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Title

COSMIC CURIOSITIES AND EARTHY WONDERS: A SENSUOUS REIMAGINING OF THE DENVER MUSEUM OF NATURE AND SCIENCE

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COSMIC CURIOSITIES AND EARTHY WONDERS: A SENSUOUS REIMAGINING OF
THE DENVER MUSEUM OF NATURE AND SCIENCE

A Thesis
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of the
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ABSTRACT

The Denver Museum of Nature and Science envisions a transformation that acknowledges our connection to nature, aiming to deepen our understanding of this relationship. This transformation stems from the belief that humans are part of nature, not its conquerors. The museum has achieved LEED Platinum certification, highlighting its commitment to sustainable practices and environmental stewardship. However, critics argue it serves more as a testament to human achievements than as a sanctuary for nature, missing the chance to integrate with its surrounding environment. To address this, the proposed transformation emphasizes architectural design in harmony with nature, moving away from mere mechanical efficiency towards a more symbiotic relationship. The vision extends beyond exhibits, aiming to reimagine the museum as a living link connecting people with the marvels of our planet and beyond.

TABLE OF CONTENTS

ABSTRACT	iii
TABLE OF CONTENTS.....	iv
LIST OF FIGURES	v
1. INTRODUCTION	1
1.1. A Wild Reimagining	1
1.2. Nature’s Narrative: The Denver Museum’s Defining Direction.....	3
2. BACKGROUND	3
2.1. Tracing Denver Museum's Past.....	3
2.2. The LEED Disconnect	4
3. . METHODOLOGY	10
3.1. Approach	10
3.2. The Denver Museum in Context	10
3.3. Project Location – City Park, Denver, CO.....	12
3.4. Artefact.....	14
3.4.1. Whispers of the Wild.....	14
3.5. Existing Conditions	16
3.6. Mass Models and Sketches	19
4. . RESULTS AND CONCLUSION.....	21
4.1. Project Objective	21
4.2. Project Design	22
4.3. Conclusions	31
REFERENCES	32

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
Figure 3.3.1 Map of City Park, Denver, CO.....	12
Figure 3.3.2 City Park Aerial View	14
Figure 3.4.1 Artefact – <i>Whispers of the Wild</i>	15
Figure 3.5.1 Existing Main Entrance – North Elevation	18
Figure 3.5.2 Existing Atrium Entrance – East Elevation.....	18
Figure 3.5.3 Existing School Group Entrance – South Elevation.....	18
Figure 3.5.4 Existing Sky Terrace Entrance – West Elevation.....	18
Figure 3.5.5 Existing Floor Plans	18
Figure 3.6.2 Mass and Site Interaction 2.	20
Figure 3.6.3 Assorted Process Sketches	21
Figure 4.2.1 Site Perspective	23
Figure 4.2.2 Elevation - North	23
Figure 4.2.3 Site Perspective Elevation - South	23
Figure 4.2.6 North Volume Perspective	25
Figure 4.2.7 Section 1	26
Figure 4.2.8 Section 2	27
Figure 4.2.9 Section Perspective.....	27
Figure 4.2.10 Section Perspective - South	27
Figure 4.2.12 Floor Plan	28
Figure 4.2.13 Level 2 Volume Perspective.....	29
Figure 4.2.14 Level 3 Volume Perspective.....	29
Figure 4.2.15 South Volume Night Perspective	31

1. INTRODUCTION

1.1. A Wild Reimagining

Isn't the universe a curious place? Sprawling, vast, mysterious... and here we are, an infinitesimal speck on a pale blue marble, endowed with the profound ability to wonder — to look up at this enormous, twinkling void and ask, why? What? How? Our history is not merely a series of events that have happened to us, but rather a rich collection of stories, discoveries, and boundless curiosity, all intricately melded into the essence of our collective consciousness. Consider the cosmos. It's not just a chaotic jumble of matter and energy; it's poetry in perpetual motion, engaging in a ballet so grand, so meticulously choreographed — one that's been ongoing for about 13.8 billion years. The cosmos dances to the tunes of fundamental forces, birthing stars, galaxies, and planets, creating a spectacle so complex and beautiful, one that we're only just beginning to understand.

Now, let's turn the cosmic lens inward. What makes us, well, us? Humans, for eons, have been more than just biological beings; we are storytellers, knowledge-seekers, and pattern-recognizers. Our inclination to perceive, to wonder, to weave narratives out of the night sky, to piece together our origins from fossils and artifacts, speaks to an innate desire — a longing to find our place within this grand cosmic tale. Throughout history, humans have not just been storytellers, but collectors. We've gathered knowledge, artifacts, and experiences, cataloging them for future generations. These collections, be they in the form of books, museums, or digital databases, serve as repositories of human understanding, wisdom, and creativity. These institutions should not only be protected but reflect our relationship with the world around us. Museums also have the potential to be centers of hope and change. They can educate millions about the impact of human activities on the environment, drawing parallels between the past and

our current trajectory. They have the capacity to inspire a new generation of ecologists, conservationists, and ordinary citizens to act. In an age where instant gratification and short-term thinking often prevail, museums remind us of the long arc of time and the consequences of our actions. By bearing witness to both the wonders and warnings of our planet's history, museums play a crucial role in shaping the future, urging us to change the narrative before it's etched in stone.

David Winterton writes “Perhaps in the face of modern desecration of the environment and the ecological peril that has ensued since industrialization, nature must again be recuperated as the radical base for speculation in Western culture – not ‘Nature’ as a mere observable fact, to be later assuaged into some use, but as the fleshy, foliate, earthy, and olfactory extension of ourselves that surrounds and is unconsciously and already inhabiting our bodies and imaginations – nature that can be recuperated as something-thing meaningful in and of itself.” (Pérez-Gómez et al., 1999, p.257) Which is to say that Nature is not a force to be conquered by humanity because we are all collectively a part of Nature. The domineering of our planet is the domineering of ourselves. Rachel McCann adds to this. “When we become aware of ourselves as a ‘thing among things,’ when we open ourselves to the active, reciprocal engagement with them and thus expose ourselves to the solicitations of the word, we become aware of a potent intercorporeality that forms the basis of an ethics of engagement and care.” (McCann, 2007, p.5) It is this becoming aware that leads to my thesis proposal. A wild reimagining of the Denver Museum of Nature and Science.

1.2. Nature's Narrative: The Denver Museum's Defining Direction

The primary objective of this paper is to explore the architectural and philosophical evolution of the Denver Museum of Nature and Science in response to contemporary environmental challenges and shifting societal values towards sustainability. The paper scrutinizes the museum's current design, particularly its LEED certification and sustainability features, and contrasts these with a deeper, more organic relationship with nature that extends beyond mere mechanical performance. By reimagining the museum's architectural framework, the paper aims to demonstrate how buildings, especially those housing knowledge about our natural world, can harmonize with their environment, both symbolically and functionally. This includes integrating biophilic design principles that resonate with the landscapes they inhabit and enhance visitor experiences. The paper also reflects on the broader context of humanity's evolving relationship with nature, from our ancestors' intimate connection to modern society's often synthetic and disconnected existence. Through this lens, the paper emphasizes the importance of creating spaces that foster a profound, experiential engagement with the environment, thereby inspiring and educating visitors about the symbiotic relationship between nature and built environments.

