The Rediscovery of the Sixth Façade Through Gravitational Explorations.

Master Thesis Explanatory Document

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Abstract.

The main purpose of this project is to give relevance to an often-neglected element in architecture: the Sixth Façade. This is done by an exploration of the role of gravitation in architecture. The sixth façade is the underside of a building, only appreciated when the building cantilevers or “floats”, above the ground. So, the question is: How can we show people the sixth façade in a way that grabs their attention and creates a lasting image in their minds?

Architectural explorations that appear to defy gravity, as we normally perceive it, are essential to the development of this project. This project defies the established idea of the relationship between function, building and site by re-defining how the building interacts with the land it “stands on”. If a building does not stand on the ground, it appears to defy the established gravitas/levitas conditions in conventional architecture. The resulting visual paradox leads to tension between an expected image of a building and the unexpected “floating” building.

“Buildings are furthermore related to their environment by resting on the ground and rising towards the sky”1. The idea of a “floating” building challenges the traditional relationship of the building to its immediate environment; the building relates to its surroundings differently when it “hovers” above its surroundings. By removing the building from its resting place on the ground, the way we normally perceive buildings change. Instead of having buildings that “rise towards the sky” we end up having something different and unexpected, in this case, buildings that rise towards the ground.

The gravitational explorations will help achieve certain unexpected experiences, particularly making the inhabitant aware of gravity, as we in fact tend to forget it. Our attention is normally driven away from the things that we know well by those

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things that are new to us. The *unexpected* sensorial experiences are those experiences given to us by our five senses that are either new, or rare within our memory.

This project defies gravity through the rediscovery of the sixth façade by incorporating it in an unorthodox building program: A Circus School under a motorway viaduct. “I enter a building, see a room, and – in the fraction of a second – have this feeling about it. We perceive atmosphere through our emotional sensibility – a form of perception that works incredibly quickly, and which we humans evidently need to help us survive…- just two seconds and we’re there!”2. The creation of valuable moments in the inhabitant’s mind through unexpected sensorial experiences is perhaps the single most important challenge of this project.

The single most important special moment sought in this project is when the inhabitant or visitor experiences the sixth façade for the first time, creating a valuable memory that would later make him or her look for it in the future. The project is successful whenever the inhabitant or visitor notices and recognizes the existence of a sixth façade.

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Preface.

This project made me grow in so many levels as an architect and as a person. I understood that form is hardly ever created, but rather discovered. It could lie deep within our minds, or within things. I believe that architects only borrow inspiration from what is given to us in our contexts, both physical and psychological.

What began as a mere thesis proposal that excited me formally and technically, proved to be a lot more than that. It was a good exercise to discover mental processes for formal and sensorial awareness that were there, but I was not aware of them. Those mental processes helped me rediscover architectural depths within different layers of my psyche that should serve as inspiration for future projects.

While exploring different ways of grabbing the attention of the inhabitant in the project, I unconsciously ended up diving into the realm of psychology of perception and phenomenology.

During the design process, while representing different volumes in the building with different colours, became the inspiration for the colouring the project. Using vivid colours to differentiate potential programmatic schemes was directly related to the use of colour within my proposed program and I was somehow missing it. The incorporation of colour at this particular time of the design process came unexpectedly. I was exploring the proportions and shapes of the potential building.
and, during the representation process, colour manifested itself as a protagonist in the process. What did I learn about it? I learned that the design process and research methodology is strongly influenced by sensorial experience, which is in many cases unconscious. After internalizing that event, I came up with a conclusion: Sometimes we are not aware of the formal decisions we make; We are so focused on certain things in the process that we ignore many other valuable elements, even when they are right in front of us. The sensorial side of the brain, in many cases, decides without asking the rational side. Why was I not aware of the clear connection between “representing volumes with different colours” when the program and idea of the project was to “make it different in the mind of the spectator and inhabitant”? I decided then to listen more to my sensorial and not so logical side because, in creative matters, it usually knows best. I only needed to be aware of such inspirations to later discover and understand, also within my sensorial experience, where they came from. The mental process explained above is called transition from implicit to explicit cognitive functions. “…the implicit, unconscious cognitive functions (those that occur relatively independent of awareness and conscious control), and the explicit, conscious functions (those that take place within the spotlight of awareness and are subject to conscious control and modulation) become crystalized when the two systems are viewed as having evolved at very different times and because of very different evolutionary pressures.”

In this case, the evolutionary pressures were the usage of colour while representing volumes, and the program itself. This mental process was incorporated into the project as its main objective: awareness of an architectural element, the Sixth Façade.

None of what I have achieved with this project could have been done without the help of my sister, Ana Paula. Her personal support, along with her background as philosopher and businesswoman helped me take the right decisions throughout this yearlong project. I also want to thank my two tutors, Krystina and Dushko. Their experience in their respective fields and their patience with me helped me structure my thoughts so they can be understood by anyone. I also want to thank my parents and family. All I am now is because of them. They forged the perceptive, sensitive side of me that would eventually lead me into this exciting journey into architecture.

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Introduction.

Background.

My interest in gravity, or the defying of it, started earlier on in my life. I always wondered how clouds could be suspended in the air, especially when they appeared so massive and heavy at times. These clouds never looked the same. Sometimes they caught the reflection of the sun, sometimes they would be denser and darker, sometimes they even made noises. Those changes were sometimes capable of bringing everyone's attention. Then, I started to see certain similarities in different things and objects. Trees had similar proportions to clouds. They were somehow suspended by a single element. When focusing on the foliage, one would forget about the tree trunk, creating this thought of "coloured cloud". I also noticed that some trees "performed" spectacles throughout seasons. Some of them, in Spring, would be covered in flowers, and some others would turn orange in Fall; some others would loose all their foliage in Winter. Interestingly enough, when seasons changed, and trees changed foliage colour or density, people would notice them and, as soon as they got used to that 'look', they would forget about them; then another season kicked in, and trees would be noticed again after their performance (Fig 2).

