10, 11, and 12, exclusively. Thirteen (4.6%) of the principals reported that their school building housed the grade levels: 7, 8, 9, 10, 11, and 12, exclusively. Eleven (3.9%) of the principals reported that their school building housed the grade levels: 6, 7, 8, 9, 10, 11, and 12, exclusively. Two (0.7%) of the principals reported that their school building housed the grade levels: K-12, exclusively. One (0.35%) of the principals reported that their school building housed the grade levels: 9, 10, and 11, exclusively but will house grade levels 9, 10, 11, and 12, exclusively beginning with the 1995-96 school year.

Item 5

Item 5 asked. *"Please indicate your building enrollment as of September 30, 1994:"* Enrollment figures ranged from a low of 67 (Mount Rogers Combined School, Grayson County, K-12), to a high of 3,858 (Lake Braddock Secondary School, Fairfax, 7-12). The total reported student enrollment as of September 30, 1994, for the entire study population was 303,032. The mean student enrollment of the school buildings in the study population (284 high schools) was calculated at 1,067, but the median school building population was 936 students.

Item 6

Item 6 asked, *"What is the student capacity of your current school building?"* Student capacity per school building was based upon the assessment of the principal of the ability of the building to house students with respect to the current educational program. Building capacity for students ranged from a low of 170 (Highland High School, Highland County, 7-12) to a high of 3900 (Robinson Secondary School, Fairfax, 7-12). The total reported student capacity per school building for the entire study population was 334,213. The mean student capacity per school building in the study population was calculated at 1,177.

Item 7

Item 7 requested that the principal respond as follows:

(Circle one:)

"We are over-capacity."

"We are at capacity."

"We are under-capacity."

One hundred and thirteen (39.79%) of the principals reported that their building was under capacity with respect to the number of students and that of the educational program housed within the school. One hundred and six (37.32%) of the principals reported that their building was at capacity with respect to the number of students and that of the educational program housed within the school. Sixty-five (22.89%) of the principals reported that their building was over capacity with respect to the number of students and the educational program housed within the school.

Item 8

Item 8 asked, "*Please indicate the number, (if any) of temporary, or mobile classrooms on site.*" Ninety-five (33.45%) of the principals reported that they had one, or more temporary classrooms, mobile units, or trailers on the school site. Four hundred and ninety-five temporary or mobile classrooms were reported to be on site for the entire study population. Twenty-seven was the highest number reported at any one school site (Indian River High School, Chesapeake); twenty-six were reported at two high school sites (Robinson Secondary School, Fairfax, and Great Bridge High School, Chesapeake).

Item 9

Item 9 requested that the principal respond as follows: *Please rate your current school facility: (Please check one.)*

- a) *Excellent* _____
- b) *Good* _____
- c) *Adequate* _____
- d) *Lacking* _____
- e) *Unfit* _____

Comments: _____

Seventy-nine (27.8%) of the principals rated their facility as excellent in regard to building design, condition, and how it serves the students, staff, and community. One-hundred and four (36.6%) of the principals rated their facility as good in regard to building design, condition, and how it serves the students, staff, and community. Sixty-one (21.5%) of the principals rated their facility as adequate in regard to building design, condition, and how it serves the students, staff, and community. Thirty-eight (13.4%) of the principals rated their facility as lacking in regard to building design, condition, and how it serves the students, staff, and community. Two (0.7%) of the principals rated their facility as unfit in regard to building design, condition, and how it serves the students, staff, and community.

Item 10

Item 10 asked, *"Are there any noteworthy architectural or unique educational features about your building?"* Principals were asked to identify anything about their school building that stood out in comparison to other high school facilities with regard to the architecture or educational program. Responses were recorded in the consolidated data spreadsheet and used as criteria for the selection of school buildings to best represent an architectural period. One hundred and eighty-seven (65.8%) of the principals reported one or more "noteworthy architectural or unique educational features" that stood out about their building. Ninety-seven (34.2%) of the principals responded with "None" or did not provide a comment.

Selection of the Representative High School Buildings

Seventeen high school buildings were selected to represent specific architectural periods. Each school building was selected based upon the selection criteria established:

- 1) Date of original construction;
- 2) Completeness of original structure (the pristine element of an existing building is dependant upon the absence of major renovations, changes, and additions to the structure which would drastically alter the architectural style);
- 3) Overall rating by the building principal (condition, design, and functional ability to serve students, staff, and community);
- 4) Noteworthy architectural or unique educational features; and
- 5) Subjective comparison (examining floor plans and photographs).

In some cases, there were few examples to choose from; as was the case with the existing school buildings which were constructed in the early portion of the twentieth century. Each high school building chosen was considered the best example of a particular architectural style. During some time periods, more than one architectural style was prevalent; thus, more than one building is depicted.

MATTHEW FONTAINE MAURY HIGH SCHOOL

circa: 1911

Norfolk, Virginia



Maury High School, the oldest public high school in Norfolk and the oldest existing public high school building still in use in the Commonwealth of Virginia, formally opened its doors to its first class on March 21, 1911. Constructed in the neoclassical style, the 153,000 square foot building is festooned with alternating terra cotta waves and fret patterns. This four story structure was originally constructed in an "E" shape with classroom wings constituting the top and bottom legs of the "E" and the

auditorium making up the middle leg. Between the legs were two courtyards. The exterior architecture featured egg and dart molding, fluted-Doric Order columns and pilasters, dark brick masonry accentuated by Quoin of marble and stone, and over 300 exterior windows. The interior of the high school featured the double loaded corridor, a marble foyer, and a 750 seat auditorium with a balcony. The hallways had marble floors and extensive wood paneling, brass railings, and transoms over each door. Classrooms were designed with wooden floors and eleven foot ceilings. There were blackboards on the three interior plastered walls, and ample fenestration in the exterior wall.

The interior configuration of Maury High School was well-suited to the newly published 1910 Course of Study for the Public High School of Virginia. This course of study was a lecture-based curriculum which prescribed a minimum of four units of English, three units of mathematics, two units of history, two units of science, and five units of elective study which may include: Latin, German, French, Spanish, history, physical geography and agriculture, manual arts, botany and zoology, physics, chemistry, or mathematics (Buck, 1952).

In 1986, Maury High School underwent an extensive two-year exterior and interior renovation which ended in September of 1988. The description of the high school's current facilities is provided from the 1993 Self-Study Narrative Report:

Using the city's and school officials' anticipated program as a blueprint, the renovation team developed an expansion program that would meet current space requirements and state educational standards while maintaining the historical significance of the building.

In renovating the structure, the existing 153,000 square foot building was completely refurbished. Exterior renovation included cleaning, repairing, replacing, and repointing the terra cotta and brick masonry units. The entire facility received a new roof and flashing, and 300 existing windows were replaced with double-glazed glass in aluminum frames to match the existing fenestration pattern. A new mechanical system was added to provide the building with heating and air conditioning.

New interior spaces provided office suites for counselors and administrators, as well as planning areas for instructional departments. A new elevator is available for handicapped students, freight, and medical assistance. The renovation included the installation of telephones, an intercom system, an emergency button system, and a Multi-Guard Security System to protect the building when unoccupied. Wiring that allows the transmission of information through wall-mounted monitors from a studio in the library, VCR, or satellite disk was also installed.

The hallways sport the school's colors with orange lockers and blue and white tile floors. Bulletin boards fill spaces between banks of lockers, and each student organization is assigned an area. The second-floor auditorium also was refurbished to original configuration. Today, the auditorium seats nearly 750 and features a marble foyer, a balcony, and two walls of floor-to-ceiling windows that overlook the new library and cafeteria below.

An additional 80,000 square feet were added during the renovation. Additional square footage was gained by filling in two service courtyards between the two legs of the "E". In addition, the new design fills in the open side of the "E," creating four new levels of classroom space.

The courtyards, now with three-story ceilings and skylights, have been transformed into a cafeteria atrium that seats 900 and a library atrium that houses some 23,000 volumes. The new four-story wing across the back of the building gives Maury 20 new classrooms that house art and science labs. The infill completes the north elevation of the atria and connects the existing east and west classroom wings, thus providing an organized corridor loop system. The north addition gives needed classroom space and facilitates student and faculty circulation. A one-story technology education wing added to the northeast side of the building and a mechanical/custodial area added to the northwest side completes the renovation. Six existing stairwells are now supplemented by nine exits. A large gymnasium with seating capacity of 1400 and swimming pool were added in 1976.

The building is located on a site which, by 1960 had been expanded to approximately 20 acres. The grounds were landscaped at the completion of the 1988 renovation and provide the school with an aesthetically pleasing environment. The site is accessible to the students and community it serves. Two parking lots for faculty and one reserved for students provide more than adequate parking adjacent to the school. Street lights provide illumination for parking areas.

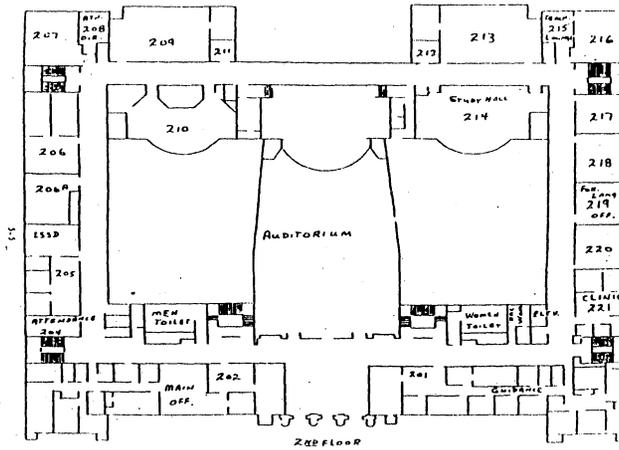
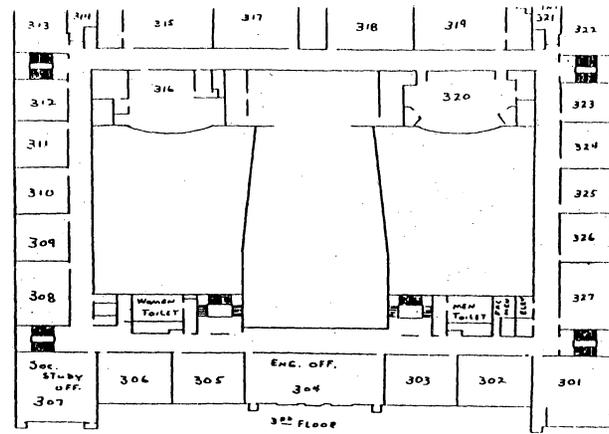
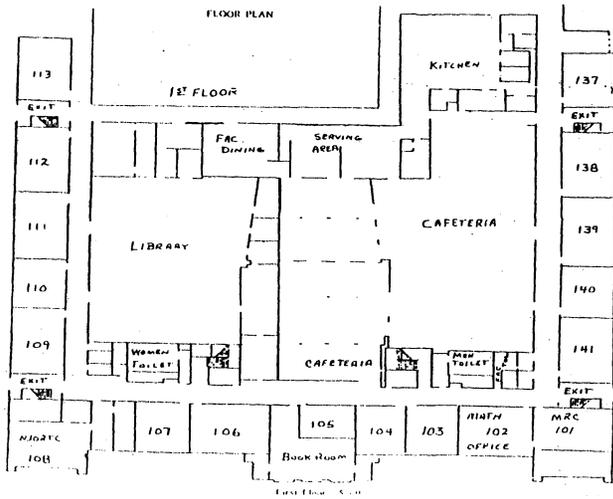
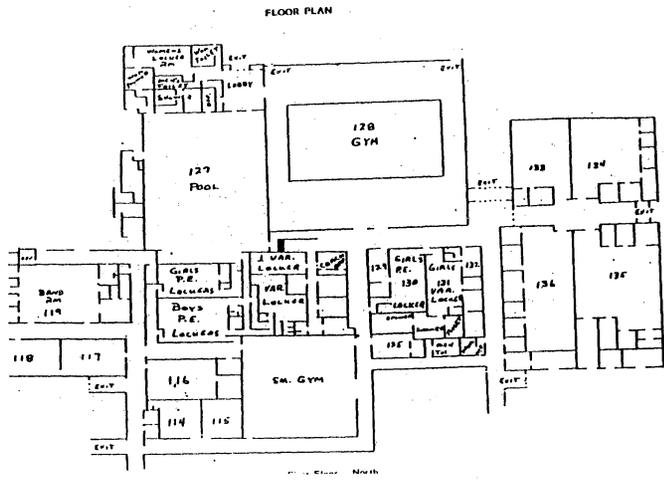
The outdoor area includes a practice football-soccer field; a baseball field; a softball field; eight fenced all-weather tennis courts; a modified track; a sand volleyball court; and facilities for pole vault, high jump, and shot put. Lighting is provided by the Department of Parks and Recreation, which makes the area useful to the surrounding community (Maury H.S. Self-Study Narrative Report, 1993, pp.161-163).

Maury High School's architectural design and interior configuration support its curriculum, which provides some 200 courses in 14 departments and additional special programs for disadvantaged and handicapped students. There are also several off-site programs available to students at seven locations: Norfolk Technical Vocational Center, Madison Career Center, Coronado School, EVMS (Magnet School for Science and Health Professions), NORSTAR, Governor's Magnet School for the Performing Arts, and Norfolk Public Schools Performing Arts Repertory. Transportation is provided to students for all off-site locations.

Sequential courses are available to students in all disciplines. Courses range from remedial classes for those students who fail the Literacy Passport Test, to co-teaching courses accommodating special education students in the regular classroom, to advanced placement courses available in 13 subjects. Students must earn 22 credits for graduation at Maury High School. The advanced studies diploma may be received by earning one additional credit, as well as the accumulation of credits in designated subject areas.

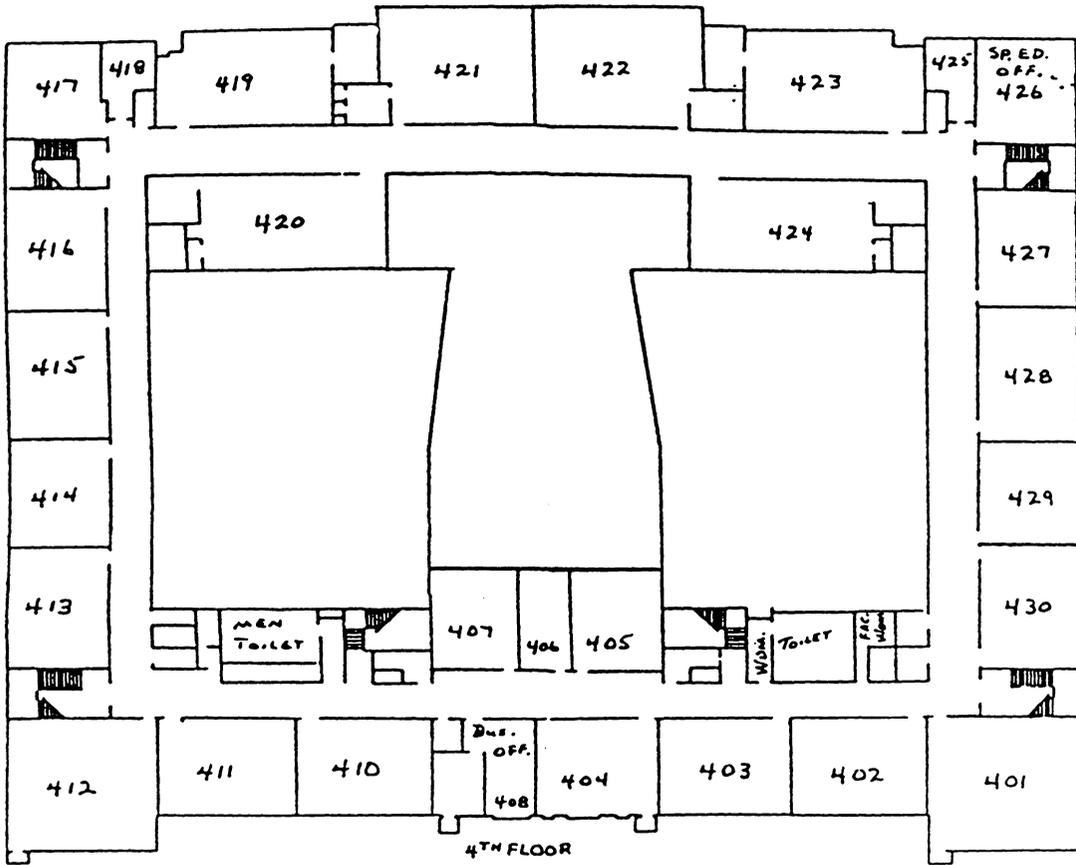
Traditional methods of instruction continue to assume an important role in the process of instruction at Maury High School. A computer lab, which is part of the Math Resource Center, is used predominantly by science and math classes. A business computer lab and CAD program have been implemented as part of the technology offerings. One of the English classrooms is equipped with four computers and one printer for instructional purposes.

Maury High School offers a full curriculum which include instruction in the following disciplines: Business, Driver Safety Education, English, Spanish, French, Latin, German, Japanese, Health and Physical Education, Home Economics, Marketing, Mathematics, Music, Science, Social Studies, Special Education Services, Technology, and the Visual Arts.



Maury High School Floor Plan:

Maury High School Floor Plan:



JOHN HANDLEY HIGH SCHOOL

circa: 1923

Winchester, Virginia



John Handley High School was constructed in 1922-23 as a result of an endowment by Judge John Handley. Buck (1952) reports the interesting events that led to the development of Handley High School:

The General Education Board was requested to make a study for a board entitled, "The Handley Board of Trustees," which was then faced with the problem of determining how to use the benefactions from the will of Judge John Handley who died in 1895, leaving part of his estate to the Town of Winchester

"to be accumulated by the said City for a period of twenty years" and the income to be used for "erection of school houses for the education of the poor."

The General Education Board report recommended supplementing public funds in the development and maintenance of a superior public school system for Winchester rather than the traditional tendency to start a private institution. These recommendations were followed, and the Town of Winchester built a beautiful and imposing group of school buildings. When the main building was erected in 1922-23, the bequest had increased to nearly two million dollars. Of this sum \$1,200,000 was set aside as an endowment fund to maintain the school, the balance being used for the building.

The wisdom of strengthening the public schools through Judge Handley's bequest, rather than starting an inadequately financed rival institution under private control, seems to have been amply demonstrated through the years (p. 173).

John Handley High School is a very impressive structure which is designed in Jefferson or Roman revival. The school is on a thirty-nine acre site, centrally located in the city of Winchester, bounded by Handley Boulevard on the north, Braddock Street on the east, Jefferson on the south, and Tennyson Avenue on the west. The original structure was completed in 1923 at a cost of \$1,000,000. It was necessary to make alterations to the original structure in 1962-63, 1966, and 1977-78.

The building is primarily constructed of red brick in the Jeffersonian or Roman Revival style. The facade features a brick arcade upon which sits a portico complete with eight Corinthian Order columns and two pilasters, this formal entrance is bordered by Ionic Order colonnades and pilasters. The portico is classic in design as it includes a full entablature, pointed pediment, and clock. Four levels of formal steps ascend from the lawn to the portico. A hipped roof is bordered in front with a classic balustrade and topped with rounded dormers, a widow's walk, and lanterned cupola. The original portion of the building exudes balance and symmetry through the use of classical architectural elements and rows of double-hung windows. There has been some effort to match the later additions to the original architecture through the continuation of same style arcades and fenestration.

The interior configuration of the original portion of the school was designed with the traditional double-loaded corridor. Classrooms were equipped with a chalkboard, the floors were wooden, and the plastered walls were interrupted with a chair rail. Classroom and hall ceilings were twelve feet high, and each doorway was topped with a transom and framed in oak. The main foyer flaunted a beautiful black and white marble floor, chandeliers, and busts of Virginia statesmen; while the remainder of the school-corridor floors were constructed of oak and maple.

The educational program of the early 1920s at Handley High School was primarily lecture-based courses presented to large classes. According to Buck, "The modest beginning of the teaching of agriculture and of home economics in Virginia high schools began at this time" (Buck, 1952, p. 232). An increased interest in religious training in the public schools was fostered during the early 1920s as well. The Official Syllabus of Bible Study was implemented in lieu of some regular high school electives. In addition, public high school educators in Virginia saw the authorization of the first "high school completion tests" for students who wished to attend accredited colleges or universities.

The evolution of the John Handley High School facility is described in the 1985-86 Self-Study Narrative Report:

The first addition to the building was completed in 1963 at a cost of \$500,961. It is composed of fifteen classrooms, a music suite, kitchen, and cafeteria.

The second addition, built in 1966 at a cost of \$613,312, consisted of a gymnasium for physical education and indoor sports programs. The gymnasium complex is composed of two classrooms, physical education dressing and shower facilities, and a dressing room and shower room for varsity basketball. The gymnasium is equipped with offices, showers, and private dressing facilities for the instructors along with storage space for equipment. The gymnasium has a seating capacity of 2,200 people.

The third addition was completed in 1980 at a cost of \$7,900,000. This addition included: new lighting, heating, air conditioning, and ventilation systems

throughout the school; fourteen new classrooms; a gymnasium including shower and dressing facilities for students and staff, wrestling room, weight room, and three additional locker rooms; music ensemble room; greenhouse; resource centers in each instructional area; additional instructional and shop areas in the industrial arts department; relocation and enlargement of the media center; improving acoustics, lighting, and seating in the auditorium; and the installation of two elevators and additional ramps to meet the needs of the handicapped. Carpeting was installed in hallways and classrooms where appropriate.

The attractively landscaped areas of the campus blend well with the surrounding environment. Outdoor facilities include a permanent stadium enclosing a track, the interior of which serves as a football field. There are also outdoor tennis courts, basketball courts, and smaller athletic fields which serve as physical education and practice areas. Three parking lots provide parking for students and faculty.

The facilities are both attractive and well maintained. The site is free from congestion, noise, and industrial hazards. The streets are hard-surfaced and provide easy access to the school. The administration, faculty, and other school employees cooperate to insure the safety and protection of individuals and property. Security and safety provisions include lockers, outdoor lighting, a fire alarm system, properly maintained fire extinguishers, and plainly marked exits. Periodic facility inspections by state and city officials, monthly fire drills, and daily supervision by the staff help create a safe learning environment and limit vandalism.

The communication features of the building include a telephone system, two-way intercom, in-house-television system, and an electronic bell and central clock system.

The building contains ninety teaching stations with most department areas grouped together. Specialized labs are located in the science, home economics, mathematics, industrial arts, reading, and business areas. In addition, the facility houses a clinic, media center, commons area, auditorium, television studio, little theater, greenhouse, guidance area, and administrative offices (John Handley High School--Self Evaluation, 1985-86, p. 105).

The school principal assessed the school facility as excellent and commented, "Handley is a stately building considered to be among the most beautiful [architecturally] high schools in the U.S.". Handley High School has a potential student capacity of 1,250, and an enrollment of 928 students, grades nine through twelve reported for the 1994-95 school year.

Handley's educational program, as described in the 1985-86 Self-Study, has been developed to provide an education for all students so that each individual may develop knowledge, skills, attitudes, and values in order that they may become a contributing member of society:

The program of studies is planned to prepare students for higher education, employment, and a productive life. There is an opportunity for each student to develop his capabilities to his maximum by meeting his individual needs, interests, and abilities. The program encourages growth at all levels and offers opportunities for achieving excellence.

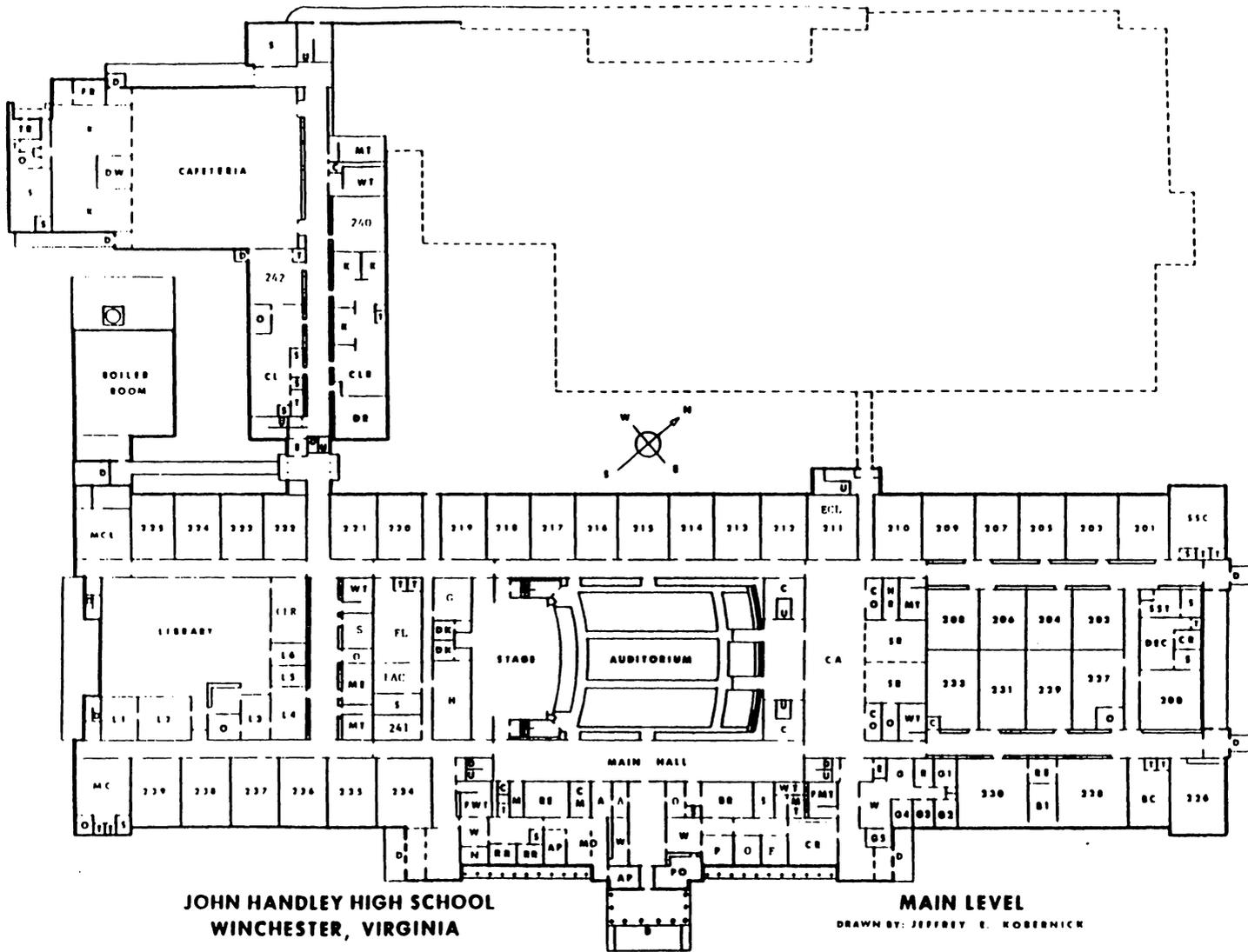
The educational program serves 933 students in Grades 9-12 and provides a total of 186 course offerings. Twenty-three additional classes are available at Dowell J. Howard Vocational Center for students in Grades 10-12.

There are three diplomas available to students. The graduation requirements for the academic diploma, the business diploma, and the general diploma are provided to meet students' varied interests and needs. Diploma requirements meet local requirements and exceed state requirements in mathematics and physical education. Provision is made for early graduation, but few students elect to pursue this option.

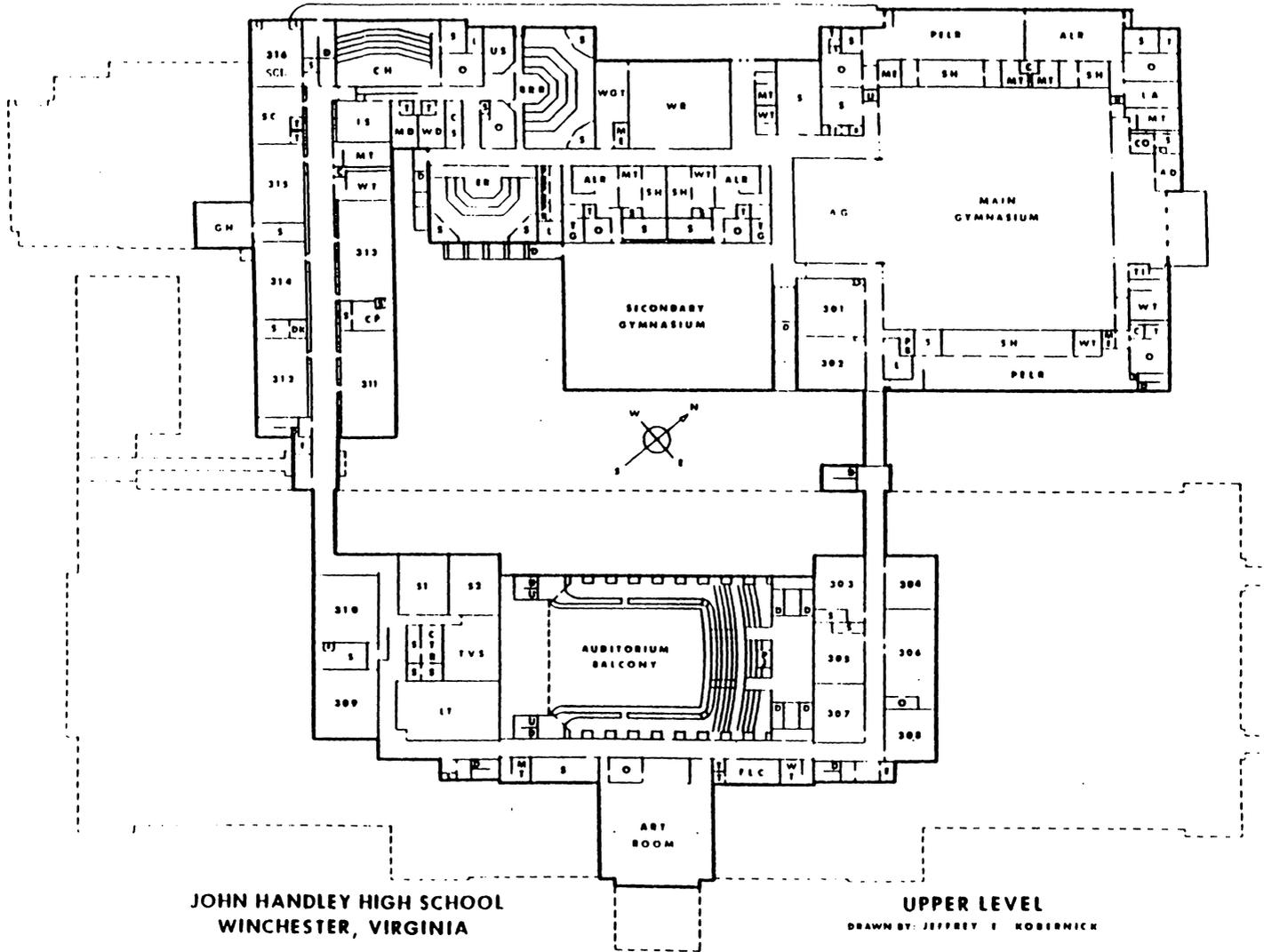
The master schedule seeks to accommodate the diverse needs of the student body, matching faculty competencies with those needs. The seven-period day allows students to schedule electives each year. The variety of required courses, electives, and diploma requirements makes planning an ideal master schedule difficult. However, most students are served well by the master schedule.

Instruction is closely tied to the school's philosophy and objectives as well as course objectives mandated by the state. Teachers make extensive use of varied supplementary materials and media resources. Curriculum guides are available to all staff members. Guides in each subject clearly state course objectives, the scope and sequence of content materials, and include a list of available resource materials (John Handley High School--Self Evaluation, 1985-86, p. 8).

John Handley High School's facility has evolved over the past 72 years to meet the needs of the educational programs housed within. The ample acreage and foresight in planning of the school by the City of Winchester will allow for continued adaptations of the building to meet the needs of students well into the twenty-first century.



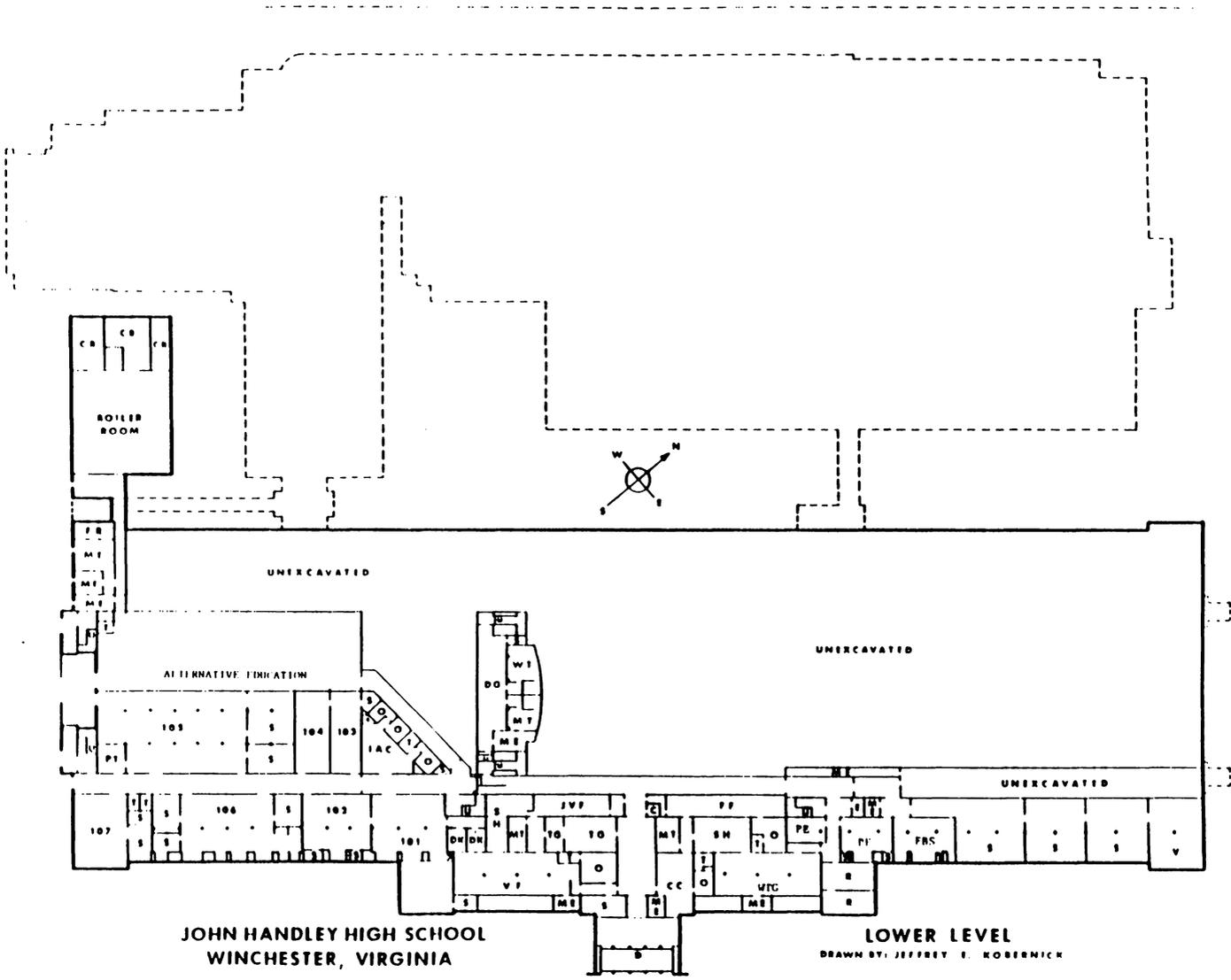
John Handley High School Floor Plan:



John Handley High School Floor Plan:

JOHN HANDLEY HIGH SCHOOL
WINCHESTER, VIRGINIA

UPPER LEVEL
DRAWN BY: JEFFREY E. KOBERNICK



John Handley High School Floor Plan:

HARRISONBURG HIGH SCHOOL

circa: 1927

Harrisonburg, Virginia



The original portion of Harrisonburg High School was constructed in 1927. The exterior architecture is designed in Classical Revival style. The three story building was originally built to accommodate grades seven through twelve. The interior configuration was a double-loaded corridor within a simple rectangle. All classrooms were designed with exterior windows to the left, a blackboard to the front and right, and a bulletin board in the rear. Each classroom was equipped with a door topped by a transom, chair rails,

plaster walls, twelve-foot high ceilings, and wooden floors. The hallways were designed with ceramic brick to a height of five feet, and plaster to the ceiling. The corridor floors were terrazzo, there were brass hand rails in the stairwells and ornate wood panels bordering each door frame.

The building is constructed of two types of exterior brick. Common red, and alternating yellow and brown, ceramic, which is used only for the building's facade. The building was fenestrated with triple-hung windows with two vertical mullions in each bay. The building's facade displays four stone Doric Order columns, which support a classical entablature. Carved into the frieze, just above the architrave are the words: HARRISONBURG HIGH SCHOOL. Just above the frieze and cornice is a shield with diagonal bar and helmet. Three stone Doric Order pilasters border the columns on each side and separate each bank of windows. The main entrance is accented by ornate stone work which includes a stilted arch of rope, a stone trellis transom, and a clock.

The history of Harrisonburg High School is detailed in the 1994-95 Student/Parent Handbook:

The public school system in Harrisonburg had its beginning in 1871, one year after the General Assembly of Virginia had enacted a law to establish a public school system in the state. On September 23, 1871, the first meeting of the school board was held to organize the public school system. The board elected to start with three separate schools, one for boys, another for girls, and still another for the black students.

In 1879 a seven-room brick building was erected on South Main Street on the site of the Female Seminary, which had been used for the girl's public school until this time. It was in this building and on these grounds that Harrisonburg High School had its beginning.

In 1906 the high school and the eighth grade were housed on the second floor of the Masonic Temple. Two years later a stone building was erected in front of the brick building for the high school students. In 1928 the high school department,

along with the seventh and eighth grades, was moved to the present location of the East Building of the present high school.

In September 1967 the high school moved to Grace Street (west building). This structure is located on land joining the older building and was built at a cost of approximately two million dollars. The 1,100-seat auditorium was erected in 1952 and the Claude Warren Field House was erected in 1961.

In 1989 the opening of the new Thomas Harrison Middle School and the subsequent move of the staff and student body of Thomas Harrison Junior High resulted in the expansion of the Harrisonburg High School facility to include its former residence as well as its present complex at 300 West Grace Street.

In 1994, the year in which Harrisonburg High School celebrated its 100th Anniversary, an eleven and a half million dollar, eighteen month-long renovation project was completed at Harrisonburg High School. All structures included in the high school complex, namely the 1927 High Street building, 1934 West Classroom addition, the 1950 Auditorium and North Classroom additions, the 1959 Claude Warren Fieldhouse, the 1965 Grace Street building and the vocational structure were extensively renovated. In addition to the renovation of existing space, thirteen additional classrooms and major expansions of the library and the cafeteria, were completed (Harrisonburg High School: Student/Parent Handbook, 1994-95, p.5).

