

Harmonious Ambition: The Resonance of Michelangelo

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ABSTRACT

This thesis is an exploration of creating an essence in architecture through a sense of ambition and harmony. The ambition for a design to have an architectural presence and establish a clear identity, while achieving a harmony of numerous aspects of the project in order to simplify the inherent complexities of architecture and allow the ambitious identity to be clearly present.

The investigation begins with the analysis of ruins as the result of a natural process that strips down a building of secondary components and leaves the exposed soul of the architecture. As a specific example, the thesis explores the Roman ruins, how they exude their cultural history and often how they express the initial architectural intent and identity. The ambition of Rome is carried to the harmony of Florence and finally to the embodiment of harmonious ambition in Michelangelo.

His work constantly achieved an ambition in creating a new identity with each masterpiece while always attaining a beautiful moment of harmony. The thesis explores not just the wonders of Michelangelo's life, but his inspirations and mastery of ancient traditions as well as his influence on the world after him. At the conclusion of the exploration, I propose a place of learning that both honors Michelangelo and his resonance throughout history and creates a new harmonious ambition.

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GENERAL ABSTRACT

It seems that most thesis explorations begin with a thesis question and work with an intent to find an answer in its conclusion. However, I intended to take this opportunity to refine a question about architecture that I can spend the rest of my career working towards an answer. To quote one of my mentors, Paul Emmons, “Architecture is the eternal question; Building is a temporary answer.”

To determine the question, I look back to why I pursued architecture. It was not to merely construct shelter, but rather because I found that architecture can tell a story, evoke emotion, improve functions, and a great deal more. It seemed like architecture is a living entity and it was my aim to refine a question in pursuit of capturing this living essence.

The exploration begins with studies from precedents that I found achieved this mysterious architectural essence. One common aspect of more successful projects, and I find similar to some of the most successful people, is that they have the desire and ambition to express a boldness in defining their unique character. This boldness is only apparent through the clarity and harmony in their design, examined further through architectural ruins. With this architectural ambition and harmony in mind, the thesis studies a revolutionary genius whose life and work embodied the essence I am after: Michelangelo Buonaroti.

This thesis outlines my journey through lessons from the great Michelangelo towards achieving my own Harmonious Ambition.

Acknowledgements

Throughout this rewarding exploration of my thesis, I found several parallels between the type of architecture I wanted to create and the kind of person I aspire to be. Just as how I want my architecture to find a sense of harmony with an ambition purpose, I find that continues to be precisely what I strive for in my life. Any sort of success I have had in beginning to understand this harmonious ambition is only due to the balance of influences of peers, mentors and precedents. Throughout my life, and especially in this thesis journey, there has been a large amount of overlap with precedents becoming as influential as mentors, mentors becoming as familiar as peers and peers becoming as inspiring as precedents.

Peers (including classmates, coworkers, friends and my amazing siblings) constantly influenced the ambitious nature of creating architecture that can mean something more than just fulfilling a functional need. For mentors, I would first like to express my gratitude to my amazing parents that have always stressed a sense of balance and harmony within my life. I think it was inevitable that it would translate into my work in architecture. My incredible aunt, Melanie Hughes, who greatly assisted in my falling in love with Italy. My mentors in the professional world, especially Jeff Ganthner and Erik Velazquez, who help bridge the gap from the conceptual realm and bring them into the physical world. I am also incredibly grateful to the mentors I gained in my graduate studies at Virginia Tech. My committee chair, Markus Breitschmid, worked with me to determine what exactly it was I wanted to pursue and how to take full advantage of this thesis opportunity. Paul Emmons' incredible insight throughout the wide range of creative avenues this thesis led was critical to nearly all of my realizations and discoveries. Susan Piedmont-Palladino was exceptionally influential as well, specifically in guiding my search to find a harmony to my project with its surrounding city context of Florence. Lastly, I would like to thank Jaan Holt and Ezgi Isbilen who both provided incredible perspectives outside the regular conversations with my committee and influenced a range of new ideas, concepts and designs. Lastly, a special thanks to those precedents that may never read this: Architectural masters like Louis Kahn, Tadao Ando and Alejandro Aravena that gave me inspiration through their remarkable designs. The Michelangelo expert, William Wallace, that guided my studies through his lectures and writings about not just Michelangelo's work but his passions, struggles and genius that allowed me to understand Michelangelo more completely. And, of course, the genius Michelangelo that will continue to inspire my work.

I truly appreciate this harmony of inspirations I have had the good fortune of learning from during this thesis exploration. I expect to reflect on this experience and constantly learn from it. As an 87 year old Michelangelo stated in 1562, "Ancora Imparo". Yet still I learn.

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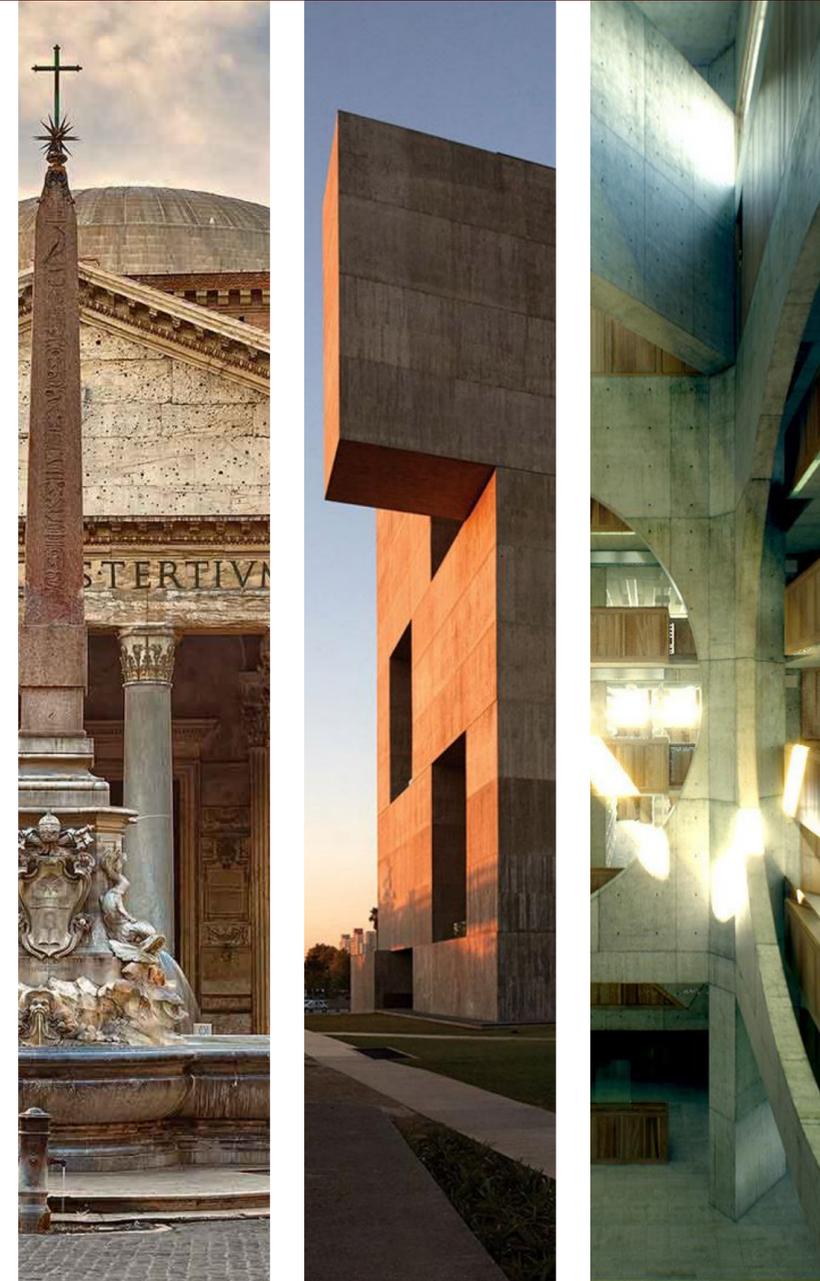
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Harmonious Ambition

The Resonance of Michelangelo

This thesis is an exploration of creating an essence in architecture through a sense of ambition and harmony. The ambition of a design to have an architectural essence and establish a clear identity, while achieving a harmony to simplify the inherent complexities of architecture and allow the ambitious identity to be clearly present.



Chapter 1

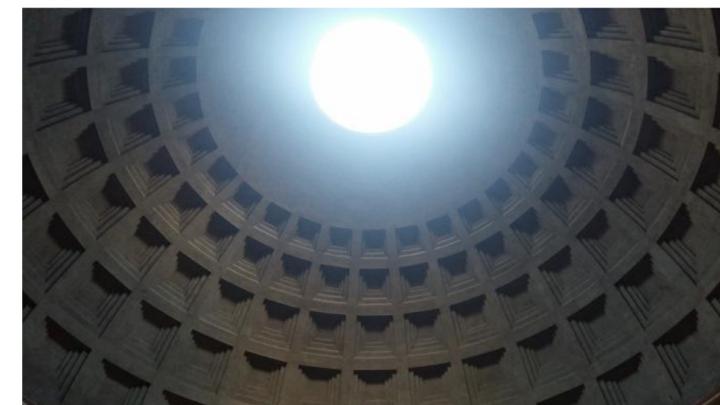
Discovering Harmonious Ambition

Pantheon

The first of many precedents I explored was a project that has been continuously inspiring me from my first introduction into the field of architecture. It has served as close to an idea of architectural perfection as I've found throughout my studies. The Pantheon not only represents the strength and ambition of the Roman empire but has become a prime example of architectural achievement with its mind blowing concrete dome.

The Pantheon that we see today was built around 126 AD under the rule of Emperor Hadrian. While the architect is unknown, many believe that Hadrian himself played a large role in its design and construction. It is on the site of an earlier temple commissioned by Marcus Agrippa during the reign of Augustus and you can still see Agrippa's original inscription that Hadrian retained. The building is circular with a portico of large granite Corinthian columns under a pediment. A rectangular vestibule links the perch to the rotunda, which is under a coffered concrete dome with a central opening (oculus) to the sky. Almost two thousand years after it was built, the Pantheon's dome is still the world's largest unreinforced concrete dome. The height to the oculus and the diameter of the interior circle are identical, famously stated that a perfect sphere would fit into the central space.

While there is an immense amount of history and greatness to this structure, there is one overarching aspect that is brought into this thesis: the seemingly simplistic resolution of incredibly complex challenges. There are unbelievable construction and design challenges that the Pantheon faced, especially during its time period. The resolved design may be the purest example of overcoming these hurdles in a very elegant and graceful solution.



1.1 Exterior Portico and Pediment (top),
1.2 Interior Dome and Oculus (middle), 1.3 Pantheon at night (bottom),
1.4 the Pantheon, Rome (opposite page)

UC Innovation Center

The elegant notion of resolving complex conditions with simplistic solutions continues to resonate in the modern era as well. Alejandro Aravena's 'Elemental' architecture has a clear archaic influence in creating the simple yet expressive. Technology's capabilities today are constantly utilized to resolve any and all challenges which often results in complicated designs. Aravena's designs have the ability to be complex without becoming complicated. Summed up beautifully in an interview with Aravena, he stated, "Technology is definitely the answer, but it is our responsibility to determine what the question is."

The UC Innovation Center in Santiago, Chile is an incredible example of using intelligent design partnered with technology to create a project that is both successful and beautiful. Its tropical environment creates the indisputable challenge of heat gain. While many contemporary designs would still implement a glass-box type structure to exhibit the technologies ability to withstand the heat of Chile through innovative glass, air conditioning and other advances, Aravena shows his willingness to step back and ask why. Instead of creating a glass box with a concrete core, he turns the design inside out. Aravena creates a much more massive and opaque exterior with large, deep set balconies to protect the inhabited interior from the harsh heat on the exterior. To bring light into the project, he utilizes a large central atrium that extends from the skylight in the roof down to the ground level.

While this design beautifully achieves the challenge of working with the environment of Chile, its simplicity actually creates several other advantages that express the true nature or ambition of the architecture. Since a glass box approach provides constant views to the surrounding context, the view loses any sort of exclusivity and becomes less memorable. By creating these large, deep-set balconies, Aravena creates very specific and special views to the context. In this blocking of exterior views throughout the majority of the building, he turns the inhabitants attention inward towards the central atrium and the life within the building.

While many architects would have translated the program of an Innovation Center to flaunting the latest innovative building technologies, Aravena finds a way to develop an elegant design that has its inhabitants looking inward to innovate.



1.5 Corner Detail (top), 1.6 Central Atrium (middle),
1.7 Balcony (bottom), 1.8 UC Innovation Center (opposite page)

Louis Kahn

Perhaps no architect in the modern era has been able to embody the idea of harmonious ambition more clearly than Louis Kahn. He was known for combining Modernism with the weight and dignity of ancient monuments. Though he did not arrive at his distinctive style until his early 50s, and despite his death at the age of just 73, in a span of just two decades came to be considered by many as part of the pantheon of modernist architects which included Le Corbusier and Mies Van der Rohe.

Starting in the early twenties, modern architects wanted to be as free as modern painters were - as free to invent as the cubist painters who had just come on the scene, and as free from the shackles of responsibility. Buildings were to have no top, no bottom, no side, no up, no down - nothing that read of construction, but rather of composition. What Kahn did that was new in the high modernist period was to build buildings that were pure construction - buildings that showed nothing of the idea of composition and no trace of pictorial freedom. This sense of pure construction combined with the use of the simple forms (circles, squares, pyramids) allowed for the clarity in Kahn's architecture. These principles are best shown in some of Kahn's most famous works: the Salk Institute, the National Assembly Building of Bangladesh, the Exeter Library and Kimbell Art Museum (all shown to the left).

While Kahn had a need to "invent" in his architecture, it's very clear that he learned and applied a great deal from the four months he spent in Rome studying the great ruins of the ancient world. These simple and archaic forms create a beautiful harmony of 'silence and light' as Kahn describes. Similar to the ruins he studied, his buildings become very expressive of their construction, purpose and essence.



1.9 The National Assembly Building of Bangladesh (top),
1.10 The Exeter Library (middle), 1.11 Kimbell Art Museum (bottom),
1.12 The Salk Institute (opposite page)



Ruins

“I like ruins because what remains is not the total design, but the clarity of thought, the naked structure, the spirit of the thing.” - Tadao Ando

Ando, similar to Louis Kahn, has a clear desire for his architecture to portray that sense of the ruin in his building. As one studies ruins, they are able to take that step into the past and explore the life of the building. Experiencing any ruin is to decode how that building was used and how time has affected the structure over time. The ruin also allows us to see the “naked structure” as Ando states. One can see how the building was constructed as it is exposed to the viewer. There is a beautiful honesty and openness to this interaction. In order to express that true nature, or soul of the thing, architects like Ando and Kahn were able to utilize those influences of ruins into their designs.

An architect isn't seeking to create a ruin, but seeking to create a new architecture that could possibly be as self-expressive and ambitious as a ruin is. This desire brought the thesis exploration to explore this notion of the preemptive ruin: to look at the buildings distant future as a ruin while that ruin simultaneously looks back on its past life. This harmony of past and present allows an architect to evaluate the entire possible life of a building and simplify the structure into its essential components. Into its ruins.

As a part of the exploration of ruins, I took the opportunity to travel to Rome, as Kahn did, to study these ancient ruins. I was able to see firsthand the expressive elements that were able to stand the test of time. From the Pantheon's dome to the Roman Forum to the Colosseum I was able to walk through history and relive some of the legacy of the Roman Empire. But not only was I able to envision the way of life of that time period, I was able to decipher the way they built their buildings. It was truly an unforgettable experience that gave me a better understanding of not just Roman architecture but that of architects like Ando and Kahn. The ambition and clarity of Rome was able to be expressed through these ruins. Through these lessons learned in the ruins, the art of this harmonious ambition can be portrayed and can achieve another beauty found in work of Louis Kahn and Tadao Ando: Timelessness.



City of Knowledge

I found incredible examples of both ambition and harmony throughout the Roman ruins, but I found discovered a true unity of harmonious ambition in Florence. Rome represented the ambition and power of the Roman empire and its emperors, while Florence constantly displayed an ambition of man through its history, culture, art and architecture. Each part of the city seemed to belong to the city as a whole and speak from one voice, all tied together under the shadow of Brunelleschi's great dome.

Il Duomo di Firenze, or the dome of Santa Maria del Fiore, is an enormous, impressive and beautiful dome that is the clear center of the city. Designed by Filippo Brunelleschi, it was incredibly constructed without the use of wooden scaffolding. An unbelievable feat not only for the time, but still baffles architects today. The unmistakable characteristics of innovation and beauty embody the true nature of Florence.

Considered the birthplace of the Renaissance, Florence has been called "the Athens of the Middle Ages". A turbulent political history includes periods of rule by the powerful Medici family, and numerous religious and republican revolutions. One revolution during the Renaissance was humanism which brought prime importance to human rather than divine or supernatural matters. The clash between this belief and the religious influence from Rome resulted a great deal of conflict, but also brought an artistic movement that would change the world. This Renaissance, or rebirth, brought some of the greatest minds to the city and constantly pushed the limits of possibility.



1.17 Ponte Vecchio (top), 1.18 Uffizi Gallery (middle),
1.19 Basilica San Lorenzo (bottom),
1.20 View of Florence from Piazzale Michelangelo (opposite page)

Michelangelo

At the center of this Renaissance, this revolution of man, was perhaps the greatest artist the world has ever known: Michelangelo Buonarroti. Born on March 6, 1475 in Caprese, Italy which was “still under the shadow of the Duomo”, Michelangelo was raised a child of Florence. Michelangelo’s mother died when he was just six years old, so Michelangelo lived with a nanny and her husband, a stonecutter, in the town of Settignano, where his father owned a marble quarry and a small farm. As Giorgio Vasari quotes Michelangelo, “If there is some good in me, it is because I was born in the subtle atmosphere of your country of Arezzo. Along with the milk of my nurse I received the knack of handling chisel and hammer, with which I make my figures.”

Michelangelo was then sent to Florence to study grammar under Humanist Francesco da Urbino and then, at the age of 13, started an apprenticeship with Domenico Ghirlandaio, a master in fresco painting, perspective, figure drawings, and portraiture. At just the age of 14, Ghirlandaio was persuaded to pay Michelangelo as an artist until Lorenzo de Medici, de facto ruler of Florence, took Michelangelo into his home and attend the Humanist academy that the Medici had founded along Neo-Platonic lines.

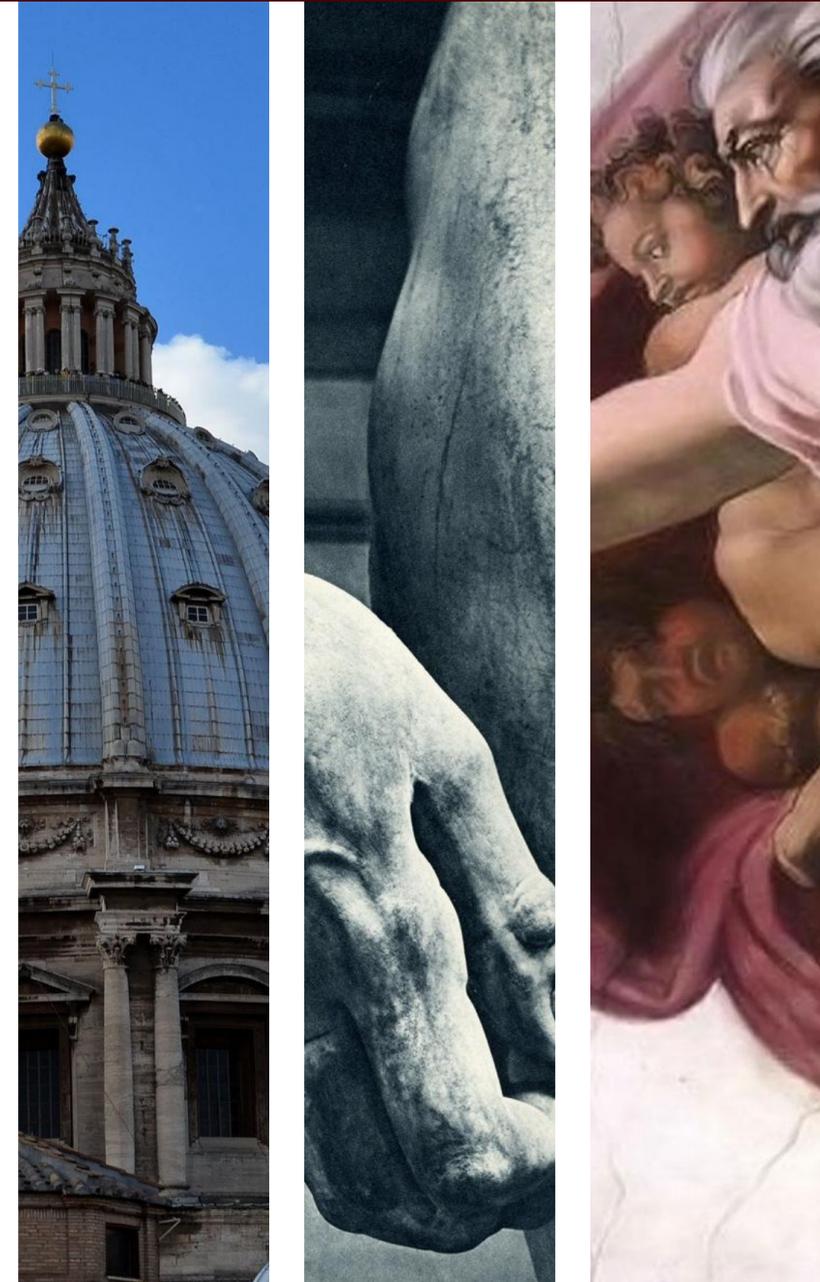
This incredible beginning laid the ground work for Michelangelo to not only study under some of the world’s greatest painters and sculptors but study under some of the world’s greatest philosophers that would have a clear influence on the beauty and depth of his work to come. This was the key to Michelangelo’s versatility, which was perhaps his most impressive quality only challenged by his rival Leonardo da Vinci. Michelangelo was the archetypal Renaissance man and could not just become proficient in new arts outside of his expertise, but quickly master them. Sculptor was Michelangelo’s greatest love throughout his life, and many consider him the greatest sculptor of all time. However, his ability to take on new challenges like fresco painting, architecture or engineering and create masterpieces that rival the greatest works in their respective field was unimaginable.

Michelangelo’s works weren’t only well crafted but told very clear and beautiful stories. They often evoked inner conflict, which mirrored much of Michelangelo’s personal life. He consistently pushed the limits of the capabilities of the arts while always creating beautiful moments. Through my entire exploration in this thesis, there was never a city, revolution, building or man that embodied the essence of harmonious ambition more than Michelangelo.

1.21 Battle of Cascina (top), 1.22 Lorenzo de Medici (middle),
1.23 Michelangelo sketchbook (bottom),
1.24 Michelangelo portrait (opposite page)



In order to pursue a clearer understanding of harmonious ambition, this thesis explores the works and life of Michelangelo Buonarroti. The genius of the Renaissance uncovers unique and enlightening clues to this pursuit with each masterpiece he creates in their elegance, innovation and passion.



Chapter 2

Resonance of Michelangelo

This highly finished drawing has traditionally been interpreted as an allegory of virtue and vice. Even though the central figure had been identified as the human mind as early as 1642, subsequent critics largely ignored this insight to focus instead on the peripheral figures as symbols of human vices. Yet, given Dante's profile in *The Last Judgment* made from a mass of similar forms, the semi-circle around the awakening nude must represent the crown of Michelangelo's own head from the temples up. This fits neatly with Maria Ruvoldt's interpretation that the image is self-referential about the act of creation.

The drawing could then symbolize Michelangelo's mind with the central figure as its essential personification or soul. The trumpeting angel breaks through the crack in the skull, known as the fontanelle, the opening where the spirit was thought to enter at birth and leave at death. Besides Michelangelo used to call his brain "my memory-box" which must therefore be the open box with a bunch of masks in it, alternative characters used by the artist with one a self-portrait. The sphere is then likely to represent his inner eye ball to symbolize imagination.

Medieval images of the mind traditionally contained circles to indicate the various spheres of mental activity and even include central dividing lines as Michelangelo's does. The small figures in Michelangelo's "head", some erotic including a disembodied phallus, must now represent not vices, but the fertile, creative struggle in the artist's own mind, with sex as a metaphor for creation.



