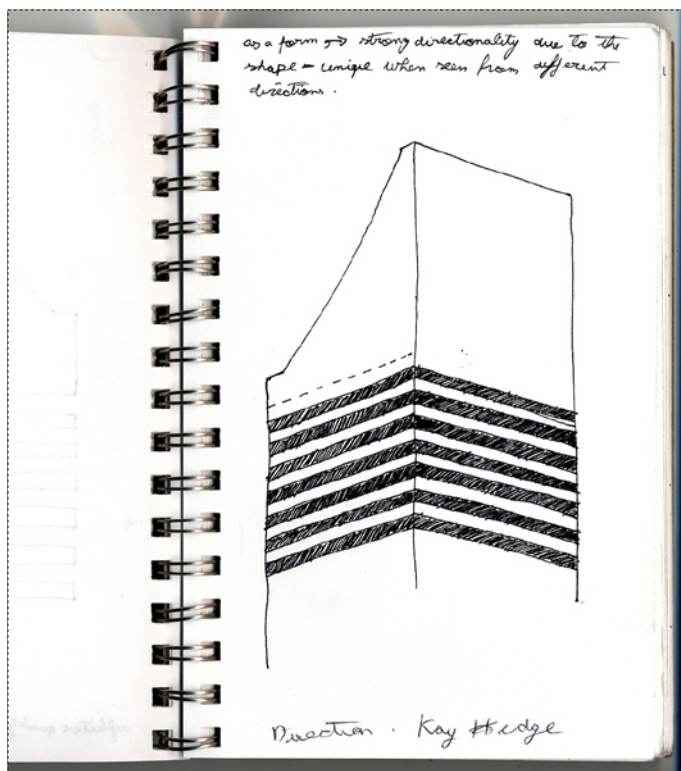


Analysis

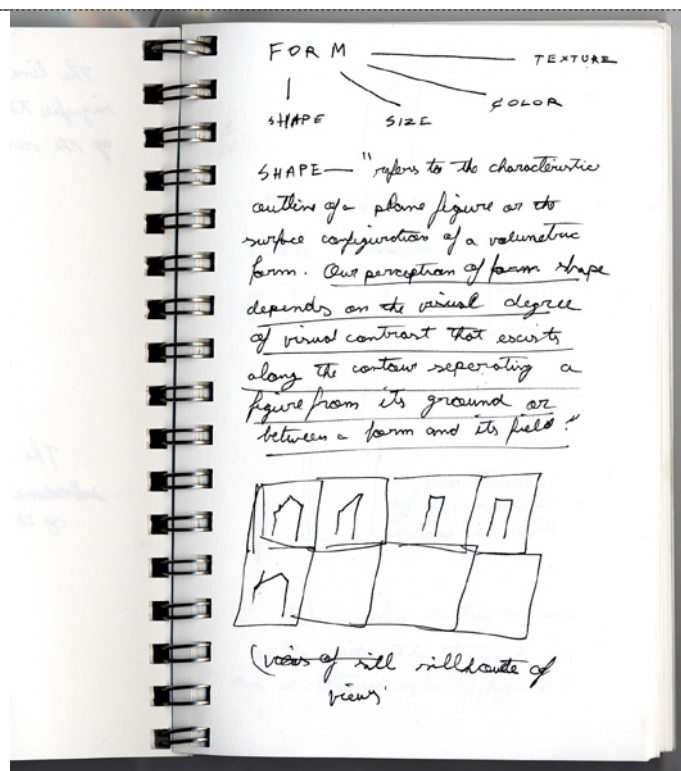
Analysis of imageable qualities of a building

Although the analysis of the imageable qualities of a building certainly need to be perceived on a case by case basis, there are a few basic elements of design theory that can serve as a starting point for this analysis. This thesis attempts to analyze the imageable qualities in two buildings - The Citicorp Center, New York and the PPG building in Pittsburgh. The Citicorp Center can be considered as one of the first reactionary buildings in response to the glass box vocabulary of skyscraper architecture. The initial stages of the analysis are derived from the work of Ching, Francis - Form, Space and Order. This work is critical to the analysis process since it addresses design issues at the most fundamental level, beginning with the 'point'. Various elements of the building and their characteristics and relationships are analyzed. These elements include point, line, plane, volume etc. And the characteristics include rhythm, directionality, articulation etc. The analysis then begins to look at issues that are beyond the scope of the book that may be unique to the characteristic of the building or certain issues that are derivatives of the basic concepts discussed in the book.

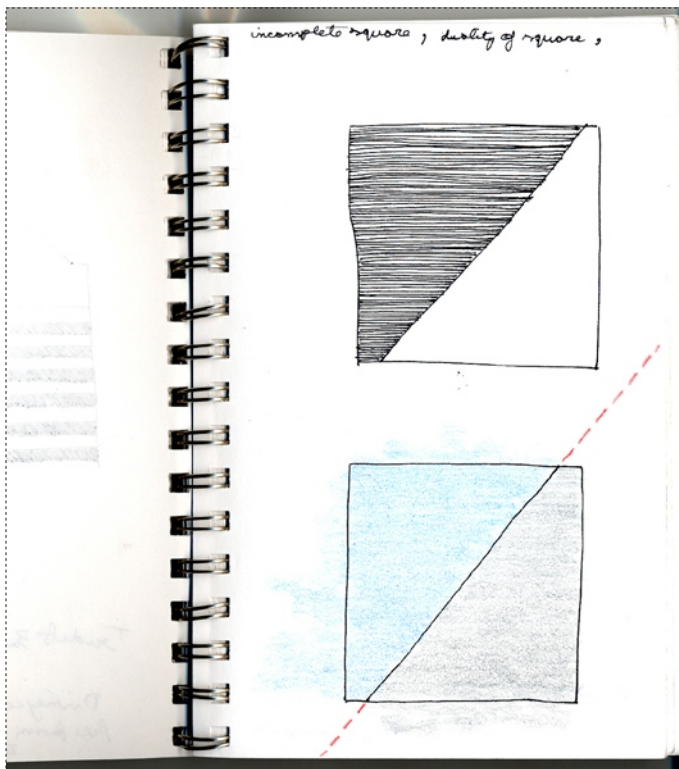
This dissection of the formal qualities of the building is expected to form the basis for the redesign of the plaza space. A design process that is driven by such an analysis would ensure the reading of the skyscraper and the plaza as parts of a whole.



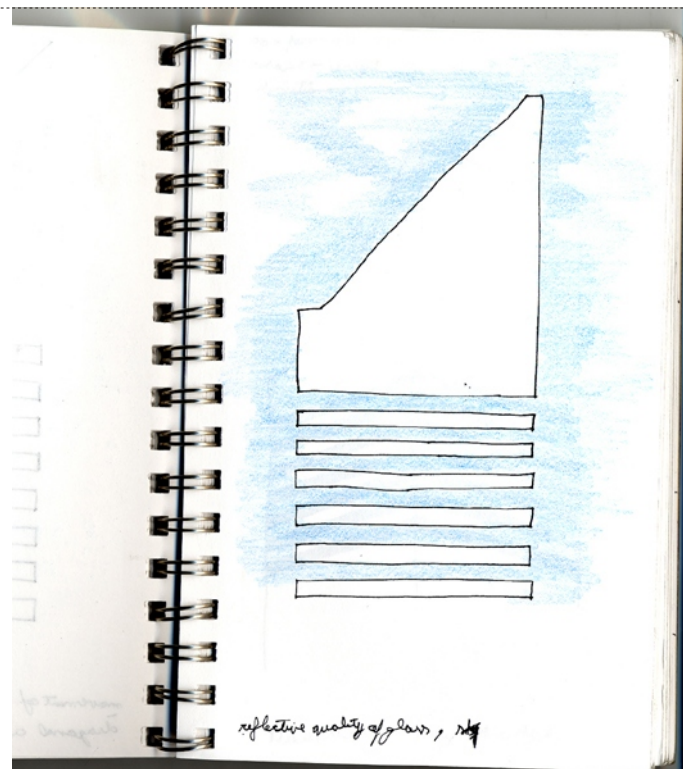
The form of the building has a strong directionality to it, due to the unique shape when seen from different directions.



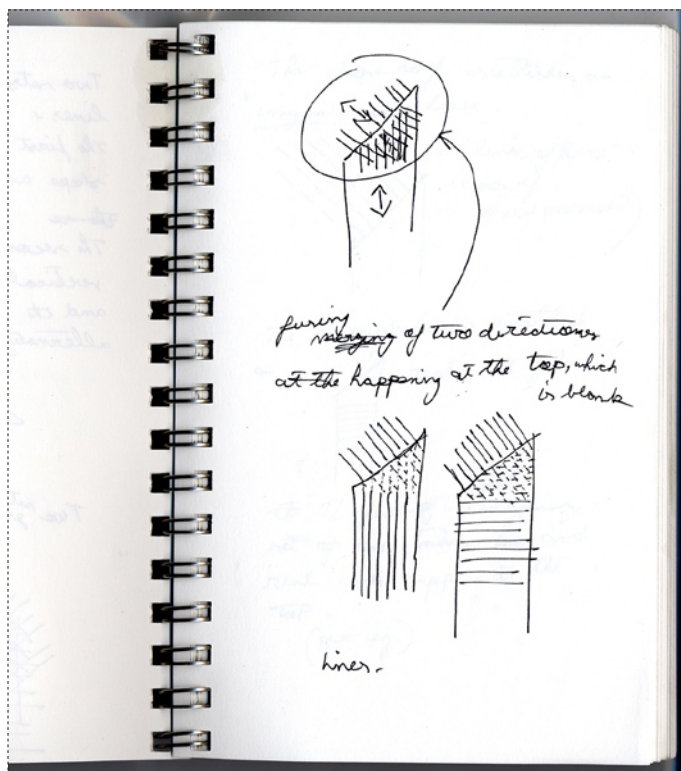
The shape changes as the building is seen from various points in the city.



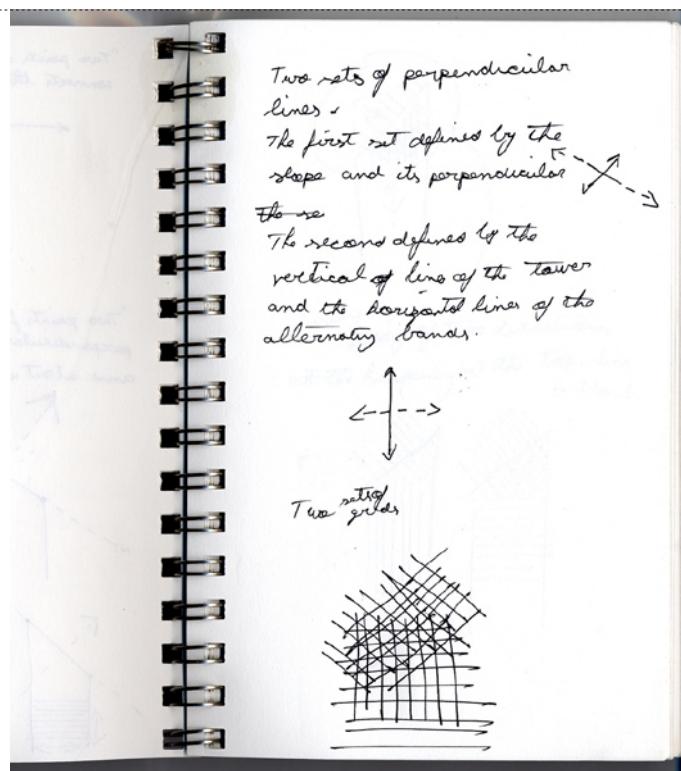
The top of the building can be interpreted as an incomplete square. Also the square is made up of two different elements, the Aluminum skin and the sky in the background. As the sky in the background varies through the day, it impacts the Aluminum skin too.