The original East Building on High Street was restored to its original condition, with the exception of the addition of the Americans with Disability Act required entrances, ramps, restrooms, fire alarms, and signage. It should be noted that within the space of the one page history, conflicting dates appear as to the exact dates of building and addition construction.

The educational program of Harrisonburg High School in 1927 was very nearly parallel to that of John Handley High School, which was constructed four years earlier and fifty miles to the north. There was one notable difference; due to the discovery that an abundance of American servicemen were found to be unfit during World War I, state high schools added health and physical education programs to their curriculum. Thus a gymnasium was included in the original 1927 building.

Harrisonburg High School reported an enrollment of approximately 920 students in grades nine through twelve for the 1994-95 school year. The school principal assessed the student capacity at 1,300 and rated the building as, "an excellent facility that has been tied together beautifully by the recent renovation, and a source of pride for the community". The educational program is best summarized by the 1984-85 Harrisonburg High School Self Study Narrative Report and the 1994-95 Harrisonburg High School Program of Studies Guide:

The staff and administration of Harrisonburg High School endeavor to fully utilize both the expertise of its personnel and the resources of the community in order to offer each student a program of studies suited to preparing him or her to successfully meet the challenges awaiting each high school graduate (Harrisonburg High School: Program of Studies Guide, 1994-95, p. 2).

The faculty and staff of Harrisonburg High School feel that the process of educating our youth is one which affords each student, regardless of race, color, creed, religion, sex, handicap, or national origin, the opportunity to achieve his or her highest potential. Aware that individuals develop at a unique pace, we try to provide a program of guidance and instruction which encourages each student to utilize the diverse opportunities offered in accordance with his or her personal needs, interests, and abilities.

Education is an essential tool for preparing a young person to become an active, contributing member of society. We attempt to create an environment in which the student may develop positive, yet realistic values and attitudes. In addition, we strive to cultivate the knowledge and skills necessary for students to realize their educational and career goals, and to solve problems created by a changing, technological world. We also encourage students to develop recreational skills that fit their needs and desires (Harrisonburg High School--Self Evaluation, 1984-85, p. 19).

The recently completed renovation of the building has allowed the students and staff to meet this philosophy. With the added technology, equipment, and retrofitting of laboratories in the school, the instructional process has been upgraded to a synergism.

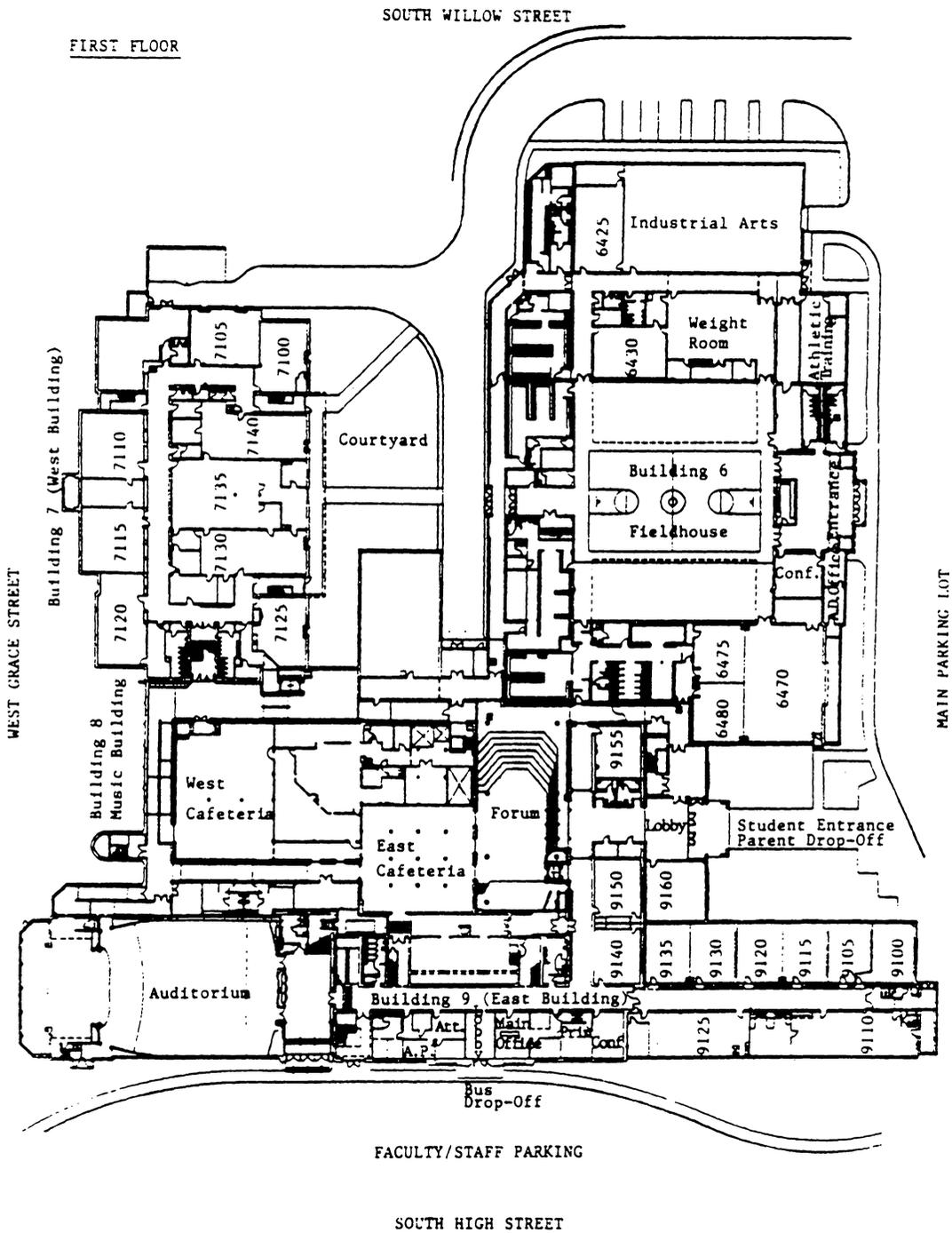
The curricula of Harrisonburg High School consists of over 150 different courses of instruction which are designed to prepare the student for continued, post-

secondary, educational experiences or for entrance into the job market with the skills and competencies necessary to perform satisfactorily.

Students have the option to earn a Commonwealth of Virginia, 21 Credit Diploma, or a 23 Credit Diploma. Students who graduate with a 3.0 or better and who successfully complete at least one advanced placement course (AP) or one college entry course for credit will receive a Governor's Seal on the diploma (Harrisonburg High School: Student/Parent Handbook, 1994-95, p. 13).

Harrisonburg High School Floor Plan:

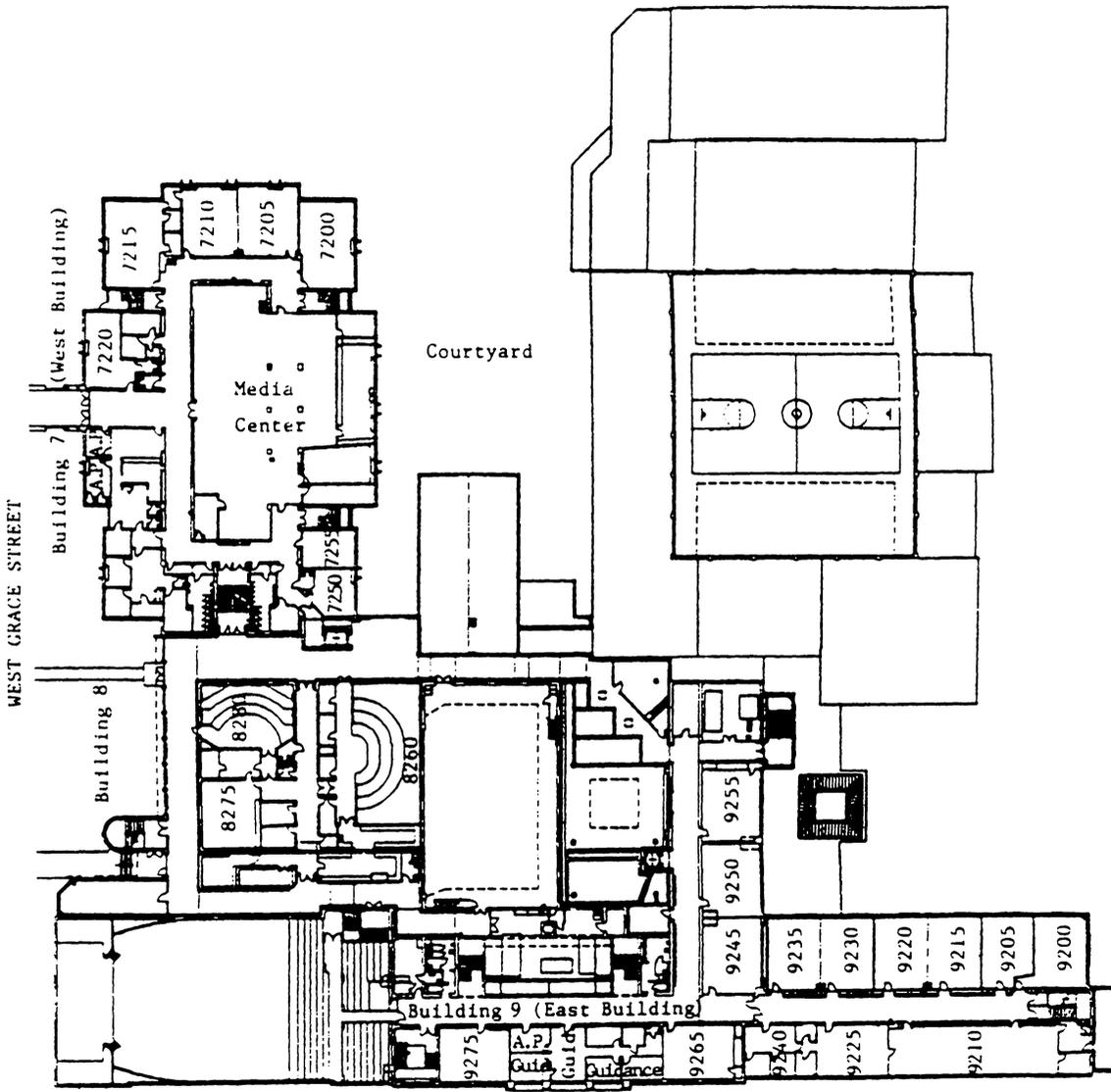
FIRST FLOOR



Harrisonburg High School Floor Plan:

SECOND FLOOR

SOUTH WILLOW STREET

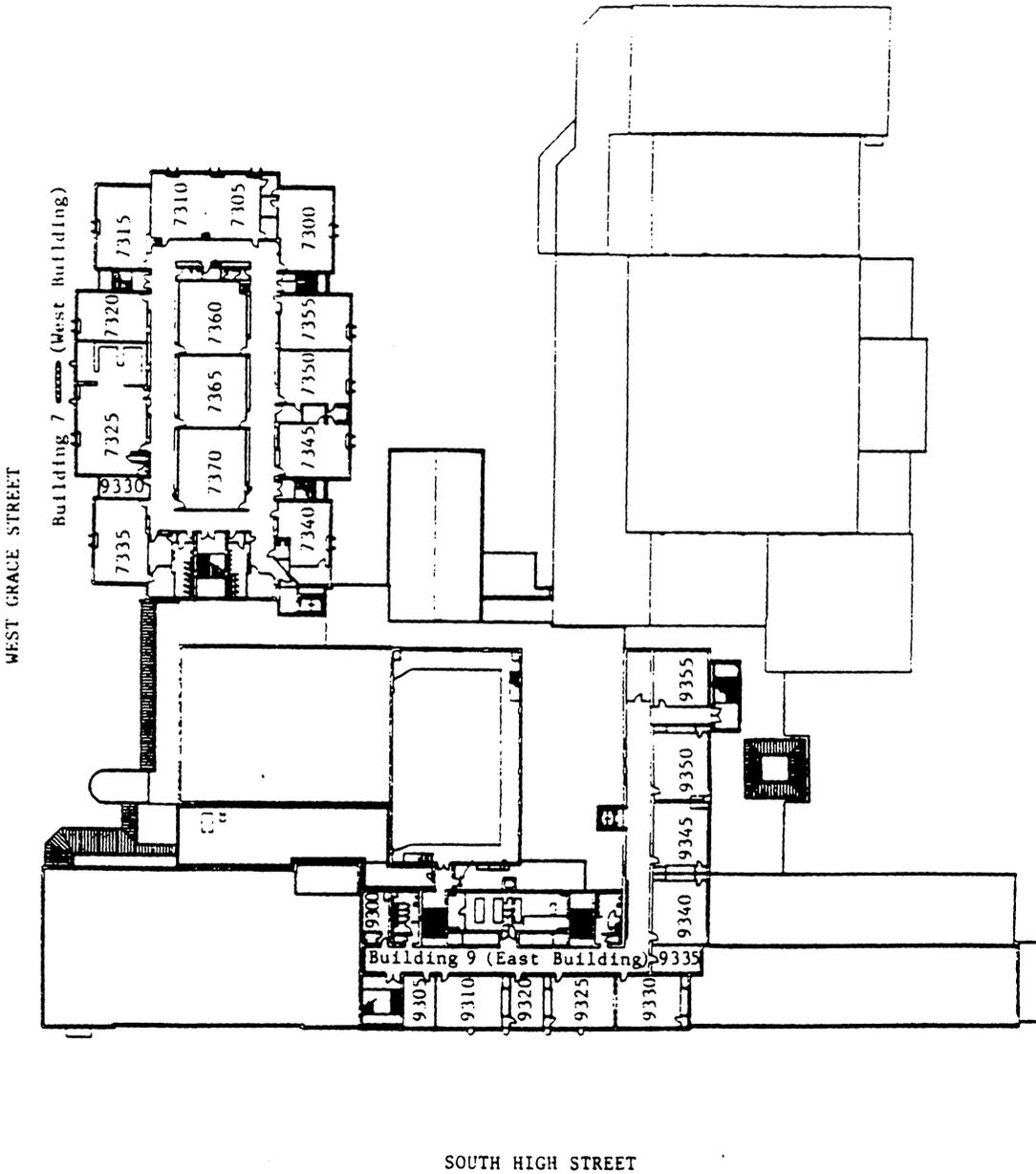


SOUTH HIGH STREET

Harrisonburg High School Floor Plan:

SOUTH WILLOW STREET

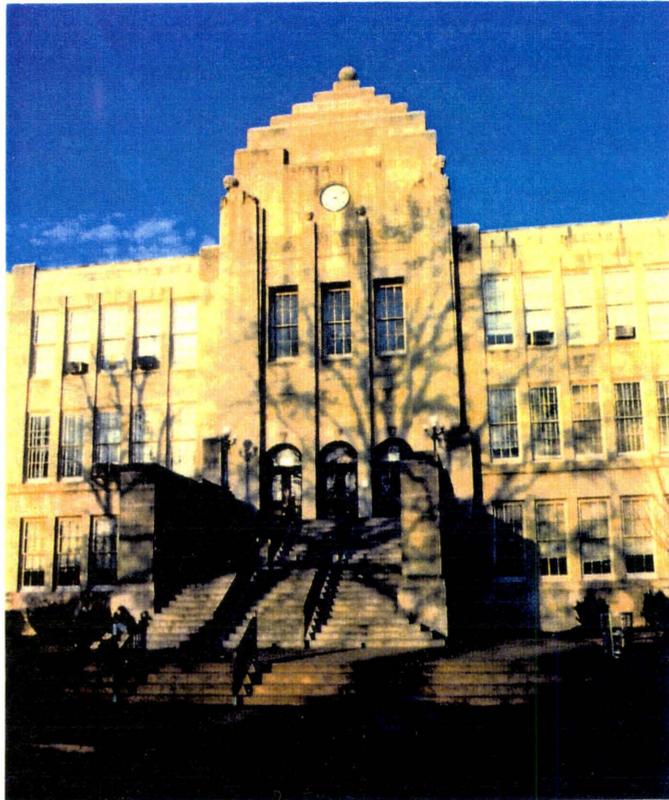
THIRD FLOOR



THOMAS JEFFERSON HIGH SCHOOL

circa:1929-30

Richmond, Virginia



Thomas Jefferson High School was erected during the 1929-30 school year. The building was designed by Charles Robertson, architect for the city of Richmond to be a monument to the city's effort towards education. The building project was begun and nearly finished just before the Great Depression. Originally located on the outskirts of the west end of Richmond, the school is now an inner-city school. Due to its advanced age and lack of renovations, Thomas Jefferson has been in danger of being closed twice

in recent history. Each time the threat of closing emerged, the community and specifically the student body reacted with an organized formal protest. In 1988, the entire student body exited during a school assembly to march down Broad Street to oppose the decision to close "their school". In 1994, Dr. Daniel Duke, Professor of Education at the University of Virginia, published a book about this school entitled *The School That Refused To Die*. In 1993, the Virginia Board of Historic Landmarks registered Thomas Jefferson High School as a Virginia Historical Landmark.

Thomas Jefferson High School was dedicated in 1929 and is the oldest high school building in use in the city of Richmond. This building is noted as being one of the finest examples of Art Deco architecture in the city. The facility is situated on 12.2 acres at 4100 West Grace Street, a residential neighborhood. The building, tennis courts, football field, baseball field, and track occupy one square city block. The football field has no lights and the track surrounding the field is a cinder, five-lap to a mile track. The school building and surrounding grounds are virtually unchanged since 1929. The high school building has had only five minor renovations in the last sixty-five years. The library was expanded into the east hallway on the second floor in 1965. In 1974, the auditorium seats, carpet, and stage curtains were replaced; new sound "clouds" were installed for better acoustics; an elevator was installed to facilitate special needs students and staff. The classroom in the fourth floor clock tower was transformed into a planetarium. In 1994, one of the two original cafeterias was divided into six classrooms. Other than these changes, the building looks as it did when the doors opened in the late 1920s.

The exterior architecture is Art Deco, and is best described by Poppeliers, Chambers, and Schwartz (1977) in *What Style Is It?*:

By the late 1920s new stylistic influences emanating from Europe had an impact on American architecture, which in general had been little affected by the foliated wanderings of the innovative art nouveau of the 1890s and early 20th century. Therefore, Art Deco, Moderne or Modernistic, as it is variously called, was the first widely popular style in the United States to break with the revivalist tradition represented by the beaux arts and the period house. Art Deco takes its name from the 1925 Paris *Exposition Internationale des Art D'ecoratifs and Industriels Modernes*, which was organized as a showcase for works of "new inspiration and real originality." It was a style that consciously strove for modernity and an artistic expression to complement the machine age. Promotional literature for the "Expo Deco" stated that the "reproductions, imitations, and counterfeits of ancient styles will be strictly prohibited." The emphasis on the future rather than the past was one of the principal characteristics of the style that grew out of the Paris exposition.

Art Deco was essentially a style of decoration and it could be applied to jewelry, clothing, furniture and handicrafts as well as buildings. Industrial designers created Art Deco motifs to adorn their streamlined cars, trains and kitchen appliances. Art Deco ornamentation consists of largely of low relief geometrical designs, often in the form of parallel straight lines, zigzags, chevrons and stylized floral motifs.

At its best, the Art Deco style produced a harmonious collaboration of effort by architects, painters, sculptors and designers. Art Deco was a conscious rejection of historical styles and was a popular form of ornamentation. It was, however, looked on with scorn by the more intellectual practioners of a new and even more radically iconoclastic style that began to appear in the 1930s - the International style (p. 39).

Thomas Jefferson High School is constructed of cut-stone block with ornate low relief and busts of Thomas Jefferson. The reliefs include: a history of Virginia and icons representing science, mathematics, the arts, mythology, and animals. There is no facade to this building as the back, sides, and front continue this motif. The front of the building features impressive steps with bronze stair rails ascending to the main entrance of three arches containing bronze doors with semi-lunates. Above the arches are relief panels continuing up to the clock tower. The clock tower highlights two major and two minor busts of Thomas Jefferson, a clock, and a ziggurat-like top upon which an orb of stone rests. On either side of the steps are massive pylons with inscriptions, on the left: "TO ENABLE EVERY MAN TO JUDGE FOR HIMSELF WHAT WILL SECURE OR

ENDANGER HIS FREEDOM.", and on the right: "THE THOMAS JEFFERSON HIGH SCHOOL, RICHMOND VIRGINIA, ERECTED 1929-1930."

The interior of the building has four hallways on each floor intersecting to form a rectangular core for the cafeteria on the first floor with classrooms on the periphery. The auditorium and gymnasium and their respective balconies make up the core on the second and third floors, while classrooms border the outer portion of these halls. Marble, stone, and plaster are the materials used throughout the corridors. All classrooms and offices have wooden floors, painted plaster, extensive woodwork, and brass fixtures. The classrooms are still painted in the original color scheme, and little technology has been introduced to the building. The school houses 500 Thomas Jefferson High School students and 500 Regional Governor's School students for a total enrollment of 1,000. The principal of the school states:

Thomas Jefferson High School was designated as a Virginia Historical Landmark in 1993. Its distinctive Art Deco architecture and long history make it one of the most widely recognized structures in the Richmond area. The tower, long front steps, and pictorial friezes carved into stone at the entrance are especially noteworthy.

It is a tragedy that a building such as this has been neglected for so long. Many generations of students have attended this school and have marched in force down Broad Street and around the school when threats of closing surfaced. This school is a beautiful, old building but needs a complete renovation to save it from further, and possibly irreparable deterioration (Edward Pruden, Ed.D., Principal, Interview, March 16, 1995).

The curriculum at Thomas Jefferson High School is diverse and segregated into three schools. The regular program, "which offers 155 courses, is designed to meet the needs and of a heterogeneous student body" (Thomas Jefferson High School--Self Evaluation, 1984-85, p. 14). The Magnet program allows for the advanced study of history and politics for all students interested in the City of Richmond and the Regional

Governors' School. The Regional Governor's School is a separate entity within the confines of Thomas Jefferson. This school has a separate administration and faculty which work with the principal and staff of Thomas Jefferson High School and the Magnet School:

The requirements for graduation are established by the Virginia State Board of Education and Richmond Public School Board. Courses are revised, updated, deleted, and added as needed and desired by the students, staff and community.

The program of studies consists of the following levels of instruction: Advanced Placement, Accelerated, Honors, On Level, and Mainstreamed. In addition to the offerings at Jefferson, students may choose additional vocational classes at the Richmond Technical Center, Richmond Career Education Center, or the Adult Career Development Center. The school's curriculum meets the state standards of accreditation for schools in Virginia as adopted by the State Board of Education in July, 1983, and the standards of the Southern Association of Colleges and Schools as indicated in sections 2.1.0 through 2.4.0. The curriculum also meets the needs of the student population and the community by providing a flexible and diversified offering of cognitive instruction and experiential activities (Thomas Jefferson High School--Self Evaluation, 1984-85, p. 14).

Thomas Jefferson High School also houses the only planetarium in the school system. It is housed in the clock tower classroom and serves the entire city system.

Thomas Jefferson High School Floor Plan:

124	123	122	121		120	119	118	117
101	Dept. 125		Cafeteria		Custodian	Band 129	116	
102	Cafeteria		Cafe. Mgr.				115	
103			134	133	130	114		
104			135	132	131	113		
105	106	107	108		109	110	111	112

FIRST FLOOR

224	223	222	Dept.		220	219	218	217
201	Dept. 226		Office					
202	Auditorium		Dept.	Office				
203			Dept.	Gymnasium		Library		
204								
205	206	Nurse Office	Gov. Sch. Office		Jefferson Office	Work Rooms	Guidance Office	

SECOND FLOOR

324	323	322	321		320	319	318-317	
Dept.	300		Dept.		Dept.		316	
301	Auditorium Balcony		333		Dept.		315	
302					Dept.		314	
303							313	
304							Dept.	
305	306	307	308		309	310	311	312

THIRD FLOOR

MOUNT ROGERS COMBINED SCHOOL

circa: 1931

Grayson County, Virginia



Mount Rogers Combined School serves the southwestern corner of Grayson County and is nestled in the foothills of Virginia's two highest mountains: Whitetop, elevation 5,520 feet and Mount Rogers, elevation 5,729 feet. Mount Rogers Combined School was originally constructed as a one-story building of natural stone by the Grayson County School Board, the W.P.A., and members of the community in 1931. The original design was that of a four-room school house with a pot-bellied stove in each room, two

outdoor sanitariums, and a cooking shed in the rear of the building. Water was drawn from the creek beside the school building. A description of the school facilities and curriculum of Mount Rogers Combined School from the 1980-81 self-study reads:

This building contained approximately 3,400 square feet, and housed four classrooms for all students in the southwest portion of the county. Students were taught, when weather allowed, the basic subjects in a combined setting. The older students assisted the teachers with the instruction and supervision of the younger students. There were few students who continued past the eighth-grade, but those who did were afforded the very best that the county could offer in the way of textbooks and materials.

In 1950, the Grayson County School Board had a one-story building constructed adjacent to this stone building. This building originally consisted of eight elementary classrooms, a lavatory, two small custodian closets, a kitchen, a small storage room, and gymnasium.

The original gym included a stage but there were no seating arrangements for spectators, and no locker rooms for the high school physical education program. In 1985, this structure was remodeled to include a larger gym floor, two shower rooms, a Nautilus room, the athletic director's office, folding bleachers which accommodated 174 persons, and a restroom for the handicapped. The gym also served as an auditorium. At the present time there is no stage.

One of the original classrooms in this building (1950 addition), has been recently remodeled to serve as a cafeteria. The entire structure is heated by the coal burning plant which is adjacent to the gym and shop - two boilers. In 1977, the community, faculty, and other persons constructed a masonry block building to house the trades and industrial education classes. In 1985, a small green house was added to the shop building.

The acreage of the school is extremely limited. It lies in a triangular shape, and is bound on one side by Helton Creek, and in 1982, the Rural Conservation and Development Commission, the Grayson County School Board, and the community constructed a concrete wall to retain these waters in times of flooding. At the present time there is no room on this particular tract of land for future expansion (Mount Rogers Combined School--Self Evaluation, 1980-81, p. 48).

Mount Rogers Combined School houses its elementary program in the 1950's addition, with the exception of the shared cafeteria and gymnasium. The original building houses the main office, the principal's office, a food storage room, special education, science, social studies, typing, and English. The corridor contains the lockers

for the high school students, which according to the principal, become very congested during class changes.

Mount Rogers Combined School housed a population of 67 students, K-12 during the 1994-95 school year. The following is an excerpt from the 1980-81 self-study report concerning the school's educational program:

Mount Rogers is a combined school with Kindergarten through Grade 12 in one building. The school is quite unique because of its small size and isolated location; therefore, the school provides a wide range of services for the students and the community that other schools do not have to provide. The curriculum reflects this responsibility through flexibility and creativity. Extra-curricular activities, school and community fund raising programs, service oriented programs, etc. are integrated into the curriculum and are unique learning areas in their own right (Mount Rogers Combined School--Self-Evaluation, 1980-81, p. 15).

During the 1994-95 school year, Mount Rogers Combined School offered a total of 45 courses for secondary students, grades 8 - 12. In addition to the listed courses, a self-contained, special education class was available. The secondary course offerings were as follows:

Art

Art I
Creative Crafts

Business

Typing I & II

Foreign Language

French I, II, & III

Health & Physical Education

Health & Physical Education I, II, & III

Home Economics

Life Management Skills I & II
Nutrition & Food Science Applications
Family Management

Language Arts

English 8
English 9
English 10
English 11
English 12
Creative Writing

Mathematics

General Math 8
Pre-Algebra
General Math 9
Consumer Math
Algebra I & II
Geometry

Music

Unselected Mixed Chorus

String Band

Science

Physical Science 8

Earth Science 9

General Biology

Ecology

Physiology (offered alternating years)

Chemistry (offered alternating years)

Social Studies

Civics 8

World Geography

World History

Economics

Sociology

Virginia & U.S. History

Virginia & U.S. Government

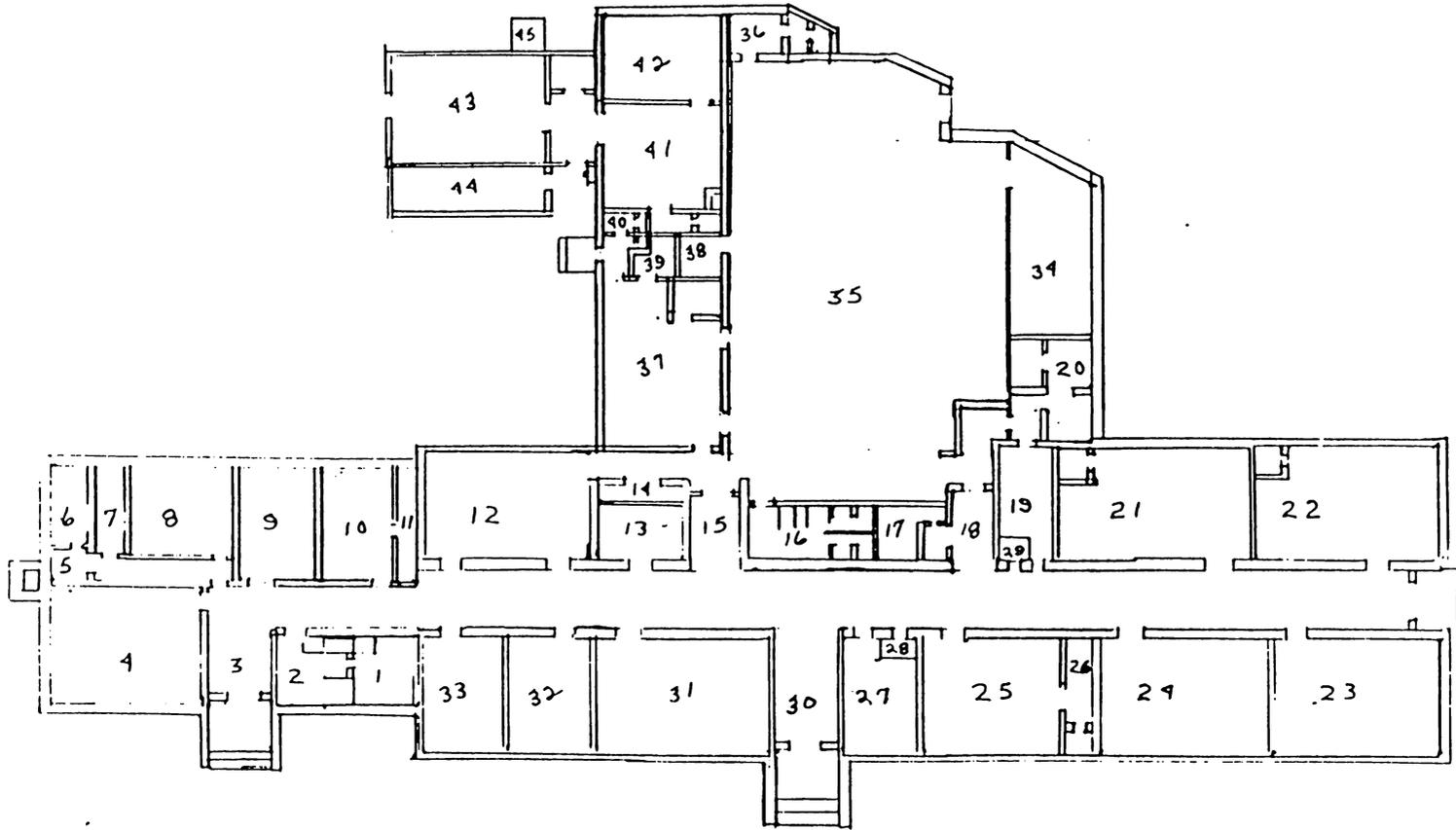
Trade & Industrial Education

Maintenance & Repair I & II

Gen. Maintenance Mech. I, II, & III

Mechanical Drawing

The school building was wired for cable television, and a few computers were available in the business room. Three buses were required to meet the needs of transportation for students. Due to the location and altitude, principal Wilma Testerman has the authority to close school in the event of inclement weather, independent of the rest of Grayson County Public Schools.



Mount Rogers Combined School Floor Plan:

MT. ROGERS COMBINED SCHOOL
FLOOR PLAN

GRANBY HIGH SCHOOL

circa: 1939

Norfolk, Virginia



Granby High School, a comprehensive high school, is located in the Wards Corner section of Norfolk on the site of the Old Talbot Plantation, now Talbot Park. The school, a W.P.A. project, was opened in 1939 to meet the needs of the greatly expanded population of Norfolk. In its first years, Granby was known as Granby Street High School and served as an elementary, junior, and senior high school. In 1949 it was limited to grades eight through twelve. Currently, grades nine through twelve make up

the student population of the high school. Both the street and the school are named after Mr. John Manner, Marquis of Granby, a hero of the Seven Years War.

The campus of Granby High School is situated near Wards Corner. The building fronts on the west of Granby Street and occupies the entire 7100 block. The front of the building is landscaped with a three-foot brick wall with a wide expanse of grass, dotted with well-placed shrubs and trees. Constructed in a mixed architectural style of Colonial and Classical revival, the exterior features a red-brick facade, hipped roof, and two-stories of double hung windows, bottomed with belt course and topped with keystone cornice. A formal portico, features arches rather than the traditional columns, and a pediment with lunette accent the main entrance. The building's facade displays symmetry with matching arcades on each end and a cupola centered in the middle. There is an interesting story associated with the cupola. The building had been originally designed without one, but upon completion, the W.P.A. workmen approached the architect and suggested the addition because, "the building looked unfinished without it" (Granby High School--Self-Evaluation Narrative Report, 1985-86, p. 283).

The building was originally designed to accommodate students and curriculum for elementary, junior high, and senior high school levels. Classroom space was designed primarily for lecture-style presentations, science laboratories, home economics, and wood shop facilities were retro-fitted at a later date. The school gymnasium which was a part of the original design requires additional accommodations and renovations to meet today's safety and sanitary considerations. Wiring and other electrical support systems have been added at various times throughout the school's history to facilitate programmatic and administrative needs.

There have been no major changes to the original building since 1939. In 1945, a small, satellite building was constructed towards the rear and north of the main building.

This red-brick structure utilized a similar architectural style with a flat roof and white stone cornice. A series of semi-permanent, metal buildings were built in 1956 behind the main building. These additions were implemented to facilitate the growing student population. A description of the building's design and condition taken from the Granby High School Self-Evaluation Narrative Report follows:

The school presents an impressive facade. The school enrollment is approximately 1,600 students; however, this number may vary due to the urban renewal and redevelopment in the Granby attendance zone. The central administration office complex is located on the first floor near the entrance and is easily accessible to students, staff, and the general public. The complex is designed to be conducive to good management practice.

The central administrative office complex consists of the following: a general reception area . . . , a conference room, a fire-proof student permanent records room, offices for the principal and one assistant principal, a workroom/office, and a room secured for the safe.

On the other side of the hall of the central administrative office complex is found the following: a large room housing offices of the other two assistant principals, the office of the athletic director, and a reception area for parents and students. There is a very small area which houses a computer used for absentees. Also, located on this side of the hall of the office complex are the clinic, the data processing room, and a room where school supplies are stored . . .

The guidance offices are located adjacent to the central administration office complex. The guidance facilities feature a reception area . . . , individual offices for each guidance counselor, a room which houses a computer used for the Guidance Information System (GIS)...

There are sixty-eight teaching stations at Granby High School. (In addition, there is) a classroom annex consisting of twelve classrooms and two portable classrooms. Each classroom has an outside wall of windows so the natural light and ventilation are abundant. Each room is equipped with two double bars of fluorescent lights. Over half of the rooms have opaque window shades...

Most of the equipped with fifteen to thirty-five moveable student chair-desks with writing surfaces attached . . . All instructional rooms have a teacher's desk (some have two teacher's desks as this allows those teachers who float to have a desk of their own); most rooms have a lectern, a chalkboard, and a bulletin board. Classroom storage is accomplished through a variety of facilities and equipment built closets, built-in closets with shelves, metal cabinets, and bookcases. Each classroom has some combination of the above storage facilities/equipment.

The Learning Media Center (Library), is located on the first floor adjacent to the central administration office complex. Approximately 184 students can be accommodated by the Learning Media Center at one time. Directly adjacent from the central administration office, and at the front of building near the main entrance is located the school wood shop.

The auditorium is adequate for public use, large group instruction, dramatics, music, public speaking and student assemblies. Seating accommodations for 615 are arranged to provide maximum efficient use of assembly space. The absence of writing surfaces with these seats and illumination impose some restrictions on the utilization of the auditorium for study hall.

The Granby gymnasium, which seats approximately 700, can be divided into two smaller gyms with a central large partition . . . The athletic facilities at Granby High School are located in the south wing of the building. The athletic facilities at Granby High School are interchangeable with the Physical Education Department . . . Adjacent to the south wing of the school is a practice track, four regulation tennis courts, and a multi-purpose field which serves field hockey, softball, baseball, and practice football.

The newly air conditioned cafeteria, donated by the school's Community Fund Raising Projects is adequate for seating 575 students . . .

The hallways of Granby High are well lighted with incandescent fixtures . . . Display cases on the first floor highlight art work, industrial arts projects, library materials, student clubs and announcements, seasonal decorations, curriculum areas and other information of current interest. Additional hall bulletin boards on each floor display special activities, special announcements, and department projects.

The five stairways are crowded during changes of classes, but judicious planning permits the building to be evacuated within a reasonable time . . . The recessed hall lockers are of a size generous to accommodate long coats. They are equipped with a shelf and three coat hooks . . . There are fourteen usable drinking fountains located strategically throughout the building. There are three refrigerated units on the first floor.

