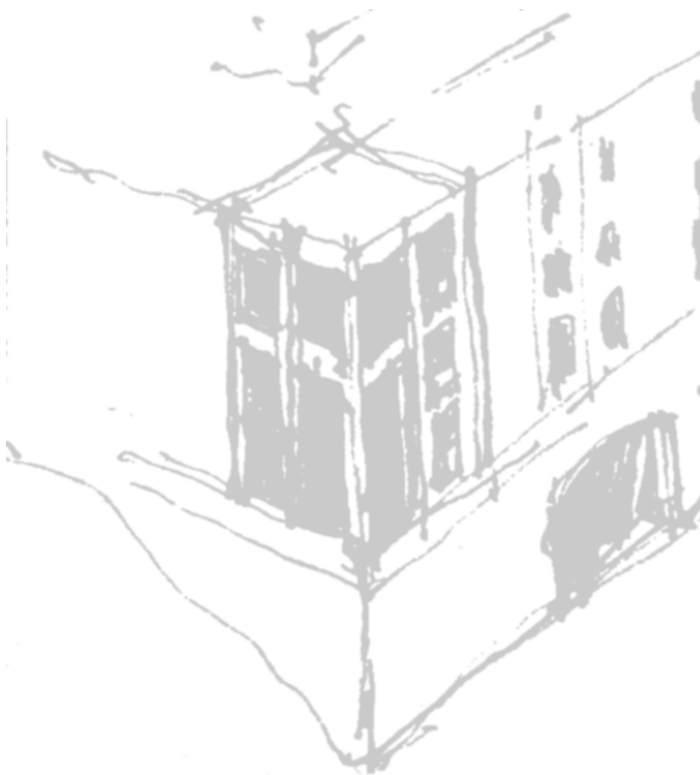


Corner Condition

— From residential area to civic center,
from campus to town

The courthouse is designed as a bridge connecting the residential area to the civic center of the town. The site is selected near the Town Hall and the Police Station — the civic center of the town. The new courthouse together with the two existing buildings will define a civic triangle. Inside the triangle, the existing green area will become a small public park. This triangle will serve as the front square of the courthouse, and it will also connect the three important public buildings of the town. Along Main Street, toward north of the civic center, there are commercial shops, banks, and the post office. On the northwest of the civic center, is the area where the first residential buildings for faculty members of the university were built. The courthouse, therefore, is located near the edge of the residential area and becomes the bridge between the residential area and the civic center, and the bridge between the campus and the town.

The corner condition of the site emphasizes the conditions mentioned above and becomes the key point of the design. It shows not only the transition of directions, but also the transition of scales and the transition of materials. In addition, the architectural interpretation of the corner condition can be also considered as the important point in the urban space. Therefore, it will become a landmark in this urban situation.



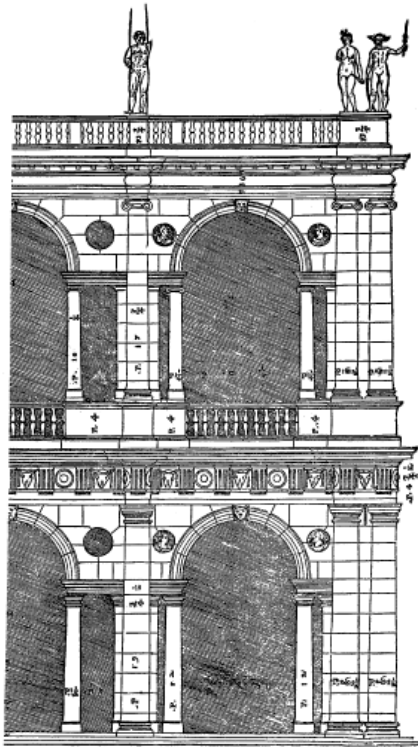
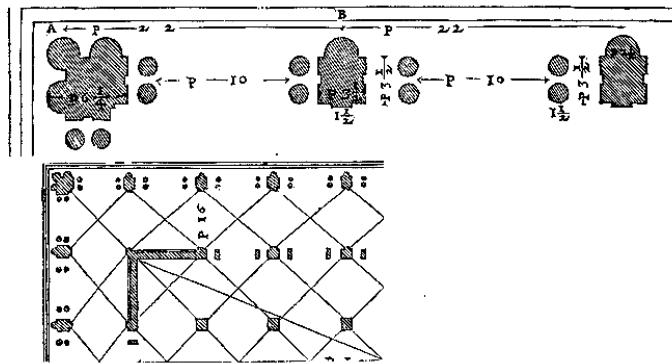
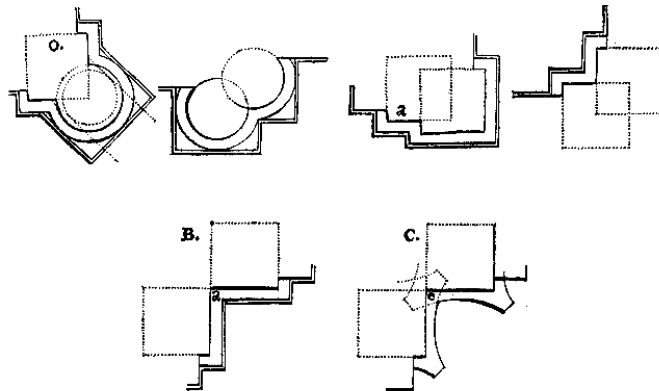