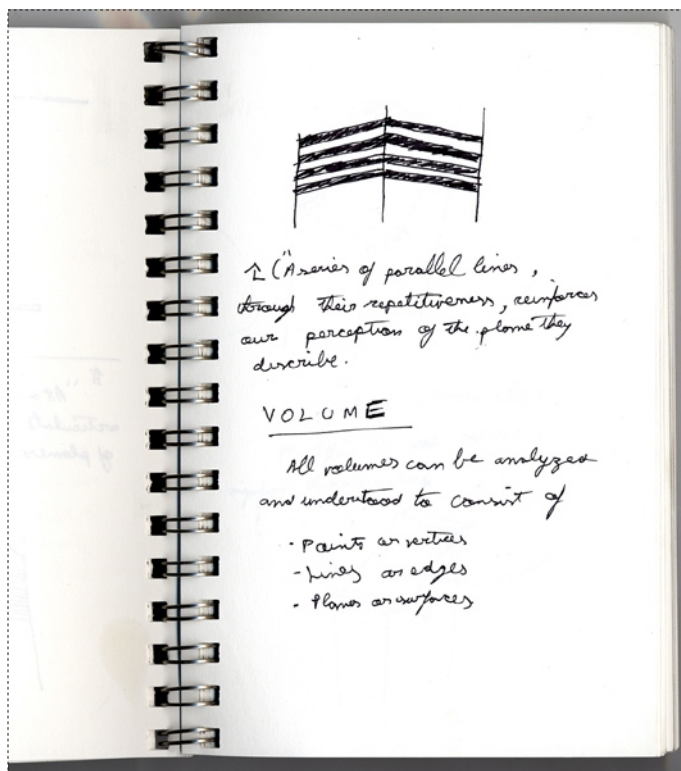
The column of the building is made up of horizontal bands of Aluminum and glass. The two elements reflect the sky around, but at varying degrees. The reflection on the glass merges with the sky, resulting in the aluminum bands standing out.



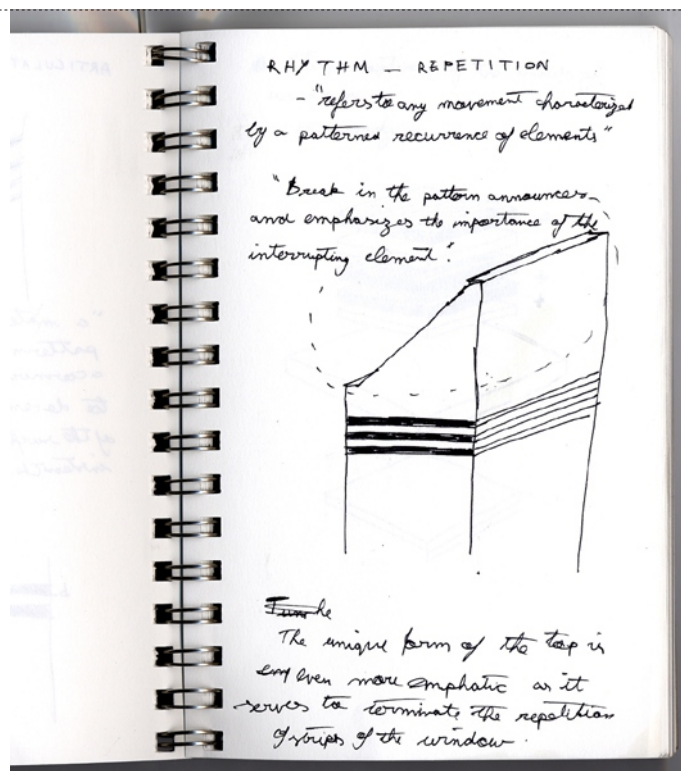
There are two sets of 'lines' that are revealed in the pattern of the skyscraper. The set of lines at a 45 degree angle that are a result of the sloped top of the building. The horizontal set of lines, formed by the bands of aluminum and glass.



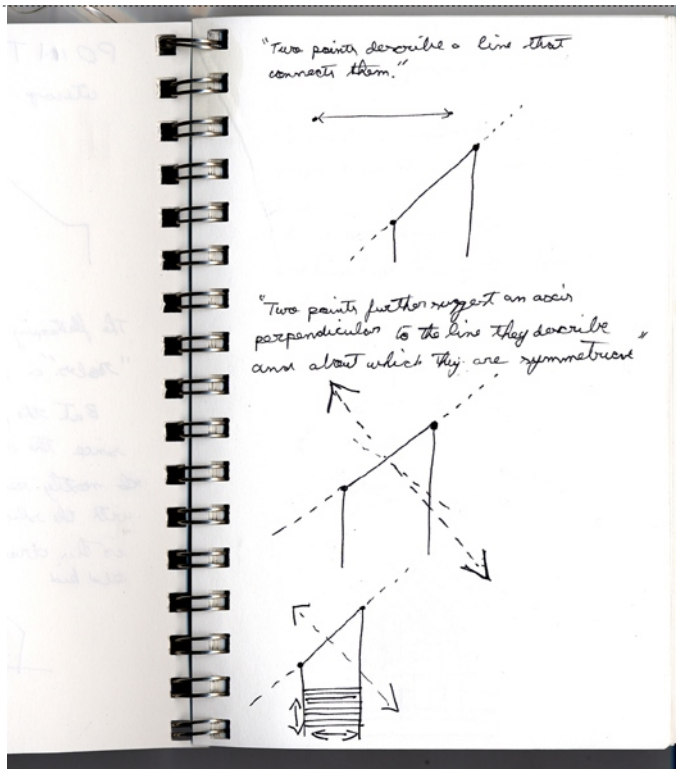
The intersection of these sets of lines results in a blank space that is contained in the top, thus reinforcing the significance of the top.



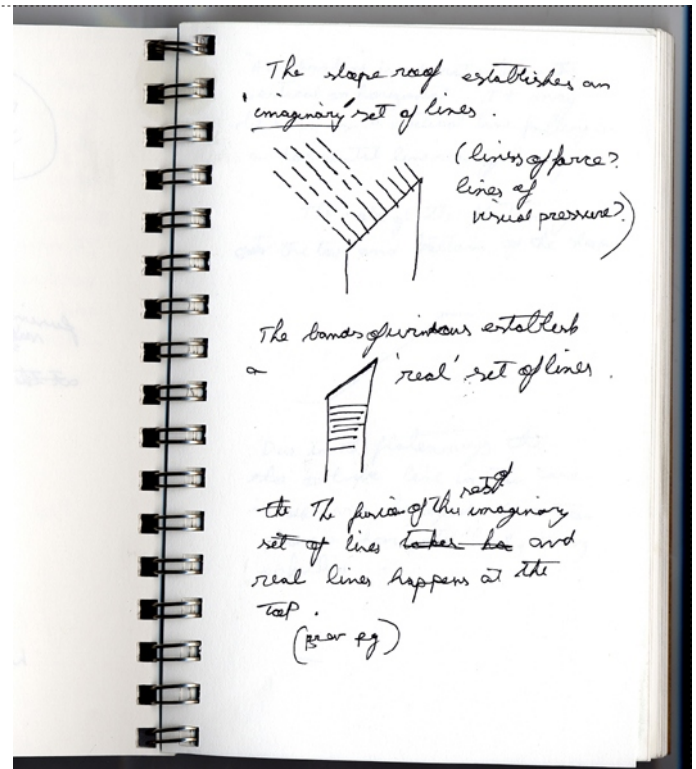
A series of parallel lines, through their repetitiveness, reinforces the perception of the plane that they describe.



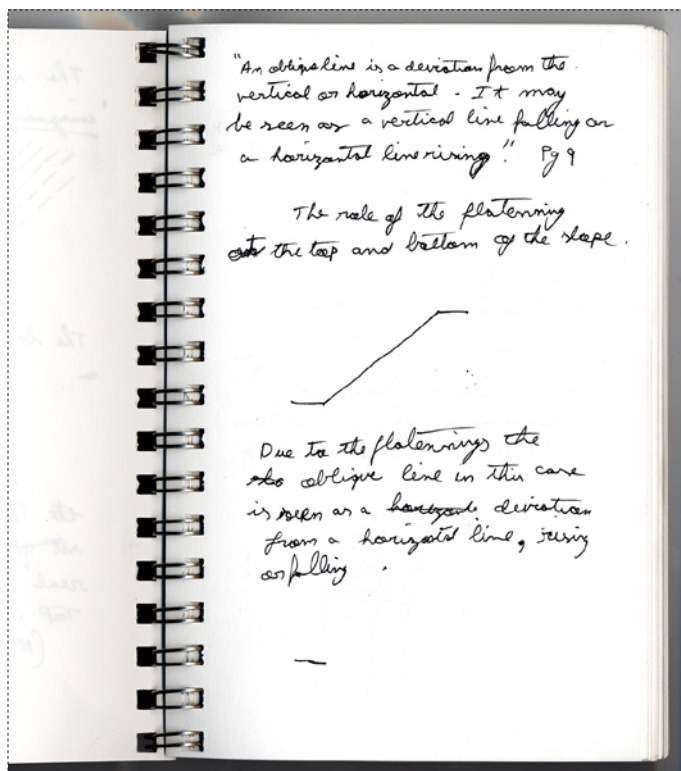
The horizontal bands on the facade create a rhythm that is terminated by the oblique top.



