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FOREWORD

Text to be written.

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Introduction  
Goals

Planning Strategies

The character of the buildings and open spaces provide Washington University with what is considered today to be one of the most beautiful campuses in the United States. With the ingenious 100 year old “Block Plan,” Cope and Stewardson established an architectural framework for the Washington University Campus which has maintained its integrity and beauty remarkably well over time. Students, faculty, staff, visitors and guests enjoy a pedestrian-friendly world made up of pleasant “Neo-Gothic” buildings and lawns with mature shade trees on a human scale, conducive to learning for individuals as members of the University community.

Even if the original intentions of a “fit” between the idea of education and the Gothic style are long gone, today’s campus life takes place within an historic structure which everybody agrees is remarkably pleasant, enlightening and inspiring.

The goal of the following study and recommendations for future planning is to preserve the beauty of the past, learn from it, and project it onto a future which carries on Washington University’s architectural tradition.

Within the generous spirit of Cope & Stewardson, who proposed in the first decade of the 20<sup>th</sup> century a matrix of buildings and open spaces distinctive enough to create a “memorable place” and flexible enough to allow it to respond to an unforeseeable future, this study investigates the important architectural principles which make the “place” and discusses the validity and usefulness of applying and interpreting

these generic principles for future planning strategies.

Not all periods in the University’s history were sympathetic to the idea of continuity with the past, but chose disruption instead. It is fair to say, that most of the efforts to depart from the original architectural principles unfortunately seem not very convincing. It is this observation which suggests that it might be worthwhile to search for strategies of future development of the Campus which will improve and expand the original plan and its qualities.

Scope of Study

The scope of the report is to analyze the architecture of the Main Hilltop Campus and East Hilltop Campus and make design recommendations for future development in these areas, based on the design principles developed by Cope & Stewardson and their evolution over the last one hundred years.

The report is structured in two parts:

Part I

This section consists of an architectural analysis of the campus and discussion of the emerging design strategies.

Part II

The second part deals with design recommendations and guidelines for sites available for future building to meet the University’s space needs over the next twenty-five years. The intent of these goals are to provide guidance for the future growth of the Campus within the the spirit of Cope & Stewardson’s original intention.



ANALYSIS AND DESIGN STRATEGY



Introduction  
Campus Overview

Location of Main Hilltop Campus and East Hilltop Campus

The Campus of Washington University is located at the western edge of the territory of the City of St. Louis. Most of its land is situated in the County of St. Louis.

Since its founding in 1899, the Campus has developed in a linear pattern to the west of Brookings Hall, which served as the Administration Building for the 1903 World’s Fair. Forest Park, the actual site of the World’s Fair, provides a green buffer between the urban street grid of St. Louis proper (King’s Highway) and the entrance court of Washington University. The Campus was integrated into the suburb of University City and the City of Clayton when the radial sprawl of St. Louis reached the urban periphery. The Main Campus of today with its academic buildings and dormitories is located in a “city block” between Forest Park Parkway, Big Bend Boulevard, Forsythe Boulevard, and Skinker Boulevard. The expansion to the south of the Campus in the 1960s, to meet the demand for new dormitories, occurred across Forsythe Boulevard at the south-west corner of the Campus, (South - 40).



“Town and Gown”

Washington University as a campus is fully integrated into the suburban context of University City and in close proximity to St. Louis to the east and Clayton to the south and west. Housing and urban amenities within walking distance and bus connections to surrounding areas provide an enriched student experience and interaction between the campus and community. Unlike isolated campuses with an exclusive student population, the integration of the Washington University Campus within the larger urban community surrounding it provides a benefit for students as for well as for the adjacent population.

Related Properties

The Washington University Medical School is located at the opposite side of Forest Park, along King’s Highway.

The following sites in close proximity to the main Washington University Campus serve as potential land reserves for future expansion:

- Fontbonne College
- CBC High School
- West Campus
- Parkview Properties







Historical Development  
1900-1920

The campus of Washington University in St. Louis erected its first group of ten buildings in the years between 1900 and 1902. The site arrangement of these individual buildings followed a “block plan” submitted in a winning competition scheme by the prominent Philadelphia architects Cope & Stewardson in the year 1899.

During the building boom in higher education in the late 1880’s, which caused a great need for expansion of universities throughout the United States, the scholastic architecture of Oxford and Cambridge Universities in England influenced the design of colleges in America. The model of the Oxford system served Cope & Stewardson and other contemporary architects well in the planning of new campuses. The Oxford model had several applicable characteristics: clearly defined boundaries between “town” and “gown,” arrangement of individual buildings (houses, halls and chapels) into quadrangles, a tradition of linking separate structures, and a well-defined spatial hierarchy of homes, community buildings, entrance towers, gateways, arcades, loggias and passageways. Each of these elements is evident in Cope & Stewardson’s initial plan for Washington University.

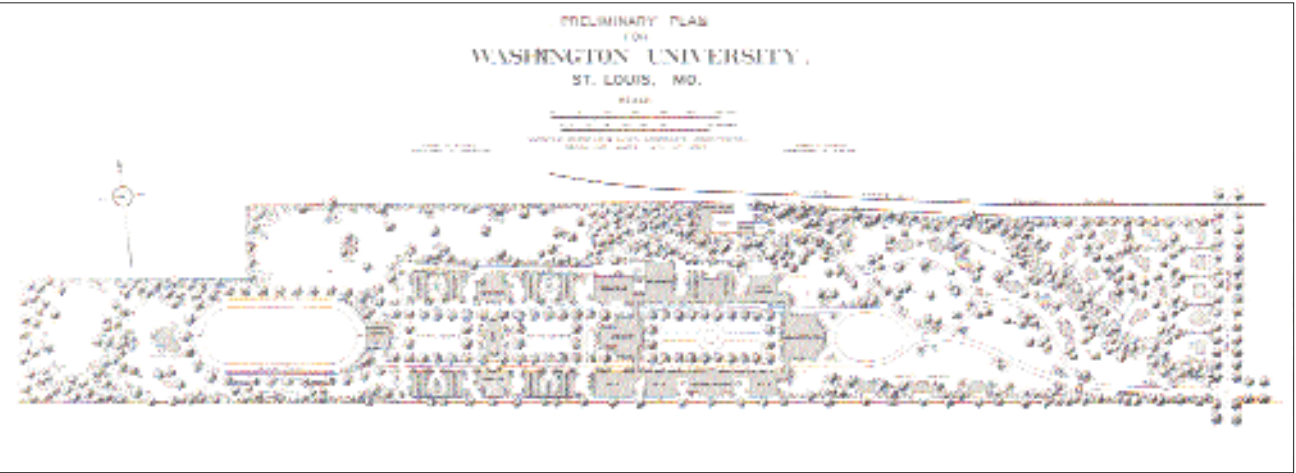
The Cope & Stewardson Block Plan

The trustees of Washington University decided in the early 1890’s to move out of the overcrowded downtown St. Louis area and purchase land west of the city. The firm Olmstead, Olmstead & Eliot of Brookline, Massachusetts was asked to choose a site and make recommendations for the feasibility of a new university campus. Two preliminary plans resulted and provided the base document for the competition, which followed in 1899.

Washington University invited local architects from St. Louis and six nationally recognized architectural firms to participate in the competition for the new campus. Cope & Stewardson won the competition with a proposal suggesting a “Collegiate-Gothic” solution. Their proposal clearly distinguished itself from the other submission schemes – by Carrere & Hastings, Eames & Young, Cass Gilbert, McKim, Mead & White, and Shepley, Rutan & Coolidge – that instead suggested block plans in the “classical” taste of the time.

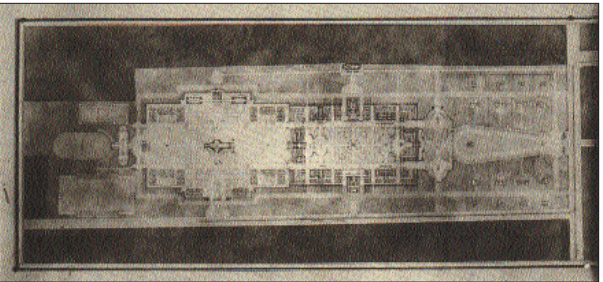


Borough of Oxford, 1958, showing various colleges in relation to streets, shops, and private property

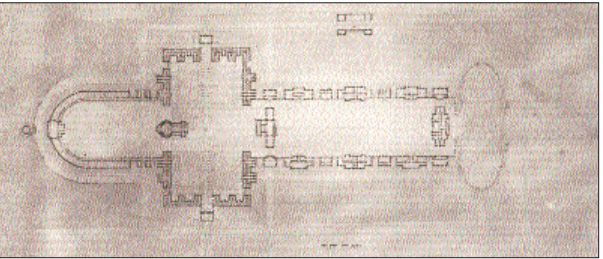


Preliminary Plan for Washington University by Olmstead

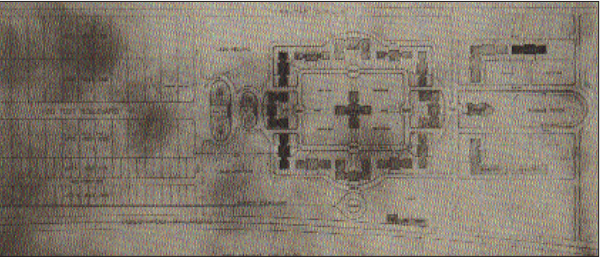
ANALYSIS AND DESIGN STRATEGY



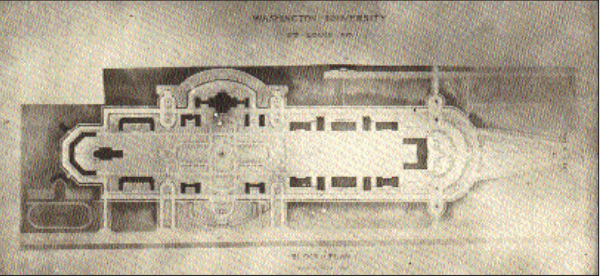
Cass Gilbert



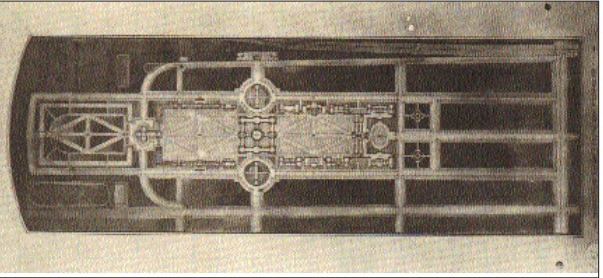
McKim Mead & White



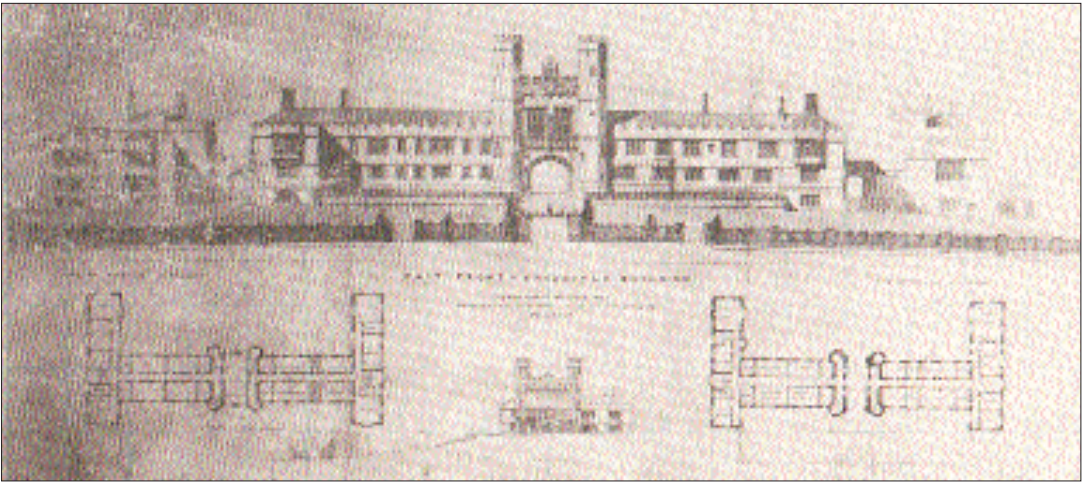
Eames and Young



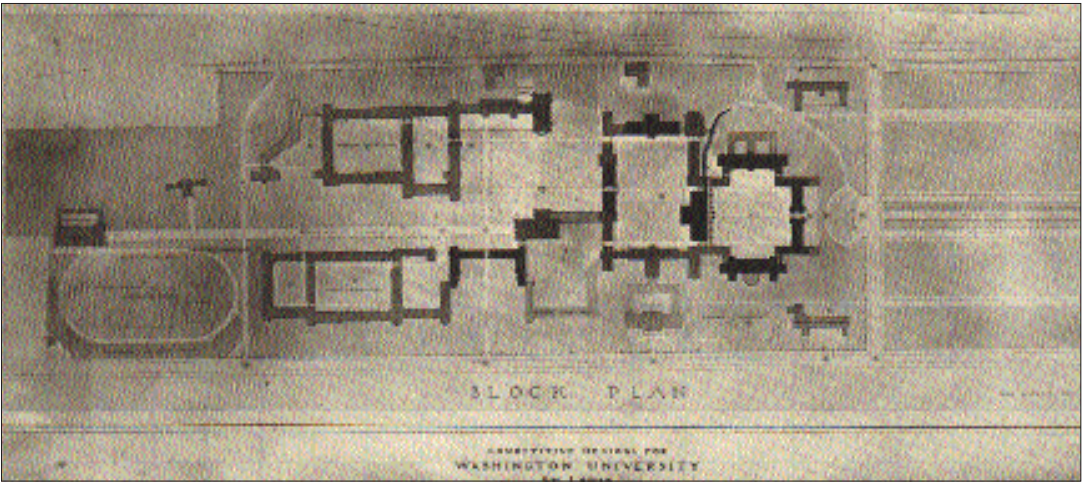
Carrere and Hastings



Shepley, Rutan and Coolidge



Elevation of Brookings Building



Block Plan

Winning Competition Entry by Cope & Stewardson

Block Plans by Various Competition Participants

Historical Development  
1900-1920

One of the jury members, Clipson Sturgis, made the following remarks with regard to the judging of the competition:

“...if there was one thing more than another which determined the jury in favor of the design eventually selected, it was the evidence of thought and study which showed in the block plan, with its changing and yet associated axes following the marked contours of the land, and the intelligent understanding of the needs of each group of buildings; the accessible, dignified, and formal arrangement of the academic group, the domestic character of the dormitories, and finally, the detailed study of the needs of each building.”

Cope & Stewardson’s plan would allow changes without destruction of the underlying concept, whereas all the other competition plans were rigid in their final execution. The “classical” schemes would require more than the subscribed buildings to be completed to define their principal spaces. The Cope & Stewardson plan was conceived in such a manner that it would appear complete at any time after the erection of the initial buildings.

The attitude dictated by the Cope & Stewardson block plan was one which could be enriched by variations and contributions by other architects over time.



A number of comments by Cope & Stewardson explain the competition scheme and shed some light on their thoughts:

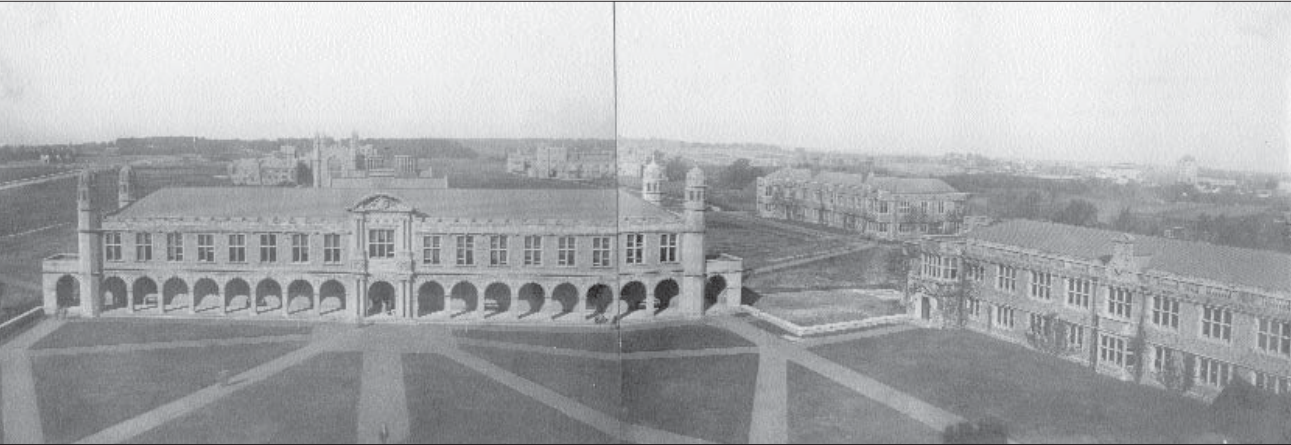
Competition Brief

“Five considerations were presented to justify the plan and designs:

- “1st. To make a design in harmony with the striking character of the site but so flexible in plan as to provide for the freest possible growth without confusion or revolution.
- “2nd. To suggest nothing which cannot be appropriately carried out, either in an economical or lavish manner, as funds may be provided.
- “3rd. To individualize the separate buildings so as to worthily commemorate their donors but to so unite these that they may form one whole and avoid the danger of discordant contrasts.
- “4th. To meet, as far as possible, every practical consideration, which the experience of the University has determined.
- “5th. To choose a style of architecture which shall not only fulfill easily the above conditions but shall satisfy the aesthetic ideal of a University.”

Choice of Style

“Classic Architecture expresses completion, finality, perfection: Gothic Architecture expresses aspiration, growth, development. To the beholder the Classic says: This is the sum – here is the perfection – Do not aspire further. The Gothic says to him: Reach higher – Spread outward and upward – There are no limitations.



1

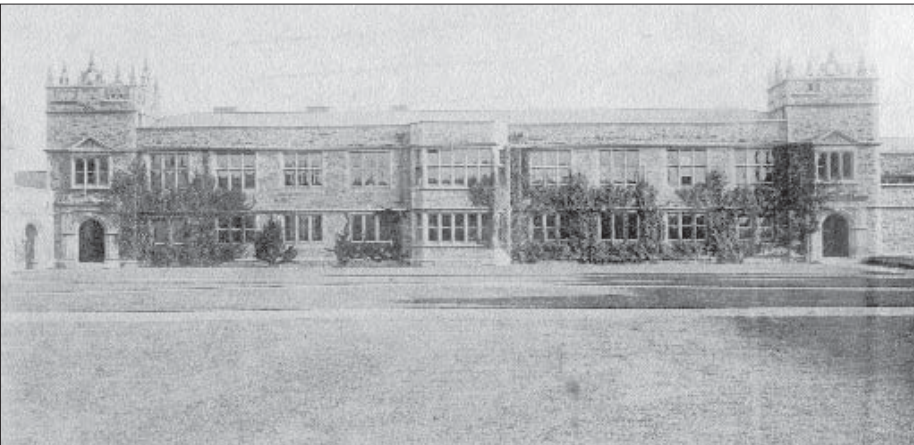
“Before proceeding further, we wish to explain the architecture of the various groups and our reasons for suggesting a slight variety of style. Throughout, the style is, broadly speaking, Academic Gothic of the Fifteenth and Sixteenth Centuries, but some of the buildings represent the early pure type and others the modified type, called ‘Jacobean,’ in which certain details of the Renaissance were introduced.

“The Brookings Building is in the earlier pure Academic Gothic, to express the key-note of the whole and to harmonize with the purposes which the building is to serve, letters having been the field of early University work. The laboratories and scientific buildings, as better expressed their purpose, are more formal and direct in composition and of the latter style. For the Library we should propose something midway between the two. The Dormitories and other buildings beyond the Academic courts, in the less-formal part of the group, we should treat in the earlier period with a greater number of gables and more variety of outline following the more domestic type of the style.”

Block Plan

“The Block Plan recognizes first, the great central axis on the line of Lindell and carries this, as the dominant motive, into the first quadrangle... Beyond this first court, therefore, the plan yields to other conditions of the site and develops a variety of quadrangles, outlook and vistas.

“The system of building around true quadrangles or courts has been too little practiced and is but just beginning to be understood or appreciated in this country and the failure to adopt it as the fundamental idea in our American Universities has resulted in the dissipation of good architectural effect and a senseless waste of space and money. It is worth while (sic) to plan for many quadrangles for each will develop a character of its own. These are the out-door rooms, with the sky for the ceiling, which, when the sides are once completed, can never be disfigured by later additions.



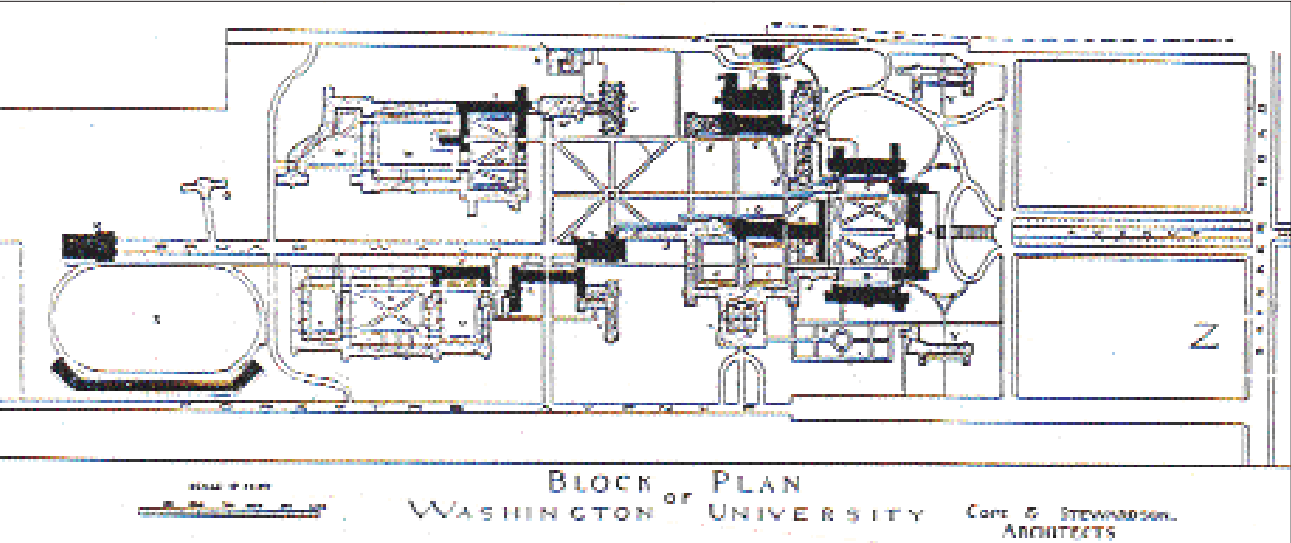
2

- 1 Cope & Stewardson Main Quadrangle
- 2 Busch Hall

“The key is, we believe, to connect these [new buildings] by minor lines of building so as to enclose each quadrangle. A courtyard, or quad, with many openings from it to the outer world, misses most of its charm. In circulation, we have tried to avoid, so far as possible, macadam drives as means of communication between the buildings we have been guided by the universal experience of universities and have shown only the most direct paths.”

Flexibility of the Block Plan

The modest concern for order and variety extends to the description of the flexibility of the plan, sagely beginning “Whatever the plans or prospects of any University for future development may be today, they are sure to be modified as time goes on. The principles of axial promenades and courtyards are immediately noted in the description.”



- |    |  |   |   |
|----|--|---|---|
| A  | University Hall – Administration                     | H | Ridgely Library and the Law School                              |
| B  | Busch Hall – Laboratory of Chemistry                 | I | McMillen Hall – Dormitory for Women                             |
| C1 | Cupples Hall – Civil Engineering and Architecture    | P | Extension of Mechanical and Electrical Engineering Laboratories |
| C2 | Cupples Hall – Mechanical and Electrical Engineering | R | David R. Francis Gymnasium                                      |
| E  | Power House  | S | Chapel  |
| F  | Liggett Hall – Men’s Dormitory                       |   |   |

Cope & Stewardson Block Plan – Original Buildings

Elevations

“They permit the greatest freedom in lighting. Windows may be larger or smaller at varying levels and intervals and not limited, as in Classic, by the formal spacing required by the Classical principles of composition.”

Economy

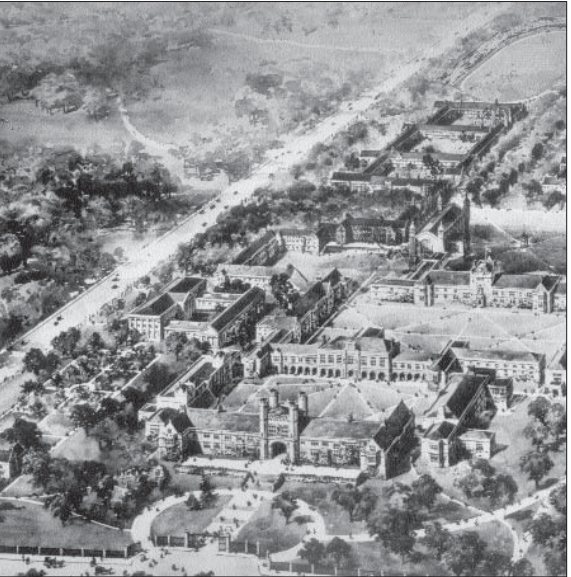
“It never wastes material in an unnecessary height of stories because its composition is not bound by the application for the Classical order.

“Its greater flexibility in planning, lighting, height of stories means less percentage of wasted space in circulation (halls, stairs, etc.).

“The Academic Gothic system of continuous lines of building around quadrangles saves a great deal in first cost and in administration by the facility which it affords for passage from the basement of one building to that of another.”

Materials

Having recommended stone for all buildings, Cope & Stewardson admit that brick might also be used instead; however, there is an admonition. “It is important, however, to decide at the start which it is to be, for any jumbling of the two in future would be apt to lead to unforeseen and unfortunate results. In the midst of a brick city we might prefer the brick, but in this particular site, rising, as the buildings will, out of the green of lawn and trees, their walls and towers hung here and there with ivy and creeper – our preference is for stone.”