2. BACKGROUND

2.1. Tracing Denver Museum's Past

The story of the Denver Museum of Nature & Science begins with Edwin Carter a naturalist and taxidermist who settled in Breckenridge, Colorado, in 1868. Carter's passion for Colorado's wildlife led him to amass a significant collection, known as the "Carter Museum." This collection laid the foundation for what would become a pivotal institution in Denver. In 1900, inspired by Carter's assemblage, a group of Denver citizens established the Colorado

Museum of Natural History. Initially housed in a modest structure in City Park, this establishment marked the inception of a new era in the appreciation and study of natural history in the region. The early 20th century was a period of remarkable growth for the museum. It rapidly expanded, both in terms of its physical infrastructure and its collections. This era saw the museum transform into a hub for natural history research and education, catering to the scientific curiosity of the Rocky Mountain region. The museum's collections grew exponentially, encompassing various fields such as paleontology, zoology, and anthropology.

Throughout the mid-20th century, the museum underwent several transformations, including changes in its name, finally adopting the title of the Denver Museum of Nature & Science in the 1940s. This period was marked by further expansion and diversification of its exhibits and scientific programs. The museum established itself as a center for educational excellence, renowned for its engaging exhibitions and comprehensive research initiatives. Entering the 21st century, the Denver Museum of Nature & Science embraced technological advancements and interactive exhibits, significantly enhancing the visitor experience. This era is characterized by the museum's commitment to making science accessible and engaging for a diverse audience. Through community outreach and educational programs, the museum has played a pivotal role in bringing science to the public domain, fostering a culture of knowledge and inquiry.

2.2. The LEED Disconnect

One might scrutinize the Denver Museum of Nature and Science through a critical lens, despite its LEED Platinum crown—a symbol of its environmental ambitions. This museum, a shining example of eco-conscious construction, achieved significant energy savings and a plethora of sustainable features. However, it appears to stand as a monument to human

achievement rather than a sanctuary of the natural world it vows to protect. (Rinaldi, 2014) The expansion, while technologically impressive, may have missed an opportunity to integrate the outdoor environment it overlooks, especially considering its connection to the adjacent City Park through Boettcher Plaza. In the Denver Museum of Nature and Science, the stark contrast between its lofty sustainability credentials and the less evident integration with the natural environment hints at an underlying disconnect. The museum proficiently adopts sustainable practices, yet this seems to manifest more in technicality than in a true embrace of the surrounding ecosystem. Its commendable sustainable design elements, underpinned by LEED certification, appear to focus largely on the building's operational efficiencies, overlooking a deeper, more organic relationship with nature — a connection that goes beyond mere mechanical performance to a more profound, experiential engagement with the environment. For an establishment that educates about the natural world, one could contend that it should embody this in every facet, extending its pedagogical reach to its very architecture. The essence of nature, it seems, is more exhibited than experienced within its walls, a poignant reminder that a building can be green without necessarily being "natural."

The Denver Museum of Nature and Science, an emblematic institution standing as a beacon of knowledge and discovery, faces an imperative juncture in its storied history. As we confront unprecedented environmental challenges and a shift in societal values towards sustainability, it is paramount that our landmark institutions reflect these evolving paradigms. One such shift involves a reimagining of the architectural framework of a museum, transitioning from its current construct to one that is deeply entwined with its environment. First and foremost, the fundamental principle of architecture should be its harmonious existence with nature. Buildings, especially those that house invaluable knowledge about our natural world, should not

stand in isolation from the environment but rather blend seamlessly with it. Architecture, at its core, is not merely about erecting structures; it's about crafting spaces that resonate with the landscapes they inhabit, both symbolically and functionally.

In the annals of human history, there exists a whimsical irony: while our earliest ancestors danced in the delicate embrace of Mother Nature, modern humans find themselves courting the concrete jungles of our own creation. "In the significant moments of his life, early man was confronted not by an inanimate, impersonal nature - not by an 'It' - but by a 'Thou'." (Frankfort et al., 1954, p.122) This profound connection, where nature was not merely a backdrop but a living, breathing partner in the dance of existence, has been obscured by the march of progress. From the lush forests where we once foraged to the vast asphalt landscapes where we now commute, the transformation is not only physical but deeply existential. The tapestry of life that once resonated with the rhythms of the natural world has been overlaid with a cacophony of artificial beeps, buzzes, and the humdrum of machinery. Yet, one cannot help but ponder – have we estranged ourselves too far from our roots? For eons, humanity's survival hinged upon an intuitive understanding of the land, the seasons, and the creatures with whom we shared our abode. The whispers of the wind and the tales of the tides were not just poetic musings, but essential signposts for our journey. Today, in our valiant quest for progress and technological marvels, we find ourselves enveloped in a world where the synthetic overshadows the organic, where virtual vistas vie for attention over verdant valleys.

I say this, not to bemoan our advancements, but to highlight a growing yearning—a nostalgia for nature, as it were. We delve into the pressing need to intertwine the tendrils of nature back into our daily existence, not as a retrograde step, but as a forward-looking necessity. After all, in the sage words of philosopher and naturalist Henry David Thoreau, "We need the

tonic of wildness...At the same time that we are earnest to explore and learn all things, we require that all things be mysterious and unexplorable, that land and sea be indefinitely wild, unsurveyed and unfathomed by us because unfathomable. We can never have enough of nature." (Thoreau, 1854, p.205)

Central to this architectural revolution is the tenet of biophilic design, an approach rooted in our intrinsic connection to nature. This design philosophy not only encompasses aesthetics but delves deep into the environmental and psychological benefits of integrating natural elements into man-made spaces. Environmentally, biophilic designs reduce the carbon footprint, aid in energy conservation, and foster ecosystems. From an experiential standpoint, numerous studies have elucidated the positive impacts of natural elements on the human psyche, enhancing cognitive function, reducing stress, and promoting overall well-being. Thus, remodeling the Denver Museum of Nature and Science using biophilic design principles will not only augment its environmental contributions but also significantly enhance visitor experiences.