Figure 3--1 corner of the Basilica of Vicenza



Palladio's pattern (1570)

Figure 3--2 classical corner columns



Blondel's pattern (1752-1756)

Figure 3--3 classical corner columns

Transition of Direction

Two basic characteristics of a corner are the connection of two different directions and participation in two facades simultaneously. Therefore, two main solutions of the corner condition are emphasized on different rudimental ideas: transition and separation. Often, the corner adheres to conditions of classical symmetry (Figure 3--1-3). But many modern architects are challenged by the corner condition and its opportunities. The Citicorp Center in New York City, designed by Hugh Stubbins & Associates, is an excellent example (Figure 3--4). The ground level of this skyscraper, including a church, a plaza, and galleria, provides a pleasure place for ordinary people to visit. Since 1862, there has been a Saint Peter's Church at the corner of Lexington Avenue and 54th Street. Stubbins designed a new church on the same site and made the church be a member of the Citicorp Center. The corner with the new church becomes the most charming corner in this project.

Another example is the Carson Pirie Scott in Chicago, designed by Louis Sullivan and built in 1904 (Figure 3--5). Sullivan's decorative ironwork emphasized the corner from the exterior as well as the interior.

figure 3--5 Carson Pirie Scott, Chicago, 1904



figure 3--4 Citicorp Center, New York City, 1978



Figure 3--6 the intersection of Main Street and Jackson Street



Figure 3--7 the intersection of Main Street and Jackson Street



Figure 3--8 the intersection of Main Street and Jackson Street

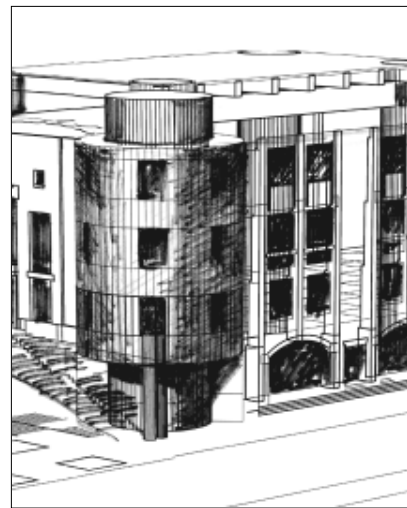
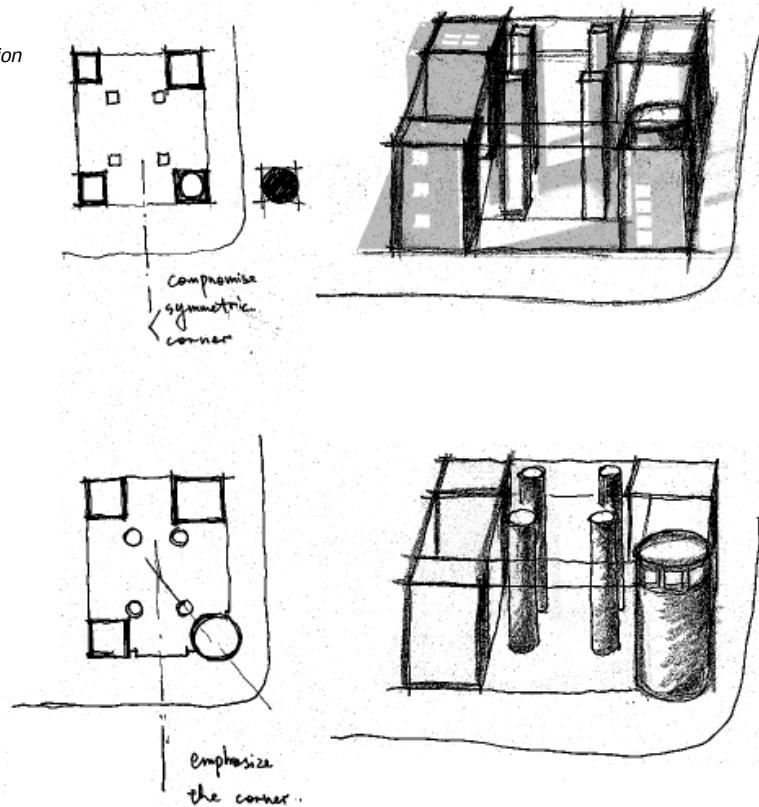


Figure 3--9 the intersection of Washington Street and Draper Road

Figure 3--10 analysis of the corner condition



The emphasis on the corner condition is also one of the architectural fragments in some buildings along Main Street in Blacksburg. Some use a corner column on the first floor to mark the corner and entrance (Figure 3--6~8).

The cylinder in the southeast corner of the courthouse is designed to address the corner condition of the site (Figure 3--9,10). Compared to the other three cubic corners of the building, the southeast corner changes to a cylinder, so that the importance of the corner is emphasized (Figure 3--15). The corner becomes stronger with the material and structure difference: the majority of the south and east facades are brick walls, while the corner block is a concrete frame structure with brick as a fill. The curved wall of the cylinder provides a smooth transition of two directions for passage as well as for vision around the corner.