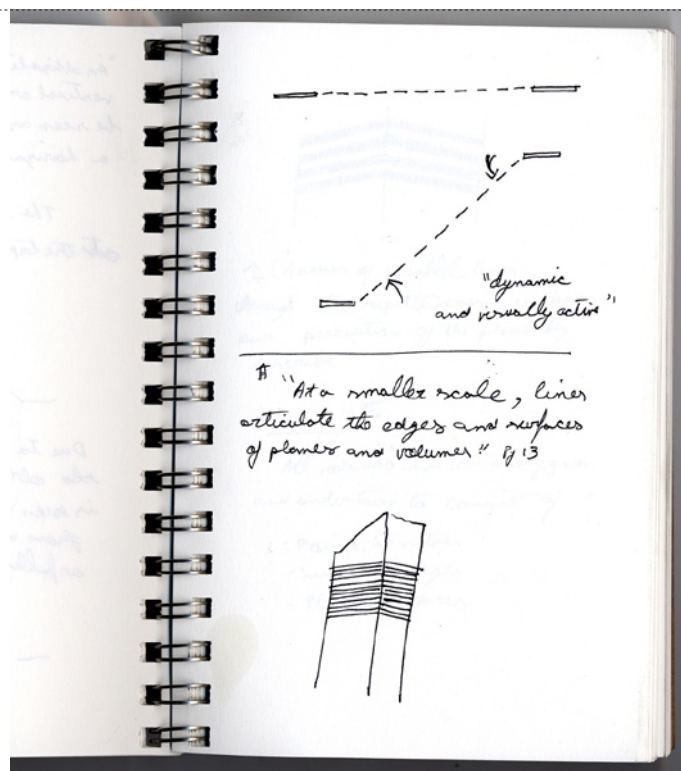
"Two points describe a line that connects them... Two points further suggest an axis perpendicular to the line they describe and about which they are symmetrical." (Ching, 1990)



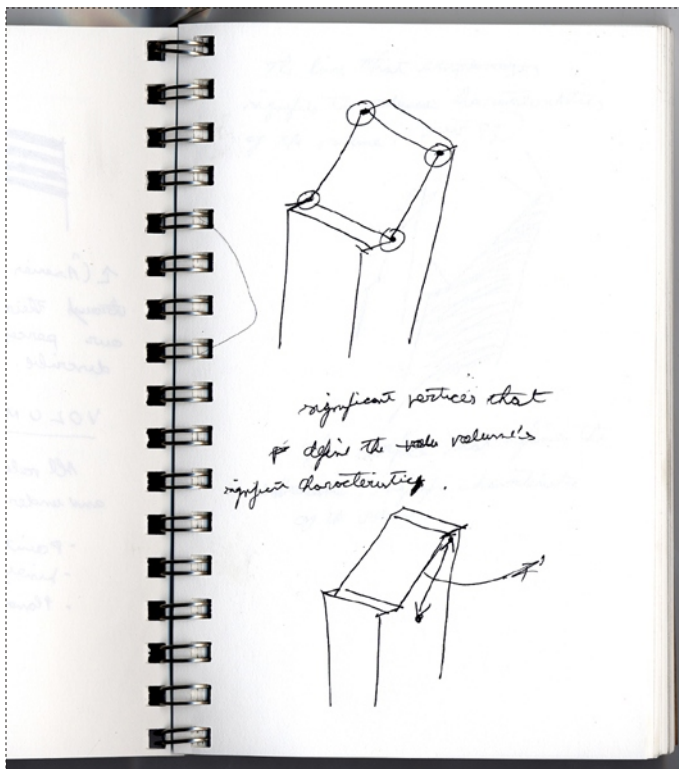
An imaginary(perceived) set of lines and a real set of lines merge at the top.



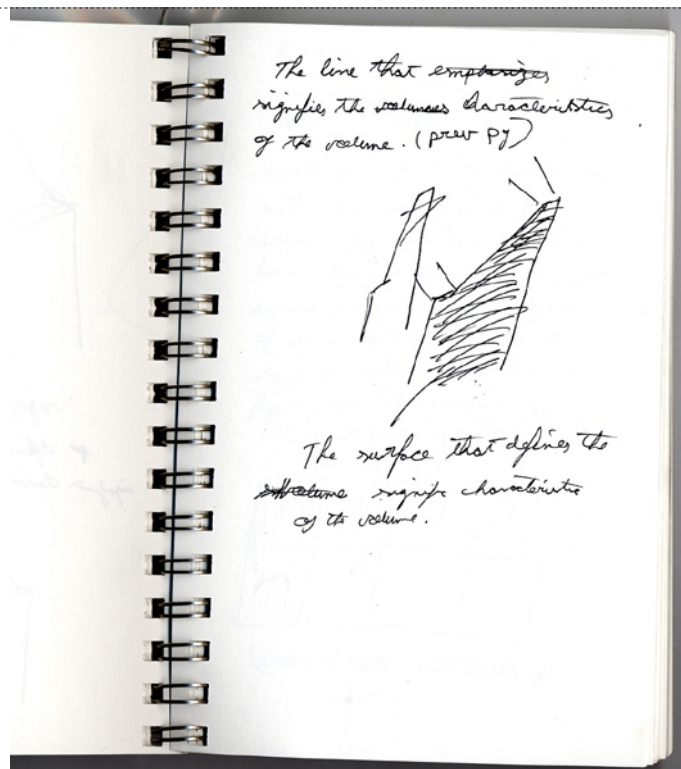
"An oblique line is a deviation from the vertical or horizontal. It may be seen as a vertical line falling or a horizontal line rising"(Ching, 1990).



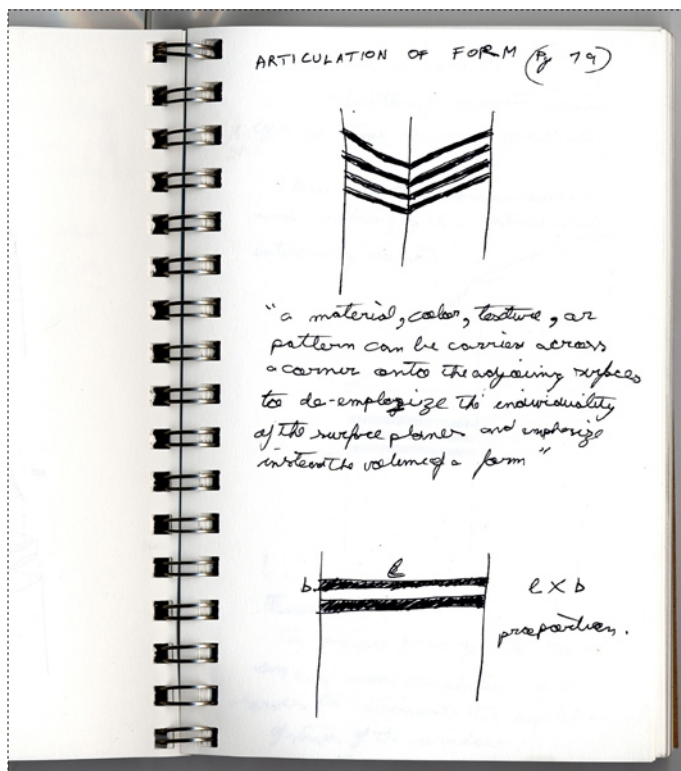
Due to the flattening, the oblique line is seen as a deviation from a horizontal line, rising or falling.



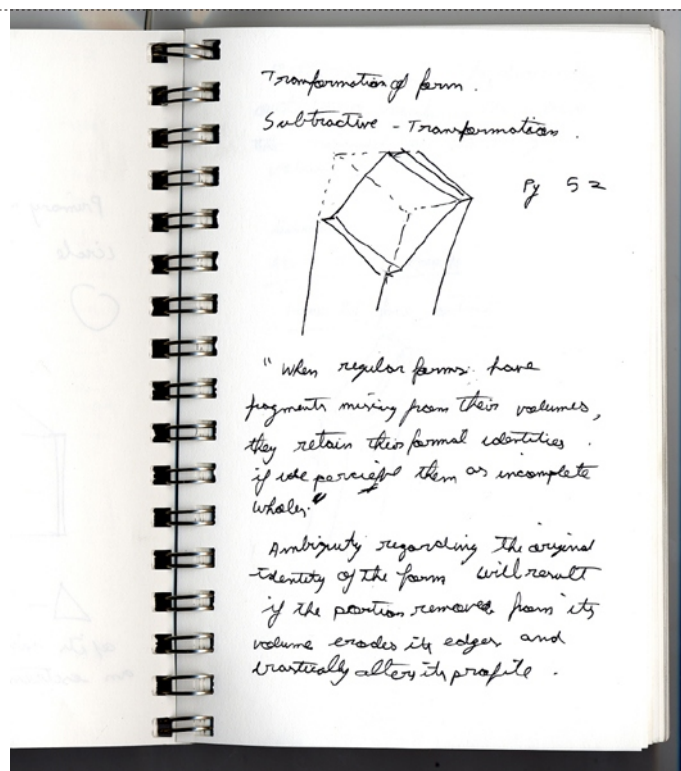
The sloping roof is the most significant characteristic of the volume. The vertices that defines this significant characteristic can be delineated.



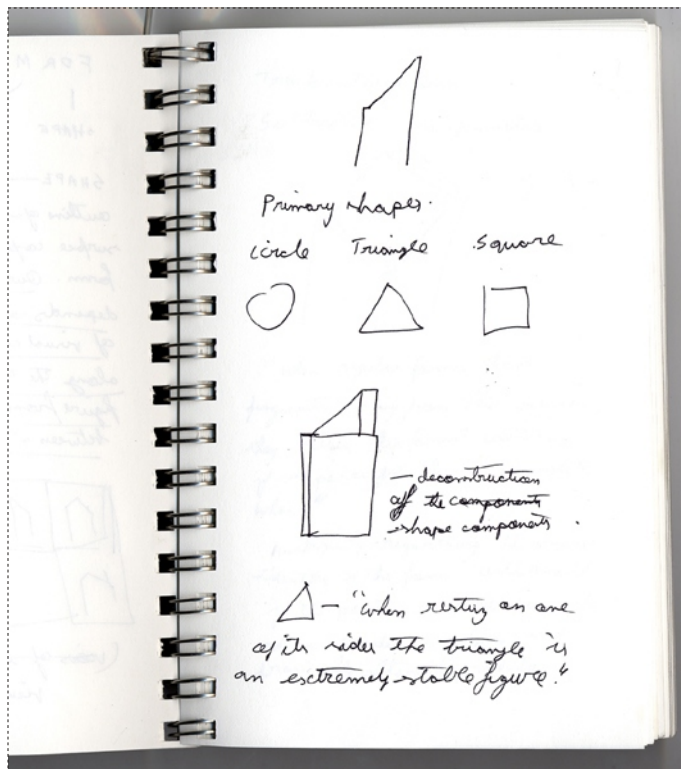
The lines and plane that define the unique nature of the volume can also be delineated.