Imagine entering a museum where nature is not just within the exhibit cases but surrounds you in every corridor, hall, and alcove. The echoing footsteps were replaced by rustling leaves, the stark walls adorned with cascading water features, and the air itself imbued with the vitality of nature. Such an experience would not just educate but also inspire, offering visitors tangible insights into the symbiotic relationship between nature and built environments. In our rapidly urbanizing world, spaces that pay homage to nature while advancing sustainability are not just desired; they are imperative as shown by David Abram. "If we were to consult some hypothetical future human being about the real meaning of the word spirit, he or she might reply as follows: Spirit, as any post-industrial soul will tell you, is simply another word for the air, the wind, or the breath. The atmosphere is the spirit, the subtle awareness of this planet. We all dwell

within the spirit of the Earth, and this spirit circulates within us. Our individual psyches, our separate subjectivities are all internal expressions of the invisible awareness, the air, the psyche of this world. And all our perceiving, the secret work of our eyes, our nostrils, our ears and our skin, is our constant communication and communion with the life of the whole. Just as, in breathing, we contribute to the ongoing life of the atmosphere, so also in seeing, in listening, in real touching and tasting we participate in the evolution of the living textures and colors that surround us, and thus lend our imaginations to the tasting and shaping of the Earth. Of course, the spiders are doing this just as well..." (Abram, 2017, p.92)

Johanna Tudeau, in her exploration of Assyrian architecture, observed, "The ancient Mesopotamian world was in many ways constructed on human relations to nature. Nature was referential. Nature is understood here as anything which is not manmade. There is no Akkadian term corresponding to our category 'nature', probably because it was an overarching force, too essential to be categorized at the time." (Tudeau, 2019, p.144) This insight from ancient Mesopotamia serves as a poignant reminder of a time when the distinction between the natural world and human existence was less pronounced, where nature was an all-encompassing reality, deeply integrated into the fabric of daily life. "The Egyptians took the universe as being of one continuous substance, without any definite line of demarcation between part and part." (Frankfort et al., 1954, p.42) This ancient perspective, juxtaposed with the modern view of the universe as a collection of distinct entities, offers a more holistic understanding. Museums should aim to showcase the interconnectedness of nature, history, and human endeavor, urging us to see the universe not as a chaotic jumble of matter and energy, but as a continuous, interconnected whole.

Adding to this narrative, the concept of fecundity is central to David Winterton's discussion. It represents a mimetic understanding of nature, which is intuited and felt rather than quantified." In his vision, architecture communicates with primordial elements through a sort of "camouflage". "This act blurs the division between human artifice and natural intention and accepts 'wildness' as strange, unknowable, and therefore unconquerable," (Pérez-Gómez et al., 1999, p.278) This approach resonates deeply. Advocating for a design that harmonizes with nature rather than dominating it.

In a world increasingly disconnected from its roots, the sensation of looking at a millennia-old artifact or standing beneath the towering skeleton of a long-extinct creature can be nothing short of transcendent. Imagine, for a moment, the weight of history pressing gently into your palms or the reverberating echo of time's passage filling the very air you breathe. The Denver Museum of Nature and Science, with its vast array of collections, stands as a testament to humanity's quest to understand our place within the intricate web of life and the cosmos. But what happens when the very institution dedicated to preserving our past and understanding our present confronts a rapidly changing future, one teeming with challenges like climate change, dwindling resources, and shifting societal values? Enter the museum's sustainable remodel—a bold venture not only to reaffirm its commitment to education and conservation but also to pioneer a phenomenological approach, one that seeks to forge deeper, more intimate connections between visitors and the relics that narrate our shared history. By intertwining sustainability with phenomenology, the Denver Museum endeavors to create spaces where every individual can viscerally experience and reflect upon the interconnectedness of nature, history, and human endeavor. In this envisioned future, the Denver Museum becomes more than a repository of exhibits; it transforms into a dynamic, living bridge connecting us to the wonders of our world

and beyond. It stands as a beacon of knowledge, a sanctuary for the soul, and a testament to the potential of human creativity to coexist in harmony with nature, echoing the ancient wisdom that saw nature not as a separate entity, but as an integral, inseparable part of human existence. The museum, through its exhibits and philosophy, becomes a place where the line between human artifice and natural intention is not just blurred but beautifully intertwined, where the wildness of nature is embraced as an essential, mysterious, and enriching part of our world.

3. . METHODOLOGY

3.1. Approach

A deep understanding of the institution's values and contextual relevance is paramount. This museum, situated within the expansive City Park of Denver, stands as a beacon of education and inspiration, interlaced with the environmental and cultural fabric of the city. An architectural approach that acknowledges and amplifies these elements can significantly enhance the museum's impact on the public. Firstly, the museum's values—education, scientific exploration, and community engagement—are foundational to any architectural intervention. The design must foster an environment that not only facilitates but also enhances learning experiences through accessible, engaging, and interactive spaces. Architecture here acts as an educational tool in itself, designed to provoke curiosity and discovery through its form and function. For example, incorporating elements that mimic natural processes or using materials that tell a geological story can enrich the visitor's learning experience.

3.2. The Denver Museum in Context

A deep understanding of the institution's values and contextual relevance is paramount. This museum, situated within the expansive City Park of Denver, stands as a beacon of education.

Secondly, the context of City Park provides a unique opportunity to extend the museum's educational mission into the surrounding landscape. The park setting allows for an architecture that dissolves the boundaries between indoor and outdoor learning environments. By creating seamless transitions between the museum's interior spaces and the park, the design can encourage visitors to explore concepts of nature and science in a direct, hands-on manner. This could be achieved through outdoor exhibits, ecological trails, and garden spaces that serve as both recreational and educational landscapes, effectively turning the park into an extension of the museum.

Moreover, the museum's place within the broader urban context of Denver calls for an architectural strategy that considers its role as a civic landmark. The design should address how the museum can visually and functionally interact with the city, inviting public engagement and making scientific education a prominent part of the urban experience. The architecture can facilitate this by creating inviting public spaces that serve as intersections where various sectors of the community can converge, such as open-air forums, amphitheaters, or interactive public art installations.

In conclusion, an architectural approach that is deeply informed by the Denver Museum of Nature and Science's values, its integral place within City Park, and its role in the larger community, is essential for creating spaces that educate, inspire, and engage the public. Such a design not only enhances the museum's ability to fulfill its mission but also strengthens its connection with the community and the natural world, ensuring its relevance and impact for generations to come.

3.3. Project Location – City Park, Denver, CO

City Park in Denver, Colorado, serves as a prominent urban park, sprawling across 330 acres and offering a blend of natural beauty and cultural attractions. The park, established in the late 19th century, is designed to provide recreational spaces amid large green expanses, water bodies, and mature trees. It is home to the Denver Zoo and the Denver Museum of Nature & Science, both of which draw considerable crowds and contribute to the park's status as a cultural hub.

