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HYBRID DIFFERENT MEDIA :Music and Architecture

**Reuse of Highline
Hudson Yards in Manhattan,
New York, NY**

Committee
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Richard Rosa

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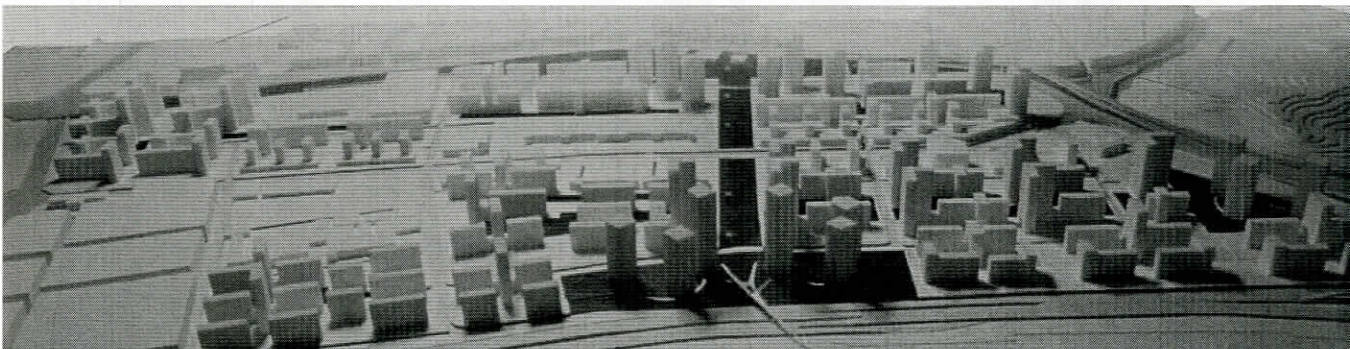


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Definition of the Hybrid

According to the Wolter's Latin dictionary, 'Hybrida' means bastard, child of a Rome and a foreigner. In the social sciences and philosophy, the concepts of 'Hybrid' and 'Hybridity' are described as "mixture of elements which are different and which are generally separate from each other." However, 'Hybridity' is not any longer merely melting out, but become a new, the third medium with new logic.

Relationship between Architecture and Music

We live in a culture that readily and pervasively privileges the eye over the ear.

The eye and the ear resemble each other in construction, number, and in the function of their points resulting in the obvious perception of similar properties of matter.

The hybrid of these two media and mutations of visual sound and acoustic space can be imagined in the sense of cross-fertilized architecture and music. The relationship between architecture and music already has a long historic tradition dating back as early as classical antiquity in Greece where the concept of number and music played an essential role in their aesthetics. In the sixth century BC, Pythagoras observed the musical tones produced by vibrating strings create harmonic resonance if their lengths are ratios of whole number. Vitruvius' system of proportions based on the human figure also express the sizes of the part in terms of the whole as a harmonic progression of ratio. Vitruvius listed music as one of the "essentials" of architecture, used primarily to 'tune ballistae, capapultae, and scorpiones to the proper key. In medieval age, the Alberti used the harmonic ratios in music to his building design which corresponded to the musical consonance (1:1,2:3 for small plan; 4:9, 9:16 for medium; 3:8, 4:1 for large plans). A century later, Palladio applied these so-called harmonic ratios to the internal layout of the whole building. Through music, the visual arts-especially architecture was given a mathematical foundation. But the Renaissance theory of harmonic proportions had unfortunately 'degenerated' into a 'narrow and inflexible' body of thought focused on a handful of simple arithmetic ratios.

In contemporary architecture, Daniel Libeskind's design shows perception and measurement linking music and architecture. Frank Ghery also attempted to suggest the musical character in architecture itself.

The crux of the musical analogy in architecture is not whether the number are the same, but that there is a similar structure; a system of proportional relationships that repeat with variation, etc. The general principles of form that connect music to architecture could be like repeating intervals and rhythm, repeating ratios and harmony help to establish an 'isomorphic correspondence' between the two media. In the case of the proportion, repeating ratios means that the divisions between parts and wholes are consistent at different levels of scale.

Like the orchestras composed of so many instruments with one conductor, architecture is composed by the post and lintel whether it is complex or simple. its aesthetics , the programs and etc were the symponies of architecture.

Architecture can possibly generated by music and synthesis with music because these two media have similar characteristics.

Music: Beat, Harmony, Tone, Rhythm, Verse, Chorus...

Architecture: Sturctural rhythm, Harmony of space, Hierarchy and Transition of space...

Hypothesis of Methodology

I have investigated and analyzed a range of aspects and analogies between music and architecture. Moreover, I have studied the impact and harmony to create the 'Hybrid' form of design aspects. The topic of music and architecture is an ancient one, and any attempt to mention the subject that fail to acknowledge and account for the changes that have occurred and are still occurring is sure to be full of unintended but inevitable erroneous resonances.

In my thesis approach to the music and architecture, I am not evoking the classical Pythagoras and Palladio. I am more dealing with architecture and music as new ground of present architecture and new hybrid medium between them.

In embracing science and technology, music faced and attempted to resolve the problems long before architecture, and has tried to break its cage. In this century, the music has changed with series of emancipation and composers have tried created new form of instrument according to their new theory of music and invention of new sound.

They also investigated the instruments itself to create best music and sound.