Cope & Stewardson Competition Drawing

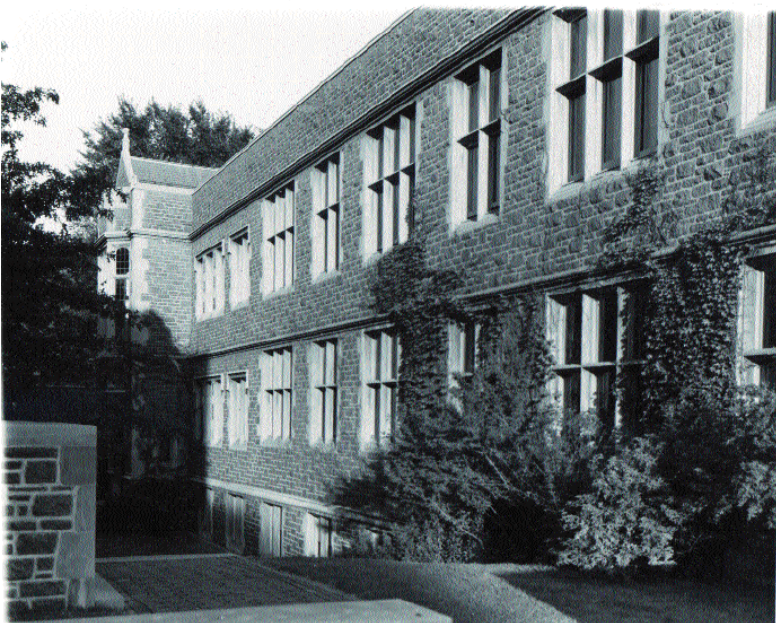


Historical Development  
1920-1935

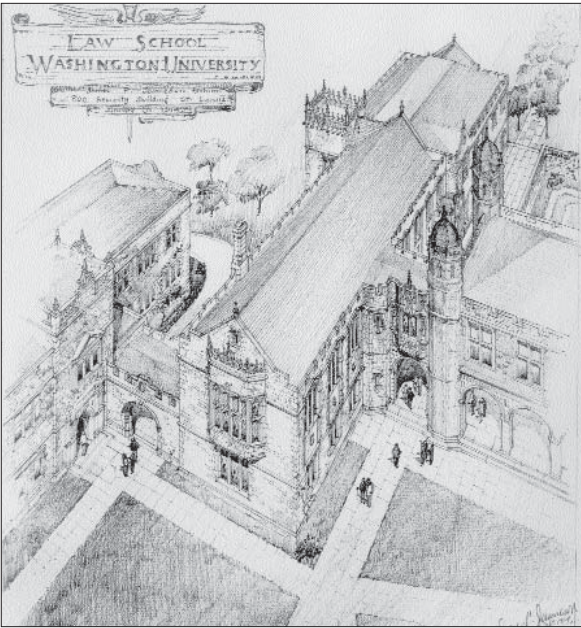
Cope & Stewardson remained the University's architects for its first thirteen buildings. Jamieson & Spearl began work at Washington University in 1921 as the successor firm to Cope & Stewardson and developed their Block Plan further.

In 1922 and 1923 Jamieson & Spearl added January Hall and Duncker Hall to complete the two western corners of the quadrangle closing the composition begun by Cope & Stewardson. After that date Jamieson & Spearl designed a series of buildings moving westwards from the quadrangle which were basically freestanding structures. These buildings maintained the center green and created walls of linear buildings on the north and south side of the campus.

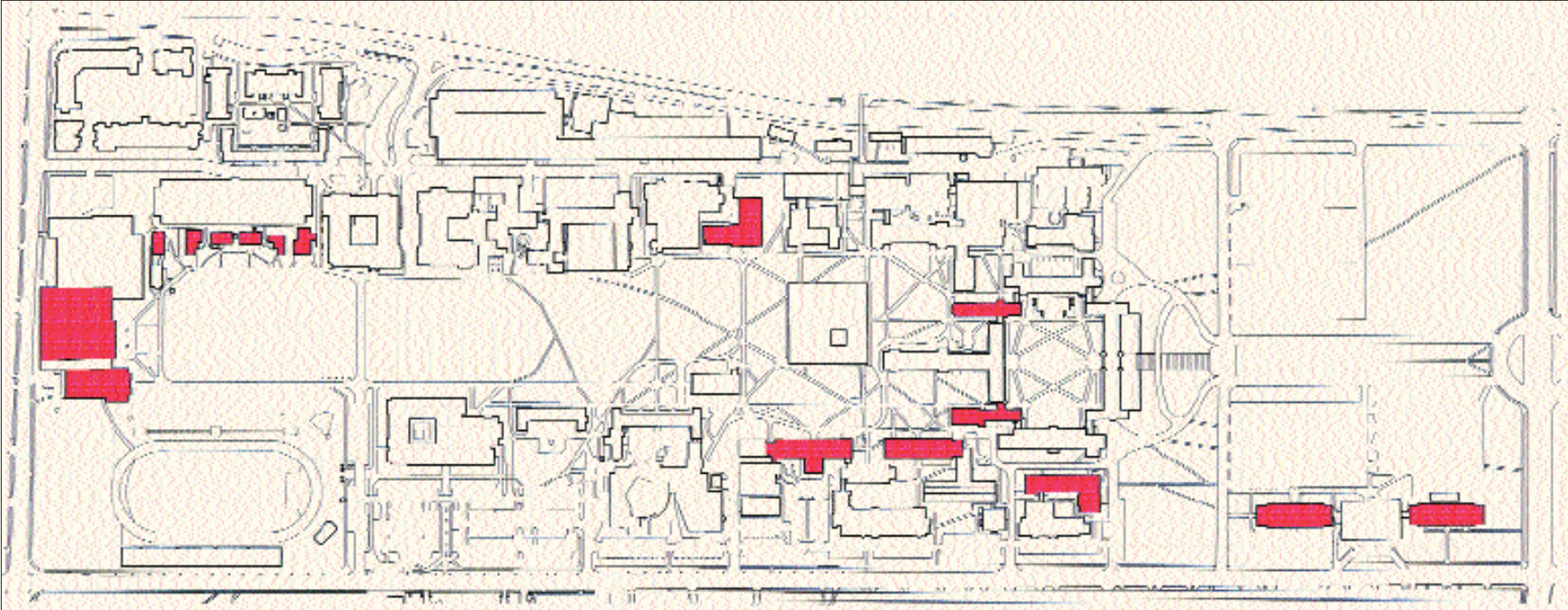
Cope & Stewardson's original idea of a "rich fabric" of integrated outdoor rooms was either ignored or misunderstood. There were no attempts to design "residual" spaces. Moreover, there was no desire to align the heights of the floors in order to link the freestanding buildings and achieve a greater overall cohesiveness, rather than a series of individual parts.



January Hall



January Hall



2. Buildings by Jamieson & Spearl

- |            |                  |          |                      |
|------------|------------------|----------|----------------------|
| 1. 1921    | Bixby Hall       | 7. 1925  | Wilson Pool          |
| 2. 1922    | Redstock Hall    | 8. 1926  | January Hall         |
| 3. 1923    | Women's Building | 9. 1927  | Wilson Hall          |
| 4. 1923    | Givens Hall      | 10. 1931 | Duncker Hall         |
| 5. 1924-26 | Crow Hall        | 11. 1933 | Fraternity House Row |
| 6. 1925    | Brown Hall       | 12. 1935 |                      |

ANALYSIS AND DESIGN STRATEGY

Historical Development  
1920-1960

Development of Forecourt (East Hilltop Campus)

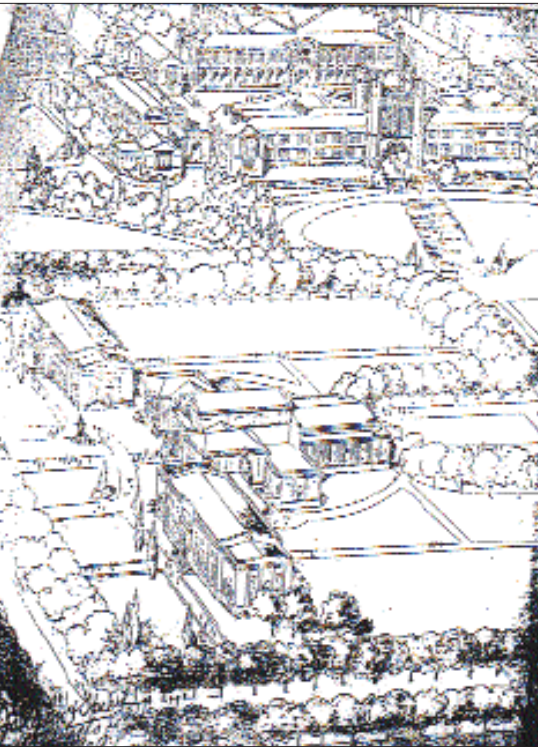
Jamieson and Spearl's Block Plan suggested a classical arrangement of symmetrically placed buildings north and south of Brookings Drive. These buildings were extended to serve the Departments of Fine Arts and Performing Arts. On the south side Jamieson and Spearl placed Bixby Hall, with Givens Hall to the west, and connected these two buildings was a Museum of Art and Architecture. On the north side along Millbrook five buildings were proposed, two for a School of Music, two for administration to replace North Brookings, and an Auditorium/Concert Hall.

The original gothic principles suggested and executed by Cope & Stewardson gave way to the "Spirit of the Time," which was interested in classical architecture; the style which only 30 years before was considered inappropriate for a university by Cope & Stewardson. In 1925 Bixby Hall was built and marked the beginning of the "White Campus." In 1931 the Givens Hall School of Architecture followed.

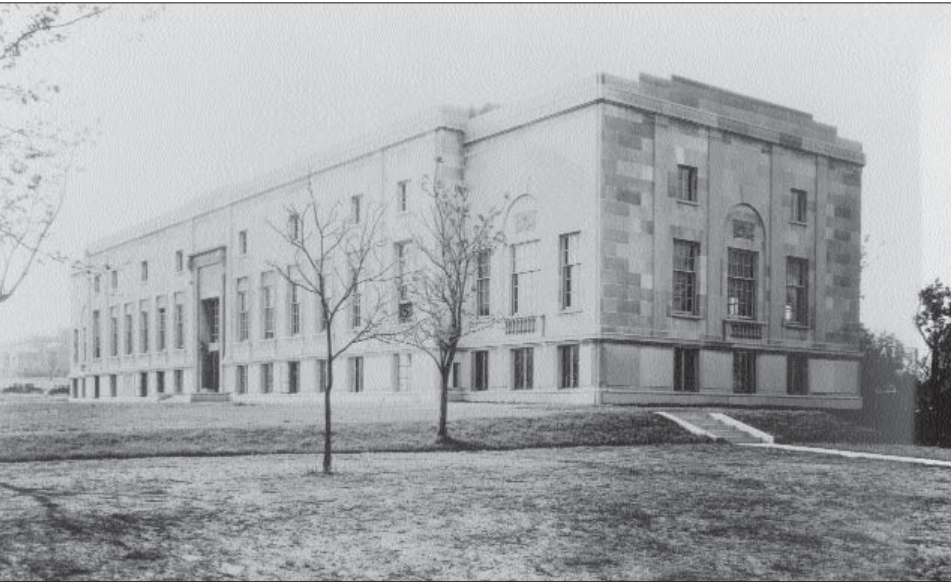
The classical massing of the forecourt with its symmetries and monumental scale refers to the architecture of Chicago and Washington rather than to Cope & Stewardson's original Block Plan. The typical rough red ashlar granite wall was abandoned in favor of a smooth limestone façade with colossal classical orders.



Jamieson & Spear's plan for East Hilltop Campus



A small forecourt in front of a centrally located Museum of Art and Architecture along Forsythe Boulevard is flanked to the west by Givens Hall and to the east by Bixby Hall.



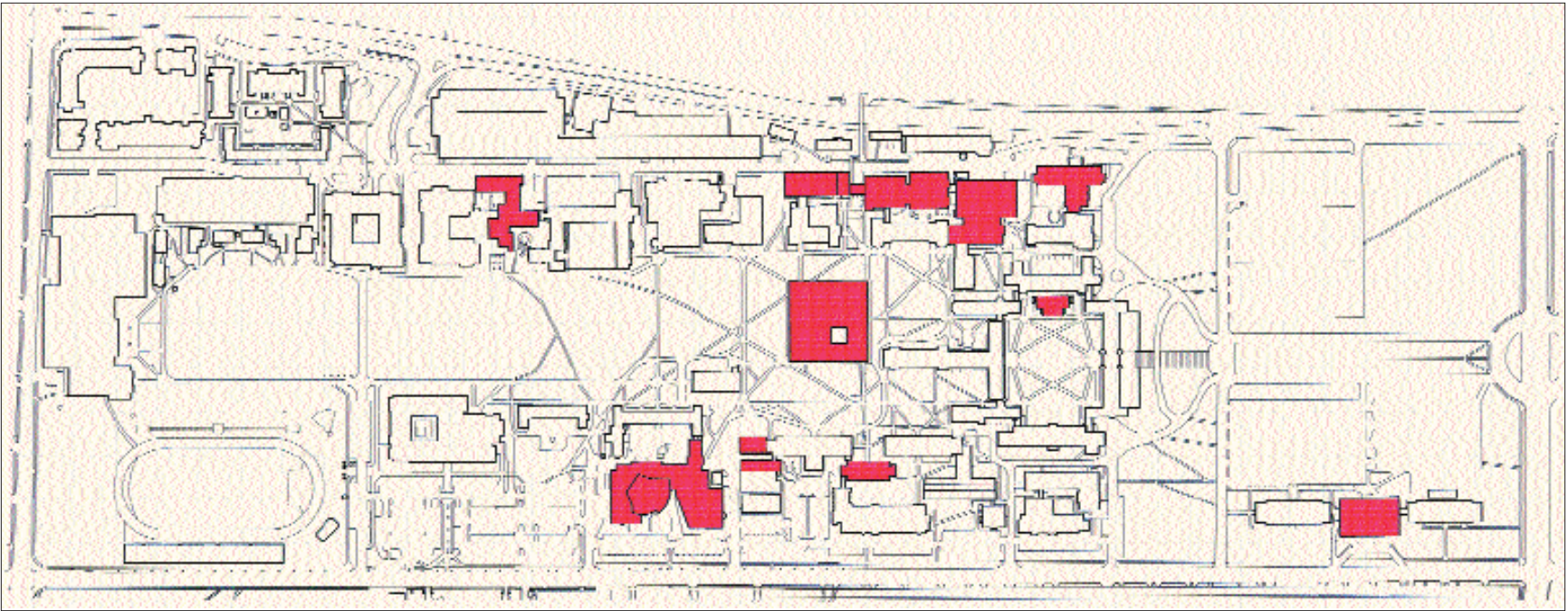
Bixby Hall, 1925



Historical Development  
1960-1985

Since the 1950's a series of "modern" buildings have been added to the campus. Many of these buildings depart from the formal and architectural principles introduced by Cope & Stewardson in 1899. The results can be summarized as follows:

1. The Collegiate-Gothic language and its ornamentation were replaced by a "modern" idiom.
2. New materials like exposed and aggregate concrete, metal panels, curtain walls, and mirrored glass were introduced. The original intention to unify by means of the modest palette of red ashlar granite, limestone trim, wood, slate, small glass panes, and ivy was abandoned and replaced by a variety of new and unrelated materials.
3. The load-bearing wall was replaced by the "modern" exposed structural grid with its infill.
4. The linear, narrow bars which allowed natural light to penetrate the rooms long the periphery were replaced by "efficient" deeper plans dependent on air-conditioning and artificial lighting.
5. No special attention was given to the design and treatment of the outdoor rooms except for two courtyards (former Mudd Hall courtyard and Bowler Plaza), which introduced paved plazas rather than lawns.



Modern Buildings (1960- 1985)



1

1 Olin Library

ANALYSIS AND DESIGN STRATEGY

Historical Development  
1986-2001



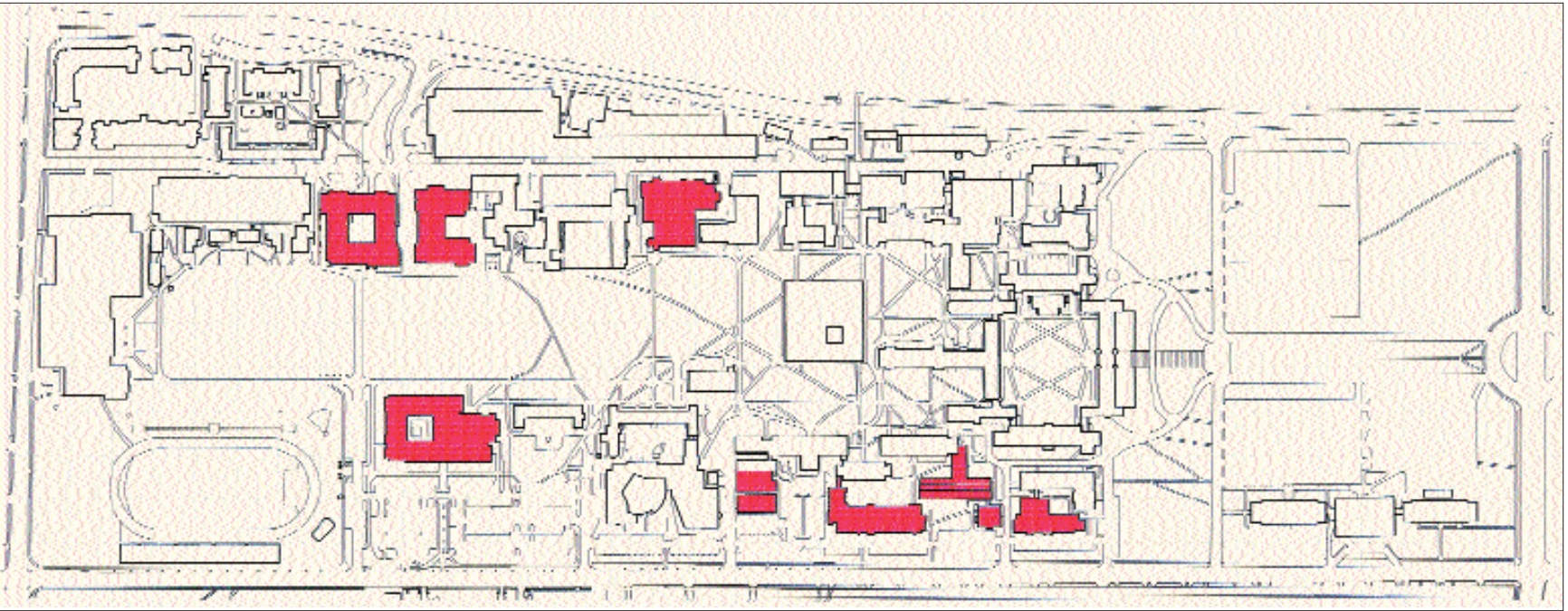
2

2 Simon Hall

The new Olin School of Business and Administration, built in 1986, was an effort to connect to the lost Collegiate-Gothic principles of Cope & Stewardson. The spirit of the times in the 80's – with its emphasis on "genius-loci" and contextualism – suggested an understanding and appreciation of Cope & Stewardson's original principles of the plan as a reference and source of inspiration for new designs. There was an attempt to "fit in" while simultaneously making a contemporary building meeting modern program requirements. With this challenge, the Olin School of Business accomplished the following:

1. The traditional plan type – the narrow long bar – with its dependence on naturally lit rooms was accepted.
2. The courtyard: in this case a privatized quadrangle given to the Business School rather than to the overall campus community, was introduced.
3. The reinstatement of low rooflines and gable ends no taller than two stories.
4. The façade treatment restored the same solid-void ratio found in the original buildings.
5. The limited material palette of red ashlar granite, limestone trim, wood, slate, and ivy was rediscovered.

The design strategy of the Olin School of Business, with its willingness to learn from the past and search for a graceful and gentle insertion into a well-liked campus ensemble, started a new approach to developing the campus for future needs while avoiding radical intrusions. A series of new buildings whose architects subscribe to an acceptance of working within the Collegiate-Gothic language has since emerged.

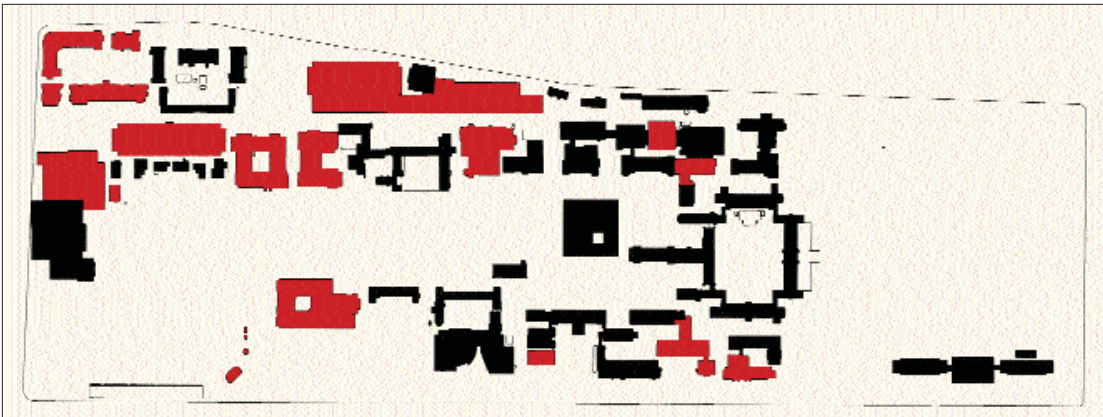
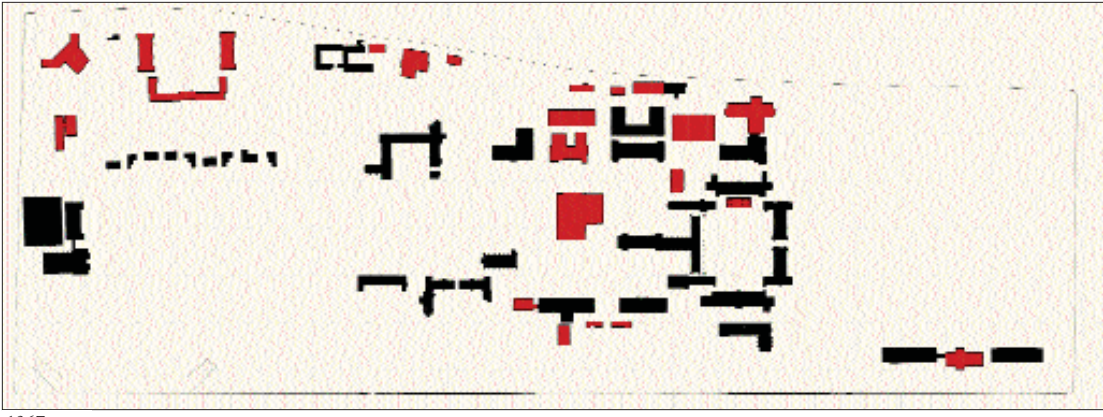
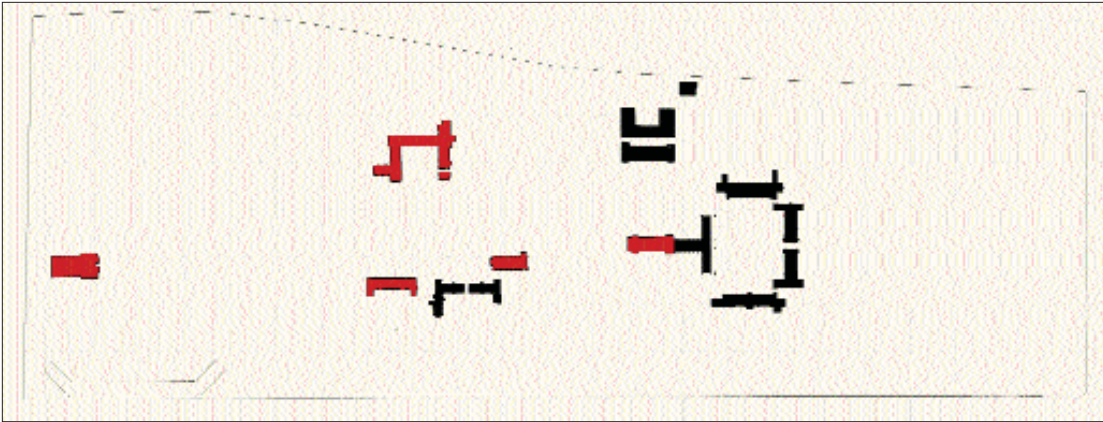
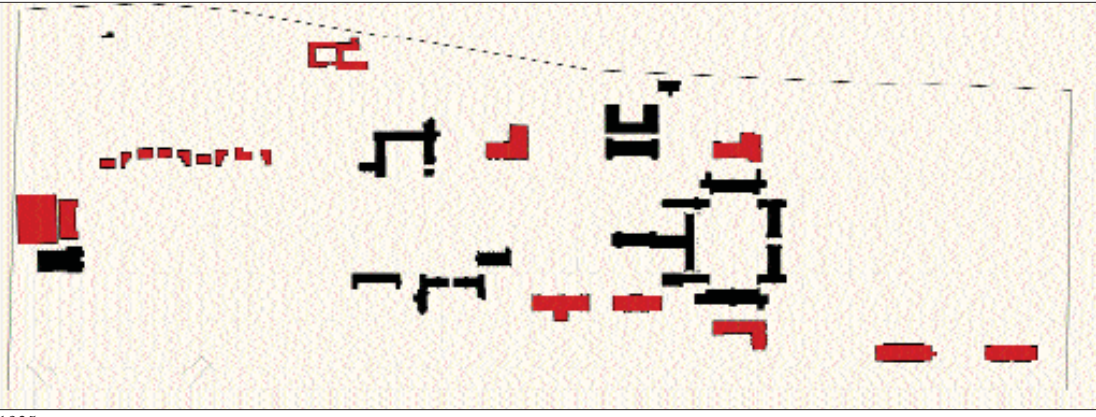
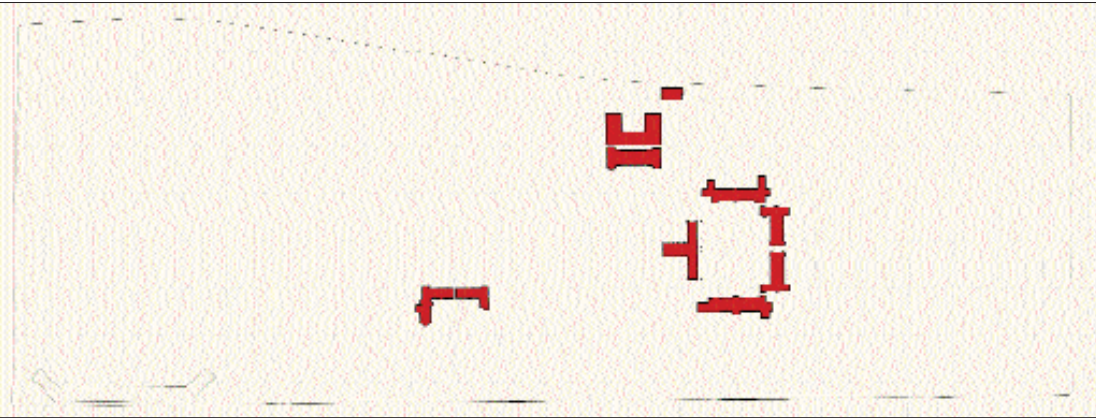


Post -Modern Buildings



Historical Development  
Campus Chronology

These figure/ground maps show the building development of the campus since its beginning. The Main Quadrangle, the Open Lawn in the center, and the build-up with a series of smaller courtyards along the north and south edges have all been maintained in the process of increasing the density of the campus.