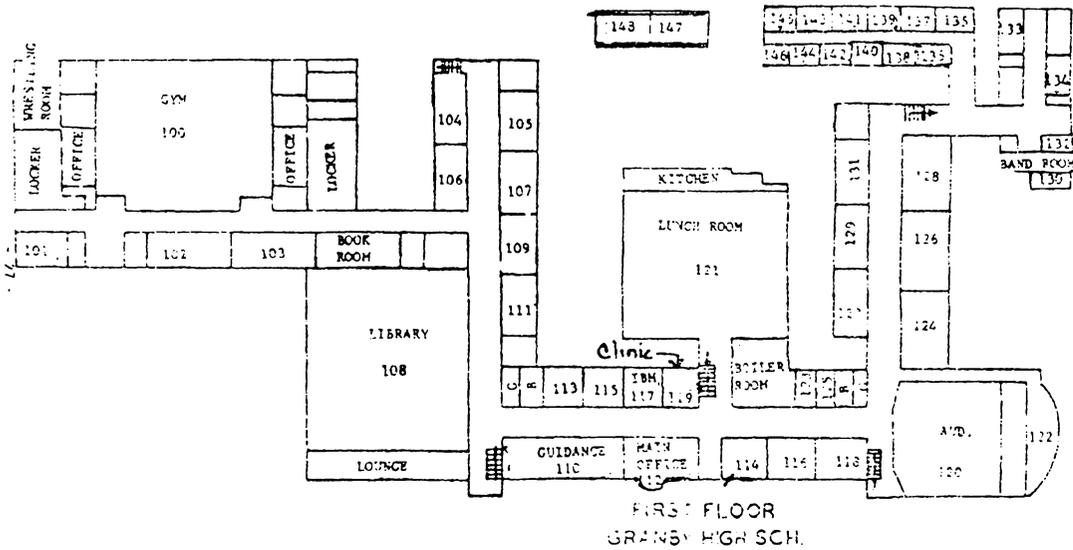
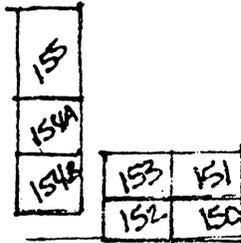
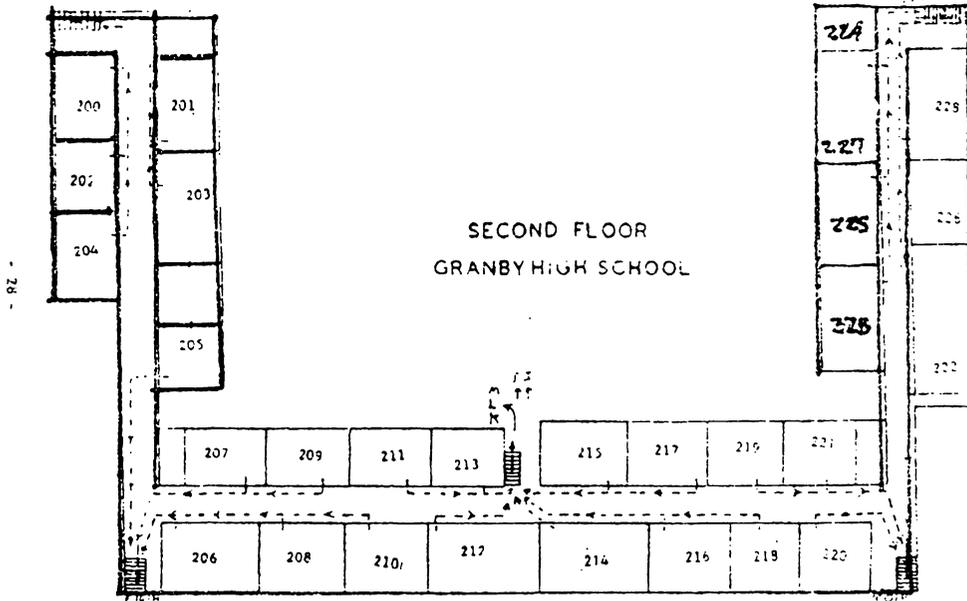
There are eight student restrooms on the first floor (four for each sex) and three student restrooms on the second floor (two for the females and one for the males) (Granby High School--Self-Evaluation, 1985-86, pp. 283-294).

Little or no significant structural changes have been made to Granby High School over the past fifty-six years to accommodate for the evolving curriculum or for the use of educational technology.

Currently, Granby High School's instructional staff is divided into departments of five or more teachers. The course offerings at Granby include Art, Business, English,

Foreign Language, Health & Physical Education, Home Economics, Marketing & Distributive Education, Mathematics, Music, Naval Science (Navy Junior R.O.T.C.), Science, Social Studies, Special Education, and Technology (Industrial Arts). According to the 1985-86 Self-Evaluation, the school facility impedes the process of learning, rather than supporting the curriculum. Granby High School will undergo a major building renovation addressing the building's obvious lack of conformity to the current educational program, use of educational technology, and handicapped accessibility. These renovations are scheduled to begin June 1995 and run concurrently until completion, sometime in 1996.

Granby High School Floor Plan:



THOMAS WALKER HIGH SCHOOL

circa: 1940

Lee County, Virginia



Thomas Walker High School was named for Dr. Thomas Walker, a physician who in 1750 discovered the Cumberland Gap, which was vital to the opening of the West. Thomas Walker is located in western Lee County on U.S. Highway 58 and is the western most high school in the Commonwealth of Virginia. Prior to the Great Depression, there were two high schools in the Rose Hill District of Lee County, one in Ewing and one in Rose Hill. In the late 1930s the decision was made to consolidate the

two in a building to be located between the two towns. An eight acre tract was purchased, and construction began in 1939. The new school named in honor of Dr. Thomas Walker was opened in September of 1940 with ten faculty members, including the principal. The student enrollment was 269. The Thomas Walker High School self-study of 1990-91 describes the original architecture and subsequent additions:

The original school building was constructed of brick and mortar on a hill facing the Daniel Boone trail, now U.S. 58. The two story building with painted tin roof and Palladian windows over each side stairwell was a state of the art school for its time. Each classroom was furnished with a clock, intercom, blackboard, bulletin boards, and lectern. The hallways were furnished with fountains and lavatories for the girls and boys. Fire-proof floor tile was installed in the hallways for safety and traffic, while classrooms were floored with maple. The gymnasium was designed to accommodate spectators for basketball games, or as an auditorium, and was the meeting center for the community (Thomas Walker High School--Self Evaluation, 1990-91, p. 9).

Since the school opened in 1940, there have been additions and renovations to the building. In each instance, the exterior architecture of the building has been preserved and extended into the addition. Outwardly, there is no discernible difference in style or treatment:

From time to time building additions have increased Thomas Walker's size and efficiency. In November, 1951, the first lunchroom was opened in a separate building west of the main building. An east addition completed in 1960 provided three new classrooms. The library was enlarged and the home economics department was moved downstairs. In 1971 an addition on the west end of the building almost doubled the area of the school plant. It included three new science laboratories, two classrooms, a cafeteria, and the largest gymnasium in southwest Virginia. To replace the old agriculture building, which was located on the west side, a new structure, including classroom, storage space, and shop was added across the drive east of the building. Also in 1973, the driving range was finished, complete with control tower, traffic lines, and signs. In 1990 the old chemistry laboratory was divided, creating two separate classrooms. Athletic facilities include a football field, tennis courts (completed in 1980), and a baseball field (completed in 1988) (Thomas Walker High School--Self Evaluation, 1990-91, p. 10).

In 1932, Virginia educators had laid the plans for the revision of the state-wide high school curriculum. According to Buck (1952) they intended to provide:

... a much richer and more appropriate experience for citizenship training than the timeworn traditional practice of memorizing a few textbooks. They recognized, of course, the need of having every high school give as generous an offering as possible of elective courses in foreign languages, science, history, mathematics, agriculture, industrial arts, etc., but they were chiefly concerned with the improvement of that part of the school day devoted to the so-called "required subjects" as contrasted with "the elective subjects" and to the idea of having the entire life of the school contribute more effectively toward character building and good citizenship. The core curriculum plan was devised to take the place of "the required subjects" and instead of continuing the conventional requirements of social studies, science, and English for all pupils, it was proposed to allot about the same amount of time to challenging social problems, the study of which would call for a variety of skills in English and arithmetic, for a practical grasp of science and history, and for some skills and appreciations in the fine and industrial arts without organizing the study into "cut and dried" courses. The problems were of a kind about which both the pupil and community might be really concerned, problems of health, of conservation, of community involvement, and beautification. The proposed way of studying these problems was to set the stage for cooperation rather than competition, initiative and self control rather than discipline under duress, originality rather than lazy conformity, and in general to give encouragement to those character traits which are important for useful citizens in a democratic society.

The plan for the core curriculum contemplated a situation in which the pupils would not only find ample opportunity for the expression and development of individual talents and tastes, but also opportunities for cooperative planning and actual working voluntarily together in small and large groups in such a way as to develop the social amenities and those often neglected qualities which tend to promote a high level of human relationships (p. 324).

By 1940, most Virginia high schools were using the revised course of study in part or entirely. Thomas Walker High School most likely opened its doors using this same curriculum.

Thomas Walker High School enrollment for 1994-95 was 390 students, grades eight through twelve. The assessed capacity for this building is calculated at 500 students. According to the school principal, the building is rated as excellent. The

updated description of the building is best summarized in the facilities section of the self-study narrative report of 1990-91:

The main school plant of Thomas Walker High School contains 14 general classrooms; a science department operating from 4 combination classroom-laboratories; a classroom-typing laboratory; a computer laboratory; a home economics department consisting of a combination sewing-classroom, kitchen, combination dining and living room, closet, and restroom; a cafeteria which seats 120-125 persons; and an activity area, which seats about 800. This large activity area has a carpeted floor and is used as an auditorium, as an area for band practice, and as a meeting place for clubs. The south end of this area is a stage with a music room and office on its west side and with art rooms on its east side.

The school has a large gymnasium with a seating capacity of two thousand five hundred. Adjacent to the gymnasium are three dressing rooms with locker baskets, a weight room, two janitorial closets, four storage rooms, and two offices with restrooms for physical education teachers. The west foyer to the gymnasium contains a concession stand and two restrooms.

The administrative suite consists of a secretary's office with a walk-in vault for records, the principal's office, the assistant principal's office, a restroom, and closet.

The guidance department has a reception area, which can be used for meetings or group guidance, and two offices, which can be used for private counseling.

The library is located on the first floor of the main building. It has an office, three storage rooms, and a restroom.

An upstairs room, which has a restroom, is used for in-school suspension. Also two restrooms for girls and two restrooms for boys are located on the first floor of the main building.

A teacher's lounge is located on the first floor . . . The building also has an additional janitorial closet and a book storage room and clinic combined. The building is heated by two heating plants located in the basement. One heats the older section and the other heats the newer section.

The Agriculture Department is housed in a separate building located on the east end of the main building. It contains two classrooms, and office, two tool rooms, a restroom, a locker room, and agricultural mechanics laboratory.

The athletic field is located on the south side of the campus. It is used primarily for football, softball, and archery, and has an adjacent two-court tennis area. The school has use of a baseball field at the east end of the campus.

The school is supplied with electricity, gas, telephone, water, and sewage and garbage disposal services. The school also has access to cable television and is connected to the Channel One program provided by Whittle Communications (Thomas Walker High School--Self Evaluation, 1990-91, pp. 117-118).

During the 1993-94 school year, Thomas Walker High School in conjunction with a consortium of other southwest Virginia high schools and the local community college added the Southwest Virginia Interactive Classroom. This technology enabled Thomas Walker students to experience and participate in classes not taught on site, but at other nearby high schools or for dual credit at the community college. One class originates from Thomas Walker and is broadcast to the consortium schools. The educational program of the school is described as:

The regular school day which has a ten-minute homeroom period and seven class periods begins at 8:30 a.m. and ends at 3:10 p.m. The length of each class period is fifty minutes. All students have lunch during the fourth period, which is divided into three twenty-eight minute lunch periods.

The school year is divided into two semesters consisting of three six-week grading periods. Examinations are administered at the end of each semester to qualifying students.

For a school of its moderate size, Thomas Walker High School provides a wide range of courses. Several required and elective courses are offered to provide for the various needs/interests of students. New programs of study are added to the curriculum as needed. Additional courses have recently been offered in mathematics, business, foreign language and music. The program of studies is modified to meet the changing requirements and needs of students, community, and society.

In order to meet the Virginia Accreditation Standards for graduation, Thomas Walker High School provides the following diploma programs for grades 9 through 12: 21 CREDIT DIPLOMA and 23 CREDIT DIPLOMA .

In order to meet the individual needs, abilities, and interests of each student, Thomas Walker High School offers a variety of educational programs. Special education classes are offered for the educable mentally handicapped and the learning disabled. College-bound and other interested students may choose from the following advanced courses: four units of college preparatory mathematics, four units of science, three units in Japanese, Latin and Spanish, and three units in Social Studies.

Students may elect to take vocational courses provided at the Lee County Vocational Educational Center. The courses offered are as follows:

- | | |
|--|---------------------------------|
| -Small Engine Repair | -Personal Services |
| -Farm Machinery I, II, and III | -Building Trades I, II, and III |
| -Beauty Salon Assistant I, II, and III | -Welding I and II |
| -Auto Body Repair I and II | -Carpentry I and II |

- Drafting I and II
- Electricity I and II
- Cosmetology I and I
- Office Systems
- Shorthand
- Applied Business Economics
- Accounting Computer Applications
- Fundamentals of Marketing
- Secretarial Administration I and II
- Introduction to Health Occupations

- Child Care I and II
- Auto Mechanics I and II
- Commercial Sewing
- Info/Word Processing
- Applied Business Law
- Business Management
- Office Service I
- Data Processing
- Heavy Duty Equipment

Course listings by department are as follows:

Agricultural Science and Industrial Arts

Agriculture I, II, III, IV

Business Education

Introduction to Business
 Typewriting I, II
 Computer Applications
 Keyboard Concepts
 Accounting

Mathematics

Mathematics 8, 9
 Algebra I, Part 1, Part 2
 Algebra I
 Algebra II
 Plane Geometry
 Advanced Math
 Physics
 Calculus
 Consumer Math
 Computer Math

Health and Physical Education

Health and Physical Education 8, 9
 Driver and Health and Physical Education 10

Social Studies

Civics
 World Geography
 World History
 Virginia and U.S. History
 Virginia and U.S. Government

(Thomas Walker High School--Self Evaluation, 1990-91, pp. 25-26).

Home Economics

Home Ec I, II, III, IV

Language

English 8 - 12
 AP English
 Journalism I, II
 Spanish I, II, III, IV
 Latin I, II
 Japanese

Science

Physical Science
 Earth Science
 Biology
 Advanced Biology
 Chemistry
 Applied Biology
 Physics

Fine Arts

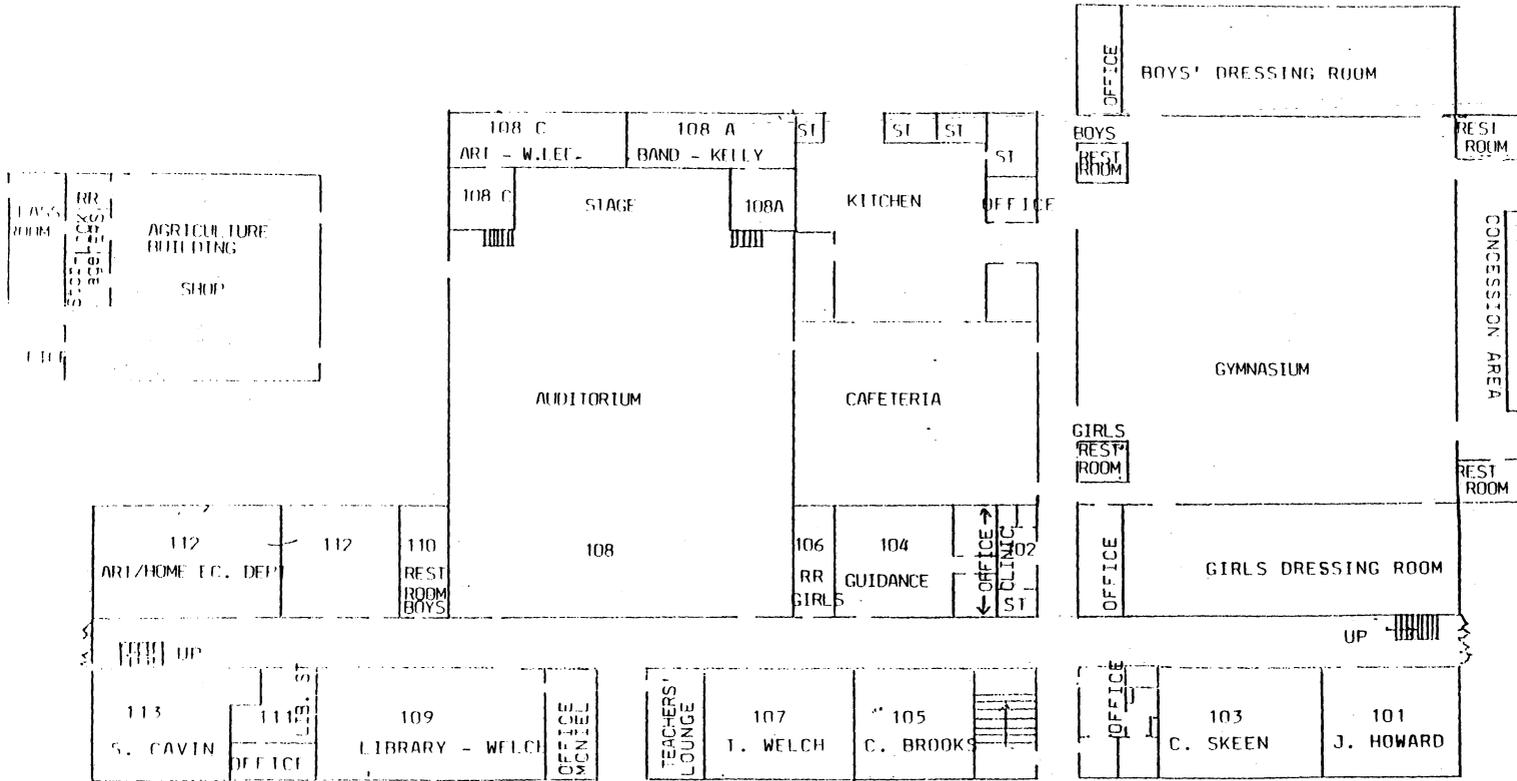
Beginning Band
 Band
 Chorus
 Art

Social Science

Sociology
 Economics
 Study Skills

THOMAS WALKER HIGH SCHOOL

GROUND LEVEL

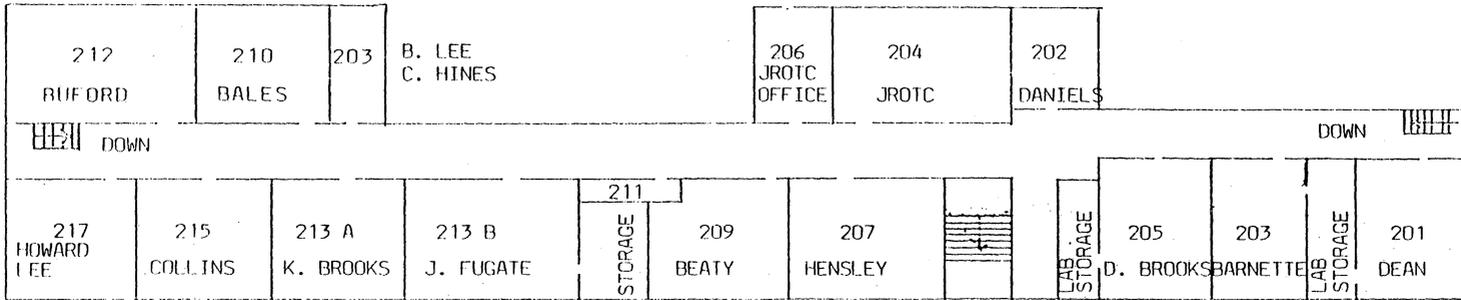


Thomas Walker High School Floor Plan:

THOMAS WALKER HIGH SCHOOL

SECOND LEVEL

Thomas Walker High School Floor Plan:



BRUNSWICK SENIOR HIGH SCHOOL

circa: 1955

Brunswick County, Virginia



Brunswick Senior High School was constructed in 1955 and has had no permanent additions to the building since that date. Brunswick is one of the best and most pristine examples of the prominent International Style school design which swept the nation between 1945 and 1965. Throughout the Commonwealth, this style prevailed in the construction of elementary, junior, and senior high schools for a little over two decades. More of these school structures are still in use in Virginia than any other

architectural style. The International Style is best described by Poppeliers, Chambers, and Schwartz (1977):

The International style is based on modern structural principles and materials. Concrete, glass and steel were the most commonly used materials. While Chicago School architects merely revealed skeleton-frame construction in their designs, International School architects reveled in it. Their rejection of nonessential decoration was perhaps the major difference that distinguished the International style from the Art Deco. Ribbon windows were a hallmark of the style as were corner windows, in which the glass was mitered without any corner support. Bands of glass became as important a design feature as the bands of "curtain" that separated them. These strips of windows and solid planes helped create a horizontal feeling, another important aspect of the style, even in highrise buildings. Here again the International School differed from Art Deco, which frequently used setbacks, piers and other devices to create a sense of verticality. International stylists viewed a skyscraper essentially as floors of office space stacked on top of one another.

Artificial symmetry was studiously avoided in the International style. Balance and regularity, however, were admired and fostered. A tripartite expression of base, shaft and capital - the norm in high-rise construction of the Chicago School - was never used in the International style. Mundane building components such as elevator shafts and compressor for air conditioning became highly visible aspects of design. The cantilever and ground floor piers were often used in International style structures (p. 40).

Brunswick Senior High School is constructed of red brick, with little in the way of decorative exterior elements. Bands of windows emphasize the rectilinear design of the structure. The windows of each classroom comprise nearly 60 percent of the exterior wall space, adding a great deal of natural illumination and ventilation. This large expanse of fenestration created an energy management problem, which educational facility planners addressed during the energy crisis of the early 1970s. The interior configuration of the building was a simple "L" with a double-loaded corridor. The hallways were designed to accommodate in-wall lockers, the floors were terrazzo, and the ceiling was fitted with acoustical tile and "ice cube tray" florescent lighting. Classroom design was very similar to that of the school buildings designed since the

1900s. Ceiling height was nearly eleven feet with acoustical and lighting treatments similar to the corridors. Chalkboards (black or green) were positioned at the front of the classroom so as to have the windows to the left of the students, the hallway and bulletin board to the right, and shelving at the rear of the room. Flooring is asbestos tile.

The gymnasium and locker rooms were positioned near the rear of the building, across from the auditorium and cafeteria. All of these facilities were placed near the main entrance and apart from the academic areas. The vocational areas were located in the back of the building, away and out of sight of the rest of the educational program. The 1992-93 self-evaluation narrative report of Brunswick Senior High School provides a brief history of the school facilities:

The school facility provides a functional, safe environment for a variety of educational needs and experiences for students from widely disparate backgrounds.

The brick and concreted block building was constructed in 1955 on a forty-acre site. Four mobile units at the rear of the building have been in use since 1970. There are presently 528 students.

The site is attractive and well-maintained and includes sufficient space for some expansion. A large parking area on the west side of the building as well as smaller lots near the front and rear serve the needs of students and faculty.

A concrete stadium with both stationary and portable bleachers contains a football field, a baseball field, and a track. New lighting was installed on the athletic field in the fall of 1989. Lighted tennis courts are adjacent to the stadium. All of these facilities are available and accessible to the students and the community.

The building is attractively designed and well-constructed. Facilities include an auditorium with a seating capacity of 940 and a gymnasium that seats 750. Trophy display cases, well maintained bulletin boards and student-painted murals add to the attractiveness of the halls and help to foster school pride. A student lounge is located near the front door. The library includes attractive reading and study areas.

The cafeteria is light and attractive and seats 192 with an additional 72 seats in the adjacent courtyard for use in warm weather. New floor tile, ceiling fans, round tables, a salad bar and faculty space make the dining area more attractive and comfortable.

The heating system is centrally controlled with no room thermostats. Emergency lights are located in front halls.

Student lockers are provided and were recently renovated and painted. Sanitary drinking fountains are placed throughout the building. Restrooms with toilet and lavatory facilities are located on each floor level.

Some ramps are available for use by handicapped persons and a chair lift is placed on the stairs. Some provisions are made for handicapped persons.

Classrooms are furnished with student and teacher desks, chalkboard and bulletin boards. Most have a closet and filing cabinet.

The main offices and guidance offices are conveniently located and accessible. Two work rooms with copy machine, thermal machine, duplicator, typewriters, test scanner and computer are available for teacher use. There is also a small conference room and a small lounge (Brunswick Senior High School--Self Evaluation, 1992-93, pp. 91-93).

In 1955 when the doors of Brunswick Senior High School opened, the educational program of Virginia high schools was being influenced by more external variables than ever before. One year earlier, the case of *Brown vs. The Board of Education* (347, U.S. 483 p. 873; 74 S.Ct. 686, 1954) had promulgated a movement in Virginia localities and the legislature to promote a massive resistance towards integration. America was experiencing a decade of prosperity, spurred by major advances in technology; fears and frustrations of the Cold War were fueled by Senator Joseph McCarthy's prominent witch-hunt in which many leading citizens were attacked and labeled as Communists; and there was a post-war baby boom.

An increasingly rigorous curriculum was being implemented in Virginia high schools to prepare more students for post-secondary education. High schools in the mid-to late-1950s experienced the influence of television, the National Defense Education Act, foreign language labs, newly refurbished science labs and equipment, and the embryonic space-race on its educational program.

According to the 1992-93 self-study, Brunswick Senior High School has adapted its educational program to meet the current needs of its students:

Recognizing the varied economic and environmental factors of the area,

BSHS believes that the curriculum must be diverse and individualized and should respond to the intellectual, social, moral, physical, and aesthetic needs of the heterogeneous student body. A balanced and integrated program of education must incorporate cultural, academic, vocational, avocational, and extracurricular offerings. Teachers must strive to develop in their pupils the attitude that a good education cannot be acquired without self-discipline and the desire to achieve excellence. Every student if properly motivated, can attain some measure of success, and it is the responsibility of the faculty and administration to disdain mediocrity and to exemplify standards of academic and moral excellence.

This curriculum is in accordance with the criteria established by the Southern Association of Schools and Colleges. Curriculum revisions are made through recommendations from teachers, counselors, administrators, and members of the community and a curriculum advisory committee serves as a clearinghouse for these recommendations.

Graduation from Brunswick Senior High School requires twenty-one credits. Students have two diploma options, the twenty-one credit diploma or the twenty-three credit diploma.

To accommodate differences in student achievement, four levels of instruction are offered in selected core subjects. At the highest achievement level, Brunswick Senior High School offers Advanced Placement courses in United States and Virginia History, English 12 and calculus. A second year of biology has been added, and expectations of students enrolled in courses at this level are extremely high and mastery of skills in logic, analysis and evaluation is required.

Practical, regular and honor courses comprise the other three levels of instruction in grades ten through twelve. Each of these courses has minimum reading, writing and research skills which must be mastered at each level. Honors courses carry a weighted grade and all curriculum guides are correlated with the Standards of Learning and TAP objectives.

For students who need remedial work in English, mathematics, and social studies, the BASIC program was established. This program is offered to students in the remediation program whose TAP test scores range in the bottom quartile. Remediation work in these areas is given during both sessions of the Learning/Enrichment Activities Period (LEAP) on Tuesday, Wednesday and Thursday each week.

Special education services are available for the learning disabled, the mentally retarded, the emotionally disturbed, the visually impaired, and the physically handicapped. Students identified as needing special education are channeled through the Pupil Personnel Department and their course of study is determined by a child study team. In pursuit of their individual course of study, a child is either mainstreamed or self-contained or a combination of both depending on the judgment and evaluation of the Special Services Child study team. In any case, the student's education is provided in the least restrictive environment for the individual.

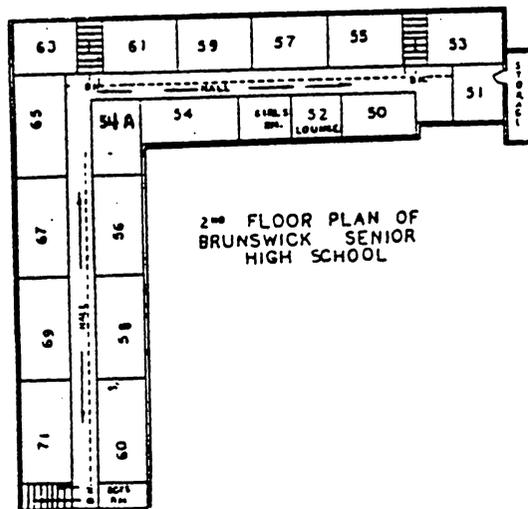
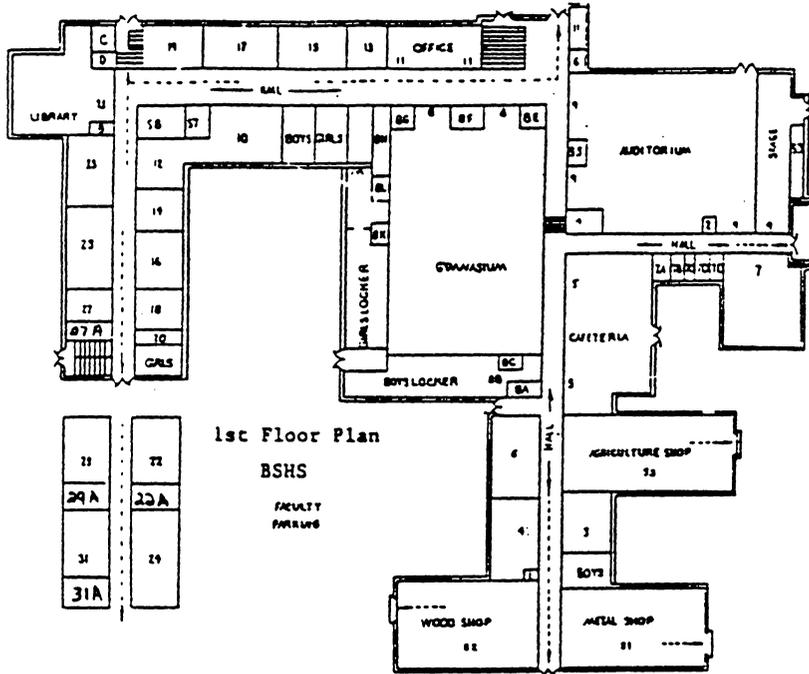
An Industrial Cooperative Training (ICT) program is offered to prepare students for employment. The enrollment in this program has grown significantly since it was initiated. The alternative education program is designed to prepare dropouts for the General Educational Development (GED) and to give them some vocational training.

The components of the curriculum are as follows:

- The art program gives students the opportunity to develop/refine self expression as they develop creative skills.
- The English program develops reading, writing, thinking, speaking, listening, and reasoning skills for effective communication and for appreciation of our language.
- The foreign language program affords the students opportunities to gain a larger concept of and appreciation for the world, other people, and their cultures as they learn a second language.
- The health and physical education program teaches basic information leading to physical and mental well-being and develops motor skills and special talents. Behind the wheel driver training is available for all students.
- The library program complements classroom instruction with a variety of support services.
- The mathematics program develops skills in computation and problem solving.
- The music program provides opportunities for students to develop skills and self-esteem through participation in instrumental performing groups.
- The science program focuses on the process of inquiry and stimulates curiosity about the natural environment.
- The social studies program teaches the history of our country, introduces the role of government in our lives, and assists in gaining a global concept of man in a multi-cultural and pluralistic world.
- The special education program provides eligible students the opportunity to learn in a supportive caring environment.
- The vocational education program affords students opportunities to acquire competencies for the future as they explore related career fields.
- The ICT program prepares students for work experience through classroom instruction and supervised employment.
- The alternative education program reaches out to students who have dropped out of school and seeks to prepare them for the successful completion of the GED (Brunswick Senior High School--Self Evaluation, 1992-93, pp. 18, 20).

The building that houses the Brunswick Senior High School program has been rated as "good" by the high school principal in regard to condition, design, and function. According to the 1994-95 report on student enrollment, Brunswick has an enrollment of 587 students in grades ten through twelve. The principal's assessment of student capacity has been set at "approximately 550". The principal commented that the "school is well maintained, has an auditorium that seats 940, but the gym is very small--seating 550. In addition there is a need for (additional) lab space."

Brunswick Senior High School Floor Plan:



APPALACHIA HIGH SCHOOL

circa: 1960

Wise County, Virginia



Appalachia High School is situated on the side of a hill in the coal county of Wise, Virginia. The facility has not been added to nor had major renovations since it opened in 1960. Appalachia is a fine example of a planned campus-style high school in Virginia. The term "planned" is significant as there are many campus-type high schools throughout the state; however, these sites became campus-style after the addition of

satellite buildings to facilitate student enrollment growth or curriculum. A true campus-style school is defined by Graves (1993):

A series of individual buildings arranged on site, the campus plan can break down the massing and scale of a large school. Modeled after colleges, the plan can be easily expanded by adding another individual building. The buildings can define quads and other outdoor spaces that can be used as important shared amenities (p. 72).

Appalachia High School was originally planned as a campus-style school. The exterior architecture of the buildings is unmistakably International Style with the large banks of windows, rectangular shape, and absence of decorative elements. All three original buildings which make up the campus of Appalachia high school are connected by a metal-covered walkway. The school's facade is not the main entrance, but instead faces the high way. The main entrances, which are the more serviceable entrances to the public, are located in the rear of all three buildings.

The interior configuration of the main building is the traditional double-loaded corridor of three stories. The east and west buildings are designed for special activities. The interior walls are block and ceramic brick: the floors are covered with dark, asbestos tile. Ceiling panels are asbestos, acoustical tile, encapsulated with paint treatment (non-friable). The ceiling height is approximately nine feet from the floor. The campus-style design was a reflection of the county's desire to provide an academic climate similar to that of a collegiate atmosphere.

The curriculum housed within the walls of Appalachia High School in 1960 was a program which stressed the importance of post-secondary education. The National Defense Education Act of 1958 had stressed mathematics, science, and foreign language for all high school students. The first of the "baby-boomers" were attending secondary school and college, and their parents wanted them to experience the education that they

were not fortunate enough to have when they were young. Wise County was no exception, especially with parents who wanted their children to escape the coal mines that they were forced to endure. The educational program included the core courses and electives from the little-changed list of required courses established in 1910. Classes were traditionally fifty-minutes in length, separated by a five-minute class exchange; and bible study and school prayer were still a part of the curriculum.

The school setting has evolved little over the past three-and-a-half decades, while the educational program has changed to meet the divergent needs of the students and community. Appalachia's facility and curriculum update may best be described using the 1985-86 self-study narrative report:

THE SCHOOL FACILITY

Appalachia High School is conveniently located one-half mile northeast of the business district of the town of Appalachia. The recent addition of students from West Norton and Wise makes the school a central location for the school population.

The school is accessible from U.S. 23-Alternate 58; yet, it is removed from traffic dangers during the school day and after-school activities.

The school grounds, consisting of approximately twenty acres, are carefully tended and attractively landscaped. The care given to the grounds by maintenance personnel enhances the appearance of the school.

There is one multi-purpose field located directly in front of the main building. This field is used by the physical education department, the band, and several of the school's athletic teams. The field is also available to the town and outside organizations for other activities including little leagues (T Ball, Peanut Football, and Little League Baseball), independent adult athletic teams, civic events, and general use by the public. A new lighting system, installed in the spring of 1981, is currently in use. Two tennis courts, built in the spring of 1980, are located on the hill north of the gymnasium.

Parking space behind the school is provided for buses, faculty, students and visitors. The driving range area, located across U.S. 23-Alternate 58 from the athletic field, provides additional parking space for football games and other school functions.

The school plant consists of three brick buildings. The west building houses the auditorium and special education facilities. These facilities include a multi-

purpose room, a kitchen, a classroom, and two bathrooms. The main building consists of the following: a library, twelve classrooms, three science laboratories, a three-room business block, a home economics suite, a language arts room, a guidance suite, the general school office, a bookstore, a D.E.-English office, an emergency room, a women's lounge, a men's lounge, and six restrooms. The east building houses the gymnasium, dressing facilities for boys and girls, a health classroom, a driver education classroom, the band suite, the cafeteria facilities, various storage rooms, four restrooms, and the main heating plant.

All classrooms, stairways, and corridors are adequate in size and well-illuminated by natural and/or electric lighting. All work areas are well-ventilated and heated.

In addition to the newly-renovated special education suite, several changes have been made on the campus to accommodate the special education students. Two concrete ramps make the special education suite, located in the auditorium, accessible to the handicapped. A concrete ramp at the main entrance provides access for the handicapped to the academic building.

THE EDUCATIONAL PROGRAM

Objectives

The Educational Program of Appalachia High School strives;

1. To provide a course of study to meet each student's needs.
2. To ensure that the student has acquired a salable skill upon leaving high school.
3. To provide courses of study that meet the requirements of the State Board of Education and the Wise County School Board.
4. To offer courses that satisfy the educational needs of the community.
5. To provide courses for cultural enrichment of the students.
6. To provide a course of study for the gifted, average, learning disabled, emotionally handicapped, slow learning, educable mentally handicapped, and trainable/multi-handicapped.
7. To provide courses which will enable students to enter college and to be able to continue their education.
8. To provide courses that will develop an understanding and appreciation of the democratic way of life.

General Organization

The purpose of the Educational Program of Appalachia High School is to present subject matter needed in solving student problems or fulfilling student purposes and/or plans. The Educational Program is planned to meet the requirements set by the State Department of Education and the Wise County

School Board. The program strives to include a breadth of experience and to develop as high a degree of flexibility within the program as possible.

Periodic evaluations and changes are made in the educational program to meet the needs of the students and requirements of the state and local departments of education. Administrators, guidance personnel, and teachers work cooperatively to construct and coordinate the educational program.

Individualized instruction is provided through the following: a Language Arts Program for students with problems in reading; a Distributive Education Program for students who seek employment while continuing their education; the Vocational-Technical School for students who wish to learn trades; a Clerk-Typist Program for students who wish to enter a business field; an Alternative Education Program for disadvantaged who are two or more years behind in their grade levels; a Special Education Program for those students who have learning disabilities and/or are mentally handicapped.