2.1 Cell Doctrine from Albertus Magnus (left),
2.2 Dream of Human Life sketch by Michelangelo (above),
2.3 Enlarged portion of Dream of Human Life (opposite page)



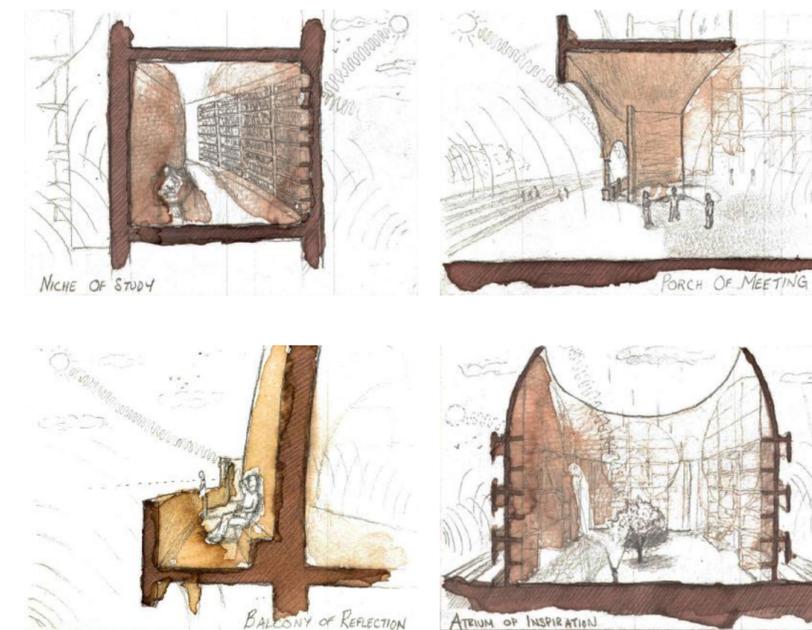
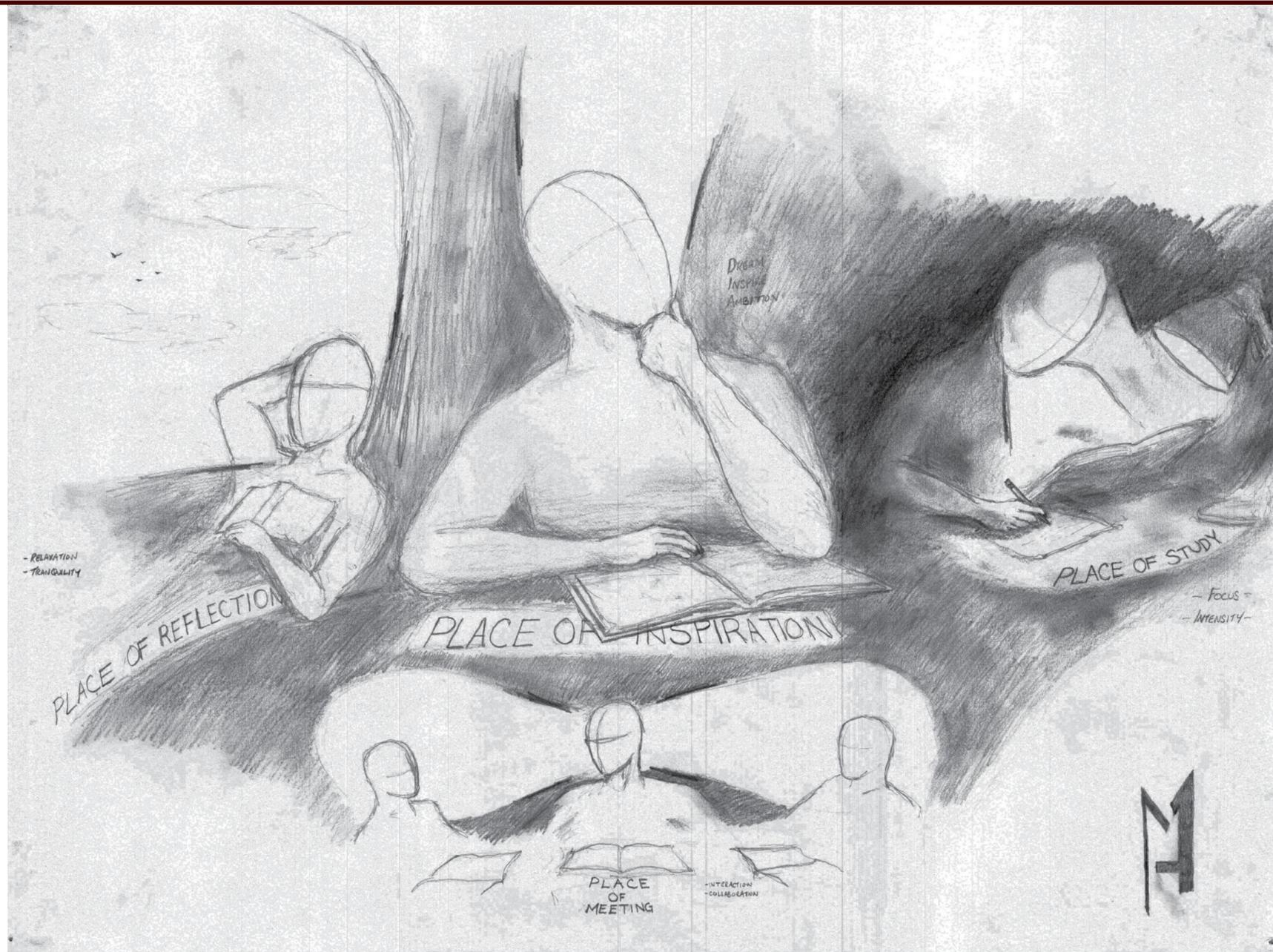
The Harmony of Learning

Early on in this thesis exploration, I knew I wanted to create a place of learning. In doing this, I examined how exactly we learn. Learning from Louis Kahn:

“Suppose you were assigned to say - and what a wonderful commission it would be - what is a university. And instead of being given a program, think in terms university as though it never happened, as though it isn't here, so you have nothing to refer to, just the sense of a place of learning, an undeniable need: an undeniable desire on the part of all of us that a place be for learning.”

With this notion in mind, I explored four ways in which we learn. First, to learn by doing in a place of study. This is where we learn by focusing on our work. The ideal space for this is a place of isolation from distractions to promote focus. Second, to learn from others in a place of meeting. While we may learn from experience, we can't underestimate learning from other's experiences. Creating an ideal space for people to converse and work with each other is ideal for allowing collaboration to occur. These spaces are often open in a horizontal focus so the inhabitants focus on each other to promote communication. Third, to learn from contemplation in a place of reflection. We often have a surplus of information coming in when we are studying/working. The importance to reflect back and contemplate on this new information is often underestimated in its importance. This space is often best when inhabitants can feel protected from disturbance while having views of nature and/or public. Lastly, to learn from insight in a place of inspiration. However much we learn, study and work there are always moments of clarity that can often not be explained. It's a moment of enlightenment that many allude to religious reasoning. While this moment of clarity can occur in any space, there is great benefit to create inspirational spaces that allow inhabitants to dream. These spaces often need an abundance of natural daylight, large open space for the inhabitant to feel a sense of monumentality and a vertical focus to influence inhabitants to look to the heavens.

In the previous drawing of *The Dream of Human Life*, I see Michelangelo beautifully portraying this harmony of nature vs. nurture in how we learn. His “memory box” shows his mind and memories that he's acquired through studies, meeting and reflection. While the angel overhead inputting the moment of inspiration or creativity. In between the two is life.



Bacchus

The Bacchus is a marble sculpture created by Michelangelo in 1496. This statue was originally commissioned by Cardinal Raffaele Riario. However, it was rejected by him and eventually found its way to Jacopo Galli, Cardinal Riario's banker and a friend of the sculptor, who purchased it in 1506. Some 66 years later it was bought for the Medici and transferred to the royal house in Florence, Italy.

This somewhat oversized artwork displays a nude Bacchus (the Roman God of wine) posing, holding a goblet of wine in his right hand while clutching the skin of a tiger in his left. Sitting beside him is a faun, seemingly enjoying a bunch of grapes slipping from the Roman God's grasp. He appears intoxicated with rolling eyes and a slight leaning of the body indicating a lack of balance.

As seen in the painting by Leonardo da Vinci (below left), as well as many others, Bacchus was often shown as divine as he is a Roman God. However, Michelangelo took a slightly different perspective on the figure and some scholars believe used it as a metaphor for the religious and political leaders of his time. As the god of wine, Michelangelo also is able to portray him with undertones of corruption, overindulgence and drunkenness. This perspective was taken even further with works like Caravaggio's painting (below right) that depict Bacchus on the brink of death. Many scholars see this as a self portrait of Caravaggio as a metaphor of his own overindulgence. But once again, Michelangelo's true genius is portrayed in his unfathomable ability to show both perspectives and both stories through a singular form.



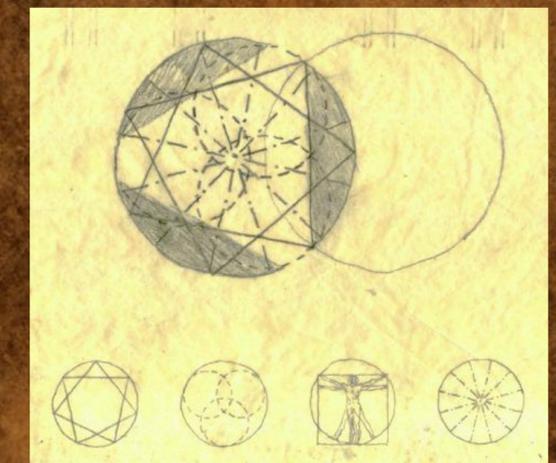
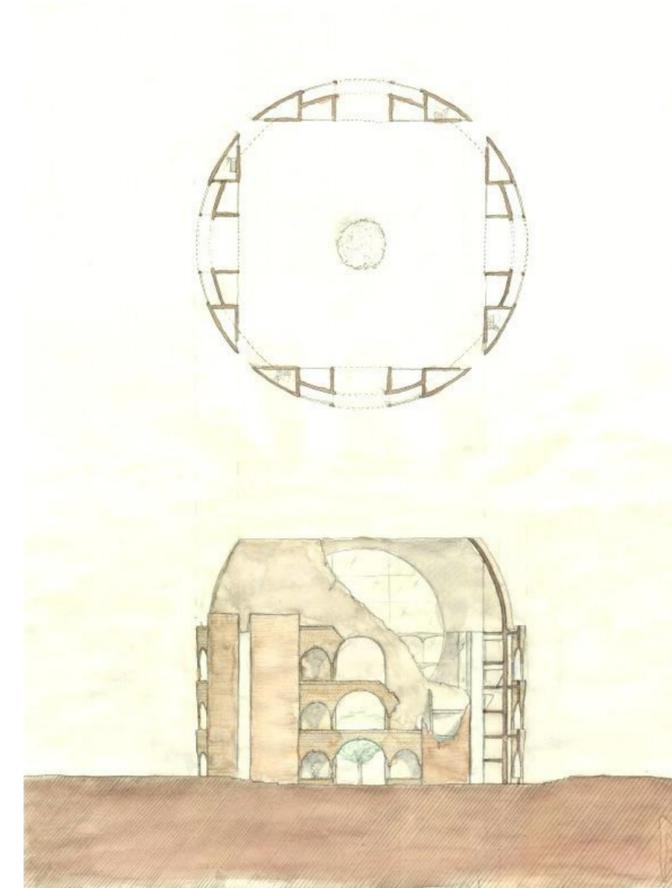
2.6 Bacchus painting by Leonardo da Vinci (above left), 2.7 Bacchus painting by Caravaggio (above right), 2.8 Full Bacchus sculpture by Michelangelo (left), 2.9 Enlarged portion of Bacchus (opposite page)

Harmony of Perspective

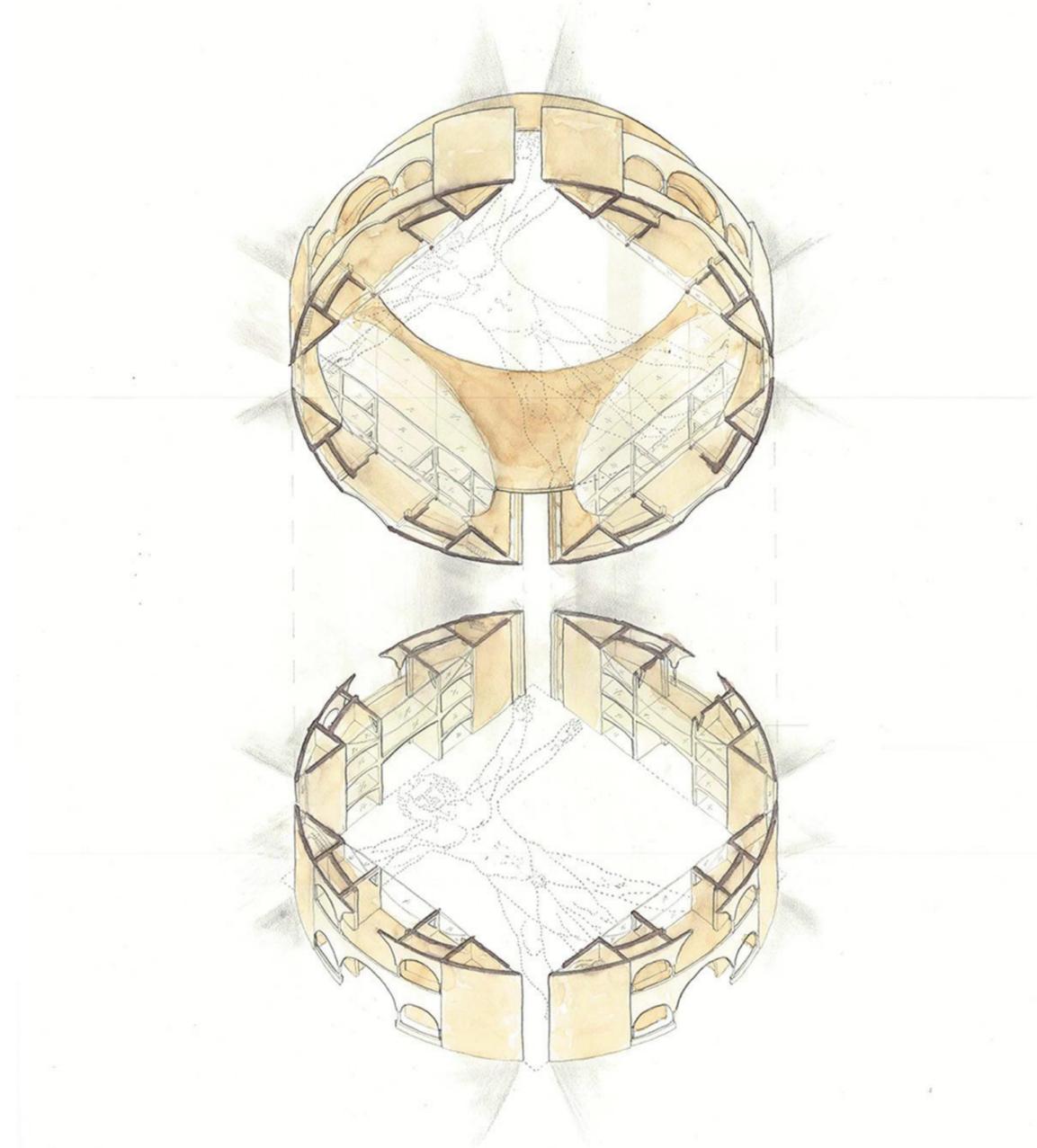
Throughout Michelangelo's oeuvre, he consistently is able to incorporate two different, sometimes even opposing perspectives into a singular moment. This harmony within conflict creates an emotional beauty in each project that is very different from any other.

Bringing this into my thesis exploration, I decided to first use a combination of simple forms similar to those described with Louis Kahn. My first exploration (as seen to the left) was the square and the circle, as often seen throughout the Renaissance. My intention was to be able to experience both the square and the circle depending on the perspective. The second use of multiple perspective was the singular vs. multiple. The intent was to create a series of separate masses that could be viewed as almost a campus of buildings. However, these multiple buildings are tied together with the central dome to also be perceived as a singular entity. And third, the perspectives of interior and exterior. The large, open central atrium with exposed openings give the inhabitants a perspective of both being in the exterior and somewhat exposed to the elements while also being interior of the project and somewhat protected.

These were the first three explorations in the multiple perspectives achieved in a singular moment and three that I kept throughout the entire thesis. The tension in multiple readings and perceptions of design allow for beautiful moments in sculptor as well as architecture.



2.10 Diagraming sketch (above), 2.11 Plan and ruin elevation sketch (left),
2.12 Exploded Axon sketch (opposite page)



Creation of Adam

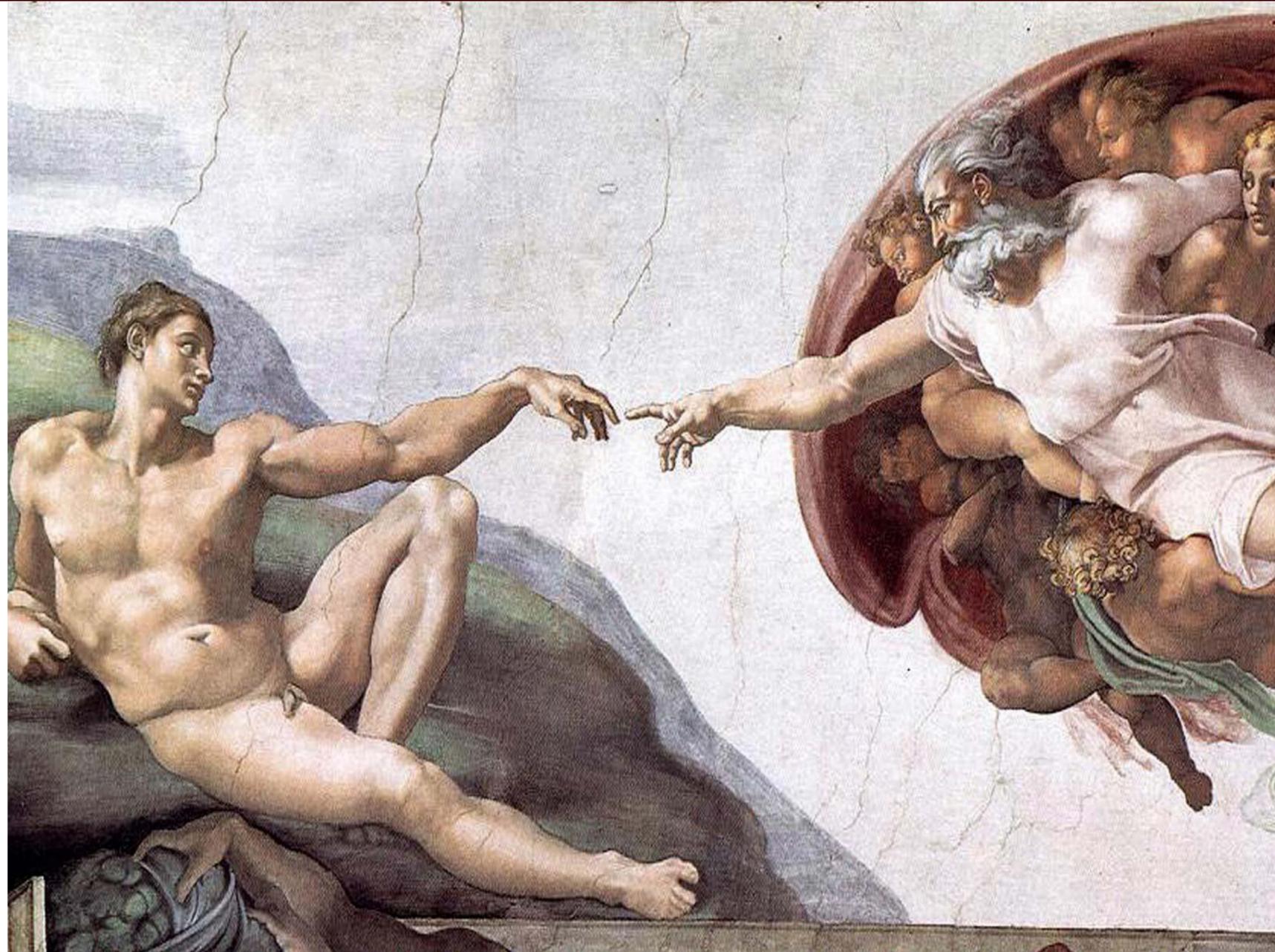
While Michelangelo was primarily a sculptor, he had the versatility to not only paint fresco, but paint what many consider as the greatest and most famous fresco of all time in the Sistine Chapel ceiling. He was originally commissioned to paint only 12 figures, the Apostles. However, he turned down the commission because he saw himself as a sculptor, not a painter. After much consideration, Michelangelo persuaded the Pope to let him paint biblical scenes of his own choice which would cover the whole ceiling. After the work was completed, there were more than 300 figures. His figures show the ancestors of Christ, male and female prophets, the Apostles and the nine stories from the Book of Genesis including Adam and Eve, Garden of Eden and the Great Flood.

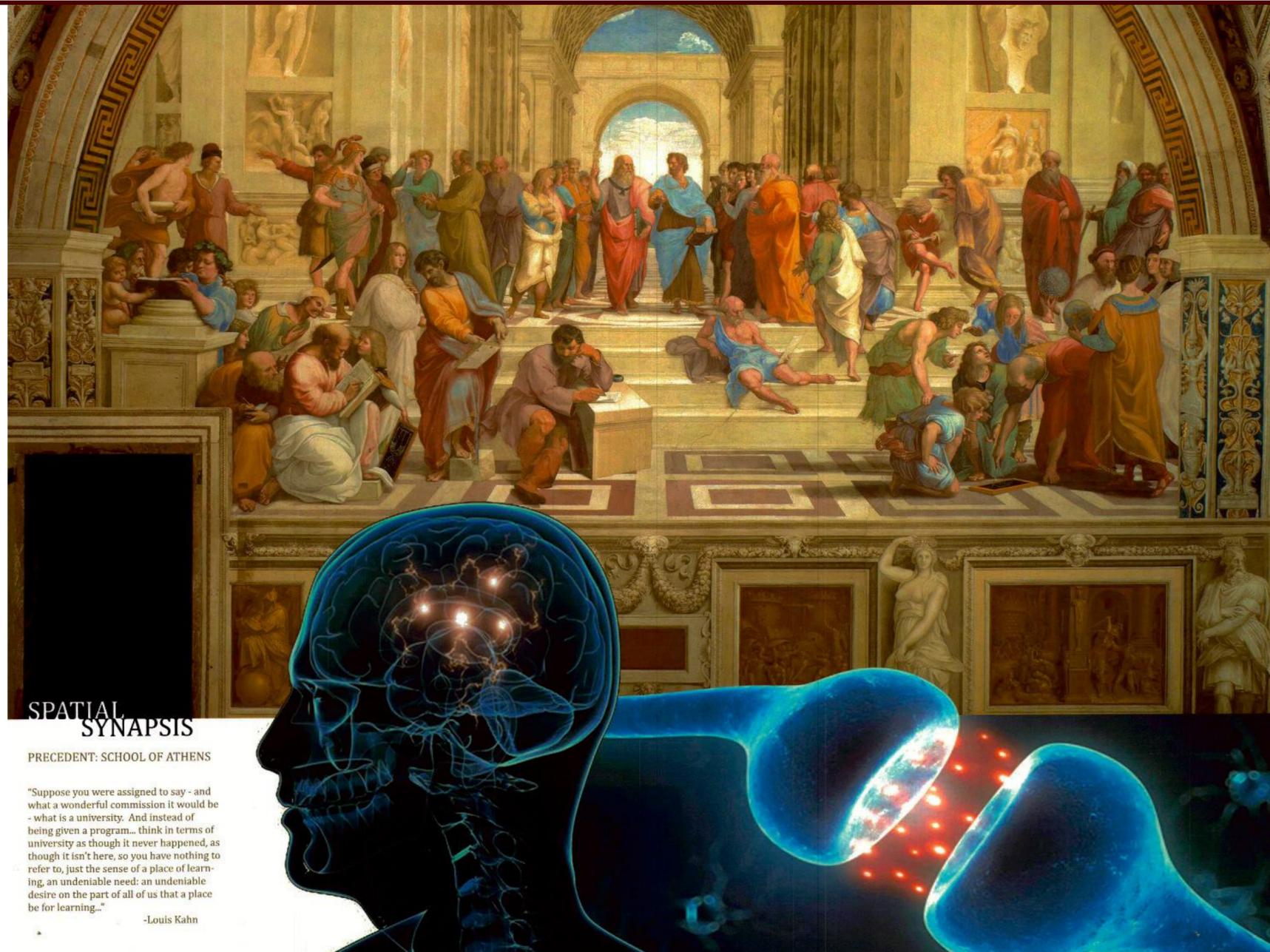
Perhaps the most famous portion of the ceiling is the Creation of Adam, which differs from typical Creation scenes painted up until that time. Here, two figures dominate the scene: God on the right and Adam on the left. God is shown inside a floating nebulous form made up of drapery and other figures. Unlike the figure of God, Adam is depicted as a lounging figure who rather lackadaisically responds to God's imminent touch.

Michelangelo painted with bright colors so the figures could be clearly seen from the floor of the chapel. However what was most surprising to me was how evident some of the details of the fresco was from so far below. Among those was the gap between God and Adam's hands in the most famous detail of the entire ceiling. The tension between the two hands reaching towards each other become lets the visitor feel these two worlds coming together. This idea is continued later in Michelangelo's other fresco in the Sistine Chapel, the Last Judgement which depicts the contrast of the saved and the condemned.



2.13 Last Judgment (above), 2.14 Sistine Chapel ceiling (left),
2.15 Creation of Adam on Sistine Chapel Ceiling (opposite page)



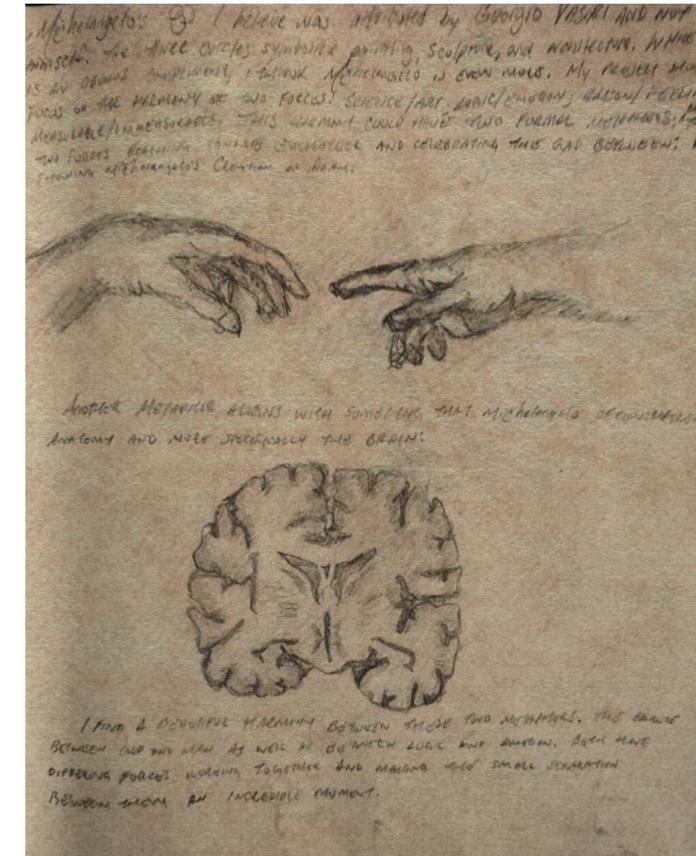


SPATIAL SYNAPSIS

PRECEDENT: SCHOOL OF ATHENS

"Suppose you were assigned to say - and what a wonderful commission it would be - what is a university. And instead of being given a program... think in terms of university as though it never happened, as though it isn't here, so you have nothing to refer to, just the sense of a place of learning, an undeniable need: an undeniable desire on the part of all of us that a place be for learning..."

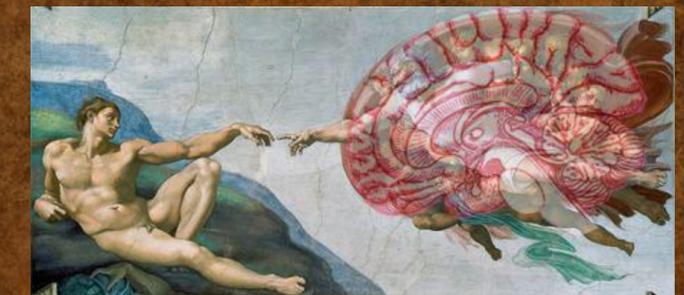
-Louis Kahn



A somewhat hidden element of nearly all of Michelangelo's work, but especially evident in Sistine ceiling, is while there is an obvious religious overtone of the work there are also some humanist aspects. Using God in the Creation of Adam as an example, we can see that Michelangelo used his expertise of the human body developed mostly through his experiments in dissection. The cloud that God is carried in has a clear similarity to a cross-section of the human brain. This analogy brings many other stories to this painting and becomes more than just the story of God giving Adam life. Does it imply that it is our human mind and sense of creativity that gives us our humanity?

The beauty of the human brain is consistently shown in Michelangelo's works and there can be so much to learn from this incredible design. In addition to the hidden brain section, the gap between the two hands could also be analogous to a synapse in our brain: a junction between two nerve cells, consisting of a minute gap across which impulses pass by diffusion of a neurotransmitter. This process is how we learn.