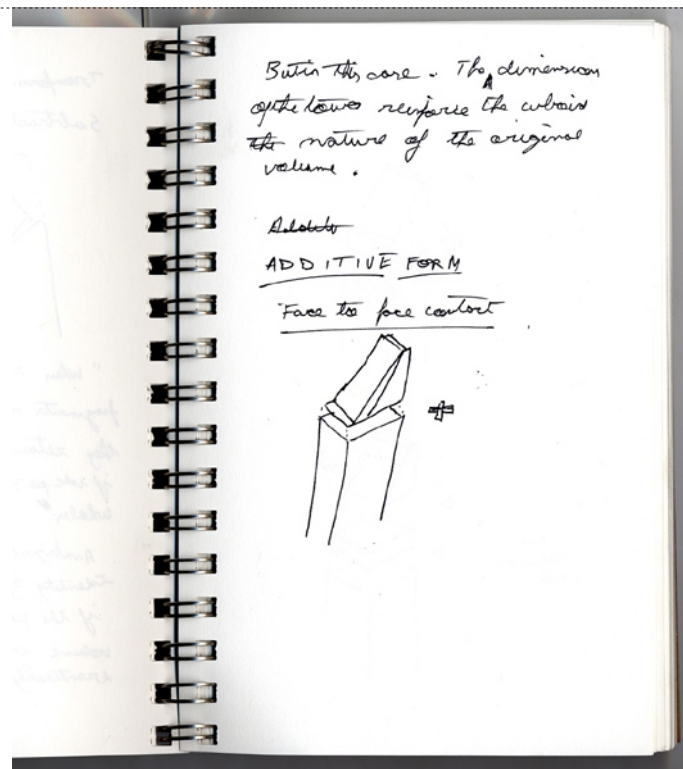
"a material, color, texture or pattern can be carried across a corner into the adjacent surfaces to de-emphasize the individuality of the surface planes and emphasize instead the volume of the form" (Ching, 1990)



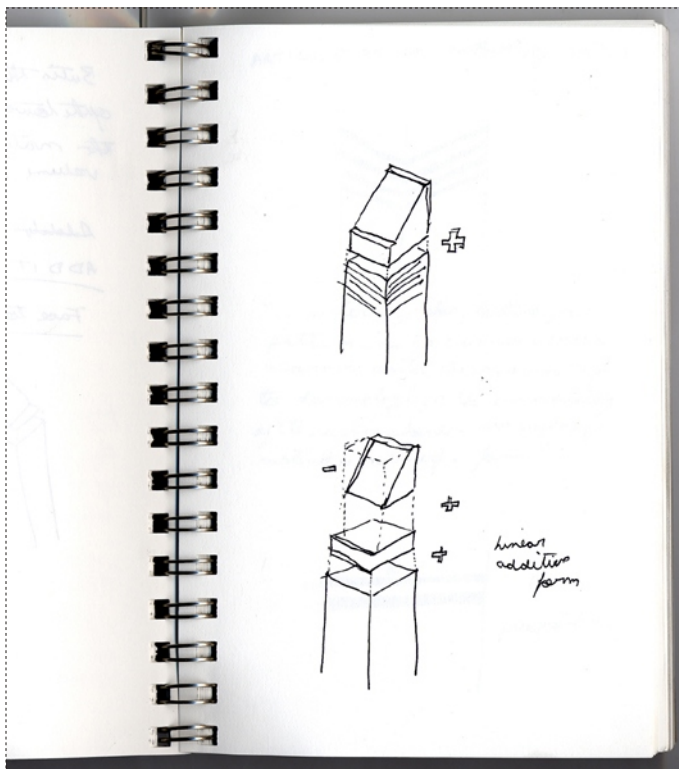
"When regular forms have fragments missing from their volumes, they retain their formal identities, if we perceive them as incomplete wholes" (Ching, 1990)



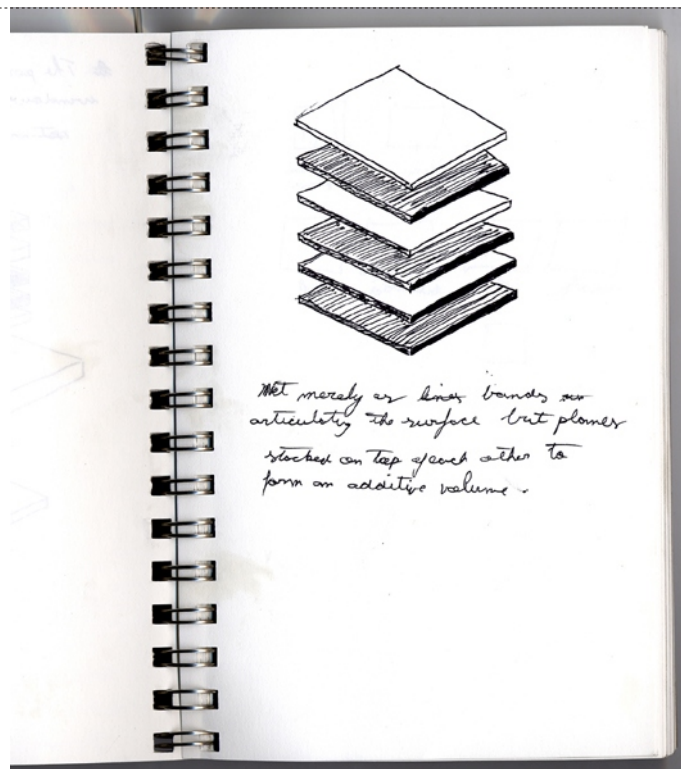
The shape of the building can be deconstructed into its primary components. The shape can be perceived as being made up of rectangles and a triangle. "When resting on one of its sides the triangle is an extremely stable figure".



The form of the building can be interpreted as an additive mass made up of two components...

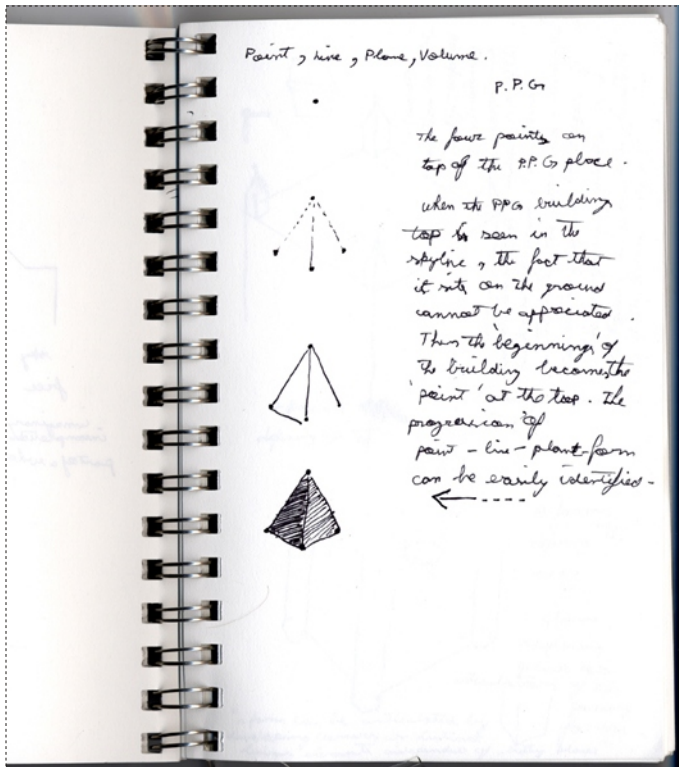


...or more.

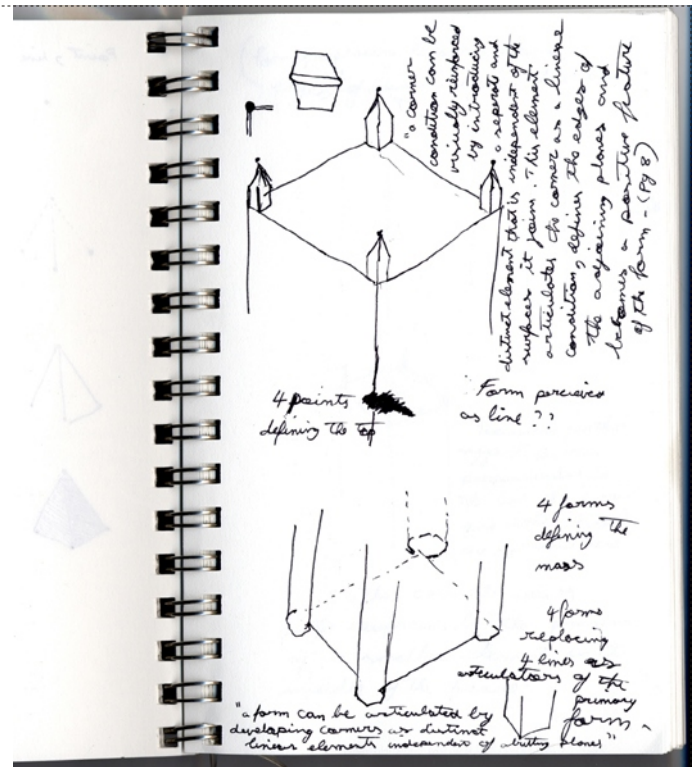


The additive mass can also be seen in the shaft of the building when perceived as being made up of slabs of aluminum and glass

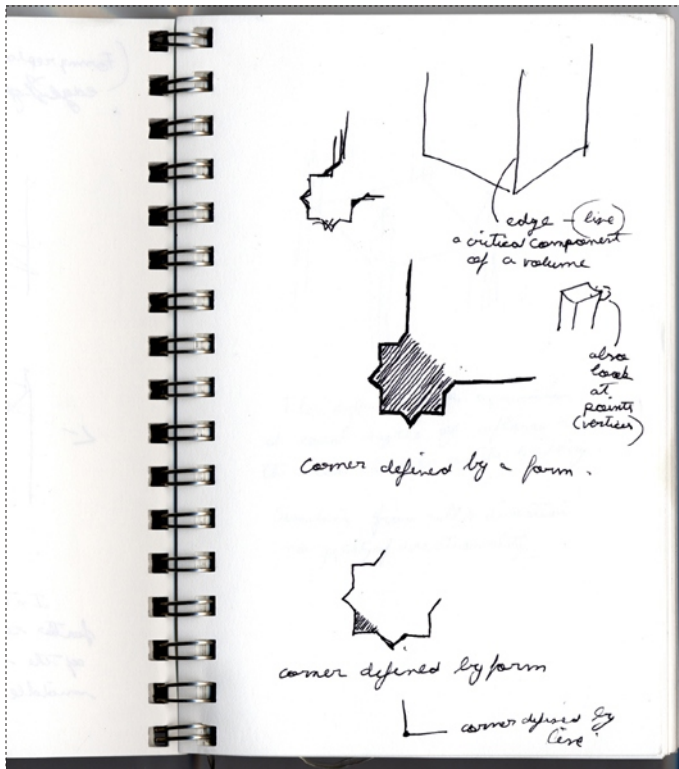
citicorp



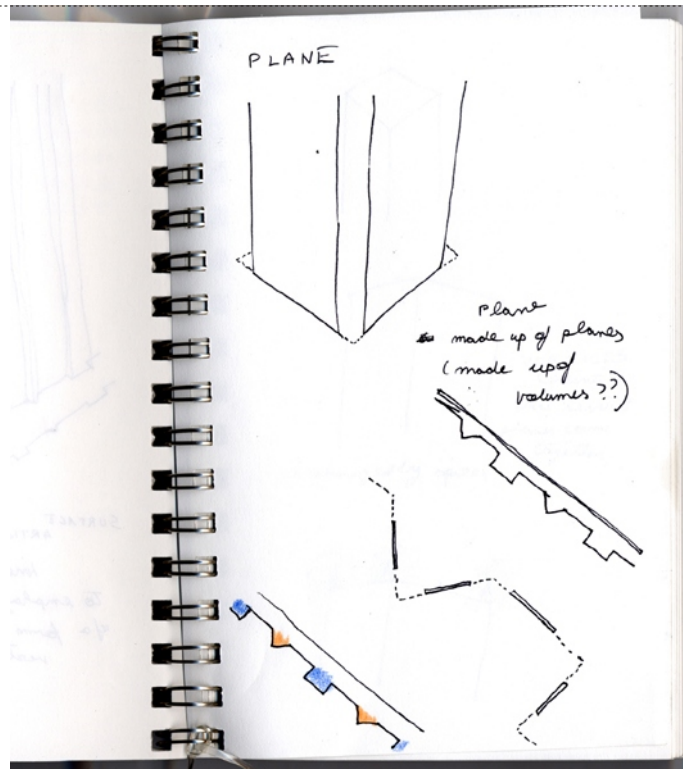
In the skyline, the most striking elements of the PPG building are the spires at the top. The perception of the building can be interpreted to begin at the point of the spire, and progress towards the line, plane and form.