Twenty-three units are required for graduation. Courses required are as follows: English, 5 units; Mathematics, 2 units; Science, 2 units; Social Studies, 3 units; and Health and Physical Education, 3 units. The fifteen required units are supplemented with eight elective units chosen from one of the following two major areas of the curriculum:

I. Academic

15 units (basic requirements) plus 8 units suggested from the following:

Algebra I and II
Geometry
Advanced Algebra and Trigonometry
Spanish I, II, and III
Biology
Chemistry
Physics
Speech
Typing
Music Appreciation
Music Theory

II. Vocational

A. Business

15 units (basic requirements) plus 8 units suggested from the following:

General Business
Typing
Accounting
Clerk-Typist I and II (Each course carries two units)

Consumer Mathematics
Shorthand

- B. Distributive Education
15 units (basic requirements) plus 8 units suggested from
the following:

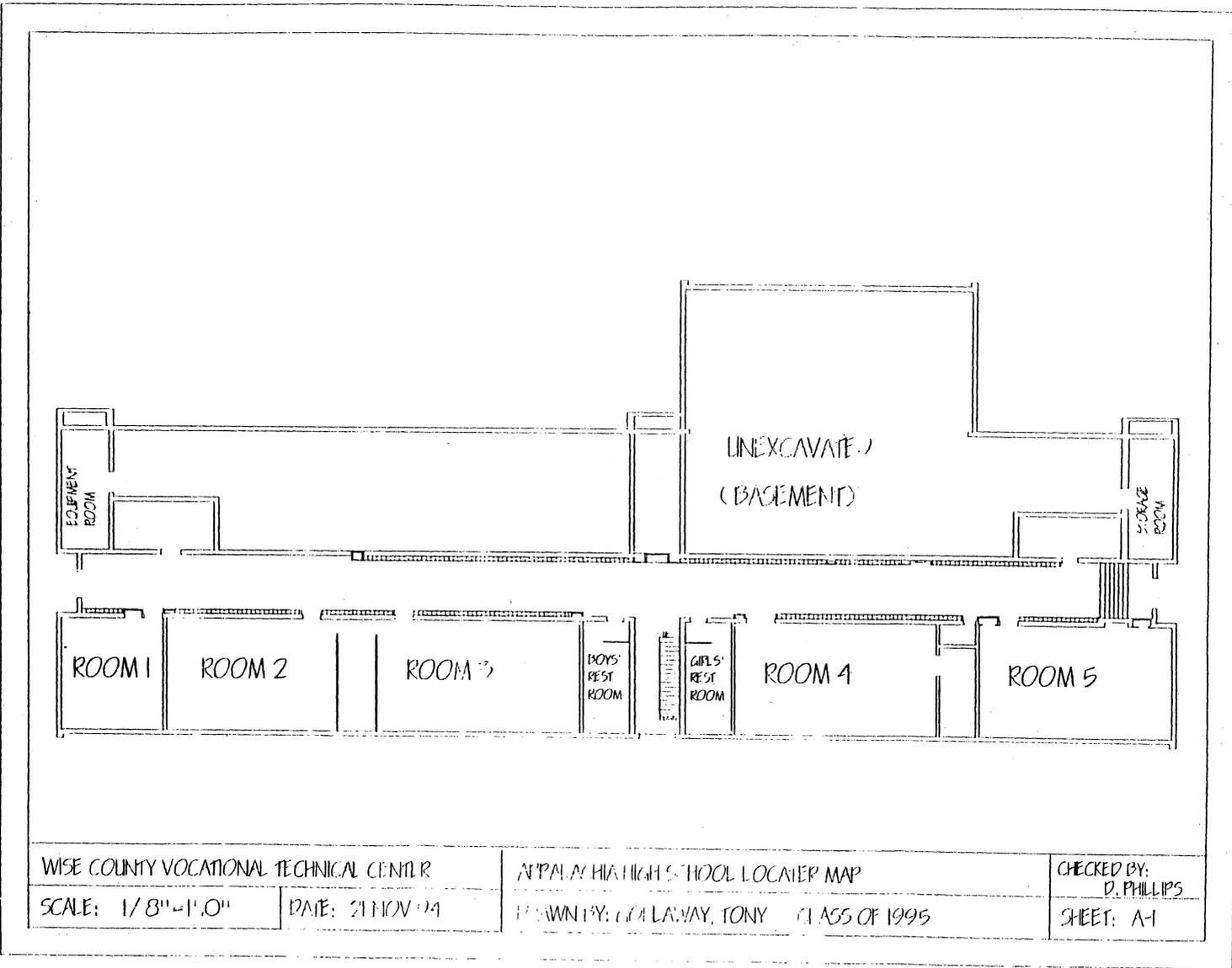
Fundamentals of Marketing
Marketing (Course carries two units of credit)
Advanced Marketing (Carries two units of credit)
Typing
Accounting
Consumer Mathematics

- C. Vocational and Technical
15 units (basic requirements) plus 8 units suggested from
the following:

(Each course carries two units of credit)
Air Conditioning & Refrigeration I, II, and III
Auto Body Repair I, II, and III
Auto Mechanics I, II, and III
Bricklaying I, II, and III
Carpentry-Cabinetmaking I, II, and III
Child Care Occupations I and II
Clothing Occupations I and II
Cosmetology I, II, and III
Diesel Mechanics/Heavy Equipment I, II, and III
Drafting I, II, and III
Electricity I, II, and III
Electronics I, II, and III
Food Services Occupations I and II
Horticulture I, II, and III
Machine Shop I, II, and III
Mine Machinery Repair I, II, and III
Natural Resources Management I, II, and III
Plumbing I, II, and III
Power Mechanics I, II, and III
Practical Nursing
Printing I, II, and III
Sheet Metal I, II, and III
Welding I, II, and III

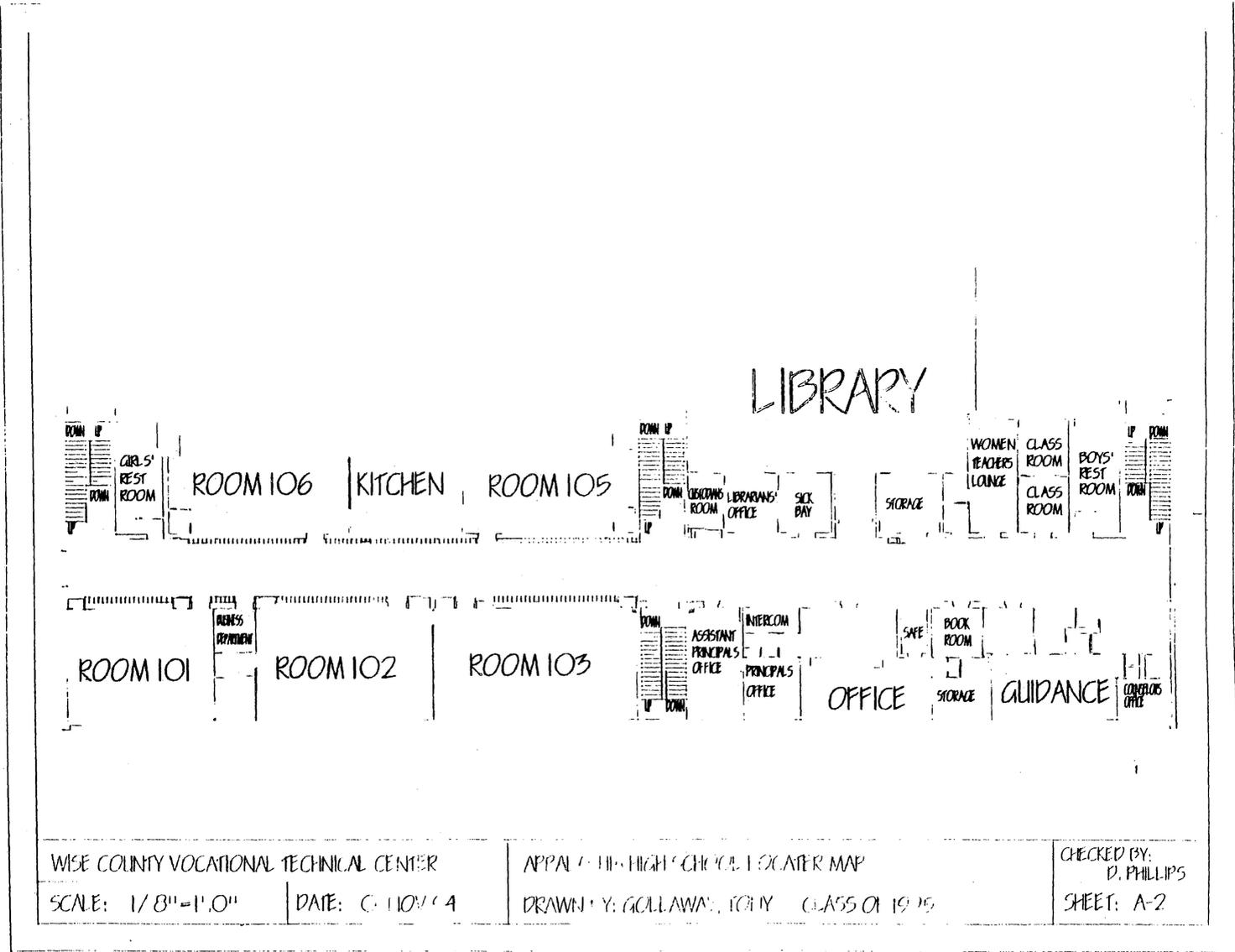
The Special Education Program functions at all levels in the curriculum
(Appalachia High School--Self Evaluation, 1985-86, pp. 15-19, 107-108).

Appalachia High School reported an enrollment of 358 students in grades eight through twelve for the 1994-95 school year. The facility is rated for a student capacity of 365, thus slightly under-capacity. The school principal has assessed the building in good condition and further states that "the building has served the students, staff, and community well during its thirty-five years of existence."



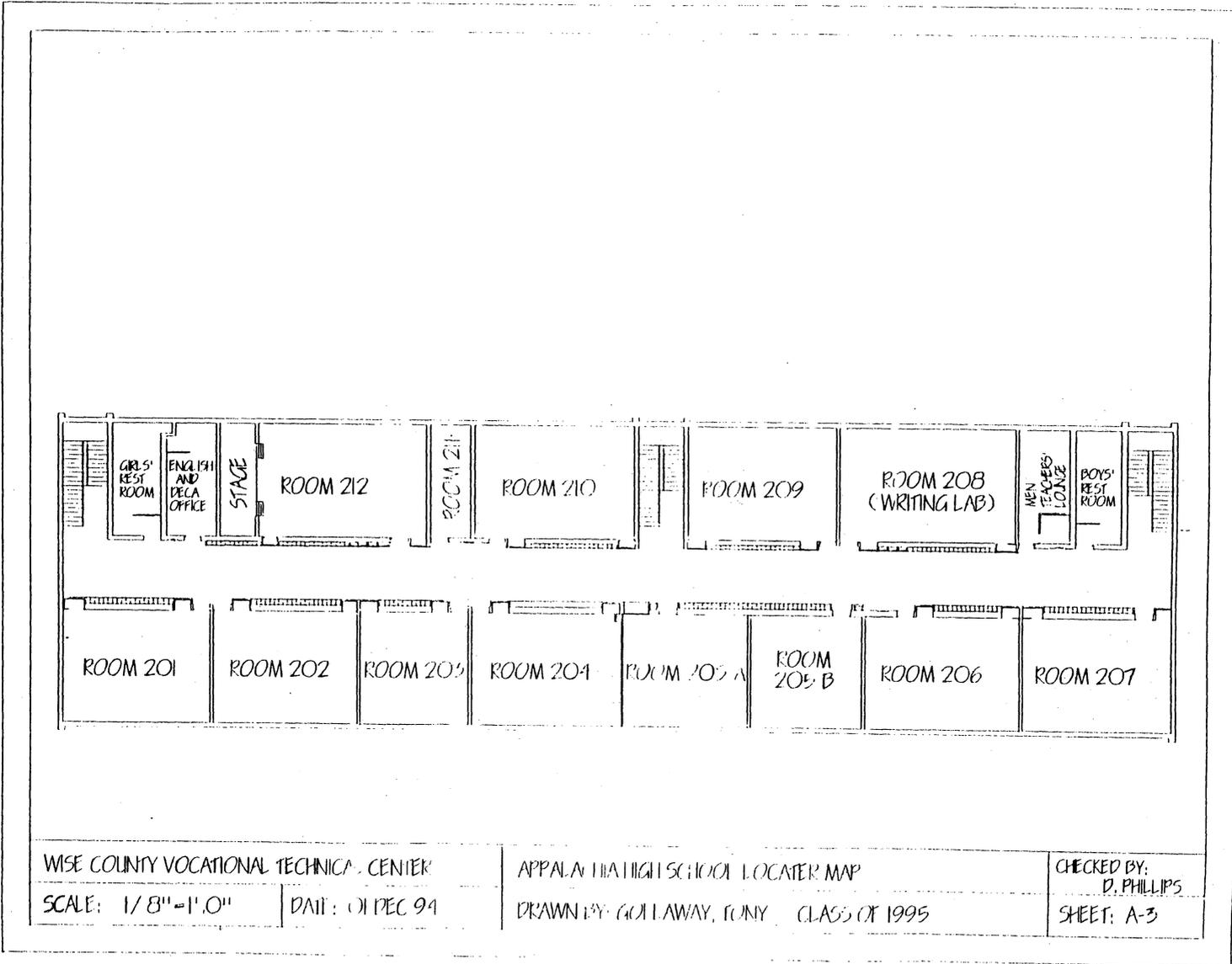
Appalachia High School Floor Plan:

WISE COUNTY VOCATIONAL TECHNICAL CENTER		APPALACHIA HIGH SCHOOL LOCATER MAP		CHECKED BY: D. PHILLIPS	
SCALE: 1/8"=1'.0"	DATE: 21 NOV 94	DRAWN BY: GAIL LAWAY, TONY CLASS OF 1995		SHEET: A-1	



Appalachia High School Floor Plan:

WISE COUNTY VOCATIONAL TECHNICAL CENTER		APPALACHIA HIGH SCHOOL LOCATOR MAP		CHECKED BY: D. PHILLIPS	
SCALE: 1/8"=1'.0"	DATE: 01/10/64	DRAWN BY: GOLLAWAY, FORNY CLASS OF 1975		SHEET: A-2	



WISE COUNTY VOCATIONAL TECHNICAL CENTER

APPALACHIA HIGH SCHOOL LOCATER MAP

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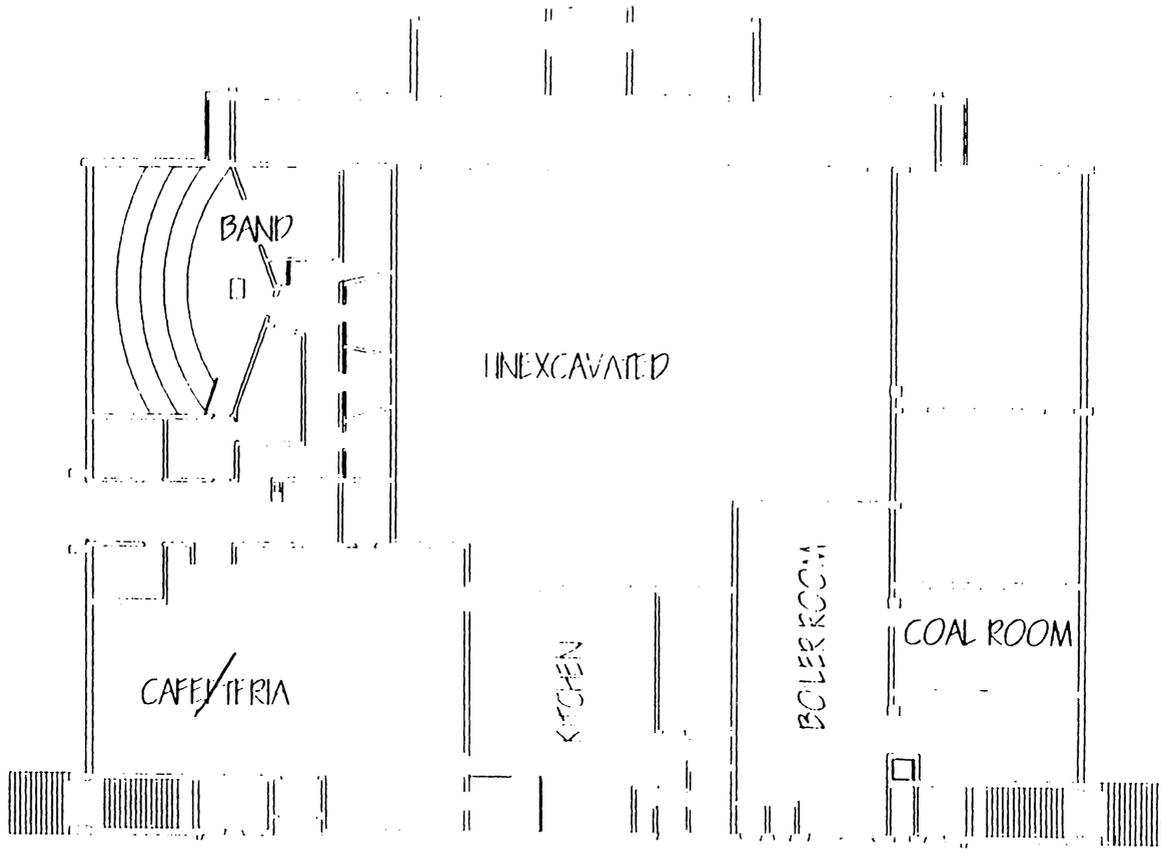
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DATE: 01 DEC 94

DRAWN BY: GOLLAWAY, TONY CLASS OF 1995

SHEET: A-3

Appalachia High School Floor Plan:



Appalachia High School Floor Plan:

WISE COUNTY VOCATIONAL TECHNICAL CENTER
SCALE: 1/8"=1'.0" | DATE: 08 DEC. 94

APPALACHIA HIGH SCHOOL LOCATER MAP
DRAWN BY: GOLLAWAY, TONY CLASS OF 1995

CHECKED BY:
D. PHILLIPS
SHEET: A-4

HAYFIELD SECONDARY SCHOOL

circa: 1969

Fairfax County, Virginia



Hayfield Secondary School was constructed in 1969 for a combined school of grades 7-12 in the Fairfax County School system. The structure has not been significantly altered since it was erected over twenty-five years ago. Student capacity for this building is currently calculated at 3,000. The student enrollment figure reported for 1994-95 school year was 3,033, with anticipated growth over the next few years. Six

mobile classrooms are on order for this site for the 1995-96 school year. The principal rates Hayfield's facility as adequate and comments:

The building remains in good shape, and is well cared for. We have some technology problems due to the infrastructure, and infrastructure problems with respect to leaking pipes and such. Our gymnasium can seat 5,000 and can be subdivided. The auditorium can seat 1,665 and is used frequently by the community. We have two cafeterias to serve the middle school and high school students separately and a Planetarium.

Hayfield Secondary School's design follows the description of a cluster plan as described by Graves (1993):

The cluster plan is a variation of the campus plan, this arrangement can be described as a collection of small schoolhouses linked by enclosed hallways. The enclosed connections eliminate the problems caused in harsh climates by the campus plan. Like the campus plan, this approach offers easy expansion possibilities. It can also reflect the organization of the school by subject, grade level, or "houses" (p. 72).

The exterior architecture of this building can be described as having been influenced by the International School by "the balance and regularity and the mundane building components such as elevator shafts and compressors for air conditioning becoming highly visible aspects of design" (Poppeliers, Chambers, and Schwartz, 1977, p. 40) and the lack of decorative elements. The architectural style strays from the International School somewhat with the reduction of fenestration, due in part to the inclusion of a climate-controlled environment. The multi-level design of the building fits the contours of the sloped site on which it was built and utilizes an earth-brown brick as the major construction material.

The interior configuration of Hayfield has remained the same over the past two-and-a-half decades. It deviates from the traditional, double-loaded corridor schools designed in earlier eras as it is able to furnish ventilation and light through a series of

carefully arranged courtyards. The 1983-84 self-study narrative report describes the school facilities:

Hayfield Secondary School, which opened in January 1969, is located on 57.7 acres of land at the intersection of Hayfield and Telegraph roads. The building has 460,787 square feet of space with an original capacity of 3,900 students.

The building is planned around the concept of sharing central facilities between high and intermediate schools. The central section includes the food service facility, media center, science lecture room, music rooms, planetarium, field house, dressing facilities, and mechanical service facility.

The media center is both spacious and attractive, and has small rooms designed for individual reviewing of audio visual aids. Several large rooms are also available for audio storage and for audio visual production.

A 1,500 seat auditorium with movable orchestra pit, a light and sound system, cushioned seats, and excellent acoustics, allow for wide use by both school and community theatrical groups.

The gymnasium is well suited for a wide variety of indoor athletic activities. It seats approximately 4,500 spectators when all bleachers are used and can also be subdivided into eight separate teaching stations by using a movable door system.

Classrooms are arranged around court yards for natural illumination and ventilation. There are 158 teaching stations, 13 teacher workrooms, 6 subschool administration suites, and 2 central administration suites.

Outside facilities include a quarter mile grasstex track, 6,000 seat football stadium, one lighted baseball field, a baseball practice field, a softball field, hockey field, tennis courts, basketball courts, and several large parking areas. An additional fenced parking lot is available for the storage of vehicles to be serviced by automotive students.

The building is equipped with a modern fire alarm system which is more than adequately heard throughout all sections of the building. A building security system installed several years after the building was completed has effectively reduced vandalism to property and contents (Hayfield Secondary School--Self Evaluation, 1983-84, p. 125).

Hayfield Secondary School was the first public school in Virginia to address the need for subschools within a school. The educational program of the intermediate school student and the high school student were different and required separate and shared facilities under one roof to facilitate the two groups of students.

Traditionally, the blending of grade seven through twelve in one school building created no significant problems, as junior high schools were scaled-down versions of senior high schools. In 1969, when Hayfield Secondary School was opened, the arrangement of a school within a school was a new approach to school organization. Graves (1993) discusses the implications of the school within a school concept:

Smaller class sizes, specialized facilities for particular groups of students (learning disabled, gifted, foreign, etc.), and increased community use, however are forcing schools to expand in size. Because of land acquisition costs and economies of scale, building two small schools will almost always be more expensive (and time consuming) than building one large facility. In a time of government budget deficits, it is becoming increasingly difficult to get the extra money for smaller schools. One design response that shows promise is creating "schools within schools", shaping smaller environments within larger institutions. Whether the architect does this by breaking down a school into various "houses", each with its own identity (and sometimes even its own entrance), or by some other means may be less important than the general response itself (p. 158).

In an area, such as northern Virginia, where student populations are large and land is at a premium, the establishing of large schools tends to be common practice. The school-within-a-school concept at Hayfield refuted the theory that a large school has to be a numbingly anonymous one.

The Hayfield Secondary School educational program is described as:

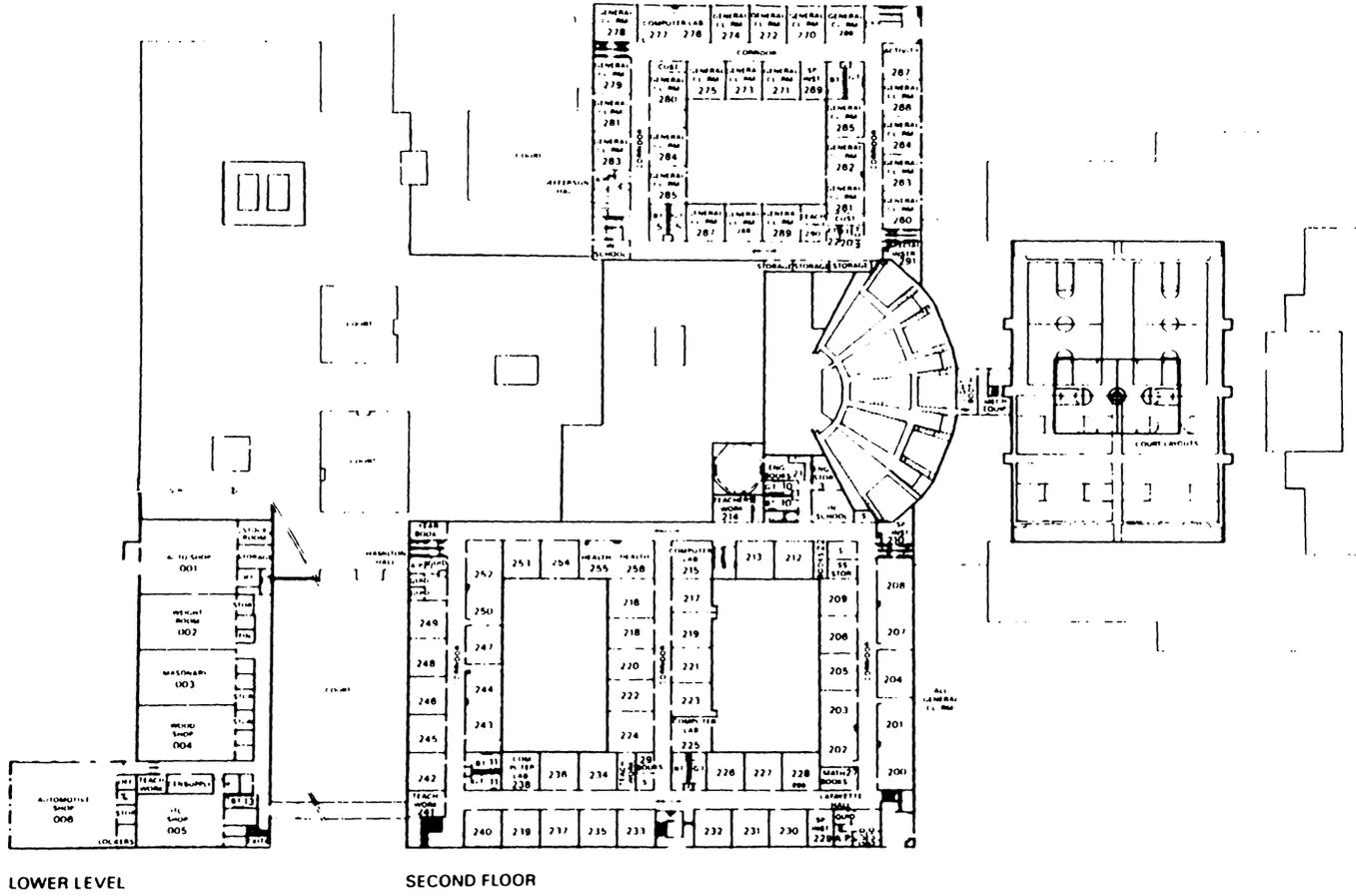
. . . a comprehensive school which recognizes that individuals differ in physical, academic and emotional development. The development of the Educational Program must enhance individual potential and promote a positive feeling of self. The philosophy of developing educational programs for Hayfield Secondary students has reflected the belief that the school exists for the benefit of the students and community. As a part of a changing society, Hayfield Secondary must periodically review its programs to meet the academic, vocational and aesthetic needs of its students.

Description and Organization

The educational programs of Hayfield Secondary are developed through the use of Fairfax County Program of Studies guidelines and formation of departmental objectives based on the needs of the students. The administration, departments and individual teachers assess the need for change or additions to the programs

through a yearly curriculum review. Departments submit a course proposal to the administration. Department chairpersons meet with the liaison principals to confirm teacher certification, demand for the course, and the number of sections needed. Student and parental input to course change can be directed to classroom teachers or to the administration. Standardized and classroom tests are used regularly to assess the established objectives. The administration requires an item analysis of final exams to assist individual departmental programs. The county schedules audits and self-study evaluations. Teachers, administrators and counselors use diagnostic tests to help plan for individual programs.

On the high school level there are 21 required credits or 15 required credits and 6 electives. There are 146 elective courses. For some of these courses students travel by bus to other near-by high schools or to the Springfield Mall. The intermediate level offers 10 required courses and 39 elective courses. Within these courses are different instructional levels meeting the varying ability levels and needs of students (Hayfield Secondary School--Self Evaluation, 1983-84, p. 20-21).

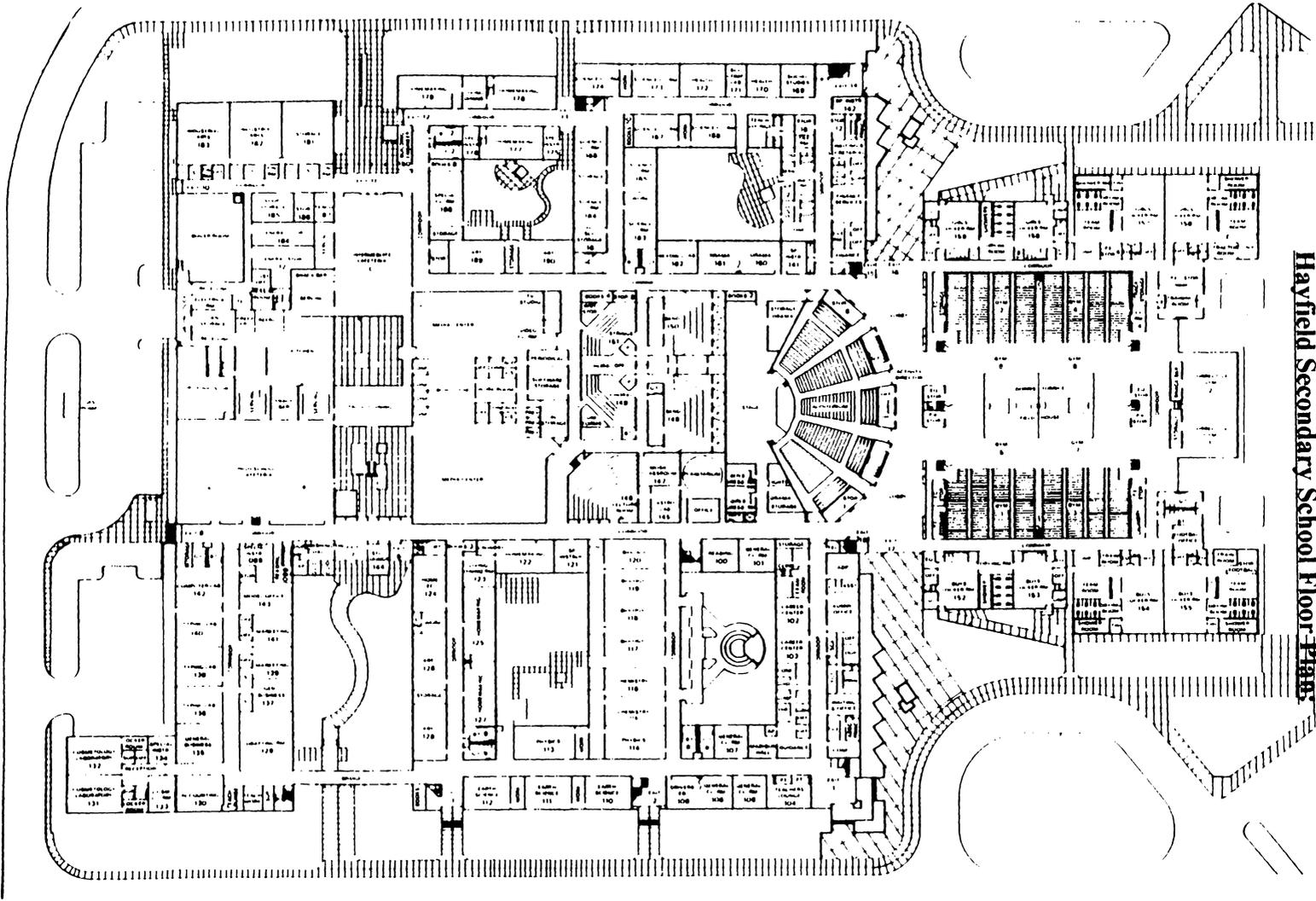


Hayfield Secondary School Floor Plan:

HAYFIELD HIGH AND INTERMEDIATE SCHOOL —

FAIRFAX COUNTY — VIRGINIA

Hayfield Secondary School Floor Plans



HAYFIELD HIGH AND INTERMEDIATE SCHOOL —

FAIRFAX COUNTY — VIRGINIA

JAMES W. ROBINSON SECONDARY SCHOOL

circa: 1971

Fairfax County, Virginia



James W. Robinson Secondary School is located just south of the George Mason University campus in Southwestern Fairfax County on 56 acres of land. The building was erected in 1971 to respond to the large-scale residential and service growth that occurred in the area, changing the nature of the community from rural to densely populated suburban. The Fairfax County Public Schools is the tenth largest school district in the nation with an enrollment of approximately 145,000 students. The system

boasts nineteen high schools, three secondary schools (grades 7-12), twenty-one middle schools, one hundred and twenty-five elementary schools, and nineteen special service centers.

James W. Robinson Jr. Secondary School was named for the first Virginia Medal of Honor recipient in the Vietnam conflict. The school opened its doors with a designed capacity of 3,900 seventh through eleventh graders in 1971. The original plan for the school was devised by the "Blue Oaks" committee. This committee was comprised of architects, planners, and teachers from each instructional area. They called for a cost-efficient building where students would never have to leave their subschool for English, mathematics, science, and social studies. A "Little Theater" was designed in lieu of the traditional and expensive school auditorium. This little theater's planned capacity was to match that of each subschool population, so that smaller and more personal assemblies could be presented. The money normally earmarked for an auditorium was added to that for the large field house facility. The school was overcrowded as soon as it opened, and it became necessary to send seventh graders to Fairfax High School in 1972-73. The opening of Lake Braddock High School in 1973 temporarily relieved the overcrowding of Robinson, and the seventh grade classes returned in 1973-74.

Robinson's design is similar to that of a finger plan:

The finger plan was a simple arrangement in which classrooms spread out from a central corridor, the finger plan can be easily expanded by merely continuing the circulation spine and adding more fingers. It provides all classrooms with direct access to the outside and allows natural ventilation (Graves, 1993, p. 72).

The fingers were instead replaced with entire appendages, or subschools. Robinson Secondary School is made up of six subschools, four for grades nine through twelve and two for grades seven through eight. Each subschool has a principal, two or three guidance counselors, and a secretary. These staff members report to the central

administration consisting of the head principal, associate principal, guidance director, centers principal, and student activities director.

Robinson Secondary School has undergone little or no structural changes since the original construction in 1971. The design purpose may be best illustrated by referring to the 1986-87 self-study narrative report:

James W. Robinson Secondary School was constructed to meet the needs of both intermediate and high school students and to provide them with the best education possible. In 1971, this secondary school was considered a school of the future. Now, sixteen years later, it is evident the planners were right, for this design has carried the school into the present and is flexible enough to continue to carry it into the future. Robinson is an outstanding place for faculty and staff to work and for the students to grow socially, physically, and academically.

Robinson Secondary School originally cost 8.5 million dollars. Located on a 56.9 acre tract in Fairfax County, it covers almost 11 acres under roof, measuring 491,219 square feet. The completely air conditioned building is designed to support a variety of educational programs as well as to be compatible with a wide range of teaching styles. The school has adequate space for extracurricular activities, and it is used extensively by various community groups during non-school hours.

Robinson was designed to accommodate 3,900 students, but because of the rapid growth in Fairfax County and the flexibility of the building, it has housed over 4,300 students (1986-87). Robinson was designed as "schools within a school," as this subschool concept gives each student identity with a smaller unit and helps to personalize secondary education in this massive building.

Robinson is constructed in the shape of back-to-back "E's" with a dot on top. Off the main hallway, three wings are separated by spacious courtyards. Each of these wings has two stories with a subschool upstairs and a subschool downstairs. Conveniently located in the middle of each subschool is a media center.

Robinson's media centers are open, allowing easy accessibility for students and teacher, both during and between classes. Mathematics, English, and history classrooms surround the media center; in addition, science, drama, some foreign language, and all special education classes are located in the subschool. Students have administrators, guidance counselors, and school secretaries close at hand. Drinking fountains, rest room facilities, and student lockers are also located in each subschool.

Although students spend about two-thirds of their time in the subschool, they do spend a part of each school day in subject area centers in classrooms located outside of the subschool. The main hall connects the subschool to other facilities

in the building. The main hall has many bulletin boards, display cases, and trophy cases; in addition, there are several large, carpeted, mushroom-shaped benches for lounging between classes and after school.

The remaining subject areas, such as art, music, physical education, home economics, industrial arts, cosmetology, and foreign language, are located on the south side of the main hall and are accessible to both the high school and the intermediate school. Also located on the south and west sides are the large assembly spaces, such as the cafeteria, the Russell Theatre, the recital hall, the Smith Field House, and Coffey Stadium. Access to both the high school and intermediate school is easily gained through the main hall without disturbing the classes in process in the subschools.

Robinson maintains excellent outdoor facilities which greatly enhance its educational program. Students utilize a large, enclosed area west of the building for physical education programs as well as for recreational, extracurricular, and interscholastic activities. The lower and upper fields as well as the band practice field provide all-purpose teaching stations for many outdoor sports. Robinson students also benefit from six enclosed tennis courts and two blacktop areas.

Robinson is built of durable fire resistant materials. All building doors open outward and are equipped with panic-bar hardware. All exits are clearly marked with legal exit lights. All construction and installations meet the requirements of the Fairfax County Building Codes. Stairways are provided with continuous hand rails at the correct heights and have landings and non-lip treads. For the most part, the corridors, stairways, and ramps are arranged to expedite the flow of traffic. An auxiliary power supply with a public address system is available in the event of a power failure.

Several improvements, such as lighting for the varsity baseball field, a curtain partition in the gym, remodeling the finance office, and reroofing and repainting the entire school have been made with minimal interruption to the educational program.

The school plant is adequate for the needs of the educational program with the subschool concept. Because the centers are easily accessible to both the high school and the intermediate students, the elective needs of the individual are easily met (James W. Robinson Secondary--Self Evaluation, 1986-87, 1-4).

The careful study of the Blue Oaks Planning Committee reflected the belief that buildings must provide more than just space for the instructional program. According to the committee, "a building should encourage, influence, and to some extent, force what would take place in the school program". The facility was designed to incorporate structural features that would facilitate the types of instructional programs developed by

curriculum specialists and teachers. Spaces were planned for large group, small group, and independent study. Consideration was given to future program demands.

The middle school concept has been embraced by most school divisions in Virginia since 1971. Consequently, the junior high school and intermediate programs have evolved to meet the need of the middle school-aged student, focusing on the diverse nature of this group. The staff of Robinson Secondary School recognizes and addresses the two separate philosophies of the high school program and the middle school program housed within the building:

Design of Curriculum--Middle School

In accordance with the philosophy of Robinson Middle School, the curriculum is designed to meet the needs of students from different educational, economic, and cultural backgrounds. This design facilitates the student's transition from the elementary grades to the high school by reinforcing previously learned skills, introducing concepts, and exploring new area of knowledge. It provides for the needs of students of varying abilities through basic skills, regular, or advanced classes. Although the curriculum is based on the Program of Studies, the basic curriculum for all students in the Fairfax County Public Schools, the faculty at Robinson are encouraged to adapt the curriculum flexibly to meet the needs of their students. The opportunities for creative expression and divergent interests are encourage through elective and exploratory courses. Emerging courses not only accommodate the changing needs of our student population and the demands of modern technology, but also reflect the specific areas of expertise and interests of the staff.

The success of the curriculum is a result of the common effort of teachers, administrators, guidance personnel, media specialists, students, and parents. Each group may initiate discussions about change and/or modification in the curriculum. Through the curriculum the school's major education philosophies are fulfilled (James W. Robinson Secondary--Self Evaluation: Middle School 1986-87, p. 1).

Design of Curriculum--High School

The curriculum, which is co-designed by Fairfax County Public Schools and Robinson Secondary, is not static; it evolves in response to the needs of the students and the observations of parents and educators. With the majority of

students entering four-year colleges and smaller percentages entering two-year colleges, technical, and business schools, Robinson provides college preparation, vocational, and job-oriented courses of study.

Assessment of all students' abilities, possible disabilities, and interests leads to the design of appropriate courses and programs. Advanced Placement courses, Gifted and Talented courses, and Consumer Level courses address the varying abilities of the student body. A program for the learning disabled exists as well as itinerant services for the hearing impaired, vision impaired, and the physically handicapped. There is a speech program for students with language and articulation difficulties. Emotionally disturbed students are referred to specific center-based programs.

The curriculum is consistent with the Fairfax County *Standard Instructional Program*, the *Approved High School Course Optional Offerings List*, and is articulated in the Fairfax County *Program of Studies*, which delineates the objectives for every course.