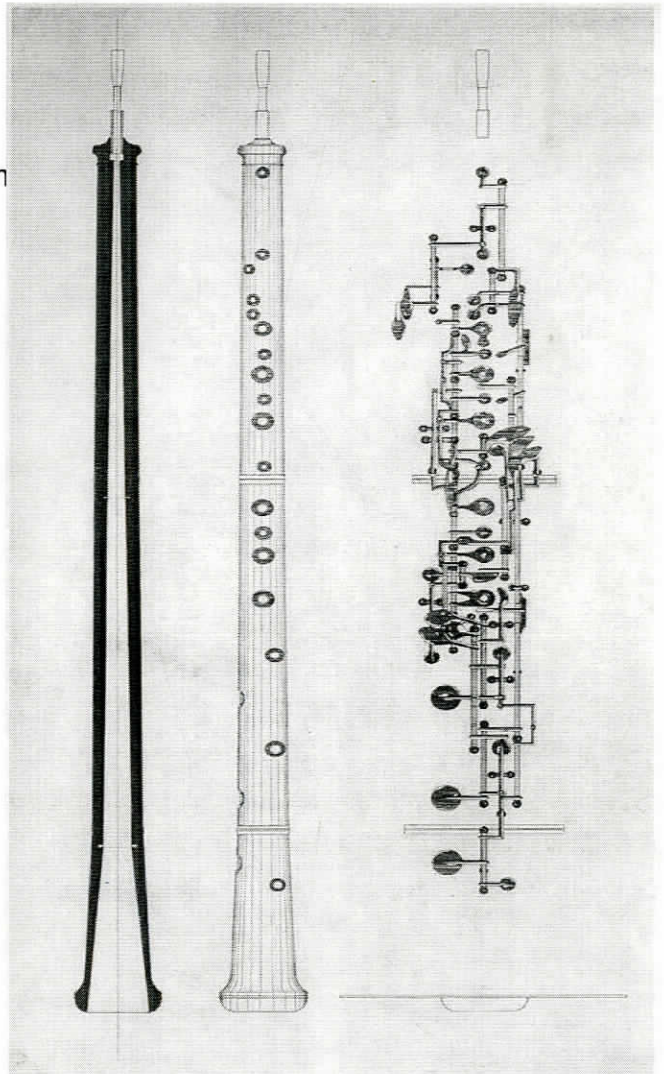
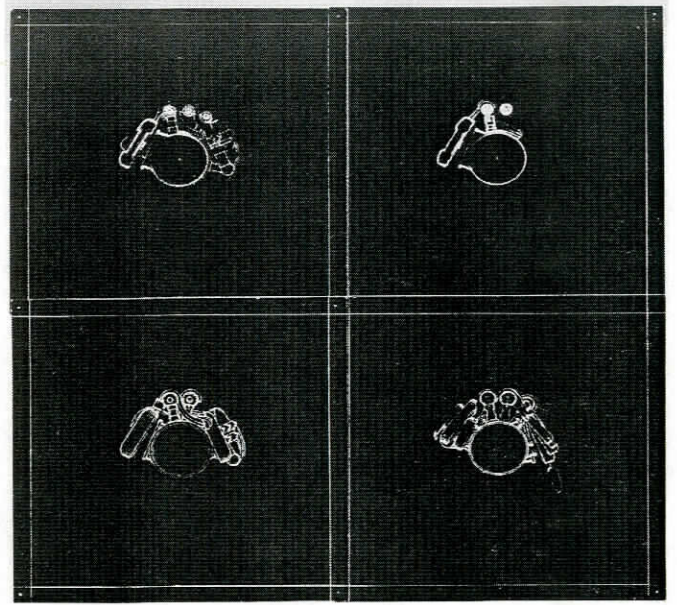
Architecture, just linked music with simple arithmetic ratios, should confront and try to parallel to contemporary music theory.

To hybrid these different media, I have chosen the instruments and Bella Bartok's musical theory. Instrument has architectonic form with musical character while Bartok's musical theory has visual character. These two media can be sources of the hybrid the music and architecture.

Musical instruments

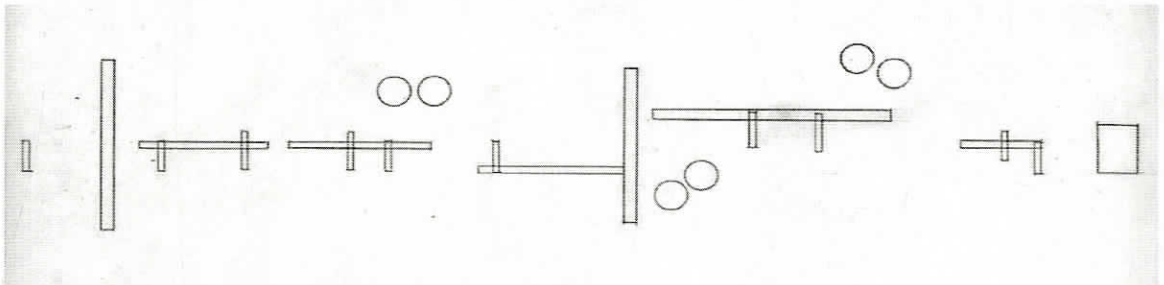
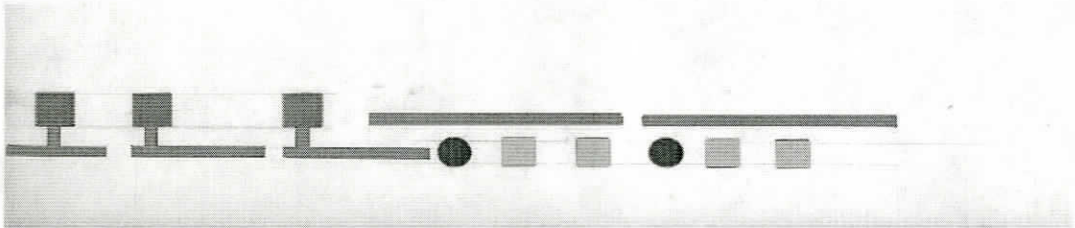
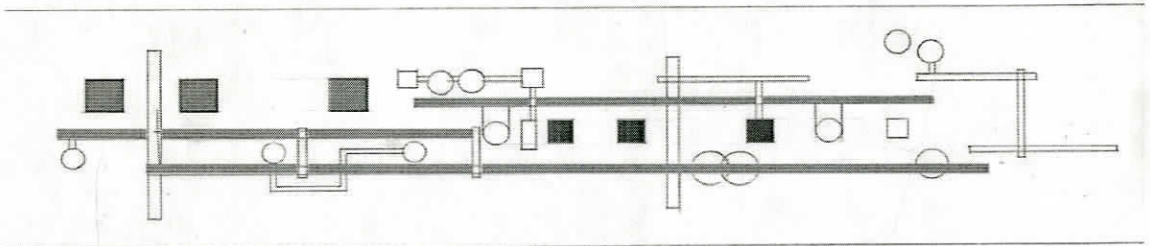
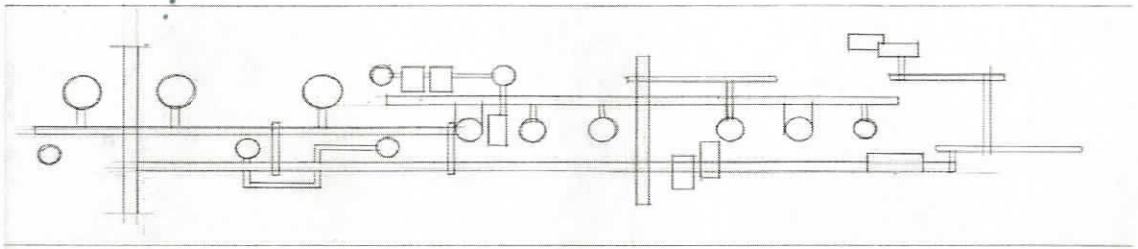
Architectonic form with musical character