Both clouds and trees in my mind became a kind of
“suspended billboards” in which nature was performing its seasonal act. These suspended billboards are appreciated, most of the times, from underneath. So we could say that if they were buildings we would be looking at their sixth façades.

Another shared quality of trees and clouds was their permanence. Clouds were always moving, and the foliage of the trees as well. The explanation of how the permanence of clouds and trees was incorporated in the project will be explained later.

So, how was I going to transfer these suspended performative qualities of clouds and trees into architecture and its sixth façade? I would simply explore and experiment with form and see what architectural elements could give me similar, or even identical feelings.

Traditionally, when thinking of a building, we think of it as a mass or object lying on the ground. However, there have been examples of how architects throughout the years have defied gravity with visual tricks and structural innovation. Some of them bring your attention to certain elements in the building to make you feel like the building “floats”. Just like magicians (Fig 3), the use of colour, reflections, and proportions become instruments for deception. The way the mind works is quite simple: experience tells us what to expect, but when our attention shifts towards unexpected elements or objects, the mind tends to ignore and even omit those elements that appear to be ordinary.

**Aim and Objective.**

The main objective of the project is to bring awareness of an existing sixth façade through the exploration of formal gravitational defiance. As mentioned before, permanence in certain objects and things can make them go unnoticed by us. Our minds only focus on new or unexpected things or situations, relegating those, which we consider normal, and those, which we expect to be always there. So, by defying gravity through formal and psychological

![Fig 2. Tree performing (left)](image1)
![Fig 3. Magician levitating girl. (right)](image2)
strategies this project is capable of bringing the attention of the inhabitant to the building making them aware of the existing, but often neglected and forgotten, sixth façade.

Methodology.

The research methodology followed is somewhat experimental and did not follow a linear path. Such experimental design processes behind the project were research For architecture, By architecture and Into architecture. For architecture, meaning that previous research led to certain forms and parameters. Technical specifications, colour psychology, efficient proportions, and structural standards had to be studied beforehand, helping bring the concept to feasible grounds. By architecture, by testing and experimentation with geometry and forms, using them as direct subjects and objects of the design itself. This later led to the establishment of desired sensorial experiences allowing unexpected sensorial personal outcomes. And Into architecture by testing, experimenting and documenting the mental processes behind certain design decisions, internalizing them into an intellectual process to later translate them into architecture.

The research methods in this project consisted mainly of the experimentation and exploration of shapes and proportions, focusing in a formal agenda, documenting psychological and

Fig 5. Methodology diagram. Shows priority in form and the feedback loop.
sensorial outcomes.

This methodology also takes into consideration structural, functional and sustainable standards and guidelines. However, since the main purpose of the project is to give relevance to the gravitational relationship between building and inhabitant, the explorations and experimentations had to be first formal, and then structural, functional and then sustainable, and in that order. This would allow the project to innovate in the structural, functional and sustainability agendas. If the methodology had followed first function, structure and sustainable guidelines, the form would have been subordinate to them, not allowing new forms and programs to arise from the established order. This project, in itself, represents pure research By design and Into Design. From this point onwards, when I refer to research methods, I will be referring to it as design process and vice versa.

The methodology, as mentioned before, followed throughout the project did not follow a linear or evolutionary path. It had more the structure of subsequent “loops” that would take place at different times and stages of the project. (Fig 4). The feedback obtained from the formal experiments helped gain maturity and coherence in the project. The focus was always on the form, and how to achieve a successful sixth façade. However, structure, function and sustainability came second in importance.

The data sought in the research method were mostly precedents in art, architecture, nature and, in some cases, daily life objects. These would inspire gravitational aspects of the project, incorporating only the elements that would have relevance to it. Most of them would be documented as images, and kept in an archive to be later “dissected” and incorporated into the project. Even though most of the material was graphic, some of it was text, and had to remain as text because the meaning of words described emotions better, unlike images.
which are limited in that way and whose meaning could be imprecise and dependent on personal interpretation. For instance, charts and documents that explained the sensations and psychological outcomes of certain colours were best described by words and supported by images with such colour rather than trying to describe the sensation, for example calmness, with an image.

However, not all ambiguity and idiosyncrasy was avoided in the research process. Part of the success of the project is the program’s capability of bringing unexpected and diverse sensations and emotions. Particular images generate sensations and emotions in each individual in a very unique form according to previous personal experiences. So, some images and colours that proved to be efficient in attracting enough attention, capable of having a good amount of intensity were translated in a purer form into the building (Fig 5).

**Project.**

**Program.**

The program chosen for this site is the Circus School of Auckland. Before choosing this program, I had proposed several programs that would somehow address and explore the sixth façade through gravitational experiments. A performing arts center, a school of music and even a theatre were considered. These three first potential programs shared a certain level of unexpectedness that could have been directed towards the sixth façade. They all had a performative nature that would amuse the inhabitant and user, they all had a kind of seasonal permanence, but they lacked a strong sense of the defiance of gravity and the sixth façade. But one specific program was capable of not only putting together the good qualities of the three mentioned before, but also had a direct clear relationship to gravitational intensity: the Circus. A circus not only has the performativity of a school of music, performing arts center and a theatre, but also incorporates that element of gravitational defiance that would makes you look up. A trapeze artist is the clearest example of gravitational experimentation and intensity, their performance is perhaps the closest thing to a "flying human being".

A circus incorporates music, colour, dance, and even trapeze artists, but it also has a certain atmosphere that enchants the spectator. The emotional and sensorial experiences of anyone that visits the circus are perhaps
remembered throughout their life with a particular “magic”. Some people remember the large animals performing acrobatics, others remember the flying people, others remember the lions and the rings of fire, and some other remember just the tent and its massive yet light structure. Also, the permanence of the circus is somehow related to the permanence of the cloud and the foliage of the trees. It performs and goes away in a similar periodic way. It travels from town to town and, just like the foliage of a tree, changes colour in a day, the tent is up overnight. As mentioned earlier, the non-permanency quality of certain things helps people notice them. A circus tent also has similar physical proportions to a cloud and tree top. And so, after carefully putting together these analogies, the circus became the ideal program for exploring the sixth façade through gravitational experiments.