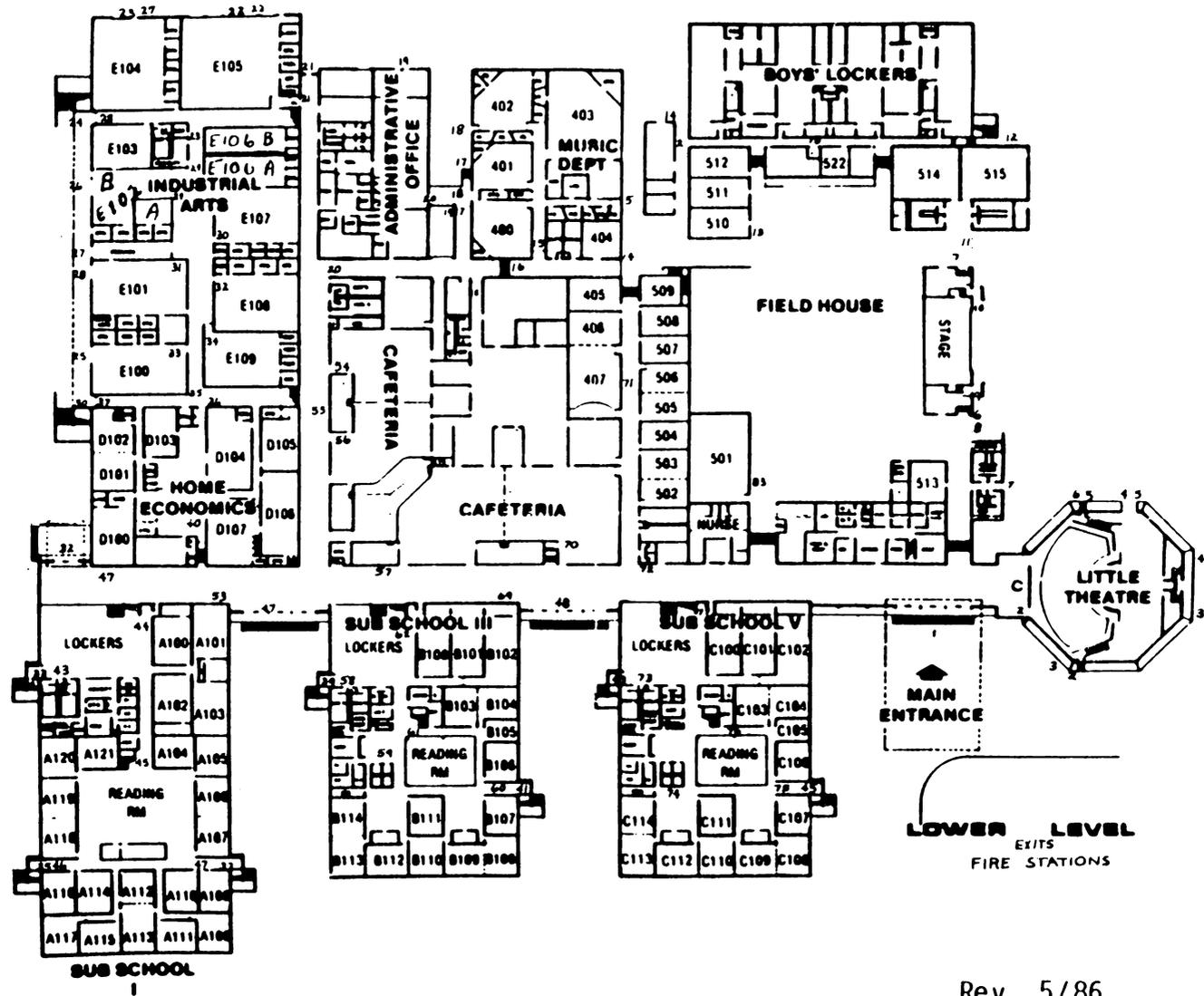
Adjustments of the curriculum can be made every year when the curriculum review panel, consisting of department chairpersons, administrators, and the guidance director, meets.

In the spring each student meets individually with his/her counselor to select a program of courses for the school year, but not before an extensive orientation. The orientation is initiated by providing students and parents with the Fairfax County *Standard Course Offerings* and the *Robinson Course Guide*.

Robinson is a school of over 4,000 students, over 200 staff members, and over 200 courses. Within this very large context, Robinson nevertheless succeeds in re-enforcing bonds of congeniality and mutual respect among all members of the school community (James W. Robinson Secondary School--Self Evaluation: High School, 1986-87, p. 20).

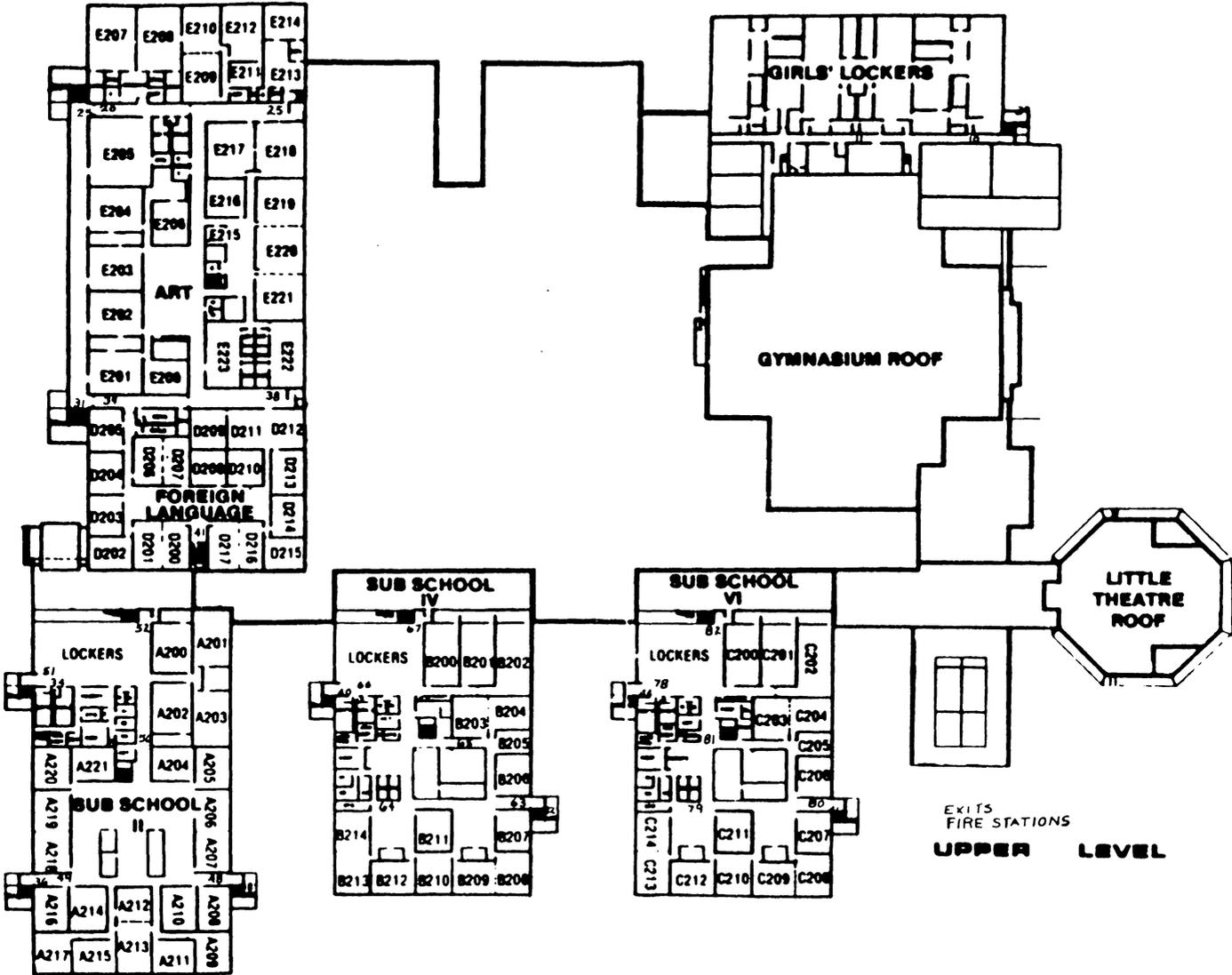
James W. Robinson Secondary School will be undergoing a dramatic renovation and reconfiguration at the end of the 1994-95 school year. Several additions and the implementation of new technologies to existing facilities will be but a part of the renovation. The student enrollment reported for Robinson Secondary School during the 1994-95 school year was 3,750. The principal assessed the facility to be in excellent condition (before renovations began) and comments that the building is "visually dramatic and open and serves to facilitate the subschool concept to its fullest".

James W. Robinson Secondary School Floor Plan:



Rev. 5/86

James W. Robinson Secondary School Floor Plan:



STONEWALL JACKSON SENIOR HIGH SCHOOL

circa: 1971

Prince William County, Virginia



Stonewall Jackson Senior High School was originally constructed in 1970-71 at a cost of 7.5 million dollars. The school building is one of few remaining open plan high schools existing in the Commonwealth. According to the 1979-80 self-study evaluation:

The Stonewall Jackson Senior High School is located on an 90 acre tract of land in Prince William County. The building is a three-story facility which encompasses 6-1/2 acres or 283,140 square feet of instructional space. It was constructed in 1970-71 at a cost of 7-1/2 million dollars.

The building is designed with an all-weather heating/cooling system, thereby eliminating functional window from its design.

The school was designed as an open-concept school for academic areas of instruction, while vocational areas, laboratory areas, and certain other activity areas were designed and built along traditional lines. Most classes currently are taught in a traditional manner, however.

The grounds include student parking lots and a faculty parking lot, both adequate in size, but lacking in accessibility due to the limited entrance-exit design. Drivers' Education range, outdoor physical education teaching stations and athletic fields are all present in the overall facilities (Stonewall Jackson Senior High School--Self Evaluation, 1979-80, p. 94).

The building has not been structurally altered in any fashion since the doors opened in 1971. This is the second building to be named Stonewall Jackson Senior High School in Prince William County. The building was designed for and still houses grades nine through twelve. According to the principal's assessment, the facility's student capacity is 2,400. Currently, the structure is under-utilized with a student enrollment of 1,602. The building has been evaluated as "adequate" by the principal, but as it is "an open classroom building, noise in academic areas has been a perennial problem". Some noteworthy architectural and educational features of the building are: three floors, two cafeterias, two libraries, short hallway, open-space concept, and the structural supports in many classrooms present instructional difficulties.

The instructional program of Stonewall Jackson Senior High School during the 1971-72 school year was described in the self-study of 1979-80:

The educational program of Stonewall Jackson Senior High School is representative of a modern school providing a comprehensive program. Stonewall provides a multifaceted organizational arrangement that accommodates individual needs, interests and abilities: . . . programs for the gifted and talented; career-oriented work-study programs and business; vocational and technical offerings and academic classes.

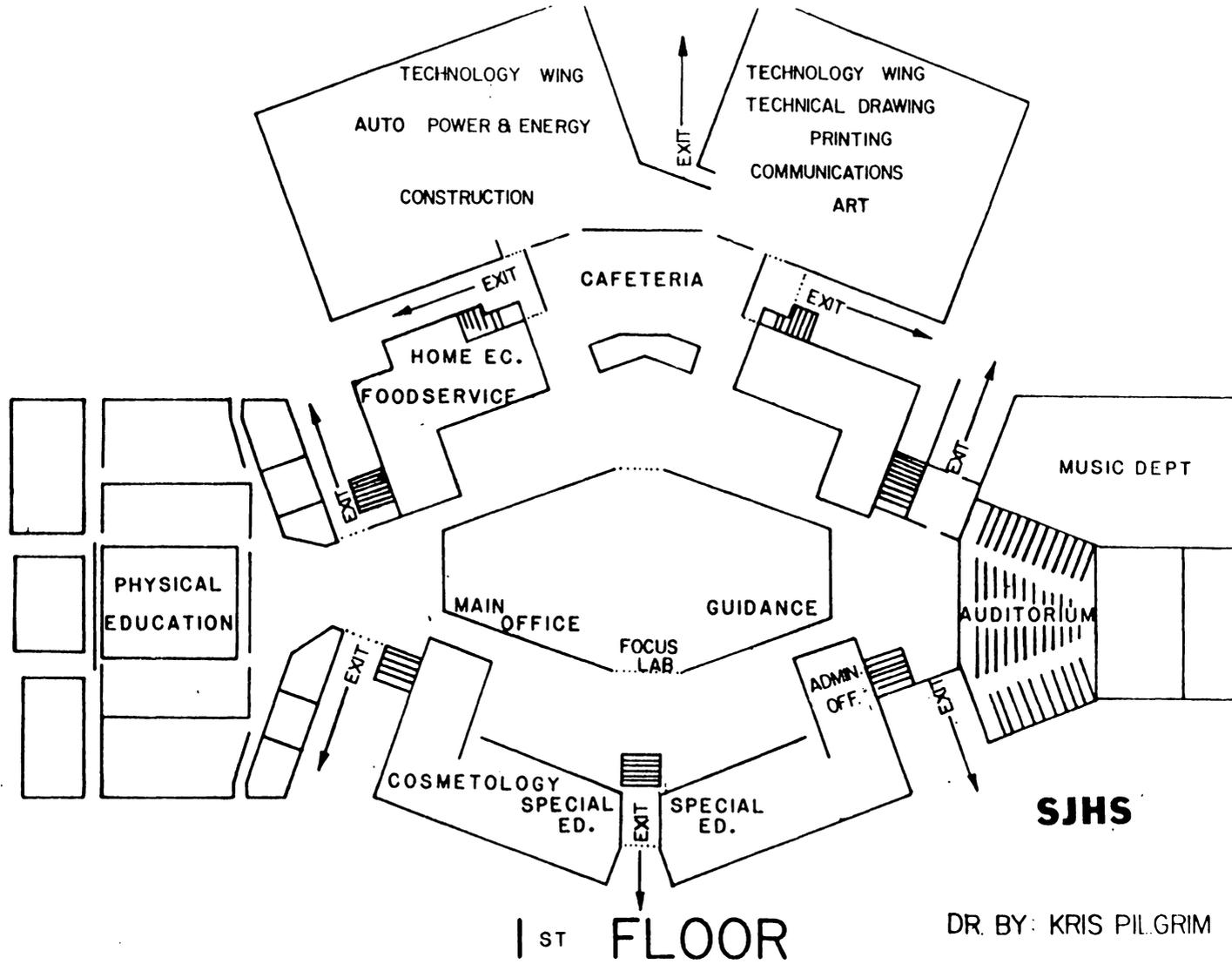
The program at Stonewall provides for a comprehensive standardized testing program whereby the student can learn more about his strengths and weaknesses. The results of tests of aptitude and achievement aid the student in making decisions about his or her future.

Stonewall Jackson operates a traditional six-period-five-days-a-week plan. Although most components of our curriculum are offered in fifty-minute learning periods, opportunities are built in for time blocks or flexible scheduling to accommodate the exigencies of the business and vocational areas. Ancillary components of our curriculum include a summer school program, a credit-non-credit evening school program and homebound instruction.

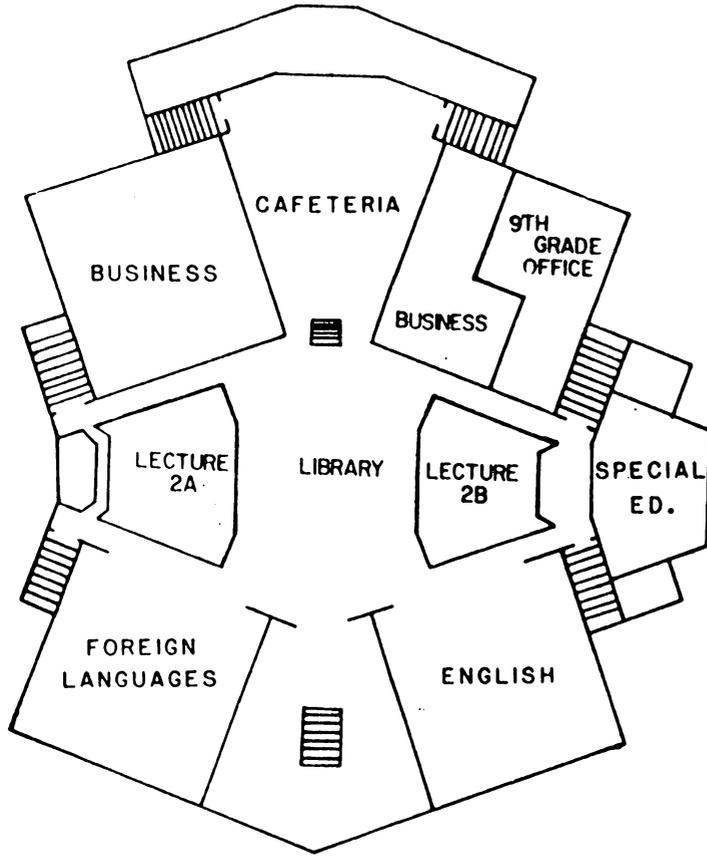
Stonewall Jackson Senior High School recognizes that continuous evaluation and re-assessment are critical components of any curriculum and that conscientious implementation is the sine qua non for judgment of its effectiveness. The staff and administration accept the challenge of extending the courses and methods that are effective and of changing those that aren't (Stonewall Jackson Senior High School--Self Evaluation, 1979-80, p. 7).

The educational program housed in the building during the 1994-95 school year includes specific courses to address the needs of students who are physically, emotionally, and mentally challenged. The instructional program adopted the alternating block schedule during the 1993-94 school year to offer the opportunity for additional classes and "flex-time" for advisory and activity periods. Stonewall Jackson Senior High School offers its students diploma options: Standard, Advanced Studies, Special, and an International Baccalaureate. The International Baccalaureate (IB) course of studies is a college-preparatory program for academically motivated students. The IB program emphasizes multicultural perspectives, the education of the whole person, advanced studies, community service, and extensive writing. In total, 187 course offerings are available to the students of Stonewall Jackson.

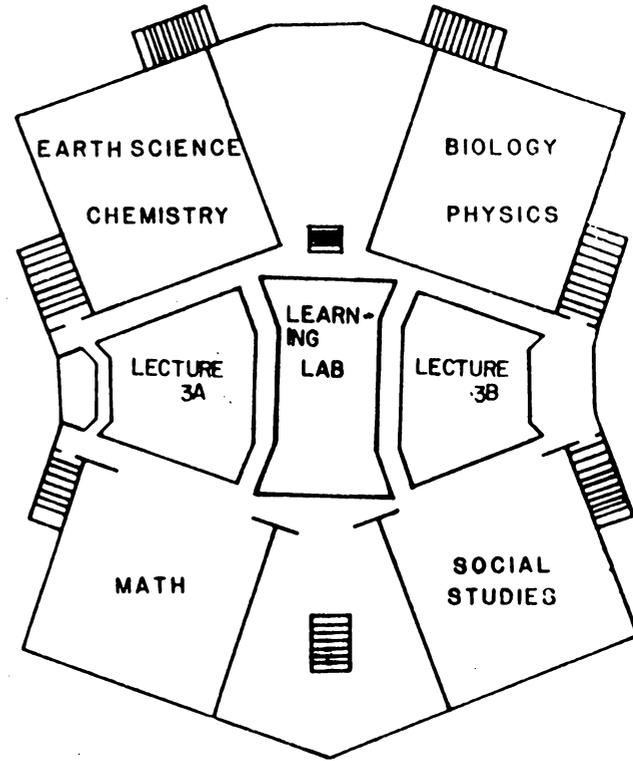
Upon interviewing the students and staff of Stonewall Jackson, the overall attitude towards the open plan concept was negative. The reasons ranged from lack of windows and natural light to overall noise and undefined space for classes, departments, and labs.



Stonewall Jackson Senior High School Floor Plan:



2ND FLOOR



3RD FLOOR

Stonewall Jackson Senior High School Floor Plan:

HERITAGE HIGH SCHOOL

circa: 1976

Lynchburg, Virginia



Heritage High School was constructed in 1976 and reports an enrollment in grades nine through twelve of 1,105 students for the 1994-95 school year. The building's student capacity has been calculated at 1,300 by the principal, who rates the building condition and design to be excellent. The history of the school building is documented in the 1985-86 self-study narrative report:

In 1974, the city of Lynchburg, as part of its plan to annex some twenty-five square miles of Bedford and Campbell counties, proposed the construction of a new high school that would accommodate approximately 2,000 students. Although the annexation was to become a matter of controversy, the cooperation between city residents and those newly annexed was complete and enthusiastic where the school was concerned.

Planning for Heritage High School was directed by a steering committee and twenty-three sub-committees. The physical plant is an ultra-modern structure -- beautiful in appearance and functional in design. The school was financed by a bond issue that was not open to referendum but was largely unopposed.

The school operated its first year in temporary quarters in the Sandusky Junior High School building, supplemented by five temporary classrooms. It developed its real identity in the spring of 1976 when the school board announced Heritage High School as the school name and the Pioneer as the school symbol. The name was chosen as a continuing reminder that the first responsibility of public education is the preservation of the democratic way of life through an informed electorate. The Pioneer was selected as a symbol of strength, courage, and foresight (Heritage High School--Self Evaluation, 1985-86, p. 10).

Heritage High School was designed for solar energy adaptation as a response to the oil embargo and perceived energy crisis of the early 1970s. A description of the building specifications follows:

This new high school for Lynchburg, Virginia, a five-level, three story, 256,000 square foot building will provide educational facilities for a projected 2,000 students as well as community, avocational, and recreational facilities. Open-ended growth will accommodate expanded programs in the future; demountable and moveable partitions will provide convertibility and flexibility.

The site is heavily wooded and will be adjacent to a future nature preserve of trails, tennis courts, bikeways, and picnic areas. Major community facilities - field house, pool and auditorium - are located on the east side of the building, while the academic sections progress in multi-layered floors that terrace down the site toward a forest and creek.

The \$11 million dollar lightweight steel structure system minimizes energy consumption with limited glass exposure along the east and west walls and utilizes skylights and clerestories to provide light in interior spaces. The sloping roofs are calculated at optimum latitude and orientation and provide maximum efficiency for future solar collector adaptation (Lynchburg City Schools, 1975, Press Release).

Heritage High School was designed and built to house a comprehensive high school program of the mid-1970s. Students were required to accumulate eighteen units of instruction to graduate. These units were not far removed from the 1910 course of study for the Public High Schools of Virginia:

The 1910 course of study for first grade high schools prescribed minimum requirements of English, 4 units; mathematics, 3 units; history, 2 units; and science, 2 units. The 5 units of elective studies to complete a total of 17 units were to be chosen from the following: Latin, German, French, Spanish, history, physical geography and agriculture, manual arts, botany and zoology, physics, chemistry, and mathematics (Buck, 1952, p. 145).

The elimination of one required mathematics course, and the mandatory inclusion of two health and physical education courses were the only changes in Virginia's high school graduation requirements in sixty-five years. The school building was and is still a show piece for the community and school district.

The inclusion of educational technology and programs for students with exceptionalities, the designed student capacity of 2,000 has been re-assessed at 1,300. A portion of the building has been relegated to the Central Virginia Governor's School for Science and Mathematics. The Governor's School is utilized by Lynchburg City Schools and surrounding counties school systems. According to the 1985-86 self-study narrative report:

Heritage High School is located on sixty acres of land adjacent to U.S. Route 460 between Wards Ferry Road and Leesville Road. The building and its adjoining parking facilities were designed to fit the contour of the land.

The building, constructed on five levels, is of unique and modern design. Offices and various subject area classrooms are conveniently grouped on different levels throughout the building. Level five houses the main administrative offices, the guidance department, science classrooms and laboratories, a computer classroom, and several mathematics classrooms. Level four, the largest instructional area in the school, contains vocational shops and classrooms. Classrooms for English, social studies, foreign languages, mathematics, LD, and ED are also located on level four. The media center, several English classrooms,

and rooms for remedial reading, health education and ROTC are located on the third level. Level two contains the field house, athletic director's office, clinic, pupil accounting office, art rooms and rooms for the Educable Mentally Retarded program. Level one consists of the auditorium, music rooms and the cafeteria. An elevator makes all levels accessible for the handicapped (Heritage High School--Self Evaluation, 1985-86, p. 104).

The mission statement for Heritage High School is, "to provide a quality educational program in a positive environment for all students which will prepare them to participate responsibly in a democratic society and to contribute to it in a productive manner" (Heritage High School: Student Handbook, 1994-95, p. 2). The educational program is addressed in detail in the 1985-85 self-study narrative report:

In order to meet the needs of the different ability levels and the varied interests of the student population, the Lynchburg Public School System provides students the opportunity for earning any one of three diplomas: General, Advanced, and Special. Any student who terminates his education and who does not fulfill diploma requirements may request a certificate stating his earned credits, attendance record, vocational training, and results of competency exams.

The educational program of Heritage High School is largely determined by local, state, and federal guidelines. A diversity of courses, organized by departments and designed to meet the varied needs of the student population, is offered in most areas. Vocational and technical training, including work experiences and business programs; academic offerings; special education for the learning disabled, emotionally disturbed, and educable mentally retarded; and enrichment programs for the academically gifted and talented are provided. Electives designed to meet the creative, service, and developmental interests expressed by students, faculty, and the community complete the course offerings. Auxiliary programs, such as summer school, the alternative school, homebound instruction, and both credit and non-credit night courses are available for the area citizenry.

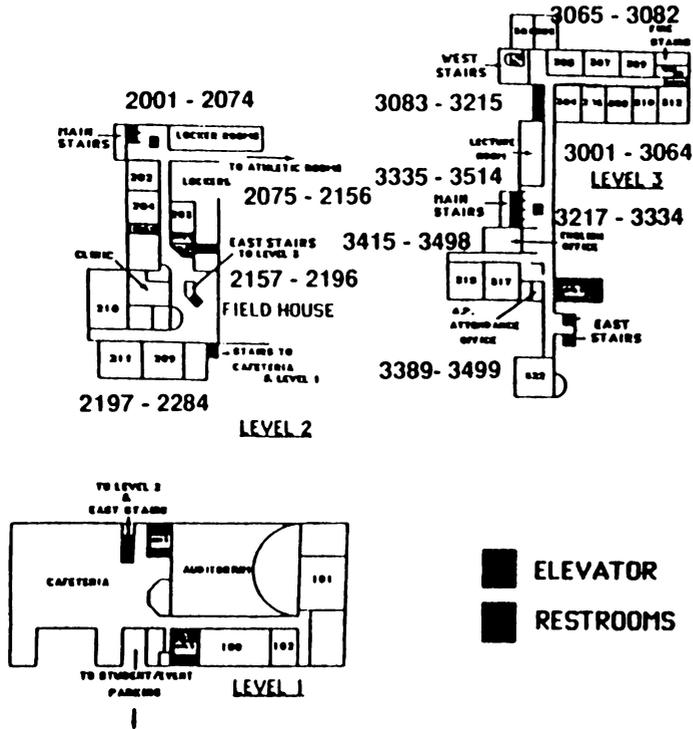
A comprehensive standardized testing program provides students with data for identifying their strengths and weaknesses. The test results are used in career and vocational planning and in selecting programs of study.

The master schedule is based on a traditional six-period day, five day plan with forty-seven minute class periods. Provisions are made for blocks of two periods in the business and in the trade, technical, and industrial departments. Course offerings are determined by the program of studies, staff availability, physical facilities, and student and community interests.

The Heritage faculty accepts the premise that continuous evaluation and revision of courses are essential for providing a comprehensive curriculum. Student

questionnaires, suggestions from parents and community advisory committees, follow-up studies, test data, consultations with specialists, and faculty and administrative concerns are considered in the evaluation of the curriculum. The adopted curriculum reflects the needs and interests of the students and community and is implemented by the staff and administration (Heritage High School--Self Evaluation, 1985-86, p. 24-25).

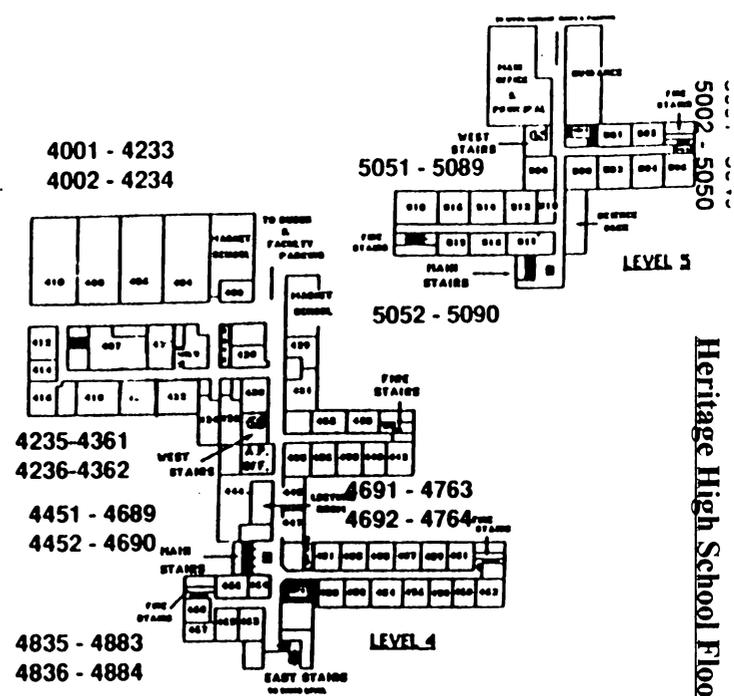
Twenty-one units or credits are required for the Standard Diploma, twenty-three for the Advanced Studies Diploma, and twenty-four for the Honors Studies Diploma at Heritage High School. An optional seven period day is available to students with transportation provided both morning and afternoon. Heritage High School also participates in the Dual Enrollment Program with Central Virginia Community College. This program allows students who are enrolled in certain high school courses to receive both high school and college credit. Six courses are offered as dual enrollment courses: Advanced Placement English A & B, Advanced Composition A & B, Advanced Placement Calculus A & B, College Mathematics A & B, College Biology A & B, and PASCAL A & B.



OFFICE	LEVEL
Art	2
Asst. Principal	3
	4
	5
Athletic Dir.	2
Attendance off.	3
Auditorium	1
Auto Body Lab	4
Band	1
Bookkeeper-Sch.	5
Bookstore	4

OFFICE	LEVEL
Bldg. Trades Lab	4
Business	4
Cafeteria	1
Career Center	5
Chorus	1
Clinic	2
Computer Science	5
Conference Rms	5

OFFICE	LEVEL
Construction	4
Trades Lab	
Counselors	5
Data Processing	5
Dir. of Guidance	5
Driver Education	3
English	3
	4
Electronics Lab	4
Field House	2
Flag Corps	1



OFFICE	LEVEL
Foreign Lang	4
Graphic Arts	4
Guidance Dept.	5
Health	3
History	3
Home Economics	4
Ind. Coop. Training	4

OFFICE	LEVEL
Lecture Hall	3
Library	4
Main Office	3
Marketing	5
Media Processing	4
Orchestra	3
Photography	1
Physical Ed	4
Political Science	2
Principal	4
	5

OFFICE	LEVEL
Reading Lab	3
Science	5
Social Studies	4
Special Education	2
Stud. Activities	1
Teachers' Lounge	3
Tech. Drawing	3
Tech. Ed.	4
TV Production	3

Heritage High School Floor Plan:

HALIFAX COUNTY HIGH SCHOOL

circa: 1979

Halifax County, Virginia



Halifax County High School was constructed in 1979 as a result of the consolidation effort of smaller county high schools. Originally named Halifax County Senior High School this four-level, white brick building was designed to house 2,200 students, grades 10-12. Currently, the building has 283,000 square feet of interior space. The student enrollment for the 1994-95 school year was 1,948, and the building is considered to be running "at-capacity" in regard to student population and the current

educational program housed within the structure. The school's architectural style would best be described as "minimalist", while incorporating some classical features, such as columns and pilasters, with the elements normally associated with the International Style. The building is rectilinear, with white, enameled brick, decorative panels, and the occasional use of plate glass to accentuate lobby and common areas. Most instructional areas are windowless, and the entire building is climate controlled.

Halifax County High School was designed as a comprehensive high school to house the following educational programs:

Academic: Advanced Placement and College Preparatory English, Government, U.S. History, World History, Algebra, Geometry, Trigonometry, Analytic Geometry/Calculus, Biology, Chemistry, Physics, Spanish, French, and Latin.

Vocational: Home Economics, Agriculture, Business Education, Marketing Education, Industrial Cooperative Training, Health Occupations, Bricklaying, Building Trades, Metal Trades, Auto Mechanics, Electricity, Printing, and Drafting.

Specialized Electives: Studio Art, Instrumental and Choral Music, Theatre Arts, Journalism, J.R.O.T.C., Driver Education, and Physical Education (Halifax County Senior High School Profile, 1985).

During the 1993-94 school year, Halifax County Senior High School restructured its organization by including the ninth grade. The educational program was restructured as well to include a dual enrollment (college credit) and Tech-Prep component to each of the course offerings. The name of the school was changed to the current Halifax County High School.

The interior configuration and curriculum of Halifax County High School is described by paraphrasing the most recent H.C.H.S. Profile (1990), and the Self-Study Narrative Report (1995-96):

Instruction! At Halifax County High School the traditional approach is emphasized. In the early 1980's, when many school systems began to advocate a "back to the basics" program, H.C.H.S. was in the vanguard. Yet reliance on

tradition does not mean that instruction has to be routine. The curriculum features high level courses that include student investigation and research, seminar approaches, and in-depth class discussions. These courses allow students to enter college with more than an adequate preparation in most fields and even to enter with college credit already acquired in such classes as English, biology, and history. The Advanced Placement English program has earned a higher than national average record for its graduates. In addition to the required courses in English, math, science social studies, and physical education, the range of electives exceeds that of many high schools of comparable size with such courses as studio art, journalism, theatre arts, sociology, symphonic band, calculus, and three foreign languages.

Far from routine is the vocational area of the school, which is one of the best equipped in the state. Here students who do not plan to continue their formal academic training may acquire job skills in such diverse fields as data processing, agricultural machinery service, health occupations, and food service.

Students with special needs including the physically and mentally handicapped also receive appropriate instruction through courses such as PEOPEL PE.

Serving the entire instructional program is a modern, spacious library media center housing over 23,000 volumes plus a wide range of periodicals and audio-visual materials. Students may use the library for either independent or group work, and community college classes also use it for research.

A dark room and a modern studio make possible student or teacher productions of video tapes, transparencies, and sound-slide presentations for instructional use.

On a typical evening at Halifax County High School, one could see the following activities taking place: a basketball game in the gym, Little Theatre rehearsal in the auditorium, slimnastics-aerobics class in the cafeteria, bricklaying class in the vocational wing, sewing and gourmet cooking in the Home Economics Department, typing in the business class, college classes scattered throughout the building, a VASAP class (Virginia Alcohol Safety Action Program), and a GED class for students who want the equivalent of a high school diploma.

Statistics on the number of people who use the building are impressive! Nearly 800 people a week attend classes. Four institutions of higher learning (Southside Community College, Danville Community College, Longwood College, and the University of Virginia) offer credit courses at the school.

Numerous local clubs and organizations, such as the Chamber of Commerce, Parsons-Bruce Art Association, Community Action, Farm Bureau, Tobacco Growers' Association, and the Cattle Breeders' Association, have used the cafeteria for banquets and receptions. County-wide teachers' meetings have also been held there.

The cafeteria, with its modern, fully equipped kitchen is capable of serving several hundred people comfortably and efficiently in an atmosphere designed to

be pleasing to the eye. Local organizations have also held fashion-show luncheons in this spacious facility.

The auditorium which seats 1,300 people, is one of the most modern and beautiful auditoriums anywhere. Here local patrons of the arts may enjoy the symphony, a ballet, an opera, or one of the several theatrical productions staged by the local high school thespians or by the Halifax County Little Theatre or by a touring group from the Barter Theatre or Virginia Museum Theatre. In addition, Community Chorale concerts and concerts by the United States Navy Band have delighted Halifax County-South Boston residents.

The auditorium can also be used as a movie theatre. Altogether, approximately 8,200 people attend concerts and plays in the auditorium during a year.

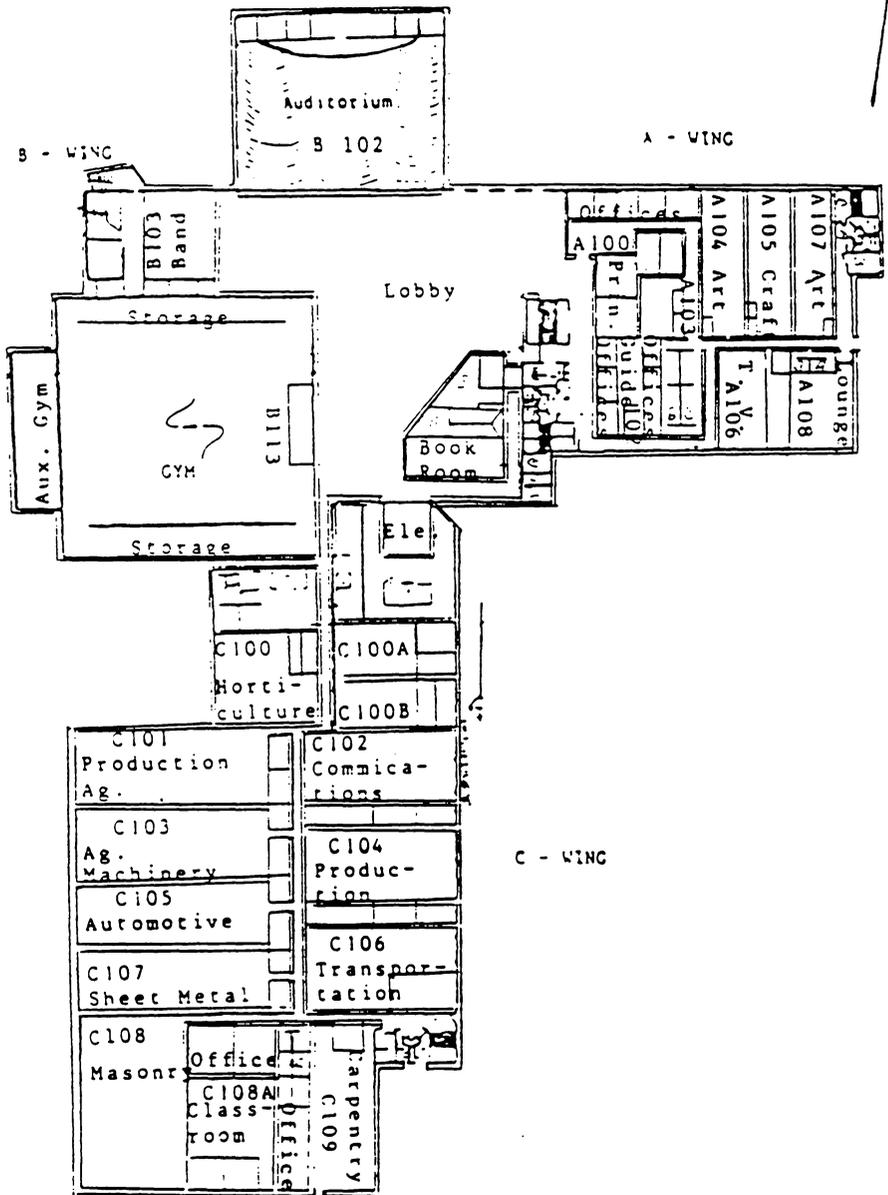
The spacious lobby is not merely a gathering place for other functions. It too, is used for community activities such as the Holiday Living Show, voter registration, art exhibits, and exercise classes (Halifax County High School--Self Evaluation, 1995).