The Instrument itself is the hybrid form of the music and architecture. It has its own architectonic form with musical character. Each element is synthesized with best composition to produce the sound and it has similar construction technique and internal space. There is another physical space within the instrument consisted of couple distinct forms and covered the certain range of the sound manipulated by hand and breath. Each of these spacial elements is unique and concord with the other elements and each of them become successful architects of the space of their sound. Each type of instrument has own constructional method and space, and can be analyzed as architectonic elements. I use the instruments as the design tools for my thesis because of its hybridity.



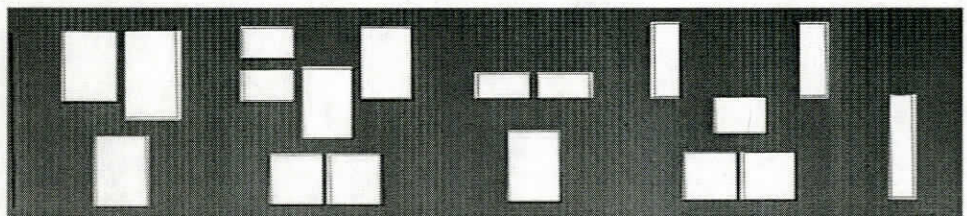
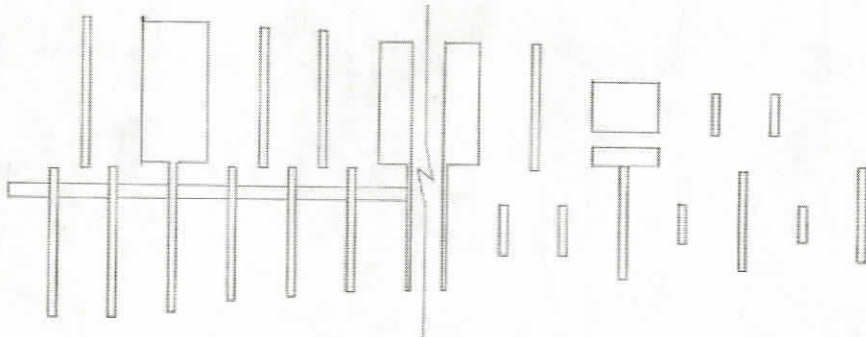
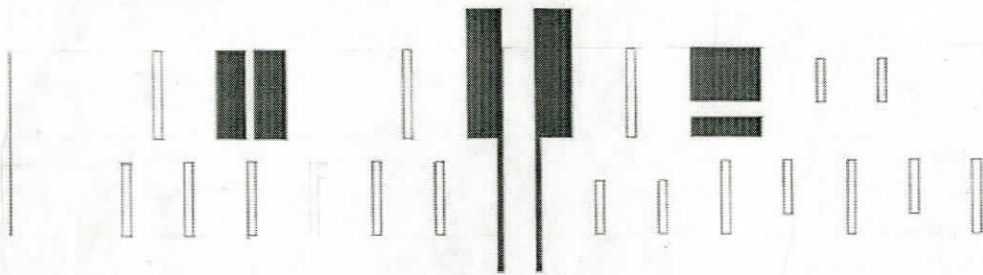
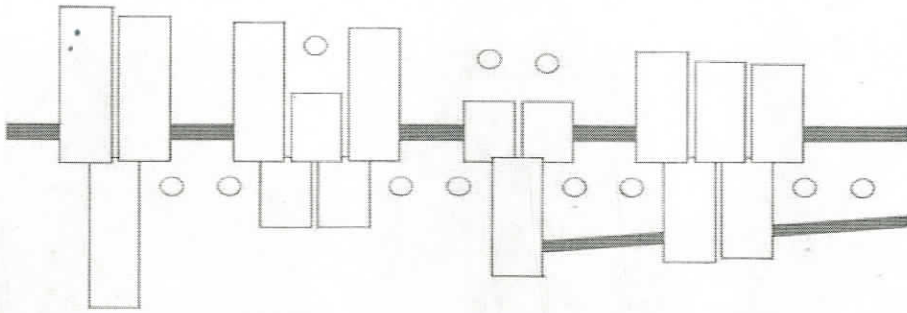
Spatial Analysis of Instruments