In designing a place of learning, this idea of synapse became a very important design feature. Throughout the design I strove to create several reveals in the architecture that symbolized this sense of synapse (which will be covered in more detail with the building description). Also, from a functional perspective, it is creating a spatial synapse that brings people together. This is shown in Raphael's painting of the School of Athens (Raphael was known to learn a lot from Michelangelo as they worked in Rome together at the same time). The painting shows very different minds of philosophers that are coming together for discussion, learning and growth. In designing a place for people to learn, this idea of collaboration and interaction is a necessity.



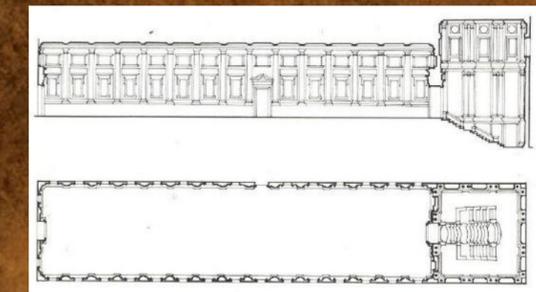
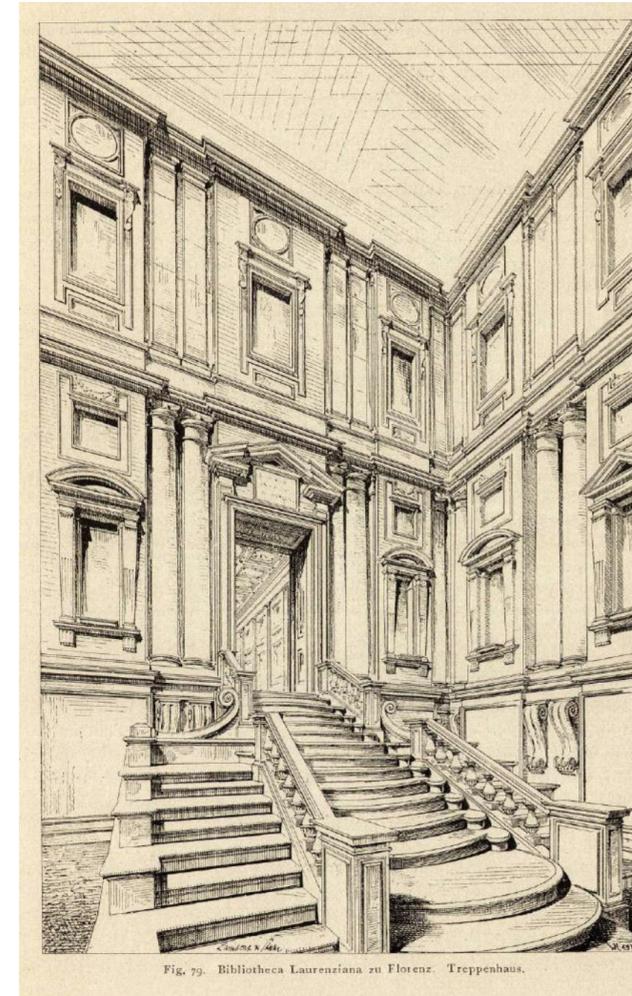
2.16 Creation of Adam with brain analysis (above),
2.17 Sketch of hands and brain section (left),
2.18 Spatial Synapsis Collage (opposite page)

Laurentian Library

On the first floor of the Brunelleschi cloister in Florence is the entrance to the Laurentian Library which houses what must be considered the most important and prestigious collection of antique books in Italy. Once the collection was brought from Rome to Florence in 1523, Michelangelo was immediately commissioned to design the library.

The decoration of the library went hand in hand with its actual construction (the ceiling dates to 1549-1550, the flooring from 1558-1568) thus making the library one of the most unified works of the High Renaissance to be found in Florence. The vast reading room is preceded by the dramatic entrance vestibule (called the "ricetto") planned in elevation by Michelangelo and built in that characteristic Florentine two-one combination of gray sandstone elements on white plaster. Here Michelangelo's energetic and powerfully modeled architectural vocabulary emerges in the tabernacle niches, the paired columns, the portal, all imbued with a feeling of solid strength. This dynamism, concentrated on the walls of the vestibule, down flows in the fantastical staircase. It consists of three flights of steps; the outer ones are quadrangular shaped, the central ones convex, and the bottom three steps are completely elliptical. The staircase is, then, an explosion of originality which fits perfectly with the fanciful character of the Mannerist style of architecture.

This grand entrance vestibule housed in a room designed just for that entry function is in great contrast to the very functional design of the reading room beyond. However, through the genius of Michelangelo, these two conflicting spaces work seamlessly together. The desks in particular are extremely utilitarian with built-in seats, books chained to each desk and a single window placed to provide lighting for each reader. This incredible juxtaposition of the necessary and the superfluous creates an incredible harmony in architecture and a beautiful metaphor to the journey of learning and discovery.



2.19 Plan and section of Laurentian Library (above),
2.20 Staircase in entry vestibule (left),
2.21 Reading Room of Laurentian Library (opposite page)

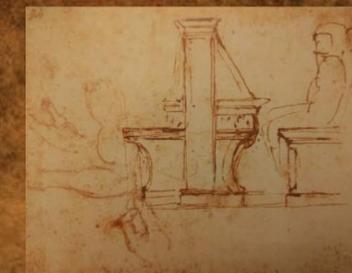


Harmony of Function

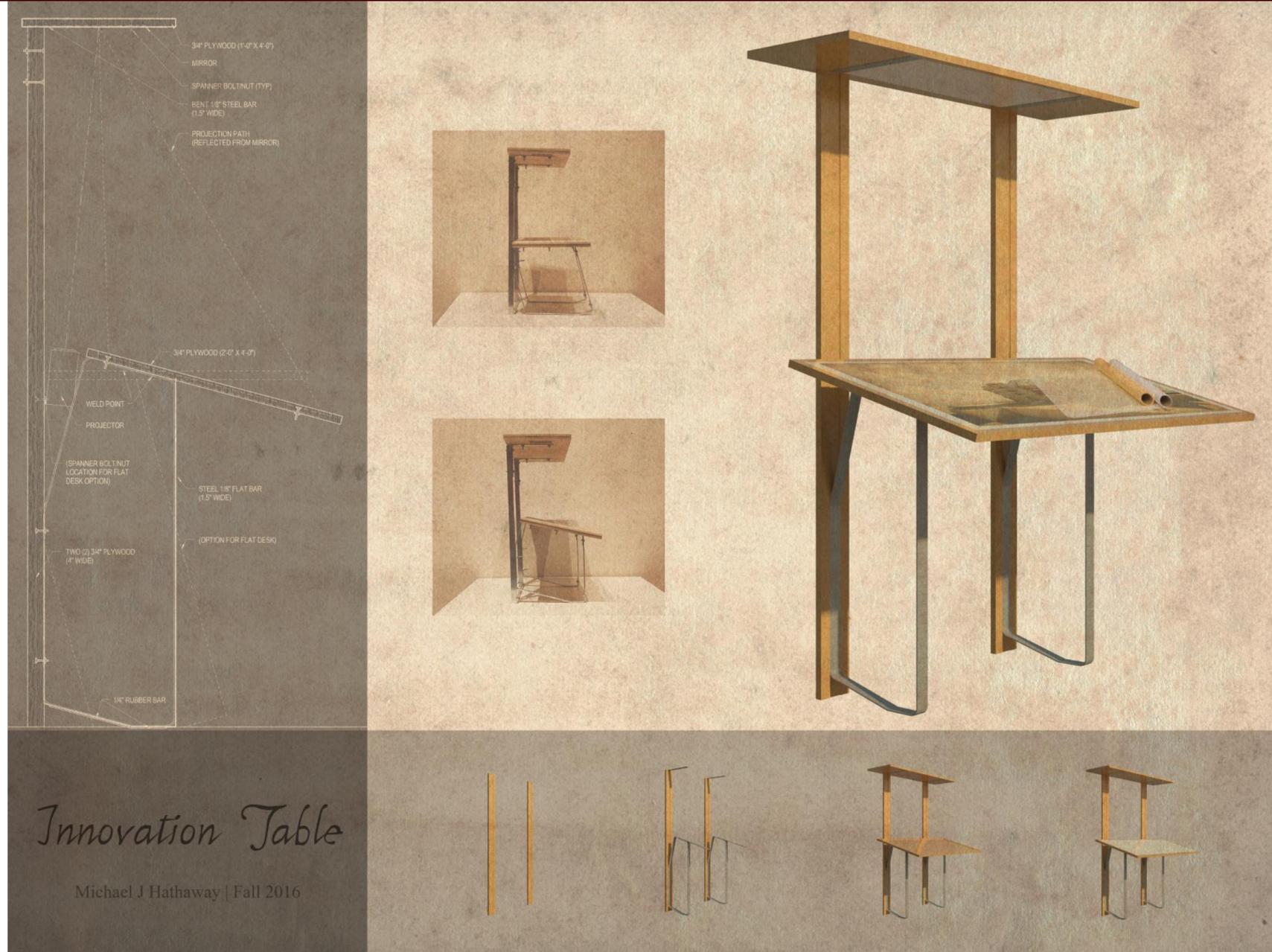
There are several lessons to be learned from this beautifully designed space of learning that Michelangelo developed, many of which will be uncovered in the description of the final building design. However, one specific example developed during this thesis was an exploration in designing a modern day version of Michelangelo's reading desk.

Michelangelo's desk refined and simplified the place of study. It incorporated a place to sit, a platform to read from and even the book storage into one elegant gesture. In an effort to replicate this notion for modern day, I explored how we study today. So I began examining some efficiencies and inefficiencies in how I study on a daily basis. Much of the same principles that Michelangelo achieved still hold true today. I often sketched my ideas, wrote out notes and read books that all lend themselves to a design very similar to Michelangelo's reading desk. However, today there is the undeniable efficiency of utilizing technology into our studies. While there are so many benefits to the capabilities of these new technologies, it should not be used in lieu of traditional means, but in cooperation with them. This became the largest disconnect in my studies: the jumping from one medium to completely separate one. Trying to utilize the efficiency and accuracy of BIM software or internet capabilities, but then disconnecting from that world entirely to utilize the flexibility and creative nature of hand sketching and physical books.

In an effort to bring these two worlds together I developed an Innovation Table that uses a similar profile as Michelangelo's desk with an angled working surface, but with visually lighter material of wood planes and bent steel members. I also designed a profile for the support structure that allows a simple adjustment for a flat working surface. I then incorporated an overhead shelf in the singular structure to first allow for storage of books overhead. However, with a mirror placed underneath the shelf and a projector mounted at the top of the working surface, this design allows a digital worksurface to be projected onto your physical work surface. This simple and innovative design brings these two worlds together for an elegant and functional design as inspired by Michelangelo's.



2.22 Desk sketch by Michelangelo (above),
2.23 Desk in Laurentian Library (left),
2.24 Innovation Table design (opposite page)



Innovation Table

Michael J Hathaway | Fall 2016

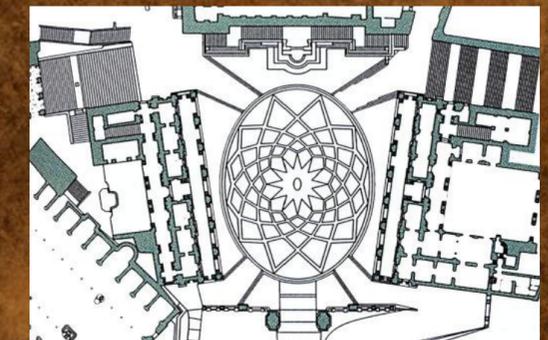
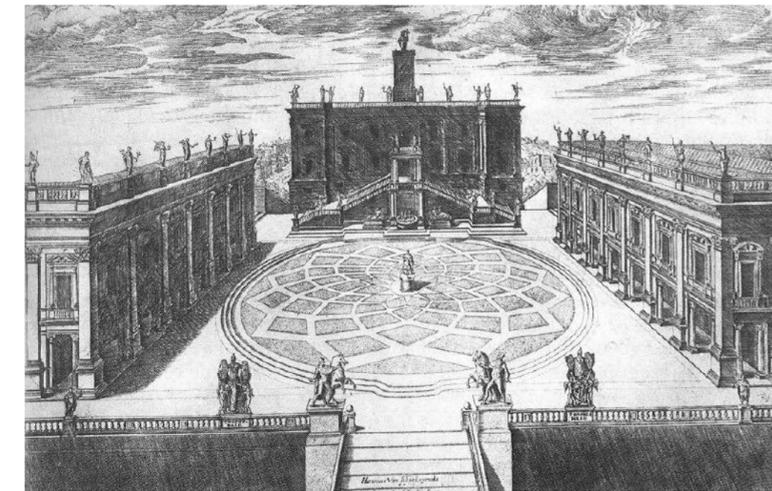
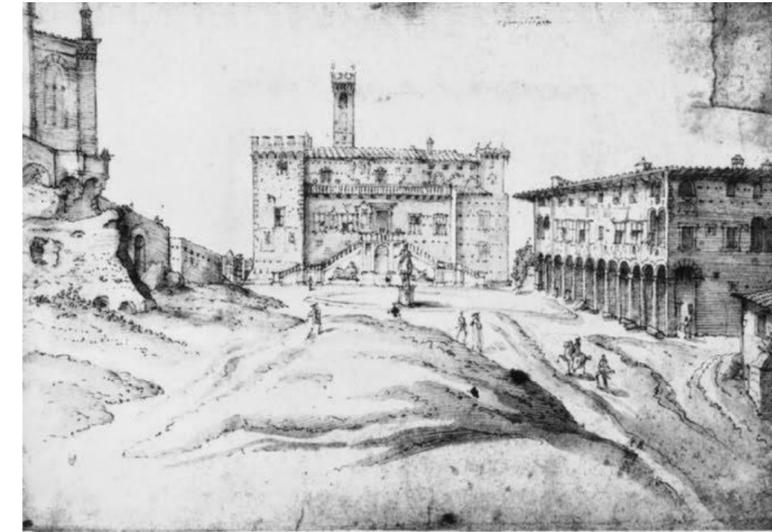
Campidoglio

From the founding of Rome until its fall almost one thousand years later, the Capitoline Hill symbolized the epicenter of Rome's might and many of the city's most important buildings stood on this hill. Later, during the Middle Ages, the site continued to play an important role in Rome's history. The senate of Rome assembled here and even today it still has some political significance since the city hall is located here.

When Emperor Charles V planned a visit to Rome in 1536, the muddy Capitoline Hill was in such a derelict state (as shown to the above left) the pope Paul II Farnese asked Michelangelo to design a new square, the Piazza del Campidoglio (Capitoline Square). The project also included a redesign of the existing buildings surrounding the square.

Michelangelo came up with an original, trapezoidal design for the square with an intriguing oval shaped ground pattern. He rebuilt the Palazzo Senatorio, seat of the Roman senate, and redesigned the facade of the Palazzo dei Conservatori. Additionally a new building, the Palazzo Nuovo, was to be constructed just opposite the Palazzo dei Conservatori. Both palazzos were positioned at a slight angle so that it changes the perspective in such a way that the square seem larger than it actually is. Finally, Michelangelo's ambitious plans for the square included the creation of an elegant staircase, the Cordonata.

Construction of the square started in 1546 but only the staircase at the entrance of the Palazzo Senatorio was realized when Michelangelo died in 1564. The project was finally completed in the seventeenth century according to Michelangelo's design.



2.25 Campidoglio plan (above),
2.26 Before image of Capitoline Hill (above left),
2.27 After image of Michelangelo's design of Capitoline Hill (bottom left),
2.28 Photo of present day Campidoglio, Rome (opposite page)

While Michelangelo obviously didn't invent the idea of a Piazza or the outdoor room, similar to nearly every task he undertook, he innovated and mastered it. This idea of a harmony of interior and exterior I felt needed to be brought into the design of a place of learning. In this thesis exploration, I found the importance of the inhabitants having this balance of feeling protected and part of the interior of a project, while also feeling exposed to the natural elements at times and flooded with natural daylight.

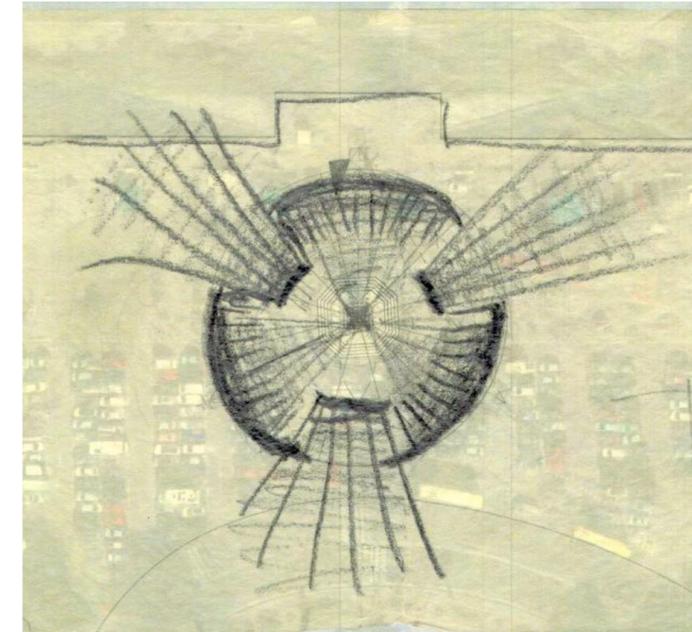
The central, open space achieving the harmony of interior and exterior was only the first of many harmonies it helped to achieve though. Another notion that was previously discussed was the harmony of multiple and singular. While a central dome helped to bring this campus of masses or buildings together, the central space or void helps to achieve this union as well.

Some lessons learned early on from Alejandro Aravena's designs were also realized by this central atrium design. The beautiful harmony of views being focused outward as well as inward was a key factor brought into the design. While designing unique moments that allow the inhabitant to look out towards the surrounding city was necessary, it was also vital that much of the focus needed to be brought inward. This balance and harmony of focus allows for flexibility in creating places of learning ranging from places of study, meeting, reflection and inspiration.

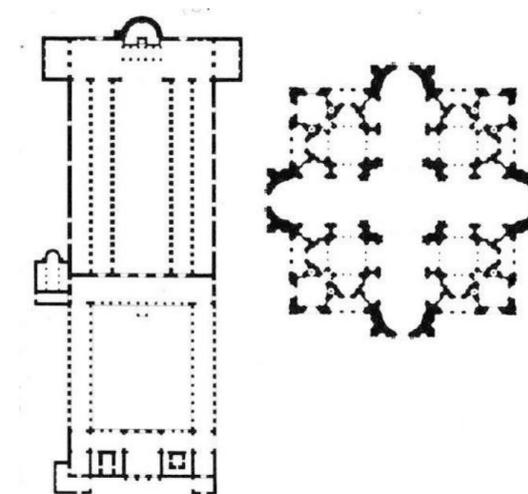
The Campidoglio design continued to influence several other decisions including the trapezoidal layout that created a space that not only seems larger than it actually is, but also helped to give the project a direction. Also, the centrality of a sculpture to highlight the internal focus. Michelangelo's pavement design even helped to inspire my dome design. Many of these inspirations will be explained in more detail in the project description.



2.29 Campidoglio (above), 2.30 Internal and External views parti (left), 2.31 Central Atrium sketch, charcoal (opposite page)

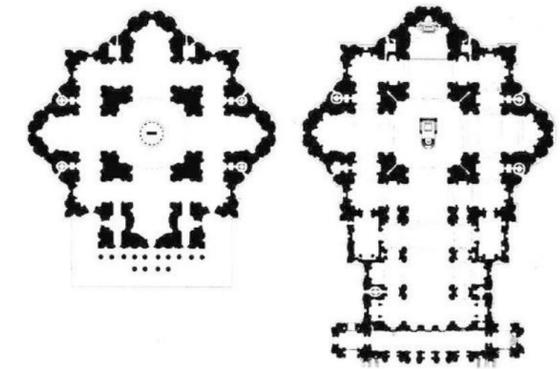


St. Peter's



Old Saint Peter's.
4th century

Bramante. Plan for New
Saint Peter's. 1506



Michelangelo. Plan for New
Saint Peter's. 1546-64

Maderno. Plan of Saint
Peter's Basilica. 1607-12

In the early fourth century Emperor Constantine, the first Christian emperor of Rome, decided to build a basilica on Vatican Hill at the site of a small shrine that marked the likely location of the tomb of St. Peter. Construction of the basilica started between 319 and 322 and completed around 349 AD. In the middle of the fifteenth century, the basilica was falling into ruin and pope Nicolas V ordered the restoration and enlargement of the church after plans by Bernardo Rossellino. Once Nicolas V died, the work was halted.

It wasn't until half a century later that pope Julius II decided to build a completely new church. He appointed Donato Bramante as chief architect. Bramante designed a structure with a high dome on a Greek cross plan. In 1506 Julius II laid the first stone of the new basilica which was to become the largest in the world.

After Bramante's death in 1514 he was succeeded by a number of architects, including Raphael, Sangallo and finally Michelangelo in 1547 at the age of seventy-two. While other architects proposed incredibly complicated designs, Michelangelo had a strong desire to hold true to the strength of clarity in Bramante's initial design.

At the time of Michelangelo's death in 1564 only the drum of the dome was built. The dome was finally completed in 1590 by Giacomo della Porta. On request of pope Paul V the imposing edifice was extended further into a true Latin cross plan by Carlo Maderno (seen to the left). Many of these changes by Maderno altered Michelangelo's intent and obscured the view of the dome. In an attempt to remedy this challenge, Gian Lorenzo Bernini designed a grandiose elliptical esplanade in mid seventeenth century. While many of these later additions and revisions altered Michelangelo's initial intent, the spirit and clarity of his design still holds strong today in the magnificent structure of the world's largest church.



2.32 Saint Peter's complete section (above),
2.33 Plan progression of St. Peter's (left),
2.34 Image of St. Peter's Dome by Michelangelo (opposite page)

Harmony of Clarity

The exploration of the history of Saint Peter's development actually became part of the thesis after the initial parti sketch (seen to the left). The intent of the parti was to simplify the design as much as possible in order to create a clear intent of the project: three masses, a central atrium and a balance of mass and void. In a moment of serendipity, I realized that this plan and idea had great similarity to Bramante's design of St. Peter's. The next step became to learn from how Michelangelo improved Bramante's plan so I would be able to apply some of these lessons to this design.

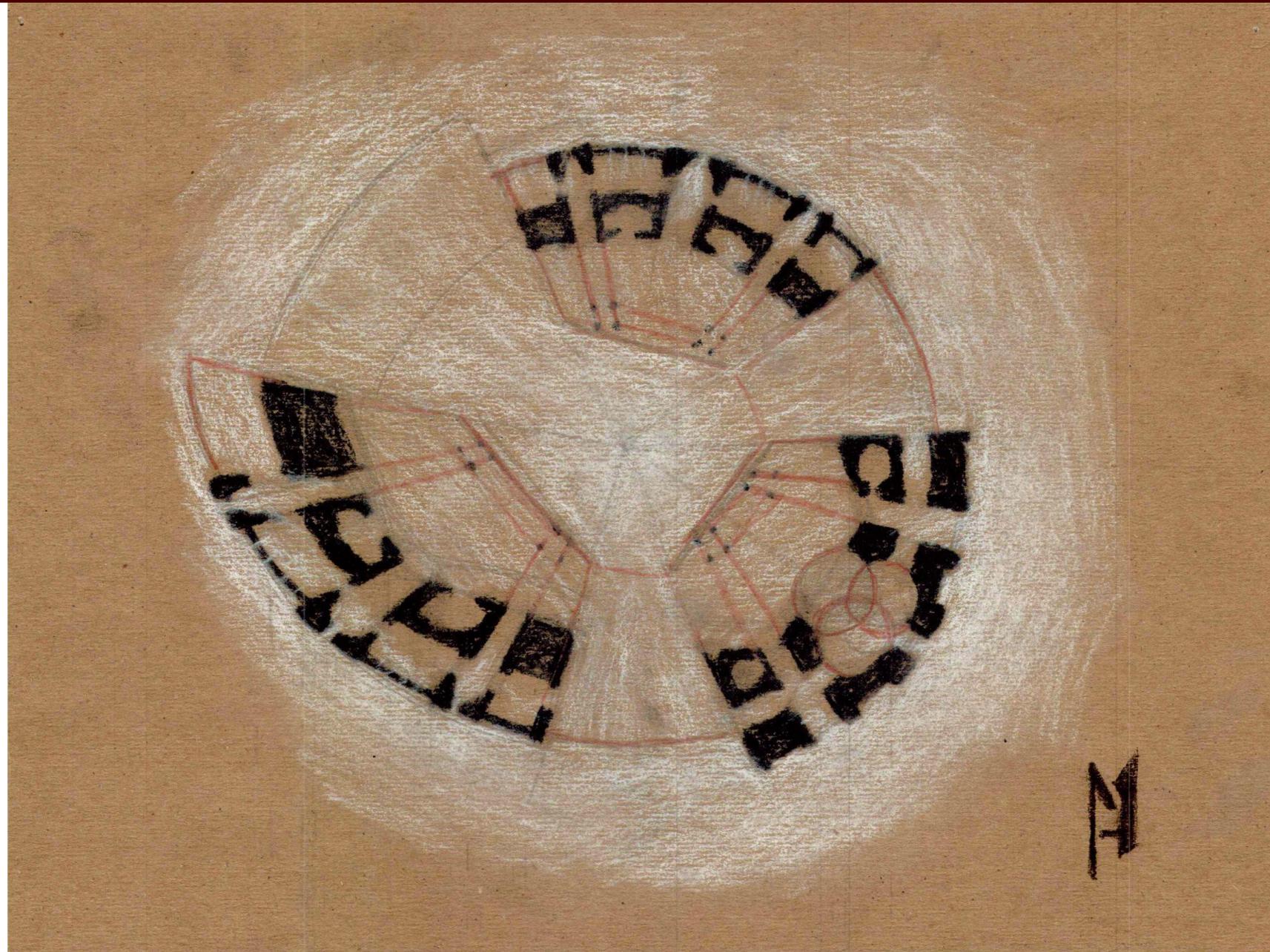
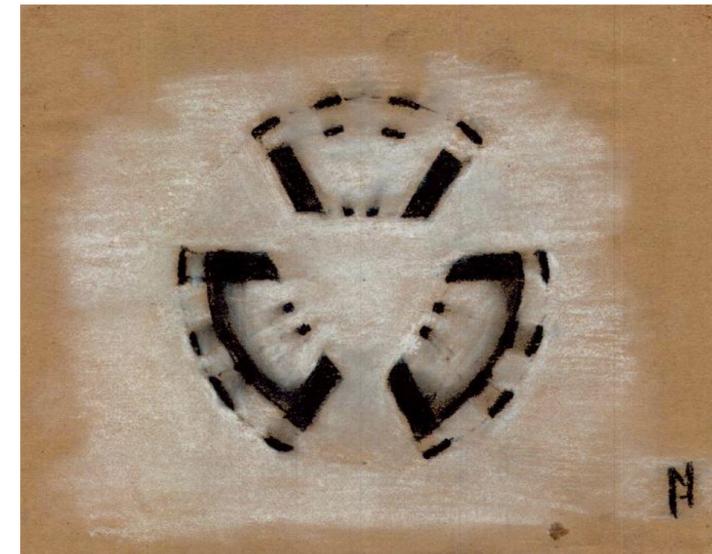
First was the ambiguity of direction in both Bramante's plan as well as my own. They have no side, back or front. Once I selected the project's site, it needed to incorporate the context and relate to several key features. Altering the plans to give the parti a sense of direction and hierarchy was greatly due to the influences of Michelangelo's refinement of Bramante's initial St. Peter's plan.