ANALYSIS AND DESIGN STRATEGY



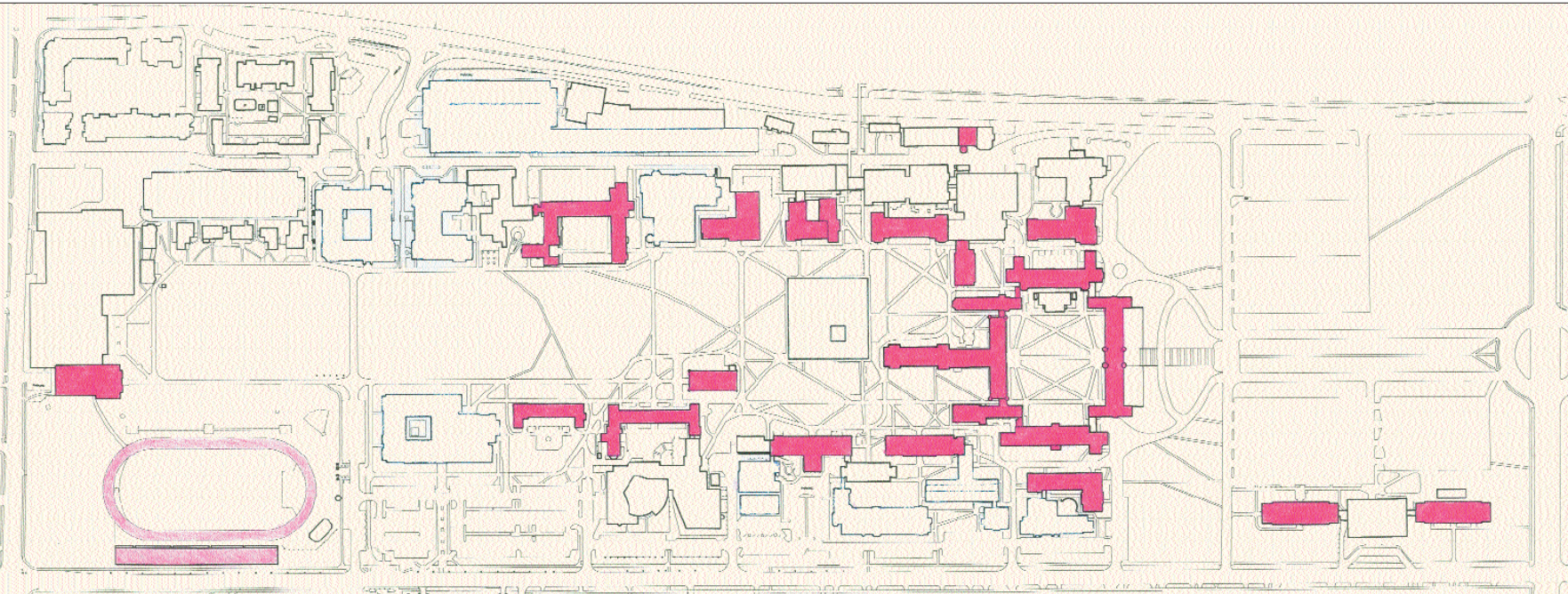
1 Brookings Hall (1901)  
2 January Hall (1926)

It is important that a sufficient number of the original buildings on the Campus be designated as “historical landmarks.” A critical mass of preserved structures will always define the character of the Campus and demonstrate cherished architectural principles sources of inspiration for future Campus Development.

The historical significance of these buildings should have priority and new functional requirements should be adapted to the existing structures in cases of conversion. When conversion of former dormitory buildings into academic buildings is considered, the preservation of the exterior wall should be considered an appropriate option in order to maintain the continuity of the “image” with the past and its collective memories for the community.

The following buildings should be preserved:

- Brookings Hall
- Cupples Hall
- Ridgley Hall and Eads Hall
- Bush Hall
- Cupples II Hall
- Graham Chapel
- Umrath
- Prince
- McMillan
- Francis Field Head House
- Duncker Hall
- January Hall
- Bixby Hall
- Givens Hall
- Brown Hall
- Rebstock Hall
- Wilson Hall
- Sever Hall
- Louderman Hall
- Women’s Building
- Crow Hall
- Original Power Station



Preservation







The purpose of the Campus Analysis is to study and understand the underlying architectural principles of the Campus today. A thorough analysis must provide a foundation and point of departure for ideas, speculation and proposals for future development of the Campus. The following characteristics of the Campus physiognomy should help to define a format within which new design ideas may occur.

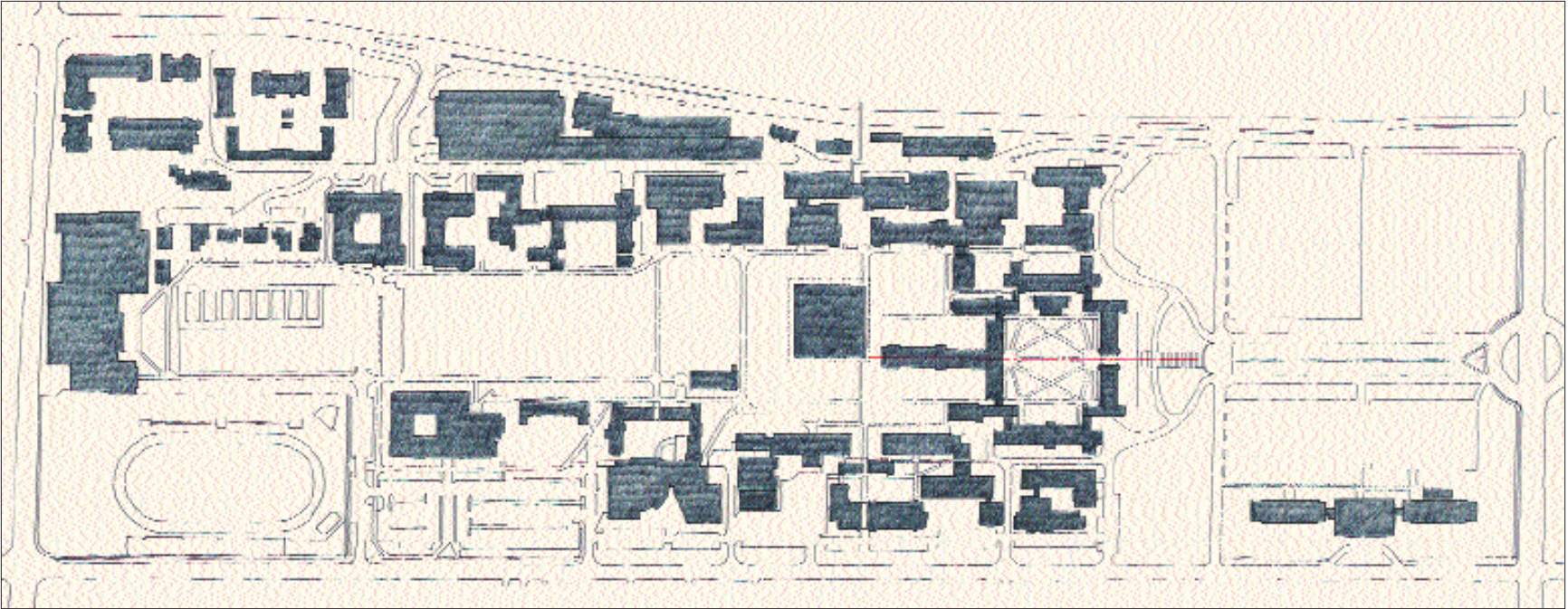
Campus Morphology

A continuous fabric of individual buildings of different sizes and types makes up the Campus. Long narrow bar buildings, two stories high and running primarily east-west, define a system of outdoor rooms (courtyards) and a series of major and minor axes.

These bar buildings overlap or “slide by” each other, and contribute to the dynamic and informal quality of the campus.

The main spatial sequence is composed of these bar buildings, starting from the east and continuing up The Hill via a monumental stair, through the arched passageway of Brookings Hall and into the Main Quadrangle. The sequence continues in a less formal pattern west of the Main Quadrangle.

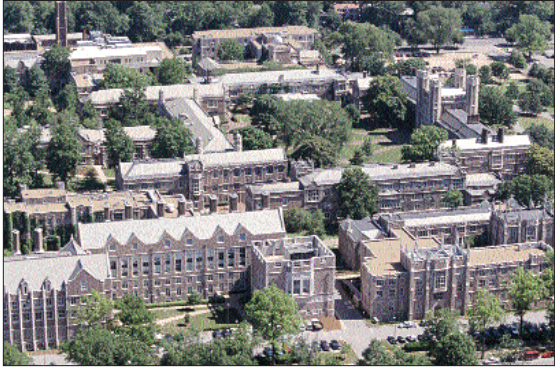
The built-up edges and large open space in the center of the Great Lawn work well with the topography of The Hill on which the Campus is placed.



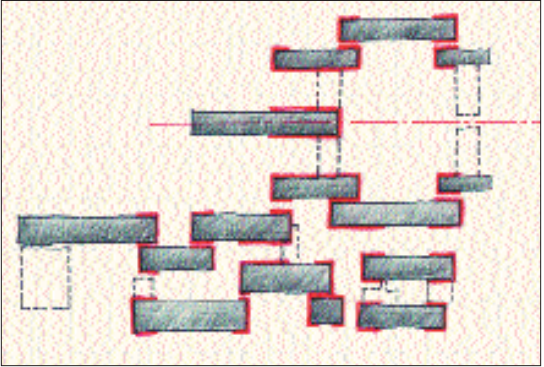
Hilltop Campus Plan



Campus Model



Aerial View, Washington University Campus

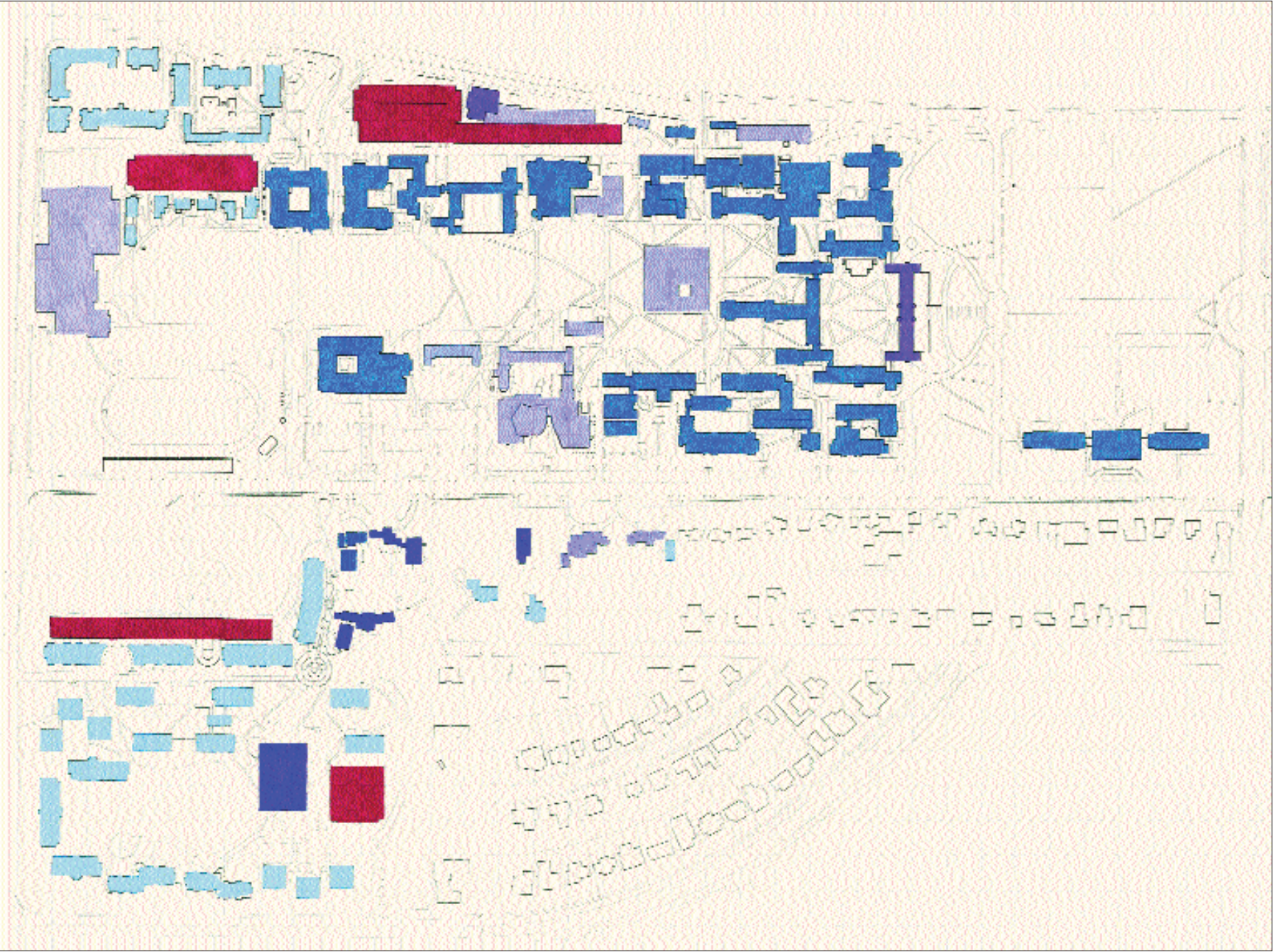


The principle of overlapping "bar buildings"

Cope & Stewardson's intention was to create an "academic village" which provided all the necessary uses for a college in close proximity to one another: academic buildings, administration buildings, university services (library, sports facilities, etc.) and dormitories. Over time this original use pattern has changed so that accommodations for housing were moved to the periphery of the Campus (South-40) and Millbrook Housing.

There are five major building uses within the campus including the following:

- Academic
- Administration
- University Services
- Housing
- Parking Structure

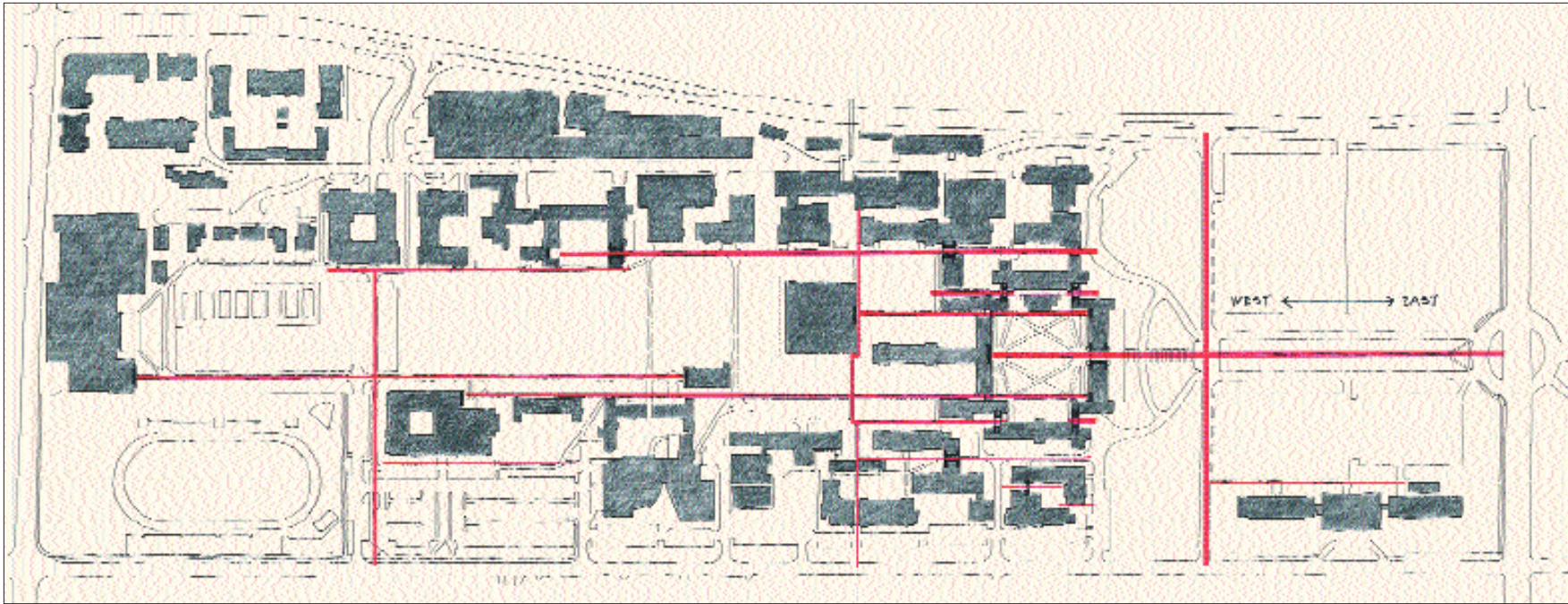


Building Uses

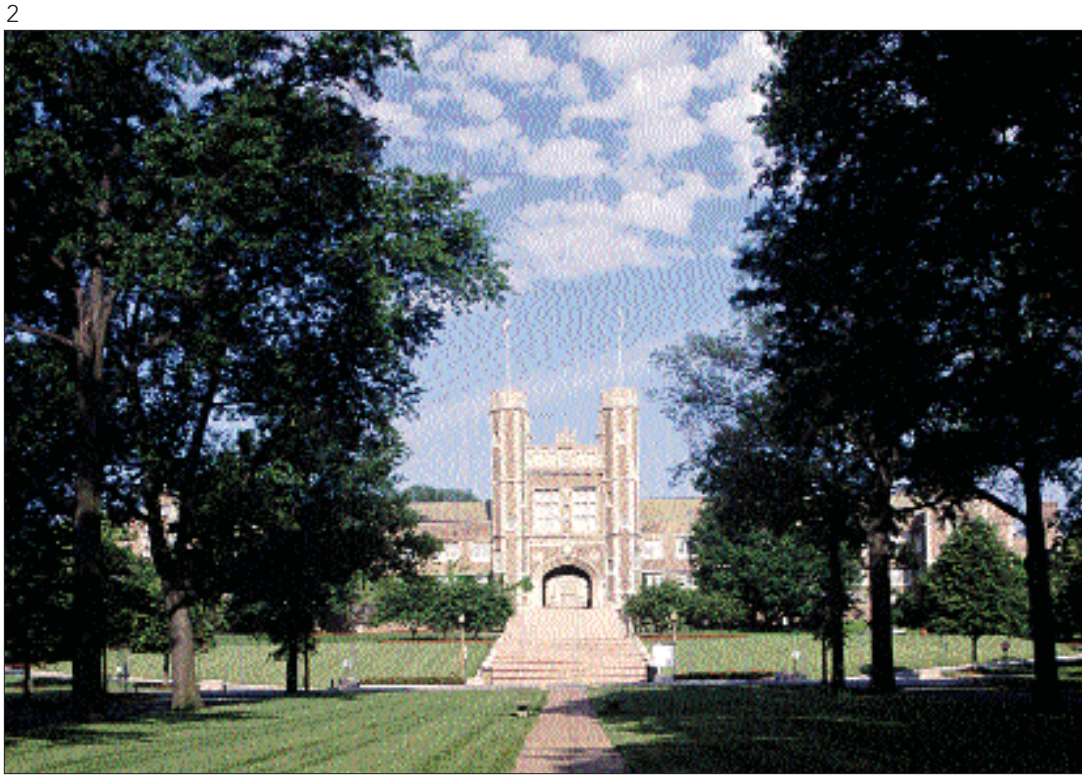


Campus Axis

A series of parallel axes run east/west, dominated by the Brookings Drive axis. A few secondary cross-axes run north/south, providing connections to the east-west axes (See page XX for pedestrian circulation).



Campus Axes

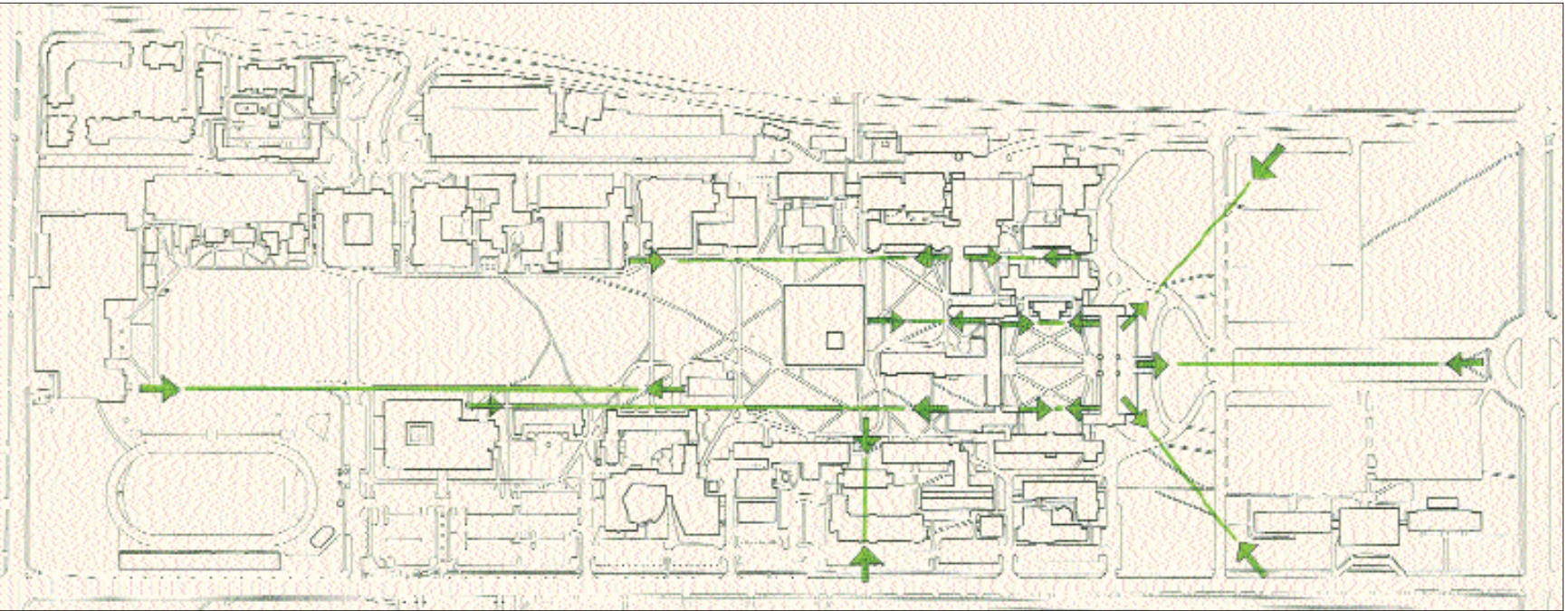


1 Axis along campus lawn perimeter  
2 Main campus axis through Brookings Hall  
3 View towards Graham Chapel

Vistas

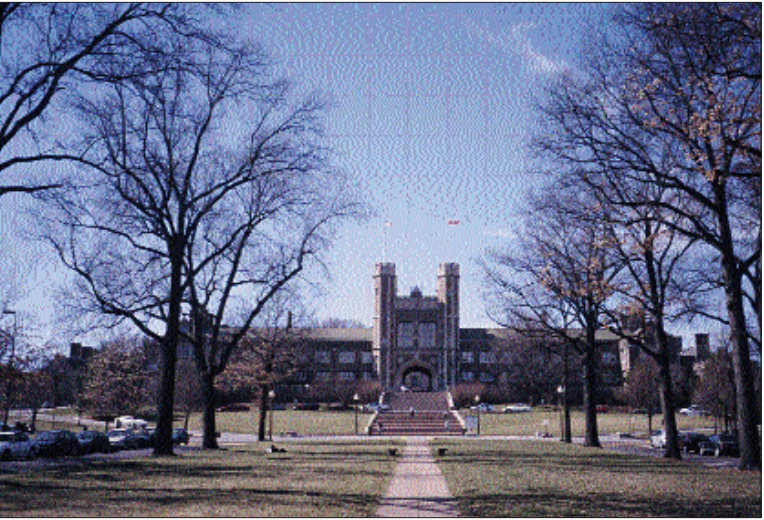
Many vistas are located throughout the Campus marking recognizable connections with other Campus locations. Vistas are marked by various elements on the Campus including towers, passages, main Campus axes, and tree alleys. Most but not all vistas have an east/west orientation. These vistas emphasize the dominance of the east/west pedestrian connections. The network of vistas is crucial in creating an interesting, pedestrian-friendly Campus and in identifying different landmarks throughout the Campus.

The importance of the formal entry to the Campus taking place at Brookings Hall is shown in the diagram. These vistas are an important identifying characteristic to those arriving on Campus both by foot and by car. Brookings Hall's iconic identity for the University is established through these vistas.