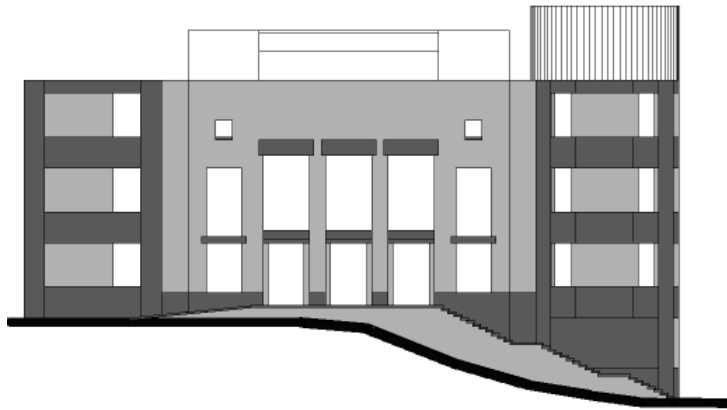


Figure 3--11 south elevation of the courthouse



Figure 3--12 courthouse in the environment (facing south)

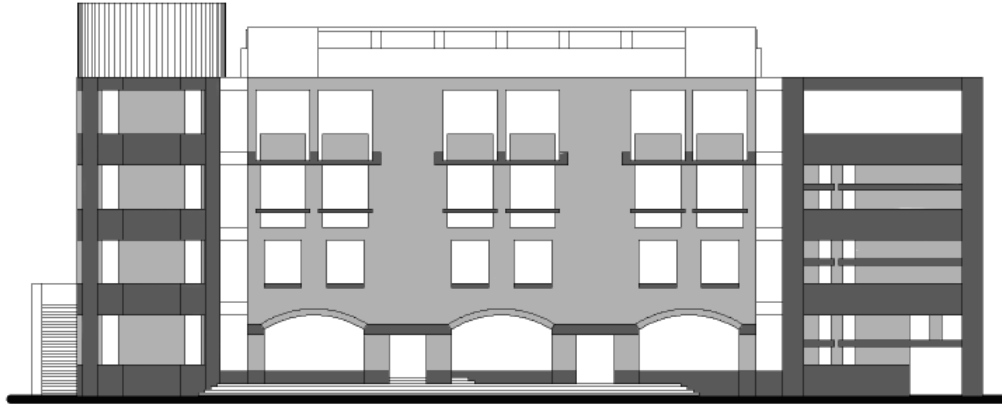


Figure 3--13 east elevation of the courthouse

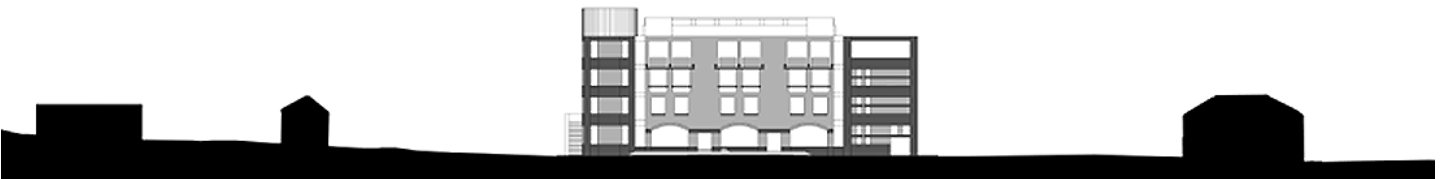


Figure 3--14 courthouse in the environment (facing east)