Second was including a sense of subtracting from a mass, a feature in nearly all of Michelangelo's architecture. This idea of sculpting spaces out of a solid mass is clear and appropriate given Michelangelo's primary focus always being in the realm of sculptor. As the modern day Michelangelo expert, William Wallace explained in one of his lectures, "it's as though Michelangelo's architecture started with a solid block of ice and he then pours hot water where we want to create rooms."

This technique of subtraction can be clearly seen in such plans as San Giovanni dei Fiorentini (below), St. Peter's as well as many others. It then became my intent to create a large central space that expanded from the central atrium into the interior libraries defined by a thick mass carved into creating several small opportunities for reading rooms, study spaces, etc.



2.35 Ground plan design for San Giovanni dei Fiorentini (above),
2.36 Early design parti sketch (left),
2.37 Developed parti sketch (opposite page)

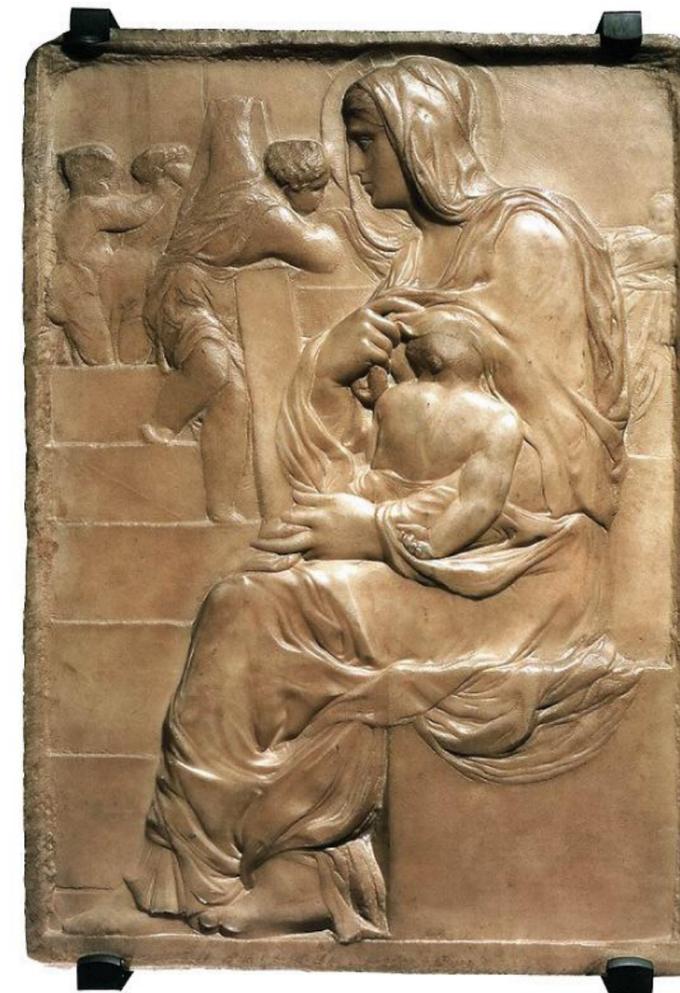


Pieta

One of the first of Michelangelo's sculptures, the Madonna of the Stairs is a relief sculpture completed around 1491, when Michelangelo was seventeen. In this relief sculpture he depicts a figure of the Madonna cradling and nursing a baby Jesus. While there is clearly a depiction of love and care from Madonna to her child, there is also a sense of distraction in the face of Madonna as she looks to the background of the sculpture. Behind her are the stairs as a young child is reaching over the large railing. Many scholars see the vertical element of the railing and the horizontal element of the child's arm as a reference to the cross. This could then be seen as Madonna's inner conflict between loving and caring for her child while knowing his inevitable destiny.

Around 6 years later, Michelangelo was commissioned by cardinal Jean de Billheres to create a marble sculpture of the Pieta, a sculpture that would become one of the most famous of all time. Here we see the same mother and son, but on the other end of the story. Jesus has died and is stretched across his mother's arms and looking towards the heavens as if to symbolize his ultimate purpose. His mother looks down with a beautiful and youthful face. While the Madonna in the relief sculpture looks distracted and conflicted, here she looks down with a look of disappointed but also of acceptance. Her demeanor seems to imply that she is obviously saddened by the death of her son, but also as if she expected this conclusion. This expectation implied earlier in his relief sculpture.

These two sculptures both individually portray more examples of Michelangelo's incredible ability to portray conflicting stories and emotions with a single form, similar to his Bacchus. However, the two work together to show the harmony of time, both in the story of Madonna and her child as well and the time in Michelangelo's own life.



Harmony of Time

A key symbol of Michelangelo was the three overlapping boolean rings. This symbol is clearly displayed on Michelangelo's tomb designed by Giorgio Vasari. Vasari remarked that these three rings represented the three design arts that Michelangelo was able to master in his life: Sculpture, Painting and Architecture. This is no doubt an incredible compliment to the talents of Michelangelo. However, through my studies and exploration of Michelangelo's life and accomplishments, I would argue this is still an understatement to Michelangelo's achievements. For me, these three rings translate to a larger scale that tries to grasp his reach and influence. These three overlapping rings then represent the past, present and future.

Michelangelo was a student of the arts and was able to learn from sculptors like Donatello, painters like Giotto and architects like Bramante. In addition, he constantly studied back to ancient Roman and Greek art and that influence is very evident in his work. Michelangelo had the uncanny ability to not only learn from these past arts but quickly master them. Then he had the good fortune to live in a time of artistic rebirth. He was surrounded by some of the best artists in history including Raphael and Leonardo da Vinci. This juxtaposition of talent fueled Michelangelo's competitive nature and drove him to create masterpieces that would be able to compete with these unbelievable rivals. The rivals also pushed Michelangelo to extend his talents beyond just sculpture in a desire to be known as not just the world's best sculpture, but the world's best artist. Then we see the undeniable influence that Michelangelo had on the world following his death. Closely following Michelangelo's time were painters like Caravaggio, sculptors like Bernini and architects like Borromini. It's clear to see his influence on these artists, the Mannerism period and even on the arts of today.

In designing a place of learning inspired by Michelangelo, I decided this important quality of Michelangelo needed to be a focal point. Because of this versatility and resilience Michelangelo's genius, I was inspired to create not one, but three libraries: Michelangelo's past, present and future. These series of libraries explore and emphasize the true resonance of Michelangelo.



2.41 Faces of David from Donatello, Michelangelo and Bernini (above),
2.42 Donatello's David (above left), 2.43 Bernini's David (below left),
2.44 Michelangelo Influence Time line (opposite page)



Slaves of Tomb Julius

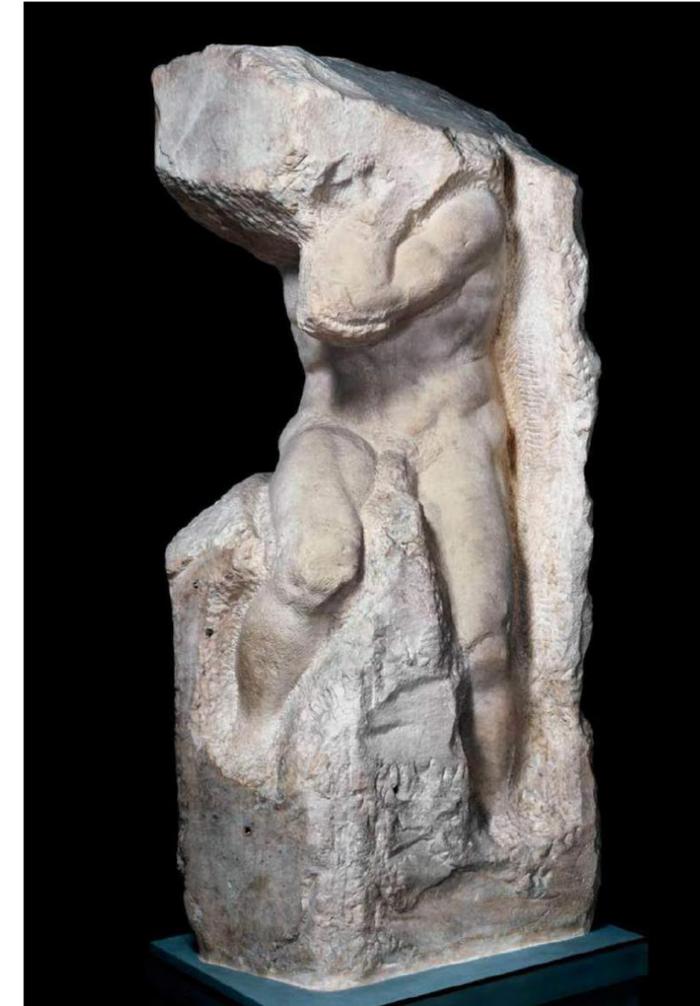
The tomb of pope Julius II was a sculptural ensemble commissioned to Michelangelo, but was a work in progress for 40 years. A few of the 40 originally planned sculptures were actually completed, including Dying Slave, Rebellious Slave, Moses and others. However, perhaps the more famous sculptures were the several that were seen as 'unfinished'.

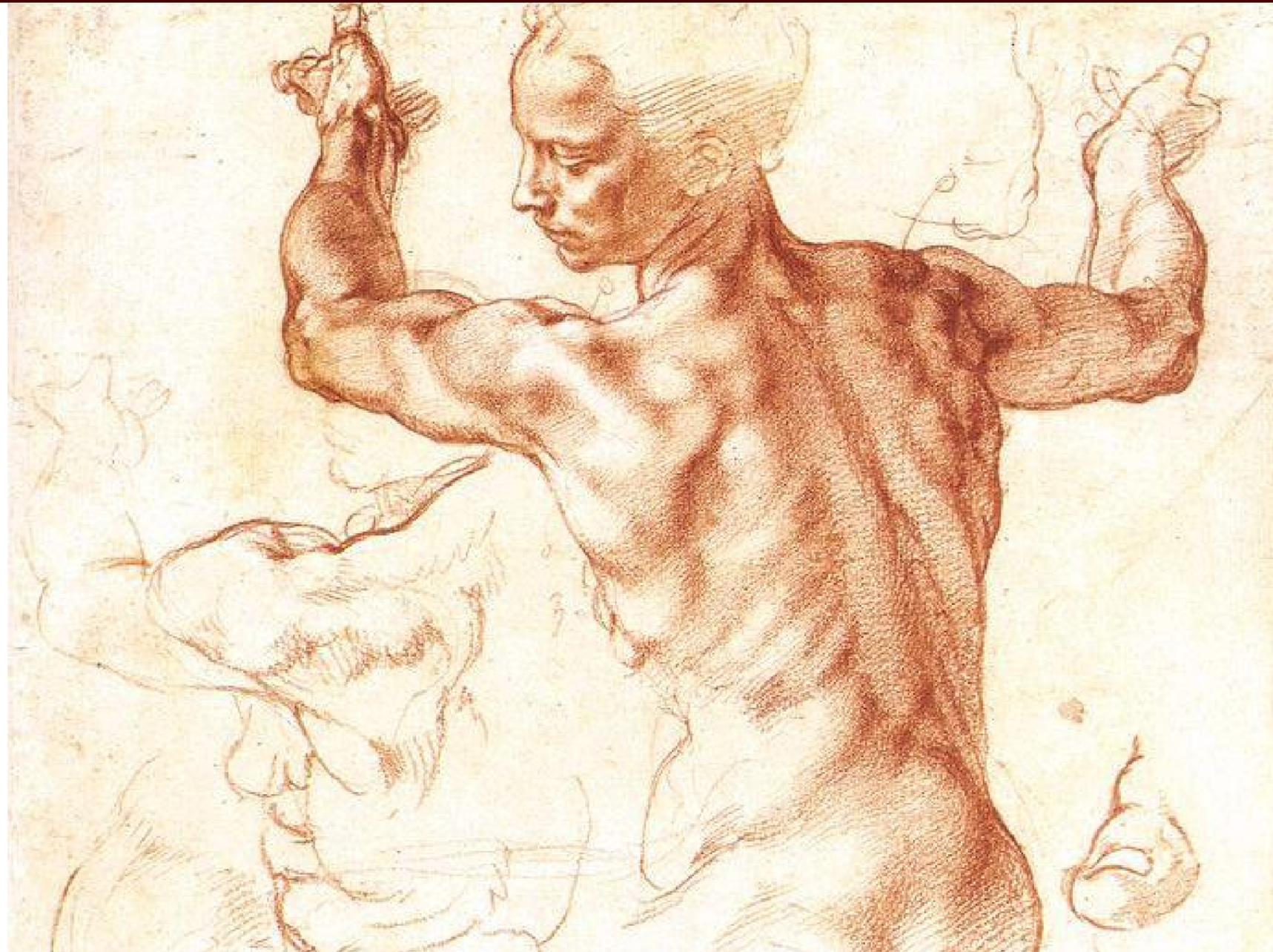
The fame of these four powerful statues - named by scholars as 'The Bearded Slave', 'The Awakening Slave', 'The Young Slave' and 'The Atlas' (seen left) - is due above all to their unfinished state. They are some of the finest examples of Michelangelo's habitual working practice referred to as "non-finito" (unfinished), magnificent illustrations of the difficulty of the artist in carving out the figure from the block of marble and emblematic of the struggle of man to free the spirit from matter. These sculptures have been interpreted in many ways. As we see them, in various stages of completion, they evoke the enormous strength of the creative concept as they try to free themselves from the bonds and physical weight of the marble. It is now claimed that Michelangelo deliberately left them incomplete to represent this eternal struggle of human beings to free themselves from their material trappings.

All of the unfinished statues reveal Michelangelo's approach and concept of carving. Michelangelo believed the sculptor was a tool of God, not creating but simply revealing the powerful figures already contained in the marble. Michelangelo's task was only to chip away the excess, to reveal. He worked often for days on end without sleep, keeping on his boots and clothes for days, as reported in Vasari's chronicles about Michelangelo's passion and talent. Unlike most sculptors, who prepared a plaster cast model and then marked up their block of marble to know where to chip, Michelangelo mostly worked free hand, starting from the front and working back. These figures emerged from the marble "as though surfacing from a pool of water", as described in Vasari's "Lives of the Artists". The method was to take a figure of wax, lay it in a vessel of water and gradually emerge it, noticing the most prominent parts. Just so, the highest parts were extracted first from the marble.

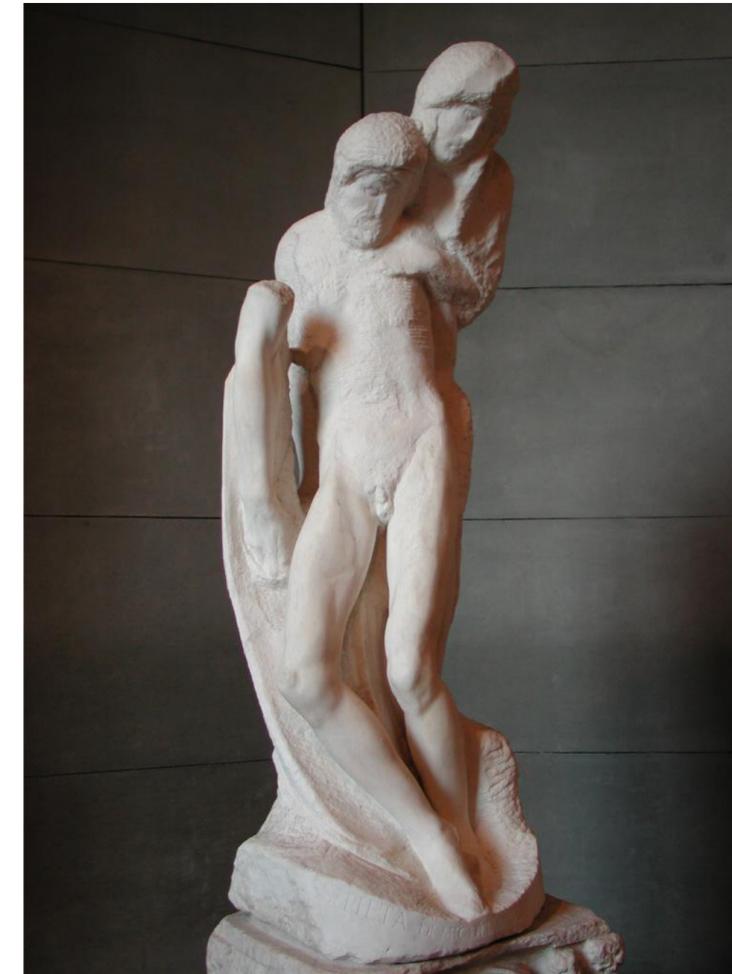


2.45 Detail of St. Matthew sculpture (above),
2.46 The Atlas sculpture (left),
2.47 The Bearded Slave, The Awakening Slave, and The Young Slave
(opposite page)





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The beauty found in the unfinished work has long been an interesting perspective into the mind of the artist. The unfinished piece gives the viewer a 'behind-the-scenes' look into how the artist actually constructed the work instead of it just appearing before them. Perhaps this need to portray the grueling and challenging process in creating his masterpieces in the form of the non-finito relates to a quote from Michelangelo, "if people only knew how hard I work to gain my mastery, it wouldn't seem so wonderful at all."

Perhaps even more interesting than discovering the physical process of construction is the look inside the thought process. 'Un-finished' sketches, such as the study sketch for Libyan Sibyl (opposite page), allow the viewer to see and try to understand his incomplete thought. It's because of this better understanding that the sketchbooks of Michelangelo, and others like Leonardo da Vinci, become so inspiring and educational.

While these sketches are intriguing, Michelangelo finds a way to bring this realm of sketching and thought process to the third dimension in sculpture. The non-finito of the unfinished slaves on the previous page or the Rondanini Pietà to the left allow the viewer to dream with Michelangelo and invite them into the design process. However, I don't believe all of these un-finished works are necessarily abandoned but rather had the intention to be left seeming incomplete. As da Vinci was quoted, "art is never finished, only abandoned". Perhaps this perception of incomplete is part of the message that is being relayed to the viewer.

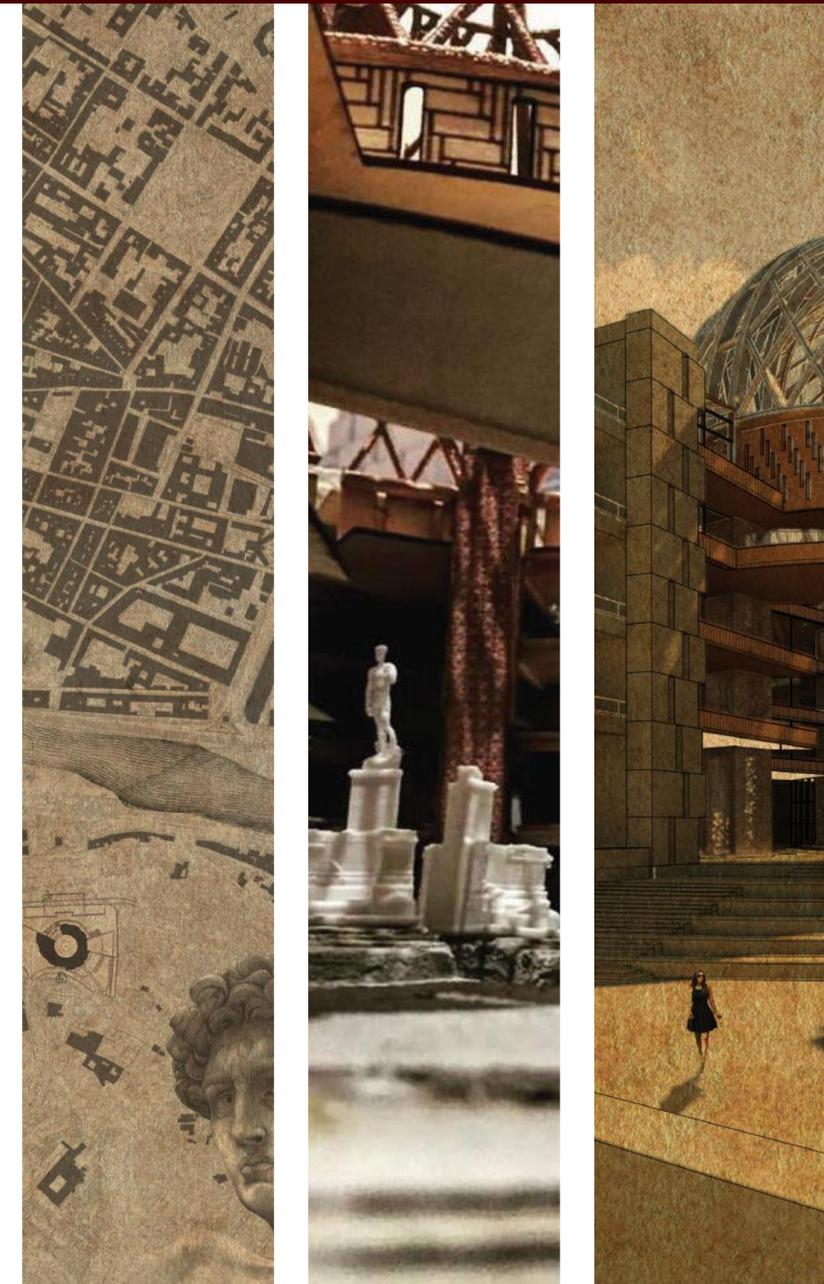
For this thesis project, there are some elements that I wanted to portray as incomplete or never-ending, as the pursuit of knowledge should never be complete. Architecturally, this can be accomplished with textures like the juxtaposition of ground face and split face as in the Getty Center by Richard Meier (below), exposing part of the construction process in the final design or other design opportunities that allow the viewer or inhabitant a look into the architect's process.



2.48 Masonry Detail of the Getty Center by Richard Meier (above),
2.49 Rondanini Pietà by Michelangelo (left),
2.50 Michelangelo's sketch studies for Libyan Sibyl (opposite page)

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Bringing the inspiration from Michelangelo into practice, these insights are explored in the building design appropriate for Michelangelo and his desire to learn and create - a place of learning. The building includes galleries, public space, libraries, classrooms and work spaces that all reflect the incredible range of Michelangelo's talents and their effect of the world. The Resonance of Michelangelo.



Chapter 3

A Place of Learning

Michelangelo's Florence

In selecting a location for a place of learning inspired by Michelangelo, the city of Florence was the clear option. Michelangelo was the son of Florence and much of even today's Florence has an overwhelming influence from his genius. There was also an incredible amount of influence and inspiration from Michelangelo to Rome, which I also studied in great detail. But I inevitably decided to incorporate this place of learning with Michelangelo's Florence.

While studying Rome, one incredible map I discovered was the Nolli map created by Giambattista Nolli around 1748. It was an amazingly detailed map that described Rome at the time and gave me inspiration to create my own map of modern day Florence. Through this large map, I wanted to highlight Michelangelo's key moments in Florence which included:

- Galleria dell Accademia: not only location of Michelangelo's David, but also his unfinished slaves.
- Uffizi Galleria: contains Michelangelo's Holy Family (Doni Tondo), plus works by Mannerists inspired by Michelangelo
- Bargello: contains Michelangelo's Bacchus, the Madonna of the Stairs and a bust of Brutus. Also includes sculptures from Donatello and Giambologna.
- Medici Chapel: chapel designed by Michelangelo and contains the tombs and sculptures by Michelangelo including Lorenzo de Medici
- Museo dell Opera del Duomo: small museum dedicated to works that once decorated the cathedral, including the Deposition carved by Michelangelo.
- Casa Buonarroti: house once owned by Michelangelo's nephew and his descendants. Now filled with a few of Michelangelo's earliest works.
- Santa Croce: large church that holds Michelangelo's tomb along with those of Galileo, Machiavelli and Rossini.
- Santa Maria della Carmine: church's Brancacci chapel, painted by Masolino and his student Masaccio, where a young Michelangelo came to study art.
- Piazza della Signora: a replica of the David now stands before the Palazzo Vecchio on the site where the actual David stood for many years.
- Santa Maria del Fiore: Brunelleschi's dome which is the heart of Florence and a major influence in Michelangelo's life through it's beauty and innovation.
- Laurentian Library: as previously described, a historic library in a cloister of the Medicean Basilica di San Lorenzo.