Campus Vistas

1 Monumental view toward Brookings Hall, from Skinner Boulevard  
2 View towards Simon Hall





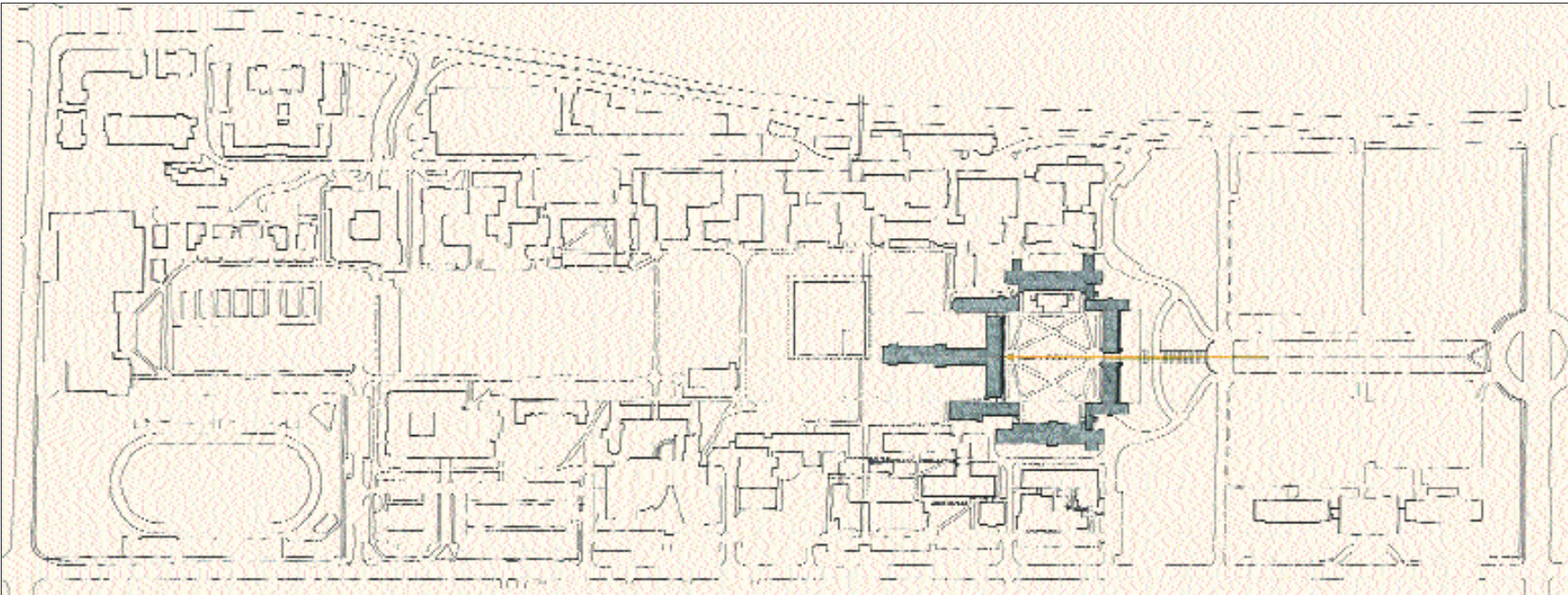
Symmetries and Asymmetries

Cope and Stewardson's original formal and spatial devices in the Block Plan suggest a loose, informal “gothic” arrangement of individual buildings rather than a classical composition with rigid axes. However, the Campus consists of a major symmetry dominating the entry court and local symmetries in contrast to asymmetrical planning devices. Three types of symmetries are evident throughout the existing Campus:

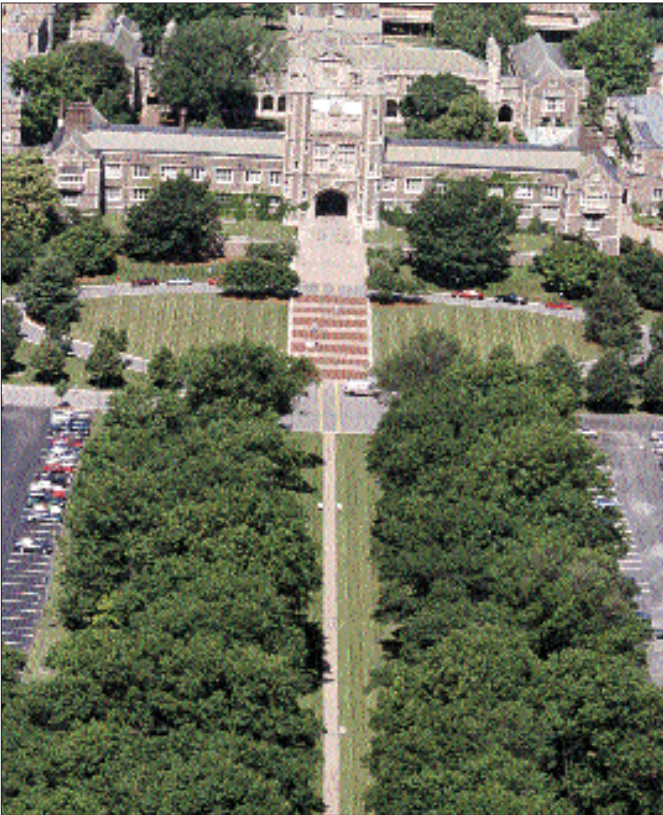
- Axial Symmetry
- Oblique Symmetry
- Asymmetry

Axial Symmetry

The strongest, overriding formal device is the main Axis from the Boulevard-like approach (Brookings Drive) through the arch of Brookings Hall and ending at the center loggia of Ridgley Hall. Because of its axial and frontal position within the overall composition of the Campus, Brookings Hall represents the most dominant building. It constitutes a powerful gate to the Hilltop Campus beyond with its four corner towers and arched portal.



Axial Symmetry



19



3

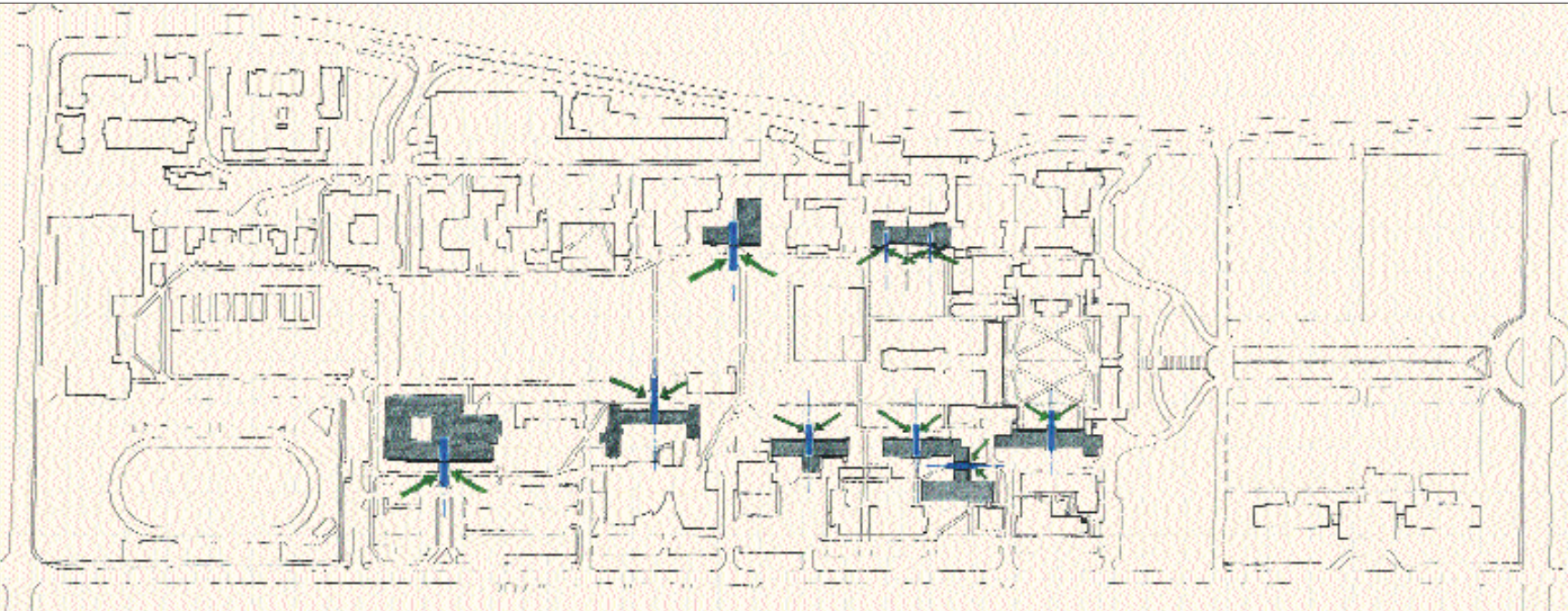
- 1 Strongest overall symmetry of the campus (Brookings Hall)
- 2 Asymmetry of Louderman Hall
- 3 Asymmetry of Hall

Oblique Symmetry

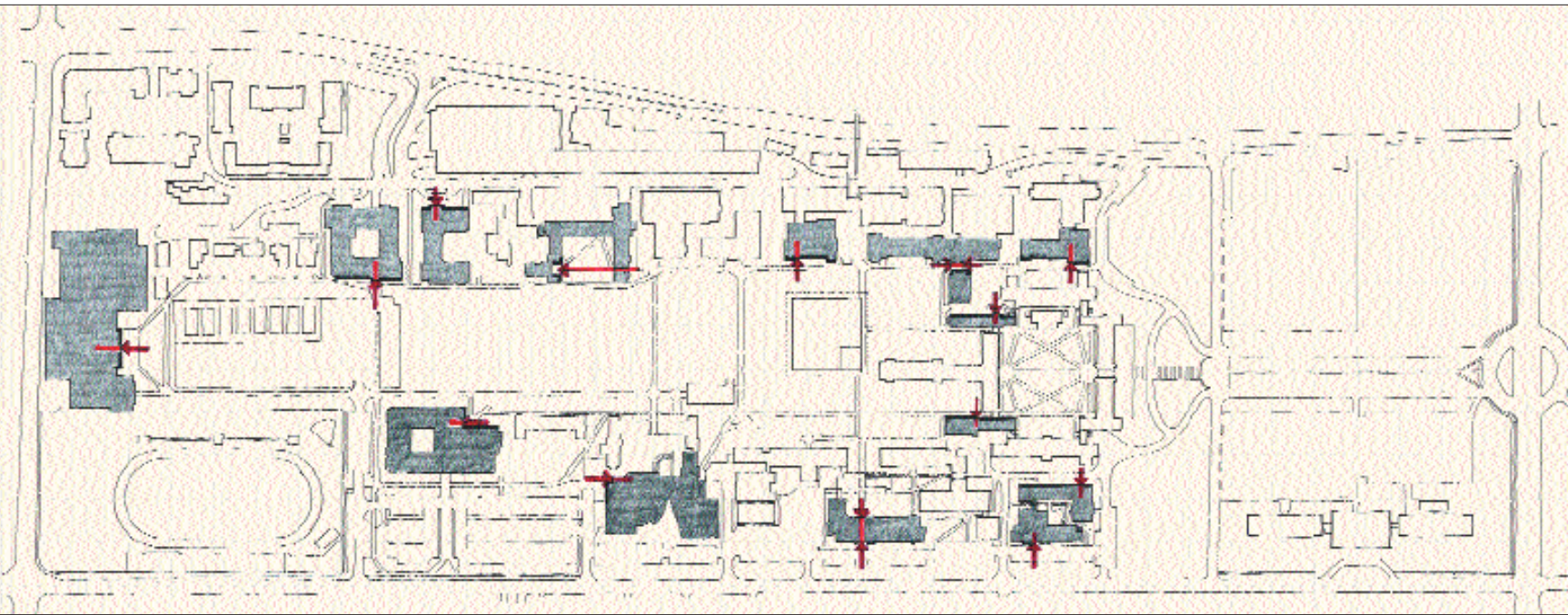
Various main entrances are placed precisely or approximately in the center of the main façade. Many of these entrances are approached and viewed diagonally and therefore provide oblique symmetries. These approaches are a result of walkways providing shortcuts diagonally in relationship to the east/west and north/south walkways.

Asymmetry

A number of main entrances articulated with vertical towers and arches are composed as asymmetrical features within the overall composition of the main façade. Asymmetries are typical compositional devices for “gothic” pictorial architecture. They are responding freely to programmatic requirements and support the dynamics of a flexible plan. These asymmetries are in a rich contrast to more static and balanced symmetries.



Oblique Symmetry



Asymmetry

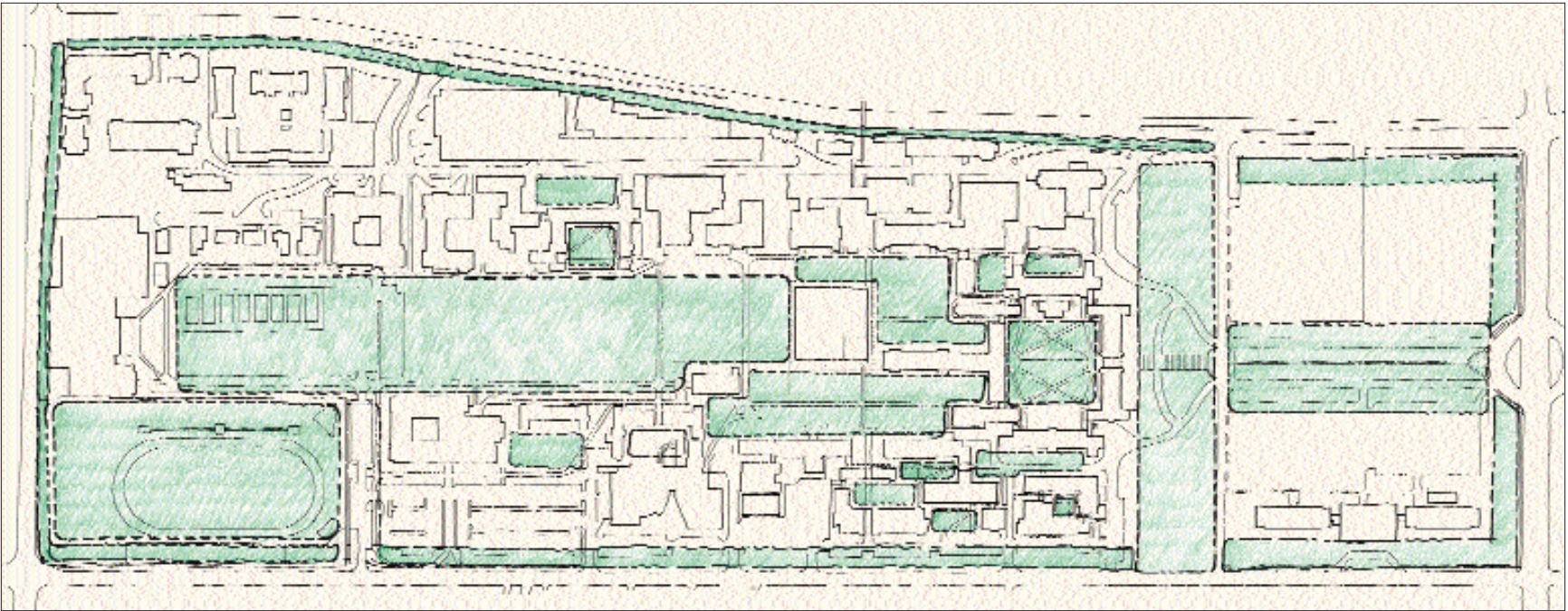


Open Space

The siting of the individual buildings by Cope & Stewardson paid careful attention to the space between the buildings, the “outdoor rooms,” in terms of size and proportions. Today, the beautiful Main Quadrangle remains the most memorable place on Campus.

The main open spaces of the Campus can be categorized into the following areas:

- The Great Lawn
  - Plazas
- Brookings Hill
- Brookings Drive “Alley”
- Campus Edges
- Courtyards
  - Main Quadrangle
  - McMillan Hall and Charles F. Knight Executive Education Center
  - Olin School of Business and the Law School
- Francis Field



Open Spaces

Views from Great Lawn:  
1 Towards Olin Library  
2 The edge of the campus  
3 Towards Olin Library  
4 to McMillan Hall



1



2



3



4

Great Lawn

The “Great Lawn” is the main open space and heart of the Hilltop Campus. The Great Lawn has many important functions, including:

- Multi-purpose breakout, recreation and sports.
- Clear spatial organization for the Hilltop Campus.
- Relief and contrast to scale of spaces associated with the matrix of buildings.



Several main axes of the Campus flank the Great Lawn with rows of trees. A random scattering of mixed tree species partially infill these outdoor rooms and create interest. However, some of these trees are not canopy-forming and hence do not contribute to the use, openness or quality of the space; they should be removed.

As the west side of the Campus is further developed, the establishment of outdoor rooms and tree arrangements should be extended while allowing enough unencumbered lawn for intramural field sports.

Plazas

Plazas are paved areas for gathering which are not enclosed by buildings. The main Hilltop plaza is at the entry to Graham Chapel. Its geometry, surrounding wall, special paving and attractive tree placement provides it with a good sense of “place.”

Brookings Hill

The hillside upon which Brookings Hall sits changes 30 feet in elevation. This dramatic grade change, together with the prominence of Brookings Hall on the great central axis with Lindell Boulevard, the grand stairway, open lawn and unusual mix of flowering trees and canopy trees flanked by evergreens, creates a unique and powerful impression of the University.



When the underground garage is placed here, the nature of these elements and relationships must be maintained.

Brookings Drive Alley

This is a historical feature and is almost as important to the image of Washington University as Brookings Hall itself. The visual effect has more to do with the size, similar age and orientation of the trees than with the orderly matching of pairs of trees. Accordingly, our recommendation is that individual trees should be removed as they decline until such time as too few trees remain to be impressive (around 20-30%). The Alley then should be 100% replanted with large caliper trees, contract-grown for the site. In order to extend the life of existing trees and the health of future trees, Brookings Drive should be reconstructed to allow more space between tree trunks and curbs. This would eliminate parallel parking spaces. Also, the pavement should be converted to pavers to allow air and water exchange to the root systems.

Campus Edges

The Campus perimeter expresses the institution to the community and provides an interface with surrounding neighborhoods. Orderly plantings of large street trees surround most of the campus and ease the transition of large institutional buildings to smaller neighborhood structures.

The Campus edge is best defined along Skinker Boulevard and Forsyth Boulevard, where double rows of street trees flank the sidewalks. These plantings are historical and create a powerful, enduring image of the University that should be maintained and extended as the Campus is developed. When these trees die out they should not be replaced immediately, but allowed to thin out until entire sections can be replaced and the order of even-aged trees maintained. In other less formal areas, trees may be replaced in succession.

Deep building setbacks, expanses of turf, and an open arrangement of lower-level plantings also help with the transition to neighborhoods. For safety, enclosed dead spaces between the street and buildings must be prevented.

Service areas are generally accessed from the perimeter and are often unsightly. Where possible, the routes to service should turn or “dog leg” to prevent direct views; and evergreen vegetation should be used as a screen.

In order to mitigate the “wall” effect created by the building bars, penetrations to the campus interior should be made as expansive as possible and include landscaped gateways to lead the eye.

Transitional parking at the campus perimeter should be partially screened by 3 to 4-foot high evergreen hedges, and the interiors should include fast-growing canopy trees. As parking is phased out, the hedges can be removed to prevent enclosed dead spaces.

5 Brookings oak “Alley”  
6 Plaza in front of Graham Chapel



Courtyards

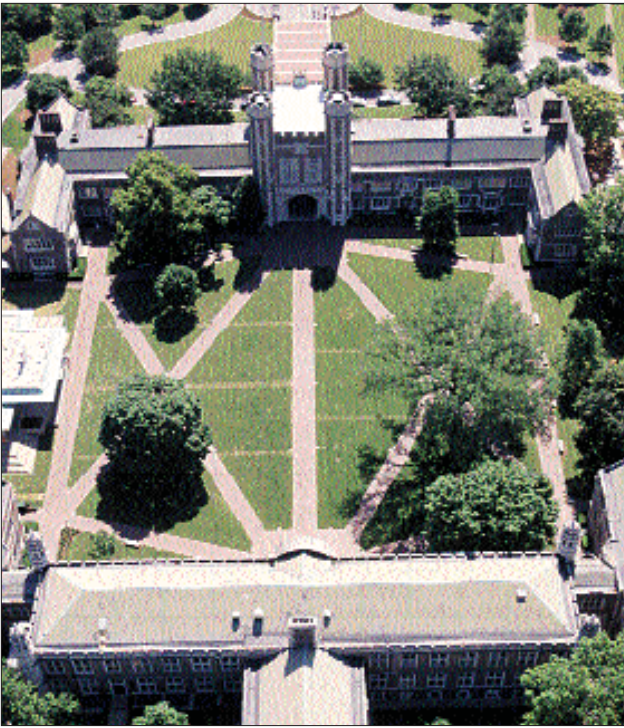
Cope & Stewardson's Block Plan argued for a free and random arrangement of individual buildings to make up the matrix of the campus. However, in contrast to this randomness a few static courtyards are defined by one or more buildings. The peripheries of these courtyards are quite formal and the geometry of the outdoor rooms are simple and clearly defined.

The appealing landscape treatment of these rooms balances the soft effects of vegetation, including shade, shadow and low-glare surfaces, with the hard effects of pavement and building façades. Outdoor artwork relating to the functions of surrounding buildings should be included.

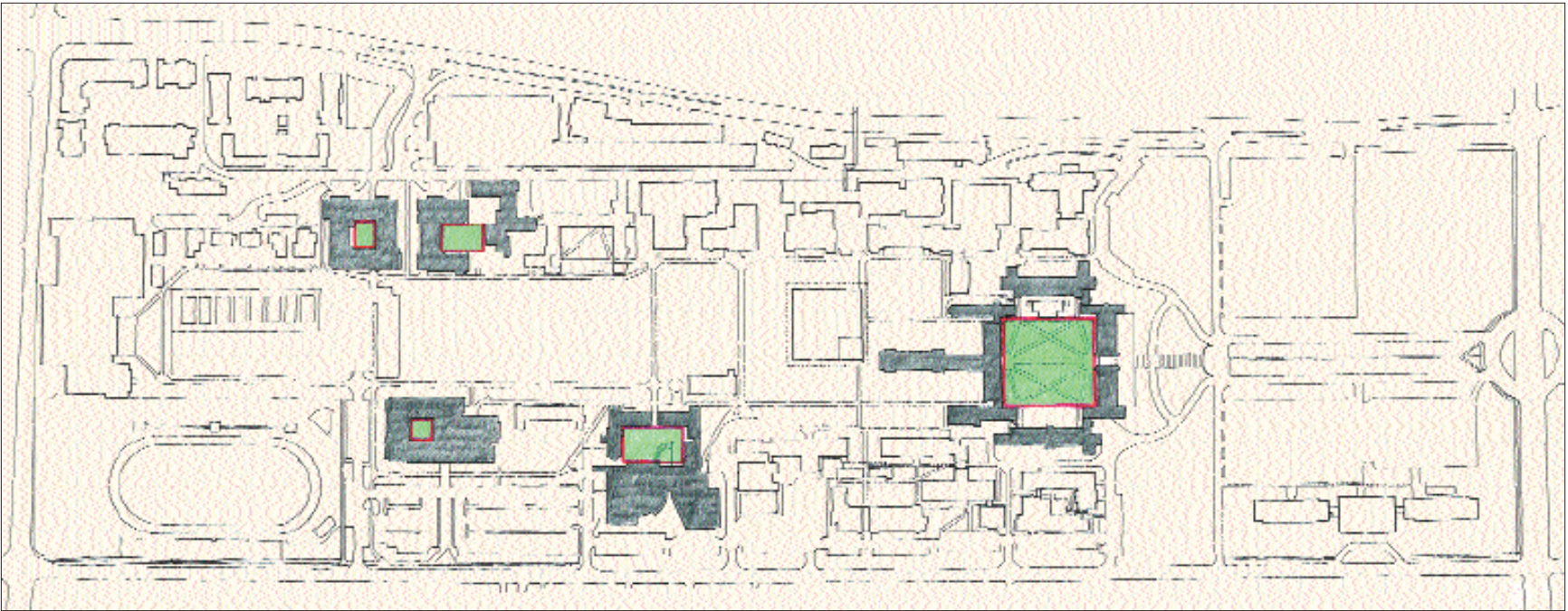
The creation of new quadrangles and courtyards should address the above considerations and should be designed for through circulation to encourage the mixing of disciplines. A conscientious attempt should be made for each of these spaces to have a different "personality" in order to fulfill Cope & Stewardson's goal of encompassing "every variety of impulse and mood."

Main Quadrangle

This primary open space is the Campus' dominating outdoor room. Six buildings dating from the early 20<sup>th</sup> century enclose a rectangular space which is enhanced by Brookings Hall's tower and Ridgley Hall's arcade. The main arched opening in the center of Brookings Hall is the most dominant of several entrances into this courtyard. Six secondary entry points are located at the junctures between Brookings Hall, Bush Hall, January Hall, Ridgley Hall, Duncker Hall and Cupples Hall.



1 View of the Main Quadrangle  
2 Brookings Hall encloses the Main Quadrangle



Courtyards



3 Execurive Education Courtyard (defined on three sides)  
4 Simon Hall Courtyard (defined on four sides)

While the ground plane is primarily covered by lawn, axial and diagonal walkways cut through the lawn to provide clear and efficient pedestrian movement. A few large trees provide shade. The size of the quadrangle (approximately 270 ft x 370 ft) is large enough to provide space for ??? people for graduation ceremonies.

McMillan Hall and Charles F. Knight Executive Education Center

Both these courtyards belong to their adjacent buildings rather than to the Campus as a whole. They are defined by U-shaped plans and are enclosed on the fourth side by an ornamental iron fence.

The McMillan Hall courtyard ground surface is lawn, while the Executive Education Center courtyard is a paved plaza surrounded by an arcade. Both these exterior spaces are extensions of the interiors and provide places for outdoor activities. They are private, but remain visually connected to the rest of the campus.

Open Spaces for the Olin School of Business and the Anheiser Busch Law School

Both of these structures, built in the 1980's and 90's, were organized around outdoor courtyard spaces that are visually separate from the rest of the Campus. While these areas make reference to the Main Quadrangle, they are private spaces and serve as outdoor rooms for the respective buildings exclusively.