Poetic Analysis of Oboe

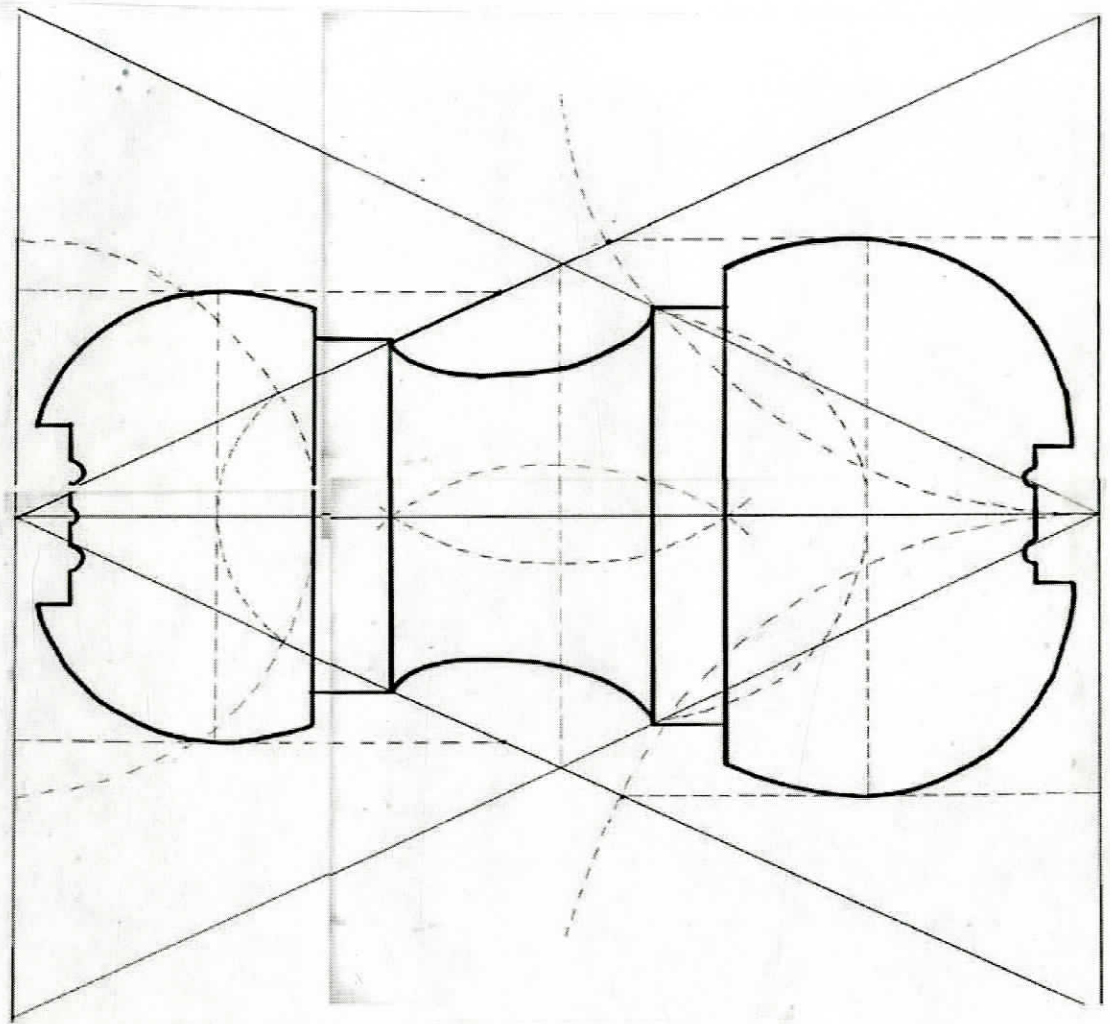


Xylophone

Poetic Analysis of Percussion Instrument



Violin
String Instrument



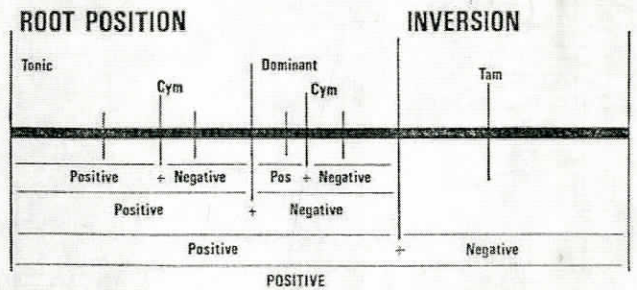
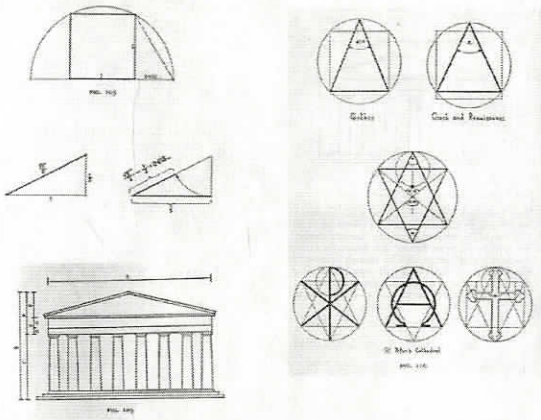
Bella Bartok's musical theory

Musical theory with visual character

The reason why I chose the Bella Bartok's music theory is that he applied diverse visual character in his composition. Moreover, he synthesized and hybrid all kinds of 20th century's music theory with 'tonality' which means tonal relations of some kind or another are and essential framework for any construction of tone which can be rightly considered as a work of musical art. His music can be categorized with three ideas.