3.1 Etching of Florence (above), 3.2 1847 Molini Pocket Map of Florence (above left), 3.3 1748 Nolli Plan of Rome (below left), 3.4 Map of Michelangelo's Florence (opposite page)

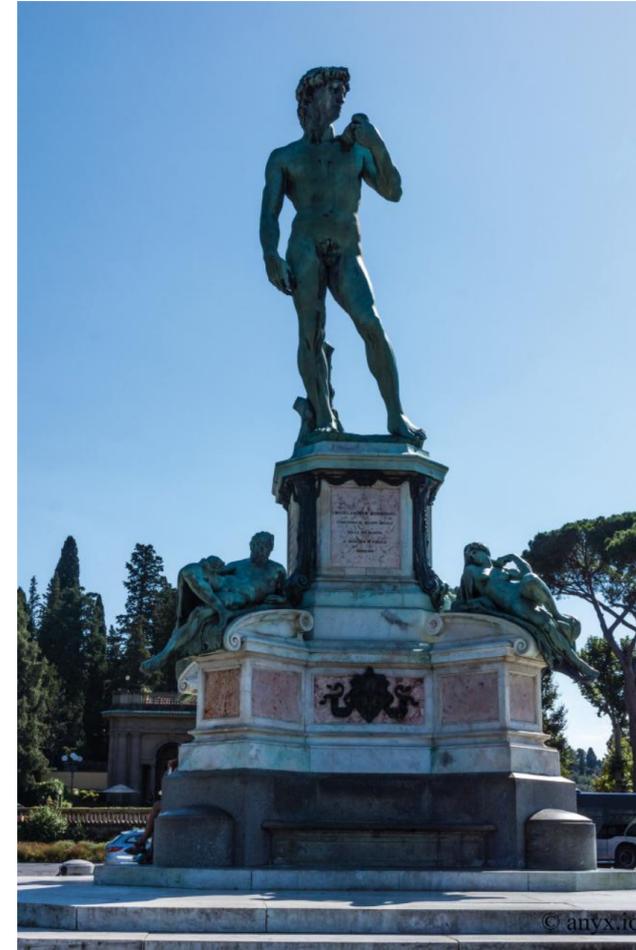


Piazzale Michelangelo

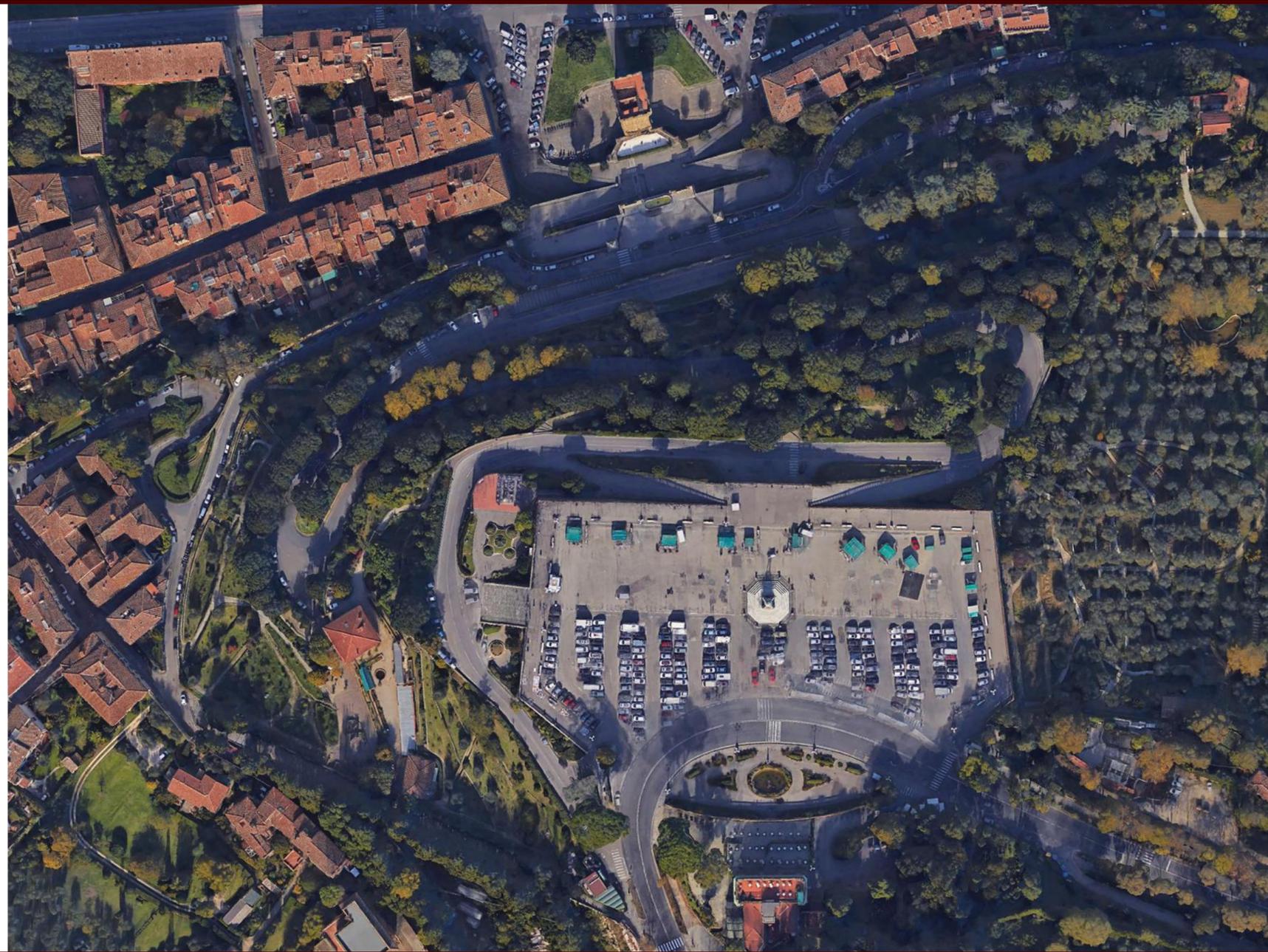
After selecting Florence as the city for this thesis project, I needed to select the ideal site. With the idea of looking back as well as looking forward, I wanted to select a site outside of the city that could look into the historic city from a distance, to learn from those giants of the past, while not trying to be a part of that past. The site needed to interact as Michelangelo did in learning from the past and using it to look towards the future.

The Piazzale Michelangelo, then became this ideal site for this place of learning for a variety of reasons. First it aligned with the external perspective as I mentioned. But it also already had a history with dedication to Michelangelo that wasn't fully realized. This Florentine piazzale was designed by architect Giuseppe Poggi and built in 1869 on a hill just south of the Arno river. The original intention was to house a museum of works by Michelangelo, but now holds a restaurant. The piazzale does however contain a bronze sculpture of a mash-up of sculptures from Michelangelo including the David, as well as Night, Day, Dawn and Dusk.

Lastly, the site had another feature that brought this thesis exploration into a tangible reality: it is currently mostly dominated by parking. This was a disappointment in my visit to Florence after contemplating this site's promising capabilities. However, this allowed me to dream of a better opportunity and incorporate a place of learning that would help realize the initial intent of Giuseppe Poggi, provide a public structure in a highly visited location and take advantage of the most beautiful views of one of the most beautiful cities.



3.5 View of Florence from Piazzale steps (above),
3.6 Il David sculpture on Piazzale (left),
3.7 Piazzale Michelangelo (opposite page)



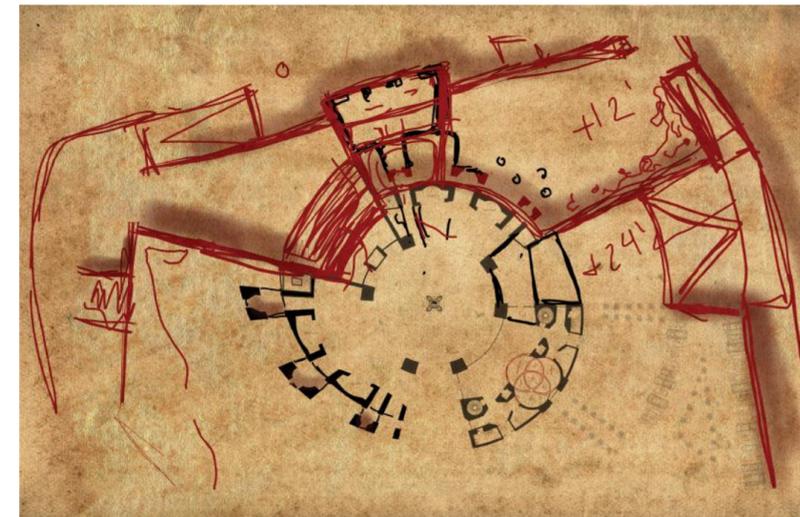
Site Design

There were several strengths already built into the site that made it an ideal fit for this design. However, there were also a few opportunities for potential improvement of the site. The redesigning of the site became highlighting and taking advantage of the inherent benefits already incorporated while also applying these opportunities for the site to realize its potential.

The first strength I wanted to take advantage of was the incredible view of Florence to the northwest of the site. This became the focal direction of my building and any building design needed to incorporate a defined and framed view of the city. Second was the existing bronze sculpture of the mash-up of Michelangelo masterpieces, Il David. This would become my focal point within the central atrium, similar to the central sculpture of Marcus Aurelius in the Campidoglio.

There were several strong axis to respond to, however there was a disconnect between the strong vertical axis from la Loggia (restaurant to the south of the piazzale) and the other strong axis that aligned with the Gate of St Nicholas (just to the northwest of the piazzale). Between the gate and the piazzale was already a strong sense of symmetry in the landscape design with the winding road going up the hillside. However, the piazzale seemed to completely break away from this axis and only respond to the relation with the south. Allowing the site to respond to my new building, just as the building responds to the site, I adjusted the extents of the piazzale to reach out further on the northeast corner. This not only allowed for some breathing room for the new structure, but allowed the piazzale to respond to both axis northwest and south. Refining the piazzale design on the east and allowing for a more gradual ramp access also allowed the Giardino dell'Iris (Iris garden) to become an active part of the piazzale.

Using this refined piazzale profile, the building and site design allowed for another challenge and opportunity to arise. The raised piazzale allowed for a lower access point on the north side and enter into a public lower level. However, the challenge was allowing enough daylight to access the functions within. This challenge was finally resolved by lowering a large northern portion of the piazzale (as shown in the parti sketch to the left). This allows for daylight into the lower level as well as a large stair to access the ground level of the central atrium.



3.8 Site axis parti sketch (above), 3.9 Axon Site (above left),
3.10 Site elevations parti sketch (below left),
3.11 Site Plan (opposite page)



Parti Model

In designing a project celebrating the resonance of Michelangelo, it's only appropriate to learn through making several models and sculptures of the design. This process involved several wood, paper and even clay models but the concrete models were the most beneficial in developing the building form.

One of the first models was conceptualizing the parti form of the project. The intent was to design the form that achieves two different objectives. First, to create the triangular central void within the cylindrical mass. Then to create a design that allows the three resulting masses to also read as a singular form.

To achieve these two objectives, a dome and connection balconies were utilized. The connection balconies provided rigidity to the form and placing them in a spiral design, so that they rotate in a clockwise motion at each level, allowed for a sense of movement in the static form - analogous to sculptures from Michelangelo or Bernini. The unifying dome, while creating even more rigidity to the model, mostly brings the three separate masses together to be read as a singular entity.

While there may not be any doors or windows to this model, it was essential in conceptualizing the beginning of the massing for the project. Even though the final design may differ greatly from this initial parti model, it is easy to see how much of this parti's spirit is still present.



3.12 Bottom of Parti Model (above),
 3.13 Angled top view of model (above left),
 3.14 Detail of bottom corner (below left),
 3.15 Parti Model (opposite page)

Ruins Model

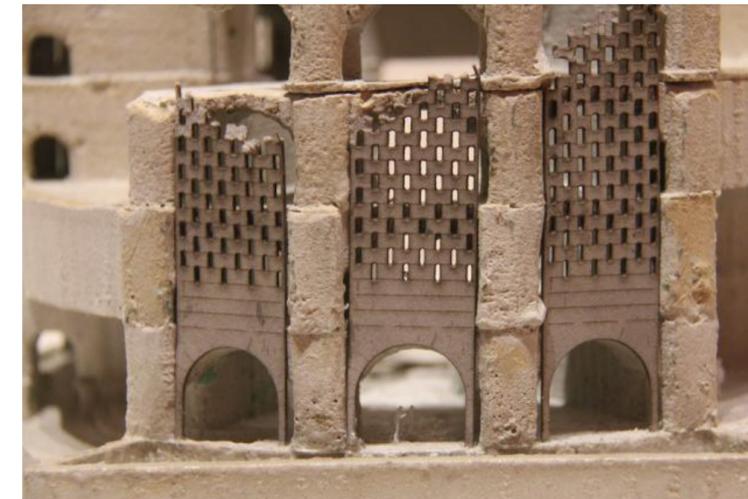
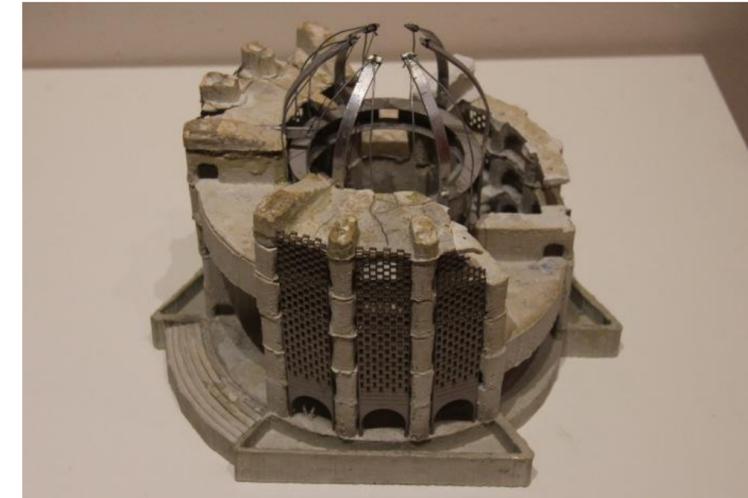
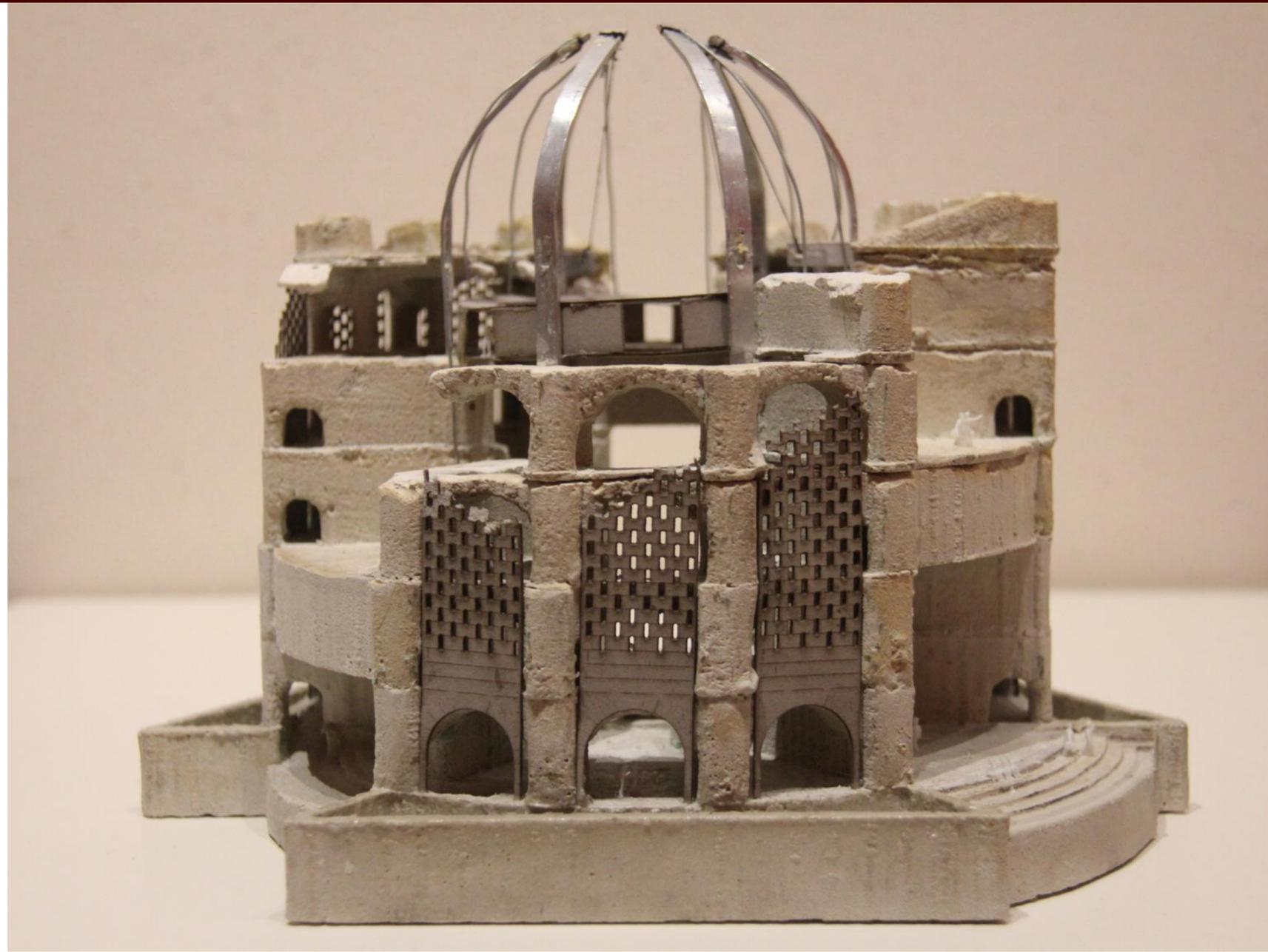
Developing from the parti model further, the design progresses with more detail. The three solid masses of the parti model are now detailed into inhabitable spaces and include points of access. However, the dome is clearly the most revised from the parti model. While the dome remains the unifying element, its unique nature is highlighted in the reduction of scale and change in material. The reduction of the dome's size now allows it to cover the central atrium as well as work in a better proportion to the whole. The other change is from a concrete dome, as explored in the parti model, to a lighter, and more modern, steel dome.

After developing the design, the lessons learned from studying the Roman ruins returned as an opportunity. In exploring the ruins, it was easier to uncover the soul and essence of the structures. As a design exploration, the updated project is conceived as a preemptive ruin. This process allowed for a deeper perspective on the essential components of the structure as well as the essential spaces of the design.

I've completed several section models throughout my architectural education that allowed me to explore not only the form of the model, but the spaces on the interior as well. While they have always been incredibly helpful to my designs, the ruin model was a completely new and rewarding exploration. The model provided a unique view on not just a building form and spaces, but a perspective that also projects the life of a building. This process was vital in establishing the project's essence or soul and played a necessary role in developing towards the final design and the final model.



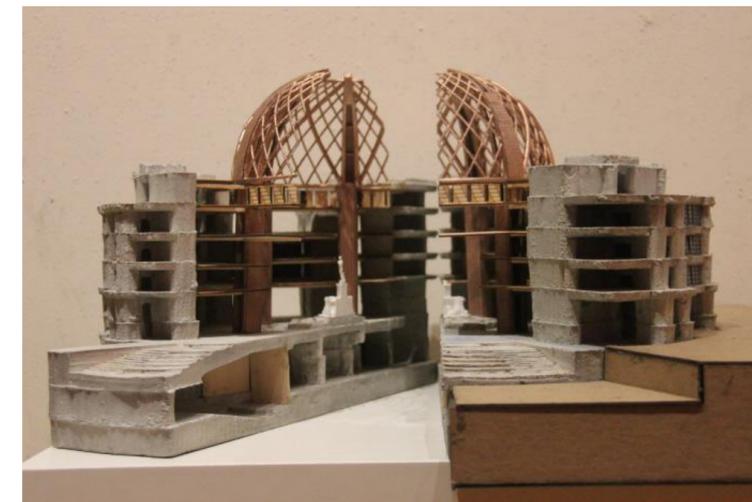
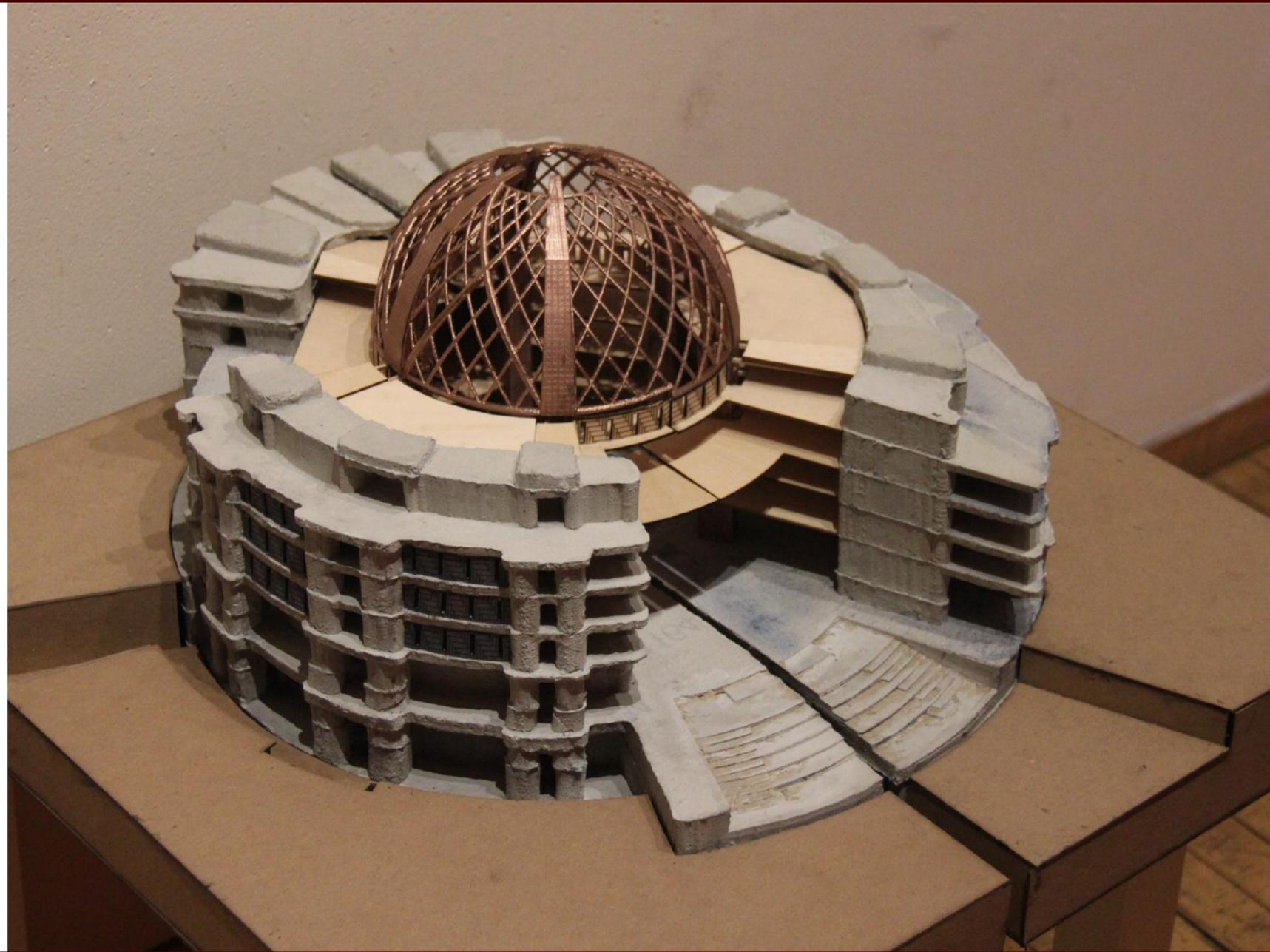
3.16 Side view of Ruin Model (above), 3.17 Top view (above left), 3.18 Detail view (below left), 3.19 Ruin Model (opposite page)



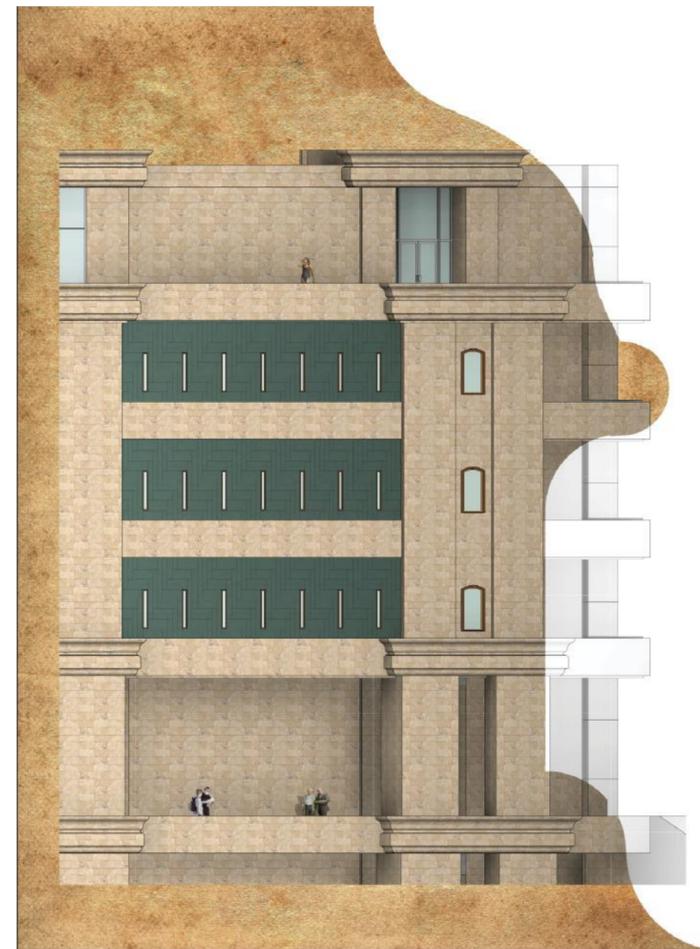
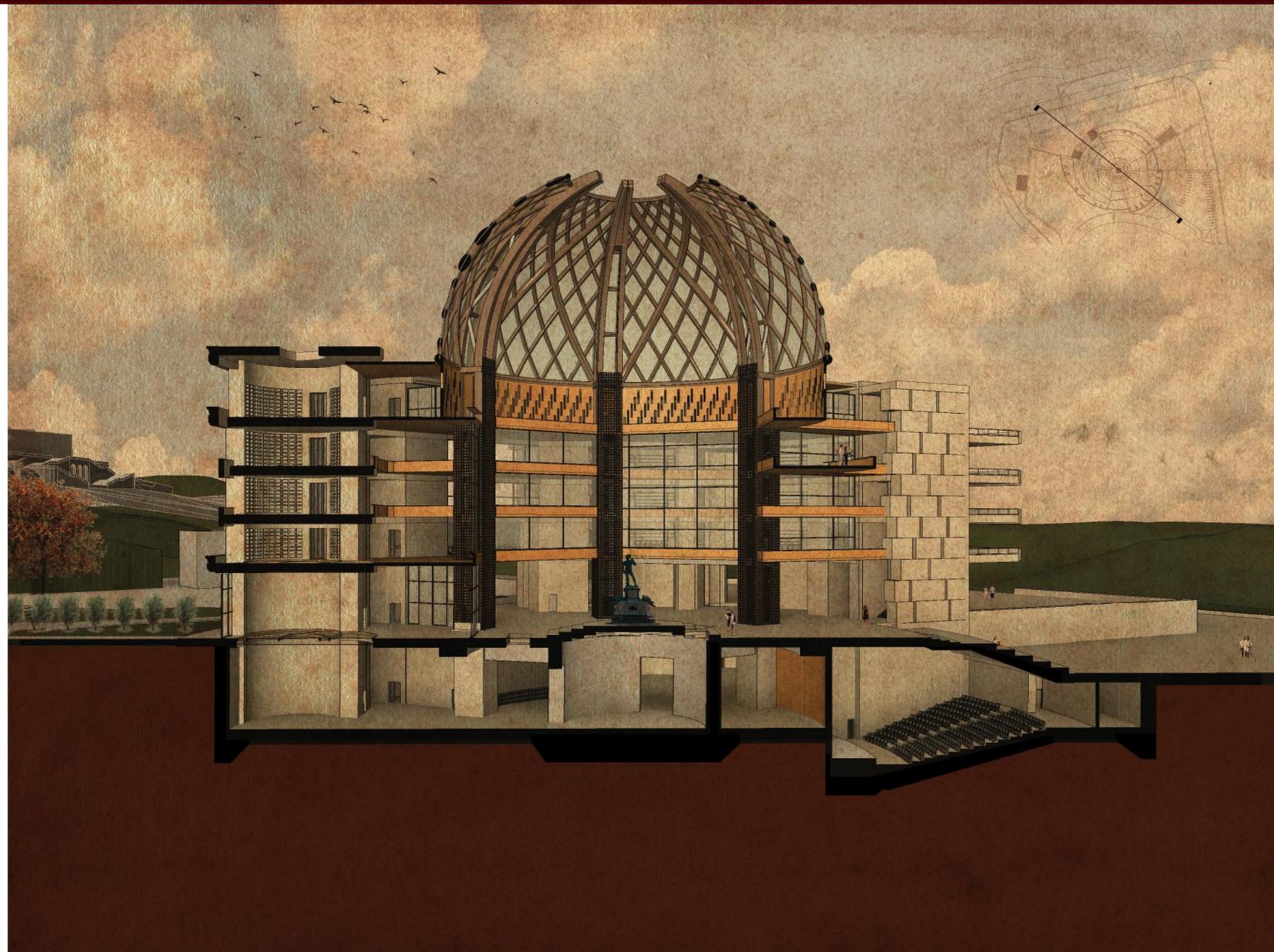
Final Model

As the thesis exploration concluded, a final model was developed at a slightly larger scale than previous models and in more detail to portray the complete intent of the building design. The first step in the construction of the model was creating the solid mass that was continuously explored in the previous models. These three thick masses now clearly portraying levels, walls, and rooms. The exterior in-filled with the pietra serena stone masonry (represented though lasercut chipboard). The refined design now also needed to represent the transition of materials from the heavy mass of the exterior to the lighter elements within. Wooden floors are then inlaid to the interior of the mass and supported by the six steel columns surrounding the central atrium. These six steel columns rise to support the steel-framed glass dome overhead (represented with 3D prints).