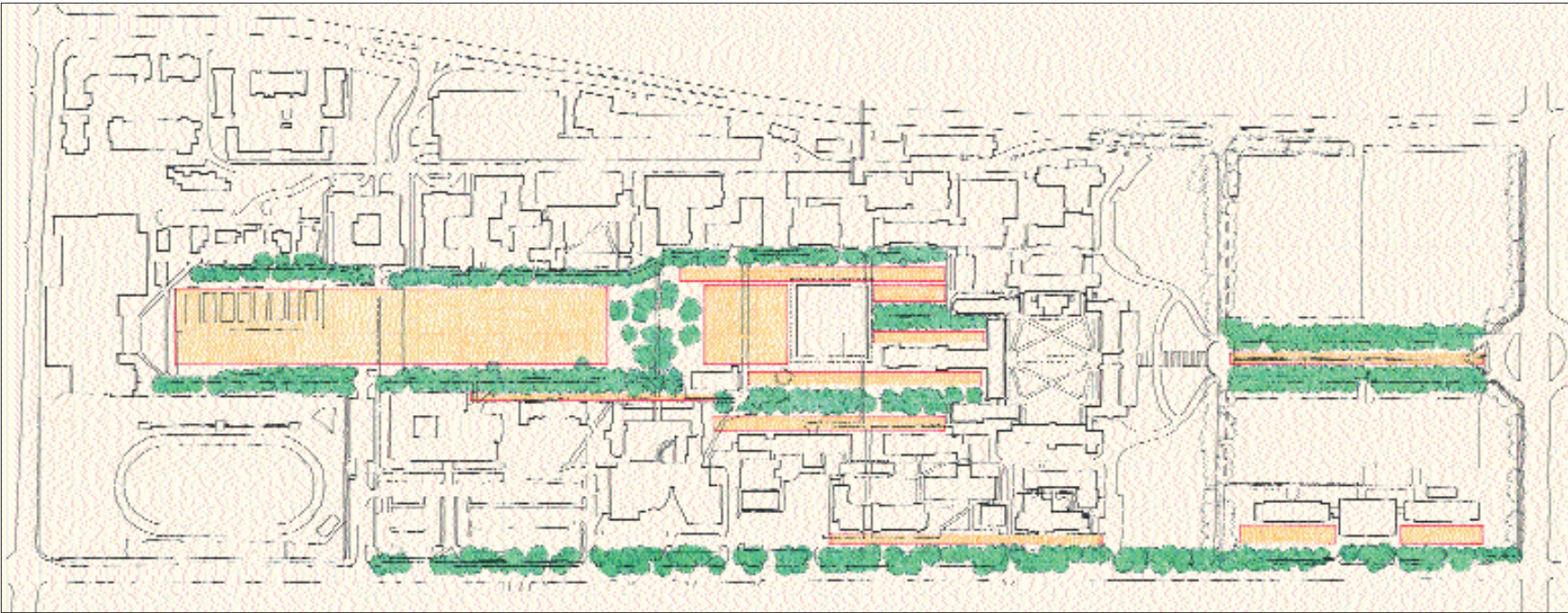
Francis Field

While Francis Field is outside the scope of the this study, in the long term development of the Campus it might be considered as a potential reserve for further development. Until then, Francis Field should be preserved.



Spaces Defined By Trees

Rows of mature trees of different sizes and scales on either sides of the walkways and streets help to define major spaces on the Campus. These “screens of trees” run mostly east/west, defining the major campus axes. Loosely grouped clusters of trees and individual specimens occupy fields of open spaces and contrast with the linear and geometrically laid out tree rows.



Spaces Defined by Trees

- 1 Defined space between buildings and trees
- 2 Edge of the Great Lawn defined by trees
- 3 Space along Brookings Drive defined by trees



Axes Defined By Trees

Trees define both major axes and sidewalk edges. Pedestrian walkways lie either between trees or flanked by them along one side. The sizes of the trees and therefore the scale of the spaces between them varies considerably from “monumental” to “domestic.”

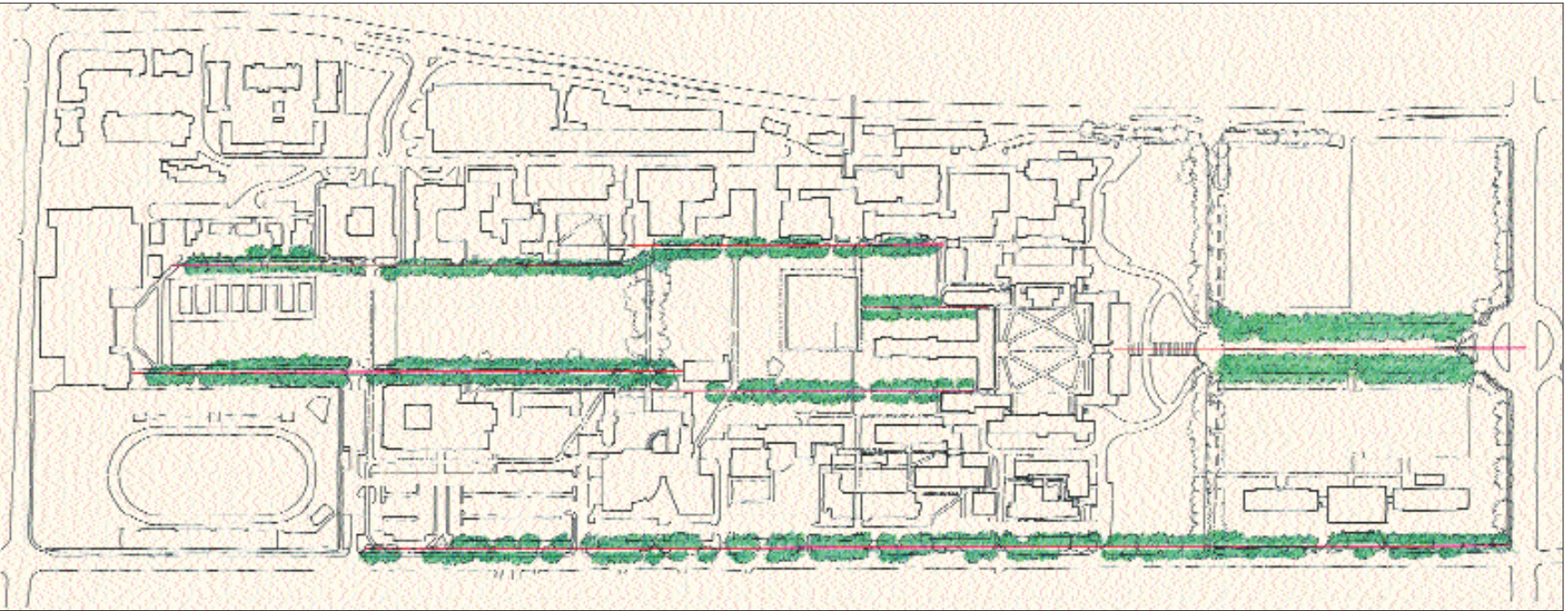


1



2

- 1 Defined axis leading toward Graham Chapel
- 2 Axis looking east, toward Sever Hall



Axes Defined by Trees



Space Ordering Systems  
Circulation

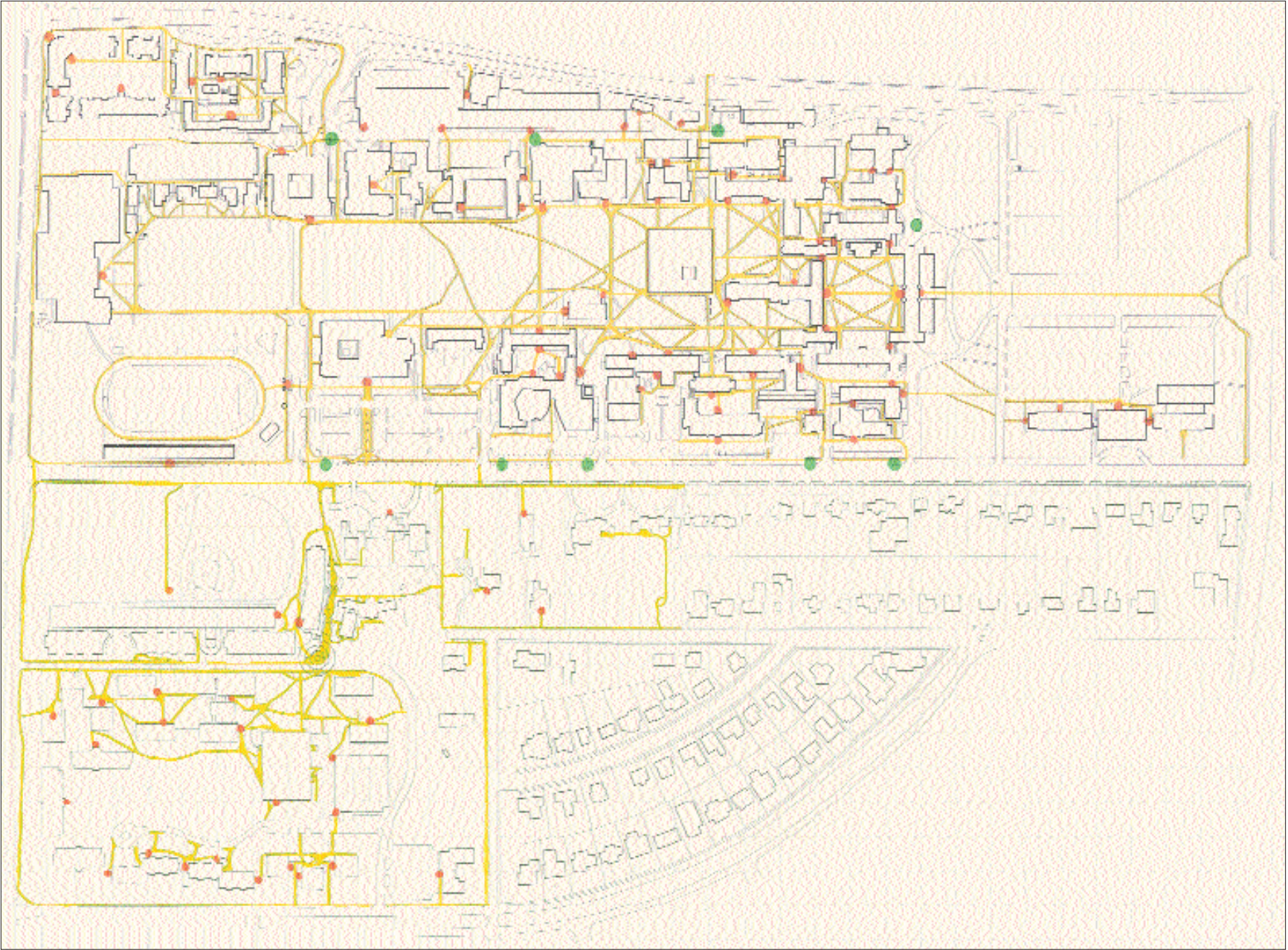
The campus circulation network can be broken down into three primary components:

- Pedestrian Walkways
- Vehicular Streets and Parking
- Service

Pedestrian Walkways

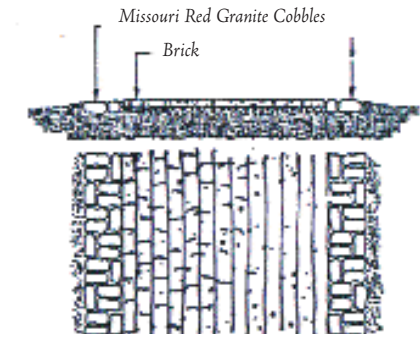
Part of what makes the the Washington University Campus so unique is its dense network of pedestrian walkways guiding pedestrians between buildings and green spaces. The pedestrian walkway network is clear enough – with its bold axes – to provide a sense of orientation. On the other hand, it is complex enough to allow spontaneous interaction and visual interest.

Walkway intersections provide opportunities for students of different colleges to meet and socialize. To facilitate socialization, these points should include plazas with art-work, places to sit, and information kiosks, and should be distinguished by use of ornamental trees and special paving.

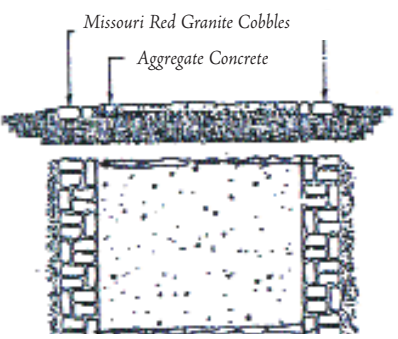


Pedestrian Walkways

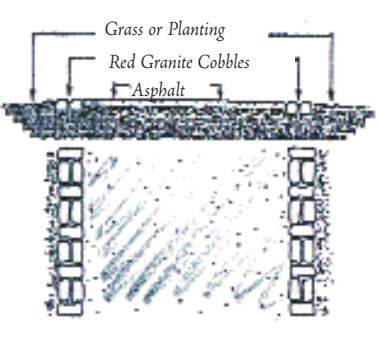
ANALYSIS AND DESIGN STRATEGY



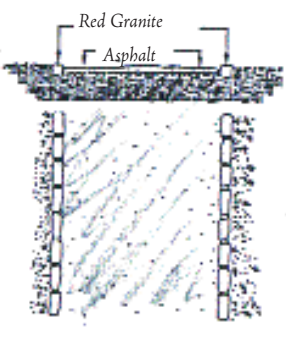
Major Axial Walk  
Alternate A



Major Axial Walk  
Alternate B



Major Walk



Minor Walk

Space Ordering Systems  
Circulation

Types of Walkways

The formal order and hierarchy of pedestrian walkways consist of major axial walks, major walks, and minor walks. The width of the various walkways depends on how heavily each walk is used. They vary in width from 8 ft to 12 ft.

Major Axial Walks Running East/West

- Brookings Drive Alley
- Walks along the northern edge of the main Campus lawn
- Walks along the southern edge of the Campus lawn

The long edges of the Central Lawn are defined by main east/west walkways, dramatized by formal alleys of large, closely spaced, enduring pairs of canopy trees. These, as well as the short walls and long walks of the bar buildings, create strong parallel spaces that should be maintained and reinforced for future developments.

Major Walks Running East/West

- Walk connecting Olin Library (east elevation) with the main quadrangle.
- Walk between Busch Hall and Brown Hall

Major Walks Running North/South

- Hoyt Drive (sidewalks to be developed)
- Passage through the Psychology Building to the space between McMillan and Bryan Hall to the pedestrian overpass between Radio Chemistry and the Cyclotron



Space Ordering Systems  
Circulation

- Walk from Bowles Plaza to Throop Drive between the McMillian Hall and the new Laboratory Building to the east of McMillian Hall

These three major walks run from Forsyth Boulevard to Forrest Park Parkway through the Campus.

North/south walkways and those crossing the Central Lawn serve as secondary circulation routes. Deciduous canopy trees enhance these walkways, creating large, informal outdoor rooms. These trees are informally located further apart and subordinate to the allee trees.

Minor Walks Running North/South

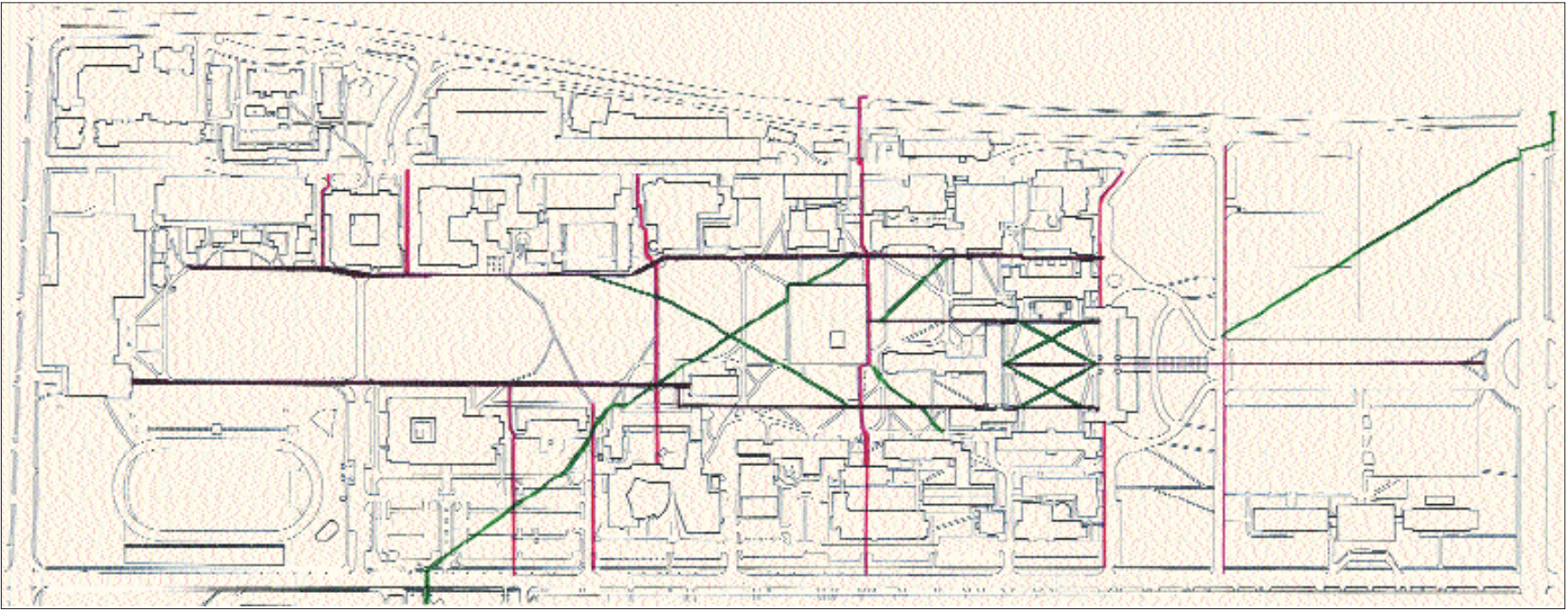
These following walks provide pedestrian entry points to the campus.

From Forsyth Boulevard:

- Through the parking lot south of Olin School of Business
- Along the west facade of the Mallinckrodt Student Center
- Between the McDonnell Laboratory and Goldfarb Hall
- Along the East Facade of Goldfarb Hall and Brown Hall

From Forest Parkway:

- Along the east facade of Crow Hall and Compton Hall
- Between the Knight Executive Education Center and the Law School
- Between the Law School and the small housing garage



Major Pedestrian Walkways

ANALYSIS AND DESIGN STRATEGY



Space Ordering Systems  
Circulation

Major Walks Running Diagonally

The diagonal walkways provide shortcuts within the rectilinear pedestrian circulation system.

- Diagonal cut through the northern part of the East Campus. This walkway is a major connection to University City
- Diagonal cut through the Olin School of Business Parking Lot. This path is a major connection to the South-40 Housing on the southern side of the Forsyth Boulevard underpass

Minor Walks Running Diagonally

- Connecting major axis through the main Campus lawn
- Passing through random courtyards
- Passing through the main, formal quadrangle of the campus

Walkways Along Streets

Typically pedestrian walkways running parallel to streets (i.e. along Forsyth Boulevard) are separated from the street curb by approximately 15 ft. This strip between the street curb and the walkway consists of grass and is occupied by trees 30' to 40' on center. Edges along parking lots could be treated similarly, perhaps using cobble stones instead of grass.





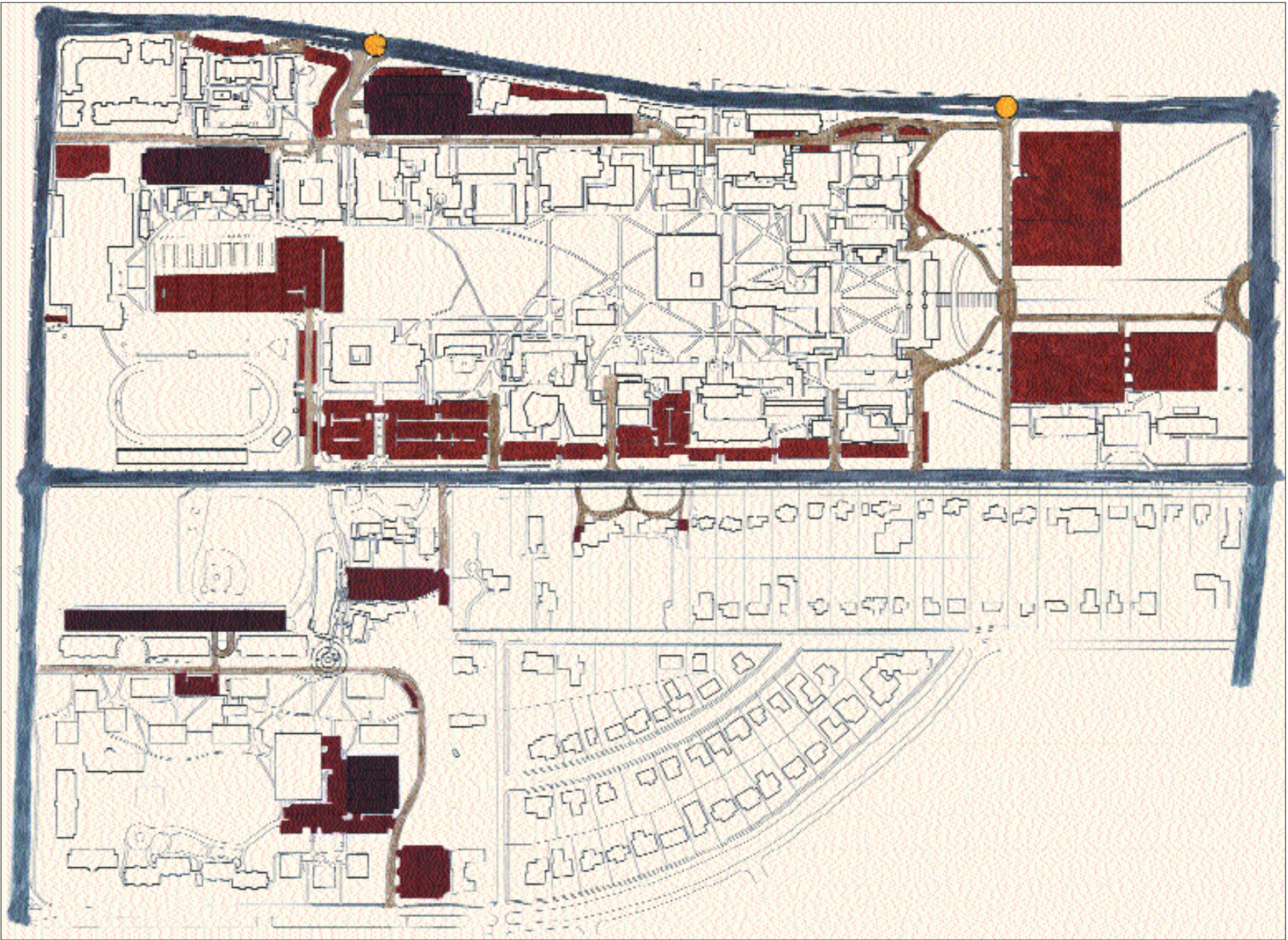
Vehicular : Streets and Parking  
Streets

The Hilltop Campus and the East Hilltop Campus together occupy a city block defined by four major roads along their edges: Forest Park Parkway, Big Bend Boulevard, Forsyth Boulevard and Skinker Boulevard. The parcel for the South-40 Dormitories is separated from the main Hill Campus by Forsyth Boulevard.

Due to the relatively small size of this “city block,” no major thoroughfares or city streets cut through the Campus. The Campus street network leading from these four major roads provides traffic access only to buildings and surface parking lots. Most of these roads lie on the periphery of the Campus, avoiding a major crossing of the pedestrian network in the “heart” of the Campus.

The main access points to access the campus by car are:

- Forest Park Parkway:
  - Intersection of Hoyt Drive
  - Access road to the parking garages at the northern edge of the campus
- Forsyth Boulevard:
  - Intersection of Hoyt Drive
  - several intersections leading to buildings and surface parking lots
- Skinker Boulevard:
  - Intersection of Brookings Drive



Major Pedestrian Walkways

WHAT’S THIS ----->

- Number of Parking Spaces
- City Roads
- Access to Parking
- Service Roads



- 1 Surface lot near Busch Hall
- 2 Small surface parking with handicapped access
- 3 Larger surface lot
- 4 Structured parking
- 5 Surface Parking along Forsyth Boulevard lots



At various intersections a number of one- and two-way streets lead from the major loop of city streets into the Campus to access buildings, surface parking lots and parking garages. These streets also serve as service roads and provide fire truck access. Traffic studies for future developments should emphasize pedestrian safety by reducing the number of traffic intersections along Forsyth Boulevard, equipping critical intersections with traffic lights and additional lanes, and providing careful designs for pedestrian crossings at traffic intersections along Forsyth Boulevard.

Parking

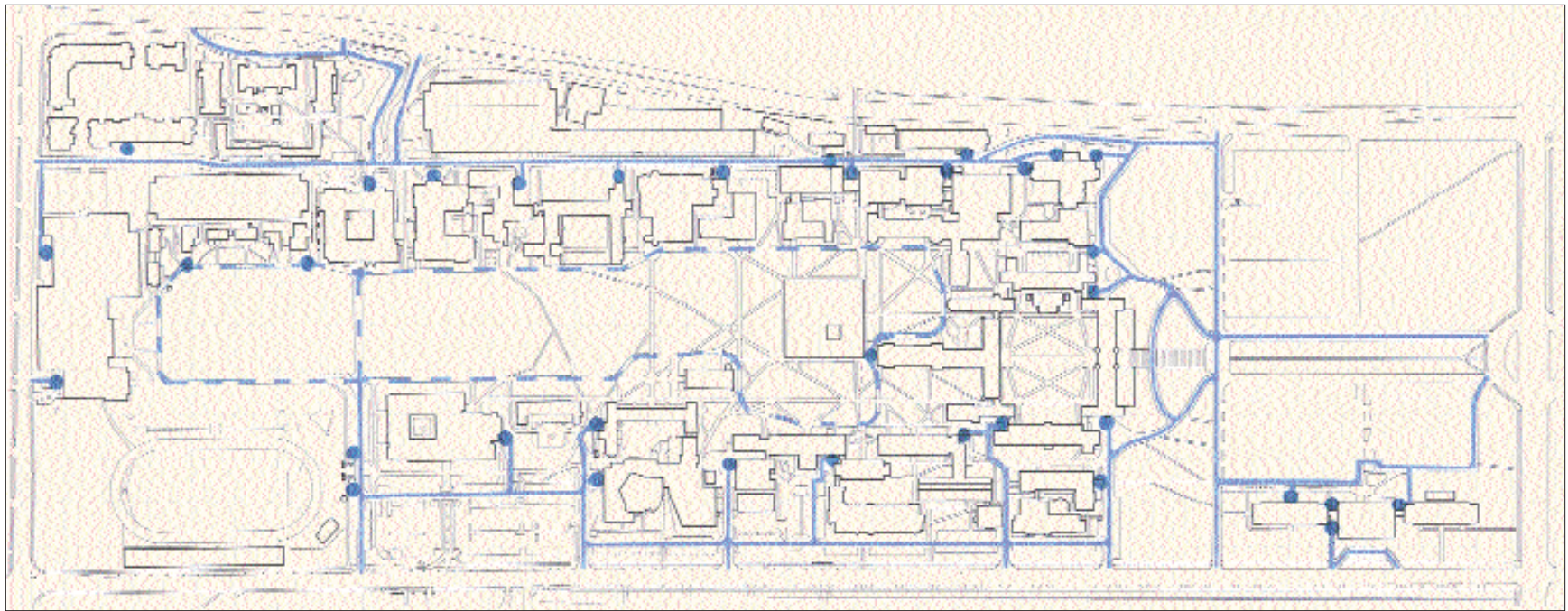
While a detailed traffic and parking space analysis falls outside the purview of this Report, a cursory analysis of future parking requirements indicates the need for a gradual replacement of surface parking lots with underground parking spaces in separate garages or under new buildings (see the section on the East Hilltop Campus in Part II of this Report).