Still, the simple idea of a circus had to be incorporated in the site in a more permanent way. That represented a slight paradox, because how can a circus be a circus yet stay in the same place? Then I looked back at the Cirque du Soleil and its permanent circus in Las Vegas. The circus stays there, but the company travels, and the staging and architecture of the place changes from time to time. The solution then was to have a permanent circus school and a visiting circus. At this point in the design process, the idea of hosting a visiting circus at the school premises gave me the possibility of having one program with two foci on permanency. Then the program was complete: a circus school with a public square for a visiting circus. This program had the capability of creating powerful, special moments or images in the inhabitant and user’s minds. “The art of place is the art of totality. Its purpose is to create “images of the world,” which through their interaction manifest the meaning of the things, which surround us and clarify the interaction itself as a local presentation of global meanings…which is to say architecture, by principle has to do with all the experience of living, and therefore is justly described as the “mother of the arts”. “ This project was now set to create “images of the world” through gravitational experimentation and the discovery of the sixth façade.

During the research for circus school facilities I came across the Christchurch Polytechnic Institute of Technology (CPIT), which had to close down its Bachelor of Performing Arts (Circus Acts and Physical Theatre) after the earthquake. So, I decided to make this new building its new circus school. The idea of a new school to house the CPIT Bachelor of Performing Arts (Circus Acts and Physical Theatre) in Auckland gave the school the possibility to perform in the largest city in New Zealand. Auckland is the cultural and economic centre of New Zealand, and it represents a great location for showing locals, and foreigners the amazing circus education taught at the CPIT.

Auckland receives the most tourists that come to New Zealand and so, having the school in Auckland would help the CPIT Bachelor of Performing Arts gain international recognition. Also, since the building is hosting a visiting circus, the visiting circus’ owners would most likely want to reach as many people as possible for recognition and revenue purposes.

I looked at circus schools throughout the world. The most interesting one was the National Circus School of Montreal (NCSM)(Fig 6). It is the largest school for animal free advanced circus training in North America. One of the most important circus companies in the world is Canadian, Le Cirque du Soleil, and so, it is natural to think that the NCSM has got the best facilities for this kind of program. However, the NCSM has to train a far larger population of circus artists than the CPIT. After looking closely into the NCSM plans I was able to pinpoint the main elements for a complete circus school. Those elements are a large triple height gymnasium, a round triple height gym or circus, bathrooms and locker rooms, lecture and classrooms, and office spaces. The NCSM building has accommodation for students and visiting staff. In this program accommodation was omitted to help promote the hotel and accommodation market in the area.

The Circus school of Auckland will have the following:

- One indoor circus gymnasium for training.
- One outdoor circus for training and for hosting a visiting professional circus, capable of having a tent to cover it, if needed.
- Bathroom, toilets and locker facilities.
- Classrooms and lecture theaters.
• Offices and a nursery.
• Seating for appreciating the circus.
• Trailer park for the visiting circus or a potential visiting fun fair.
• The building will also incorporate ramps and elevators for the handicapped.
• Underground parking.

Sustainability is addressed in the project through the re-use and re-densification of sites like the one chosen. Placing a building underneath a piece of urban infrastructure opens up the possibility to use these “voids” in the urban fabric for more productive programs. “An overhang or bridge becomes the roof of a temporary home; lampposts can be used to lean against while sitting or standing. A hard and expansive surface, free of objects or structures, such as a parking lot or plaza, allows for a variety of behavioral possibilities”5. In this project the urban infrastructure provides a permanent home for students and a temporary one for a visiting circus.

Existing infrastructure in our cities not only serves its intended function, but often their particular locations give them different purposes: some bridges and tunnels serve as shelter for homeless people, some water channels are used by skateboarders as ramps, subway stations are sometimes used by musicians as urban theatres, etc. This project re-uses the space underneath the viaduct, allowing a variety of programs at ground level such as a visiting circus, Caravan Park or even a fun fair to exist. A fun fair could complement the circus program because some of its artifacts amuse and entertain us such with similar gravitational experiments such as the flying chairs. “Space is in essence that for which room has been made, that which is let into its bounds. That for which room is made is always granted and hence is joined, that is, gathered, by virtue of a location, that is, by such a thing as the bridge. Accordingly, spaces, receive their being from locations and not from form”6.

Site.

The site chosen for this project was the Newmarket Viaduct. The site has three main qualities needed for the project: A clear relation to the gravitational aspect of the project, an urban environment capable of holding a diverse range of programs and uses due to its accessibility and urban density, and enough underdeveloped area to allow the creation of a completely new building without interfering with existing ones (Fig 7).

The site has in it an “object” that clearly addresses the gravitational agenda of the project: the viaduct above Broadway St. It has a massive platform suspended by relatively narrow and delicate columns, which, together, make a spectacle

worth looking at. The area of each pair of columns represents 4.67% of the module it supports; they are 1.50m by 3.00m or 4.50m$^2$ each, 9.00m$^2$ the pair, and they hold an approximate of 1925.00m$^2$. However, this spectacle is only appreciated by those interested in it. It lacks a performative quality, because of its permanence, that makes people aware of things.

The Viaduct has nine modules placed between two pairs of columns. I made the one above Broadway the main one. Then I named them with numbers, like a Cartesian plan; the main one is 0, and they go from 1 to 4 according to their proximity to 0. To the left are the negative and to the right are the positive (Fig 8). This order allowed for quicker recognition and referral in the experiments.