Golden section

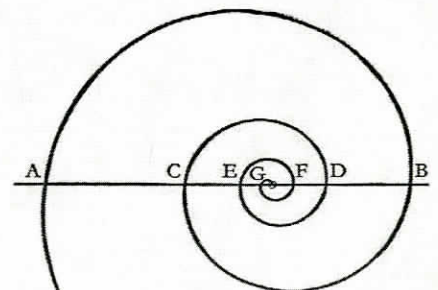
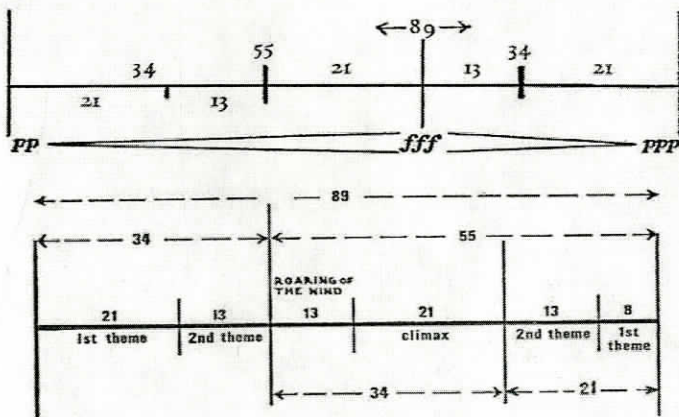
He was the first musician applied the visual and historical Golden section to his music. He integrated all the elements of music: the scales, the chordal structures with the melodic motifs appropriate to them, together with the proportions of length as between movements in a whole work, main divisions within a movements such as exposition, deelopment and recapitulation and even balancing phrases within sections of movements. All of these came from the on single basic principle, that of the Golden Section.



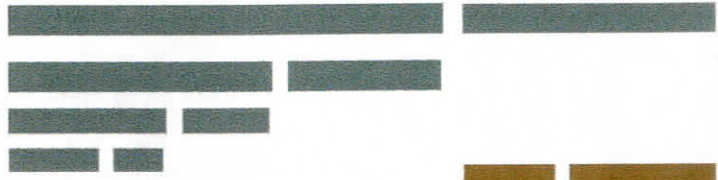
Fibonacci Series

1,2,3,5,8,13,21,34,55...(A+B, A<B)

Natural number system. He used *mismatch* among the tones and interval.



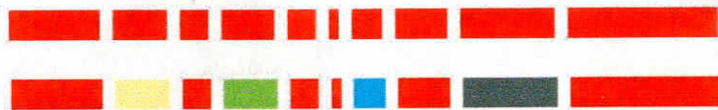
Golden Section



Inversion



Mismatch



Axis system

According to his analysis, the axis system has hierarchy among the harmony of music.

- a) The functional affinities of the fourth and fifth degrees
- b) The relationship of relative major and minor keys
- c) The overtone relations
- d) The role of leading notes
- e) the opposite tension of the dominant and subdominant

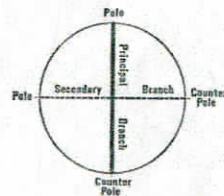
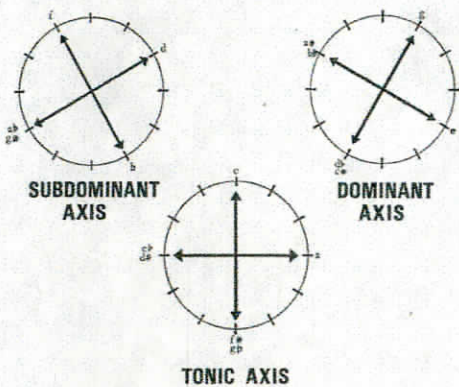


FIG. 4

Consequently the components of the axis system are as follows:

pole	=	—	(no dimension)
branch	=	pole + counterpole	(1 dimension)
axis	=	principal + secondary branch	(2 dimensions)
axis system	=	T + D + S axes	(3 dimensions)

This axis system basically represented how to compose and group the music pattern.