It is obvious to notice the vast differences and progression from the previous models, especially through the amount of detail and the model finally beginning to look like an inhabitable building. However, these models were the best representation of the progression of the idea. So much of the initial conceptual massing defined the intent of the building form and provided an important starting position. The ruin model deconstructed the design to find the essence of the project and show what the design was striving to achieve. After developing this idea, I was able to apply it to a location and make it a feasible reality. The final model and the final design can then become not just a resolution of the concept, but that concept then applied into the world - an appropriate perspective on architecture as a whole.



3.20 Section view of Final Model (above), 3.21 Central Atrium (above left), 3.22 Full Final Model with exposed section (below left), 3.23 Final Model (opposite page)



Materials

With this thesis having a consistent quality of harmony, it was imperative that the material selection followed in these steps. The desire was to create visually heavy masses that would be symbolic to more traditional construction, similar to the time period of Michelangelo. But to also create the more visually lighter framework that would be analogous to modern construction of today.

The design started with the previously discussed technique of Michelangelo's architecture being similar a sculptor technique of carving out of a solid mass. An incredibly aspect of Michelangelo's life was his working in the marble quarries. It allowed him to choose the right marble column for the specific project and as he stated, "I saw the angel in the marble and carved until I set him free." In order to allude to this importance of Michelangelo, I wanted to have the building and the piazzale work in harmony to give the illusion of a marble being cut from the quarry. However, the more appropriate material became travertine stone instead of marble. The design allowed for the entire piazzale to be travertine stone paving and the massing structure to be travertine as stone for the visual of the building being carved from the hill/quarry. In order to apply some accents of color, Pietra Serena stone is in-filled as masonry in the herringbone pattern in allusion to Brunellesci's dome construction.

This massive, heavy exterior protects the heart of the project on the interior while allowing specific, framed moments giving inhabitants beautiful views of the city. As one gets closer to the interior the materials become more modern and visually lighter. The heavy travertine stone and concrete (used for internal structure and long spans) transitions to wooden floors and beams that not only give a lighter aesthetic but a warmer feel to the libraries within. This finally transitions to the glass curtainwall interior with six steel columns that hold the large steel framed dome covering the central atrium space. This transition not only provides a harmony of materials and portrays another version of the balance and past and future, but also results in design that has a heavy, stone mass with the warm light reflected off wood, glass and steel of the heart of the structure representing the angel in the stone that visitors will set free.



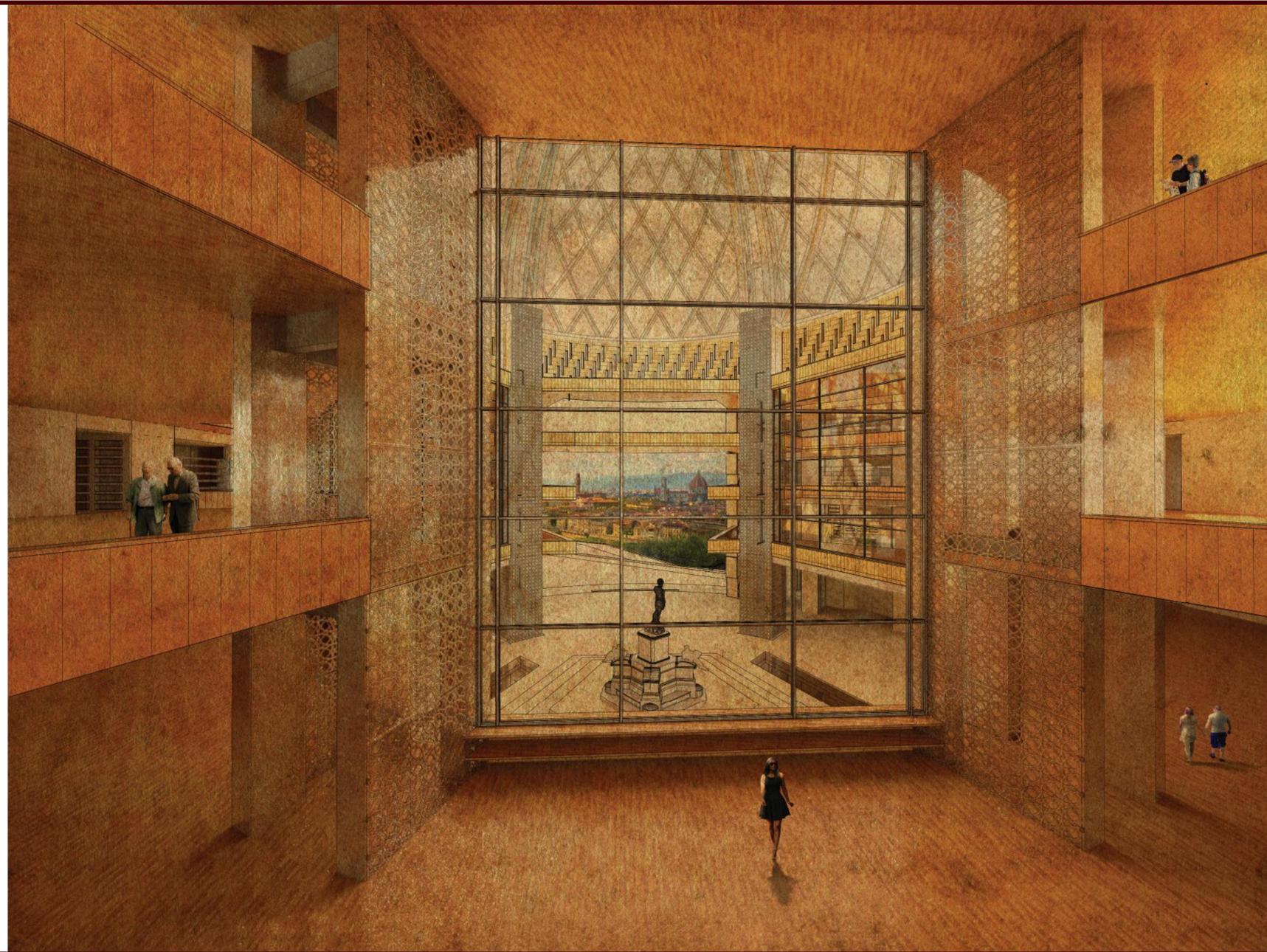
3.24 Material samples: Travertine, Wood Flooring, Pietra Serena stone (above), 3.25 Enlarged Elevation (left), 3.26 Building Section (opposite page)

Series of Libraries

Perhaps the most difficult challenge in this thesis experience, as it is in architecture, was taking into account the wide range of different concepts, forms and inspirations to simplify into a singular form. One of the most important steps was to ensure the conceptual and the real were brought together, achieved through the merging of the concept of harmonious ambition and the physical site of the project.

Due to the striking view of Florence and direction connection from the site to the majority of the key landmarks of Michelangelo's life, the northwest face of the building became the starting point to the design to progress from. Next was incorporating the true resonance of Michelangelo through time by developing the series of libraries focused on three time periods: the first library of the giants of the past that had an influence on Michelangelo's life, the second library celebrates the masterpieces of Michelangelo and the peers of his time that helped push him to the limits of human capabilities, the third library exploring the ways Michelangelo influenced the world that followed his death starting with Mannerism and continuing to today.

To bring concept into physical form, Michelangelo's physical presence played the key role. The building starts to take shape around the life of Michelangelo using the direction of Michelangelo's birth place, Caprese, as the starting point of the library of Michelangelo (the right side of the rendering on the opposite page) and the direction of the place he died, Rome, as the other side of the same library (left side of the rendering on the opposite page). The library of the time before Michelangelo then extends to the north side (before Michelangelo's birth) and the library representing time after him extends to the southwest (after his death). The form also begins to resemble to time periods as the past library has a more perfect circular form representing the ideal forms often created by architects/artists like Vitruvius, Bramante, etc. The future library then resembles a more elliptical shape representative of a more fluid design from Borromini or Bernini. Using this timeline as a design scheme for the building allows for the disconnect between the past and the future on the northwest facade and gives the opportunity for two references to Michelangelo. As experienced in his Unfinished Slaves sculptures, the separation of these sections show the nonfinito as the timeline of both past and future extend indefinitely. This unfinished aesthetic is represented through rough, split face travertine stone on the interior faces of this disconnect as opposed to the smooth, ground face of the exterior. And lastly, the disconnect of the two sections allow for a glimpse of the interior heart of the structure from the exterior as well as an amazing, framed view of Florence from the interior of the libraries as the two ends of the structure seem to reach towards each other, just as Michelangelo's hands of God and Adam.

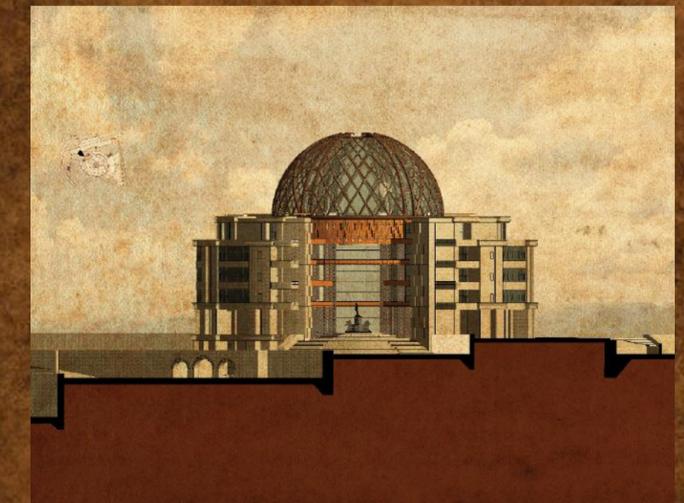
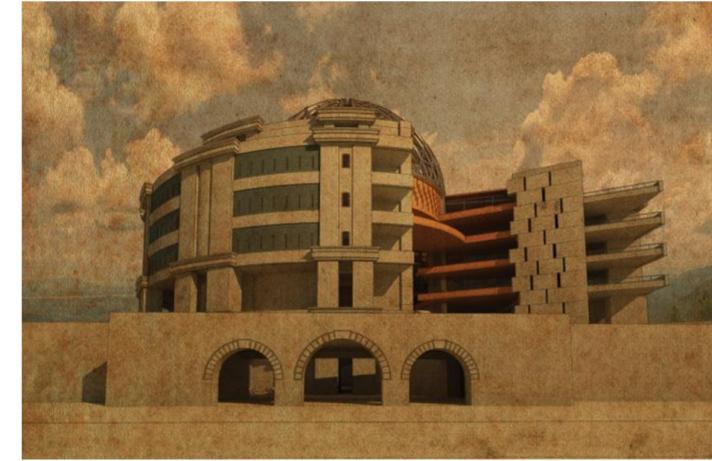


Lower Level

The raised position of the piazzale on the hill provides the unbelievable view, but it also allowed for a gradual access to a lower level of the new design that wasn't currently being utilized in the existing piazzale. Coming from the gate of St. Nicholas to the northwest of the site, this entrance aligns with the existing axis that was previously discussed. Here visitors access an interior public space containing a cafe, lecture hall and several galleries.

The visitor first accesses the outdoor seating to the gallery space near the lowered terrace so that the visitor comes in with the natural daylighting. With the cafe on their left, they arrive into a space filled with galleries lit from not just the access point, but also several skylights overhead. While there is a large amount of gallery space to the southwest and southeast (with storage, mechanical and electrical rooms separating the different galleries), the main focal point is the gallery at the center of the lower level. In this center is a large, rough faced marble mass with a smooth-faced, circular gallery in the interior. The idea being that while the perimeter of galleries portray works of art from history, this temporary gallery space portrays some of the best work of the scholars of today. The marble mass also becomes the support of the Il David sculpture above.

The large lecture hall is the final feature of the lower level with direct access to the galleries as well as direct access to the exterior on the north end. This lecture hall has the flexibility to be used for very public events as well as isolated private events and it's sectional profile (as seen in the building section on the previous page) utilizes the underside of the large grand stair of the piazzale.



3.29 Northeast Elevation (above), 3.30 Perspective sketch of Lower Level access (bottom left), 3.31 Rendering of Lower Level access (above left), 3.32 Lower Level Floor Plan (opposite page)

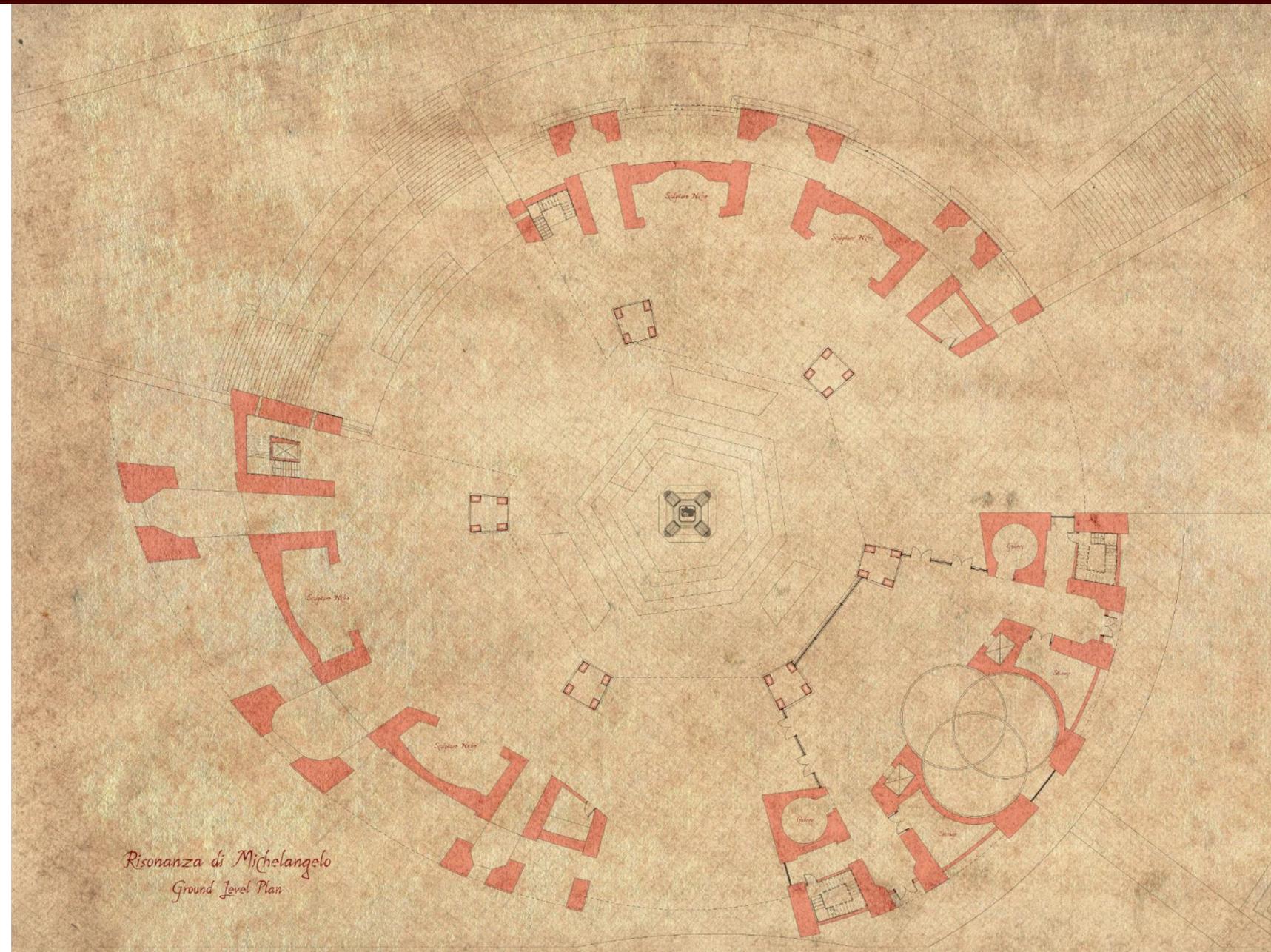
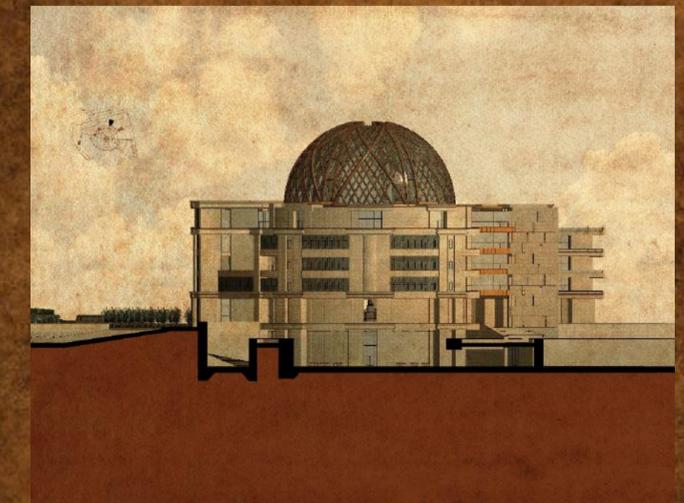
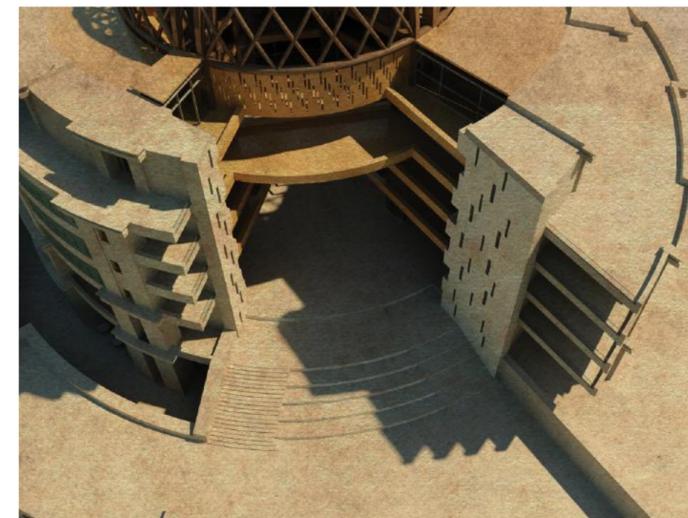


Risonanza di Michelangelo
Lower Level Plan

Ground Level

The lower level access provides an interior public gallery space for visitors, a feature not currently available in the existing piazzale. However, the piazzale does provide a wonderful, open public space for visitors to casually explore. The new design needed to not lose that sense of public accessibility on the piazzale level. To achieve this, the only interior portion at this level is the visitor's center at the southeast section of the structure. The rest of the structure remains open to the air and direct access for the public. The carved masses create sculpture niches for visitors to experience at their leisure. The structure defined the open central atrium that is highlighted by the *Il David* sculpture positions at its very center.

Another key feature of this level is the transition from the lower terrace of the piazzale to the north to the higher level where the sculpture niches and atrium are accessed. This transition is highlighted by a grand stair with reference to the Laurentian Library stair (above left). The Laurentian Library stair was design with two ways of access, the central access for nobility and the side stairs for general access, the two merging at the landing and centering the inhabitant for the reading room to come. Inspired from this idea, the *Risonanza di Michelangelo's* stair has access on the sides that re-center the visitor at the landing to enter the central atrium. In the central portion of the stair are larger steps that are intended to be utilized as seating for visitors to enjoy the Florentine view to the northwest. While this could be a strictly functional moment of transitioning from one level to another, this stair becomes a special, sculptural moment - just as in the Laurentian Library. The stair then becomes, to quote Alex de Rijke, "sculpture's gift to architecture".



*Risonanza di Michelangelo
Ground Level Plan*

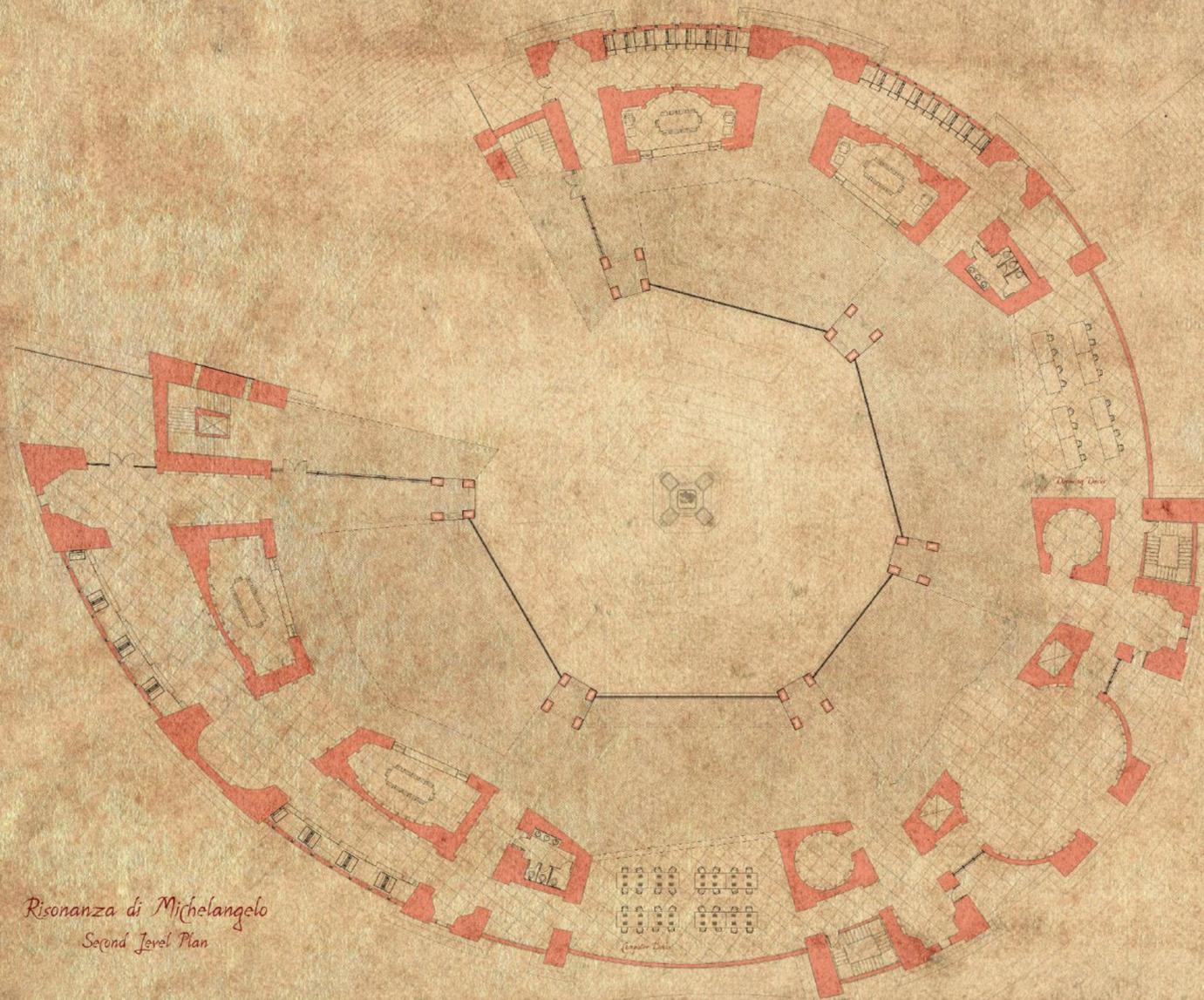
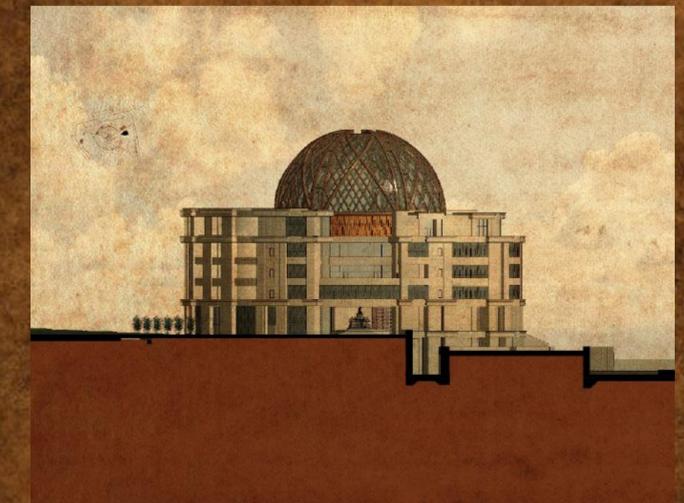
*3.33 North Elevation (above), 3.34 Laurentian Library stairs (bottom left),
3.35 Risonanza di Michelangelo stairs (above left),
3.36 Ground Level Floor Plan (opposite page)*

Second Level

While the lower level and ground level are very public and easily accessible levels, as one works their way to the second level they begin to transition into the more private spaces of the design. The three libraries begin at the second level with three large volumes that look into the central atrium. The thick travertine stone masses that contain these volumes are carved into with serving spaces, such as restrooms and stairs, along with reading rooms and study niches.

Separating the three libraries are two large rooms: the writing center and the computer center. The contrast of how we study/work is in reference to the overall theme of harmony, specifically with past, present and future. The more traditional practice of hand writing and drawings lies between the library of influences to Michelangelo and the library of Michelangelo. The more modern practice of internet research and computer-aided drafting takes place in the computer center which lies between the library of Michelangelo and the post-Michelangelo and his influence.

At this second level all three of the libraries are defined by differences in height, but bleed into one another in order to be experienced as a singular library. Natural light pours in from the central atrium into all three libraries and ties them together for an even more unified experience.