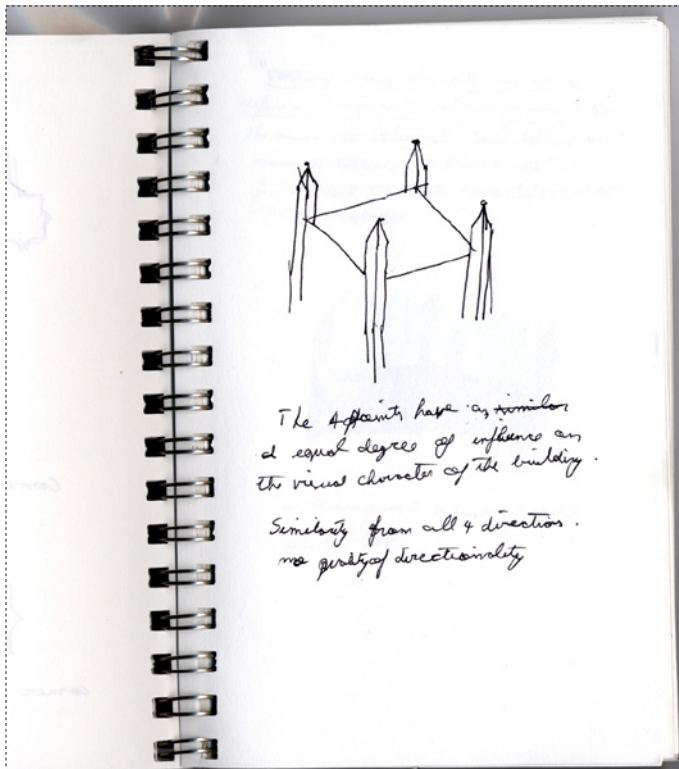
The progression from the point to the line occurs at the 4 corners of the building, where the 4 spires define the 4 edges/lines. But each of these edges are in fact made up of planes that create 4 individual forms.



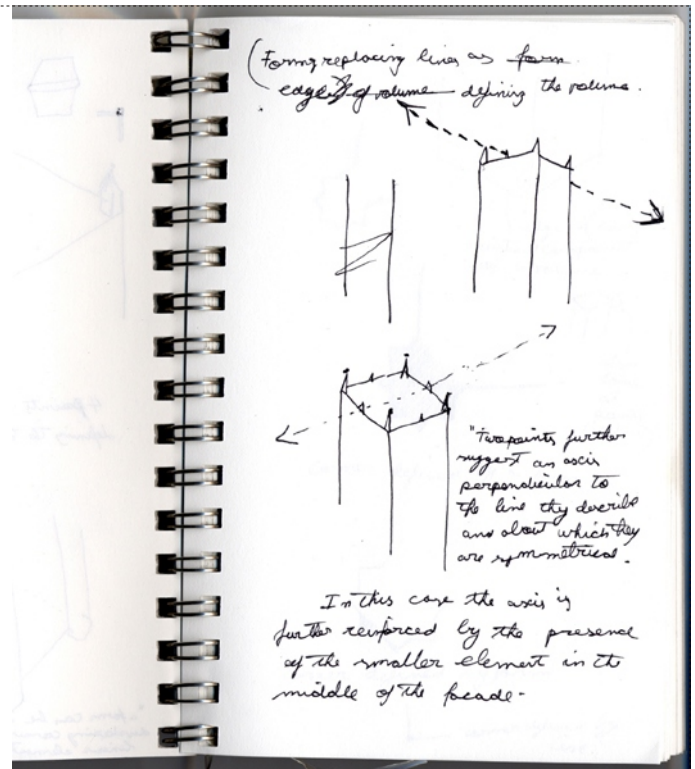
The fractal nature of the building is expressed along the vertical edges...



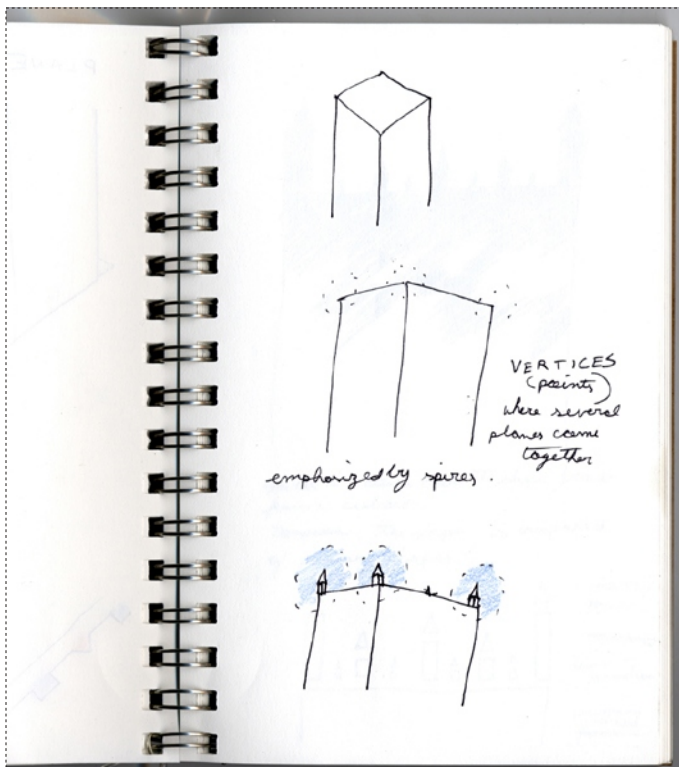
...as well as the skin of the building.



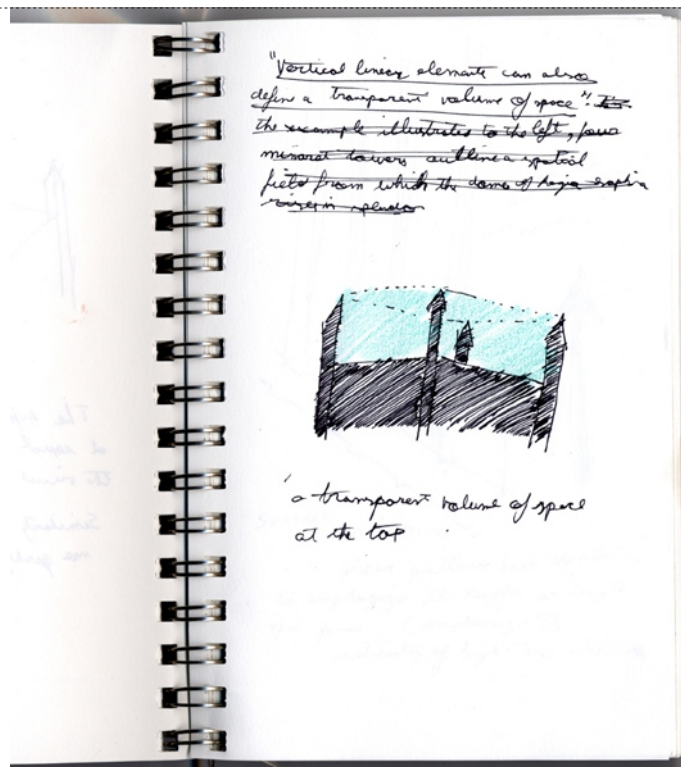
The four corners of the building have an equal degree of influence on the visual character of the building resulting in a lack of directionality for the building



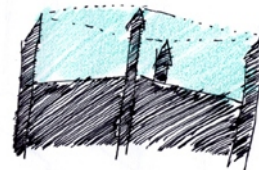
"Two points further suggest an axis perpendicular to the line they describe and about which they are symmetrical". In this case the axis is further reinforced by the presence of smaller spires at the center of each of the facades.



The vertices are the points where planes come together. In the PPG building the spires amplify the vertices.



"Vertical linear elements can also define a transparent volume of space". The example illustrated to the left, four vertical towers outline a spatial field from which the dome of the cap is derived.