Despite these attractions, there is a notable underutilization of the broader park areas. City Park's vast spaces offer potential for a variety of activities and events, yet they often remain less frequented outside the immediate vicinities of its main attractions. This underutilization could be attributed to a number of factors, such as possible lack of awareness about the park's full range of amenities, insufficient programming that spans the entire park, or perhaps issues related to accessibility and connectivity within the park itself. Enhancing wayfinding, increasing the diversity of available activities, and improving overall park infrastructure could potentially draw more visitors not only to its main attractions but to the park, fostering a more vibrant community space.



Figure 3.3.1 Map of City Park, Denver, CO
(Source: denvergov.org, 2016)

Imagining a new chapter for City Park, one could envision the addition of outdoor gardens that double as living museum exhibits, weaving together threads of education, conservation, and sheer beauty to create a richer, more engaging landscape. These gardens could emerge as educational sanctuaries where each pathway and plant tells a story. Imagine walking through a garden dedicated to Colorado's native flora, learning about each species' role within the local ecosystem, or meandering through a sensory garden, hands brushing against plants that awaken the senses with their unique textures and aromas. Each garden could serve as an open-air classroom, providing visitors with a hands-on learning experience that changes with the seasons.

Seamlessly integrating these gardens with the offerings of the Denver Museum of Nature & Science and the Denver Zoo could further enrich the visitor experience. Botanical displays might mirror the habitats of animals housed in the zoo, offering a holistic view of different ecosystems, while others could bring to life the geological and ecological concepts showcased within the museum walls. Moreover, these gardens could become vital grounds for conservation and research, nurturing endangered plant species and serving as research sites for botanists and ecologists. Partnerships with academic institutions could flourish here, turning the park into a vibrant center for scientific study and discovery. Art and culture would also find a home among the greenery. Sculptures and installations, themed around nature and sustainability, could dot the landscape, providing a visual feast that complements the natural backdrop. Temporary exhibits could reflect Denver's rich cultural tapestry, deepening visitors' connections to the area's history and heritage.

Envisioning City Park as a venue bustling with events—plant sales, garden shows, educational workshops, and cultural festivals—illuminates its potential as a community hub. Such activities would not only draw regular foot traffic but also enhance the park's role as a

dynamic space for community engagement and environmental stewardship. By reimagining City Park with these multifunctional garden exhibits, Denver could forge a space where nature and culture converge, crafting a vibrant, educational, and enjoyable environment that beckons visitors to return time and again.



Figure 3.3.2 City Park Aerial View
(Source: Google Earth Pro, 2020)

3.4. Artefact

3.4.1. Whispers of the Wild

The creation of an artefact can play a pivotal role in both conceptual development and communication of the project's vision. In creating a painting, I was able to delve into abstract concepts and emotions that traditional architectural drawings and models couldn't fully express. This medium allowed me to experiment with color, form, texture, and atmosphere, directly influencing the mood and aesthetic of my architectural design. Specifically, by crafting a painting that depicted an ethereal, light-filled space, I found inspiration for integrating natural

light into the museum's design. This approach significantly enhanced the visitor's experience and interaction with the exhibits, aligning seamlessly with the atmospheric goals of my project.

Integrating the abstract concepts of "Whispers of the Wind" into the physical space of the museum can enhance the visitor's experience by making it more immersive. The themes of the painting can guide the creation of exhibit spaces that feel alive and interactive—where science is not just observed but felt and experienced in a personal and impactful way. This approach can transform the museum from a place of passive learning to an active participant in the dialogue between humanity and nature.

In conclusion, "Whispers of the Wind" is not just a painting but a conceptual artefact that embodies the spirit of the museum's educational goals. Its incorporation into the architectural thesis for the Denver Museum of Nature and Science remodel provides a foundation for a design that is as thoughtful and profound as the subjects the museum seeks to explore. This approach ensures that the remodel is not only a renovation of space but also a reinvigoration of the museum's mission and identity.

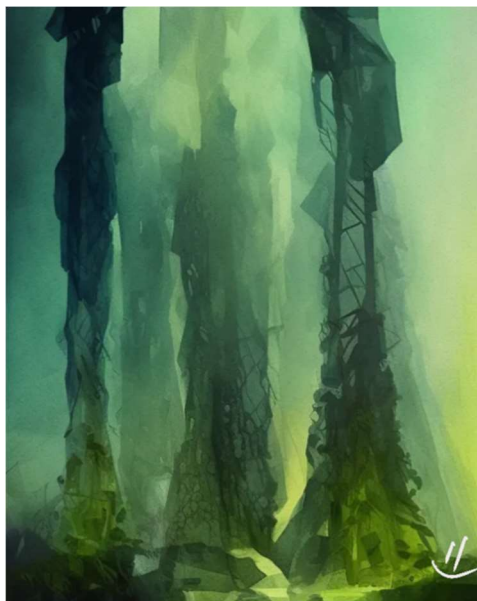


Figure 3.4.1 Artefact – *Whispers of the Wild*

*In the silence of the forest, where whispers weave,
Words wander, wild and free, in the tapestry we perceive.
Each leaf, a letter in nature's grand script,
In the symphony of sounds, where senses are dipped.*

*Here, in the hush of the ancient wood,
Language lies in the lines of the misunderstood.
The chirp of a bird, a dialect divine,
In the rustle of leaves, a poetic line.*

*The brook babbles in a rhythmic flow,
Tales untold, in its ceaseless tow.
Mountains murmur in echoes old,
In their stoic silence, stories untold.*

*In the dance of the deer, a vernacular vast,
In the roar of the wind, a language cast.
Nature's nuances, in every hue,
A lexicon of life, ever fresh, ever new.*

*So, listen closely, to the earth's soft sigh,
In every breath, a word, a world, a sky.
For in the whispering woods, and wandering streams,
Lies the language of our most ancient dreams.*

3.5. Existing Conditions

The museum's origins date back to 1900 when it was founded as the Colorado Museum of Natural History. Initially housed in a modest stone building in City Park, the museum was primarily driven by community efforts and the passionate endeavors of local naturalists and philanthropists. As the museum's collections and visitor numbers grew, so did the need for more space. A significant expansion occurred in 1940, when the museum added a new wing to

accommodate its growing exhibits. This period marked the beginning of a transformative era for the museum, broadening its appeal and educational reach.

The 1960s and 1970s brought modernization and further expansion. Notable was the addition of the Phipps Auditorium in 1940, a venue for educational films and lectures, enhancing the museum's role as a community hub. In the 1970s, additional exhibit space was added, and existing facilities were upgraded to better preserve and display the museum's extensive collections. More recently, in 2014, the museum completed a notable expansion with the addition of the Morgridge Family Exploration Center. This addition included new interactive science studios and a temporary exhibit space, significantly enhancing the museum's capacity to host international exhibits and provide hands-on science education.

As the Denver Museum of Nature & Science looks to the future, a key focus is on preserving the institution's historic spirit while simultaneously enhancing its functionality and strengthening its connection with the natural environment of City Park. This delicate balance aims to maintain the museum's esteemed legacy as a center for learning and discovery while adapting to contemporary needs and environmental considerations.