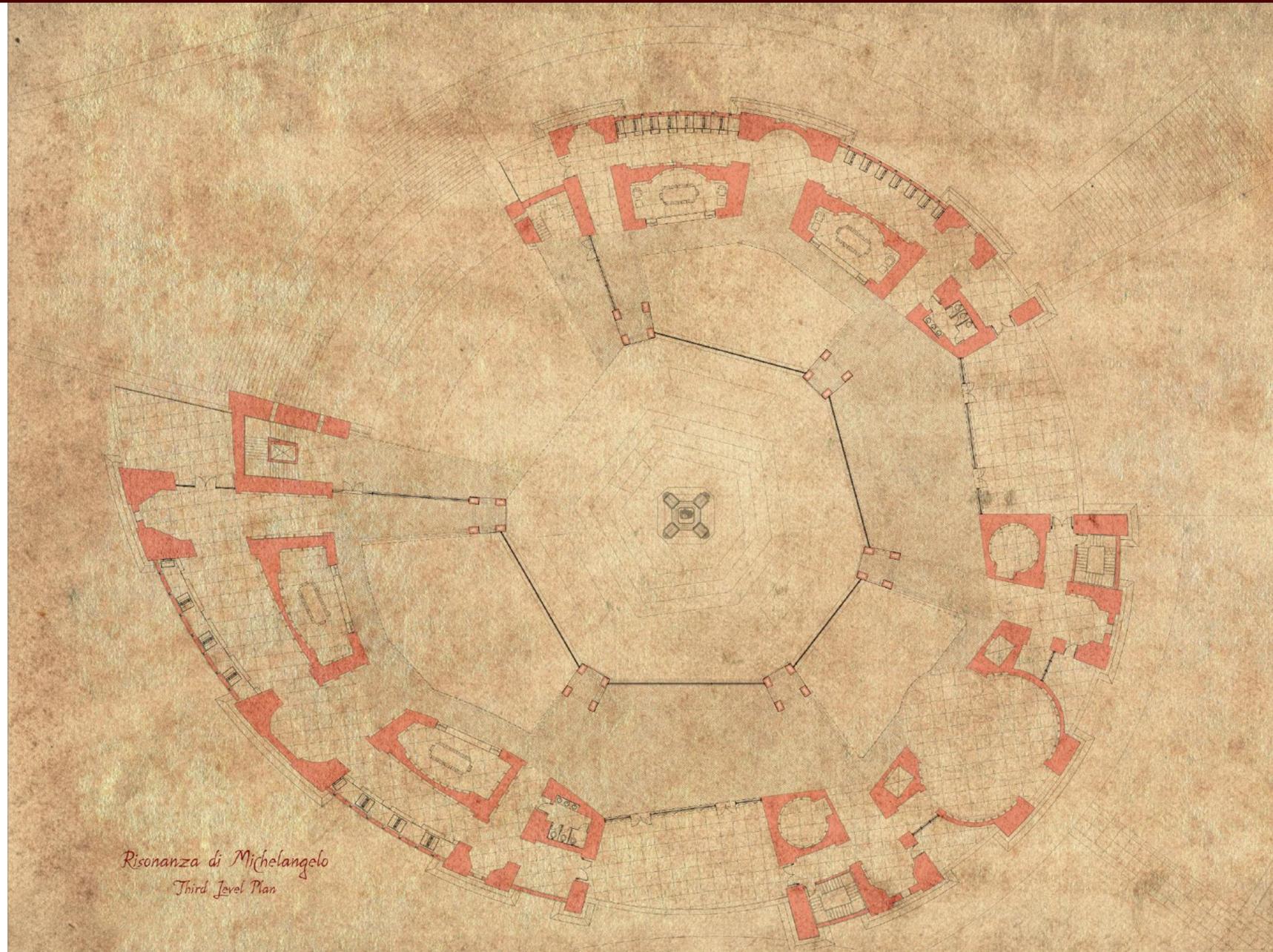
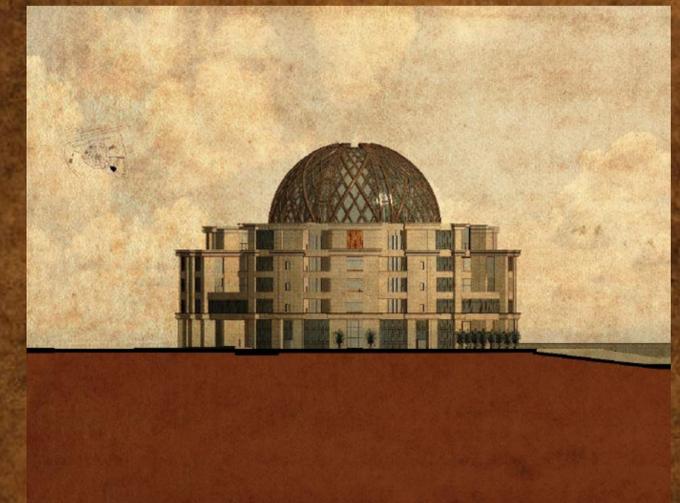
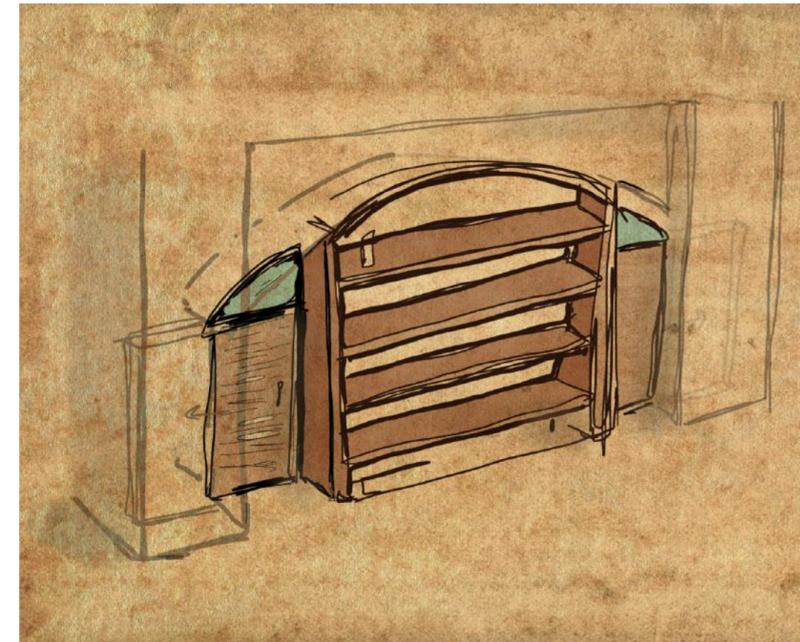
Risonanza di Michelangelo
Second Level Plan

Third Level

The three libraries each have their triple-volume centers with surrounding levels of book storage and reading rooms looking into these spaces that then look into the central atrium to result in a transition of volumes from an intimate study niche on the third floor to the large, open and public central atrium.

Continuing the transition to a more private function, the third level becomes nearly entirely private reading rooms and study niches with some flexible study areas and two balconies. The two balconies are located above the writing and computer centers on the first floor and provide an opportunity for visitors to take a book outside and experience the Italian sunlight.

In order to provide some additional privacy within the reading rooms carved into the thick mass, a special screen was designed (shown to the left). The design allows for wooden bookshelves to create a visual screen between those inside the reading room and those that pass by. The wooden doors to access the reading room then slide into the thick stone mass and close to maintain that screening purpose. This screening practice is continued to all of the reading rooms across the structure. The same screening design is also applied to the many Innovation Tables (as shown on page 32) located on the perimeter of the north and southwest side of the project. Taking a note from the Laurentian Library's reading room, there is a narrow window in the Pietra Serena masonry at each table to allow for natural daylight onto each visitor's reading/working surface.

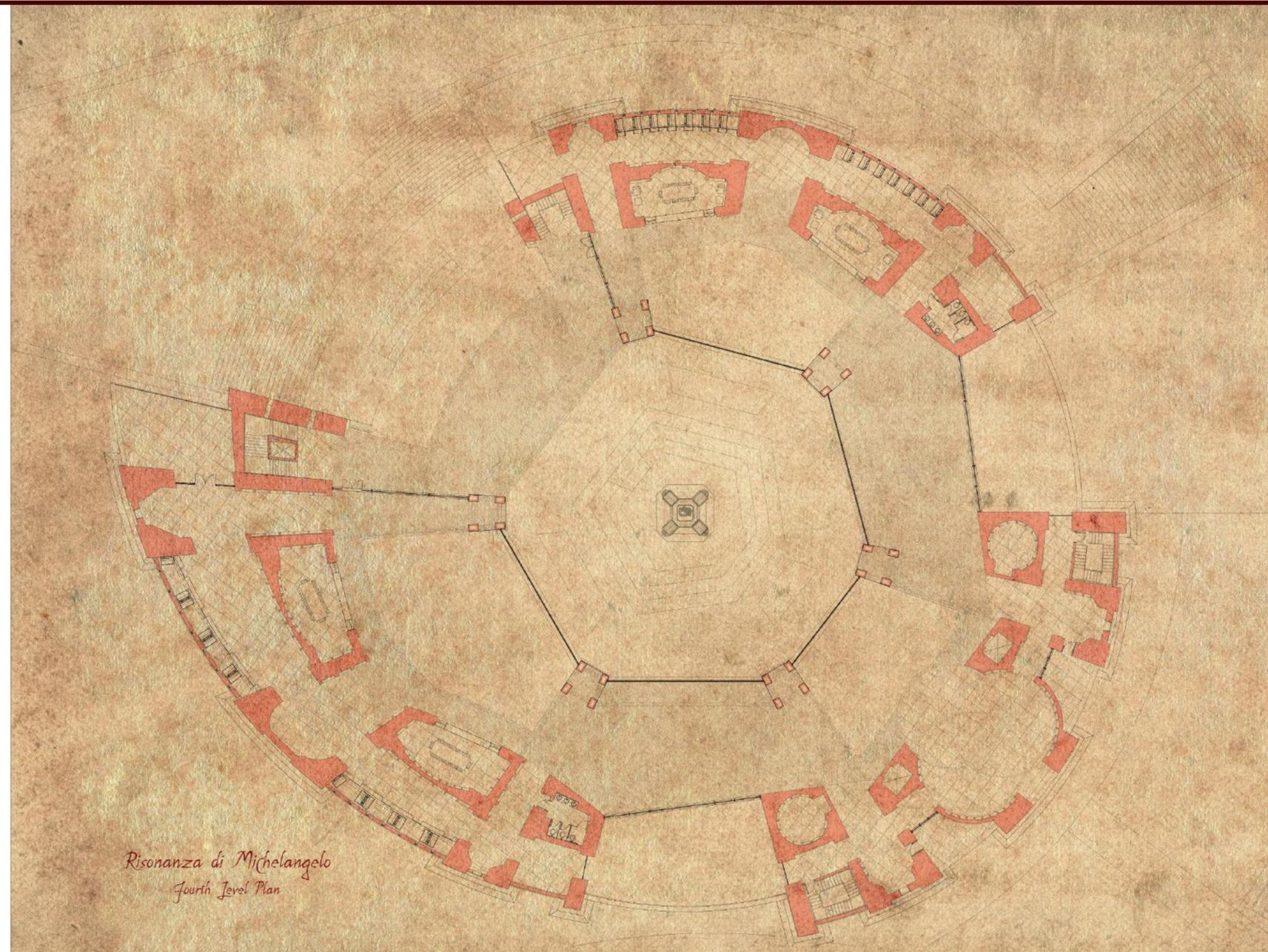
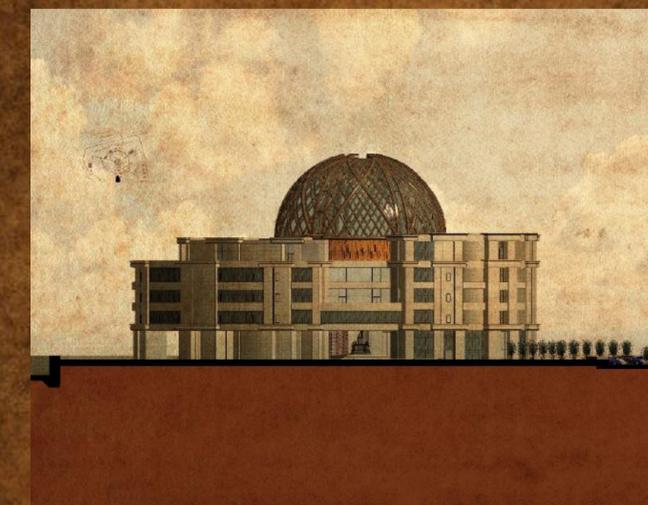


*Risonanza di Michelangelo
Third Level Plan*

Fourth Level

Functionally, the fourth level is very similar to the third level with two exceptions. One, the two exterior balconies to the east and south are no longer accessible, but visitors have a visual connection as they can look down at the activity in the balconies below. Second, the major difference is the main balcony on the northwest side of the structure.

While the upper levels of the structure provide a transition to more private spaces for studying and reading, it was important to allow the public visitors to experience a portion of these upper levels while still allowing the readers their privacy. The two stairs on the northwest are open to the air and have open-air landings at the each level. This allows for the public to view to life inside the libraries as they work their way to the large, wood balcony on the fourth level. This balcony becomes another merging point of private and public as the private inhabitants are able to take a break from their intimate study niches and access this balcony that would provide another opportunity for the infamous view of Florence above the public at the piazzale level. This balcony also allows visitors to look down into the central atrium and view all three libraries filled with life. They are also able to look up and have a close view of the steel framed, glass dome above. Lastly, they get a glimpse of the scholars working in the next level and pass by as they walk around the cloister at the dome's base.

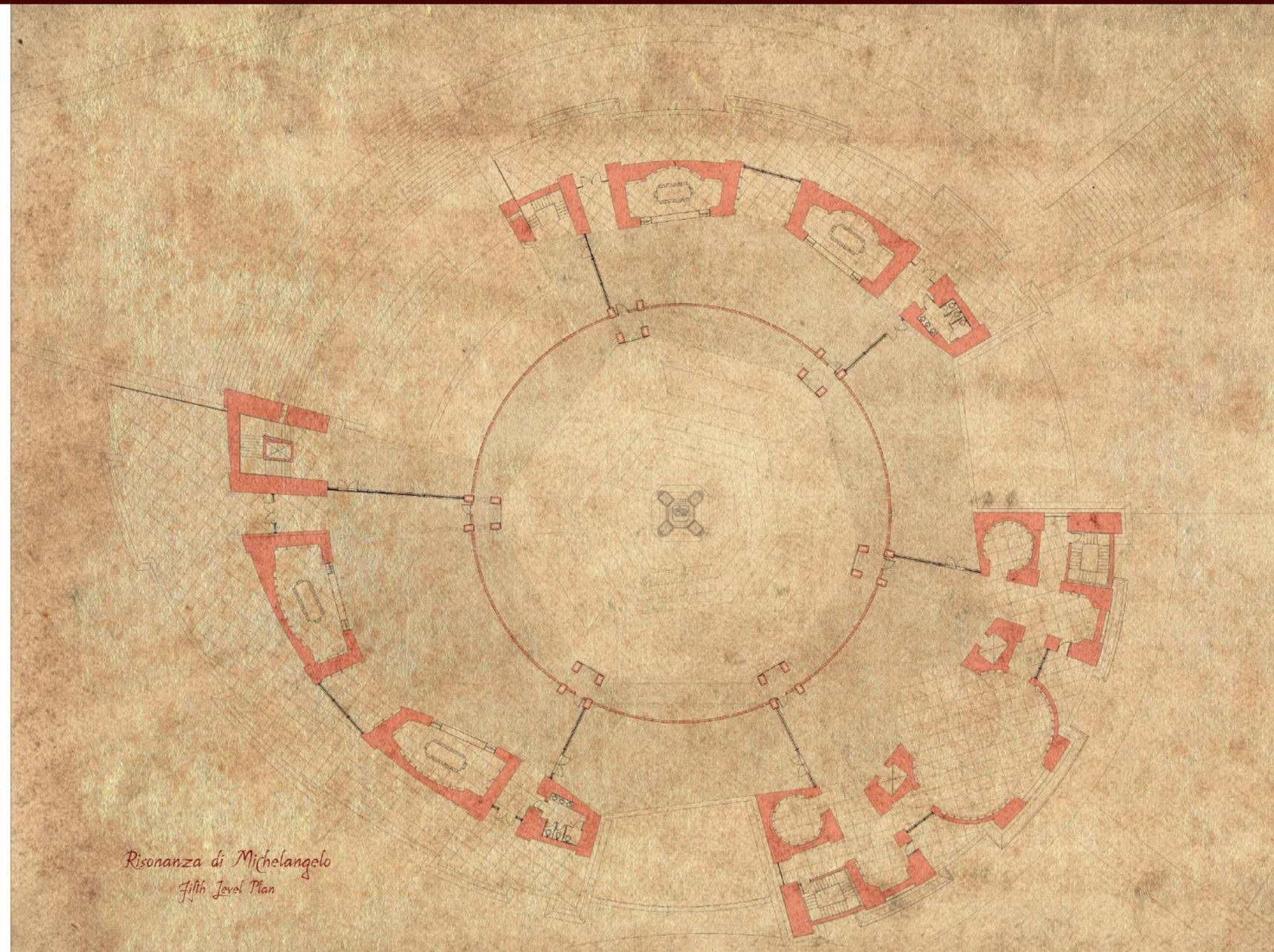
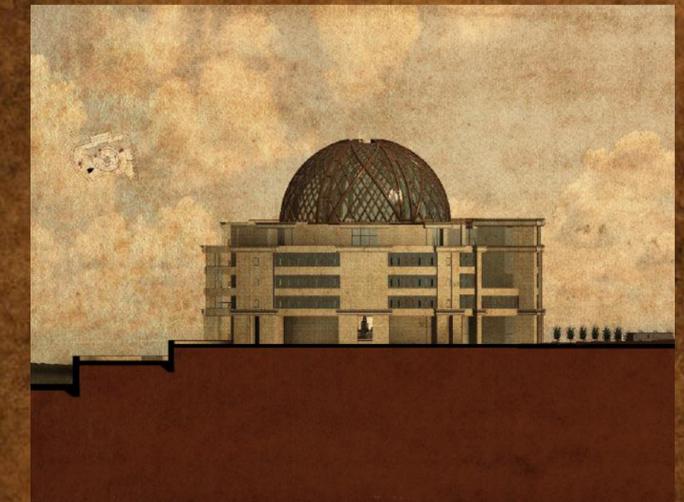
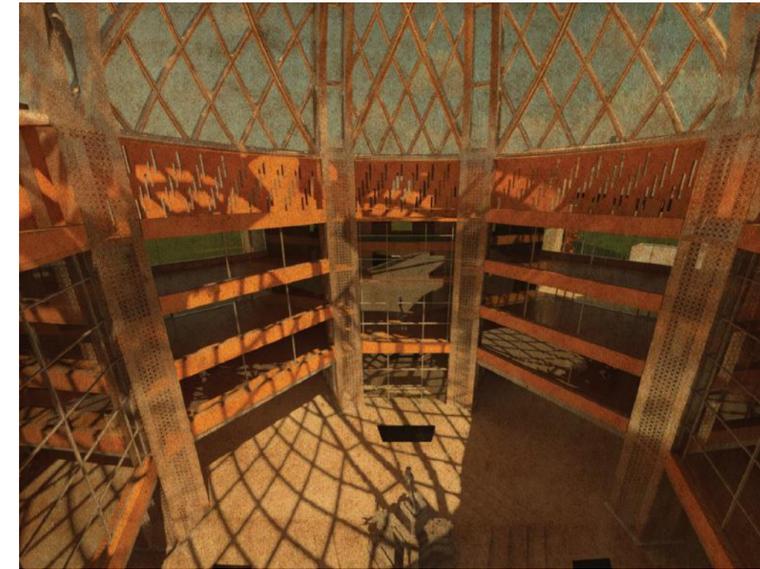


Risonanza di Michelangelo
Fourth Level Plan

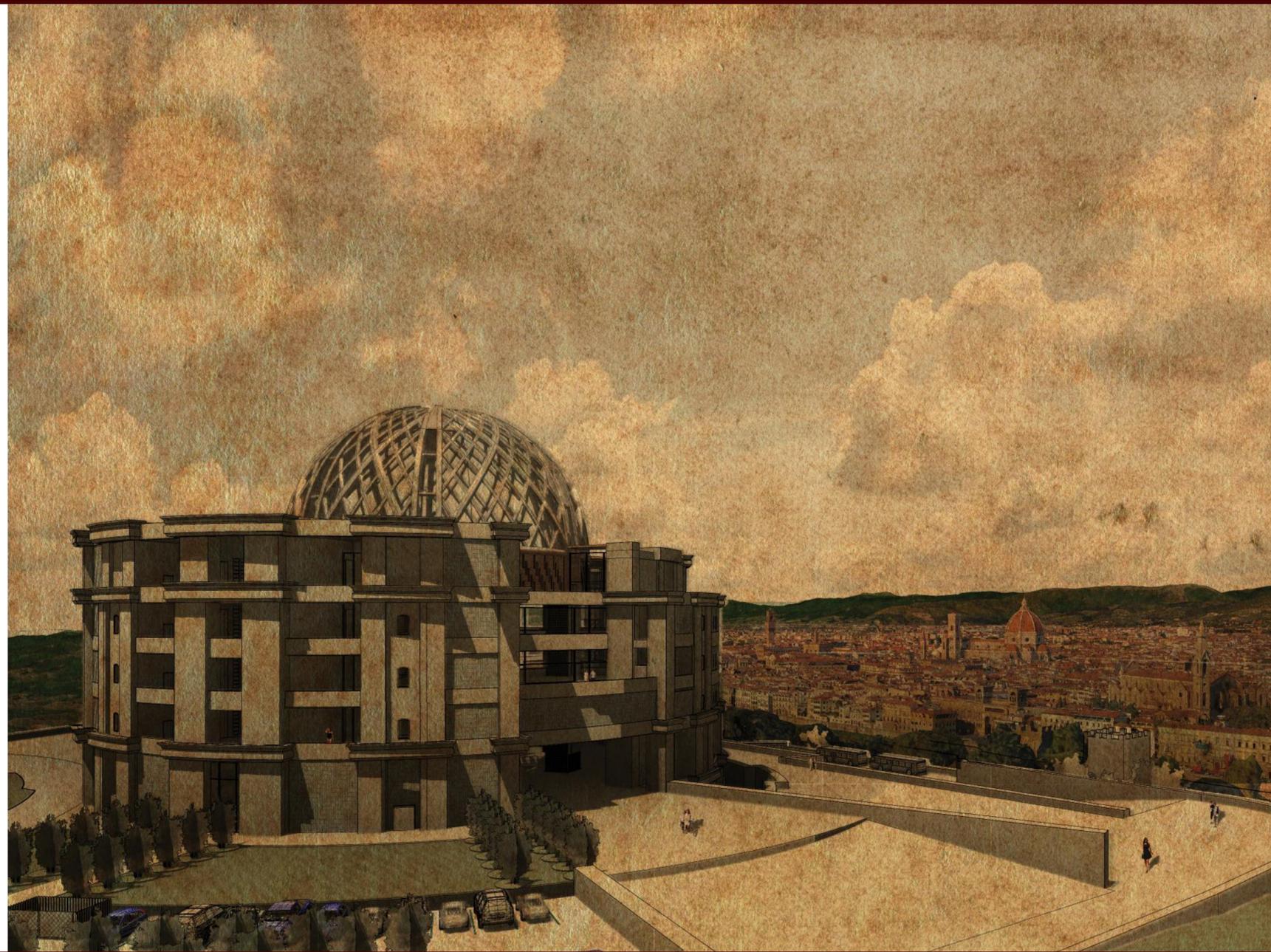
Fifth Level

With the transition of the public lower and ground levels followed by publicly accessible, but more private libraries in the second through fourth levels, the appropriate function of the highest level is a private space for scholars to work/study. The carved niches in the stone now become reading rooms with rare book storage. Three very flexible work areas/classrooms allow for a range of uses analogous to the versatility and range of Michelangelo's work. A scholar could work on a research project, painting, sculpture or science project within these flexible spaces. The outer layer of this level is set back from the rest of the structure for three main reasons. First, it denotes the unique function of this level and visually separates it from the more public libraries below. Second, it provides a visual base to the dome and transitions the mass from the dome to the larger cylindrical structure. Third, it creates an abundance of exterior balconies for scholar use and provides an ideal location for a place of reflection.

The other element on this level comes from research on many religious structures during this thesis exploration. The use of a cloister in monasteries was inspiring for me and felt that it was incredibly appropriate in a place of learning. The ability to scholars to walk and contemplate or walk and discuss topics with colleagues brings the process of learning back to Raphael's School of Athens painting. The cloister becomes the structural base of the dome and allows scholars to have a 360 degree experience that is unique to them as they walk by screens for the flexible classrooms, framed views of the city, look down at the atrium and the closest view through to dome to the heavens above.



*Risonanza di Michelangelo
Fifth Level Plan*



The Inspired Dome

Michelangelo looked at everything with an artist's critical eye, and he was not easily impressed. But when Michelangelo first saw the Pantheon in the early 1500s, he proclaimed it of "angelic and not human design." Brunelleschi's innovative dome design in Florence became an incredible inspiration to Michelangelo as he replicated the two-shell design into his dome at St. Peter's. These three monumental domes provided some of the most influential experiences during my explorations in Italy.

The dome quickly became one of Michelangelo's favorite architectural elements. Analogous with many of the Humanist concepts that he grew up with, the dome was a way for man to construct the idea of the heavens overhead. When you walk into the space under the dome of the Pantheon you can truly understand this notion of perfection above you. From the exterior, the dome, both Brunelleschi's in Florence and Michelangelo's in Rome, create an ideal transition of building and sky. Incorporating a dome into a place of learning inspired by Michelangelo became no longer a good idea but rather a necessary component to the design.

Furthering the dome research beyond Rome and Florence, I began searching for dome's use in a place of learning and found a precedent that paralleled a great deal to my design intents: the Radcliffe Camera in Oxford. This cylindrical library also included a slightly smaller dome that topped the central atrium within. Learning from the accomplishments of this design influenced several refinements into my design.

Lastly, the intent was to create a dome that belonged not to the time of Michelangelo and the Renaissance, but a dome that belonged to today. The innovative Reichstag Dome of Norman Foster became my inspiration, very similar to how Brunelleschi's dome was to Michelangelo.