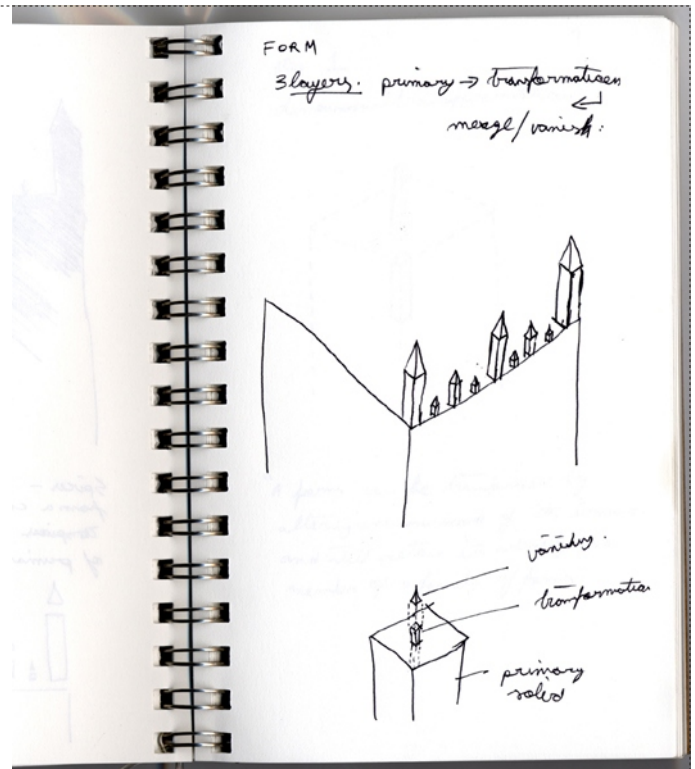


a transparent volume of space at the top

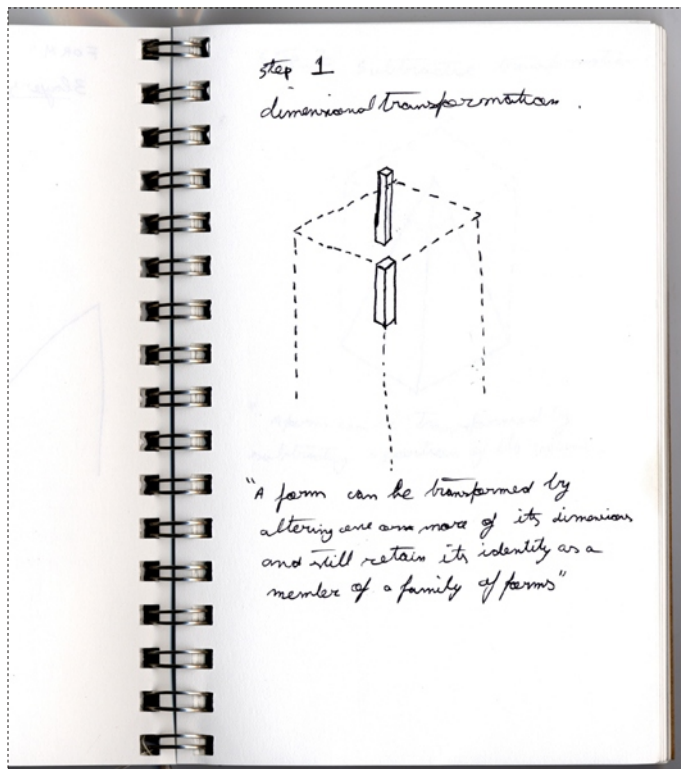
"Vertical linear elements can also define a transparent volume of space". The top of the PPG building becomes significant due to this defined space



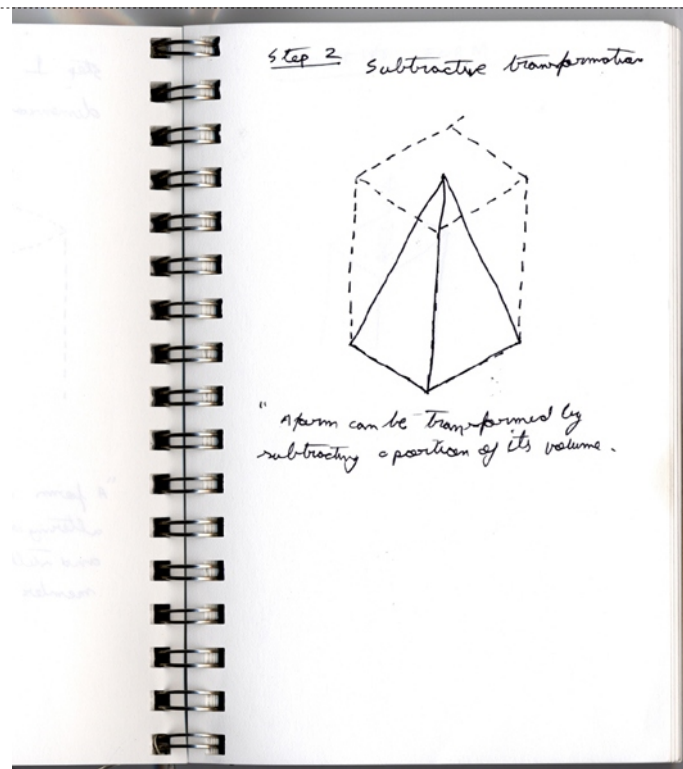
The shape of the building can be deconstructed into a set of primary shapes. The base is made up of the rectangle of the shaft. The shape transforms to a series of points in air through the spires that are located on the top.



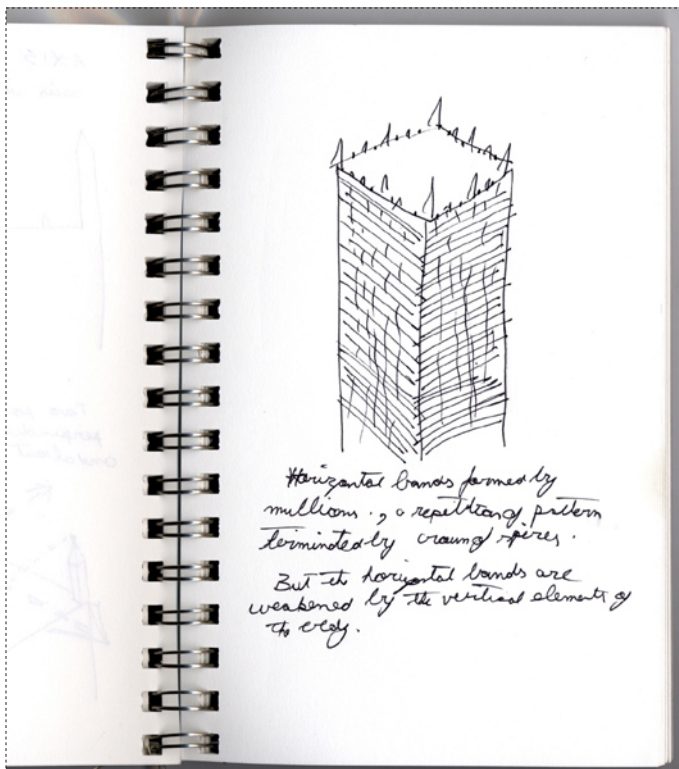
Similarly, the form of the building is transformed from the cuboidal shape of the shaft to the small pyramids of the spire.



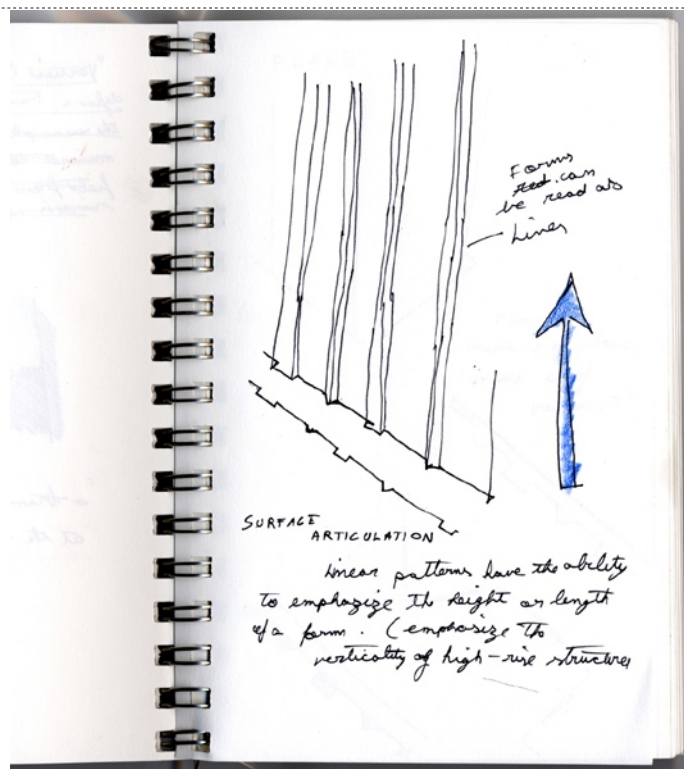
The first stage of the transformation, from the cuboidal shaft to the cuboidal base of the spire is a dimensional transformation. The primary form is retained, but only scaled down



The transformation from the cuboidal base of the spire to the top of the spire is a subtractive transformation.



The horizontal bands of mullions create a repetitive pattern terminated by the spires. But the horizontal bands are weakened by the strong vertical elements of the building



The linear pattern on the surface of the building reinforces the verticality of the building. The fractal forms on the surfaces are in fact read as vertical lines.

Analysis

Analysis of issues pertaining to the usability of the plaza

One of the most significant literature on Urban Public Spaces is 'People Places' by Marcus, Clare. The section on urban plazas deals with a wide range of issues that pertain to the usability of the plaza space such as micro-climate, Boundaries and transition, circulation, seating etc. At the end of the chapter is a design review checklist of 118 questions pertaining to various usability issues. The analysis of the various issues is carried out by attempting to answer the questions with the use of text and diagrams, based on site visits. This analysis is to ensure the design of a plaza space that is well used, since the use of plaza space is the key factor in the development of meaning for the space.

Analysis of the urban context

The corporate plaza space does not exist by itself, but has a strong relationship with the Urban context in which it is located. So the third layer of analysis attempts to provide a layer of information pertaining to downtown Pittsburgh, the location of the PPG place.

The initial idea was to separate the above two layers of analysis. But as the analysis was carried out, a lot of inter-connection and overlap was identified between the two layers of analysis.

Analysis

Axis:

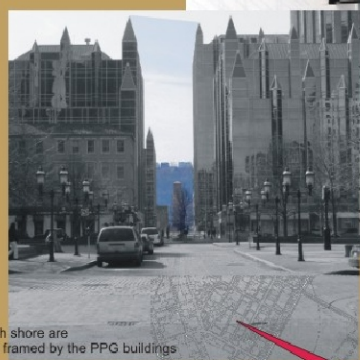
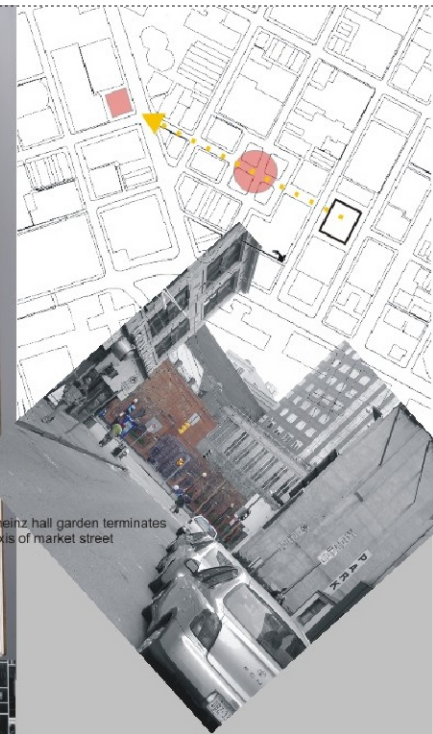
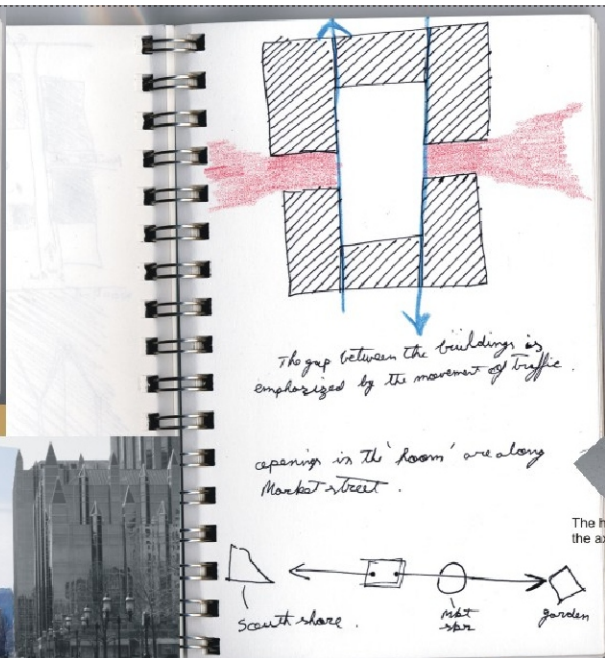
The significance of the axis that runs through the site, extends beyond the plaza. The view to the South Shore lies on one end of the axis. The axis is terminated on the other end by a semi-public garden. The views on either side of the axis are framed by the PPG buildings.