The school facility was designed for and is used as a community center.

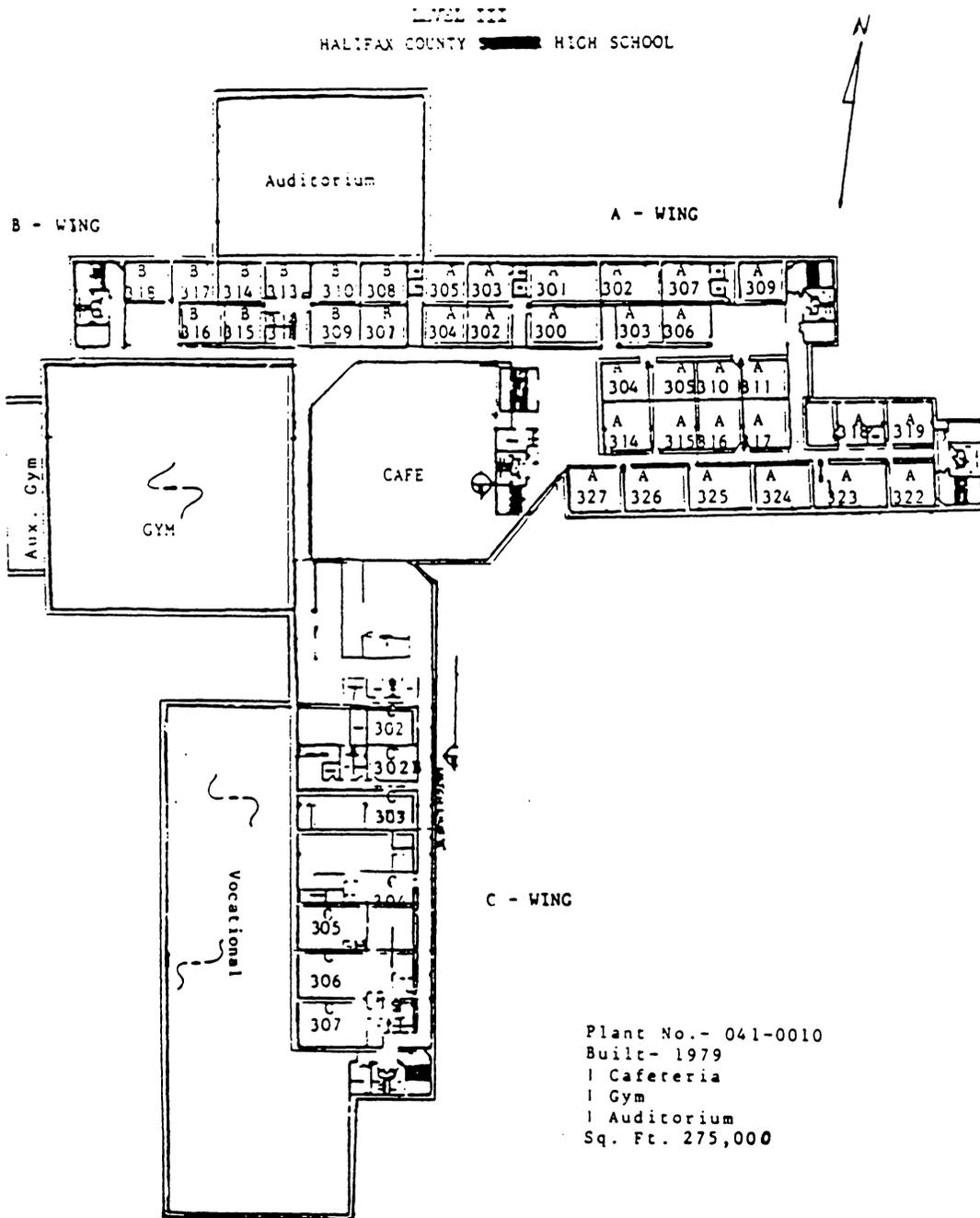
Halifax County High School Floor Plan:

LEVEL I

HALIFAX COUNTY HIGH SCHOOL



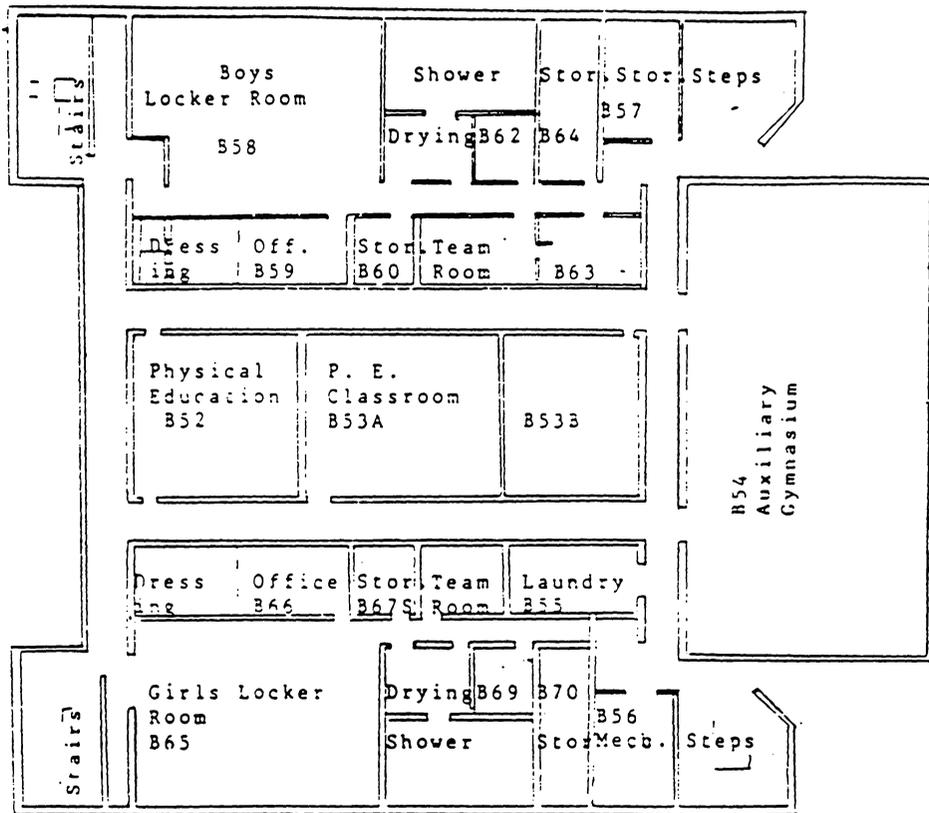
Halifax County High School Floor Plan:



Halifax County High School Floor Plan:

HALIFAX COUNTY ~~SCHOOL~~ HIGH SCHOOL

BASEMENT



CENTREVILLE HIGH SCHOOL

circa: 1987

Fairfax County, Virginia



Centreville High School was constructed in 1987 and represents the architectural period of the "megalith schools" built between the early 1970s and mid-1990s. The term megalith is best suited for these structures as they are large, imposing, brick or concrete structures. Generally devoid of extraneous, or decorative elements, these school buildings vary in design and shape. Centreville High School was designed to accommodate a subschool organization for 2,000 ninth through twelfth graders. With a

student enrollment of 2,094 reported for the 1994-95 school year, the facility is already over-capacity.

This multi-level, three-story, block building is massive and incorporates large atrium spaces to accommodate commons areas, the cafeteria, hallways, media centers, and administrative offices. The main entrance of the school is marked by four enormous, octagonal pylons. From above, the building's shape looks remarkably like the batwing design of a stealth bomber. The school is organized into four subschools: Blueridge, Commonwealth, Dominion, and Shenandoah. Each subschool is managed and staffed by a subschool principal, secretary, teachers, and two, or three guidance counselors. The gymnasium, physical education/athletic rooms, band hall, chorus salon, theater, student and teacher dining area, and kitchen make up the entire south-wing of the structure. The media center and all of the vocational and technical instructional classrooms, labs, and shops are on the first floor of the north-wing of the school building. These instructional areas include: Child Care, Ceramics, Food Science, Fashion Merchandising, Photography, Business Law, Industrial Arts, Keyboarding, Auto Mechanics, Auto Body, Drafting, Electronics and Career Resources. Foreign languages, social sciences, and English classrooms are housed on the second level. The third floor contains the mathematics and science departments, instructional areas, and laboratories. On each floor there are administrative offices, rest rooms, storage areas, and teacher work rooms. The interior configuration may best be described as a quadruple-loaded corridor positioned at a forty-five degree angle from a commons and administrative area.

Fewer than fifty percent of the instructional areas are fenestrated, although these windows do have the ability to swing inwardly open. The hallways and classrooms are colorful and are alternately carpeted and tiled for acoustical control and aesthetic presentation. Classrooms are rectangular, spacious, and equipped with the latest

educational technology. Ceiling height in Centreville High School ranges from nine feet to forty-five feet high in hallways, instructional labs, shops, and classrooms.

The 1994-95 Centreville High School Student Handbook is prefaced with the school's mission statement concerning the educational program:

The mission of Centreville High School is to prepare students to be responsible citizens. Students will value themselves, all cultures, achievement, and learning.

BELIEF STATEMENTS

Students learn best in a safe environment which also fosters creativity, integrity, humor, and concern for others.

The academic team of students, staff, parents, and area businesses, is successful when all share appropriate standards and goals for student achievement.

The academic team recognizes that all students are at risk for substance abuse and will work to achieve prevention of substance abuse.

Students accept responsibility for their learning when they develop high standards for personal and academic goals.

Student self-esteem is enhanced when multi-cultural similarities, as well as differences, are recognized and celebrated.

An academic community works best through mutual respect and cooperation.

Students perform best when they understand the grading process and are aware of its consistent application.

Students learn best when they are held responsible for their actions and discipline is maintained in a consistent manner.

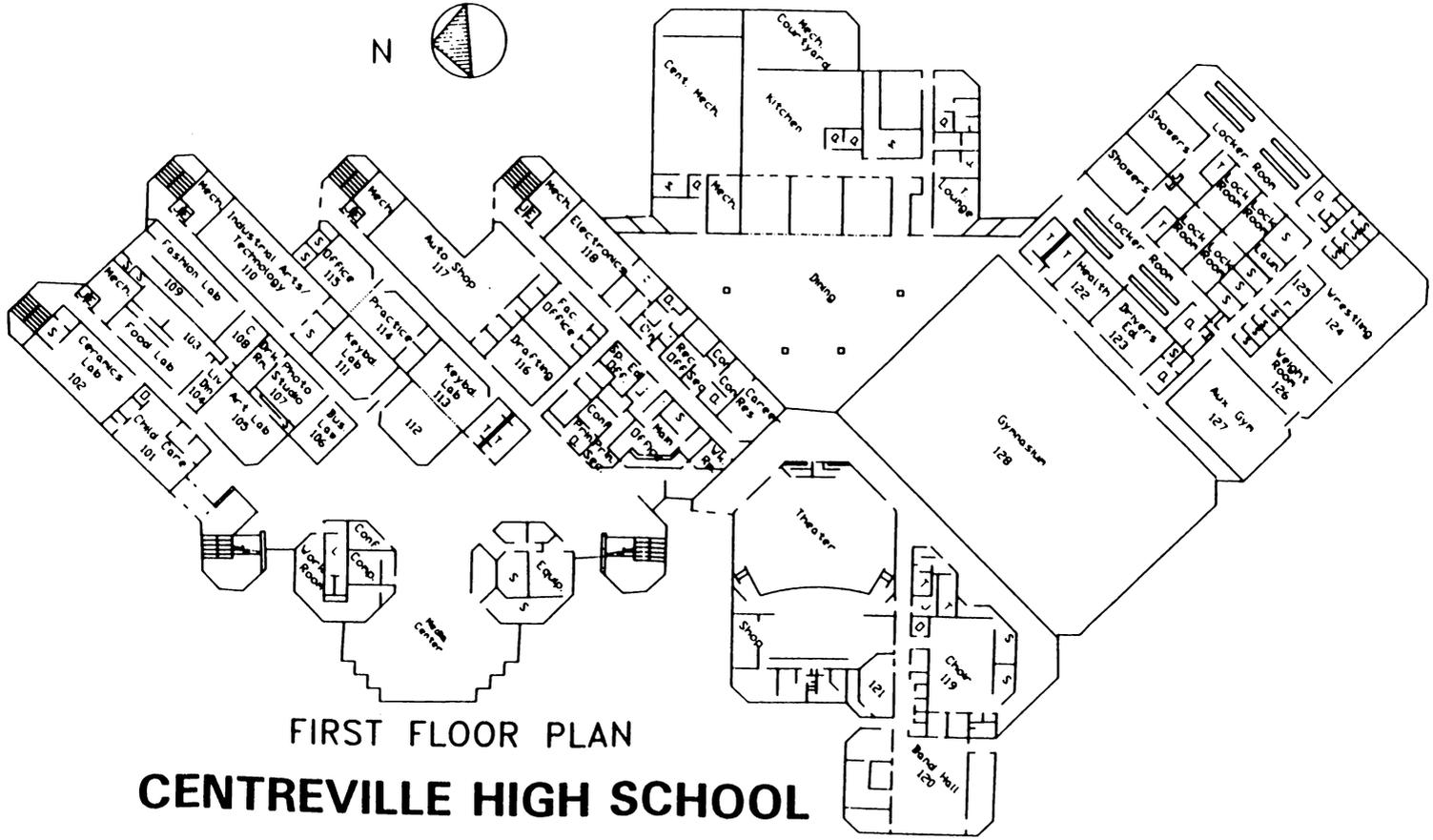
Graduating students will be prepared to assume the roles and responsibilities of productive adult citizens in our society (Centreville High School: Student Handbook, 1994-95, p. 1).

Centreville High School opened its doors in the fall of 1987 with the traditional six period day, five days a week, with the option for an additional after-school instructional period. Centreville's educational program was changed to a unique

alternating block schedule of ten periods in 1993. The standard course offerings include 251 courses available to students in the areas of: Art, Business Education, Computer Technology, Electronic Classroom Courses, English/Reading, Foreign Language, General, Health/Physical Education, Health Occupations, Industrial Technology Education, Marketing Education, Mathematics, Music, Science, Social Studies, Trade & Industrial Education, and Work & Industrial Education. In addition, Special Education services, the High School Gifted and Talented Program, and the Thomas Jefferson High School for Science and Technology are available to students who qualify.

Graduates of Centreville High School are eligible for the 21 Credit or the 23 Credit Advanced Studies Diploma. Centreville High School and the Northern Virginia Community College have established "articulation agreements" which allow students to take certain vocational/technical classes in high school and receive community college credit or, entry-level community college courses may be waived by passing the Assessment by Local Examination (ABLE) challenge examination allowing students to be placed in a higher-level community college course.

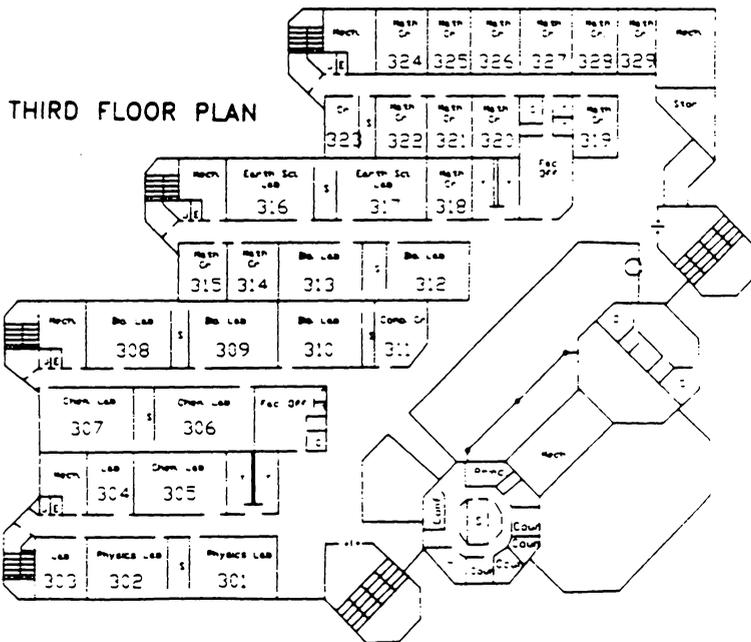
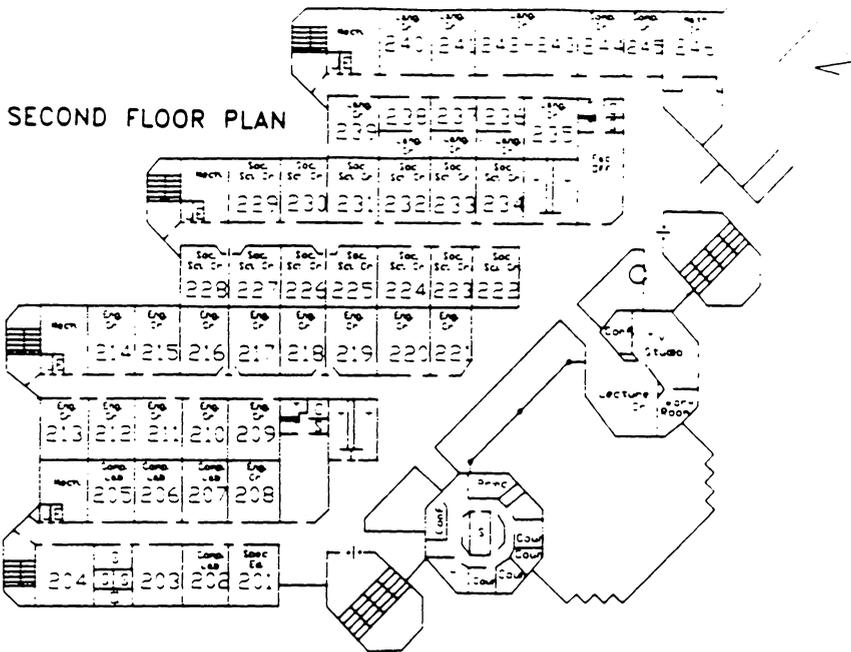
Centreville High School Floor Plan:



FIRST FLOOR PLAN

CENTREVILLE HIGH SCHOOL

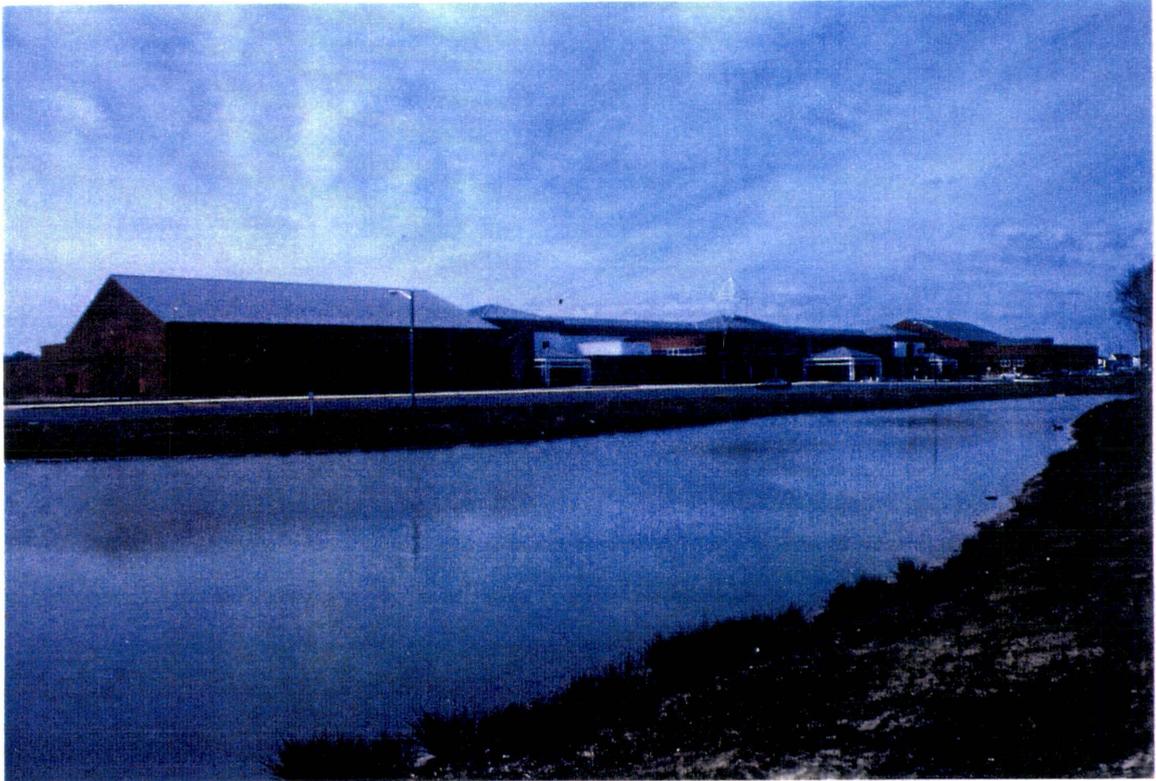
Centreville High School Floor Plan:



OCEAN LAKES HIGH SCHOOL

circa: 1994

Virginia Beach, Virginia



Ocean Lakes High School opened its doors as a new high school in September, 1994. The school was built by Virginia Beach City Public Schools to accommodate growth in school-age population. Ocean Lakes is the second new high school to open its doors in the Virginia Beach City Public School System in as many years. The school was designed for 2,074 students and 280 faculty and staff. The core facilities and lockers provided can accommodate 2,300 students. An enrollment of 1,482 students, grades nine

through twelve, was reported at the beginning of the 1994-95 school year. The school principal assessed the new facility as "beyond excellent", but "the site is average to poor".

The exterior design of Ocean Lakes High School is mixed and unique. The style might be referred to as Classical Revival-Modified as many classical elements of architecture have been reintroduced in modified form. The structure is a two-story red brick building with ample windows for exterior classrooms, ribbon windows for interior walls to the halls, and exterior portholes for hallways and the gymnasium. Ocean Lakes is designed in the form of a "T", with the academic areas surrounding the library, the vocational and technology areas located at the intersection, and the gymnasium, cafeteria, and auditorium positioned furthest from the center of the building. This organization allows for the use of specific areas by the public during special events without interfering with instructional areas.

Classical elements of architectural design have been applied, but in modified form. A hipped roof of seamed metal covers the main portion of the building, while the extensions of the "T" are covered by modified gable roofs. Entrance points of the structure are highlighted with simple white columns and porticoes. The porticoes are a modern stylization of those found on buildings from the age of Colonial and Classical Revival. Portions of the facade are white plaster and metal. There is one formal main entrance, balanced by an auditorium and gymnasium portico. The building is topped with a modern version of a cupola, which doubles as an automated flag pole and exterior portion of the buildings steel infrastructure. The building and educational specifications are provided as per the Ocean Lakes High School Facilities and Resource Guide:

FACILITIES: Number of classrooms: 112 Total
 Includes the following classrooms and labs:

Language Arts	16	Art	1
Social Studies	12	Art Lab	2
Math	12	Health	3
Science	12	Business	1
Prep. Rooms	6	Business Lab	4
Foreign Language	2	Marketing	2
Foreign Language Labs	6	Special Ed.	11
Drama	1	Computer Lab	4

ATHLETIC FACILITIES:

Baseball field, softball field, football/soccer/field hockey field seating 4,546, 3 practice fields, 8 tennis courts, track including discus, shot put, high jump, long jump/triple jump, and pole vault.

Gymnasium features 3 basketball practice courts, 2 volleyball courts, and has seating for 1,771, also gymnastics, wrestling, and weight rooms.

ACADEMIC FACILITIES:

Library seating 191 with 26,000 volume capacity and 12 computer stations

Auditorium seating 850

Cafeteria seating 850 with separate faculty dining seating 60

Schola (lecture hall) seating 125

Faculty departmental offices w/work spaces, storage rooms, toilets

Men's and women's physical education and athletic locker rooms

Technology education includes the following:

CAD drafting and design lab

Electronic technology and communications labs

Materials testing, robotics, engineering modeling, energy systems, control technology labs

Multimedia studio and desktop publishing lab

Environmental lab and greenhouse

Special education facilities include classrooms for:

Hard of Hearing/Deaf Communications Disorders

Learning Disabilities Seriously Emotionally Disturbed

Multihandicapped Severely & Profoundly Handicapped

Educable Mentally Retarded Trainable Mentally Retarded

Speech/Language Impaired Visually Handicapped

Orthopedically Impaired/Other Health Impaired

FEATURES:

Building organized along an Academic Street with all elective academics fronting onto the Academic Street with glass front walls revealing activities. Academic Street is a clear, memorable orienting device which reduces confusion in circulation.

Separate entry points for gym, auditorium, and main entry allowing 3 separate activities to occur simultaneously.

Building contains 2 elevators and complies with Americans With Disabilities Act requirements.

ENERGY CONSERVATION:

Extensive use of daylighting with continuous clerestory windows at Academic Street and Library and full height glass exterior walls at Library and Cafeteria and continuous ribbon windows in all classrooms reducing artificial lighting during work hours.

Two operable windows in each classroom provide opportunity for direct local climate control.

Water conservation through elimination of evaporative cooling tower would use as much as 5,000 gallons of water a day in summer.

AIR QUALITY AND HVAC SYSTEM:

VAV (variable air volume) HVAC system using packaged roof top units; each unit has own air cooled condenser for cooling; hot water from boilers to each units tempers outside air sent to VAV boxes for reheating for heating.

System designed to proposed new ASHTRREE standards of 15 cfm/person rather than current state building code requirement of 8.25 cfm/person. This provides nearly 100% more fresh air than state building code requires and its 3 times as much as was required throughout the 1970's and 1980's. System results in approximately 10 total air changes per hour.

VAV boxes circulate a constant volume of air with conditioned air from unit added as needed resulting in constant air motion in classrooms.

Building is provided with air quality sensors in HVAC equipment throughout which measures CO₂ levels in air.

Each rooftop unit is provided with charcoal filters to mitigate possible odor pollution from adjacent HRSD treatment plant.

Heat recovery units provided on locker room HVAC units to allow locker rooms to be ventilated with 100% outside air.

Science classrooms exhaust all air at floor level drawing airborne pollutants away from lab counter surfaces and chemistry classrooms are provided with emergency purge exhaust in ceiling (Ocean Lakes High School Facilities and Resource Guide, 1994, p. 2-3).

The Virginia Beach City School Board has been under a great deal of pressure from the public due to the high cost of the building, and the automated flagpole and cupola's estimated cost of \$48,000 dollars. What is not publicized about the flagpole is that the entire structure is an essential part of the underlying support for the central portion of the building.

OSCAR SMITH HIGH SCHOOL

circa: 1994

Chesapeake, Virginia



Oscar Smith High School was built by the Chesapeake City School system in 1994. This new facility was constructed to replace the previous Oscar Smith High School building which was opened in the late 1940s. The previous building has been designated as the current Oscar Smith Middle School. A mixed example of the Classical Revival Modified and Megalith styles, the exterior architecture of this new building combines a few classical elements of design with a massive superstructure. The structure

is a modified "H" built with large, red block, with contemporary fenestration and four formal entries. These portals are over-sized plate glass doors and windows which provide a fair amount of natural light to the foyers and administrative office complex. The campus includes 274,000 square feet total indoor space, 199,000 square feet on the first floor, and 75,000 on the second floor. These figures include the 37,000 square foot gymnasium, the 25,000 square foot dining and commons area, and the 38,000 square foot auditorium, little theatre, and band/orchestra/chorus area. The building was designed to accommodate 1,750 students, grades 9-12. In the fall of its first year of operation, Oscar Smith High School had an enrollment of approximately 1,600 students. According to the *New Oscar Smith High School Building Highlights*, the current structure was:

. . . to contain many technological advances, and will better serve the Oscar Smith High School community. To understand how well the school is equipped to meet the educational needs of students in the 21st century, this list has been compiled to enumerate, to the best of our knowledge, the school's newest features.

Technological advances

- Each classroom contains a 25-inch color television with remote. These are a part of a fully automated audio-visual retrieval system with direct access from individual classrooms.
- A new driving simulator system has been installed in the sports complex adjacent to the gymnasium. This includes 12 simulator units with accommodations made for students with special needs, a touch screen console for the instructor, and a 16mm film projector.
- Centrally-controlled digital clocks and intercoms for each classroom.
- Telephones in each classroom that provide direct two-way communication with the administrative complex.
- A home economics suite that contains three complete cooking areas, a separate sewing room, and a food preparation area complete with mirrored instructor's stove-top and preparation table.
- Two fully-equipped computer labs, one of which will contain a centrally located 48-inch high-resolution color monitor and 30 individual 486 computer consoles per classroom.
- A fully-equipped electronic classroom accessible through the media center and the main building. This classroom will allow open access to a wide variety of satellite transmissions.

- Specialized foreign language classrooms with built-in listening labs run by the instructor for a single control console.

Individualized classrooms

- 1,706 student chairs and desks.
- Separate physics, chemistry, biology, and earth science laboratories with connecting preparation rooms and storage areas.
- Forty classrooms for English, mathematics, and social studies.
- Six foreign language classrooms.
- Two student activity rooms.
- Four teacher resource rooms.
- Two health classrooms adjacent to the gymnasium.
- Two marketing classrooms.
- One classroom each devoted to office systems, administrative systems, ICT, office technology, business, accounting, and typing.
- A special education suite with fully self-sufficient facilities.
- Two newly-equipped art classrooms that, along with tremendous storage and work areas, contain six potters wheels and two kilns.
- Separate classrooms, laboratories, and studios for production, JROTC (Aero-Science), electronics, communications, and drafting. Some of these areas include computer-aided machinery.
- Band, orchestra, and chorus facilities that include separate storage rooms and practice rooms.

Other areas

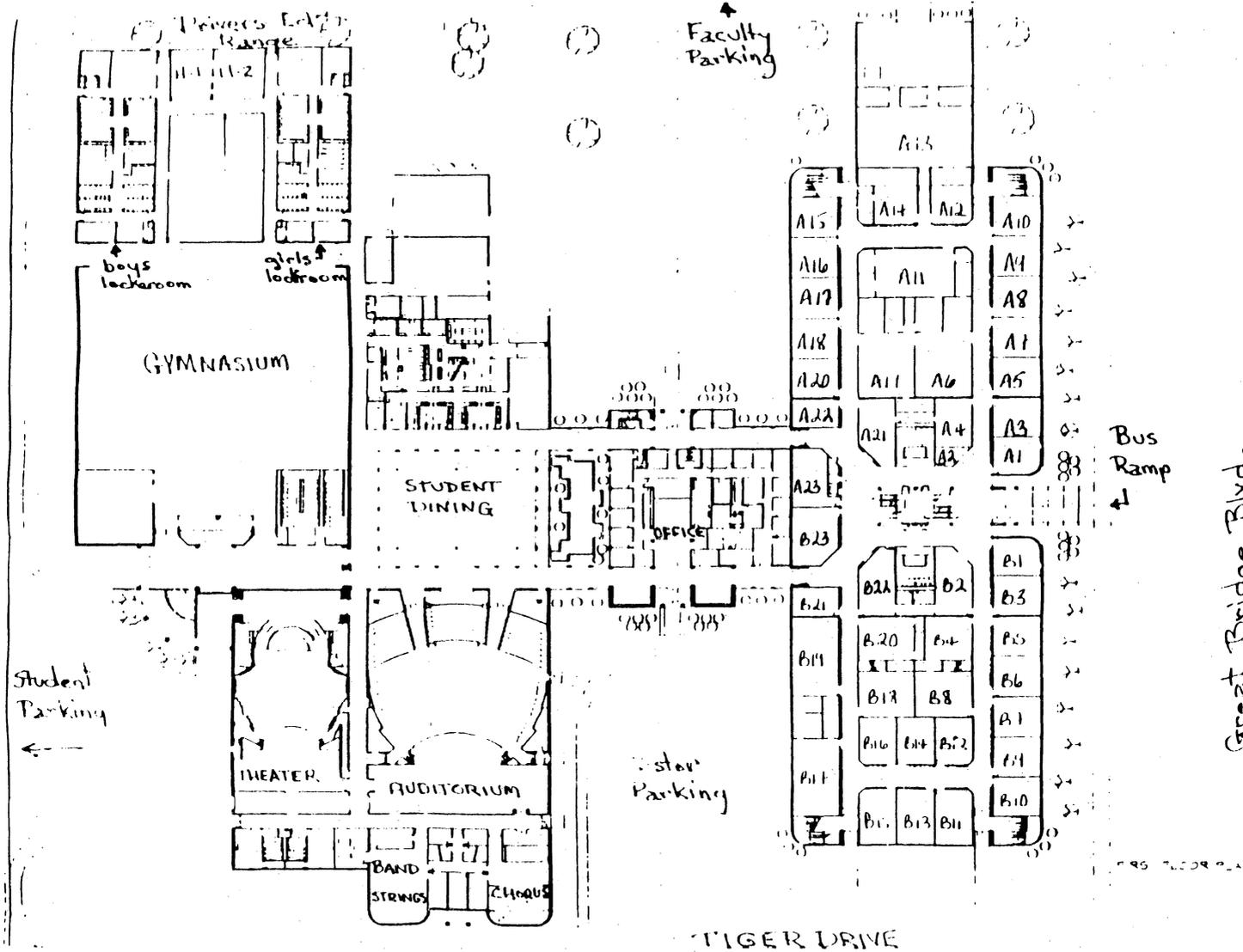
- A separate student commons and dining area.
- A faculty dining area.
- An enlarged administrative office complex with guidance offices attached to the main office complex.
- Separate offices for four assistant principals and the Youth Services Officer.
- Three special conference rooms for guidance, administrative, and teacher-student-parent conferences.
- Separate testing rooms used to evaluate students who may have special needs.
- A student parking lot that will also be used as the special events parking lot.
- 350 seat "little theater" with state-of-the-art acoustics that can be used by the school and the school community.
- 950 seat auditorium with special acoustics.
- A walk-in display case to be used by marketing students and classes.

Sports facilities

- Center-court ceiling mounted scoreboard in the 3,600 seat gymnasium.
- Areas designated for coach's offices.
- A fully-equipped weight training room.
- An expanded wrestling room.
- Separate team locker room facilities and physical education locker room facilities.

- Lighted football stadium completed with eight-lane track and field facilities surrounded by seating for 7,500 spectators, including nearly sixty wheelchair-accessible spaces in the stands.
 - Six lighted tennis courts.
 - Two practice soccer fields.
 - Separate lighted softball and baseball diamonds
- (New Oscar Smith High School Building Highlights, 1994, p. 3-6).

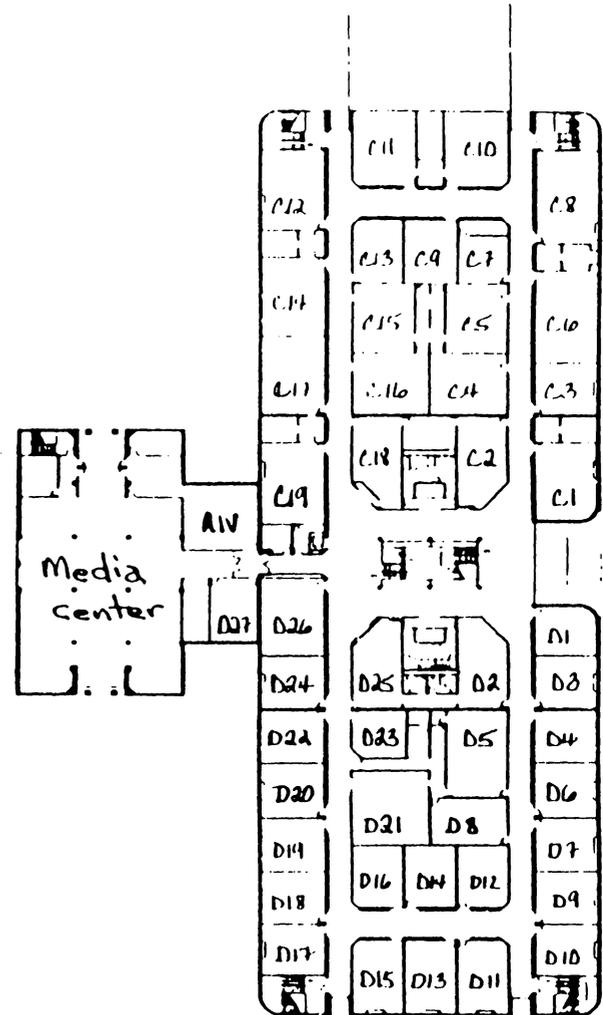
Oscar Smith High School houses a comprehensive program of over 190 high school courses available to its students. The instructional day follows the traditional fifty-minute, seven period, plus a zero period format. Due to the enormous growth in the Oscar Smith attendance area, the building was already over capacity in early spring. Plans to utilize eight or more mobile units for the 1995-96 school year are already in place. In addition, architects are already drawing the plans for a new addition to be built across the road and connected with an overhead glass walkway.



Oscar Smith High School Floor Plan: P.V.B. 1993

BELL SCHEDULE

7:40	Warning
7:45- 8:35	Zero Bell
8:40	Warning
8:45- 9:35	Bell 1
9:35- 9:40	Bell Change
9:40-10:35	Bell 2 (Attendance)
10:35-10:40	Bell Change
10:40-11:30	Bell 3
10:40-11:10	First Lunch
11:10-11:15	Passing Time
11:15-11:30	Activity Bell
11:30-11:35	Bell Change
11:35-12:25	Bell 4
11:35-12:05	Second Lunch
12:05-12:10	Passing Time
12:10-12:25	Activity Bell
12:25-12:30	Bell Change
12:30- 1:20	Bell 5
12:30- 1:00	Third Lunch
1:00- 1:05	Passing Time
1:05- 1:20	Activity Bell
1:20- 1:25	Bell Change
1:25- 2:15	Bell 6
2:15- 2:20	Bell Change
2:20- 3:15	Bell 7



Oscar Smith High School Floor Plan:

SUMMARY

This study has provided an accurate pictorial and textual representation of the architectural design and interior configuration of twentieth-century Virginia public high schools existing in 1995. Each significant architectural era was represented by an example of a school building from that time period. Schools selected were depicted visually by photographs and floor plans. A detailed description of each school's original design and educational program was provided and updated within a brief vignette. The study also examined the history and evolution of school houses in Virginia, the eventual establishment of public high schools, and the educational programs housed within those buildings.