An interesting aspect of the site was that it had an object that was being deconstructed. The old Viaduct was being demolished and taken away by massive cranes. In a way, the Viaduct was performing, but at such a slow pace that almost no one was able to perceive it. This raised the question of timing.
while performing. It could be imperceptible if it happens too slow or too fast. The old Viaduct was finally removed, but the images of it remain as research material (Fig 9). The performance of the cranes was incorporated also in the design because a historical performance should also be considered. Just as a tree performs in a cycle, the Viaduct also performs in a cycle, the only difference is the rhythm and time it takes. Foliage is replaced by new leaves every year, and so the Viaduct is replaced by a new one every 40 years.

The urban setting, and by that I not only mean the immediate surroundings of the site but also the whole of Newmarket, is capable of holding most commercial and residential programs. The way the master plan is organized creates an eclectic mixture of programs. There are restaurants, cafes, car dealers, banks, high-rise housing complexes, single-family homes, and all sorts of retails and office spaces. Newmarket and Broadway are perhaps one of the most important commercial

Fig 9. (From left to right) Unitec’s Make It campaign image, 2012 (Source: www.unitec.ac.nz; visited on September 20, 2012). Viaduct from underneath. View from Broadway and Remuera Rd. towards the viaduct. Old viaduct being deconstructed.
areas in New Zealand. However, it lacks a “heart”, or clear focal point. Is it the square on Khyber Pass and Broadway? Or is it the corner of Remuera Road and Broadway that somehow resembles Harvard Square? It is really up to anyone. The recognition of the focal point of Newmarket is also influenced by the way it is experienced; a pedestrian would probably recognize one location as the most important one and a person that drives through would think of another. So, the polygon chosen to be the site of the project attends to such lack of identity. The location of the site gave me the possibility of creating a “heart” for Newmarket, and pedestrians and drivers would perceive it as such.

Looking at similar urban precedents helped me decide how I was to make the site the “heart” of Newmarket. The One Times Square Building (which is the one with the Coca Cola sign) in New York City and the Monico Buildings on Piccadilly Circus, which is where the Sanyo sign is) in London were perhaps the precedents that had the clearest relationship to this project’s site. They are located in dense urban, complex, eclectic environments, and they both became cultural and commercial hubs in their respective locations by “performing” every night. That same billboard quality of certain things, discussed earlier, is employed in these two sites to draw people’s attention to them. The circus school’s building and its sixth façade will perform just like the façades of the buildings on Times Square and Piccadilly Circus (Fig 10).

The land underneath the Viaduct on both sides of Broadway is free at the moment. Also, the adjacent parking lot
has nothing built on it. The project incorporates all three lots into the project, giving it a total area of 29,000.00 m² to work with. That much free land to work with allowed the creation of a building whose capacity and size could match any program wanted. However, building density in the vicinity, along with the height of the neighboring buildings, determined some of the proportions of my building (Fig 11). An existing secondary road between the parking lot and the land underneath the Viaduct, right next to modules 1, 2 and 3 was also incorporated into the design as the main entrance for vehicles into the project.

**Precedent Survey.**

One of the earliest and perhaps most famous examples is the Sistine Chapel. The amount of effort spent and detail in the frescoes above make us completely forget about the ground. Who remembers what the floor of the Sistine Chapel looks like? The perspectival wonder that at the time was innovative proved to be magnificent in making people look up. The *Melozzo*, and *di sotto in sú* perspectives, discovered in the Renaissance and further explored in the Baroque and Rococo periods, certainly treated a flat ceiling as a sixth façade. The Sistine Chapel is the most famous example (Fig 12), but the vault of the nave of the church of San Ignazio in Rome by Andrea Pozzo (Fig 13) incorporates architectural elements that give a more powerful *illusion* of perspective. The geometry and use of colour in these two masterpieces help achieve the desired effect of infiniteness.

More contemporary examples not only employ similar colour and design strategies as the Sistine Chapel and Saint Ignazio’s church, but they also make use of new technology to actually lift the buildings from the ground, achieving that paradox...
of the floating mass that would amuse us. Three good examples of gravitational defiance and a potential sixth façade are the New National Gallery in Berlin by Mies van der Rohe, Enric Miralles’ Gas Natural tower and Rem Koolhass’ China Central TV Headquarters in Beijing. These three examples incorporated the most advanced structural designs (at their times) to achieve the defiance of gravity and a potential sixth façade.

The corners of the roof of the National Gallery are so far removed from their closest columns that almost “float” to the eye of the viewer. The large spans between the existing columns make you forget about those needed supports. Also, the dark colour of the roof, which is also the ceiling, intensifies that paradox of a heavy mass floating above your head.

The Central TV building in Beijing, in a similar way to the National Gallery, has a cantilevering corner up in the air, the only difference here is that the floating effect is far greater due to its location high above ground, but structurally it works under the same principles. The Gas Natural building in Barcelona also incorporates a massive cantilever, but it has only one pivotal support, unlike the two
previous examples, which have two. This building also adds a curvature to the volume to further defy gravity psychologically.

Part of the success of the previous examples relies on the fact that they created atmospheres that imprint certain sensations and feelings in the viewer’s mind. So, how do I use this knowledge to succeed in this project, and how do I take the building to the next level, both psychologically and technically, making people aware of the sixth façade? By creating a building that actually “floats” to the eye of the inhabitant and spectator, making the supportive elements disappear psychologically or physically (Fig 14).

Because my building will also serve as a “billboard” for the circus, precedents on billboards and their relationship to the car were also important to this project. The great majority of people will experience this building from their cars while driving through the site. Some of the earliest strategies for billboard impact on drivers were found in Chicago in 1914, where billboards on the sidewalk “are aligned for the greatest visual impact”.

While cars gained speed, strategies had to be bolder and faster to catch the eye and attention of the driver. They

incorporated more colour, angled the billboards, and even incorporated obvious mistakes to reach that unexpected aspect of things that steals attention from us. This is directly related to the strategy I have for discovering the sixth façade in this project. I employ similar visual strategies to grab the attention of whosoever sees the building (Fig 15).