Figure 3.5.1 Existing Main Entrance – North Elevation



Figure 3.5.2 Existing Atrium Entrance – East Elevation

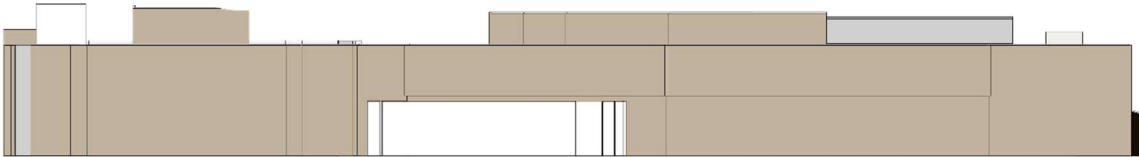


Figure 3.5.3 Existing School Group Entrance – South Elevation



Figure 3.5.4 Existing Sky Terrace Entrance – West Elevation



Figure 3.5.5 Existing Floor Plans
(Source: DMNS.org, 2024)

3.6. Mass Models and Sketches

As part of the design process for the reimagined Denver Museum of Nature & Science, I employed mass modeling as a foundational tool to explore and refine the spatial dynamics of the museum. This method allowed me to experiment with various configurations of spaces, atmospheres, and circulation paths, which are crucial in shaping the experiences of museum visitors. The mass models were crafted with a focus on manipulating volume and form to optimize the use of space within the museum's expansive setting. By adjusting the scale and connection of different segments, I aimed to create a sequence of areas that flow logically and intuitively from one to another. This approach not only enhances the functionality of the museum but also enriches the narrative journey through different exhibits.

Atmosphere played a pivotal role in the design iterations. Each model variation tested different ways to harness natural light, shadow play, and views to the surrounding City Park, ensuring that each indoor space could evoke a sense of place and wonder. The goal was to make atmospheric conditions a core component of the exhibit experience, using architectural elements to evoke emotions and reflections pertinent to the displayed themes. Circulation within the museum was another critical focus of the mass modeling process. I carefully considered the movement of visitors, aiming for a seamless flow that encourages exploration without causing congestion. The models helped visualize major and minor pathways, the placement of key exhibits, and areas where visitors might naturally pause, gather, or transition between indoor and outdoor spaces. This planning ensures that the circulation supports an engaging, accessible, and coherent visitor journey throughout the museum.

Through these mass models, I was able to experiment with and visualize the complex interplay of space, atmosphere, and movement. This hands-on process has been instrumental in

pushing the design boundaries, ensuring that the final architectural solution is both innovative and deeply responsive to the needs of the museum and its visitors.

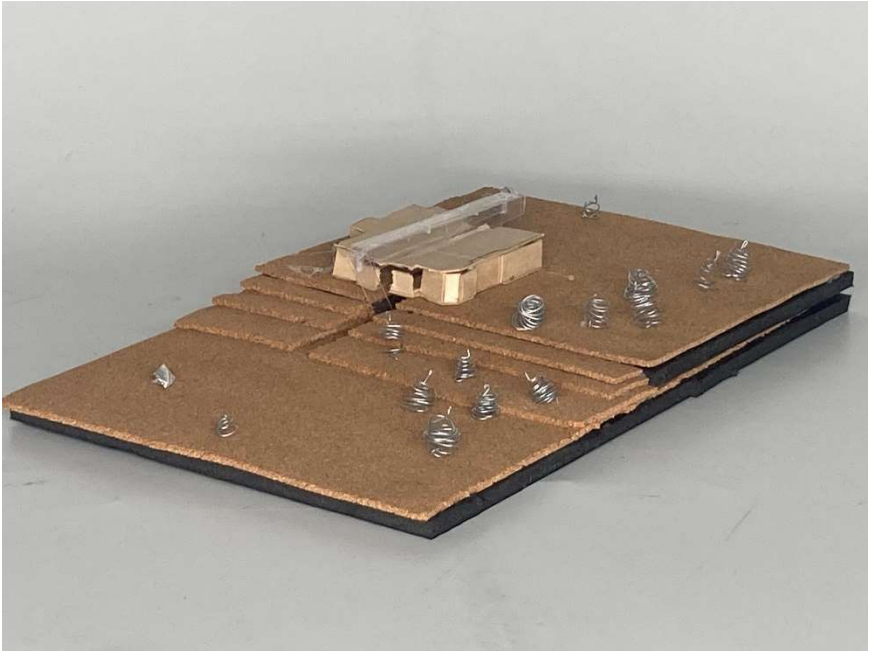


Figure 3.6.1 Mass and Site Interaction 1

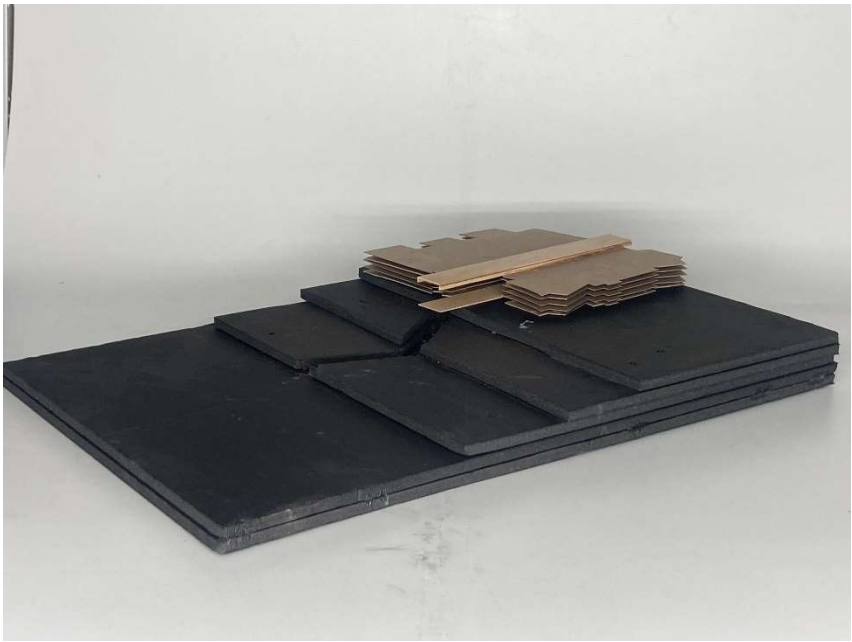


Figure 3.6.2 Mass and Site Interaction 2.