Service Roads

The internal street network and pedestrian walkways are sufficient to provide access for service to all buildings on the Campus. Future development will have to use existing streets for service access. Corrections to street layouts in order to improve safety and minimize service roads will be required for future development.

The relatively discrete loading facilities for traditional buildings should serve as precedents for new loading docks, even though current requirements for larger docks will have a much greater visual impact on the Campus.



Service Network

- 1 Service to typical academic building
- 2 Loading dock at Bryan Hall
- 3 Service to \_\_\_\_\_ Building



BUILDING FEATURES

- Building Typologies
  - Plan Typologies
  - Bar Buildings
- Architectural Elements
  - Bridges, Passages and Arched Portals
  - Loggia, Towers and Gates
- Façade Compositions
  - Windows
  - Elevations
  - Ornament
- Exterior Materials
  - Exterior Wall Construction



Plan Typology

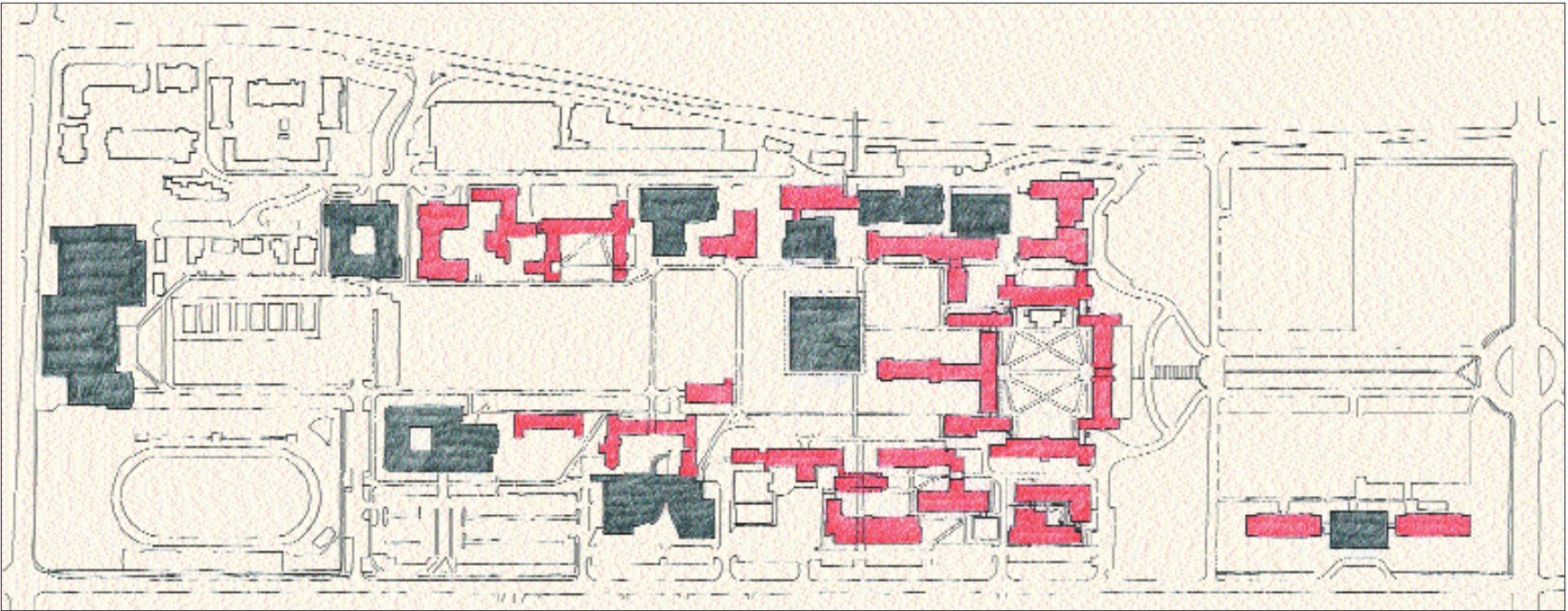
The predominant plan type of the traditional buildings consists of a double loaded corridor arrangement of individual rooms (offices and small classrooms) on either side. The building depth varies from 38 ft (Dunker Hall) to 50 ft (Brookings Hall). A typical plan consists of a 20 ft deep offices and an 8 ft wide corridor. Larger rooms (classrooms), which require more than 20 ft depths occur at the ends of the buildings. These spaces are either parallel or perpendicular to the corridors. The plans are relatively narrow as they were originally dependent on natural light and natural ventilation.

During the mid-century expansion of the Campus, modern plans such as Olin Library (230 ft x 230 ft) were introduced. These schemes departed from the past and suggested deeper floor plans. The plans depend on artificial lighting and mechanical ventilation.

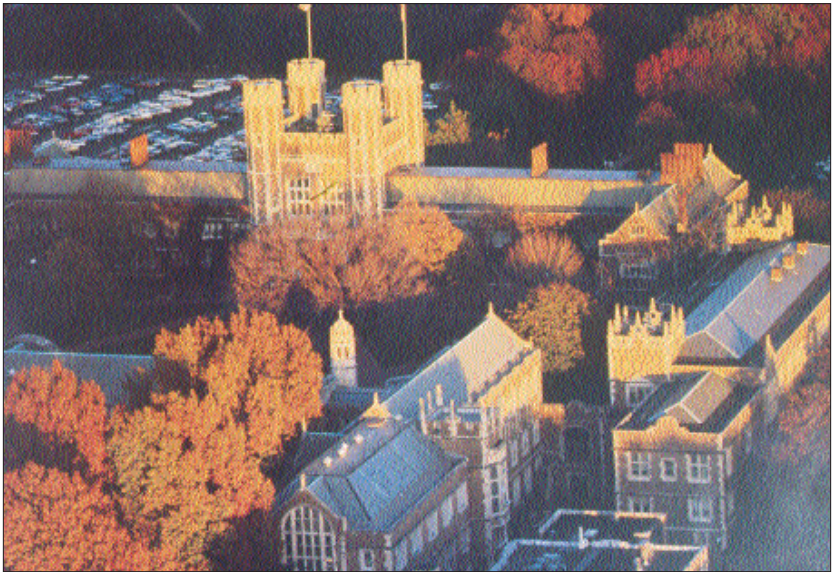
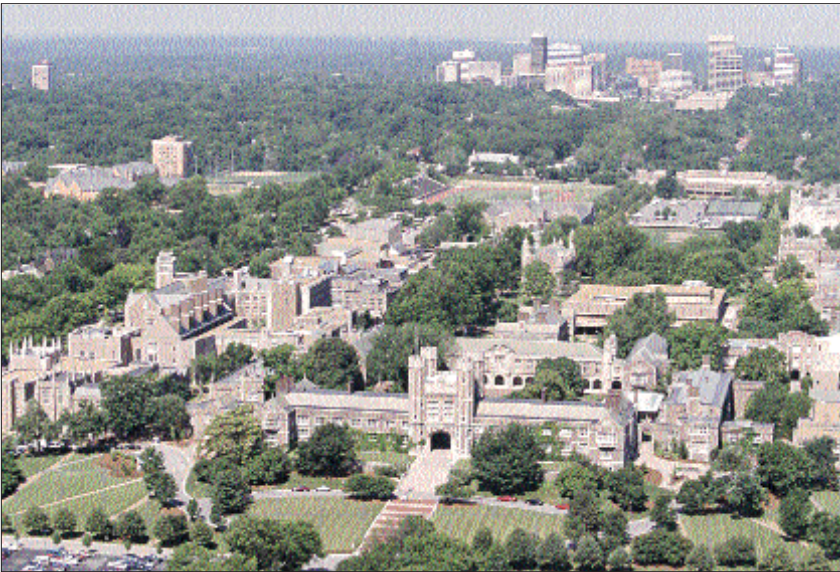
The length of the traditional bars ranges between 95 ft (January Hall) and 160 ft (Brookings Hall).



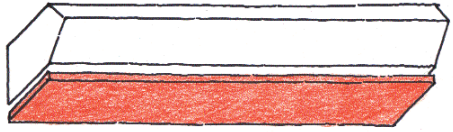
The proportions and dimensions of this older plan type are significant because they determine the horizontal dimensions and the scale of the buildings.


Where new programs require a building depth greater than 50 ft, it is of the utmost importance that the floor plans are articulated to “break down” larger depths demanded by contemporary programs. One example demonstrating this planning strategy is McDonnell Hall.




Building Typology








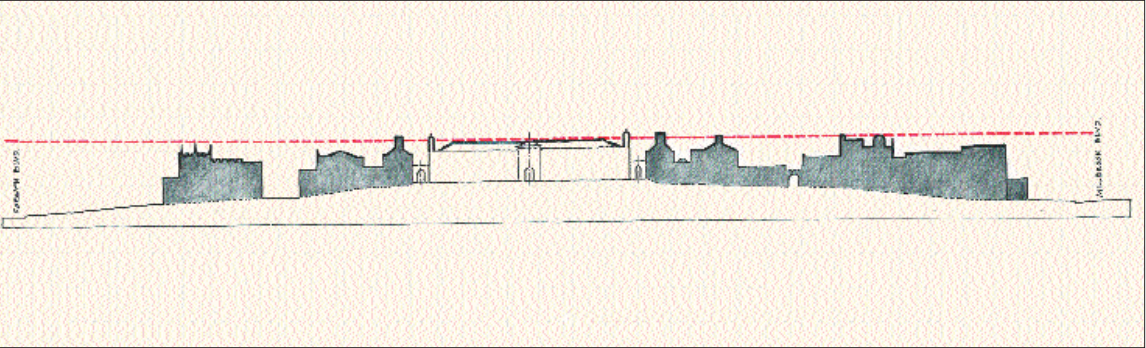
The Long Façade



The Short Façade (Gable End)



The Roof



Consistent Building Height

Bar Buildings

Three distinct features characterize the scale and massing of the bar buildings:

- The Long Façade
- The Short Façade (Gable End)
- The Roof

The Long Façade

Unlike medieval ecclesiastic gothic architecture, the Collegiate-Gothic of Cope & Stewardson is a two-story horizontal composition. The low profile and the length of the bars contribute to an overall character of intimate, horizontal scale; one could call it a “domestic” scale. Most bars run east/west, thereby orienting the long façade north and south. These long façades seem firmly rooted into the ground due to increased thickness of the exterior walls at the base.

This provides a series of plinths out of which the buildings seem to rise. The overall composition tends to be symmetrical; however, following the gothic tradition there are numerous instances of asymmetries within the overall bilateral symmetry. Vertical elements, such as gables, entrances, and towers occur either at the ends or the center of the façades.

The Short Façade (Gable End)

The narrow, vertical façades/gable ends are oriented to the east and west and contrast with the long, low sides of the bars. There are two different ways of ending the bar: first, a cut of the extrusion which exposes the shape of the bar profile (the gable of Brookings Hall); and second, a more continuous corner with a parapet following the geometry of a hip roof. In many cases, the

end façades are embellished with ornamental bay windows.

The Roof

The bars are covered with pitched roofs of various degrees of slope (XX% to XX%). The height of the roof ridge depends on the shape of the roof and the width of the bar. Roofs are either extrusions or hip roofs. Eaves are either parapets (Brookings Hall) or overhanging roofs (Women’s Building). The “body” of the roof for any new building should be compatible in scale with the traditional roofs.

Height Datum

The aforementioned bars have in common an additional characteristic: there is a clear horizontal datum of the Hill Campus determining the heights of most buildings. The height of XX feet – corresponding with the eaves of Brookings Hall – should not be exceeded by any new structure. This will guarantee the dominance of Brookings Hall’s towers for the future. Buildings two or three stories high are also easily accessible by stairs, and are not greatly dependent on elevators. Additionally, this height datum ensures the character and domestic scale of the Campus.



Building Features  
Architectural Elements

Bridges, Passages, and Arched Portals

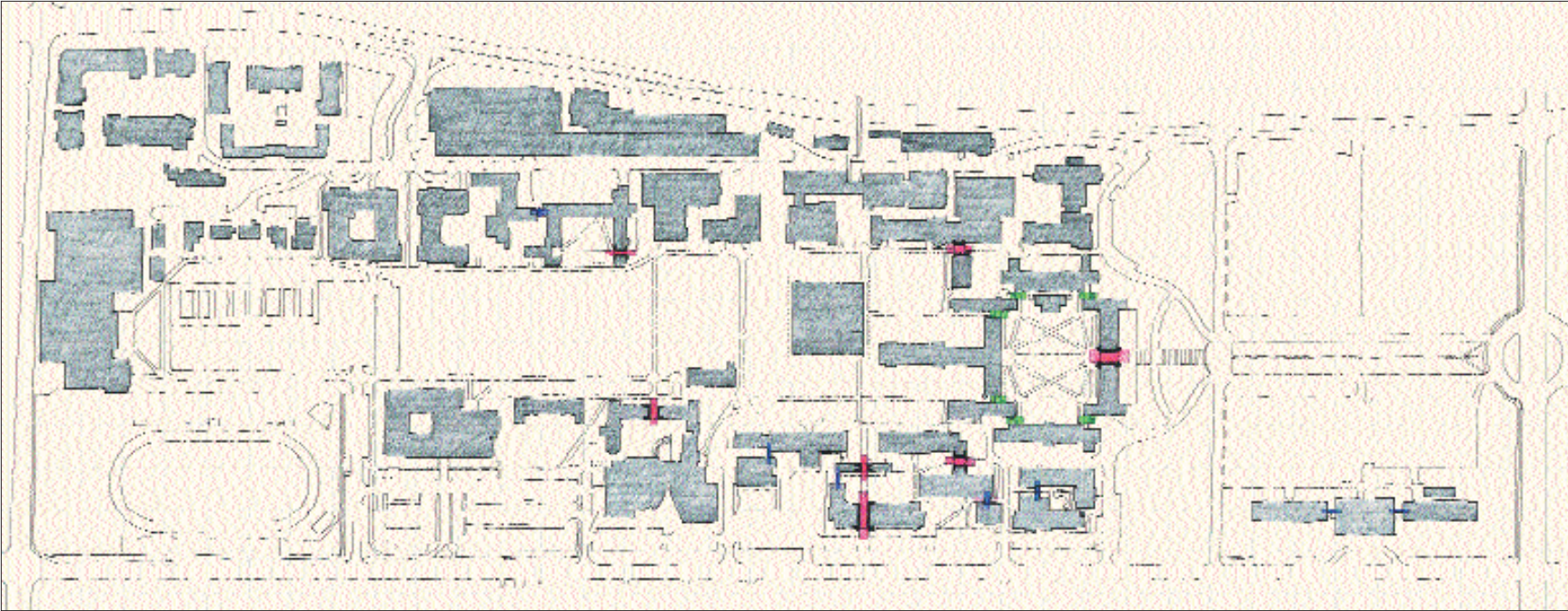
Cope & Stewardson's intention, as revealed in the first sketches of their 1899 Block Plan for the Washington University Campus, was to design an integrated 3-dimensional "organism" out of a series of buildings in which the overall would be greater than its parts.

This approach manifested itself through the use of a number of architectural elements, which establish an important formal hierarchy of urban elements in the overall composition of the individual academic buildings.

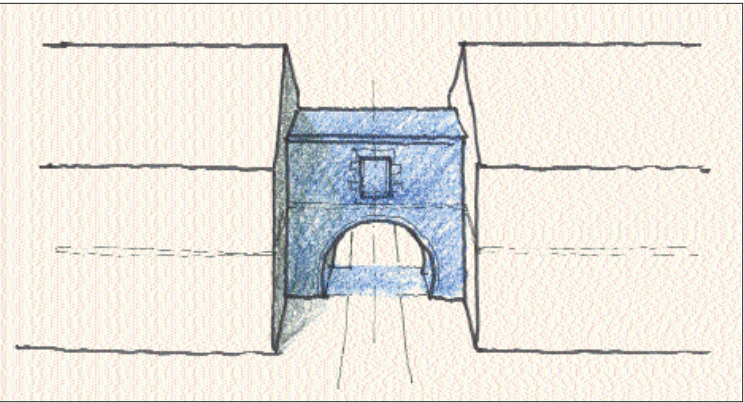
Bridges

Cope & Stewardson's idea of interconnected buildings is achieved by bridges linking buildings around the Main Quadrangle.

Throughout the further development of the campus several modern bridges, such as between the Monsanto Lab and Rebstock Hall, were built.



Bridges, Portals and Passages



Typical Bridge



ANALYSIS AND DESIGN STRATEGY

ANALYSIS AND DESIGN STRATEGY

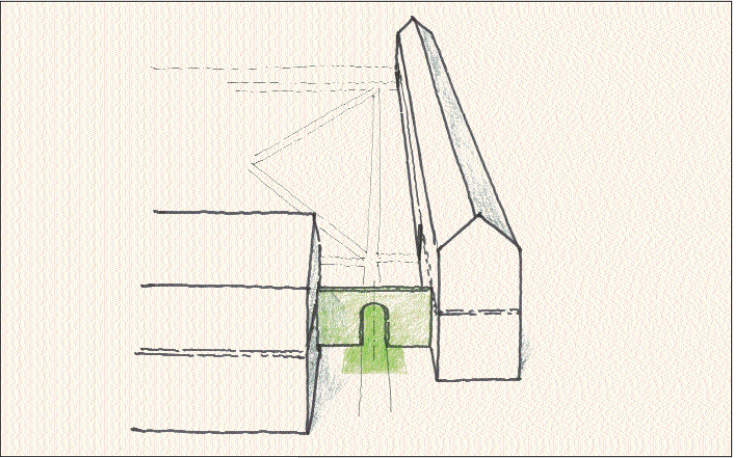
Building Features  
Architectural Elements

Arched Portals

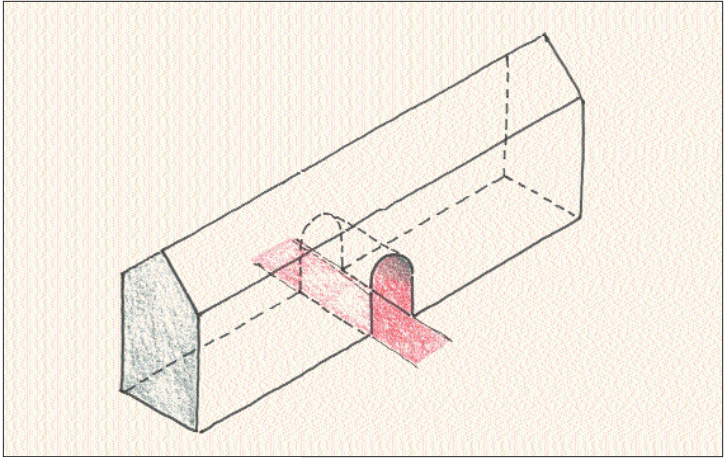
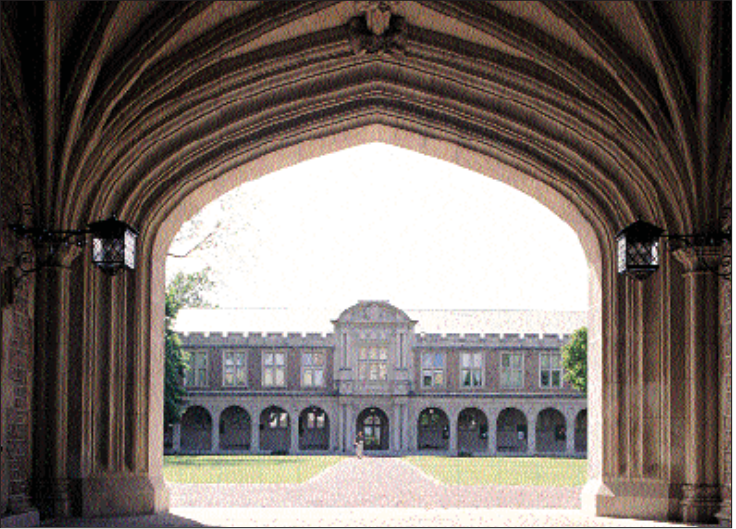
These elements connect individual buildings, bridge important "gaps" in the building fabric, and provide figural portals to enter and exit courtyards.

Passages

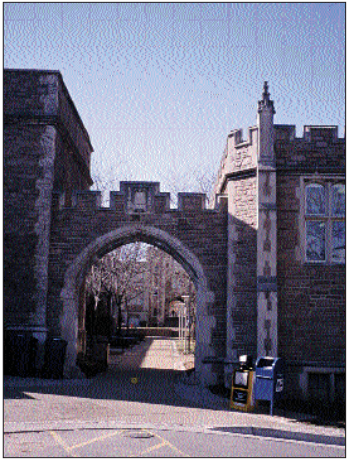
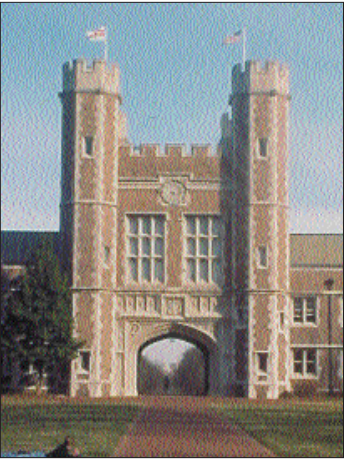
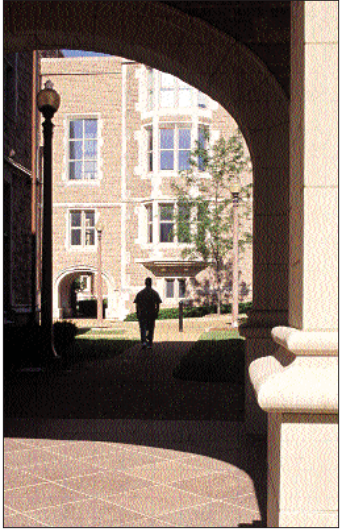
A series of passages under or between buildings, marked by arches, link one courtyard to another.



Arched Portals



Passages





Loggia, Towers, and Gates

Loggia

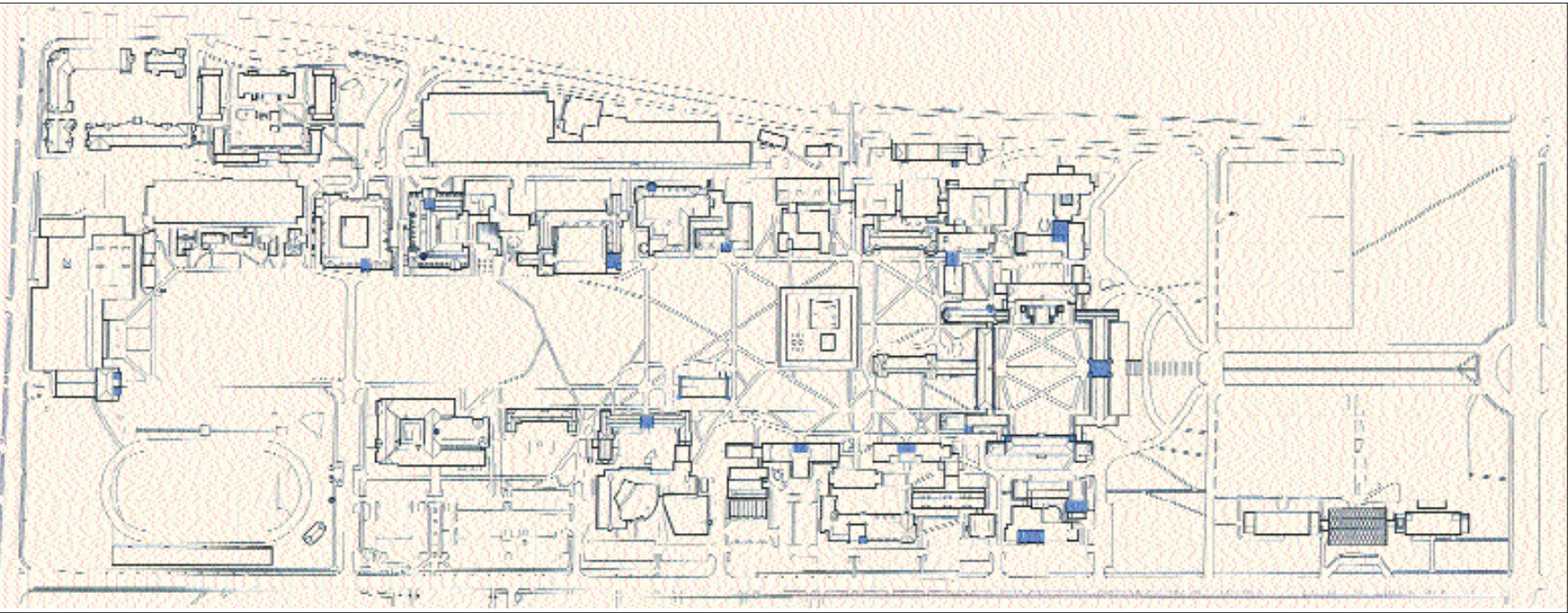
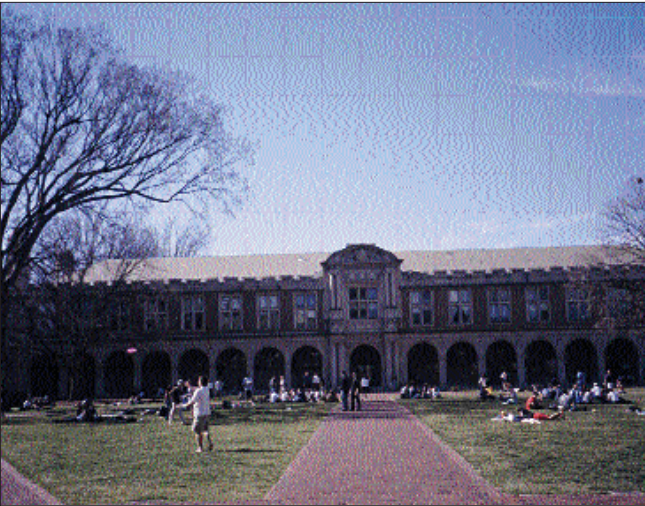
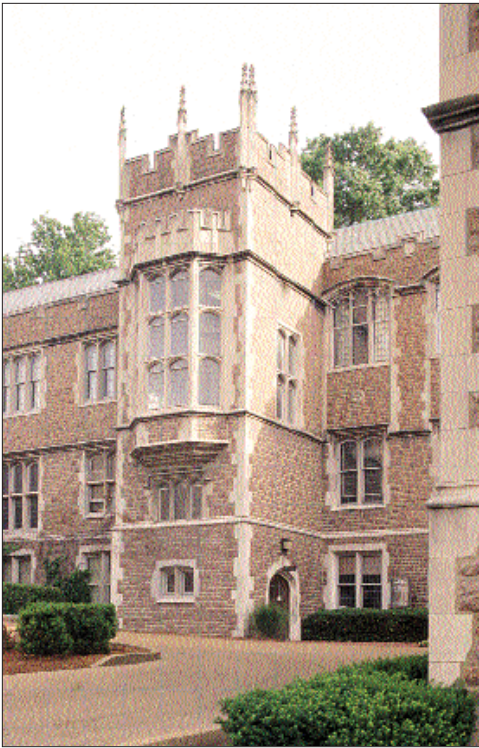
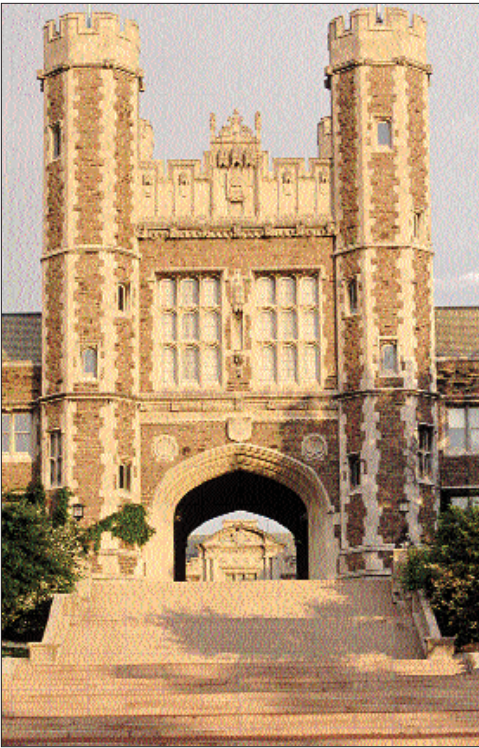
The unique loggia at Ridgley Hall monumentalizes the main façade facing the Main Quadrangle and provides an appropriate entrance for the original main library of the Campus.