**Literature Survey.**

Different subjects are directly related to the rediscovery of the sixth façade in this project. The subjects that were studied throughout the project were the following:

- Renaissance and its approach to the ceiling.
- Phenomenology of place, and the urban reality.
- Colour, and its relevance to perception.
- Acoustics, theaters and multi-purpose building’s technologies.

As discussed earlier, the renaissance approach to the ceiling is the earliest example of shifting attention towards a sixth façade. The discovery and development of the perspective, along with many others in mathematics and physics, in the 15\textsuperscript{th} century not only had an artistic impact, but also a philosophical and political one. These discoveries are directly related to the discovery of America and the defiance of the Catholic Church as provider of the absolute truth and the revival of democratic ideas. But for now we should just discuss those that are of concern to this project.

**Renaissance and the ceiling.**

A technique that employs a kind of perspective is the *sotto in sú.* “sotto in sú, (Italian: “from below to above”) in drawing and painting, extreme foreshortening of figures painted on a ceiling or other high surface so as to give the illusion that the figures are suspended in air above the viewer. It is an approach that was developed during the Renaissance, and it was especially favoured by Baroque and Rococo painters, particularly in Italy. Andrea Mantegna, Giulio Romano, Correggio, and Giovanni Battista Tiepolo were outstanding exponents of the technique.”

The *sotto in sú* technique was used for political and religious purposes by the patron of the project, promoting particular ideas that they considered important. For instance, the Sistine Chapel’s main theme is purely Catholic and was commissioned by the Pope Julius II to Michelangelo. It tells the whole Bible story from the Catholic perspective, from the creation to the end of the world.

The Sistine Chapel was successful in the way that it not only brought the attention of whosoever walked into the building, it also made them aware of the message portrayed on the ceiling, leaving a durable image in the spectator. “But for millions of visitors who negotiate the labyrinth of the Vatican’s galleries and corridors to enter the chapel and seat themselves on its rows...”

Fig 15. Early example of angled billboards in Chicago in the early 20th century (top). Publicity for the movie The Birds which uses an evident grammar mistake to bring people’s attention to it (middle). Panam billboard, refering to the downunder by placing the new destination upsidedown (bottom). (Source: Basten, Fred E.. Great American Billboards 100 Years of History by the Side of the Road, Berkeley: Ten Speed Press, 2007. 9, 157, 167.

The narrow fields of view of the streets surrounding the viaduct allow us to use the viaduct as a billboard. The perspectives are concentrated into certain focal points. Also, most supports are hidden, creating a more powerful impact on the viewer (above).
of wooden benches, staring upward in unwitting imitation of the prophet Jonah, the vision that rises above their heads is no less spectacular.\(^9\) So, just as Michelangelo and the Pope did, the Circus School of Auckland will leave a durable image in the mind of the inhabitant or spectator through the its sixth façade.

**Phenomenology of Place.**

Christian Norberg-Shulz also addresses subjects of particular relevance to this project. The phenomenology of a place is relevant to the project because it incorporates the immediate surroundings into it as essential elements for the better appraisal of the subject, in this case, the sixth façade. “The concrete things that constitute our given world are interrelated in complex and perhaps contradictory ways. Some of the phenomena may for instance comprise others.”\(^{10}\) These concrete things that Norberg-Shulz refers to are the stars, trees, rocks and so on found in a certain location. In the site that was chosen for this project, the concrete things would be the cars, adjacent streets, neighboring buildings, the viaduct, and all things that take a place in the physical world. Then Norberg-Shulz goes on saying “… a totality made up of concrete things having material substance, shape, texture and colour. Together these things determine “an environmental character”, which is the essence of a place. In general a place is given as such a character or “atmosphere”. A place is therefore a qualitative, “total” phenomenon, which we cannot reduce to any of its properties, such as spatial relationships without loosing its concrete nature out of sight.”\(^{11}\) Just as Norberg-Shulz states in the previous quote, I cannot avoid the fact that the site is a place where certain urban elements, like buildings, cars, pedestrians, urban fauna and so on, along with a large piece of infrastructure such as the viaduct, exist, becoming the atmosphere of the Circus School of Auckland. This atmosphere is the one that Peter Zumthor refers to in *Atmospheres*, which I quoted earlier on. So, this project takes into consideration the place and atmospheres in which it was developed to give the visitor or inhabitant a sensorial experience that would lead to the discovery of the sixth façade and the creation of valuable lasting images in their minds.

So, how does the Sistine Chapel and the phenomena explained by Norberg-Shulz and Zumthor relate to the circus and the sixth facade? The Sistine Chapel was capable of achieving a new atmosphere within the boundary imposed by four walls and a ceiling, transcending throughout the centuries as an icon. It became a concrete element in the place. Then we can certainly allow the possibility of creating a new atmosphere that, together with already existing concrete elements, such as the viaduct, in


\(^{10}\) Norberg-Shulz, *Genius Loci*, 6.

\(^{11}\) Ibid., 8.
a certain place, Newmarket. The new atmosphere created by the Circus School of Auckland not only was conceived within the existing phenomena and physical qualities of Newmarket, but it also accentuates certain concrete elements of it, specifically the viaduct and Broadway. The building has a permanent dialog with the viaduct, and both building and the viaduct have an intense relationship with the inhabitant and visitor. Both the building and viaduct, using architectural elements and strategies, grab the attention of the visitor and inhabitant capable of creating new sensations and new phenomena.