The questions posed concerning the influence of the curriculum on the architecture of the Virginia high school building were: "Have the curricular emphases been reflected in the type of structure that was constructed to fit the educational needs of that period of time?" and "Has the architectural design of the high school limited the implementation of educational programs, or have the educational programs limited the architectural design of the building?" Earthman (1994) addresses these same concerns in his School Renovation Handbook:

The answers to the three questions:

1. What will the students be taught? (Curriculum);
2. How will the students be taught? (Methodology);
3. How will the students be grouped? (Organization);

do have an impact upon the (school) building. Each of the components of the school operation identified in the questions serve to determine how the internal structure of the school building is configured. The curriculum does demand certain types of spaces because of the subject matter being taught and the equipment used in the teaching and learning processes. The manner in which

students are taught, or the methodology used, does require certain kinds and types of instructional spaces, and, in addition, the way students are grouped has an obvious impact upon how the instructional spaces are designed. Therefore, any change in the curriculum, methodology, or organization of a school program must be reflected in how an existing school is renovated to accommodate these changes (p. 135).

Conclusions from this study would indicate that high school building design may limit the scope and magnitude of an educational program, but it does not seem to prohibit the implementation of any program. Inspection of many high schools in the Commonwealth of Virginia revealed that some schools house programs in inadequate spaces, violate building codes, and in some instances, endanger students. Retrofitting classrooms, constructing additions, renovating entire buildings, or the use of mobile or temporary classrooms are generally executed by school divisions to facilitate new curriculum before any consideration is given to the irreparable damage such an action may cause to the existing structure. Careful planning and study by the division, with input from the educational staff may effectuate options to house new programs without significant alteration to the structure. The famous architect Louis Sullivan coined the phrase, "form follows function"; it appears that some educational facility planners have forgotten this basic concept.

This study reflects the evolution of the architectural styles of high schools in Virginia. These styles include: The Old Field School; Classical, Colonial, Jeffersonian or Roman Revival; Art Deco; International; Campus; School-Within-A-School; Finger or Cluster Plan; Open-Plan; Energy Efficient; Megalith; Classical Revival Modified; and mixed variations of same. School buildings were originally constructed to protect teachers and their students from the elements. Over time, the school structure and the educational program within have evolved. High school buildings should be designed and erected to meet the needs of the students, staff, and community who are the beneficiaries

of the school's curricular and co-curricular programs, while providing an aesthetic structure which can be utilized for a significant period of time.

"Technology of education drives the instruction within school buildings" (Parks, April 25, 1995, Interview). As the high school curriculum was appended in Virginia, school facility planners responded by the designing of the needed additional facilities. Home Economics suites and Vocational shops were added between 1900 and 1920. Auditoriums were combined with gymnasiums after World War I. Known as "gymnatoriums" these facilities were eventually separated around the late 1940s and early 1950s. The inclusion of typing rooms and business suites became popular in the 1920s. School cafeteria were mandated and added after 1944. The late 1950s saw the addition and modernization of science laboratories, mathematics facilities and language labs. Separate and larger administrative and guidance office areas were designed in the 1960s. The library, now known as a media center became larger, better equipped and more prominently centralized within the high school. School hallways were transformed from dark, loud, "lockered" pathways which bifurcated the building; to well-lit, wide corridors which interconnect many sections, levels and areas. Auditoriums have gotten smaller and gymnasiums larger. The student commons was introduced as a new facility, usually doubling as a cafeteria and student lockers area. The wood shop was been redesigned several times from industrial arts, to world of manufacturing, to the current technology lab.

All of these innovational designs were a result of the ever-changing curriculum. The entire scheme for the configuration and placement of high school facilities within the building has changed in response to facility usage, instructional design, security, safety, accessibility, comfort, cost, technology, building codes, location, and architectural style. All of which must be considered when planning a successful high school facility.

A successful architectural design will allow flexibility to accommodate future changes in educational programs, the social reforms of the future, and technological advances not yet conceived. The architectural design of such a high school is the community's solution to house the educational program.

Postscript

This study of the architecture and curriculum of Virginia high schools is a study within itself. The replication of this study may be impractical, yet the documentation of other historical school buildings throughout the country is needed. School buildings of historical and architectural importance and interest are a valuable asset to our educational heritage and need to be preserved and recorded.

REFERENCES

- Acts of the General Assembly of the Commonwealth of Virginia. (1829, 1944).
Richmond, VA: Author.
- Agron, J. (Ed.). (1994, November). American School & University
Philadelphia, PA: North American Publishing Company.
- American Association of School Administrators. (1952). American School Buildings: Twenty-seventh Yearbook (2nd ed.). Washington, DC: National Education Association of the United States.
- American Association of School Administrators - Commission on School Buildings. (1960). Planning America's School Buildings Washington, D.C.: Author.
- American Association of School Administrators - Commission on School Buildings. (1967). Schools for America Washington, D.C.: Author.
- Appalachia High School Steering Committee. (1985-86). Appalachia High School: Self-Evaluation Narrative Report Appalachia, VA: Author.
- Barnard, H. (1970). School Architecture (2nd ed.). (J. McClintock & R. McClintock, Eds.). New York: Columbia Press. (Original work published 1848)
- Boddy, D. L., & Wrenski, D. (1992, January 10). School Facility Status Survey Richmond, VA: Virginia Department of Education.
- Boddy, D. L., & Wrenski, D. (1993, December 31). School Facility Status Survey: 1993 Update Richmond, VA: Virginia Department of Education.
- Boyer, E. L. (1983). High School: A Report on Secondary Education in America New York: Harper & Row.
- Brown v. the Board of Education of Topeka, 347, U.S. 483 p. 873; 74 S.Ct. 686, 1954.

Buck, B. J. L. (1952). The Development of Public Schools in Virginia 1607-1952 Richmond, VA: State Board of Education.

Cash, C. S. (1993). Building Condition and Student Achievement and Behavior (Doctoral Dissertation, Virginia Tech, 1993).

Castaldi, B. (1994). Educational Facilities: Planning, Modernization, and Management (4th ed.). Needham Heights, MA: Allyn and Bacon.

Caudill, W. W. (1954). Toward Better School Design: An Architectural Record Book New York, NY: F. W. Dodge Corporation.

Centreville High School. (1995). Centreville High School: Course Offerings Clifton, VA: Author.

Centreville High School. (1994-95). Centreville High School: Student Handbook, Clifton, VA: Author.

Constitution of Virginia. (1869). Richmond, VA.

Council of Educational Facility Planners. (1971). Guide for Planning Educational Facilities (2nd ed.). Columbus, OH: Author.

Cubberley, E. P. (1934). Readings in Public Education in the United States Westport, Conn: Columbia University.

Department of Facilities Services. (1994, September). Regulations for Public School Building Construction D. L. Boddy, & H. Barnes (Eds.). Richmond, VA: Virginia Department of Education. Unpublished draft.

Earthman, G. I. (1994). School Renovation Handbook: Investing in Education Lancaster, PA: Technomic Publishing Company.

Eisner, E. W. (1979). The Educational Imagination: On the Design and Evaluation of School Programs New York, NY: Macmillian Publishing Company, Inc.

Goodlad, J. I. (1984). A Place Called School: Prospects for the Future (T. H. Quinn and M. Hennelly, Eds.). New York: McGraw-Hill.

Governor's Commission on Excellence in Education. (1986, October). Excellence in Education: A Plan for Virginia's Future Richmond, VA: Virginia Department of Education.

Gracey, F. M. (1937). A History of Secondary School Architecture in Massachusetts (Doctoral Dissertation, Boston University, 1937).

Granby High School Steering Committee. (1986). Granby High School: Self-Evaluation Narrative Report Norfolk, VA: Author.

Graves, B. E. (1993). School Ways: The Planning and Design of America's Schools (C. A. Pearson, Ed.). New York, NY: McGraw-Hill Inc.

Griffin v. County School Board, 377 U.S. 218, 267, 1964.

Halifax High School. (1990). Halifax County High School Profile (2nd ed.) [Brochure]. South Boston, VA: Author.

Halifax County High School Steering Committee. (1995). Halifax County High School: Self-Study Narrative Report South Boston, VA: Author.

Harrison v. Day, 106 SE 2nd. 636, 200 Va. 439, 1959.

Harrisonburg High School. (1994-95). Harrisonburg High School: Program of Studies Harrisonburg, VA: Author.

Harrisonburg High School. (1994-95). Harrisonburg High School Student/Parent Handbook Harrisonburg, VA: Author.

Harrisonburg High School Steering Committee. (1984-85). Harrisonburg High School: Self-Study Narrative Report Harrisonburg, VA: Author.

Hayfield Secondary School Steering Committee. (1983-84). Hayfield Secondary School: Self-Evaluation Narrative Report Alexandria, VA: Author

Heatwole, C. J. (1916). A History of Education in Virginia New York: The MacMillian Company.

Heritage High School. (1994-95). Heritage High School: Student Handbook Lynchburg, VA: Author.

Heritage High School Steering Committee. (1985-86). Heritage High School: Self-Study Narrative Report Lynchburg, VA: Author.

Hunt, T. C. (1984). Popular Education in 19th Century Virginia: Charles Fenton Mercer. Pedagogica Historica Gent, Belgium: Centre for the Study of the History of Education.

Hunt, T. C. and Wagoner, J. L., Jr. (Spring, 1988). Race, Religion, and Redemption: William Henry Ruffner and the Moral Foundations of Education in Virginia. American Presbyterians (Vol. 66, No. 1). Richmond, VA: Author.

James W. Robinson Secondary School Steering Committee. (1986-87). James W. Robinson Secondary School: Self-Study Narrative Report Fairfax, VA: Author.

John Handley High School Steering Committee. (1986). John Handley High School: Self-Study Narrative Report Winchester, VA: Author.

Koonce, G. L. (1994). New Oscar Smith High School Building Highlights Chesapeake, VA: Author.

Lynchburg City Schools. (1995). High School Program of Studies Lynchburg, VA: Author.

Lynchburg City Schools. (1975). Lynchburg School Designed for Solar Energy Adaptation (Press Release). Lynchburg, VA: Author.

Maddox, W. A. (1918). The Free School Idea in Virginia Before the Civil War: A Phase of Political and Social Evolution New York: Teachers College, Columbia University.

Maury High School Steering Committee. (1993). Maury High School: Self-Study Narrative Report Norfolk, VA: Author.

Mayer, F. (1973). A History of Educational Thought (3rd ed.). Columbus, OH: Charles E. Merrill Publishing Company.

Monroe, P. (1940). Founding of the American Public School System New York, NY: Macmillian Company.

Mulhern, J. (1959). A History of Education: A Social Interpretation (2nd ed.). New York: The Ronald Press Company.

National Council on Schoolhouse Construction. (1964) N.C.S.C. Guide for Planning School Plants Washington, D.C.: Author.

National Commission on Excellence in Education - United States Department of Education. (1983, April). A Nation At Risk: The Imperative for Educational Reform Washington, D.C.: U.S. Government Printing Office.

National Governors' Association Center for Policy Research and Analysis. (1986). Time for Results: The Governors' 1991 Report on Education Washington, D.C.: PREP Design and Communications, Inc.

National Governors' Association Center for Policy Research and Analysis. (1986, August). Time for Results: Task Force on School Facilities - Supporting Works Washington, D.C.: Author.

O'Shea, M. V. (1928). Public Education in Virginia: Report to the Commission of Virginia of a Survey of the Public Educational System of the State, Richmond, VA: Author.

Ortiz, F. I. (1994). Schoolhousing: Planning and Designing Educational Facilities Albany, NY: State University of New York Press.

Peccia, D. A. (1982). An Analysis of the Financing of Public High School Capital Facilities in Virginia (Doctoral Dissertation, Virginia Tech, 1982).

Plessy v. Ferguson, 163 U.S. 537, 16 S.Ct. 1138; 41 L.Ed. 256, 1896.

Poppeliers, J., Chambers, S. A., & Schwartz N. B. (1977). What Style Is It? Washington, D.C.: The Preservation Press.

Powell, A. G., Farrar, E., & Cohen, D. K. (1985). The Shopping Mall High School: Winners and Losers in the Educational Marketplace Boston, MA: Houghton Mifflin Company.

Seerley, H. H. (1913). The Country School: A Study of Its Foundations, Relations, Developments, Activities, and Possibilities New York: Charles Scribner's Sons.

Stonewall Jackson Senior High School Steering Committee. (1979). Stonewall Jackson Senior High School - Self-Study Narrative Report Manassas, VA: Author.

Superintendent's Annual Report for Virginia (1871-72), (1872-73), (1989-90). Richmond, VA: Virginia Department of Education.

Taylor, J. L. (1956). The Secondary School Plant: An Approach for Planning Functional Facilities Washington, D.C.: U.S. Government Printing Office.

Thomas Jefferson High School Steering Committee. (1984-85). Thomas Jefferson High School: Self-Study Narrative Report Richmond, VA: Author.

Thomas Walker High School Steering Committee. (1990-91). Thomas Walker High School: Self-Study Narrative Report Ewing, VA: Author.

United States Department of Education. (1991). American 2000: An Educational Strategy (Revised). Washington, D.C.: U.S. Government Printing Office.

Virginia Advisory Research Committee for School Construction. (1959, October). State Board of Education: School Planning Manual Richmond, VA: State Department of Education.

Virginia Beach City Schools Public Relations. (1994). Ocean Lakes High School Facilities and Resource Guide Virginia Beach, VA: Author.

Virginia Board of Education. (1989). Spotlight on Virginia Education: The 1989 Report of the Virginia Board of Education Richmond, VA: Virginia Department of Education.

Virginia Board of Education. (September, 1922). Bulletin of Virginia State Board of Education: Building and Equipment (Vol. V, No. 2), Richmond, VA: Author.

Virginia Department of Education. (1964). School Building Regulations Richmond, VA: Author.

Virginia Department of Education - Division of Facilities Services. (December 31, 1993). School Facility Status Survey Richmond, VA: Author.

Virginia Department of Education - Division of Facilities Services. (September, 1994). Regulations For Public School Building Construction (Draft), Richmond, VA: Author.

Virginia Department of Education. (1992, August 28). Review and Approval of School Construction Documents. Superintendent's Memo No. 23 (J. A. Spagnola, Jr. & E. W. Carr). Richmond, VA: Author.

Virginia Educational Directory (1994-95). Richmond, VA: Virginia Department of Education.

Virginia High School League Directory (1994-95). Charlottesville, VA: Virginia High School League, Inc.

Virginia School Report (1884-85, 1871-72, 1902-03). Richmond, VA: Virginia Department of Education.

Wilkerson, A. W. (1917). Rural School Management (W. W. Charters, Eds.). Boston, MA: Silver Burdett & Company,

Willis, G., Schubert, W. H., Bullough, R. V., Jr., Kridel, C., & Holton, J. T. (Eds.). The American Curriculum: A Documentary History Westport, CT: Greenwood Press.

Wilson, B. E. (1988). A Study of the Financing of Public School Capital Facilities in the Commonwealth (Doctoral Dissertation, Virginia Tech, 1988).

Worner, W. M. & Pusey, R. H. (Winter, 1980). Energy Concerns and Virginia's Schools. Journal for Educational Managers (Vol. 1, No. 1). Blacksburg, VA: Virginia Tech.

Worner, W. M. (1983). Educational Programs of the Future. A Journal for Educational Managers (Vol. i, No. 2). Blacksburg, VA: Virginia Tech.

APPENDIX A

High School Building Survey

Name of School: _____

Location of School Building: _____

Principal: _____ Telephone: _____

Please answer the following questions as precisely as possible. In addition, you will be asked to include with your survey, a school map of the existing floor plan. Please find enclosed a pre-addressed, stamped envelope to return these items. *If at all possible, please return this survey along with the requested school map by: Friday, November 25, 1994.*

1) In what year was your high school building originally constructed?

2) _____
In which year(s), (if any), were additions or renovations made to the original high school structure? This may include major renovations, retro-fitting, and/or the addition of satellite buildings. (Please be as specific as possible):

_____	_____
(Year)	(Renovation/Addition)
_____	_____
(Year)	(Renovation/Addition)
_____	_____
(Year)	(Renovation/Addition)
_____	_____
(Year)	(Renovation/Addition)

*[Please use additional paper if necessary]

3) To your knowledge, is the building that currently houses your high school the first? Second? Third?

4) Please circle the appropriate category for your student population:

- a. Grades 9 - 12
- b. Grades 10 - 12
- c. Grades 8 - 12
- d. Grades 7 - 12
- e. (Other) _____

5) Please indicate your building enrollment as of September 30, 1994:

6) What is the student capacity of your current school building?

7) (Circle one:)

"We are over-capacity."

"We are at capacity."

"We are under-capacity."

8) Please indicate the number, (if any) of temporary, or mobile classrooms on site.

9) Please rate your current school facility: (Please check one.)

a) Excellent _____

b) Good _____

c) Adequate _____

d) Lacking _____

e) Unfit _____

Comments: _____

***[Please use additional paper if necessary]**

10) Are there any noteworthy architectural or unique educational features about your building?

***[Please use additional paper if necessary]**

Please don't forget to return this survey and your school floor plan by: Friday, November 25, 1994, (use the enclosed pre-addressed, stamped envelope provided). Thanks again for your time and cooperation in completing this survey!

APPENDIX B

Letter Accompanying Instrument Requesting Principal's Participation



Division of Administrative and Educational Services

College of Education
E. Eggleston Hall, Blacksburg, Virginia 24061-0302
(703) 231-5642 Fax: (703) 231-7845

Dear Principal:

I am currently conducting research on the architecture of all 280 public high schools in the Commonwealth of Virginia. The purposes of this study are to record and preserve a record of the architectural design of existing buildings, and to develop a resource for school administrators who are planning new high school facilities. As a fellow high school principal (currently on a one-year sabbatical), I know how important a well-designed facility is, and the scarcity of appropriate resources to draw ideas from. I ask that you assist me in this project by completing the enclosed ten-question survey, and sending me a school map and/or floor plan of your facility. In addition to the information gained from your returned surveys, I will be photographing the exterior of each Virginia high school, including yours, over the next few months.

The desired effect of this study is to provide school administrators with information about the designing or renovating of schools. If you would like additional information about this study, please do not hesitate to contact me at the address listed below. *Please make every effort to return this information to me in the enclosed pre-addressed, stamped envelope by: Friday, November 25, 1994.* Your time, cooperation, and comments are most appreciated.

Sincerely,

Scott C. Womer,

P.O. Box 135
Blacksburg, Virginia
24063-0135
Office: (703) 231-5111
Home: (703) 552-9305

APPENDIX C

Second Letter Accompanying Instrument Requesting Principal's Participation



Division of Administrative and Educational Services

College of Education
E. Eggleston Hall, Blacksburg, Virginia 24061-0302
(703) 231-5642 Fax: (703) 231-7845

Principal
High School
Street
VA

Dear

I am making a **second** request that you take a few minutes to complete the enclosed survey concerning your high school building. For the past month, I have been collecting data on the architecture of all 285 public high schools in the Commonwealth of Virginia. In addition, I plan to photograph each school site as part of the data collection. **I can't complete this study without your help!** As a Virginia high school principal-on-sabbatical, I know the time constraints that you face each day. This survey takes approximately five minutes to complete and requires that you **also send a copy of your school map, or floor plan.**

Please make every effort to return this **survey and school map** to me in the enclosed pre-addressed, stamped envelope by: **Monday, December 12, 1994.** Your time, cooperation, and comments are most appreciated!

Sincerely,

Scott C. Worner

P.O. Box 135
Blacksburg, Virginia
24063-0135
Office: (703) 231-5111
Home: (703) 552-9305

APPENDIX D

Chronological Order of Existing High School Building's Construction Dates

<i>*Existing High School Buildings</i>	<i>**Date of Construction</i>	<i>Number per Decade</i>	<i>Percent per Decade</i>	<i>Running Total</i>	<i>Percent of Total Existing Schools</i>
1910s					
Maury H.S.	1911	1	0.35%		0.35%
1920s					
Handley H.S.	1923				
Parry McCluer H.S.	1923				
Warwick H.S.	1923	(Formally Morrison H.S.)			
Washington-Lee H.S.	1924			5	
King William H.S.	1925	(Formally Hamilton Holmes H.S)			
Harrisonburg H.S.	1927				
Radford H.S.	1928				
Thomas Jefferson H.S.	1929	8	2.82%		3.18%
1930s					
Washington & Lee H.S.	1930			10	
Luray H.S.	1931				
Tangier Combined School	1932				
Mt Rogers Combined School	1933				
Goochland H.S.	1934				
Shawsville H.S.	1934			15	
Cumberland H.S.	1936				
Northumberland H.S.	1936				
Waynesboro H.S.	1937				

Auburn H.S.	1938				
Buckingham H.S.	1939			20	
Covington H.S.	1939				
Granby H.S.	1939				
Mathews H.S.	1939				
Randolph-Henry H.S.	1939				
Warren Co. H.S.	1939	16	5.63%	25	8.80%

1940s

Thomas Walker H.S.	1940				
Arcadia H.S.	1941				
Nottoway H.S.	1948	(Formally Luther Foster H.S.)			
Castlewood H.S.	1949				
Middlesex H.S.	1949	5	1.76%	30	10.56%

1950s

Franklin Co. H.S.	1950				
George Mason Jr/Sr H.S.	1950				
Yorktown H.S.	1950	(Formally Greenbriar Elementary School)			
Altavista H.S. & M.S.	1951				
William Campbell H.S.	1951			35	
King & Queen Central H.S.	1951				
Richlands H.S.	1951				
Sussex Central H.S.	1951				
George Wythe H.S.(Wytheville)	1951				
Broadway H.S.	1952			40	
Greensville Co. H.S.	1952				
Highland Springs H.S.	1952				
Honaker H.S.	1952				
Pound H.S.	1952				
Orange Co. H.S.	1952			45	
Wakefield H.S.	1952				
Albemarle H.S.	1953				
John I. Burton H.S.	1953				

Galax H.S.	1953	
J.J. Kelly H.S.	1953	50
I.C. Norcom H.S.	1953	
Norview H.S.	1953	
Osbourn H.S.	1953	
Princess Anne H.S.	1953	
Rustburg H.S.	1953	55
Annandale H.S.	1954	
Armstrong H.S.	1954	
Bath Co. H.S.	1954	
Clintwood H.S.	1954	
Ervington H.S.	1954	60
Douglas S. Freeman H.S.	1954	
Gate City H.S.	1954	
Haysi H.S.	1954	
Loudon Co. H.S.	1954	
James Monroe H.S.	1954	65
Northampton H.S.	1954	
Pocahontas H.S.	1954	
Prince Edward Co. H.S.	1954	
Tazewell H.S.	1954	
York Co. H.S.	1954	70
Bluestone Sr. H.S.	1955	
Brunswick Sr. H.S.	1955	
Chilhowie H.S.	1955	
Coeburn H.S.	1955	
McLean H.S.	1955	75
Park View Sr. H.S.	1955	
Rocky Gap H.S.	1955	
Rye Cove H.S.	1955	
Virginia H.S.	1955	
Amherst Co. H.S.	1956	80
Graham H.S.	1956	
Nelson Co. H.S.	1956	
George Washington H.S.	1956	
Chincoteague H.S.	1957	
Homer L. Ferguson H.S.	1957	85
Grayson Co. H.S.	1957	
Northwood H.S.	1957	

E.C. Glass H.S.	1958			
Hampton H.S.	1958			
R.E. Lee H.S. (Springfield)	1958	90		
Lee-Davis H.S.	1958			
Madison Co. H.S.	1958			
Abington H.S.	1959			
John S. Battle H.S.	1959			
Central H.S. (Woodstock)	1959	95		
Patrick Henry H.S. (Ashland)	1959			
James Madison H.S.	1959			
Rappahannock Co. H.S.	1959			
Stonewall Jackson H.S. (Mt.)	1959			
J.E.B. Stuart H.S.	1959	100		
James River H.S.(Buchanan)	1959			
Powell Valley H.S.	1959			
Strasburg H.S.	1959			
V.S.D.B.	1959	74	26.05%	36.61%

1960s

Appalachia H.S.	1960	105		
Lord Botetourt H.S.	1960			
Fort Chiswell H.S.	1960			
Patrick Henry H.S.(Glade Sp)	1960			
John Marshall H.S.	1960			
Marion Sr. H.S.	1960	110		
Mount Vernon H.S.	1960			(Formally Walt Whitman Intermediate School)
Varina H.S.	1960			
West Potomac H.S.	1960			(Formally Groveton High School)
GeorgeWythe H.S.(Richmond)	1960			
Giles H.S.	1961	115		
Narrow H.S.	1961			
Patrick Henry H.S.(Roanoke)	1961			
Huguenot H.S.	1961			
Northside H.S.	1961			
Rural Retreat H.S.	1961	120		
Bland H.S.	1962			
Buffalo Gap H.S.	1962			
William Fleming H.S.	1962			

Floyd Co. H.S.	1962	
Fort Defiance H.S.	1962	125
Henrico H.S.	1962	
Highland H.S.	1962	
Floyd E. Kellam H.S.	1962	
William Monroe H.S.	1962	
Page Co. H.S.	1962	130
Rappahannock H.S.	1962	
Riverheads H.S.	1962	
J.R. Tucker H.S.	1962	
Bayside H.S.	1963	
Alleghany H.S.	1963	135
Thomas Dale H.S.	1963	
Dan River H.S.	1963	
Thomas A. Edison H.S.	1963	
Faquier H.S.	1963	
Gretna Sr. H.S.	1963	140
Grundy Sr. H.S.	1963	
Kecoughtan H.S.	1963	
George C. Marshall H.S.	1963	
Matoaca H.S.	1963	
Meadowbrook H.S.	1963	145
Staunton River H.S.	1963	
W.T. Woodson H.S.	1963	
Chatham H.S.	1964	
Colonial Heights H.S.	1964	
Falls Church H.S.	1964	(Formally Whittier Intermediate School) 150
Herndon H.S.	1964	
Holston H.S.	1964	
T. Jefferson H.S.(Sci/Tech)	1964	
Liberty H.S. (Bedford)	1964	
Loudon Valley H.S.	1964	155
Tunstall H.S.	1964	
Brentsville Dist.M.S.& Sr.H.S.	1965	
Brookville H.S.	1965	
Denbigh H.S.	1965	
Dinwiddie H.S.	1965	160
Fieldale-Collinsville H.S.	1965	
Glenvar H.S.	1965	
King George H.S.	1965	

Langley H.S.	1965				
West Springfield H.S.	1965			165	
T.C. Williams H.S.	1965				
Council H.S.	1966				
Franklin H.S.	1966				
Kempsville H.S.	1966				
West Point H.S.	1966			170	
Cavespring H.S.	1967				
Central Sr. H.S.(Lunenburg)	1967				
First Colonial H.S.	1967				
Hopewell H.S.	1967				
Lake Taylor H.S.	1967			175	
R.E. Lee H.S. (Staunton)	1967				
Bethel H.S.	1968				
John F. Kennedy H.S.	1968				
Broad Run H.S.	1969				
William Byrd H.S.	1969			180	
Carroll Co. H.S.	1969				
Culpepper H.S.	1969				
Essex H.S.	1969				
Hayfield Secondary School	1969				
Hurley H.S.	1969			185	
Indian River H.S.	1969				
Laurel Park H.S.	1969				
Martinsville H.S.	1969				
Oakton H.S.	1969				
Twin Springs H.S.	1969	86	30.28%	190	66.90%

1970s

Menchville H.S.	1970				
Stonewall Jackson Sr. H.S.	1971				
Patrick Co. H.S.	1971				
Powhatan H.S.	1971				
Robinson Secondary School	1971			195	
Woodrow Wilson H.S.	1971			(Formally Manor H.S.)	
Clover Hill H.S.	1972				

Fairfax H.S.	1972	
Gar-Field H.S.	1972	
Hermitage H.S.	1972	200
Jefferson Forest H.S.	1972	
Lafayette H.S.	1972	
Poquoson H.S.	1972	
Tabb H.S.	1972	
Western Branch H.S.	1972	205
Wilson Memorial H.S.	1972	
Lake Braddock Secondary S.	1973	
Saint Paul H.S.	1973	
Appomattox H.S.	1974	
Blacksburg H.S.	1974	210
Chantilly H.S.	1974	
Charlottesville H.S.	1974	
Christiansburg H.S.	1974	
Lancaster H.S.	1974	
Louisa Co. H.S.	1974	215
Petersburg H.S.	1974	
Pulaski Co. H.S.	1974	
Stafford Sr. H.S.	1974	
Booker T. Washington H.S.	1974	
Glocester H.S.	1975	220
Osborn Park H.S.	1975	
Phoebus H.S.	1975	
Surry Co. H.S.	1975	
Woodbridge Sr. H.S.	1975	
Bruton H.S.	1976	225
Fluvanna H.S.	1976	
Heritage H.S.	1976	
Manassas Park M.S./H.S.	1976	
Park View H.S.	1976	
Caroline H.S.	1977	230
Prince George H.S.	1977	
Salem H.S. (Salem)	1977	
South Lakes H.S.	1977	
Stuarts Draft H.S.	1977	
Western Albemarle H.S.	1977	235

Bassett H.S.	1978			
Lloyd C. Bird H.S.	1978			
Amelia Co. H.S.	1979			
Deep Creek H.S.	1979			
Green Run H.S.	1979		240	
Halifax Co. Sr. H.S.	1979			
Monacan H.S.	1979			
Potomac Sr. H.S.	1979	53	18.66%	85.56%

1980s

Courtland H.S.	1980			
Mills E. Godwin H.S.	1980		245	
Smithfield H.S.	1980			
Spotswood H.S.	1980			
James Wood H.S.	1980			
North Stafford H.S.	1981			
Frank W. Cox H.S.	1982		250	
Garden H.S.	1982			
Great Bridge H.S.	1983			
Nandua H.S.	1983			
Midlothian H.S.	1984			
Lebanon H.S.	1985		255	
Colonial Beach H.S.	1986			
Whitewood H.S.	1986			
Centreville H.S.	1987			
New Kent H.S.	1987			
Chancellor H.S.	1988		260	
Magna Vista H.S.	1988			
Clark Co. H.S.	1988			
Craig Co. H.S.	1988			
Lee H.S.	1988			

Turner Ashby H.S.	1989			265	
Salem H.S. (Virginia Beach)	1989	23	8.09%		93.66%

1990s

Atlee H.S.	1990				
Lakeland H.S.	1990				
Nansemond River H.S.	1990				
Brooke Point H.S.	1991			270	
C.D. Hylton H.S.	1991				
Churchland H.S.	1992				
Manchester H.S.	1992				
Rockbridge Co. H.S.	1992				
Charles City H.S.	1993			275	
Sherando H.S.	1993				
Southampton H.S.	1993				
Spotsylvania H.S.	1993				
Tallwood H.S.	1993				
James River H.S. (Midloth.)	1994			280	
Liberty H.S. (Bealeton)	1994				
Ocean Lakes H.S.	1994				
Oscar Smith H.S.	1994				
Windsor M.S./H.S.	1994	18	6.33%	284	100.00%

Under Construction:

Hickory H.S. (New)	1996
Nottoway H.S. (Replacement)	1995

***Existing High School Buildings:**

Refers to buildings that housed a public high school program during the 1994-95 school year. Buildings originally designed to house high school programs that were converted for other uses were not considered, (i.e.: Middle Schools, Elementary Schools, Central Office(s), Alternative Programs, Storage, etc.).

****Date of Construction:**

Date of construction is identified almost always as the year that the school was formally opened.

APPENDIX E

Spreadsheet of Collected Data of Population Study - All 284 Virginia Public High Schools

School Name	School System	Date	Additions	# of School	Grades	Enrolled	Fac.Max	< , = , > Cap.	M.Units	Rating	Noteworthy Architectural/Unique Ed Features
Abington H.S.	Washington	'1959	'78	1st	9-12	, 941	, 1300	At		Excellent	
Albemarle H.S.	Albemarle	'1953	'78, '84, '92	1st	9-12	, 1762	, 1700	Over	-6-	Good	
Alleghany H.S.	Alleghany Highlands	'1963	'69, '70	1st	9-12	, 1003	, 1000	Over		Excellent	
Altavista H.S. & M.S.	Campbell	'1951	'53, '57, '64, '68, '79	2nd	7-12	, 592	, 1000	At		Good	Peaked Roof/2 Schools under 1 Roof
Amelia Co. H.S.	Amelia	'1979		1st	9-12	, 500	, 592	Under		Good	
Amherst Co. H.S.	Amherst	'1956	'62, '67, '85, '91	1st	9-12	, 1300	<, 1300	Over		Adequate	Halls too narrow/12 classrooms under const.
Annandale H.S.	Fairfax	'1954	'72, '80	1st	9-12	, 1950	, 2100	At		Lacking	
Appalachia H.S.	Wise	'1960		3rd	8-12	, 363	, 600	Under		Good	Campus Style/3 Buildings
Appomattox H.S.	Appomattox	'1974	'84	1st	9-12	, 701	, 700	At		Good +	Building divided by quadrants/Excellent comm. cen
Arcadia H.S.	Accomack	'1941	'78	1st	9-12	, 640	, 800	Under		Good	
Armstrong H.S.	Richmond City	'1954	'80, '82, '89, '93	2nd	9-12	, 900	, 1000	At		Adequate	Pre-School Suite/Teaching Lab/Auto Mech. Lab
Turner Ashby H.S.	Rockingham	'1989		2nd	9-12	, 894	, 1200	At/Under		Excellent	New Building
Atlee H.S.	Hanover	'1990		1st	9-12	, 1300	, 1600	Under		Excellent	
Auburn H.S.	Montgomery	'1938	'55, '63, '72, '74, '79	3rd	6-12	, 519	, 500	Over	-5-	Adequate	Colonial revival facade/Log cabin built 1941
Bassett H.S.	Henry	'1978		3rd	9-12	, 687	, 900	At		Excellent	Excellent design
Bath Co. H.S.	Bath	'1954	'68, '93, '94	1st	8-12	, 322	, 410	Under		Excellent	Auditorium/Gym/Band Complex
John S. Battle H.S.	Washington	'1959	'68	1st	9-12	, 649	, 1400	Under		Good	
Bayside H.S.	Virginia Beach	'1963	'90, '94-95	1st	9-12	, 1952	, 1700	Over	-17-	Adequate	
Bethel H.S.	Hampton	'1968	'85	1st	9-12	, 1741	, 1500	Over	-8-	Lacking	
Lloyd C. Bird H.S.	Chesterfield	'1978	'80, '83, '86	1st	9-12	, 1888	, 1575	Over	-13-	Good	
Blacksburg H.S.	Montgomery	'1974		3rd	9-12	, 947	, 1200	Under		Good	
Bland H.S.	Bland	'1962	'91	3rd	8-12	, 220	, 300	Under	-1-	Adequate	Possibly the expansion for gymnasium seating
Bluestone Sr. H.S.	Mecklenburg	'1955	'70, '72	1st	9-12	, 800	, 650	Over		Lacking	Task force recommends consolidation w/ PVSHS
Brentsville District H.S.	Prince William	'1965		2nd	6-12	, 930	, 1000	At		Adequate	
Broad Run H.S.	Loudoun	'1969	'70, '94-95	1st	9-12	, 1400	, 1200	Over	-9-	Excellent	Major school renovation underway/Unique library
Broadway H.S.	Rockingham	'1952	'88	2nd	9-12	, 896	, 900	At		Excellent	
Brooke Point H.S.	Stafford	'1991		1st	9-12	, 1286	, 1800-2000	Under		Excellent	High-tech building/Completely networked
Brookville H.S.	Campbell	'1965	'70, '90, '93	2nd	9-12	, 875	, 1200	Under		Excellent	
Brunswick Sr. H.S.	Brunswick	'1955		2nd	10-12	, 587	, 550	At	-4-	Good	Auditorium seats 940
Bruton H.S.	York	'1976	'87	1st	9-12	, 578	, 1100	Under		Excellent	
Buckingham Co. H.S.	Buckingham	'1939	'58, '93	2nd	9-12	, 587	, 600	Under		Excellent	Modified old gym into cafeteria
Buffalo Gap H.S.	Augusta	'1962	'69	1st	9-12	, 564	, 800	Under		Good	
John I. Burton H.S.	Norton	'1953	'85, '92, '94	1st	7-12	, 400	, 600	Under		Excellent	Shared prep rooms between classrooms
William Byrd H.S.	Roanoke Co.	'1969	'78	4th	9-12	, 1000	, 950	Over	-5-	Good	
William Campbell H.S.	Campbell	'1951	'79	3rd	6-12	, 630	, 900-1000	Under		Adequate	
Caroline H.S.	Caroline	'1977		2nd	9-12	, 1098	, 1100	At	-1-	Good	
Carroll Co. H.S.	Carroll	'1969	'91	1st	10-12	, 890	, 900	Over		Good	
Castlewood H.S.	Russell	'1949	'60, '94	2nd	8-12	, 476	, 700	Under		Good	
Cave Spring H.S.	Roanoke Co.	'1967	'70, '85, '87	2nd	10-12	, 1177	, 1200	At		Adequate	Media center is central to core subjects
Central H.S.	Shenandoah	'1959	'61, '70, '94	1st	9-12	, 629	, 710	Under		Good	
Central Sr. H.S.	Lunenburg	'1967	'75	1st	9-12	, 689	, 600	Over	-3-	Adequate	
Centreville H.S.	Fairfax	'1987		1st	9-12	, 2094	, 200	Over		Good	Three level school w/ balcony & atrium
Chancellor H.S.	Spotsylvania	'1988		1st	9-12	, 1402	, 1307	Over	-5-	Good	Spiral staircase in commons/Auditorium seat 900
Chantilly H.S.	Fairfax	'1974	'94	1st	9-12	, 2366	, 2200	Over	-2-	Excellent	
Charles City Co. H.S.	Charles City Co.	'1993		2nd	9-12	, 325	, 450	Under		Excellent	Elem, Middle Sch. connected, some fac. shared
Charlottesville H.S.	Charlottesville	'1974	'84	2nd	9-12	, 1100	, 1200	Under		Good	Performing Arts Center/Media Center
Chatham H.S.	Pittsylvania	'1964	?	2nd	8-12	, 785	, 700	At	-7-	Good	