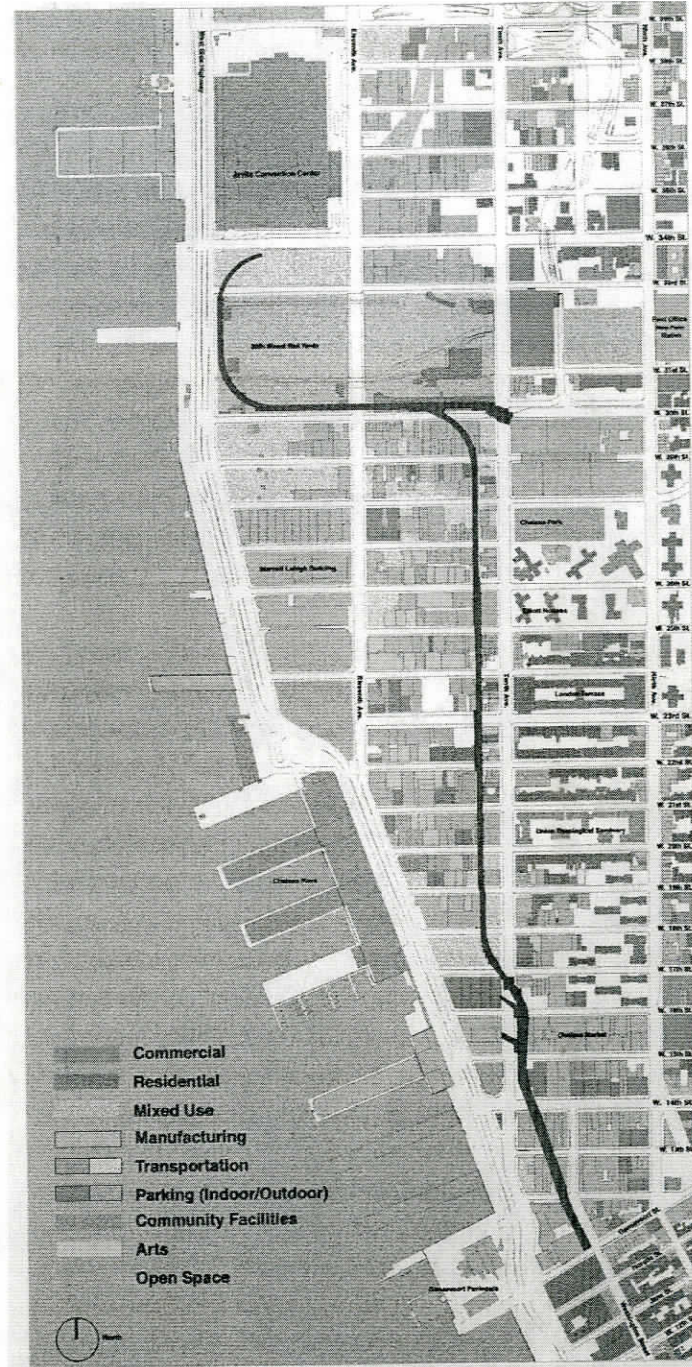
Site information

Site: Highline in New York city, NY

Context of Site

The site context is the High Line, an elevated rail structure running from 34th Street to Gansevoort Street along the Far West Side of Manhattan in New York City. The rail structure is approximately 1.45 miles long and generally runs 29 feet above the street. The line is constructed of steel and topped with a reinforced concrete deck, gravel ballast, and metal tracks and handrails. It is not currently in use, and it is closed to traffic and public access.

The High Line runs through three neighborhoods that formerly were centers for transportation and industrial uses: The Hudson Rail Yards area, Far West Chelsea, and the Gansevoort Meat Packing District. The context reflects this heritage, with a building inventory that includes many garages, factories, and warehouses. The area is now under significant redevelopment pressure and has begun to change in character. Over the past 15 years, Far West Chelsea has become an international art-world hub, with many of the galleries that once clustered in SoHo moving into warehouses and loft buildings between 20th and 29th Street, west of 10th Avenue. At the southern end of the Line, many meat processing factories in the Gansevoort Meat Packing District have been replaced by designer boutiques and destination restaurants. At the northern end of the Line, the City has begun a coordinated redevelopment initiative that may include a substantial new business and residential district, as well as a multi-use sports and entertainment facility. Running roughly parallel to the High Line—directly adjacent in the area between 34th and 30th Streets, and one to two blocks away from the Line south of 30th Street—is the Hudson River Park, currently under construction in stages. The High Line was built to support two fully loaded freight cars, and studies indicate it remains structurally sound.



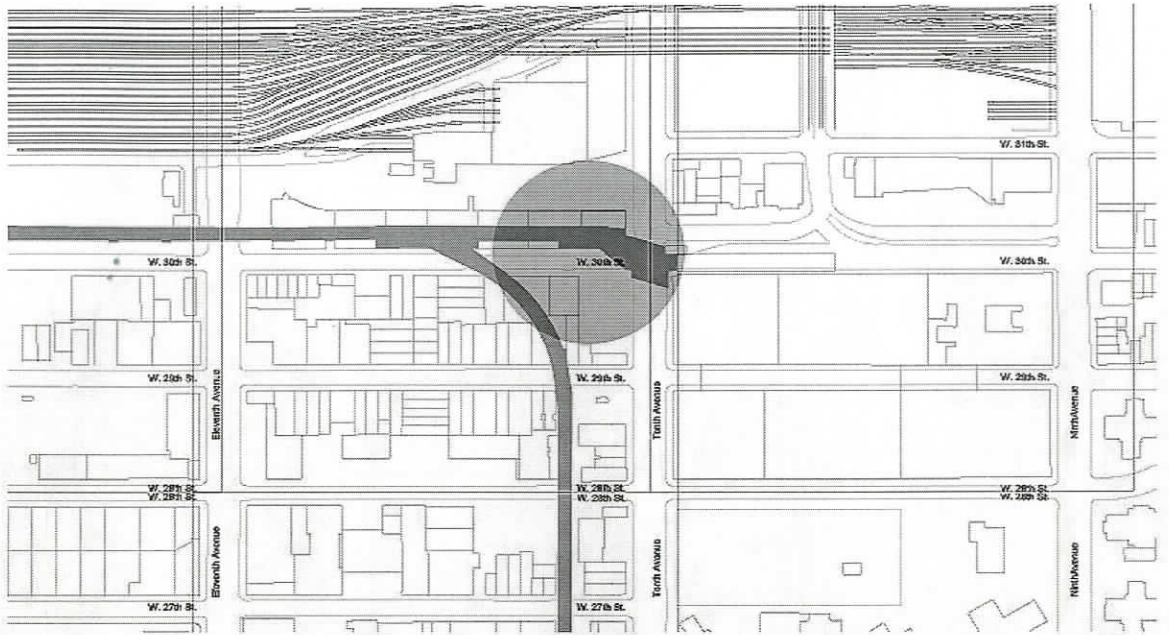
Replacement of Highline(by New York city renewal plan)

Over the last two years, the movement to preserve and reuse the 22-block-long High Line elevated rail structure has received widespread coverage in the national press and has become a rallying point for New York's elected officials, community organizations, and civic groups. Now, for the first time, architects, landscape architects, designers, planners, artists, horticulturalists, and community members are invited to create visionary design proposals for the structure's reuse as an elevated, 1.5-mile-long public promenade.