An interesting aspect of the phenomenology of this place in particular was the loose space it has. By loose space I mean those spaces whose uses have changed throughout time due to social and environmental factors. “Loose space is likely to emerge in cities since, traditionally, it is there that certain and social and physical conditions that encourage looseness exist. Free access to a variety of public open spaces, anonymity among strangers, a diversity of persons and a fluidity of meaning are all urban conditions to support looseness. For such reason, the city is a “place of desire, permanent disequilibrium, seat of the dissolution of normalities and constraints, the moment of play and of the unpredictable.”\(^\text{12}\) However, loose space does not necessarily mean something undesirable. For this project, to have loose spaces in it means to have spaces in which the exploration of the unpredictable and unexpected takes place, and so, it incorporates loose space in the design. The loose space is also considered the life and essence of the city. “Loose spaces give cities life and vitality. In loose spaces people relax, observe, buy or sell, protest, mourn and celebrate. Loose spaces allow for the chance encounter, the spontaneous event, the enjoyment of diversity and the discovery of the unexpected.”\(^\text{13}\)

**Colour.**

Another subject related to this project was colour. Colour was perhaps the subject with the most interesting and practical approaches. Colour is one of the most important aspects of the phenomenon of the place and the project, so it was necessary explore it further. Colour has the capability of altering emotions and sensations, changing an atmosphere. Other elements have the same capability of changing atmospheres but colour is present in everything. Even air has a certain colour. Moisture in the air reflects the colours of the sun differently throughout the day. So, by going deeper into colour, and its psychology, I would be addressing one of the most important aspects of the phenomenology of the place.

A clear example of how far colour affects us is the physical and psychological reactions it has on us. Colour red,

\(^{12}\) Franck and Stevens, *Loose Space*, 4

\(^{13}\) Ibid., 4
and its relationship to equilibrium were of particular interest because of its relationship to the trapeze aspect of the program. Kurt Goldstein says, “The equilibrium of the human organism is disturbed far more by red than it is by green. Goldstein thus comes to a conclusion that offers an important answer to those concerned with the psychology of colour… The stronger deviation of the arms in red stimulation corresponds to the experience of being disrupted, thrown out, abnormally attracted to the outer world. It is only another expression of the patient’s feeling of obstruction, aggression, excitation by red.”

Colour can even determine the shape of a building if taken into consideration before designing the shape of it. “In an abstract sense, colours are to be related to forms. Red, for example, suggests the square or cube. It is hot, dry, and opaque in quality. Being advancing in character, it holds strong attraction that appears solid and substantial. Because it is sharply focused by the eye, it lends itself to structural planes and sharp angles. Orange suggests the form of a rectangle… Yellow is abstractly related to the inverted triangle or pyramid. It is the colour with the highest visibility in the spectrum and therefore pointed and sharp… Green suggests the form of the hexagon or icosahedron. It is cool, fresh, soft… Blue suggests the form of the circle or sphere. It is cold, wet, transparent, celestial… Purple suggests the form of the oval. It is soft, flowing, and


Fig 16. Experiments with color on the viaduct helped understand the different sensations that color provokes.
cannot be clearly focused." For example, if making the building squared and the viaduct red, the colour of the viaduct would somehow be appreciated as redder, more solid, and more substantial, being perceived as heavier and thus reaching stronger levels of gravitational paradox. Red makes things appear heavier (Fig 16). "Red is perhaps the most dominant and dynamic of colours. Its energy has a strong influence on the growth of plants. It has been found to accelerate the development of certain lower animals, to increase hormonal and sexual activity, and to heal wounds. Psychologically, red is exciting and increases restlessness and nervous tension. It represents an attraction to stimulus and as such provides an excellent environment for the creation (but not execution) of ideas. Under the influence of red, time is overestimated and weights seem heavier. The colour is most pronounced when strong light intensities are also involved. (Red is the first of all colours to fade out in dim illumination)" These findings proved to be quite valuable when deciding on shapes and forms for the building program. Colour, if coordinated properly with the form, has a much stronger effect on the eye, therefore succeeding in grabbing the visitor and inhabitants’ attention towards the sixth façade.

However, understanding colour and its implications was not that simple. New trends in colour psychology have emerged, and oppose those just explained. The argument of changing symbolism, in colour defies the established colour structure. "… faith in science and the quest for ‘chromatic truths’ accounted for design’s simplistic attitude to colour. Seeking to balance shapes, colours and functions of objects, design has until quite recently believed in a natural, almost physiological quality of colour –as if there really were pure colours and impure ones, warm colours and cold colours, intimate colours and distancing ones, dynamic ones and static ones, stimulating ones, and calming ones. Forgetful of the narrowly cultural character of colour symbolism, design has on several occasions claimed to have created ‘universal codes’." This clearly speaks of more complex implications for colour decision. "Not everything to do with water can be blue; not everything to do with fire can be red; not everything to do with nature can be green; not everything to do with sunshine and holidays can be yellow or orange. Not all hospital rooms can be painted blue and white; not all fast cars are red; not all children’s toys are brightly and boldly coloured." Pastoreau’s dogmatic approach to colour made me reconsider the way I was going to use colour, and so, the colouring of the project took into consideration both postures, but this will be explained later in the document.

Multi-purpose building’s technologies.

15 Ibid., 170-171.
16 Ibid., 258.
18 Ibid., 47.
Last but not least, I looked at the technical requirements for the auditorium of the circus school and the esplanade for the visiting circus. The acoustics of the indoor auditorium are to be managed primarily by the ceiling, which in this project will be treated as a sixth façade, a lot like the ceiling of the Sistine Chapel.

The ceiling of the auditorium will move and adapt to the specific acoustic requirements of the spectacle it hosts. Just like the auditorium of the Kansas State University, the ceiling performs and transforms to fit the acoustic needs of the spectacle. The following diagrams and images show how this is accomplished (Fig 17, 18). Also different arenas and auditorium designs were used as reference for the development of the program.

The atrium that which will host the visiting circus has to have the capability of holding a tent, and so I looked at different mechanisms for how to achieving this in the most efficient way. I also looked at mechanisms that would allow me to design a different tent. Then I found a movable telescopic mechanism that could extend up to 35'. The following images and diagrams show the crane-like high-reach telescopes (Fig 19).

Fig 19. The telescopes will help hold the circus tent from outside of it avoiding internal columns. (Source: Penn, Hermann J. Encyclopedic Guide to Planning and Establishing an Auditorium, Arena, Coliseum or Multi-Purpose Building, Greenville: Penn Fleming, 1963. 420)
Design Development.
Design process.