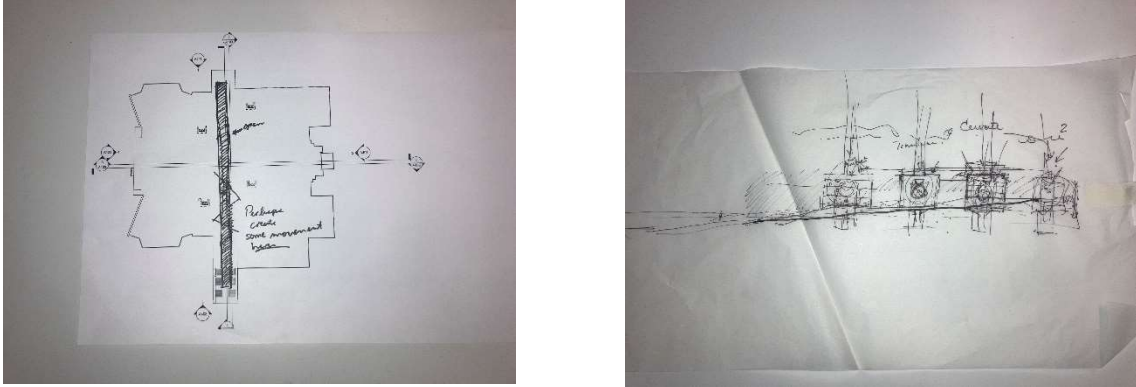


Figure 3.6.3 Assorted Process Sketches

4. . RESULTS AND CONCLUSION

4.1. Project Objective

The objective of this project was to reimagine the Denver Museum of Nature and Science's architectural framework to achieve a harmonious integration with its natural surroundings. The project focused on innovative design strategies that emphasized sustainability and enhanced visitor engagement with the natural world. By redefining the spatial configurations and construction methods, the thesis aimed to transform the museum into a living exhibit that reflected the symbiotic relationship between nature, history, and human progress. The ultimate goal was to create a remodel that not only underscored the museum's dedication to education and conservation but also enriched the visitors' experience, allowing them to forge a personal and reflective connection with the exhibits that chronicled our collective heritage.

This thesis explored architectural solutions that were environmentally responsive and contextually appropriate, ensuring that the museum served as a model for sustainable design in cultural institutions. The project sought to establish a direct, experiential link between the museum's indoor spaces and its natural setting. By doing so, this has enhanced the museum's role

in educating the public about the importance of environmental stewardship and historical preservation.

4.2. Project Design

In the heart of Denver, Colorado, where the urban fabric gently yields to the expansive embrace of nature, lies City Park, a verdant oasis that has long served as a sanctuary for both the city's inhabitants and its visitors. Central to this lush landscape is the Denver Museum of Nature and Science, a bastion of learning and wonder, poised on the precipice of transformation. As we embark on the journey of reimagining this iconic institution, we are drawn into a narrative that weaves the past with the future, merging tradition with innovation. The remodel is not merely a renewal of structures; it is a rekindling of the spirit that the museum embodies—a gateway to the universe, nestled within the park.

Outdoor spaces of the museum blur into the park, with installations that make science accessible and interactive. Sculptural elements that mimic natural phenomena—geological formations, water cycles, and celestial events—encourage playful exploration and learning. These features serve as bridges, drawing more visitors from the park into the museum, and vice versa, in a symbiotic flow of curiosity and discovery. This remodel of the Denver Museum of Nature and Science is more than a construction project; it is a re-envisioning of a space where the city meets the wild, where science meets imagination, and where the past and the future are intertwined in the eternal dance of knowledge and wonder. City Park, with its sweeping vistas and tranquil paths, remains the perfect custodian for such a portal, inviting all who wander into its green embrace to look, learn, and leap into the unknown.