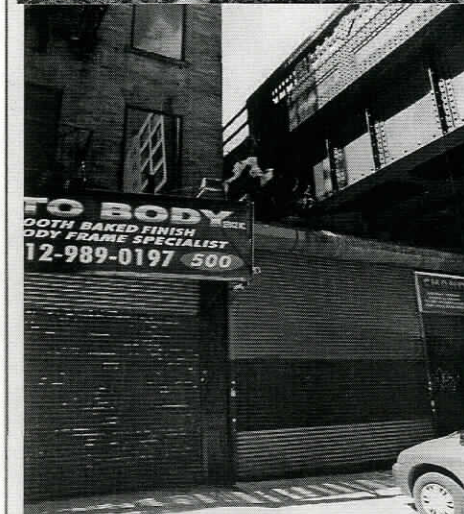
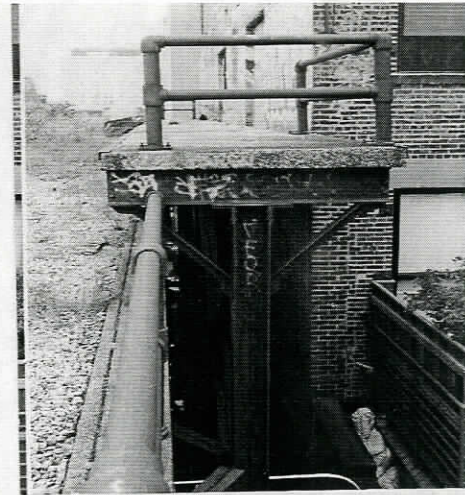
The conversion of the High Line to public open space will be a reclamation of urban transportation infrastructure unparalleled in this country. Once the upper deck is opened to the public, residents and visitors will be able to walk 22 blocks through the city without ever encountering motorized traffic. Starting at the Hudson Rail Yards area, where neighborhood features include the Jacob Javits Convention Center, the Hudson River Park, and the new Penn Station site, and where a #7 subway extension and a multi-use sports and entertainment facility have been proposed, pedestrians can move south through the art galleries and warehouses of West Chelsea into the Gansevoort Meat Packing District. Old buildings and new will relate to an elevated public space that offers views of New York unavailable from any other vantage point. Inventively reconceived, the High Line will encourage design innovation and at the same time become a defining element

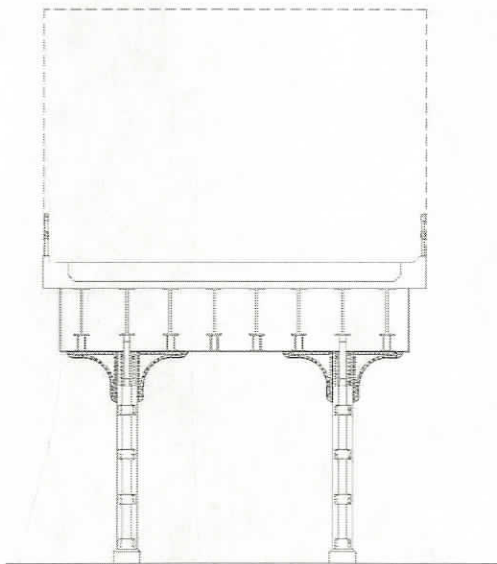
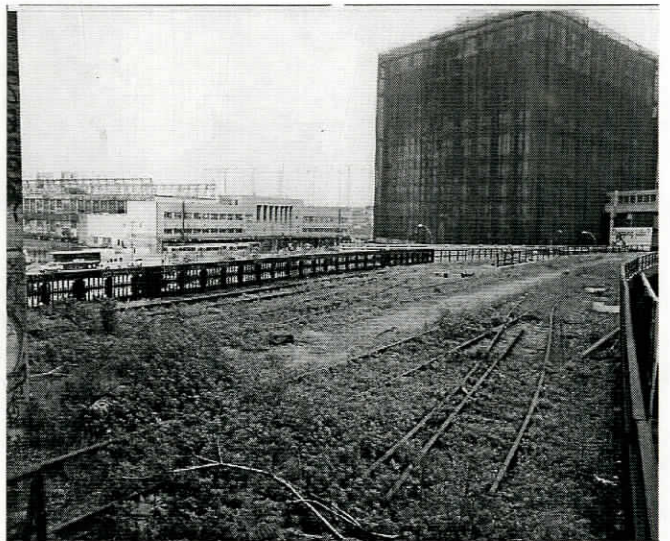
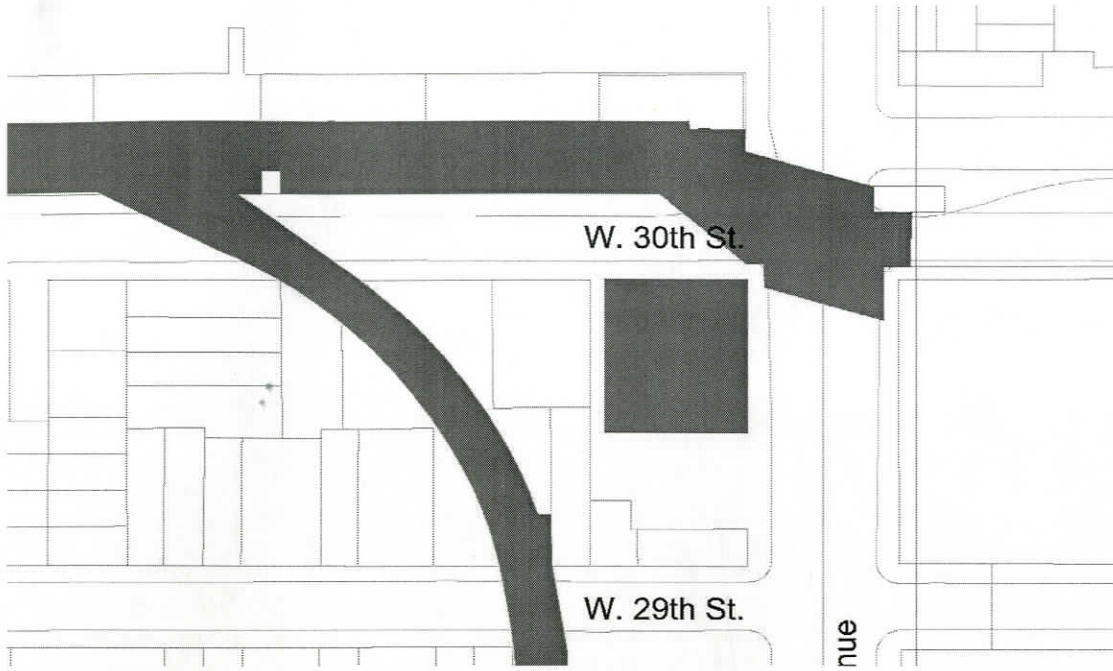