The process of designing the building, as explained before, did not follow a linear path. However, form, function, structure and sustainability were developed throughout the project, sometimes simultaneously and sometimes individually, coming together at the end in one final design.

The form of the project is of particular interest because it has to be coherent with both the program and the purpose of the project, which is to make the inhabitant, user and spectator aware of the sixth façade through gravitational experiments imprinting a lasting image through emotions and sensorial experiences. The form has to have enough strength to catch one’s attention and deliver, even in a split second, what Peter Zumthor described before when he entered a building.

For a better understanding of the design process, I divided it into four stages, or “loops”, whose outcomes would feed back to the whole process maturing and nurturing it. At the beginning of the project I decided to have no more than five feedbacks, allowing a practical ending to the project. Otherwise the project could go on for years, without ever reaching perfection (Fig 20).

The first design started by offsetting the underside of the viaduct. These offsets were described as plates or slabs that would work as potential floors of a building. The foliage of certain kind of trees inspired the layering of it. These explorations also incorporated heights of neighboring buildings. This came as a direct analogy to the tree that inspired me early on, whose underside led me to seek the sixth façade.

This first design also explored the urban context of the site, using existing perspectives from Broadway to create a proper square for the building to levitate on. The main purpose behind the recognition of those existing axes was to find the natural perspectives given by the urban context and how the inhabitant and visitor would come to the discovery of the sixth façade. After recognizing the main perspective or axes, I was able to notice a point at which the linear perspective given by Broadway opened up. A courtyard/
Fig 21. The viaduct and its relationship with Broadway (blue axis). The yellow areas represent existing and potential open spaces.

Fig 22. Potential levels hanging from the viaduct.
parking lot across the Farmers store somehow opened the field of view for both pedestrians and drivers. The mirroring of that space onto the other side of the street gave the site a certain continuity towards the segment of Broadway before Westfield. It allowed a straight line to end up in this new-mirrored courtyard, making it a more frank focal point. This axis filtered through the mirrored courtyard was then extended towards the viaduct, and by doing so, allowing a visual continuity flowing from Broadway towards both directions of the viaduct’s traffic. Billboard strategies began to take place in the project (Fig 21).

At this point in the design process the idea of turning upside down the order in which we normally design was of particular interest. The vertical circulations of the building were thought to start from the top floor, moving towards the bottom one, where the access would be. Also, the idea of a building completely suspended from the ground was explored. The new building would hang from the existing viaduct, concealing and covering the existing columns with its body to make a stronger statement. Part of the new building was also to be placed over the parking lot, creating a semi-enclosed space for public performances; this was inspired by the program’s idea of a flexible space to host a visiting circus and many other activities.

The main two outcomes of this first intent were: finding a way in which the viaduct would be experienced from Broadway, and thinking on how the new building would relate to the viaduct and the site. At this point in the process there was no design proposal, just the positioning of planes to get an idea on how they would be perceived by pedestrians and drivers (Fig 22, 23).
The second design basically took over from the findings of the first intent, and created the first formal proposal. The outcome was a building that would hang from the motorway, concealing the existing viaduct columns within the new building.

The refracted shapes of the building were inspired by the chaotic urban environment, the triangular shape of the courtyard created by the upper and lower Broadway axis and the earliest strategy of aligning billboards at different angles to the street to get the best angles of appreciation. These shapes also find a functional justification by placing the theatre platforms on them, and they also serve as backstage for trapeze artists. These stages in the air

Fig 24. Section of the viaduct and how symmetric angles are capable of generating non symmetric forms (left and above) Modules and intensity diagrams. The focal point to appreciate most of the underside of the viaduct is on the module right on Broadway (right).
Fig 25. Volume experimentation. These experiments let the refracted design (yellow building) become a backstage for trapeze artists.
responded to the surroundings and to endless points down on street level for appreciating the circus spectacle (Fig 24).

During the second design process I was able to generate a “chaotic” and unconventional not symmetric building from orthogonal symmetric axis’ and focal points. These experiments opened a door for exploring what appeared to be “non traditional” shapes with a very “conservative” starting point. The lines that were chosen to create that seemingly random volume were chosen according to the acoustics and potential perspectival intensity points. This was, of course, an experiment whose purpose was to see what sensorial experiences I could get from those shapes.

As shown in the diagrams (Fig 25, 26) the body of the building started as a rectangular shape, which later was lifted at the midpoint to allow traffic to go through it. Exploring certain ways of accessing it gave us two possibilities: to use an industrial language, evident in the NYC Fire exit staircases, and a more sleek, unified way of accessing the building by extending the building itself to the ground. In both cases, the accesses had to complement the building either by opposition of languages or by visual unity.

The third design was somewhat different. After the previous experience gained on the second intent, the research methodology became more sensational. I was going to take any sensorial experience related to the program and incorporate it.

Fig 26. Flooring scheme (middle). Section on how the shape of the building would allow the creation of auditoriums and lecture theatres (bottom).
Colour was added to the viaduct to make it take relevance, and then I stripped the building from its sleek and fractal envelope. The industrial language that I found in my research had a great deal of influence in this intent. It represented the structural acrobatics of the building; it was honest, just like the body of a trapeze artist is when performing in front of an audience. These forms were also directly related to the psychological permanency of the circus. The industrial forms and structures that resembled the existing cranes of the site also referred me those structures from which a tent is hung and those from which a trapeze artists hangs (Fig 27).

The industrial crane-like language that I adopted was beneficial to the overall appreciation of the sixth façade. It withdrew the attention from the other five facades and brought it into the sixth. If the first four façades were “lighter” or less dense in language, attention would go to the remaining two. The fifth façade in the building was also turning lighter. The ceiling of the floating building was then decided to be glass, to allow a clear view to the viaduct’s underside. Since the building was under the viaduct, it gave us the freedom of having a full glass ceiling in the building, controlling the solar insulation with the viaduct’s
Then I chose red as the main colour. Intense research on the psychology of colour justified its use on this program in particular (Fig 28).