Chilhowie H.S.	Smyth	'1955	90	2nd	7-12	, 570	, 735	At		Good	
Chincoteague Combined School	Accomack	'1957	83	2nd	6-12	, 370	, 450	Under		Lacking	
Christiansburg H.S.	Montgomery	'1974		3rd	9-12	, 870	, 1100	Under		Good	Upper Commons, Auditorium, Media Center
Churchland H.S.	Portsmouth	'1992		3rd	8-12	, 1615	, 1700	At		Excellent	
Clarke Co. H.S.	Clarke	'1988	90	1st	9-12	, 481	, 600	Under		Lacking	No Auditorium!
Clinchwood H.S.	Dickenson	'1954	72,92	1st	8-12	, 605	, 600	At		Adequate	
Clover Hill H.S.	Chesterfield	'1972	83,87,94	1st	9-12	, 1450	, 1750	At	-4	Adequate	2-story school-lockers on floor 1/Narrow halls
Coeburn H.S.	Wise	'1955	56	3rd	8-12	, 694	, 600	Over	-1	Good	
Colonial Beach H.S.	Colonial Beach	'1986		2nd	8-12	, 221	, 500	Under		Excellent	
Colonial Heights H.S.	Colonial Heights	'1964	70,81,94	2nd	9-12	, 807	, 1200-1300	Under		Good	
Council H.S.	Buchanan	'1966		2nd	8-12	, 240	, 300	At		Good	
Courtland H.S.	Spotsylvania	'1980		1st	9-12	, 1478	, 1500	At	-8	Excellent	Vocational Center/Multipurpose commons
Covington H.S.	Covington	'1939	61,89,90	1st	8-12	, 364	, 800	Under		Excellent	Domed ceiling-1st floor/Slanted hallway-Guidance
Frank W. Cox H.S.	Virginia Beach	'1982		2nd	9-12	, 2125	, 2000	Over	-4	Good	Distance learning center in library w/ Wealyan Col.
Craig Co. H.S.	Craig	'1988		2nd	6-12	, 370	, 260	At	-2	Excellent	Shared facilities with Elem.,(Cafeteria)
Culpepper H.S.	Culpepper	'1969		3rd	10-12	, 963	, 1100	Under		Good	
Cumberland H.S.	Cumberland	'1936	62,68,89	1st	6-12	, 620	, 700	Under		Adequate	
Thomas Dale H.S.	Chesterfield	'1964	67,84	2nd	9-12	, 1560	, 1300	Over	-18	Lacking	
Dan River H.S.	Pittsylvania	'1963	92	2nd	8-12	, 725	, 800	Under	-4	Adequate	
Deep Creek H.S.	Chesapeake	'1979	90	4th	9-12	, 1656	, 1600	Over	-12	Excellent	Ability to accomodate many night activities
Denhigh H.S.	Newport News	'1965	80,88	1st	9-12	, 2286	, 1800	Over	-8	Good	
Dinnwiddie H.S.	Dinnwiddie	'1965	66	1st	9-12	, 1089	, 1050	Over		Lacking	School built on 1955 plan-obsolete the 1st day
Thomas A. Edison H.S.	Fairfax	'1963	68,87	1st	9-12	, 1131	, 1400	At		Good	School houses a Professional Technical Center
Ervington H.S.	Dickenson	'1954		1st	8-12	, 311	, 500	Under	-3	Good	
Essex Co. H.S.	Essex	'1969	73	1st	8-12	, 610	, 600-700	At	-1	Adequate	
Fairfax H.S.	Fairfax	'1972		2nd	9-12	, 1620	, 1900	At		Excellent	Fieldhouse-5000/Aud-1500/Commons/Comm.Cen
Falls Church H.S.	Fairfax	'1964		2nd	9-12	, 1304	, 1500	Under		Good	Excellent electronic classroom
Fauquier H.S.	Fauquier	'1963	73,81,89	1st	9-12	, 1300	, 1340	At	-1	Adequate	
Homer L. Ferguson H.S.	Newport News	'1957	63,68	1st	9-12	, 1562	, 1400	Over	-4	Good	
Fieldale-Coffinsville H.S.	Henry	'1965	67,85,88	1st	9-12	, 582	, 800	Under		Good	1996 Renovation to include air-condition
First Colonial H.S.	Virginia Beach	'1967	94	1st	9-12	, 1750	, 1500	Over	-7	Good	
William Fleming H.S.	Roanoke City	'1962	70,78	2nd	6-12	, 1579	, 1700	Under	-3	Good	Campus-style school
Floyd Co. H.S.	Floyd	'1962	71,89	1st	9-12	, 763	, 900	At	-1	Good	
Fluvanna Co. H.S.	Fluvanna	'1976	94	2nd	9-12	, 715	, 650	Over	-1	Lacking	
Fort Chiswell H.S.	Wythe	'1960	91	1st	8-12	, 674	, 900	Under		Excellent	
Fort Defiance H.S.	Augusta	'1962	70,75,94	1st	9-12	, 800	, 670	Over	-1	Lacking	Renovations under way (1994-95)
Franklin H.S.	Franklin City	'1966	69,87	2nd	8-12	, 672	, 800	At		Good	
Franklin Co. H.S.	Franklin Co.	'1950	51,52,64,70,75,85,92	1st	9-12	, 1940	, 1940	At		Adequate	Campus-style
Douglas S. Freeman H.S.	Henrico	'1954	61,70,92,95	1st	9-12	, 1422	, 1600	Under		Excellent	Federalist Style Architecture
Galax H.S.	Galax	'1953	58,71,74	2nd	9-12	, 320	, 600	Under		Good	
Gar-Field H.S.	Prince William	'1972	80,81	2nd	9-12	, 2449	, 2690	At		Excellent	60% classrooms are semi-open space
Garden H.S.	Buchanan	'1982		3rd	7-12	, 320	, 760	Under		Excellent	
Gate City H.S.	Gate City	'1954	72,88	1st	10-12	, 504	, 900	Under		Good	Middle Sch.addition shares fac. & staff
Giles H.S.	Giles	'1961		1st	8-12	, 674	, 1100	Under	-1	Adequate	Standard early 60's high sch. for S.W.Va
E.C. Glass H.S.	Lynchburg	'1958	80,85,94	2nd	9-12	, 1450	, 2000	At		Good	Solid,old building, probably last 50 years more
Glenvar H.S.	Roanoke Co.	'1965	80	1st	7-12	, 591	, 700	Under		Good	Middle Sch.Wing to be completed 1996
Gloucester H.S.	Gloucester	'1975	93	2nd	9-12	, 1900	, 2200	At		Adequate	The sports complex,(fields)
Mills E. Godwin H.S.	Henrico	'1980	94	1st	9-12	, 1700	, 1750	At		Adequate	Halfway design very poor!
Goochland H.S.	Goochland	'1934	50,70,89	1st	9-12	, 484	, 500	At		Adequate	WPA Project/lab-library for technology
Graham H.S.	Tazewell	'1956	74,87,89,95	2nd	9-12	, 665	, 650	Over	-1	Adequate	
Granby H.S.	Norfolk	'1939	45,56,95-96	1st	9-12	, 1650	, 1650	Over	-8	Adequate	WPA/Facade & Cupola/Houses T.C.C. night class
Grayson Co. H.S.	Grayson	'1957	88,90	2nd	9-12	, 667	, 650	Over		Adequate	Hallways too narrow
Great Bridge H.S.	Chesapeake	'1983	89	4th	10-12	, 2142	, 1425	Over	-26	Good	Additon & New High School projected 1996
Green Run H.S.	Virginia Beach	'1979		1st	9-12	, 1870	, 2200	Under		Excellent	

Greenville Co. H.S.	Greenville	'1952	'87,'89,'90	2nd	9-12	, 795	,1000	Under		Good	
Gretna Sr. H.S.	Pittsylvania	'1963	'92	1st	9-12	, 786	, 800	At	-5-	Adequate	
Grundy Sr. H.S.	Buchanan	'1963		2nd	10-12	, 748	, 700	At	-4-	Lacking	
Halifax Co. H.S.	Halifax	'1979		1st	9-12	,1948	,2200	At		Excellent	Comprehen.H.S./Houses 211 prog./283,000 sq.ft.
Hampton H.S.	Hampton	'1958	'91 (a.c.)	5th	9-12	,1456	,1650	Under +		Good	Design & size prompted nickname "Little Pentagon"
John Handley H.S.	Winchester	'1923	'58,'62,'74	1st	9-12	, 928	,1250	At		Excellent	Considered among most beautiful HS's in USA
Harrisonburg H.S.	Harrisonburg	'1927	'33,'42,'55,'66,'93,'94	2nd	9-12	, 920	,1300	Under		Excellent	Comm.source of pride/additions well-integrated
Hayfield H.S.	Fairfax	'1969		1st	7-12	,3033	,3000	At		Adequate	Gym-5000/Aud-1665/2-Cafeterias/Planetarium
Haysi H.S.	Dickenson	'1954	'57,'58,'63	3rd	8-12	, 523	, 500	Over	-1-	Unfit +	4-story building/Not handicapped accessible
Henrico H.S.	Henrico	'1962	'72,'92	1st	9-12	,1150	,2100	Under		Excellent	Campus-style design
Patrick Henry H.S. (Ashland)	Hanover	'1959	'87,'90,'93	1st	9-12	,1230	,1400	Under		Excellent	Campus-style design enclosed into 1 structure
Patrick Henry H.S. (Glade Spring)	Washington	'1960	'85	1st	9-12	, 511	, 700	At		Good	
Patrick Henry H.S. (Roanoke)	Roanoke City	'1961	'75,'77,'84,'86	1st	9-12	,1681	,1700	At	-8-	Good	Campus-style/houses Gov.sch.-Sci/Math
Heritage H.S.	Lynchburg	'1976		1st	9-12	,1105	,1300	Under		Excellent	5-level solar power design (solar inactive)
Hermitage H.S.	Henrico	'1972	'85	2nd	9-12	,1581	,1800	Under		Excellent	Lots of exposed interior brick/2 Commons areas
Hemdon H.S.	Fairfax	'1964	'92 (renov)	1st	9-12	,2178	,2100	Over	-5-	Excellent	
Highland H.S.	Highland	'1962	'94 (roof)	1st	7-12	, 170	, 170	At		Good	
Highland Springs H.S.	Henrico	'1952	'70,'75,'85,'94	2nd	9-12	,1100	,1400	Under		Good	New Engineering Center/School-wid Technology
Holston H.S.	Washington	'1964		1st	9-12	, 306	, 450	Under		Good	
Honaker H.S.	Russell	'1952	'62,'85	2nd	8-12	, 687	, 600	At		Good	
Hopewell H.S.	Hopewell	'1967	'85	4th	9-12	,1060	,1360	Under	-2-	Excellent	Comprehensive Voc.Ed. prog.on campus
Huguenot H.S.	Richmond City	'1961	'62,'69,'72,'92	1st	9-12	,1300	, 800	Over	-4-	Adequate	Sci. Lab equipped w/ Electron Microscopes
Hurley H.S.	Buchanan	'1969		2nd	9-12	, 347	, 500	Under		Good	
C.D. Hylton H.S.	Prince William	'1991		1st	9-12	,2457	,2076	Over	-6-	Excellent	Com.Network/TV-Weath Sv/Planet/Aud-1000
Indian River H.S.	Chesapeake	'1969	'94,'95	1st	9-12	,1701	,1501	Over	-27-	Excellent	
Stonewall Jackson H.S.	Shenandoah	'1959	'77,'78,'93	1st	9-12	, 432	, 500	At		Lacking	
Stonewall Jackson Sr. H.S.	Prince William	'1974		2nd	9-12	,1602	,2400	Under		Adequate	Open-classroom design/No halls/3 floors/2 cafet.
James River H.S. (Buchanan)	Botetourt	'1959	'80,'82,'93	1st	9-12	, 396	, 682	Under		Excellent	Similar to many of the 50's-60's schools
James River H.S. (Middlethian)	Chesterfield	'1994		1st	9-12*	,1275	,2000	Under		Excellent	Panic buttons in each room/Networked (Ethernet)
Jefferson Forest H.S.	Bedford	'1972	'85,'95	1st	8-12	,1029	,1150	At		Excellent	Originally designed as K-12 building
Thomas Jefferson H.S.	Richmond City	'1929	'65,'74,'94 (all renov.)	1st	9-12	,1000	,1000	At	-2-	Lacking	Virginia Historic Landmark/Clck Tower & Friezes
Thomas Jefferson Sci & Tech H.S.	Fairfax	'1964	'85,'88	1st	9-12	,1630	,1600 +	At	-2-	Good	
Kecoughtan H.S.	Hampton	'1963	'71	1st	9-12	,1738	,1600	Over	-4-	Good	
Floyd Keftam H.S.	Virginia Beach	'1962	'67,'90	1st	9-12	,1597	,1700	At	-2-	Good	Planning 20 additional classrooms
J.J. Kelly H.S.	Wise	'1953	'63,'94	1st	8-12	, 868	, 750	Over		Adequate	Building age preventing addnl technology
Kempsville H.S.	Virginia Beach	'1966	'68,'90,'95	2nd	9-12	,2153	,1650	Over	-20-	Good	
John F. Kennedy H.S.	Richmond City	'1968	'84 (elevator)	1st	9-12	, 856	, 900	At		Excellent	Building upgraded through paint,landscaping,signs
King & Queen Central H.S.	King & Queen	'1951	'74,'94	1st	8-12	, 303	, 550	Under	-3-	Good	500 seat Aud.& 5 classrooms to be added '95-96
King George H.S.	King George	'1965		2nd	9-12	, 787	, 800	At	-2-	Good	Poor design for supervision & security
King William H.S.	King William	'1925	'78	1st	9-12	, 440	, 500	Under	-1-	Good	Lacking an Auditorium
Lafayette H.S.	Williamsburg-James City	'1973	'95 (renovations)	1st	9-12	,1807	,1200-1400	Over	-9-	Unfit	Poor design due to '70's energy efficient building
Lake Braddock Secondary School	Fairfax	'1973		1st	7-12	,3858	,3858	At		Adequate	Built w/ open classroom design, walls constructed
Lake Taylor H.S.	Norfolk	'1967		1st	9-12	,1641	,2000	Under	-1-	Good	Well-maintained
Lakeland H.S.	Suffolk	'1990		1st	9-12	,1300	,1500-1750	Under		Excellent	Wide hallways
Lancaster H.S.	Lancaster	'1974		2nd	9-12	, 460	, 750	At		Lacking	Ample acreage to expand
Langley H.S.	Fairfax	'1965	'89	1st	9-12	,1400	,1500	At		Excellent	Designed for hilltop,site in valley/Library
Luarrel Park H.S.	Henry	'1969		1st	9-12	, 559	, 900	Under		Good	Greenhouse/Arboretum/Lrg. Animal Facility
Lohanon H.S.	Russell	'1985		2nd	8-12	, 858	, 900	At		Excellent	
Lee H.S.	Lee	'1988	'94	?	9-12	,1069	,1200	At		Excellent	
Robert E. Lee H.S. (Springfield)	Fairfax	'1958	'66,'68,'72,'82	1st	9-12	,1651	,1800	At		Adequate	Building interior & exterior is uninspiring
Robert E. Lee H.S. (Staunton)	Staunton	'1967	'84	2nd	9-12	, 750	,1000	At		Good	
Lee-Davis H.S.	Hanover	'1958	'86,'90,'93 (all renov.)	?	9-12	,1230	,1600	Under		Excellent	Campus-style design now enclosed under 1 roof
Liberty H.S. (Bedford)	Bedford	'1964	'87	1st	9-12	, 952	,1100	Under		Adequate	

Liberty H.S. (Bealeton)	Fauquier	'1994		1st	9-12	,1140	,1600	Under		Excellent	Teacher designed/Cafeteria/Aditton friendly
Lord Botetourt H.S.	Botetourt	'1960	'60,'75,'82	1st	9-12	, 921	, 950	At		Lacking	Gymnasium
Loudoun Co. H.S.	Leesburg	'1954	'66,'76,'91	1st	9-12	,1060	,1300	At	-6-	Good	Classic stule, cement pillars, marble floor foyer
Loudoun Valley H.S.	Loudoun	'1964	'73,'76,'90	1st	9-12	, 936	,1000-1200	At	-1-	Good	\$12,434,000 Addition/Renovations by 1997
Louisa Co. H.S.	Louisa	'1974	'93,'94 (roof & a.c.)	2nd	9-12	,1100	,1200	At	-1-	Adequate	Open-classroom design until walls constructed
Luray H.S.	Page	'1931	'62,'82	2nd	8-12	, 600	, 600	Over	-1-	Good	Planning stages of Building Program
Madison Co. H.S.	Madison	'1958	'92	2nd	9-12	, 582	, 582	At		Adequate	
James Madison H.S.	Fairfax	'1959	'67,'72,'87	1st	9-12	,1540	,1700	Under		Good	
Magna Vista H.S.	Henry	'1988		1st	9-12	, 763	,1050	Under		Excellent	Open court-yard/Isolated gym floor
Manassas Park M.S. & H.S.	Manassas Park	'1976	'80,'90	1st	7-12	, 555	, 600	Under		Good	
Manchester H.S.	Chesterfield	'1992		3rd	9-12	,2094	,2100	At		Excellent	350 Comp.Ntwrk/4 conf.rms/Admin/Guide Area
Marion Sr. H.S.	Smyth	'1960	'69	2nd	9-12	, 884	,1100	At		Good	Architect secured for new addition
George C. Marshall H.S.	Fairfax	'1963	'83,'90	1st	9-12	,1145	,1400	Under		Good	
John Marshall H.S.	Richmond City	'1960		2nd	9-12	,1045	,1300	Under	-1-	Adequate -	
Martinsville H.S.	Martinsville	'1969	'76	2nd	9-12	, 807	, 900	At		Excellent	Aud-1800/formally "Showcase School"
George Mason M.S. & H.S.	Falls Church	'1950	'60,'69,'79,'94-95	1st	6-12	, 735	, 800	Under +		Good	Aud/ESI, Art,Tech.suites/Cafe. & Admin windows
Mathews H.S.	Mathews	'1939	'72	1st	9-12	, 393	, 400	At	-1-	Lacking	
Matoaca H.S.	Chesterfield	'1963	'70,'78,'82	1st	9-12	, 683	, 820	Under		Good	
Mauzy H.S.	Norfolk	'1911	'86	1st	9-12	,1760	,1800	At		Excellent	84 years old/4 story building
Perry McCuer H.S.	Buena Vista	'1923	'48,'54,'85	1st	9-12	, 343	, 400	Under	-5-	Lacking	
McLean H.S.	Fairfax	'1955	'56,'65,'68,'79	1st	9-12	,1380	,1800	At		Lacking	1955 facade/Old cafeteria now library
Meadowbrook H.S.	Chesterfield	'1963	'73,'80,'87	1st	9-12	,1472	,1450	At	-8-	Good	
Mecklenburg H.S.	Newport News	'1970		1st	9-12	,2100	,1800	Over	-4-	Excellent	Lacking closets,dept.off.,multipurpoc rms.
Middlesex H.S.	Middlesex	'1949	'62,'75	1st	9-12	, 384	, 500	Under		Lacking	Poor design, some areas elem.design
Middleham H.S.	Chesterfield	'1984	'87,'88	2nd	9-12	,1370	,1750	Under		Lacking +	
Monacan H.S.	Chesterfield	'1979	'80,'81,'88	1st	9-12	,1630	,1750	Under	-2-	Good	
James Monroe H.S.	Fredericksburg	'1954	'60,'83	1st	8-12	, 720	, 980	Under	-1-	Good	Library/Media Center
William Monroe H.S.	Greene	'1962	'68,'81,'86,'94	2nd	9-12	, 560	, 560	At	-4-	Good	
Mount Vernon H.S.	Fairfax	'1960	'73	1st	9-12	,1442	,1600	At		Excellent	
Nandua H.S.	Accomack	'1983		1st	9-12	, 650	, 700	At		Excellent	An elevator/Solar Panels
Nansemond River H.S.	Suffolk	'1990		1st	9-12	,1435	,1500	Under		Excellent	
Narrows H.S.	Giles	'1961	'82 (w/Lroom)	2nd	8-12	, 367	, 600	At	-1-	Lacking	Well maintained due to staff efforts
Nelson Co. H.S.	Nelson	'1956	'75,'79	1st	9-12	, 675	, 700	At		Lacking	More space needed/Gym too small
New Kent H.S.	New Kent	'1987		2nd	9-12	, 632	, 600	Over		Adequate	No storage space!!!
I.C. Norcom H.S.	Portsmouth	'1953	'60,'68,'69	2nd	9-12	,1356	,1200	Over		Lacking	Not handicapped accessible/Not accommodating
North Stafford H.S.	Stafford	'1981	'90,'94 (all renovations)	1st	9-12	,1551	,1850	Under		Good	Commons & classroom well-designed/Halls poor
Northampton H.S.	Northampton	'1954	'73,'74,'78	2nd	9-12	, 779	, 600	Over	-4-	Excellent	Windowless and open-classroom design poor
Northside H.S.	Roanoke Co.	'1961	'64,'87,'94	1st	9-12	,1072	,1050	Over	-2-	Good	Comp.lab/location/New gym for 1996
Northumberland H.S.	Northumberland	'1936	'56,'58,'87,'88	1st	9-12	, 462	, 450	Over		Adequate	Gym separate from main building
Northwood H.S.	Smyth	'1957	'86	1st	9-12	, 349	, 500	Under		Lacking	
Norview H.S.	Norfolk	'1953		2nd	9-12	,1790	,1400	Over	-9-	Lacking	Physical limits of building hinder instruction
Nottoway H.S.	Nottoway	'1950	'70 (renovation)	1st	9-12	, 700	, 700	Over	-6-	Lacking	New building to open Sept. 1995
Oakton H.S.	Fairfax	'1969	'92	2nd	9-12	,2100	,2599	At		Good	Planetarium
Ocean Lakes H.S.	Virginia Beach	'1994		1st	9-12	,1482	,2300	Under		Excellent	Facility great/Site average to poor
Orange Co. H.S.	Orange	'1952	'68,'94-95	1st	9-12	,1150	,1000	Over	-2-	Lacking	Facilities inadequate in all spaces
Osborn H.S.	Manassas	'1953	'76,'78,'83,'84,'88	1st	10-12	, 967	,1350	At		Adequate	2 gyms/2 cafeterias/Breezeway
Osborn Park H.S.	Prince William	'1975		2nd	9-12	,1450	,2512	Under		Adequate	Open-classroom design(doesn't work)
Page Co. H.S.	Page	'1962	'82,'93	1st	8-12	, 720	, 750	At	-2-	Adequate	Standard 1960 construction
Park View H.S.	Loudoun	'1976		1st	9-12	,1305	,1500	Under		Excellent	
Park View Sr. H.S.	Mecklenburg	'1955	'77,'81	2nd	9-12	, 750	, 500	Over		Lacking	
Patrick Co. H.S.	Patrick	'1971	'76,'94	1st	8-12	,1015	,1300	Under		Good	Main office in rear of building
Petersburg H.S.	Petersburg	'1974		2nd	9-12	,1515	,1800	Under		Good	Sports complex in developmental stages
Phoebus H.S.	Hampton	'1975		1st	9-12	,1392	,1392	At		Good	Modified open-space design
Pocahontas H.S.	Tazewell	'1954	'72,'94	2nd	7-12	, 272	, 500	Under		Good	Well-maintained/Lacks elevator

Poquoson H.S.	Poquoson	'1972	'77	2nd	9-12	, 816	, 811	At		Adequate	
Potomac Sr. H.S.	Prince William	'1979		1st	9-12	, 1394	, 1750	Under		Good	Formally open-space design, modified
Pound H.S.	Wise	'1952	'62	1st	7-12	, 513	, 550	Under		Good	
Powell Valley H.S.	Wise	'1959		1st	9-12	, 680	, 650-700	At		Adequate	In need of additional facilities
Powhatan H.S.	Powhatan	'1971	'72, '74, '80, '94	2nd	8-12	, 888	, 750	Under		Lacking	Building is in need of renovation
Prince Edward Co. H.S.	Prince Edward	'1954	'78, '80	2nd	9-12	, 730	, 650	Over		Lacking	Vocational Centre/Auditorium
Prince George H.S.	Prince George	'1977	'92	2nd	9-12	, 1480	, 1350	Over	-3-	Excellent	4 wings/One story/Large Commons
Princess Anne H.S.	Virginia Beach	'1953	'69, '88, '94-95	1st	9-12	, 1961	, 1800	Over	-18-	Adequate	Design for rural-now very urban area
Pulaski Co. H.S.	Pulaski	'1974	'75, '77, '85, '89, '91, '93, '94	1st	9-12	, 1585	, 2000	Under		Excellent	Circular Pods/No windows/formally open-space
Radford H.S.	Radford	'1928 **	'58, '70, '94	3rd	9-12	, 457	, 700	Under		Good	
Randolph-Henry H.S.	Charlotte	'1939	'58, '77, '94	1st	9-12	, 610	, 650	At		Adequate	Campus-stye/Well-maintained
Rappahannock H.S.	Richmond Co.	'1962	'65, '80, '86	1st	9-12	, 367	, 450	Under		Good	
Rappahannock Co. H.S.	Rappahannock	'1959	'65, '87	2nd	8-12	, 375	, 400	At		Lacking	
Richlands H.S.	Tazewell	'1951	'69, '76, '90, '92, '94	3rd	9-12	, 1155	, 1100	Over	-3-	Excellent	Attitudes toward improving aesthetic prevelent
Riverheads H.S.	Augusta	'1962	'76	1st	9-12	, 472	, 550	At -		Adequate	Traditional 1960's school
Robinson Secondary School	Fairfax	'1971	'94-95	1st	7-12	, 3750	, 3800-4000	At	-26-	Adequate	6 Subschools/Theatre in the Round
Rockbridge Co. H.S.	Rockbridge	'1992		1st	9-12	, 1050	, 1150	At		Excellent	
Rocky Gap H.S.	Bland	'1955	'91	2nd	8-12	, 202	, 300	Under		Excellent	
Rural Retreat H.S.	Wythe	'1961	'80	2nd	8-12	, 462	, 460	At		Adequate	Attached & share facilities w/ Elem.
Rustburg H.S.	Campbell	'1953	'58, '66, '80	2nd	9-12	, 750	, 1300	Under		Good	Graphics
Rye Cove H.S.	Scott	'1955		2nd	8-12	, 397	, 450	At		Adequate	Needs some renovations
Saint Paul H.S.	Wise	'1973		1st	8-12	, 230	, 250	At		Adequate	
Salem H.S.	Salem	'1977	'87	1st	9-12	, 1140	, 1240	At		Excellent	Energy efficient/Easy to modify/Commons design
Salem H.S.	Virginia Beach	'1989		1st	9-12	, 2489	, 2200	Over	-11-	Adequate	Commons/Trophy case/Lecture hall
Shawsville H.S. & M.S.	Montgomery	'1934	'63, '69, '75, '81, '86	1st	6-12	, 561	, 600	At	-2-	Lacking	Campus divided by main thoroughfare
Sherando H.S.	Frederick	'1993		1st	9-12	, 1190	, 1250	Under		Excellent	Architectural award-winning school
Oscar F. Smith H.S.	Chesapeake	'1994		2nd	9-12	, 1600	, 1750	Under		Excellent	Designed for technology
Smithfield H.S.	Isle of Wight	'1980	'95	2nd	9-12	, 772	, 1100	Under		Good	One-story design
South Lakes H.S.	Fairfax	'1977		1st	9-12	, 1777	, 2000	At		Good	Subschools/4 cafe./Open-class now w/ walls
Southampton H.S.	Southampton	'1993		2nd	9-12	, 784	, 850	Under		Excellent	Innovative use of technology for building
Spotswood H.S.	Rockingham	'1980		1st	9-12	, 1036	, 950	Over	-7-	Lacking	
Spotsylvania H.S.	Spotsylvania	'1993		3rd	9-12	, 1364	, 1600-1700	Under		Excellent	Telephone in all classrooms/Entirely networked
Stafford Sr. H.S.	Stafford	'1974		1st	9-12	, 1560	, 1800	Under		Adequate	
Staunton River H.S.	Hedford	'1963	'65, '88	1st	9-12	, 1040	, 850	Over	-5-	Lacking	New cafeteria under construction
Strasburg H.S.	Shenandoah	'1959	'86, '93	2nd	9-12	, 438	, 600	Under		Good	Inter-County Classroom, distance learning
J.F.B. Stuart H.S.	Fairfax	'1959	'67, '77, '86	1st	9-12	, 1283	, 1300	At	-3-	Adequate	
Stuarts Draft H.S.	Augusta	'1977		1st	9-12	, 684	, 800	At		Excellent	Well-maintained
Surry Co. H.S.	Surry	'1975	'83	1st	7-12	, 575	, 400	Over		Excellent	
Sussex Central H.S.	Sussex	'1951		1st	9-12	, 433	, 433	At		Adequate	
Tabb H.S.	York	'1972	'92	1st	9-12	, 1519	, 1100	Over	-4-	Good	Exterior-fine/Interior requires much repair
Talbwood H.S.	Virginia Beach	'1993		1st	9-12	, 2300	, 2500	At		Excellent	Commons/Circular courtyard/Wide halls
Tazewell H.S.	Tazewell	'1954	'75, '92, '94	3rd	9-12	, 800	, 900	At		Adequate	Auditorium seats 1030
J.R. Tucker H.S.	Henrico	'1962	'68, '94-95	1st	9-12	, 1350	, 2000	Under		Good	Campus-style design
Tunstall H.S.	Pittsylvania	'1964	'91	2nd	8-12	, 909	, 1000	At	-6-	Lacking	
Twin Springs H.S.	Scott	'1969		1st	8-12	, 372	, 450	Under		Good	
Varina H.S.	Henrico	'1960	'95	1st	9-12	, 1400	, 1400	At	-2-	Good	Campus-style school, 43 acres
Virginia H.S.	Bristol	'1955	'65, '73, '80, '81, '82	3rd	9-12	, 830	, 1200	Under		Good	
Virginia School for the Deaf & Blind	Staunton	'1959		2nd	6-12	, 63	, 200	Under		Good	Visual fire alarm system
Wakefield H.S.	Arlington	'1952	'53, '64, '74, '78	1st	9-12	, 1614	, 1700	At		Good	
Thomas Walker H.S.	Lee	'1940	'60, '70, '90	2nd	8-12	, 390	, 500	Under		Excellent	Additions conform to original 1940's style
Warren Co. H.S.	Warren	'1939	'76	1st	9-12	, 1258	, 1000	Over	-5-	Lacking	Facade/Cupola/Columns/Steps
Warwick H.S.	Newport News	'1923	'69	1st	9-12	, 1666	, 1620	At	-2-	Good	Art wing/Horticulture area
Washington & Lee H.S.	Westmoreland	'1930	'59, '67, '70, '84	1st	9-12	, 500	, 500	At		Adequate	Facade is traditional, tall, & imposing

Booker T. Washington H.S.	Norfolk	'1974		2nd	9-12	,1370	,1700	Under		Excellent	Classrooms & cafeteria surround 2 courtyards
George Washington H.S.	Danville	'1956	'71,'93	1st	10-12	,1734	,2300	Under		Adequate	School's front entrance
Washington-Lee H.S.	Arlington	'1924 ***	'32,'41,'52,'64,'70,'75,'82	1st	9-12	,1270	,1500	Under		Adequate	School's facade is unique & classical
Waynesboro H.S.	Waynesboro	'1937	'57,'75	2nd	9-12	,734	,800	At		Good	Classrooms-excellent/Athletic fac.-good
West Point H.S.	West Point	'1966	'71,'89	2nd	8-12	,252	,350	Under	-1-	Good	
West Potomac H.S.	Fairfax	'1960	'85	1st	9-12	,1460	,2000	Under		Adequate	Fine Arts bldg/Campus-style design
West Springfield H.S.	Fairfax	'1965	'92	1st	9-12	,2073	,2100	Over	-4-	Adequate	Network uplink with TJHS for Sci/Tech
Western Albemarle H.S.	Albemarle	'1977		1st	9-12	,1143	,1146	Over	-8-	Lacking	
Western Branch H.S.	Chesapeake	'1972	'87	1st	9-12	,1680	,1700	Over	-15-	Good	
Whitewood H.S.	Buchanan	'1986		2nd	8-12	,200	,450	Under		Excellent	Innovative design on slope/Murals
T.C. Williams H.S.	Alexandria	'1965	'77,'79,'83	1st	10-12	,1886	,2100	Over		Good	Auditorium/Planetarium
Wilson Memorial H.S.	Augusta	'1972		1st	9-12	,545	,750	Under		Excellent	
Woodrow Wilson H.S.	Portsmouth	'1971		2nd	9-12	,1685	,2000	At		Good	Open-classroom design
Windsor M.S. & H.S.	Isle of Wight	'1994		3rd	6-12	,846	,850	At		Excellent	Shared facilities
James Wood H.S.	Frederick	'1980	'94	2nd	9-12	,1382	,1250	Over	-6-	Excellent	
Woodbridge Sr. H.S.	Prince William	'1974	'80,'90	2nd	9-12	,2956	,2700	Over	-1-	Good	Built as open-space design-walls erected
W.T. Woodson H.S.	Fairfax	'1963		1st	9-12	,1620	,1630	At		Lacking	
George Wythe H.S. (Wythville)	Wythe	'1951	'86	1st	8-12	,610	,850	Under	-2-	Excellent	
George Wythe H.S. (Richmond)	Richmond City	'1960	'83 (windows)	2nd	9-12	,1130	,1200	At		Good	
York Co. H.S.	York	'1954		1st	9-12	,1165	,1200	At		Adequate	
Yorktown H.S.	Arlington	'1950	'60,'68,'91	1st	9-12	,1050	,1050	At		Adequate	Pretty campus/Originally elem. school
Mount Rogers Combined School	Grayson	'1933	'53	1st	K-12	,67	,175-200	Under		Adequate	
Tangier Combined School	Accomack	'1932	'69 (renovation)	2nd	K-12	,115	,180	Under		Lacking	

*James River H.S. will not have a 12th-grade class housed in the building until the 1995-96 school year.

**Radford H.S. existing building was originally constructed in 1928. A fire in 1970 destroyed the 1928 portion of the building, but the 1970 addition was built on top of the original foundation and connected to the 1958 addition.

***Washington-Lee H.S. existing building was originally constructed in 1924. Most of this portion demolished during 1952 addition, some foundation and portions exist in part.

HEADER INFORMATION:

School Name:	Public school buildings which housed a formal high school program during the 1994-95 school year.
Date:	Refers to the construction date of the school building, (almost always the date the school doors opened for student occupation).
Additions:	Any MAJOR Additions and/or renovations to the school building.
# of School:	1st school to be named current name, could be 2nd, 3rd, 4th, or 5th. (if two schools consolidate and have new name - this indicates 1st _____ High School).
Grades:	Grade-levels of students housed in the school building.
Enrolled:	Student enrollment as of September 30, 1994.
Fac.Max:	Defined as the maximum amount of students that could be housed in the high school facility according to the principal with regard to building design and educational programs.
<=> Cap.:	OVER - "We are over-capacity."; AT - "We are at-capacity."; UNDER - "We are under-capacity.", with regard to the principals assessment of the school facility maximum enrollment
M.Units:	Temporary classrooms, Mobile Units, Trailers, any temporary, or semi-permanent structure used for educational purposes on the school site, (not to include buses or simulators).
Rating:	Given the school building's age, condition, design, and how it serves the students, staff, & community; rate the facility by choosing one of the following descriptors: A) EXCELLENT B) GOOD C) ADEQUATE D) LACKING E) UNFIT

Noteworthy Architectural, or Educational Features:

Features of the high school building being surveyed that "STAND OUT" in comparison to other known high school buildings.

APPENDIX F

Glossary of Architectural Terms

Arcade--A series of arches supported by columns or piers; a building or part of a building with a series of arches; a roofed passageway, especially one with shops on either side.

Architrave--The lower part of a classical entablature, resting directly on the capital of a column; the molding around a window or door.

Baluster--An upright, often vase-shaped, support for a rail.

Balustrade--A series of balusters with a rail.

Band Windows--A horizontal series of uniform windows that appear to have little or now separation between them.

Bed Molding--The lower most element of the cornice.

Capital--The top decorated member of a column or pilaster crowning the shaft and supporting the entablature.

Chevron--A V-shaped decoration generally used as a continuous molding.

Clapboard--A long, narrow board with one edge thicker than the other, overlapped to cover the outer walls of frame structures; also known as weatherboard.

Classical--Pertaining to the architecture of ancient Greece and Rome.

Clerestory--The upper part of the nave, transepts and choir of a church containing windows; also, any similar windowed wall or construction used for light and ventilation.

Corinthian Order--The most ornate of the classical Greek orders of architecture, characterized by slender fluted column with a bell-shaped capital decorated with stylized acanthus leaves; variations of this order were extensively used by the Romans.

Cornice--In classical architecture, the upper, projecting ornamental molding along the top of the building or wall.

Coronia--The top portion of the cornice.

Cupola--A comparable smaller structure atop a roof or dome, sometimes serving as a belfry, light tower or lookout.

Dentil--Tooth-like molding, usually below the modillion or fascia within the cornice.

Doric Order--The oldest and simplest of the classical Greek orders, characterized by heavy fluted columns with no base, plain saucer-shaped capitals and a bold simple cornice.

Dormer--A vertically set window on a sloping roof; also, the roofed structure housing such a window.

Double Hung Sash Window--A window with two sash, one above the other, arranged to slide vertically past each other.

Egg-and-Dart--A decorative molding comprised of alternating egg-shaped and dart-shaped motifs.

End Chimney--A chimney located at the side wall or gable end of a building.

Entablature--In classical architecture, the part of a structure between the column capital and the roof or pediment; comprised of the architrave, frieze and cornice.

Fascia--The band just below the corona and above the dentils with the cornice.

Fenestration--The arrangement of windows in a wall.

Festoon--A carved, modeled or painted garland of fruit, flowers or leaves suspended between two points in a curve.

Fluted--Having regularly spaced vertical, parallel grooves or *flutes*, as on the shaft of a column, pilaster or other surface.

Fret--A Greek pattern, much like a squared-snail shell; used in a stringcourse.

Frieze--The part of the entablature between the architrave and cornice.

Gambrel--A ridged roof with two slopes on each side, the lower slope having the steeper pitch.

Hipped Roof--A roof with four uniformly pitched sides.

Ionic Order--An order of classical Greek architecture, characterized by a capital with two opposed volutes.

Lantern--A structure built on the top of a roof with open or windowed walls.

Mansard Roof--A roof that has two slopes on all four sides.

Masonry--Wall construction of such materials as stone, brick and adobe.

Medallion--An object resembling a large medal or coin.

Metope--One of the square spaces, either decorated or plain, between triglyphs in the Doric frieze.

Modillion--An ornamental bracket or console used in series under the cornice of the Corinthian and other orders.

Molding--A continuous decorative band that is either carved into or applied to a surface.

Mullion--A vertical division between lights of windows screens or doors.

Order--Any of several specific styles of classical and Renaissance architecture characterized by the type of column used (e.g., Doric, Ionic, Corinthian, Composite, Tuscan).

Palladian Window--A tripartite window opening with a large arched central light and flanking rectangular side lights.

Pediment--A wide, low-pitched gable surmounting the facade of a building in a classical style; also, any similar triangular crowning element used over doors, windows and niches.

Pilaster--A shallow pier attached to a wall; often decorated to resemble a classical column.

Plinth--The base of a pedestal, column or statue; a continuous course of stones supporting a wall.

Portico--A major porch, usually covered with a pedimented roof supported by classical columns.

Quion--Units of stone or brick used to accentuate the corners of a building.

Shaft--The main part of a column between the base and capital.

Stringcourse--A narrow, continuous ornamental band set in the face of a building as a design; also known as a *cordon*.

Terra-cotta--A fine grained, brown-red or glazed, fired used for roof tiles and decoration; literally, cooked earth.

Triglyph--A structural member of a Doric frieze, separating two consecutive metopes, and consisting typically of a rectangular block with vertical lines formed by two grooves or glyphs.

Volute--A spiral, scroll-like ornament.

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