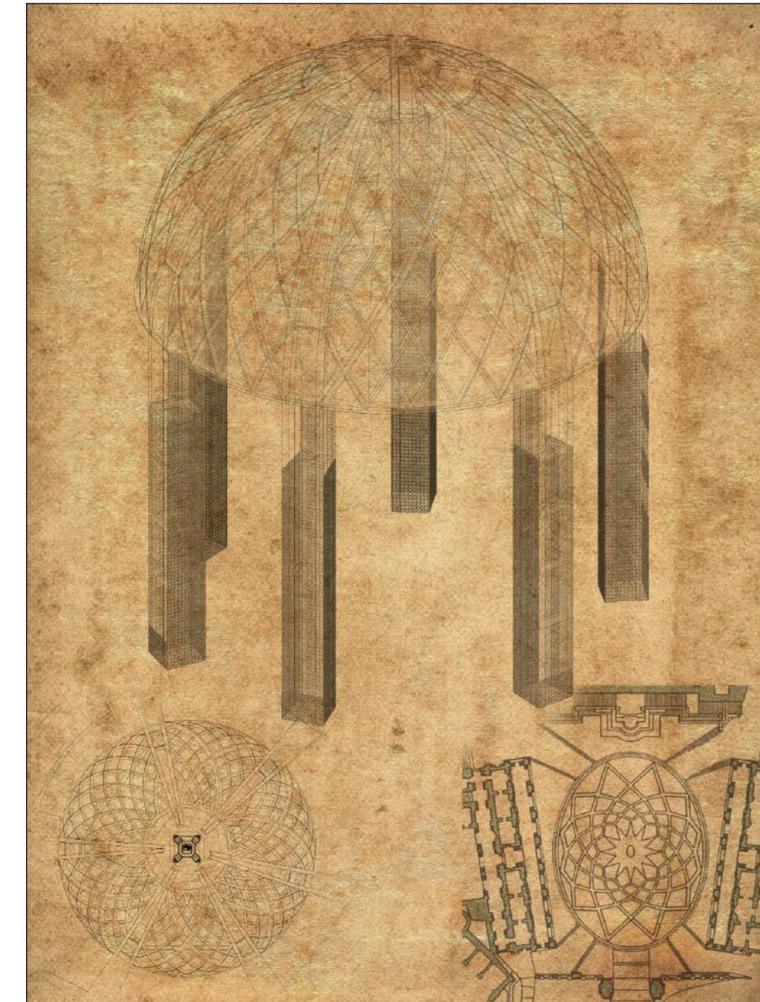


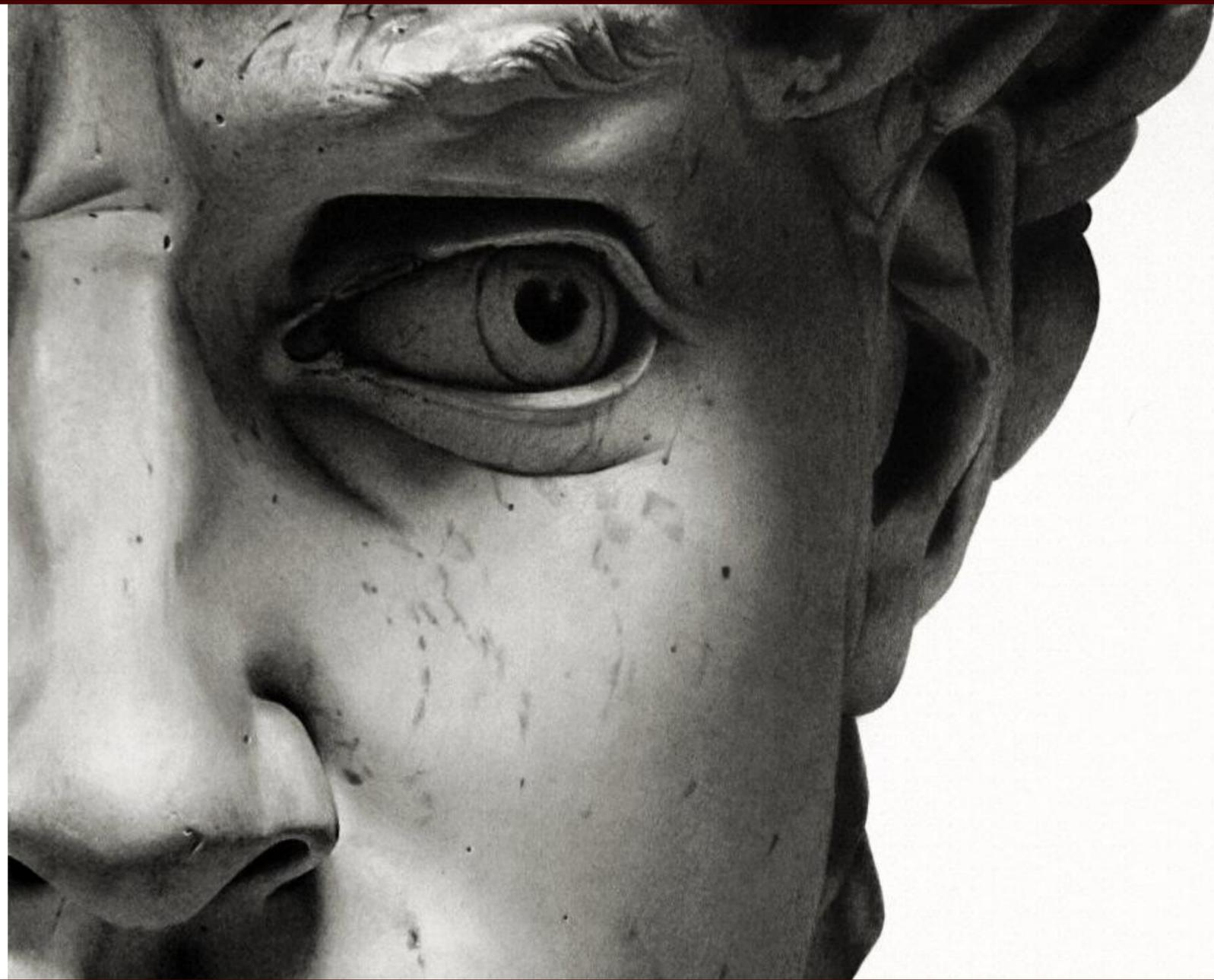
3.49 Radcliffe Camera, Oxford (above left), 3.50 Norman Foster's Reichstag Dome (above right), 3.51 Dome exploration: Pantheon, Duomo and St. Peter's (left), 3.52 Risonanza di Michelangelo Dome (opposite page)

Center of Learning

The dome and the central atrium become the heart of the design. The void of the atrium ties together the three libraries just as much as the physical structure of the dome. The libraries representing places of learning and innovating meant this central structure needed to not only belong to today's time but result in an innovative space. Surrounding the perimeter of this central atrium are six steel column structures. Each column is composed of four hollow tube steel columns held rigidly together with metal screens. The screen design being an unending overlapping of circles reminiscent of the three boolean rings that represented Michelangelo's versatility. These six columns are set in six massive columns on the lower level. The screens and column design then become a modern, light representation of the solid, more traditional columns below.

The six columns rise through the entire structure providing support to each level and then support the dome overhead. The spiraling dome design was inspired by the pavement design in Campidoglio by Michelangelo, in which he wanted to represent the world. Important to note, is that the columns do not simply support a separate dome, but actually become the ribs of the dome to create a fluid transition between column and dome. At the top of the dome, just above the Il David structure, there is an opening in the glass that allows for the atrium to vent hot air as well as let in a small amount of the environmental elements, very similar to the oculus of the Pantheon. The ribs, formed from the columns below, then extend past the circumference of the oculus and reach towards on another - once again reference the reaching of the hands between God and Adam - or between Man and Understanding. The steel and glass construction of the dome allows for a controlled amount of light to enter the atrium, but also allow for the dome to illuminate at night and become a lighted beacon on the hill from the city.





Facing Goliath

Perhaps the most famous sculpture from Michelangelo, and my personal favorite, was not forgotten in my analysis of Michelangelo's influence on this exploration but rather was so influential it needed to be separately addressed in these concluding remarks.

Michelangelo's David was sculpted from a discarded column of marble deemed too flawed by several sculptors of the day. However, Michelangelo won the commission to make the most out of this block of marble and carve the biblical hero, David. My personal interpretation of this story is emblematic of a thesis exploration. Michelangelo had the daunting task of doing exactly what he wanted. He was a student of anatomy and loved to carve the male nude, so this project allowed him to carve a 17' male nude. He constantly craved a challenge and the commission allowed him to sculpt a giant that everyone else had already admitted they could not. Even the subject of David he developed with this similar mindset. Most sculptors, including the great Donatello, created David at the moment immediately after conquering Goliath. They usually show David standing tall in victory with one foot on the decapitated head of Goliath. However, there wasn't enough drama in that moment with no internal struggle that Michelangelo could so relate to. Instead, Michelangelo carved David just before facing Goliath. Here he achieves perhaps his greatest moment as David looks both afraid of the incredible task ahead of him as well as ambitious and confident of his destiny.

Just as David is conflicted about the unbelievable task ahead of him, so was Michelangelo. This is my interpretation of Michelangelo's thesis, as he is experienced enough now to start his career by refining the right questions to spend his life pursuing an answer. While Michelangelo had carved the Pieta in Rome, he was still relatively unknown, or at least unconfirmed, in his hometown of Florence. The David was the real beginning of his incredible life. Michelangelo finally completed his David at the age of 29 - the same age I complete my thesis.



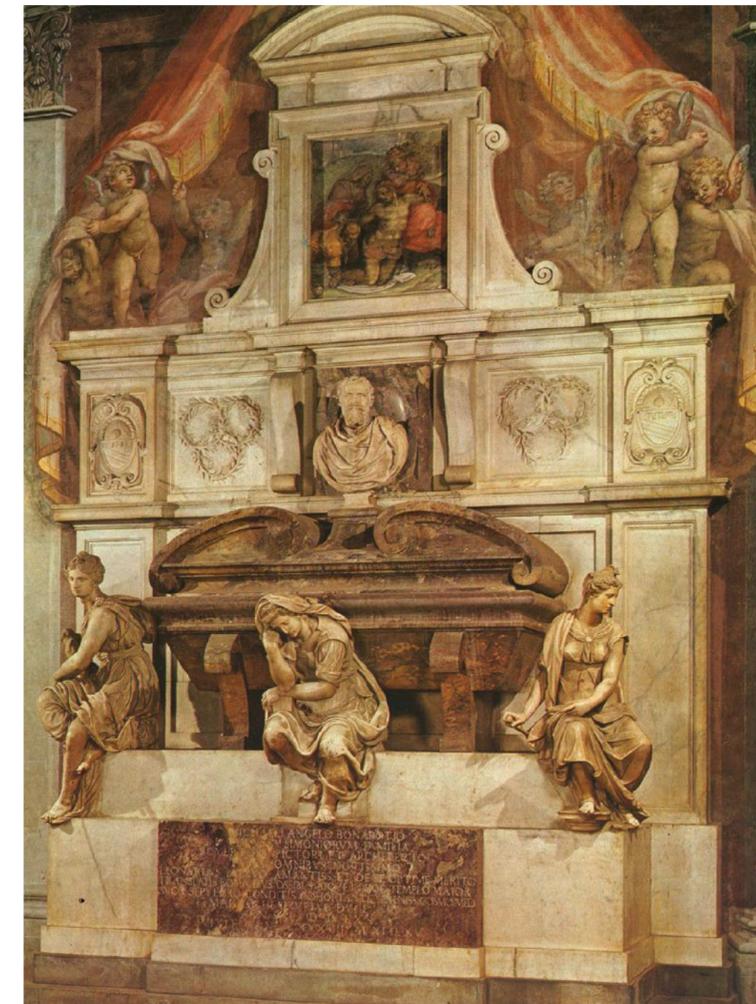
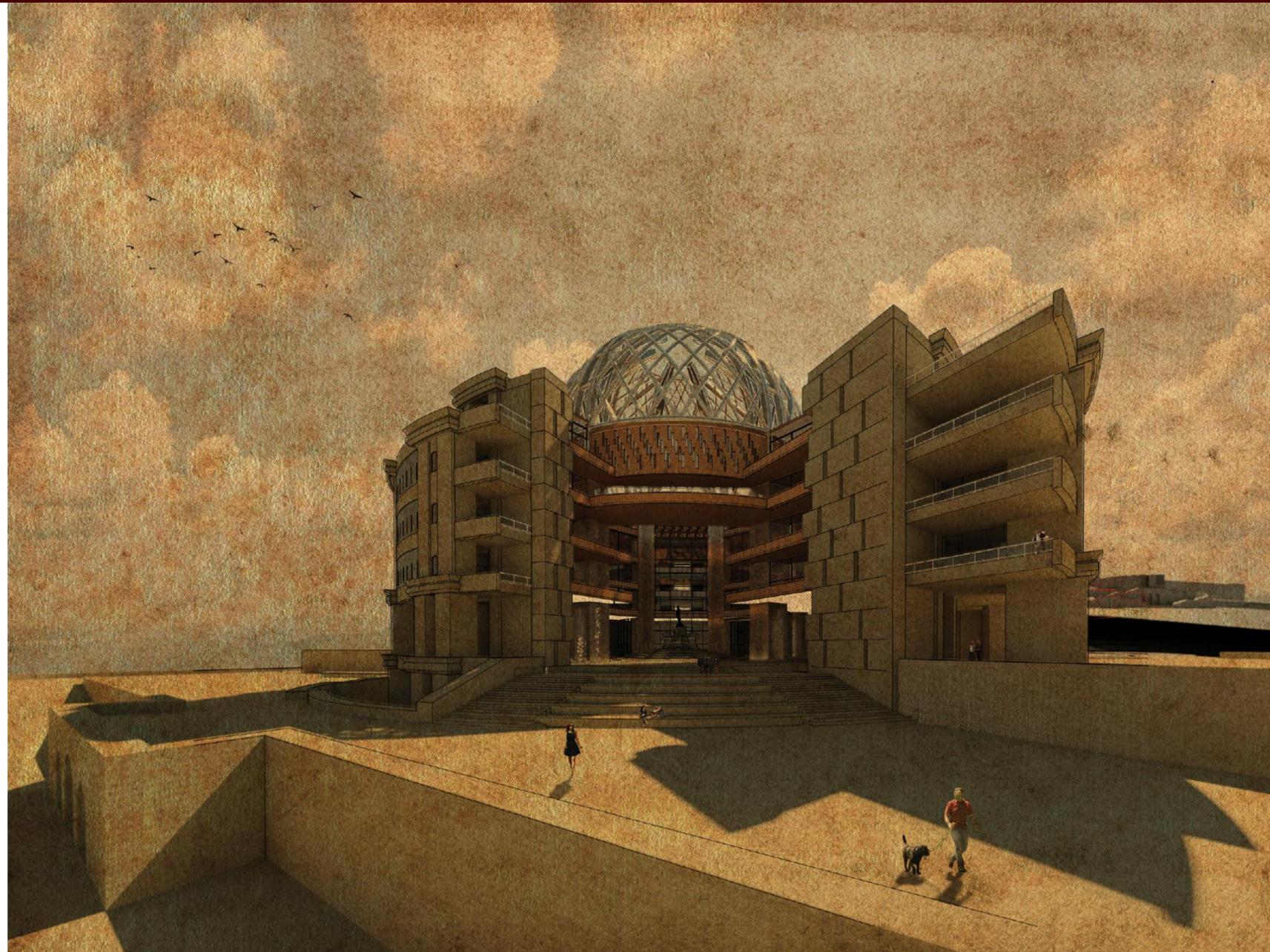
It seems as though many thesis projects begin with a question and are completed in search of an answer. On the contrary, this thesis exploration began with a wide range of complex concepts in pursuit of the correct question. Similar to the earlier referenced conversation with Alejandro Aravena regarding technology being the answer, "it is our responsibility to determine what the question is."

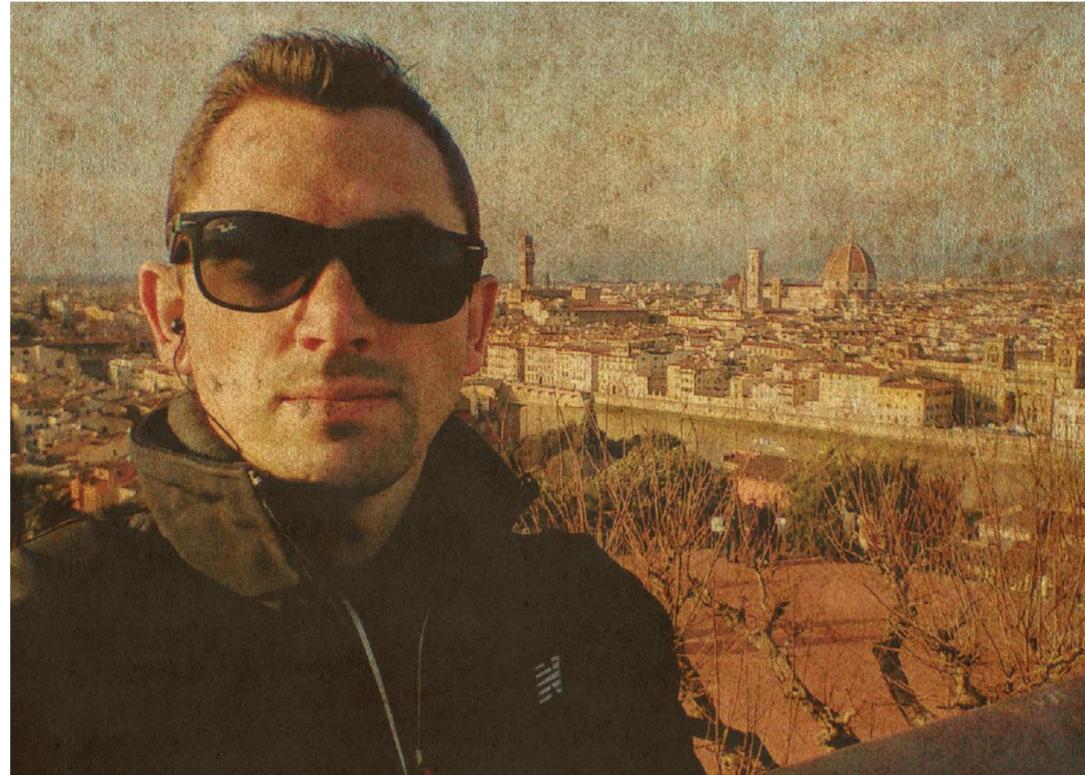
The incredible masterpieces of Michelangelo served as constant lessons in nearly every aspect of the design as well as in refining this thesis question. Looking into not just the finished work, but the mind and process behind it allowed me to capture some of the questions for which Michelangelo must have been pursuing an answer. In deliberating a project to exhibit these range of lessons so vital in the design profession, it was only appropriate that the project be a place for learning. Issac Newton once said, "If I have seen further, it is by standing on the shoulders of giants." Michelangelo was truly a giant on whose shoulders I was able to see further and clearer.

This thesis provided me the opportunity for great exploration, both in destination with my unforgettable trip to Italy and in knowledge with my Renaissance studies. This expedition allowed me to refine a question that I can now spend my life trying to pursue, which is such a poetic parallel to architecture. As my professor, Paul Emmons, discussed with me during this process, "Architecture is the eternal question; Building is a temporary answer". I believe Michelangelo's life was analogous to his non-finito sculptures in that was he always pursuing this eternal question with inconceivable masterpieces of temporary answers. I am incredibly fortunate to have had this look into his life and continue this pursuit towards achieving a sense of harmonious ambition. As Michelangelo is quoted at the age of 87, "Ancora Imparo". Yet still I learn...



3.59 Resurrection of Christ sketch by Michelangelo (above),
3.60 Michelangelo Tomb in Santa Croce by Giorgio Vasari (left),
3.61 Risonanza di Michelangelo rendering (opposite page)





Borromini, Francesco, and Maria Ventura. Perotti. Borromini. Milano: Electa Editrice, 1951. Print.

Campbell, James W. P., and Will Pryce. The library: a world history. Chicago: The U of Chicago Press, 2013. Print.

Co, Francesco Dal, and Tadao Andō. Tadao Ando: complete works. London: Phaidon Press, 1995. Print.

Coughlan, Robert, and Michel-Ange. The world of Michelangelo, 1475-1564. New York: Time, 1966. Print.

Harbison, Robert. The built, the unbuilt, and the unbuildable: in pursuit of architectural meaning. Cambridge, MA: MIT Press, 1991. Print.

Jackson, John Brinckerhoff. The necessity for ruins: and other topics. Amherst: U of Massachusetts Press, 1980. Print.

Kahn, Louis I., and Robert C. Twombly. Louis Kahn: essential texts. New York: W.W. Norton, 2003. Print.

King, Ross. Brunelleschi's dome: how a Renaissance genius reinvented architecture. New York: Walker & Co., 2000. Print.

Kries, Mateo, Jochen Eisenbrand, Stanislaus Von. Moos, Mateo Kries, Jochen Eisenbrand, and Stanislaus Von Moos. Louis Kahn: the power of architecture. Weil am Rhein: Vitra Design Museum, 2013. Print.

Piranesi, Giovanni Battista, and John Wilton-Ely. Giovanni Battista Piranesi: the complete etchings. San Francisco: Alan Wofsy, 1994. Print.

Pollio, Vitruvius, Ingrid D. Rowland, Thomas Noble Howe, and Michael Dewar. Vitruvius: ten books on architecture. New York: Cambridge U Press, 1999. Print.

Schütze, Sebastian, Michelangelo Merisi Da Caravaggio, and Benedikt Taschen. Caravaggio: the complete works. Köln: Taschen, 2009. Print.

Stone, Irving. The agony and the ecstasy: a novel of Michelangelo. Garden City, NY: Doubleday, 1961. Print.

Vasari, Giorgio, and George Bull. The lives of the artists. Harmondsworth, Eng.: Penguin, 1987. Print.

Wallace, William E., and Michelangelo Buonarroti. Life and early works. New York: Garland, 1995. Print.

Wallace, William E., and Michelangelo Buonarroti. Michelangelo: the complete sculpture, painting, architecture. New York?: Hugh Lauter Levin Associates, 1998. Print.

Wallace, William E., and Michelangelo Buonarroti. Michelangelo: the artist, the man, and his times. Cambridge: Cambridge U Press, 2010. Print.

Wallace, William E., and Michelangelo Buonarroti. The treasures of Michelangelo. London: Andre Deutsch, 2010. Print.

Wittkower, Rudolf. Gian Lorenzo Bernini: the sculptor of the Roman baroque. London: Phaidon P, 1966. Print.

Zöllner, Frank, and Johannes Nathan. Leonardo da Vinci, 1452-1519: the complete paintings and drawings. Köln: Taschen, 2003. Print.

Zöllner, Frank, Christof Thoenes, Thomas Pöpper, and Benedikt Taschen. Michelangelo, 1475-1564: complete works. Hong Kong: Taschen, 2007. Print.

References & Dedication

Throughout this rewarding exploration of my thesis, I found several parallels between the type of architecture I wanted to create and the kind of person I aspire to be. Just as how I want my architecture to find a sense of harmony with an ambition purpose, I find that continues to be precisely what I strive for in my life. Any sort of success I have had in beginning to understand this harmonious ambition is only due to the balance of influences of peers, mentors and precedents. Throughout my life, and especially in this thesis journey, there has been a large amount of overlap with precedents becoming as influential as mentors, mentors becoming as familiar as peers and peers becoming as inspiring as precedents.

Peers (including classmates, coworkers, friends and my amazing siblings) constantly influenced the ambitious nature of creating architecture that can mean something more than just fulfilling a functional need. For mentors, I would first like to express my gratitude to my amazing parents that have always stressed a sense of balance and harmony within my life. I think it was inevitable that it would translate into my work in architecture. My incredible aunt, Melanie Hughes, who greatly assisted in my falling in love with Italy. My mentors in the professional world, especially Jeff Ganthner and Erik Velazquez, who help bridge the gap from the conceptual realm and bring them into the physical world. I am also incredibly grateful to the mentors I gained in my graduate studies at Virginia Tech. My committee chair, Markus Breitschmid, worked with me to determine what exactly it was I wanted to pursue and how to take full advantage of this thesis opportunity. Paul Emmons' incredible insight throughout the wide range of creative avenues this thesis led was critical to nearly all of my realizations and discoveries. Susan Piedmont-Palladino was exceptionally influential as well, specifically in guiding my search to find a harmony to my project with its surrounding city context of Florence. Lastly, I would like to thank Jaan Holt and Ezgi Isbilen who both provided incredible perspectives outside the regular conversations with my committee and influenced a range of new ideas, concepts and designs. Lastly, a special thanks to those precedents that may never read this: Architectural masters like Louis Kahn, Tadao Ando and Alejandro Aravena that gave me inspiration through their remarkable designs. The Michelangelo expert, William Wallace, that guided my studies through his lectures and writings about not just Michelangelo's work but his passions, struggles and genius that allowed me to understand Michelangelo more completely. And, of course, the genius Michelangelo that will continue to inspire my work.

Bibliography

- Borromini, Francesco, and Maria Ventura. Perotti. *Borromini*. Milano: Electa Editrice, 1951. Print.
- Campbell, James W. P., and Will Pryce. *The library: a world history*. Chicago: The U of Chicago Press, 2013. Print.
- Co, Francesco Dal, and Tadao Andō. *Tadao Ando: complete works*. London: Phaidon Press, 1995. Print.
- Coughlan, Robert, and Michel-Ange. *The world of Michelangelo, 1475-1564*. New York: Time, 1966. Print.
- Harbison, Robert. *The built, the unbuilt, and the unbuildable: in pursuit of architectural meaning*. Cambridge, MA: MIT Press, 1991. Print.
- Jackson, John Brinckerhoff. *The necessity for ruins: and other topics*. Amherst: U of Massachusetts Press, 1980. Print.
- Kahn, Louis I., and Robert C. Twombly. *Louis Kahn: essential texts*. New York: W.W. Norton, 2003. Print.
- King, Ross. *Brunelleschi's dome: how a Renaissance genius reinvented architecture*. New York: Walker & Co., 2000. Print.
- Kries, Mateo, Jochen Eisenbrand, Stanislaus Von. Moos, Mateo Kries, Jochen Eisenbrand, and Stanislaus Von Moos. *Louis Kahn: the power of architecture*. Weil am Rhein: Vitra Design Museum, 2013. Print.
- Piranesi, Giovanni Battista, and John Wilton-Ely. *Giovanni Battista Piranesi: the complete etchings*. San Francisco: Alan Wofsy, 1994. Print.
- Pollio, Vitruvius, Ingrid D. Rowland, Thomas Noble Howe, and Michael Dewar. *Vitruvius: ten books on architecture*. New York: Cambridge U Press, 1999. Print.
- Schütze, Sebastian, Michelangelo Merisi Da Caravaggio, and Benedikt Taschen. *Caravaggio: the complete works*. Köln: Taschen, 2009. Print.
- Stone, Irving. *The agony and the ecstasy: a novel of Michelangelo*. Garden City, NY: Doubleday, 1961. Print.
- Vasari, Giorgio, and George Bull. *The lives of the artists*. Harmondsworth, Eng.: Penguin, 1987. Print.
- Wallace, William E., and Michelangelo Buonarroti. *Life and early works*. New York: Garland, 1995. Print.
- Wallace, William E., and Michelangelo Buonarroti. *Michelangelo: the complete sculpture, painting, architecture*. New York?: Hugh Lauter Levin Associates, 1998. Print.
- Wallace, William E., and Michelangelo Buonarroti. *Michelangelo: the artist, the man, and his times*. Cambridge: Cambridge U Press, 2010. Print.
- Wallace, William E., and Michelangelo Buonarroti. *The treasures of Michelangelo*. London: Andre Deutsch, 2010. Print.
- Wittkower, Rudolf. *Gian Lorenzo Bernini: the sculptor of the Roman baroque*. London: Phaidon P., 1966. Print.
- Zöllner, Frank, and Johannes Nathan. *Leonardo da Vinci, 1452-1519: the complete paintings and drawings*. Köln: Taschen, 2003. Print.
- Zöllner, Frank, Christof Thoenes, Thomas Pöpper, and Benedikt Taschen. *Michelangelo, 1475-1564: complete works*. Hong Kong: Taschen, 2007. Print.

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- 2.43 *Bernini's David* – Book | Gian Lorenzo Bernini: the sculptor of the Roman baroque by Rudolph Wittkower
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