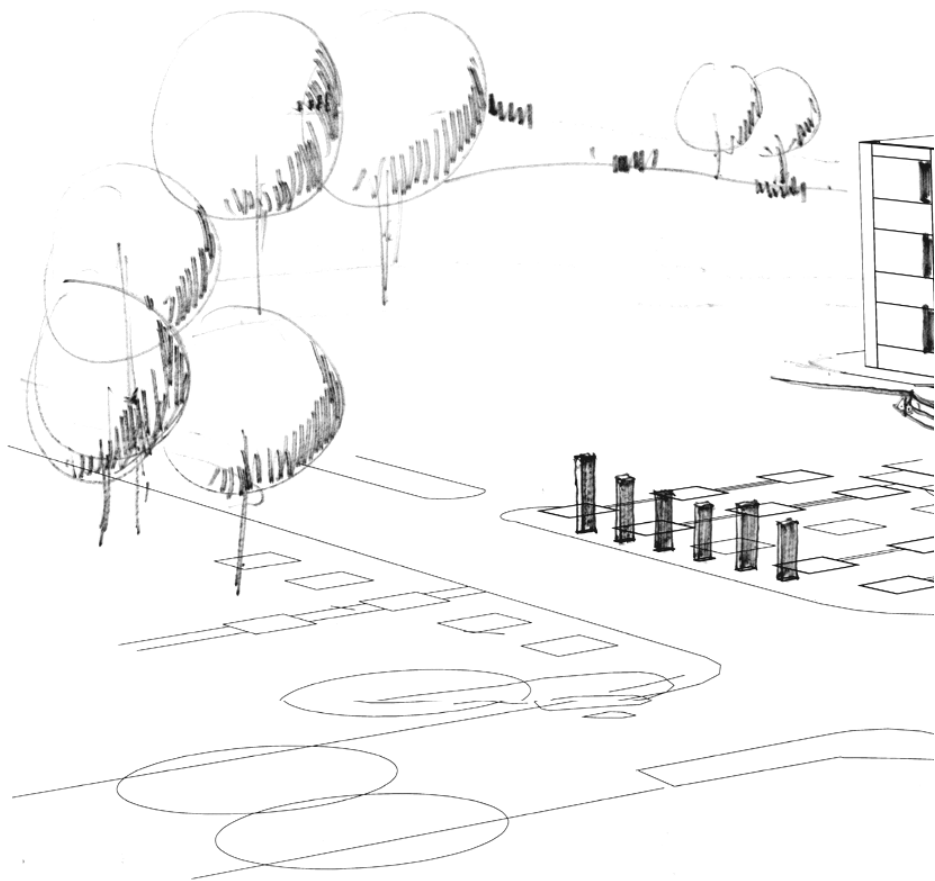


Figure 3--15 analysis of the corner condition



Transition of Scale



Figure 3--16 the Rotunda at UVA, Charlottesville, VA, 1820

The dictionary definition of the term “scale” is “a progression of steps or degrees or a series of marks laid down at determinate distances, as along a line, for purposes of measurement or computation.”¹ According to Francis Ching, in architecture, the architects are concerned with “two types of scale: 1. GENERIC SCALE: The size of a building element relative to other forms in the context; 2. HUMAN SCALE: The size of a building element or space relative to the dimensions and proportions of the human body.”² All building elements have a scale relative to the scale of other elements around it and those of other buildings in their surroundings. And the scale is also related to the dimensions and proportions of the human body.



Figure 3--17 Guild House, PA, 1960-1963

Many classical buildings have two scales existing simultaneously in the same facades and interior spaces. For example, the Rotunda, a library at the University of Virginia, designed by Thomas Jefferson in 1820, was lifted above the ground and proportionally increased in exterior column height as well as the entablature height. These ten columns were scaled towards the lawn, with ten houses on two sides (Figure 3--16). However, the windows and doorway behind the portico were scaled to the human measure. Using two scales in the same building, the Rotunda appears monumental in the landscape and familiar inside the building. Guild House, designed by Robert Venturi in 1960, is another example of the two scale systems (Figure 3--17). It is an apartment complex for elderly people. In his book, *Complexity and Contradiction in Architecture*, Venturi explains his idea about the two scales in the same facade, “The front facade is separated from the back at its top ends where the common room terraces occur in order to emphasize the vestigial role of the street facade.... The big round exposed column at the center of the street facade is polished black granite. It accommodates and emphasizes the exceptional entrance opening on the ground floor.... The central window on the top floor reflects the special spatial configuration of the common room inside and relates to the entrance below, increasing the scale of the building on the street and at the entrance. Its arched shape also permits a very big opening to penetrate the wall and yet remain a hole in a wall rather than a void in a frame.”³