Towers

The many towers of Washington University contribute to the picturesque silhouette of the “gothic” campus and mark important axial locations and entries. Compositionally, the verticality of the towers provide a welcome contrast to the low horizontal line of the bar buildings marking the two story horizontal datum of the campus.

Gates

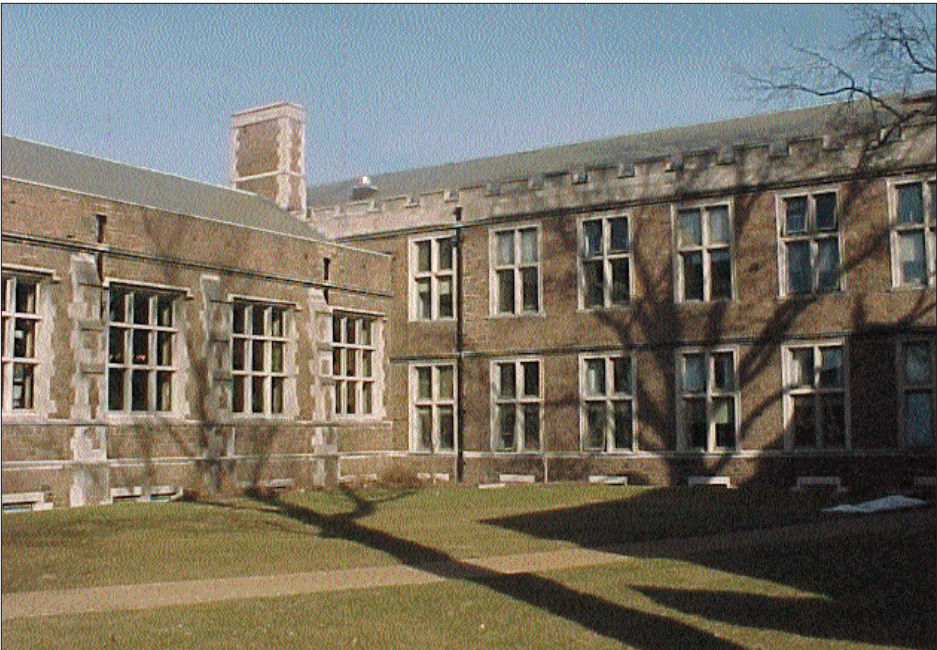
Gates, such as the one marking the entrance of Francis Field, indicate important points of entry and exit within the protected fenced in area of the sports field.



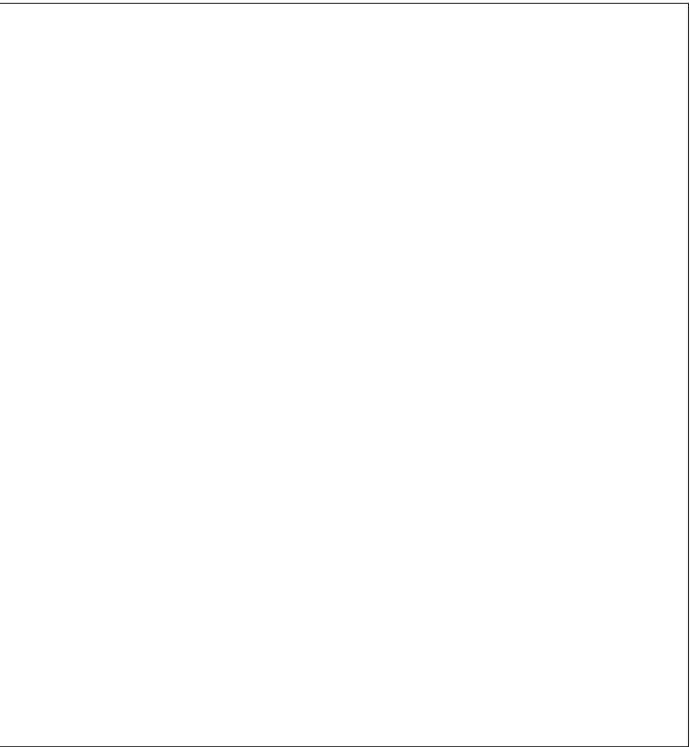
Towers and Cupolas



Windows



Bay Windows

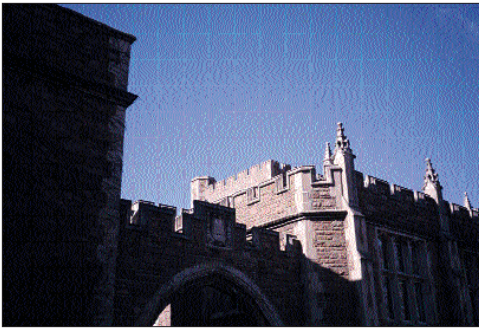




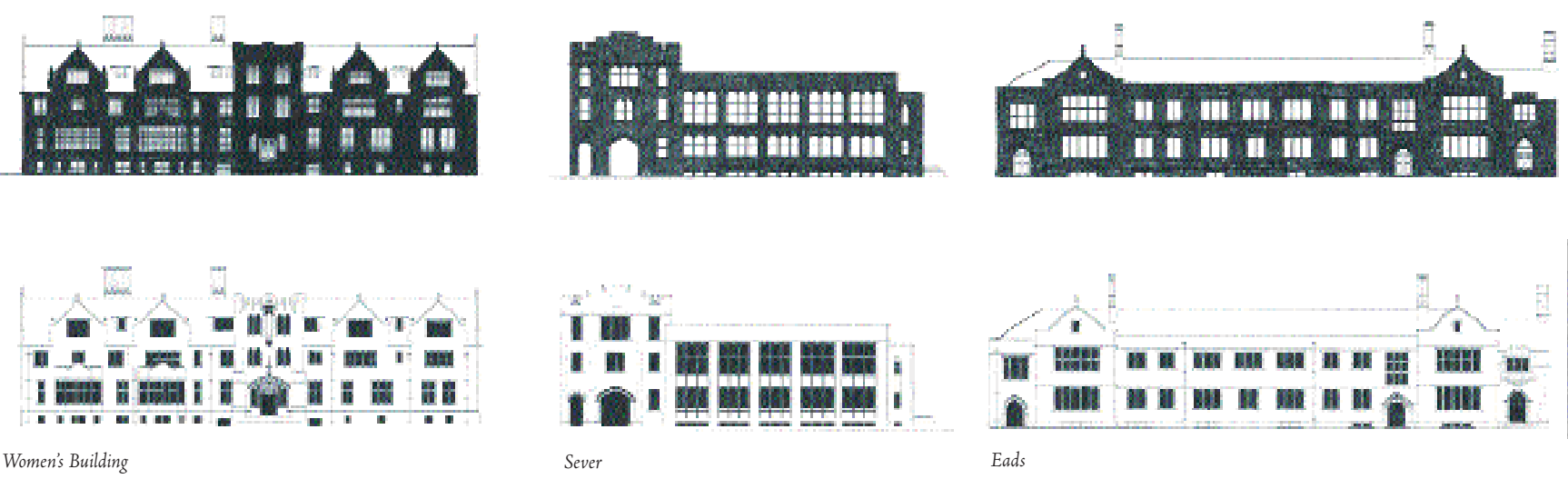
Building Features  
Façade Compositions

Elevation: Building Silhouettes

Where roofs (eaves and ridges) meet the sky, small vertical elements contrast with the horizontality of the bars to contribute to the richness of a picturesque skyline. Towers, turrets, chimneys, gables, finials, dormers, figures, crenellated parapets and downspouts are the important architectural features which make up this particular Collegiate-Gothic campus.



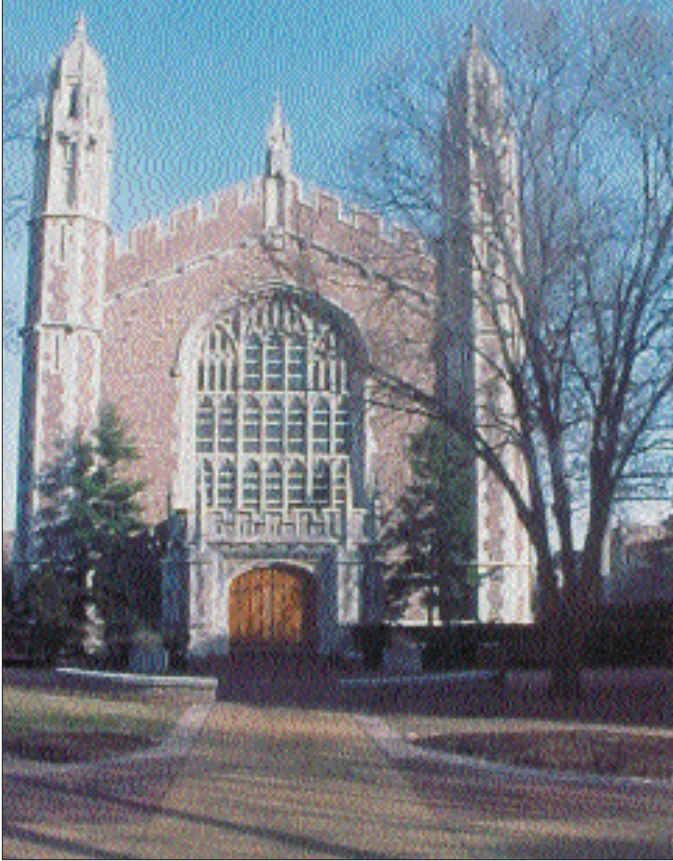
ANALYSIS AND DESIGN STRATEGY



Women's Building

Sever

Eads



Building Features  
Façade Compositions

Elevation: Solid/Void and Window Arrangements

The load-bearing wall and the windows punctured into the wall constitutes a major theme both for Cope & Stewardson and for later Collegiate-Gothic buildings. The need to get natural light into the rooms and the technical difficulty of cutting openings into the load-bearing walls determined the ratio of solid (wall) to void (window). Modern buildings on the campus predominantly have larger panes of glass.

This traditional solid/void ratio should be maintained for new buildings despite the fact that the walls of today are skeletal rather than load bearing. It is interesting to note that there are precedents for large windows even in the older buildings on campus; Graham Chapel is a prime example. These windows are characterized by limestone tracery and mullions which make the windows appear like screens.

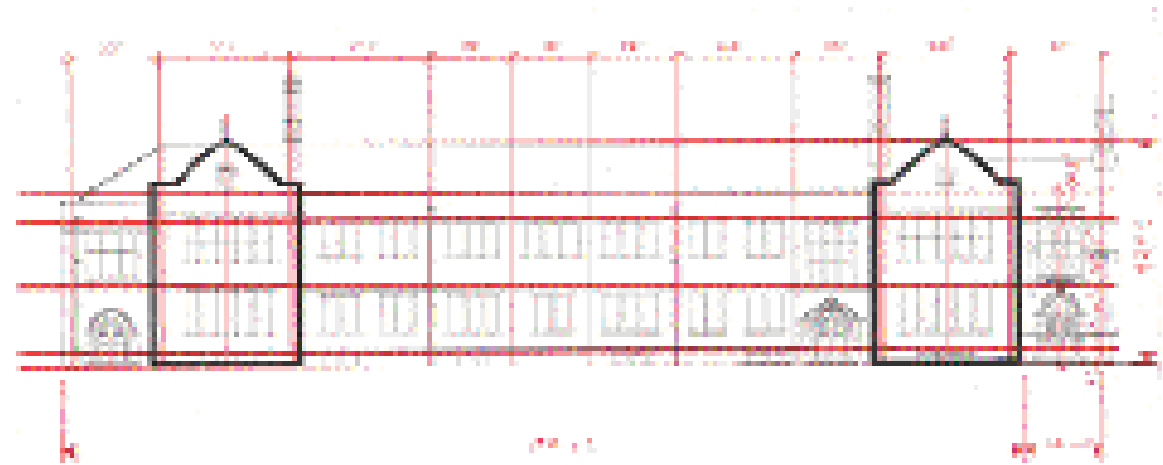
The vertical proportion of the basic double-hung window unit, the groupings of two or three windows, and the bay rhythm should be studied and guide new proposals. The bay window – either symmetrically or asymmetrically placed – emphasizes centers and ends of elevations. The vertical rhythm of the repetitive window modules are juxtaposed with the horizontal banding (limestone) of watertables, window lintels, moldings and eave lines.



Elevation Proportions

Due to the structural limitations of the bearing wall, demand for natural light and interior partitioning for a particular use, the original buildings worked within a typical bay dimension of \_\_\_\_\_ feet. These bays define the serial, generic order of the façade.

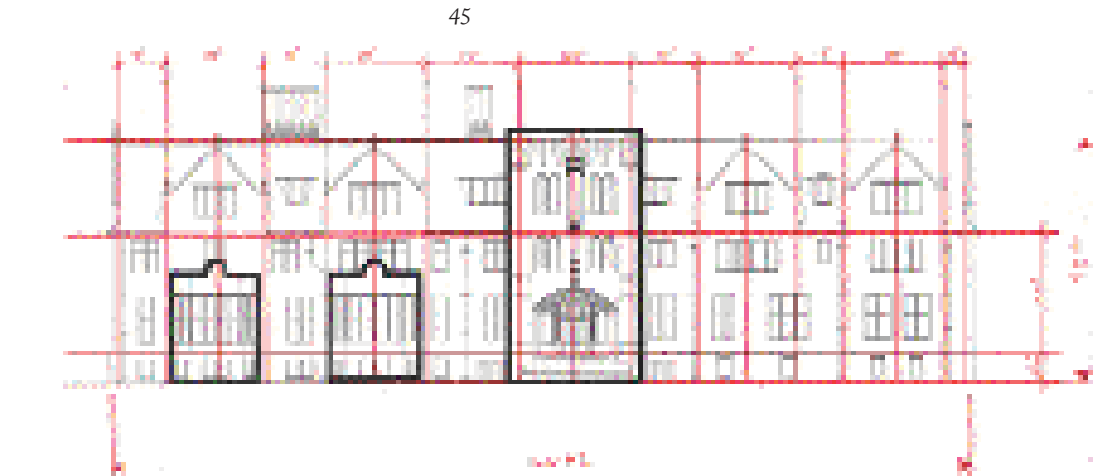
This repetitive basic vertical order is juxtaposed with figural elements of entrances, bay windows, pavilions etc. This relationship between the basic order, the “theme,” and the figures make up the overall composition. Floor to floor heights are XX ft. There is a classical “tripartate” order of base, middle, eave and roof.



Symmetry (Eads)

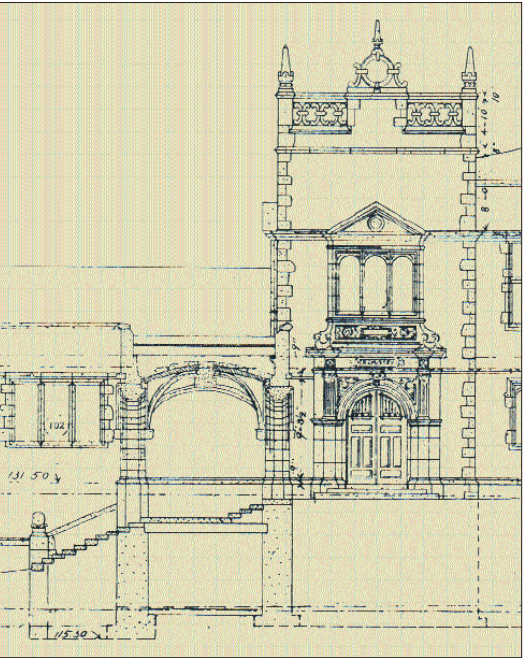
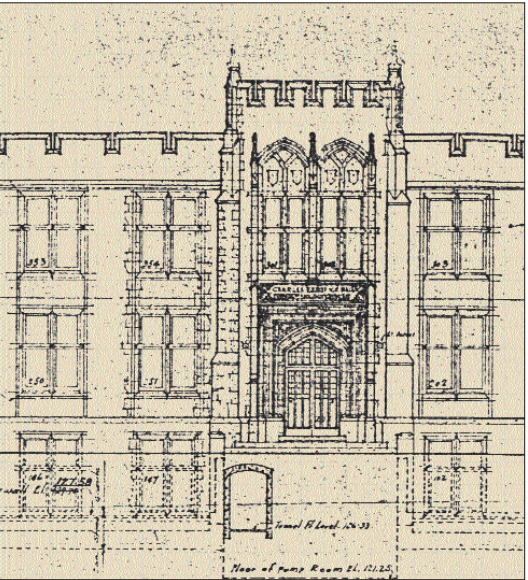
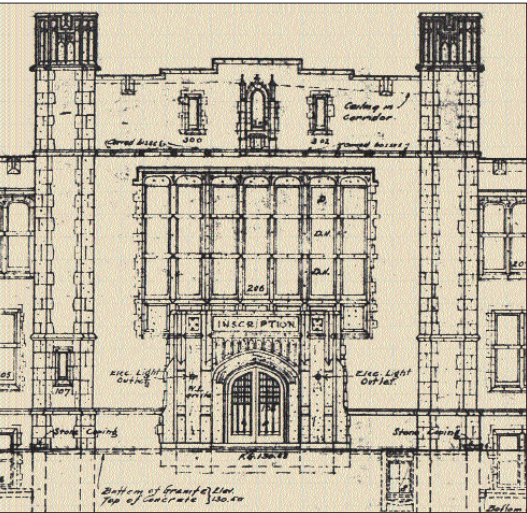
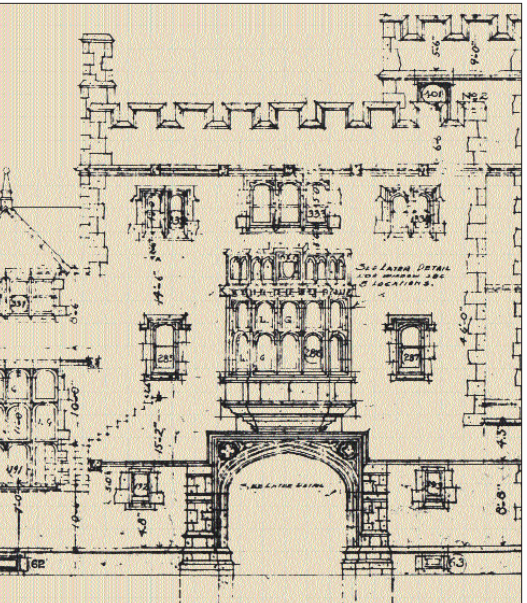
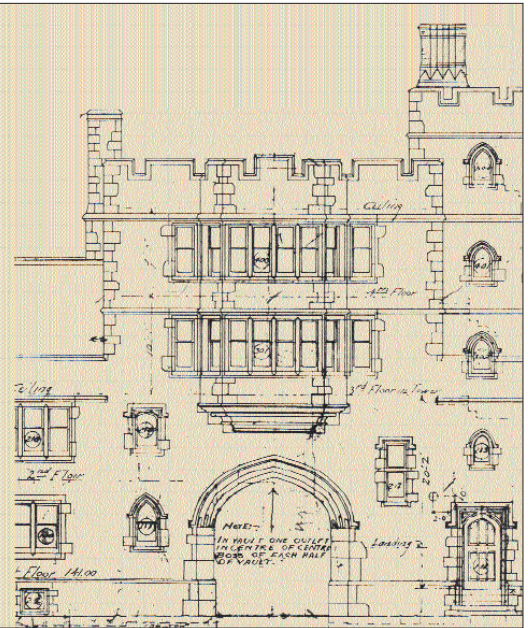
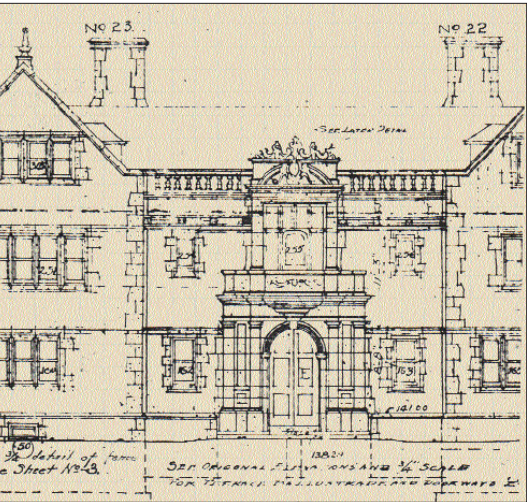


Asymmetry (Sever)



Hybrid (

Ornament





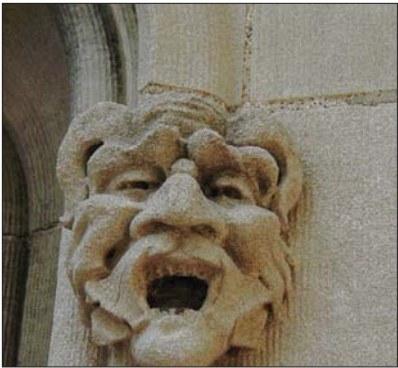
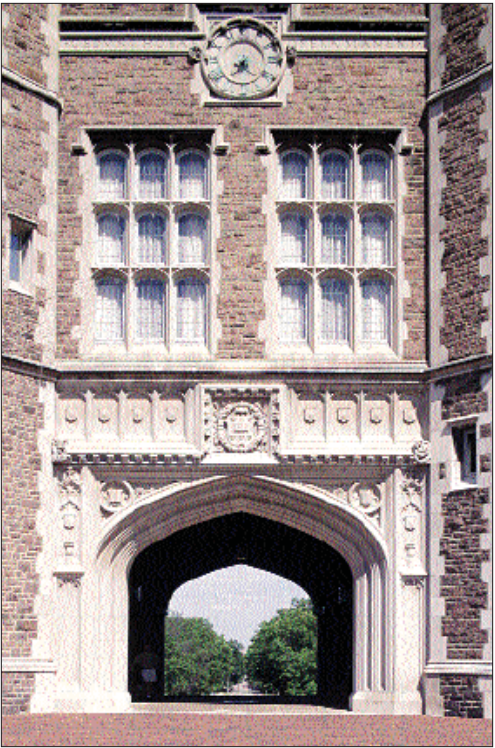
Ornament

Moldings, spires, finials and decorative elements like flowers, mythical figures and fable animals of gargoyles told the “story” of gothic architecture in a modern context by Cope & Stewardson’s buildings and their surface decorations.

These embellishments, rooted in the traditional craft of the builder, contributed to the richness and articulation of the exterior walls. Classical pediments gave the entrances of buildings additional significance. The gothic groin vault was used for passages penetrating buildings.

Despite the fact that many of these past decorations have lost their meanings, we should search in our time of “rationa” and “abstract” architecture for enrichment through the articulation of the exterior wall by means of depth, profile (which cast shadows) and sensible treatment of materials and surfaces.

At the same time mere replicas should be avoided or a descent into “kitsch” and Disneyland-like associations might occur.