Point:

The point where the Allegheny and Monongahela rivers meet is considered as a significant urban landmark in Pittsburgh. The point is celebrated by the riverfront park, a well-used public space, that attracts tourists as well as residents. The Urban structure of the downtown area is focused around the point.

Edge:

The spatial functions along the edge of the plaza are important in determining the usage of the plaza. The presences of banks, retail and restaurants increase the traffic flow in the plaza make the space livelier.

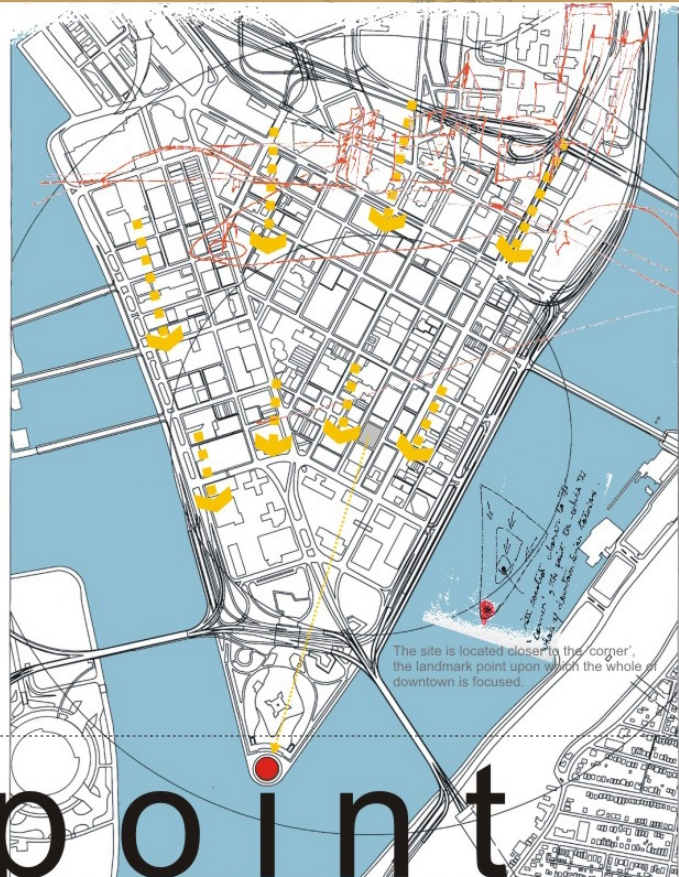


The hill slopes of the south shore are seen through the opening framed by the PPG buildings

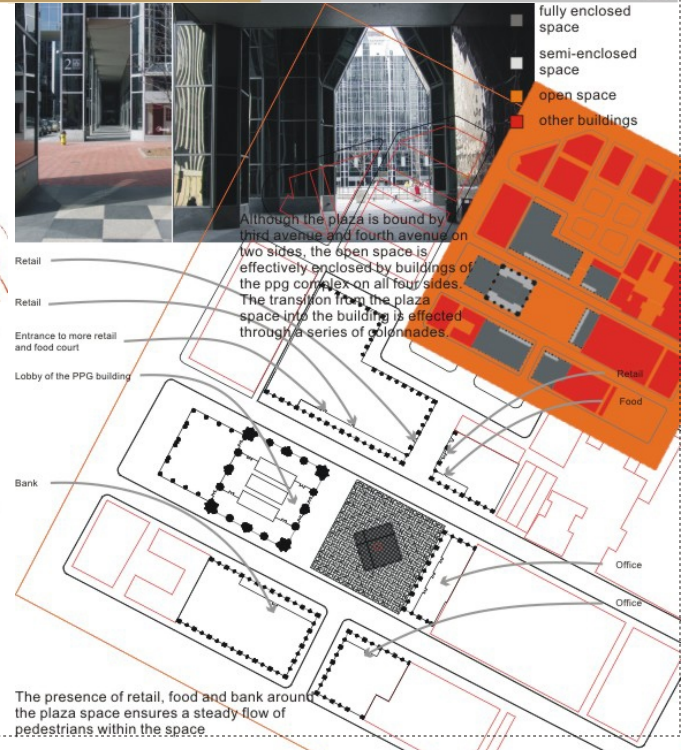


The market square is adjacent to the plaza and connected to the plaza space by a subspace

axis



point



The presence of retail, food and bank around the plaza space ensures a steady flow of pedestrians within the space

edge

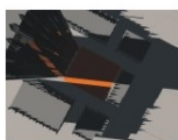
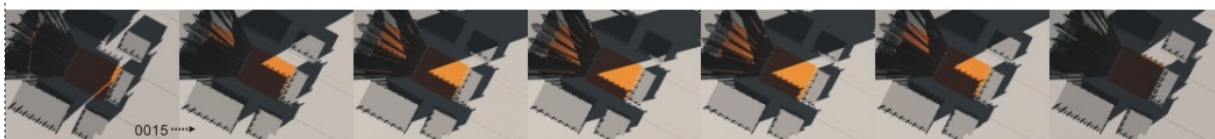
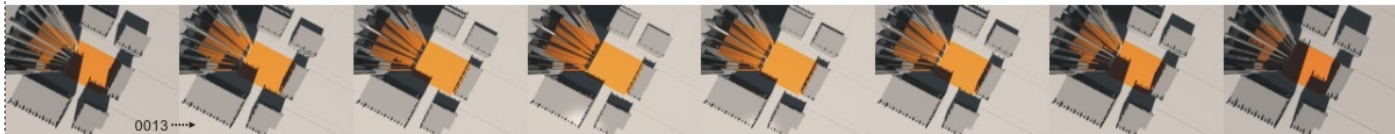
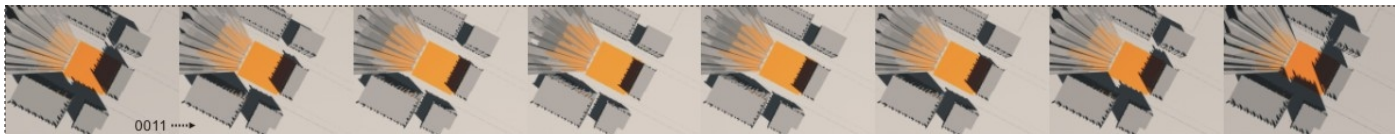
Analysis

Climate:

The availability of sunlight is a requirement for the successful use of the plaza. The shadow analysis indicates the availability of sunlight especially from 11:00 AM to 1:00 PM.

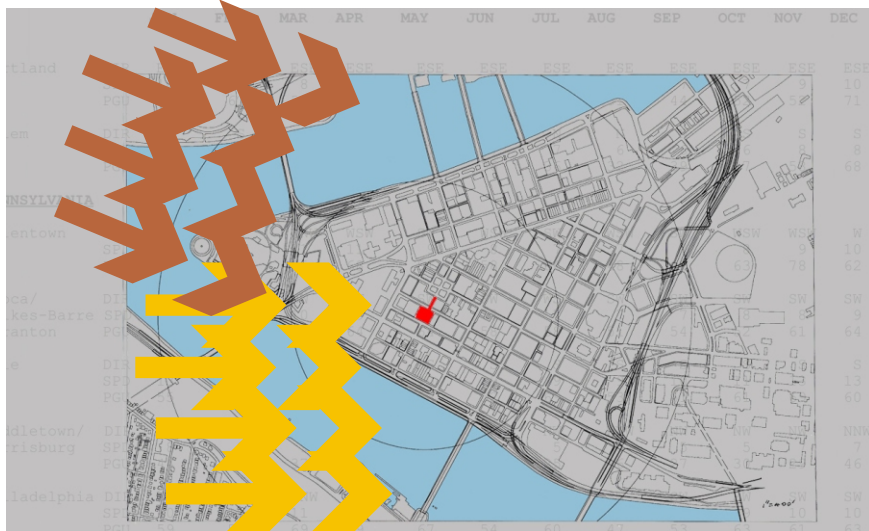
Wind:

Although there is not enough data at the site level, the city data indicates two main directions of windflow. This does not seem to affect the plaza as it is shielded by the buildings.



0017 → Mar Apr May Jun Jul Jul Aug Sep

climate



Pittsburgh	DIR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	W	W	W	W	W	W	W	WSW	WSW	WSW	WSW	SW	SW
	SPD	11	11	11	11	9	8	7	7	8	8	10	10
	PGU	54	59	60	60	61	63	83	56	48	49	62	55

DIR : prevailing wind direction in compass points
 SPD : mean wind speeds in mph
 PGU : peak gust in mph

climate

Analysis

Landuse:

The landuse around the site is predominantly business and some retail. There are also institutions (religious cultural and institutional) scattered throughout the downtown area. Housing is the least prevalent of the landuse types within the half mile radius from the site.

Commercial:

The predominant landuse in the downtown area is business, with about 120,000 employees arriving each workday.

Retail:

Retail is the second largest landuse in the downtown area, attracting tourists as well as residents.

Institutional:

There are a number of institutional buildings located in the vicinity of the site. The Historic church buildings serve as tourist attractions, while the colleges bring in the young population to the downtown area.

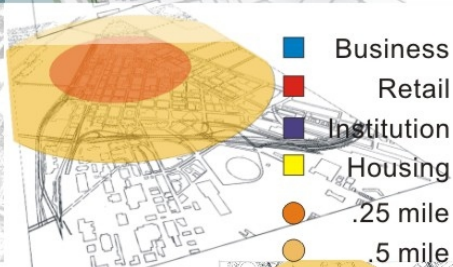
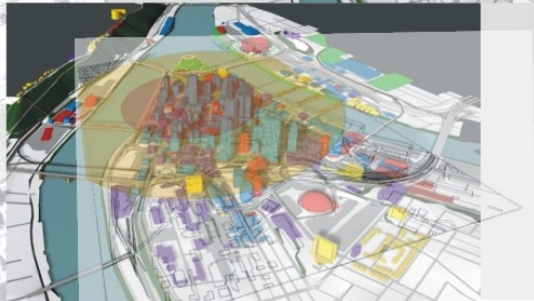
Residential:

The future downtown plans indicate the development of more housing in the area, especially along the waterfront, close to the PPG complex

Parks and open spaces:

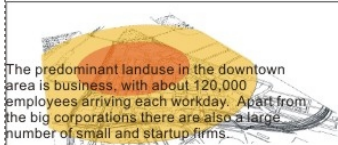
Parks and open spaces are distributed around downtown with an emphasis on the waterfront. Proposed trails would serve the system of parks

The landuse around the site is predominantly business and some retail, especially along fifth avenue. There are also institutions (religious, cultural and educational) scattered throughout the downtown area. Housing is the least prevalent of the landuse types within the half mile radius from the site.