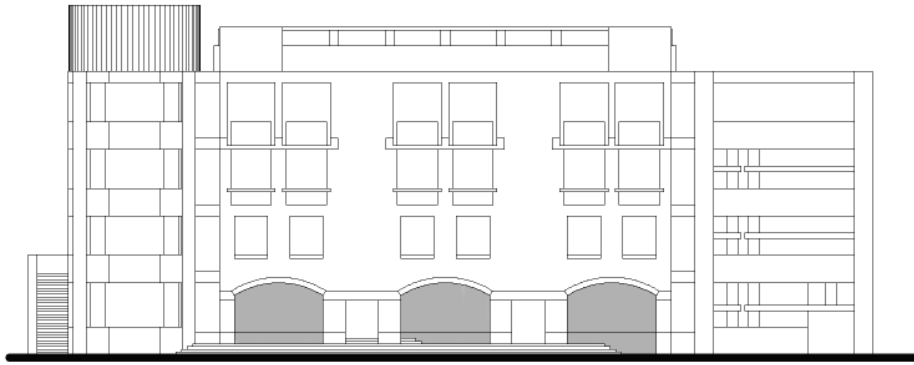


Figure 3--18 monumental scale on the east facade

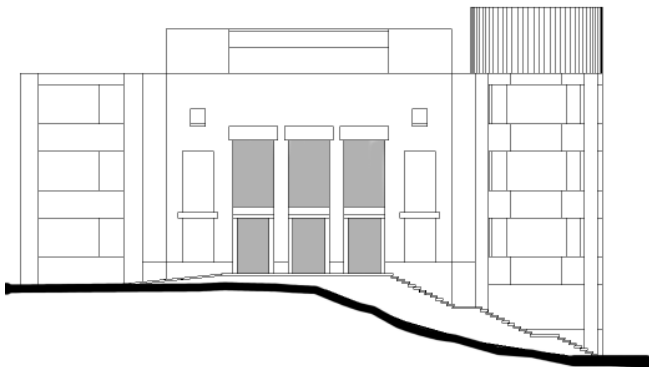


Figure 3--19 monumental scale on the south facade

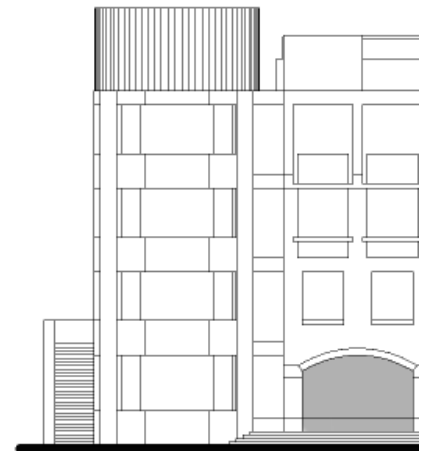


Figure 3--20 the transition of the scale around the corner



Figure 3--21 human scale around the corner

The corner condition of the courthouse provides an opportunity for a transition of scales not only in the main entrance, but also in the transition from the south facade to the east. There is an obvious change in scale between the academic and public buildings, and the commercial and civic buildings. The scale of the east facade reflects the scale of the residential buildings and the academic buildings (Figure 3--20). The scales of rectangular windows are familiar to us, therefore, they can give us the idea of the size and function of the rooms behind the windows. Windows on the corner remain the same scale but with less density (Figure 3--18,21). Turning to the south facade, however, the monumental doorways of the main entrance provide a second scale for the building (figure 3--19). The big scale not only emphasizes the entrance but also matches the square in front of the building and the central green space of the civic center of the town. Windows on both sides of the doorways are also of a big scale, but they indicate the number of stories with their separations where the floor slab occurs.



Figure 3--22 brick and concrete, the Theatre for the Performing Arts, Fort Wayne, IN, 1953

Transition of Material

*"Materiality is probably the least problematic of the four components. It reflects our intuition that for something to be real it ought to be (made of) 'stuff', material having a palpability, a temperature, a weight, and inertia, an inherent strength... the appeal for materiality, however, is not an appeal for heaviness of materials. The dark and corded tents of the Bedouin are so less real material than the vaults of a Fourteenth century French monastery... part of our appreciation the materiality of an object has to do with our appreciation of the natural origin of its substance and manufacturing or forming processes that the latter has evidently undergone."*⁴

Michael Benedikt

Two major materials used for the facades are brick and concrete. Because of the different characteristics, the position and proportion of these two materials in a building are varied. Kahn concluded the difference in his speech *I Love Beginning*, "When you are dealing, or designing in brick, you must ask brick what it wants, or what it can do... it will say, 'Well, I like an arch.' ... if you are dealing with concrete, you must know the order of nature, you must know the nature of concrete, what concrete really strives to be. Concrete really wants to be granite but can't quite manage... steel wants to tell you that it can be an insect in strength and the stone bridge that it is built like an elephant; but you know the beauty of both, harmony due to the extension of the material to its fullest capability."⁵

Figure 3--23 courtyard facade, house of Alvar Aalto, Muuratsalo, 1953



Brick is block of clay or other ceramic used for construction. Brick can be dried in the sun but is usually baked in a kiln. It costs relatively little, resists dampness and heat, and can last longer than stone and wood. The color of brick varies according to the clay used.

Brick was the chief building material of ancient Mesopotamia and Palestine, which had little wood or stone. Later, the Persians and the Chinese built in brick. During the Middle Ages (5th century to 15th century), wherever stone was scarce, builders valued brick for its structural and decorative qualities. Brick is highly respected among the Native Americans of pre-Columbian civilizations because of its natural origin, organic properties -- which are more inviting to people than steel and concrete -- and durability in quality.

Many modern architects give brick, a traditional material, a new articulation. Kahn chose the materials based on their nature. Moreover, he searched the spirit of classical tradition and applied the principles of the structures, forms and their relationship in the classical traditional architectures to his designs instead of using the traditional symbols and decorations. The Exeter Library is an impressive example. He used brick on the outside facade as a load-bearing wall constructions (Figure 3--24). Compared with the Roman Coliseum, which had four orders of columns in each story, Exeter Library has different openings in five levels. The upper columns of the library are narrower than the lower ones, suggesting the different load supported at different levels of the façade. The House of Alvar Aalto is another example in which Aalto focused more on the texture of brick masonry. The outer walls of the house white painted are brick; while the brick walls facing the courtyard are the mixture of different-size brick, with some tiling patches (Figure 3--23).



Figure 3-24 true load-bearing walls, Exeter Library, Exeter, N.H., 1965

Figure 3--25 brick texture and pattern on the main entrance of the County Library



Concrete is building construction material made from a mixture of portland cement, water, fine and coarse aggregate, and a small amount of air. Concrete is the most widely used construction material in the world. It is the only major building material that can be delivered to the job site in a soft state. This unique quality makes concrete desirable as a building material because it can be molded to virtually any form or shape. Strong, economical, and durable, concrete also provides a wide choice of surface textures and colors.

The history of using concrete in construction can be traced back to ancient Rome. With a slow-drying mortar, arch and vault in form, it enabled the architects to design a larger and more flexible space than ever before, without any interior support. The Roman Pantheon is a very famous example.

Concrete was almost forgotten after the fall of the Roman Empire until the mid-eighteenth century. With the development of technology and new materials, such as steel and iron, reinforced concrete became widely used in the large span constructions and far projecting canopies since late nineteenth century. In modern architecture, many architects continued in studying concrete in order to bring about a new structure and form. Undoubtedly, Pier Nervi was one of the great masters of concrete in our age. In 1958, one of his masterpiece, Palazzetto dello Sport was completed for the 1960 Olympic Games. The dome, 196 feet in diameter, is supported by 36 inclined Y-shape buttresses (Figure 3--26). The diamond-shape prefabricated components not only become the major construction parts, their geometric assembly resembles a flower (pattern) on the ceiling (Figure 3--27).