Proposed Site



Proposed site is part of the Highline located between 10th and 11th Ave from West 30th St. The site characterized by low intensive commercial and industrial uses, such as warehouses, parking, and vehicle storage. This unused part of the Highline will be the thesis site. Probably, the building will occupy on the highline and its facing block which is now parking lot.



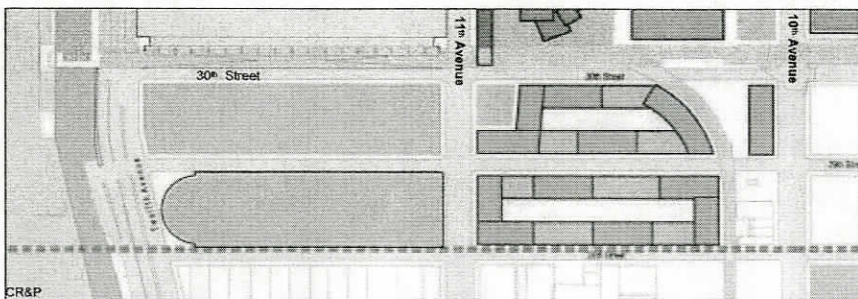
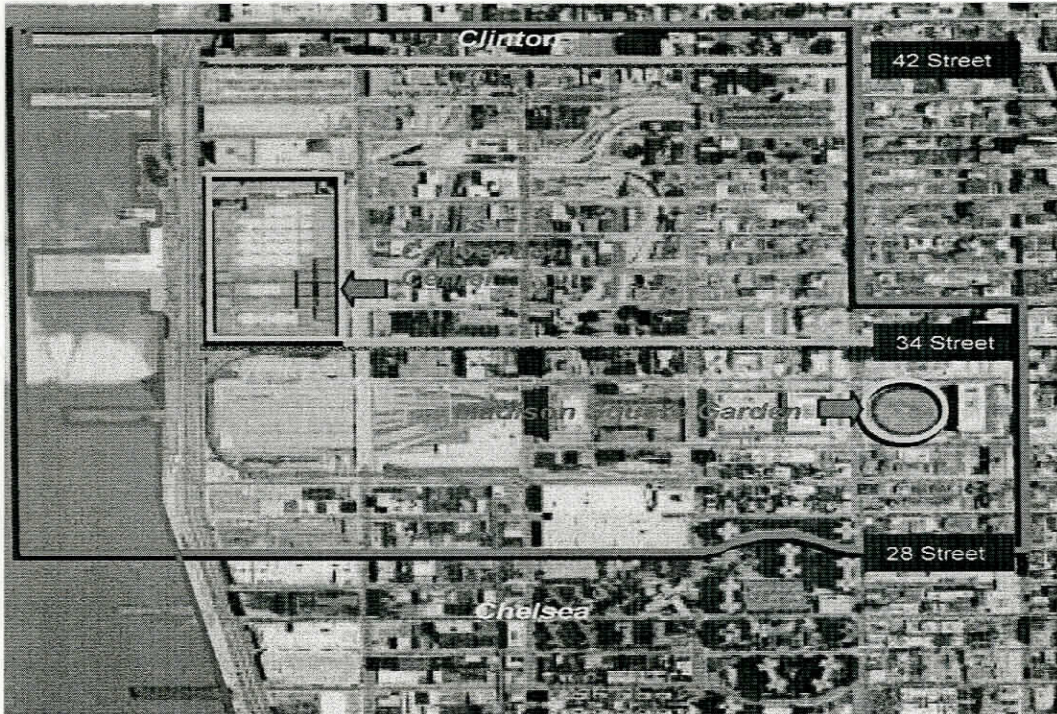


0 10' 20' 40'

Hudson Yards Today

Today, Hudson Yards is the only large, underutilized area where Midtown can expand without encroaching on densely built-up residential communities. The Hudson Yards area encompasses 360 acres of land. The amount of land devoted to open space is .5% which is extremely low when compared with other areas of Manhattan.

There are several distinct corridors within the Hudson Yards area. There is 42nd Street, 9th Avenue and its residential core, 34th Street and the superblocks, the 10th to 11th Avenue corridor, as well as the area south of the MTA Rail Yards. Currently, less than 150 housing units are located west of 10th Avenue between West 28th and 41st streets, and a large portion of this area is occupied by open parking and utility storage lots. This area provides the greatest opportunity for redevelopment.



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