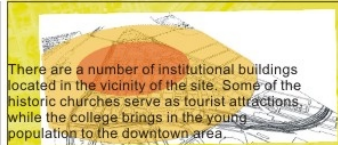


landuse

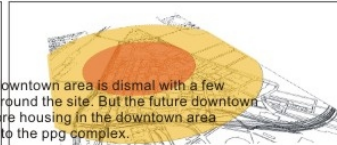
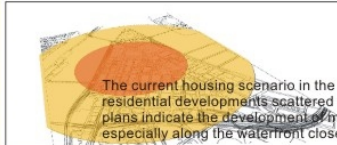
The predominant landuse in the downtown area is business, with about 120,000 employees arriving each workday. Apart from the big corporations there are also a large number of small and startup firms.



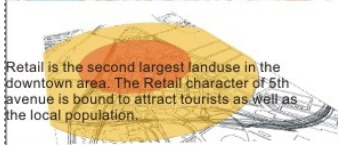
There are a number of institutional buildings located in the vicinity of the site. Some of the historic churches serve as tourist attractions, while the college brings in the young population to the downtown area.



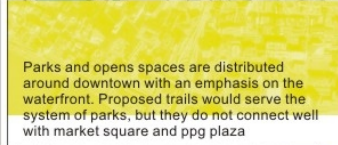
The current housing scenario in the downtown area is dismal with a few residential developments scattered around the site. But the future downtown plans indicate the development of more housing in the downtown area especially along the waterfront close to the ppg complex.



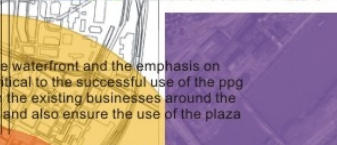
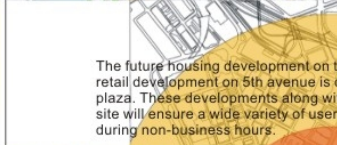
Retail is the second largest landuse in the downtown area. The Retail character of 5th avenue is bound to attract tourists as well as the local population.



Parks and opens spaces are distributed around downtown with an emphasis on the waterfront. Proposed trails would serve the system of parks, but they do not connect well with market square and ppg plaza



The future housing development on the waterfront and the emphasis on retail development on 5th avenue is crucial to the successful use of the ppg plaza. These developments along with the existing businesses around the site will ensure a wide variety of users and also ensure the use of the plaza during non-business hours.



landuse

Analysis

Connection:

The term 'connected landscapes' refers to public open spaces that are located in close proximity with a landscape feature that serves as a connector. The plaza at PPG place is located next to market square and connected by a subspace that is part of the PPG plaza. Most of the open spaces in the downtown area follow this pattern of proximity and connection.



'connected landscapes' - This term refers to public open spaces that are located in close proximity with a landscape feature that serves as a connector. The plaza at PPG place is itself located next to Market square and connected by a subspace that is part of the PPG plaza. Most of the open spaces in the vicinity follow this pattern of proximity and connection

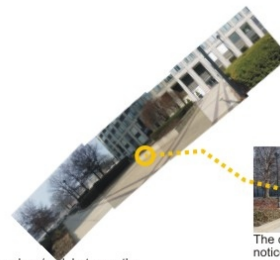
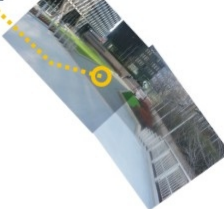
connection

The park is made up of subspaces. The subspaces have a variety of textures, materials, degree of enclosures and types of seating. It is comparatively larger with its primary entrance along liberty avenue. The buildings on either side of the park provide a sense of enclosure.



The bridge only serves as a connector and cannot be seen as a subspace. It is a lost opportunity.

The plaza by the USWA building is mostly covered with informal seating along the edge of the lawn, ledges, and steps. The three office towers bordering the plaza ensure a good degree of enclosure.

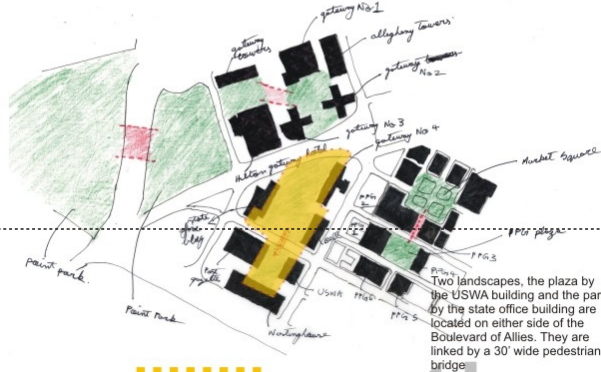
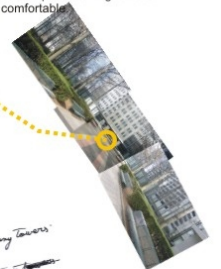


The plaza/park between the gateway towers and Hilton Gateway has equal measure of hardscape and softscape. Hedges are laid out in a rectangular pattern with pathways running at right angles. It is not well used due to its proximity to point park which attracts a lot of visitors

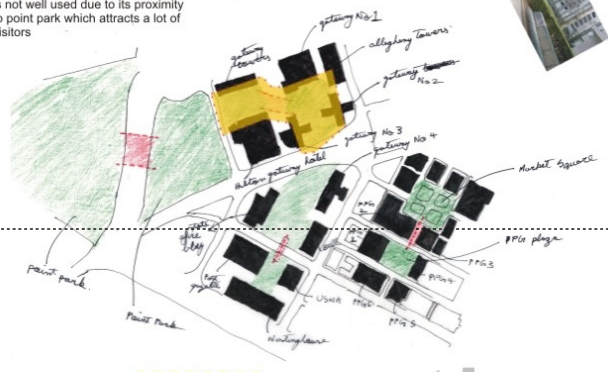


The connection is not noticeable. It is an asphalt stretch that links the two spaces. It is only treated as an awkward link and not as a subspace.

The plaza/park in the gateway center is located between the three buildings of the gateway center. A fountain acts as the central feature. Seating is provided along the wide entryway. The dense mass of trees reduce the scale of the space making it more comfortable

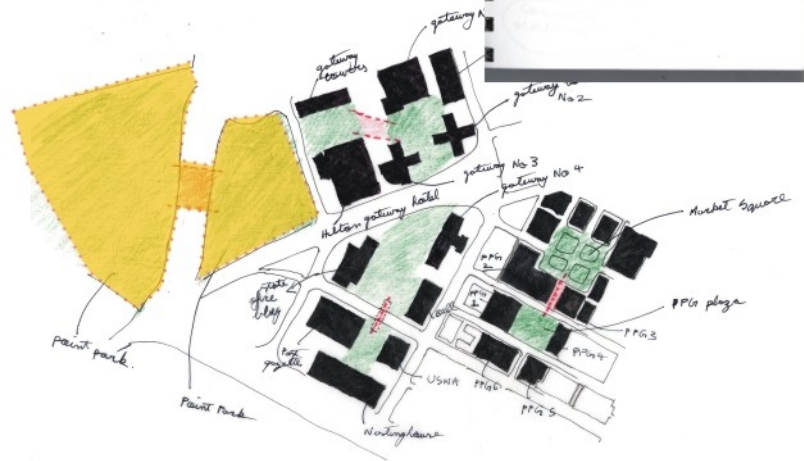
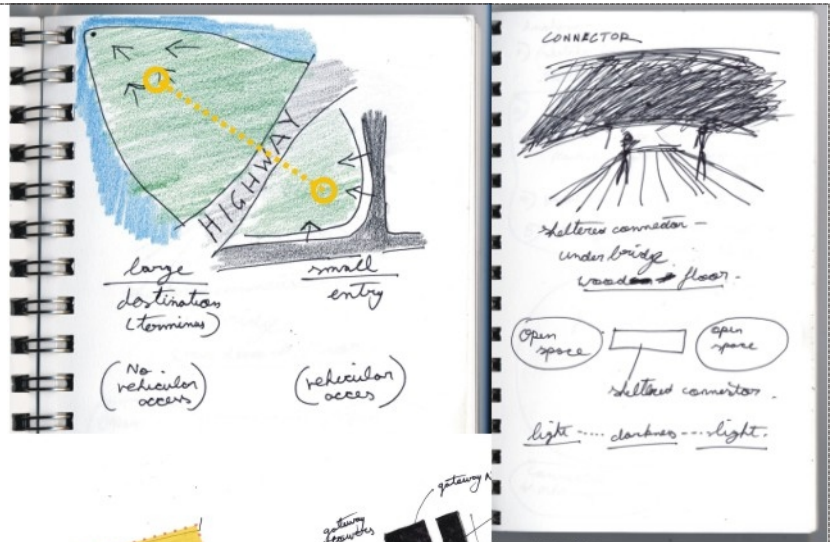


Two landscapes, the plaza by the USWA building and the park by the state office building are located on either side of the Boulevard of Allies. They are linked by a 30' wide pedestrian bridge



connection

connection



connection

The space that connects the PPG (main) plaza and the market square is a subspace that is part of the PPG complex. There is some vegetation in the form of small trees and seating is also provided. Brick is used as a paving material, relating this space to market square rather than the PPG plaza where granite has been used. This space lies on the axis of market street.

Amenities and qualities lacking in market square that are present in PPG plaza.

- 1) water feature
- 2) used throughout the year - a skating rink is operated during the winter months
- 3) seating is provided outside food establishments
- 4) completely paved

Materials shown in a cross-section diagram:
 - cobblestone
 - granite
 - brick
 - unpolished granite

The streets within market square are finished with cobblestone. Brick is the predominant paving material with granite used as accent. Granite is also used for the seating wall that retains that planter area.

The market square is one of the popular public spaces in downtown Pittsburgh. It is a true public space in that there are no restrictions on the use of the space in terms of the users and the time period. The space is enclosed by 2-3 storied buildings on 4 sides with two streets, 5th avenue and market street, passing through the center of the square. The intersection of the two streets divides the space into 4 quarters. Three of these spaces are defined by planter areas filled with trees and bordered by seating wall.

One quarter of the market square is a raised and paved platform that resembles a stage. The presence of the clock and other street furniture in front of the space will deter the use of the space as a stage.

market square and ppg plaza open spaces located on the axis of market street which is terminated by the (view to the) south shore hills on one end and the heiz hall park on the other.

South shore

connection