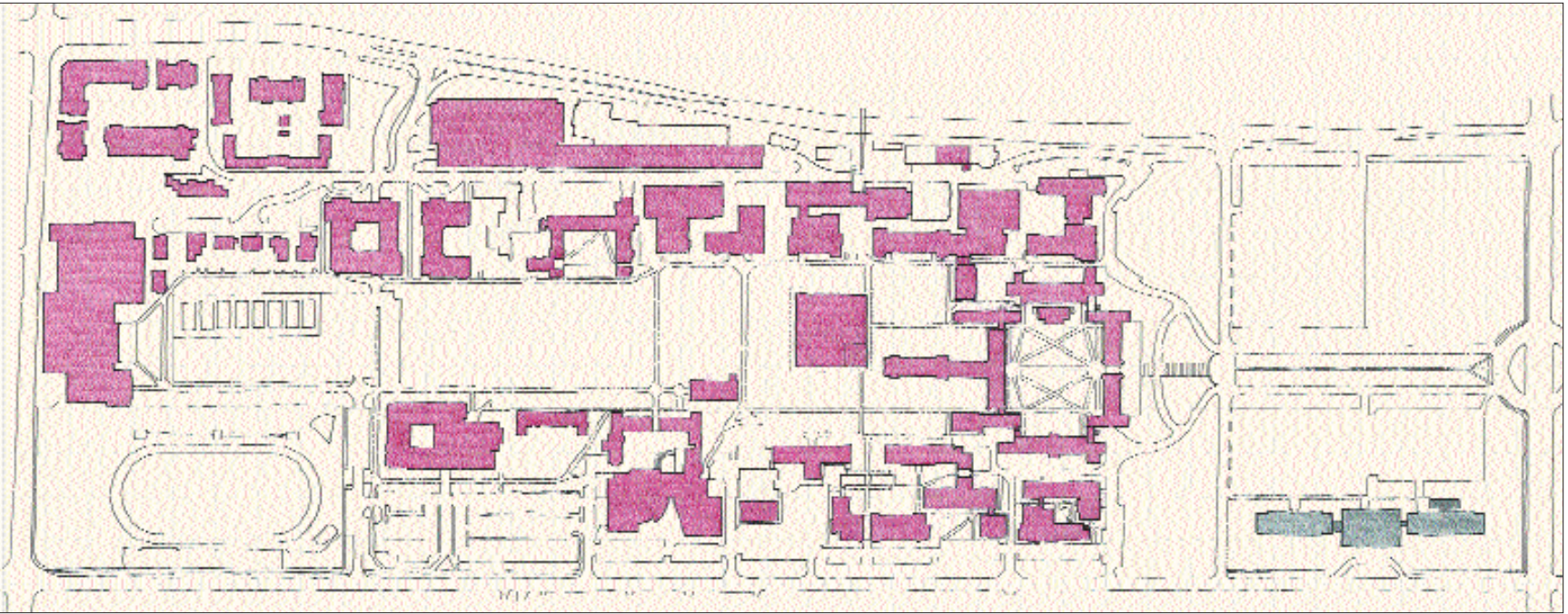


“Red” Facade



“White” Facade

Ashlar Granite, Brick and Precast Concrete  
Limestone



Materials

“...In this particular site, rising, as the building will, out of the green of lawn and trees, their walls and towers hung here and there with ivy and creeper- our preference is for stone.”

Cope & Stewardson (1899)

The original buildings built on the Campus between 1900 and 1925 were constructed with ashlar granite bearing walls, limestone trim and embellishments, slate sloped roofs, brick chimneys and double hung wood windows with small glass panes.

When Jamieson and Spearl built Bixby Hall (1925) and Givens Hall (1931), the tradition of red ashlar, granite wall material was broken in favor of exterior walls made of light gray limestone.

After 1950 a series of modern buildings (Urbauer Hall, Steinberg Hall, Bush Lab, Malinkrodt Student Center, Mudd Hall, etc.) introduced a whole new range of materials: cast in place and precast concrete, large aluminum and glass panes, concrete block, and stucco. These modern materials were in keeping with the newly-introduced modern architectural language on the Campus at that time, breaking the Cope & Stewardson tradition.

However there were attempts to make use of the traditional red ashlar granite wall in a modern interpretation at buildings like Olin Library, McMillan Dormitory, Bryan Hall and Compton Hall. In these buildings, the red ashlar granite was used as infill materials between cast-in-place concrete slabs and columns.

Since the erection of Olin School of Business in the mid 1980’s a return to Cope & Stewardson’s simple traditional material palette has occurred, placing emphasis on the importance of material continuity as a desirable architectural quality.



Exterior Wall Construction

Traditional Buildings (Cupples II :1900)

The exterior wall consists of an 18” thick solid ashlar granite wall which supports the floor slates and the timber roof construction. Steel lintels above the window openings bridge exterior wall penetrations.

Contemporary Buildings (Olin School of Business, 1986)

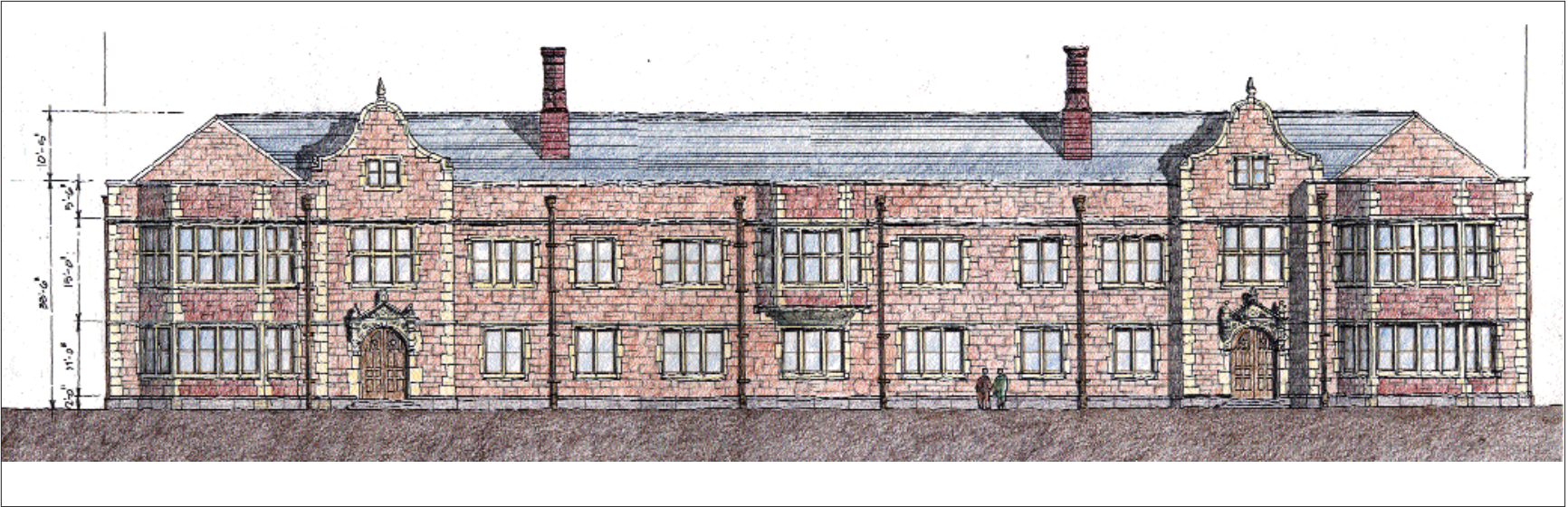
The exterior wall consists of a cavity wall: 4” ashlar granite veneer, 1” mortar joint, 6” concrete block and 2” insulation on the inside of the wall. The structural system is clearly separated from the waterproofed membrane and consists of a steel superstructure.

Recent New Buildings

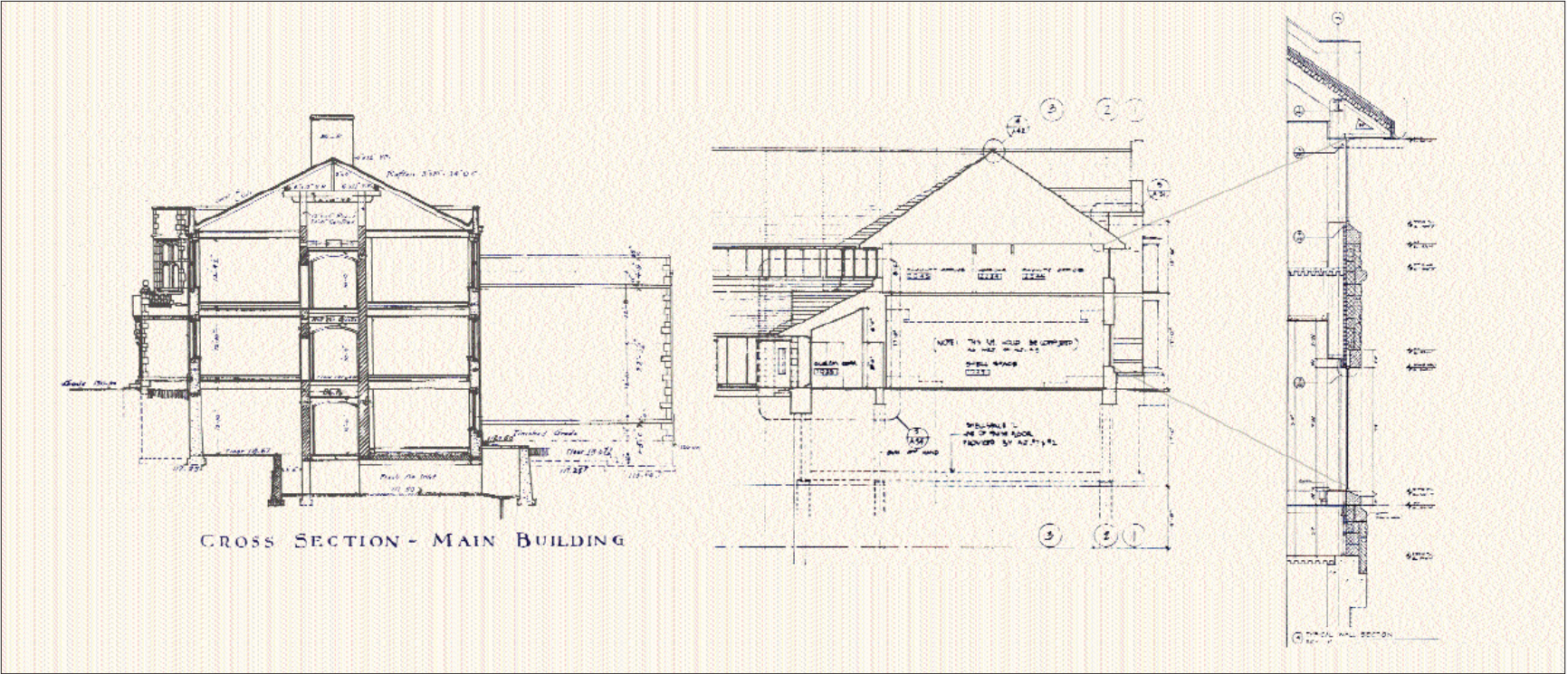
A modified exterior wall consists of a 4” ashlar granite exterior supported by a cast-in-place concrete superstructure instead of steel. A 4” air space separates the veneer from the load-bearing concrete wall and provides for 2” of rigid insulation.

Material Selection for Exteriors

The traditional palette of materials should be a guide for the selection of materials today. Similar materials should be used unless there are good reasons (availability, economy etc. ) to look for compatible substitutes.



Comparison of 'Old Construction', (Section of Cupples II, built 1900), and 'New Construction' (Section and Wall Section of Olin School of Business, 1986)



Exterior Materials of Cupples II, built 1900, South Elevation



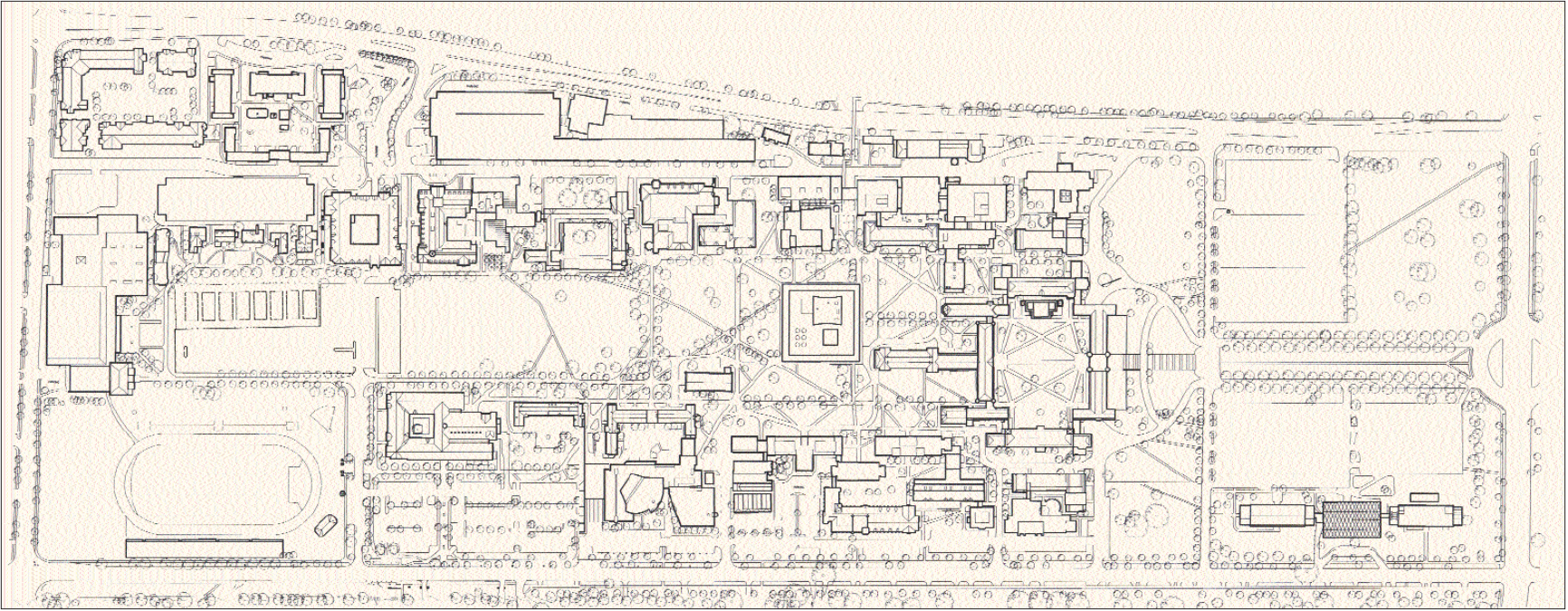
Introduction

The largest land reserve for Washington's University expansion in close proximity to the existing campus is the 'East Campus' and the North and South corners of the slope facing East in front of Brookings Hall. The School of architecture (Givens Hall), the Art Gallery (Steinberg Hall) and the school of art (Bixby Hall) have occupied this part of the campus on the southern edge since 1925 when Bixby Hall was built by Jamieson & Spears.

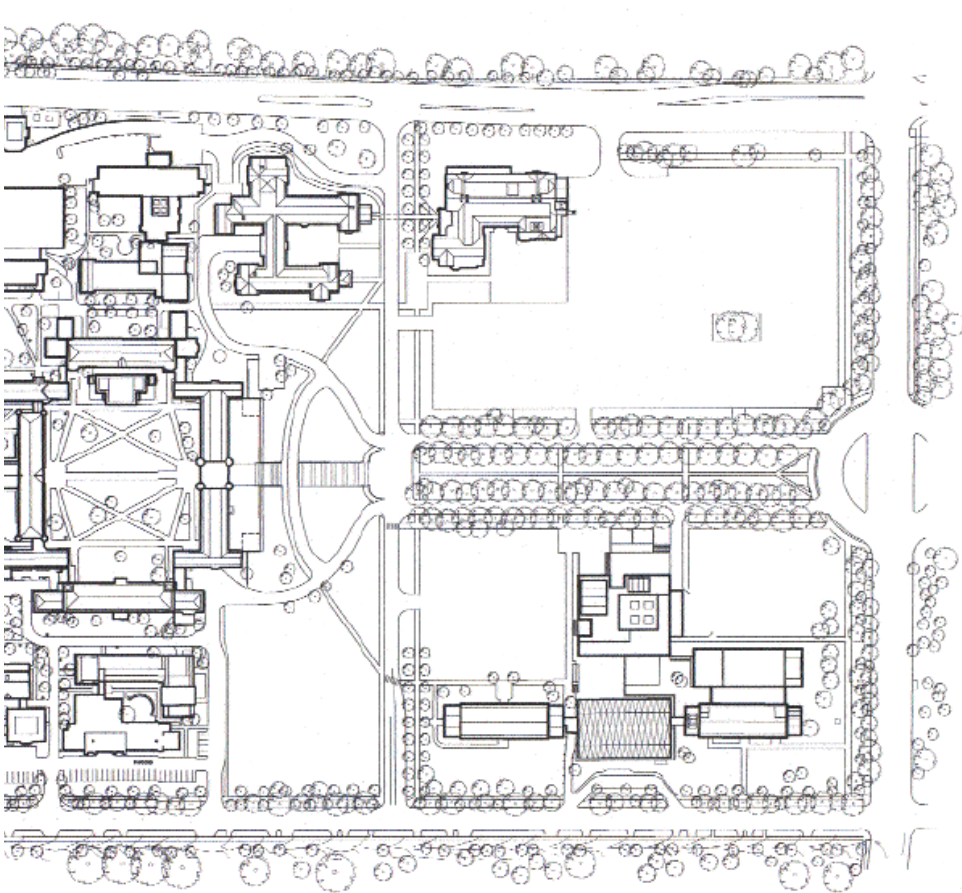
The rest of the land adjacent to the 3 buildings built over time was primarily used for a large parking lot serving the adjacent buildings as well as the entire campus.

The low building density and the "preferred" location of the 'East Campus' was always perceived as serving the students who did not belong to the rest of the campus population on the 'hill'. Now is the time to develop the 'East Campus' and provide much needed new space. An effort of tying the new buildings seamlessly with the existing fabric of the 'Hill Campus' should contribute to reducing the current sense of isolation students and faculty feel now in the East Campus.

The most important aspect of this site is the fact that the 'East Campus' is the forecourt of the entry to the Campus, dominated by Brookings Hall rising up



Existing Site



on top of the 'Hill.' The site is divided by the two double rows of trees running East-West in the axis of Brookings Hall. These trees mark the formal approach to the Campus for pedestrians as well as for cars. It is essential that this "Alee" is preserved and properly maintained to respect its historical significance. The existing site of the East Campus slopes 17 feet from the Brookings Hall drop off area and Skinner Blvd. A number of mature trees occupy the site and as many as possible should be preserved.

Currently Planned Buildings

The expansion to the East of Brookings Hall began 4 Years ago with the following project:

- 1. Visual Arts and Design Center:**  
*Architect:* Maki & Associates + RMW  
*Area:* GSF  
*Height:* Floors + Basement
- 2. Biomedical research Laboratory**  
*Architect:* Shepley Bullfinch, Richardson & Abbott  
*Area:* GSF  
*Height:* 3 Floors + 1 Basement
- 3. Earth And Planetary Sciences Building**  
*Architect:* Tsoi & Kobus  
*Area:* GSF  
*Height:* floors + 1 Basement

All of these projects are currently in various stages of development (Schematic design to Construction Documents)

Uses

The Bio-Medical building is the first building occupying the Northwest corner of the 'East Campus' as part of the relocating and expansion process to establish a new Campus of Engineering in the northern part of the 'East Campus.' This area is in a close proximity to the existing location of the Engineering Department (Urbauer, Compton, etc.).

The Visual Arts and Design Center is an extension of the existing Art School (Bixby Hall) and the Steinberg Gallery. It is also close to the School of Architecture (Givens Hall) who can benefit from a new Art gallery in close proximity.

Architectural Language of Proposals

The Bio-Medical building and the Earth & Planetary Building attempt to connect and continue the "collegiate-gothic" language of the Main Campus whereas the Visual Arts and Design Center proposes a reference to the language of "modern" Architecture rather than to the existing traditional context.



Parcels

3 Parcels are available for future building:

- 1.The parcel North of Brookings Drive, limited in the north by Forrest Parkway, in the East by Skinker Boulevard, and in the West by Hoyt Drive. This parcel is 820 FT by 540 FT, a total of +/- 450,000 SF.
  - 2.The parcel South of Brookings drive limited by the north elevations of givens Hall, Steinberg Hall, and Bixby Hall, to the South, in the East by Skinker Boulevard and in the West by Hoyt Drive. This parcel is 820 FT by 280 FT, a total of +/- 250,000 SF.
  - 3.The parcel of the slope on the East side of Brookings Hall:
- A. North Corner: 250 FT by 350 FT, a total of +/- 87,500 SF.
- B. South corner: 250 FT by 250 FT, a total of +/- 60,000 SF.
- C. Center: 250 FT by 500 FT, a total of +/- 125,000 SF. This area is reserved for an underground parking garage.

Proposed Master Plan

Introduction:

- The following planning principles are important for the development of the "East Campus":
- The principle of the bar buildings defining a sequence of courtyards.
- The emphasis of the east-west direction of the general building masses dominating the North-South direction
- The unintrusiveness of the buildings integrated into the existing slope of the terrain.
- The respect to maintain existing trees, especially the "Alley" parallel to Brookings Drive.Parcels

A. Parcel North of Brookings Drive

The 5 buildings proposed for this part of the 'East Campus' will form a new 'Engineering Campus' of roughly 600,000 GSF of new space. The building types accommodate a system of double loaded laboratory wings of approximately 70 feet of depth.

Two courtyards on two different levels (el. 507'-6" and e. 501'-6"), east and west of the centrally located Administrative/Classroom building provide the focal points of the new Engineering Department. Biomedical Laboratories (105,000 GSF) Chemical and

student/faculty communication. The two courtyards are connected by a passage penetrating the Administration/Classroom building in the center.

The sloping topography creates some difficulties to place entries into buildings without stairs or steep ramps providing access for the handicapped. Level changes have to be dealt with carefully and position of elevators can negotiate level changes internally.

5 buildings are 3 floors above ground with 1 floor of basement. The basements are connected with tunnels forming a service loop from and to a centrally located loading dock. Bridges above ground are linking the individual structures for ease of student/faculty communication. The two courtyards are connected by a passage penetrating the Administration/Classroom building in the center.

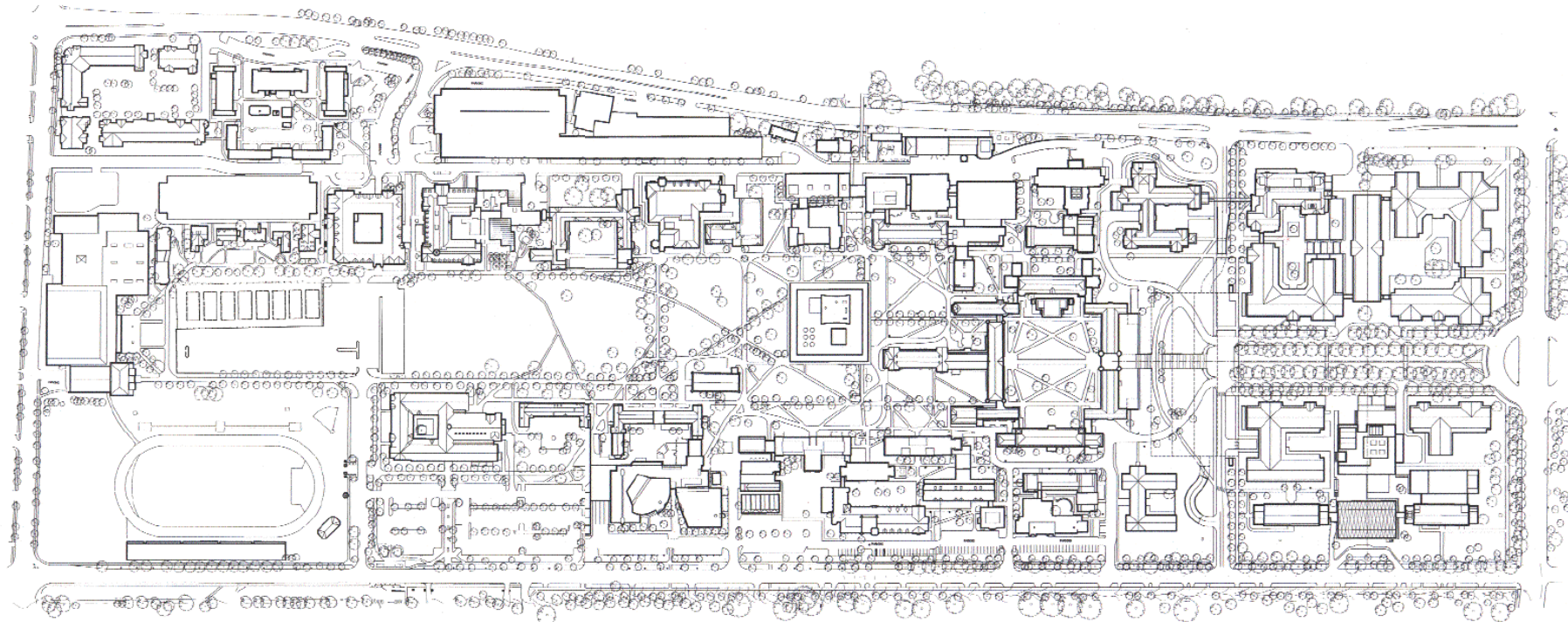
B. Parcel South of Brookings Drive

There are two buildings proposed for this part of the East Campus:

- 1.north of Givens Hall 140,000 GSF
- 2. north of Bixby Hall 60,000 GSF

Total	200,000
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The existing art complex and Givens Hall consists of 200,000 GSF, which provides a total of 400,000 GSF on the parcel south of Brookings Drive. The "grain" of these two new buildings runs east-west. The site north of givens Hall is deep enough to propose 2 parallel bars forming a courtyard. Both of these parcels (A



C. East slope in front of Brookings Hall, north and south corners.

In order to "bridge" the gap between the 'Hill Campus' and the flatter plateau of the East Campus the Master Plan provides 2 buildings flanking the north and South end of the Brookings Hall wings organically integrated into the existing slope. The buildings are far enough away from Brookings Hall and stepped in plan configuration, not to obstruct the view approaching Brookings Hall from Forsythe Boulevard, Brookings Drive, and Forest Parkway.

The building in the north corner is used by the Department of Earth and Planetary Science and the building in the south could serve as an extension of the Golfarb Hall, School of Social Work, or provide space for another department.

D. Slope in front of Brookings Hall

In order to accommodate car parking for the new 'East Campus' and provide replacement spaces for the existing surface parking, a 2000 car garage built into the sloping hill in front of Brookings Hall is proposed. Street ad pedestrian network patterns will have to be rebuilt on top of the garage. Sufficient earth depth to cover the garage should allow landscaping and 15'-20' tall trees. The area above the garage should look as "natural" as possible. The exit/entry ramps, the exit/entry stair towers and the airshafts providing fresh air and air return must be composed into the landscape as discretely as possible.