Rand Elliott's use of concrete in the Headquarters of K. J. McNitt, a construction company that specializes in the American form of construction, is an advertisement for the company and for concrete. Concrete slabs are the major materials in each façade and are emphasized by the vertical glass strips. These concrete slabs reflect the normal tilt process and the nature of construction: props, which are used to crane the slabs vertical after casting on the ground, remain on the surfaces of the slabs (Figure 3--28).



Figure 3--26 exterior of Palazzetto dello Sport, Rome, 1958

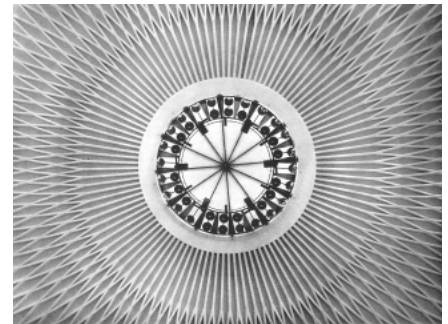


Figure 3--27 (flower pattern) ceiling of Palazzetto dello Sport, Rome, 1958

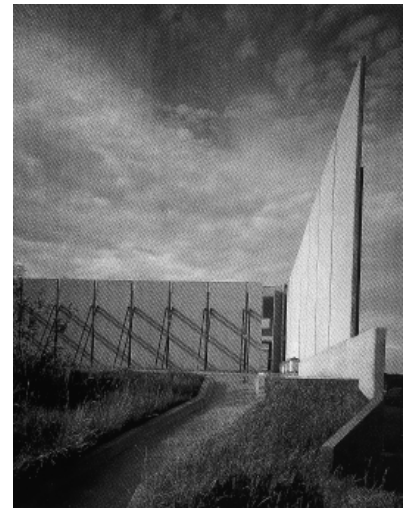


Figure 3--28 exterior of the Headquarters of K. J. McNitt, Oklahoma City, 1996

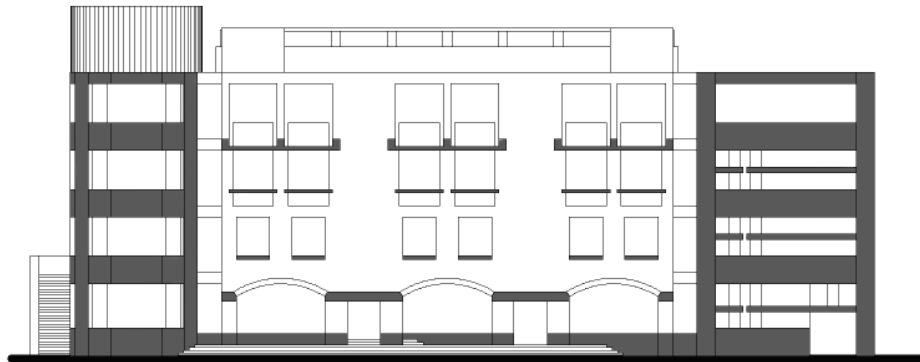
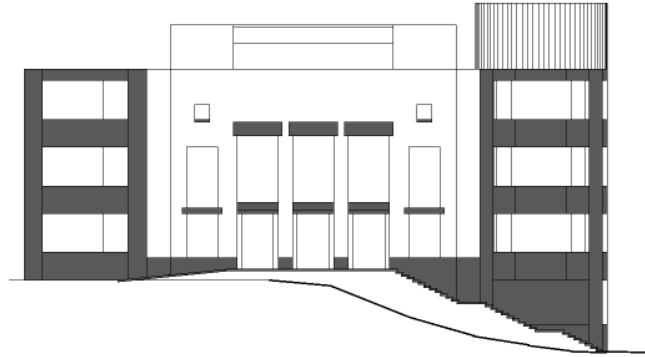


Figure 3--29 material proportion study -- brick

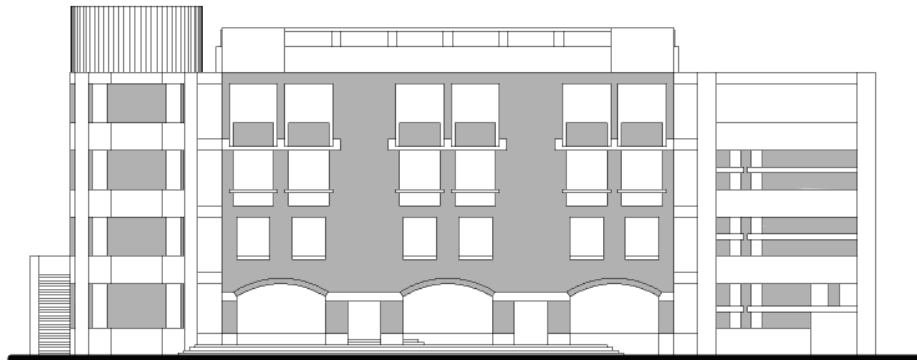
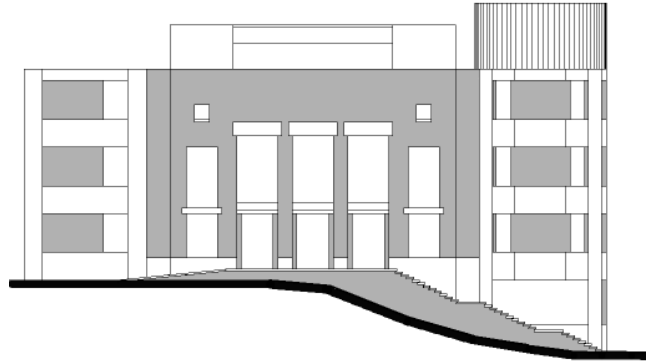