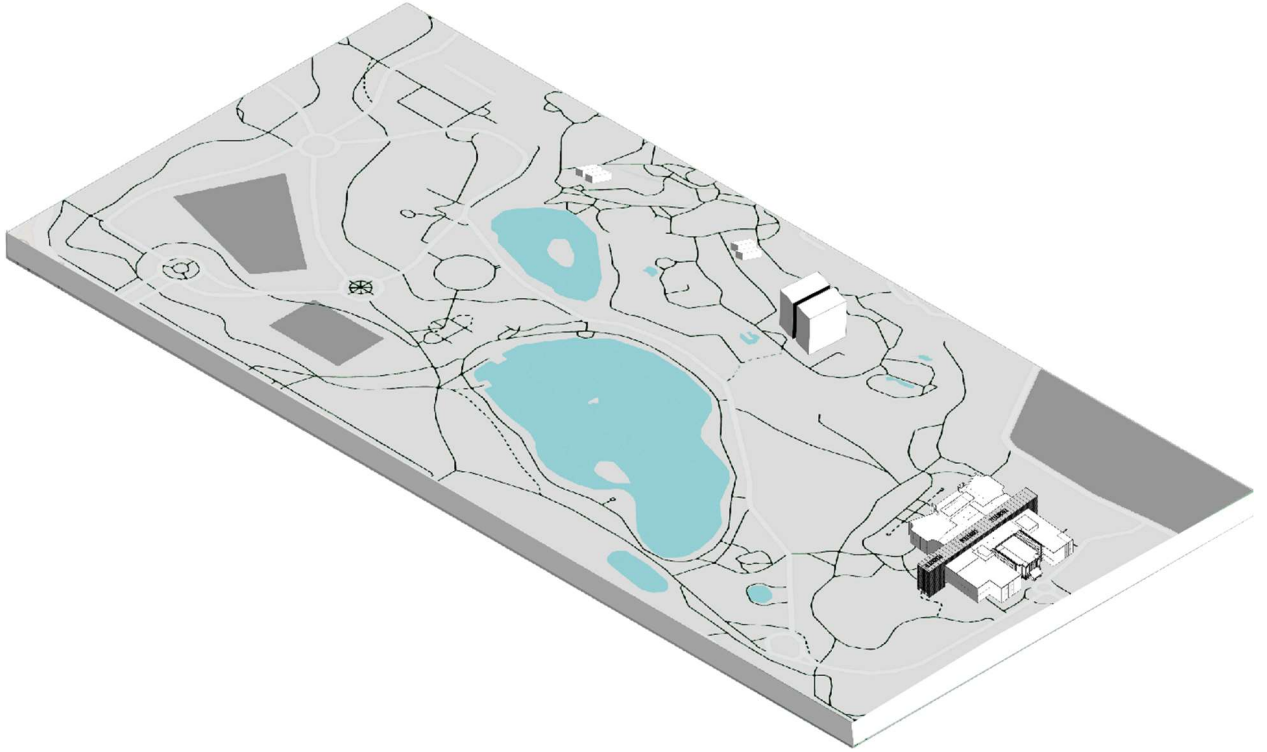


Figure 4.2.1 Site Perspective

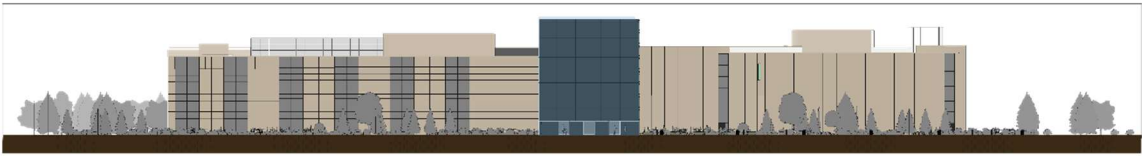


Figure 4.2.2 Elevation - North

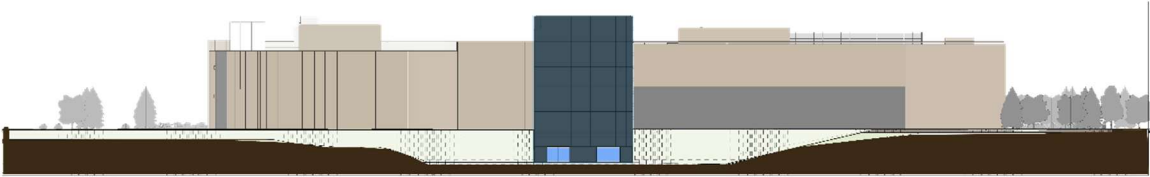


Figure 4.2.3 Site Perspective Elevation - South



Figure 4.2.4 Elevation - West



Figure 4.2.5 Elevation - East

Once a sprawling expanse of concrete and parked cars, the site has been ambitiously reimaged into an innovative outdoor exhibit showcase and public park, merging the marvels of natural science with the serenity of open spaces. The redesigned space is a vibrant tapestry of interactive and educational experiences, seamlessly integrated into the natural landscape. The main focal point is a striking, crystalline volume that creates a bridge from past, present and future, emanating from the park's heart. This volume, encased in a translucent, patterned facade, serves as a beacon of knowledge, housing temporary exhibits that spill out into the park, inviting exploration and discovery. Where asphalt once dominated, lush greenery now thrives alongside winding pathways that invite visitors to meander through diverse ecosystems represented within the park. Each turn reveals a carefully curated exhibit: from a serene butterfly garden that allows for up-close interactions with fluttering beauties to a robust sculpture trail featuring larger-than-life replicas of prehistoric fauna, animating the epochs with educational plaques that narrate Earth's vibrant past.

The project is not only a celebration of the natural world but also a profound commitment to sustainability. Advanced, eco-friendly materials and technologies are integrated throughout

the park, minimizing environmental impact while maximizing educational yield. Solar panels blend with the landscape, and rainwater is harvested and reused to sustain the park's flora. This transformation from a parking lot to a pulsating educational landscape represents a bold redefinition of how urban spaces can serve as conduits for cultural and scientific enlightenment. It stands as a testament to Denver's dedication to innovation and sustainability, providing a space where nature and science harmoniously intersect, offering every visitor, young or old, a chance to explore, learn, and be inspired by the wonders of our world.



Figure 4.2.6 North Volume Perspective

The museum's architectural centerpiece is a ramp that weaves its way through the three glass volumes, acting as a literal and metaphorical bridge through past, present, and future. This winding pathway is designed not only for physical traversal but as a journey through the evolving story of our universe. The journey begins at the ground level, where the ramp gently lifts visitors from the earthy roots of the ecological volume. As they ascend, they are gradually

introduced to the complex interactions within Earth's ecosystems depicted in the first volume. This initial ascent symbolizes a climb through time, from the ancient cycles that have shaped our biological past to the modern-day challenges of environmental stewardship. The ramp allows visitors to observe the exhibits from varying perspectives, enhancing their understanding of how tightly interwoven our lives are with the natural world.

As the path continues, guests journey upwards into the second volume dedicated to the atmosphere. This segment of the ramp offers expansive views that symbolize the ascent through the atmospheric layers. Surrounded by interactive installations on weather dynamics and climate change, visitors experience a physical and intellectual elevation. Here, the ramp serves as a bridge between the tangible reality of our planet's surface and the elusive, dynamic air that envelops it, highlighting the crucial role of the atmosphere in sustaining life. The ramp's final ascent leads into the awe-inspiring third volume, dedicated to the cosmos. This section reaches the highest point of the journey, offering a panoramic view of space-themed exhibits below. As visitors climb closer to the representations of stars and planets, the ramp symbolizes a journey not only through space but through potential futures. It invites contemplation of what lies beyond our current scientific understanding and how the future of humanity might unfold among the stars.