Figure 3--30 material proportion study -- concrete

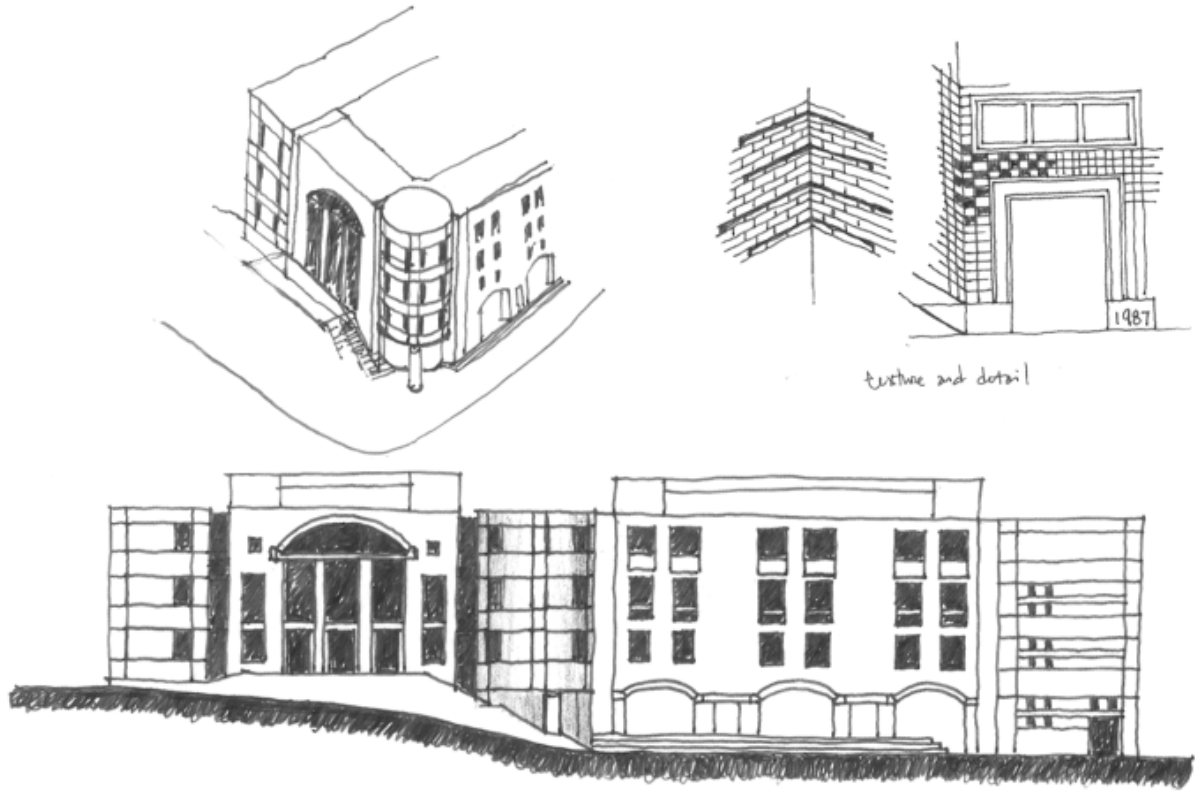
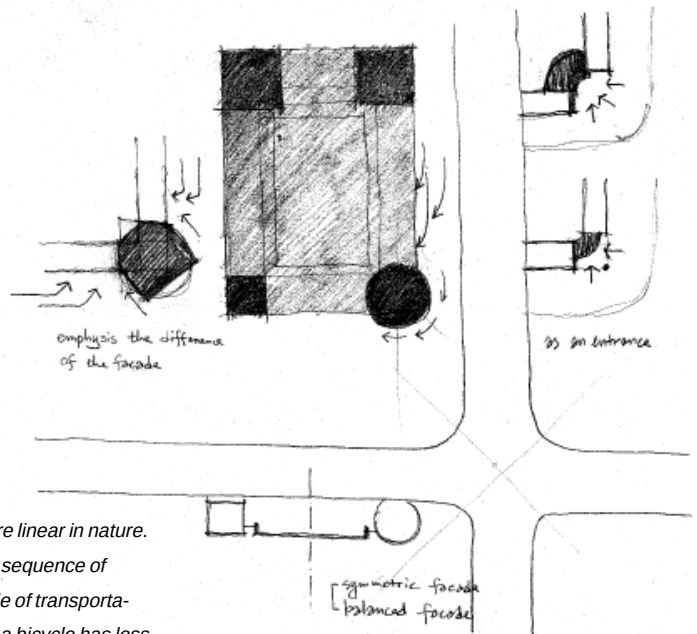


Figure 3--31 texture and corner study

In designing the courthouse, the transition of material around the corner is focused on the different proportion of brick and concrete used on two facades (Figure 3--31). On the east facade, brick occupies the majority of the wall, because of its strength, durability, color, texture, detail, and modularity, and also because most of the buildings in Blacksburg are made of brick. In the courthouse, all filled-in material of the walls is brick. Brick is also used as the main structure material except the four corner blocks. On the south facade, concrete frames and beams are emphasized because of the big scale entrance. The cylinder corner block is composed from two materials: concrete frame structure and filled-in brick with rich texture.