Figure 4.2.7 Section 1

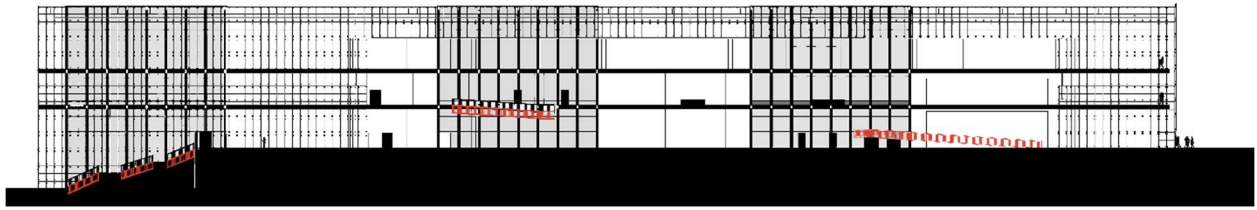


Figure 4.2.8 Section 2



Figure 4.2.9 Section Perspective

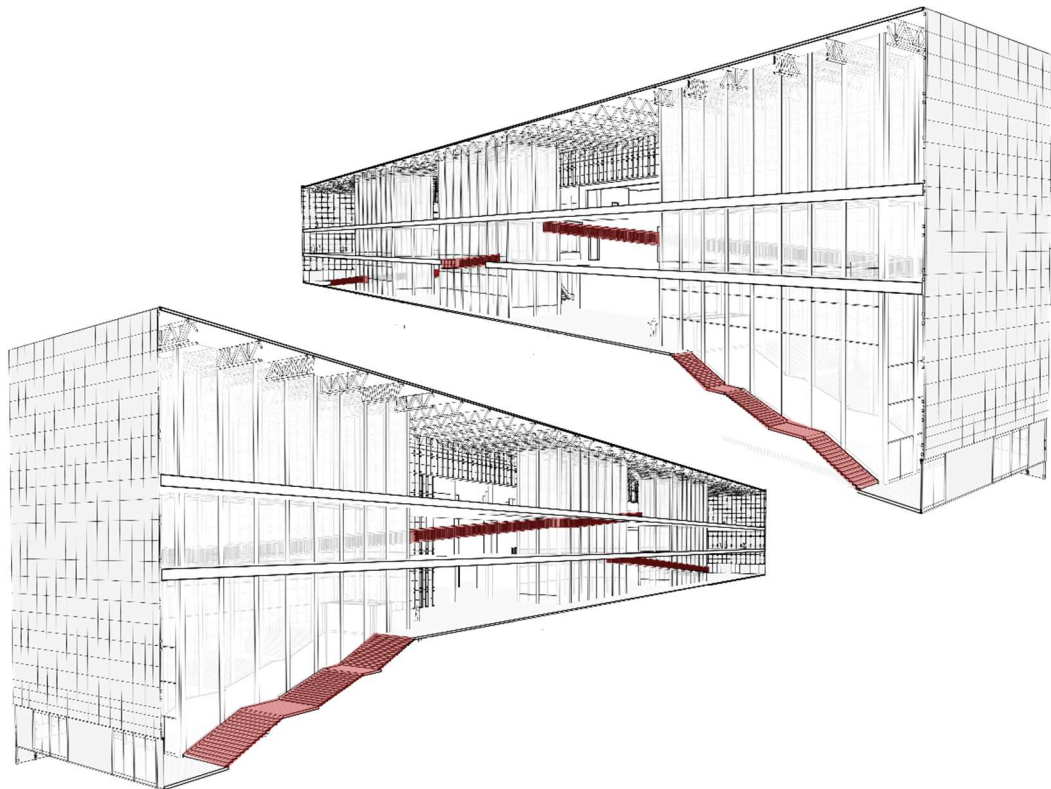


Figure 4.2.10 Section Perspective - South

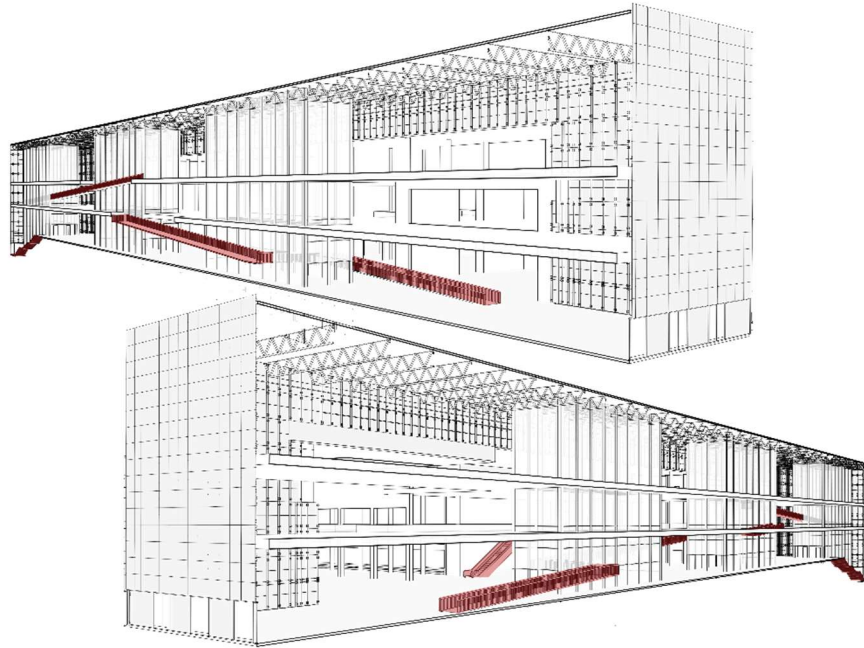


Figure 4.2.11 Section Perspective - North

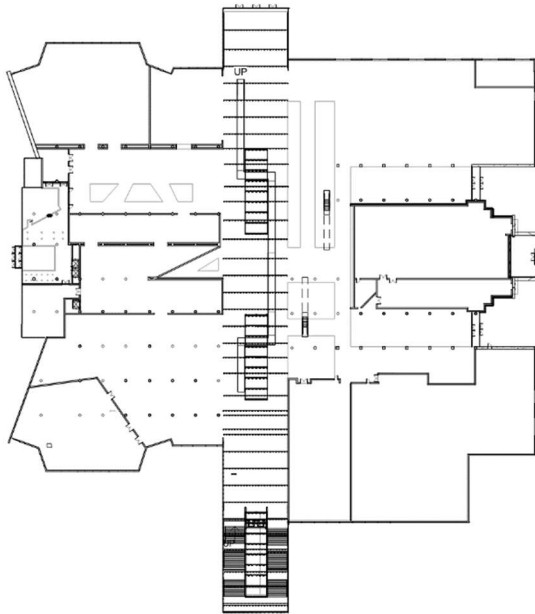


Figure 4.2.12 Floor Plan



Figure 4.2.13 Level 2 Volume Perspective



Figure 4.2.14 Level 3 Volume Perspective

Approaching from the south, the Denver Museum of Nature and Science reveals itself not just as a building, but as a living canvas painted with the hues of dusk, where the boundaries between day and night blur under the watchful gaze of the cosmos. As the sunset fades into twilight, the museum's southern facade emerges as a beacon of shimmering light, its translucent

exterior reflecting the subtle dance of twilight and revealing silhouettes of the treasures held within. The journey begins as the soft glow of the building contrasts sharply against the darkening sky, sprinkled with stars that echo the sparkle of distant galaxies. The grandeur of the museum is magnified by the simplicity of its surroundings; a serene landscape of scattered trees whose shadows stretch long and thin in the moonlight, creating a tranquil prelude to the wonders inside.

The structure itself plays with light as a medium of its own. The external metal latticework, intricate and deliberate, casts geometric patterns on the ground, akin to star charts mapping the sky above. This metallic mesh not only serves as an aesthetic feature but also modulates the light, creating a dynamic interplay between the museum's internal illumination and the external natural light. This approach from the south is a journey not just toward a building, but an expedition into curiosity and wonder, perfectly encapsulating the museum's mission to serve as a gateway to the exploration of the natural world, through the seamless fusion of environment, architecture, and light. The museum, at this twilight hour, is not merely viewed but experienced, engaging all senses and preparing visitors for the enlightening discoveries that await inside.



Figure 4.2.15 South Volume Night Perspective

4.3. Conclusions

This structure is a sanctuary where time collapses, where the fossils of ancient beasts and the latest technological wonders stand side by side, challenging us to see the world through a lens of wonder and wisdom. It is here, in the confluence of exhibit pathways and interactive spaces, that visitors experience the narrative of our planet and humanity's place within it, continually rewritten yet eternally linked to its origins. As this thesis concludes, the new addition at the Denver Museum of Nature and Science emerges as a beacon of knowledge and inspiration. It is a bold declaration that our quest for understanding is boundless, that the bridge between what was, what is, and what could be, is built not just of steel and glass, but of dreams, determination, and the ceaseless pursuit of truth. Here, in this architectural marvel, we find not just a building, but a journey—a journey that invites us all to step forward, informed by the past, engaged in the present, and inspired by the future.

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