Paths for cars and pedestrians

*"All paths of movement, whether of people, cars, goods or services, are linear in nature. And all paths have a starting point, from which we are taken through a sequence of spaces to our destination. The contour of a path depends on our mode of transportation. While we, as pedestrians, can turn, pause, stop, and rest at will, a bicycle has less freedom, and a car even less, in changing its pace and direction abruptly."*⁶

Francis Ching

Figure 3--32 path study

The paths for cars and pedestrians are different because of the location of the courthouse (Figure 3--32). Most of the pedestrians visiting the courthouse will walk along Draper Road from campus. The path for them leads along the south facade of the building, through the portico, and then enters into the ground floor of the courthouse. The familiar brick and doorways near human scale on the south facade are all designed based on the path for pedestrians. The perspective aspect of the south facade is enhanced by ordered arches of the portico and the rectangular windows in the upper levels. The cylinder corner block projects beyond the facade so that the entrance on the south facade is more clearly indicated (Figure 3--33).

People who drive to the courthouse will have a different perspective. Most of them will come from Main Street with a spiral approach to the courthouse, so that the three-dimensional form of the building will be emphasized. The cylinder on the corner can be recognized from far away.



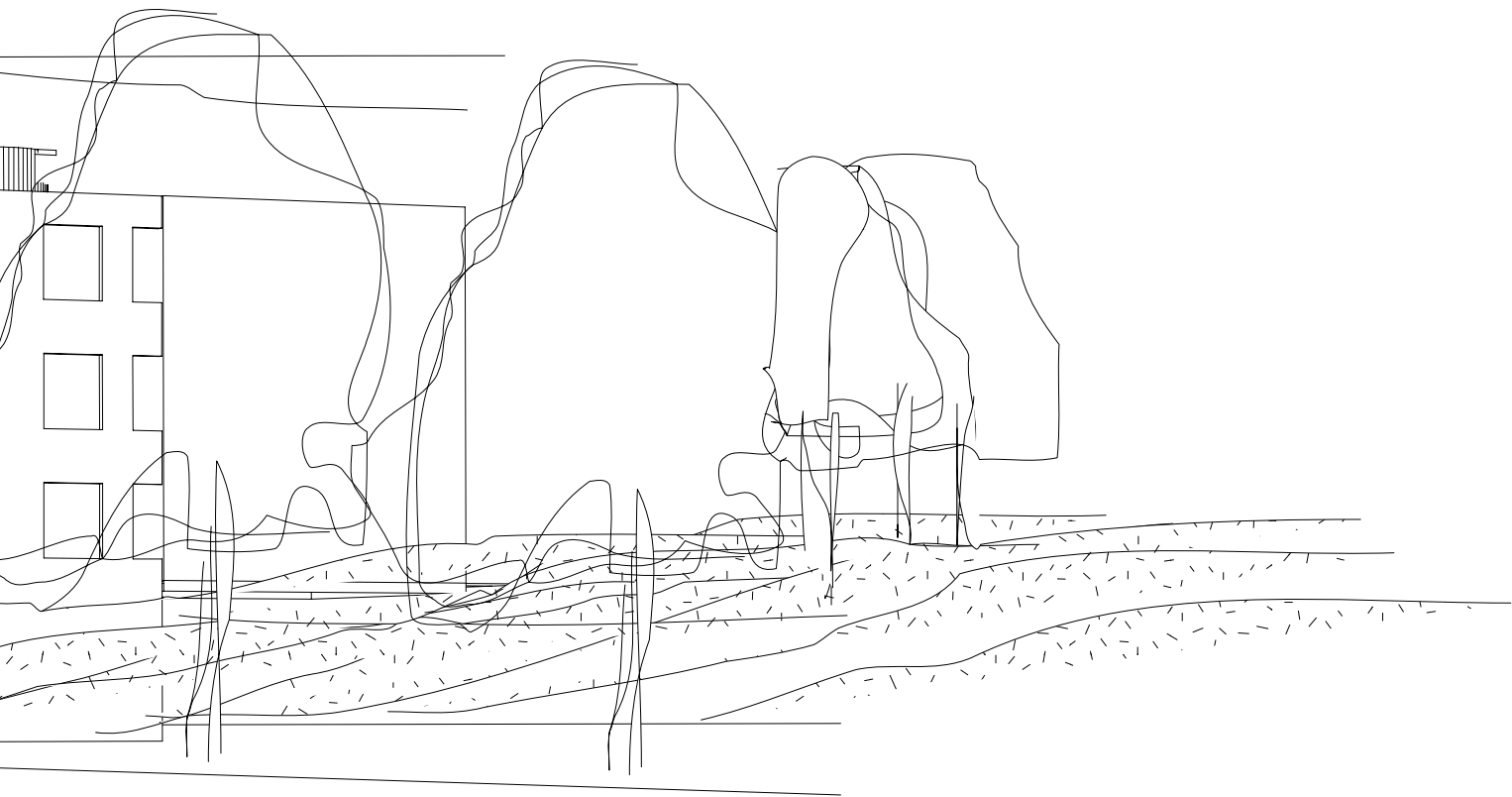


Figure 3--33 from Draper Road to the courthouse