The fourth design purpose was to make everything function. As explained before, function had to follow form to allow structural and programmatic freedom. At this point, I knew that the building had to be levitating, be red, and that it was going to host a circus school. It was time to make it work. The process of solving the building was somewhat similar to previous designs (Fig 29 to 31).

By stripping the building from its sleek cladding, as mentioned before, the structure left behind had a certain feeling related to the circus and not permanent structures. Formal research on circus structures led me to the discovery of industrial facilities whose structures had a certain naïve unintentional beauty. That unintentional beauty was Unexpected. They were probably unnoticed, or not recognized as beautiful when placed within other industrial facilities, but when looked at closely, the seismicity of them was just as attractive as the viaduct. They all share the same unintentional beauty because they were created to serve a mere functional purpose, not as pieces of art. So, why was this important to the project? If I used this industrial language outside of its natural setting I was capable of raising awareness, bringing the attention of the spectator and then turning such attention towards the program. Just like a magician does, I was using unconventional elements to bring attention where I needed it: right on the sixth façade.

Now that the functional aspect is the main objective, proportions in all plans and sections were carefully kept (Fig 32 to 35). All accesses to the building are suitable for handicapped people. All facilities such as toilets, bathrooms, lifts, and offices are also suitable for them. A seating area to look down at the circus square is also incorporated in the design. For that reason a section of the building tilts towards it to give it a good angle for appreciating the spectacle down there.

The building will be experienced as a linear process with several entrances. There will be three main entrances: two over the portal building and one at the gymnasium building. That resembles the research and design process followed, several simultaneous inputs incorporated into a single research “body”.

On the sustainable agenda, the building incorporated low E triple glazed facades, along with natural passive ventilation systems to evacuate hot air with chimney principles. The northern façade will also have a double-glazed façade to avoid overheating in summer. The densification of the site and re-use of it for mixed purposes falls under the sustainable agenda.

In this fourth design intent the building’s façades incorporate a variety of reds and the steel structures are extremely dark red, to the point that they look black. Those two
Fig 29. These diagrams show how the building related to the site. The strongest perspectives had a direct impact on the building’s shape. Perspective from important points was taken into consideration.
Fig 30. These diagrams show how the shape of the building (in plan) evolved to what it is now.
Fig 31. Volumetric experiments.
Fig 32. These plans show where the circus tent could be located. Also, they show the circulations, areas and facilities of the building.
Fig 33. Sections. Show two accesses from the circus square (top), and how the building tilts towards the circus square (bottom).
Fig 34. Long sections. The independent structure can be seen underneath the building and around the existing columns.
Fig 35. Section of the indoor training gym.
colours, together with the squared shape buildings made a light structured building look heavy. Experiments without red were made, just to prove that red made things look heavier (Fig 36, 37).

By the end of this fourth design I noticed that by making the building red I would be loosing a great deal of performability. Unfortunately, when one decides on a certain colour you leave behind all the rest. This became an issue for the not-permanent aspect of the concept and program. The circus, just like trees and clouds, is never the same.

In this design the building would be self-supported, to avoid using the viaduct as structural support. The viaduct was designed for a specific load, and hanging a building from its structure could not be feasible. The solution then came as independent hollow columns placed around the existing concrete columns of the viaduct. This gesture of wrapping existing columns with independent steel structures was capable of somehow disguising the new supports by the mimicry of both. So, the main body of the building stands out and the supports do not, as explained before.

The public squares of the project have different purposes. The main frontal square will serves as a
platform to host any visiting circus or to have student training exercises where everyone can see them. This main square is placed in a semi-enclosed space created by the building and the viaduct. The square will have the infrastructure to be covered with a circus tent if needed. The second square is behind the building, above the secondary road. It will be prepared to host the visiting circus’ caravan, or a visiting fun fair. The visiting fun fair complements the Unexpected quality of the circus program by generating more Unexpected sensorial experiences.

Fig 37. Perspectives from behind the circus square (top), from the circus square (middle), and from Broadway looking towards the viaduct (bottom).
Final Design.

The design process led to a few key elements that made this project achieve its goal. Those key elements were:

- **A building that allows the appraisal of the sixth façade by lifting itself from the ground.**
- **A sixth façade as the most important of all facades to raise awareness of it.**
- **A program that complemented the sixth façade by making the spectator look up.**

How does the building allow the appraisal of the sixth façade? The final design “floats” in so many ways. The building cantilevers above the main circus square, having its pivot or main support underneath the viaduct. This gesture reinforced the perception of a floating mass above the square. The cantilever was placed at the last module (section 4 of the viaduct). The final position of the cantilever in this location responds to better acoustics for the circus square, and to the fact that if placed closer to Broadway (section 1 of the viaduct), the area behind it would have turned into a secondary, less important space, not allowing a unified square (Fig 38 to 41).

The cantilever’s length is 53.00m. The structure that supports it is a mix of trusses and prestressed concrete slabs tied to a heavy foundation to counterweight the massive weight of the cantilever. Also, on the roof of the building, tensors would tie to the tip of the building, bringing loads towards the pivot. The technology involved is quite similar to that of the Gas Natural building and The China Central TV Headquarters.

The cantilever was raised by 5.00m from the tip, to make it “float” higher in the air and allow a better view from afar of the sixth façade under it. This also redistributes the loads better towards the pivotal support. This also helped give relevance to the viaduct, because it would seem like the cantilever was coming from underneath the viaduct.

The building volume from the fourth design was divided into five as a reference to the circus caravan (Fig 42). By doing so each individual volume would move away, only in façade treatment, from the existing columns so they can be perceived as independent floating bodies. This move responds better to the visual trick of hiding the supports from the eye to help it “levitate”. The supports for the “caravan” modules hide behind the existing columns and they would be made of concrete, to further separate them visually from the façade. Just like the main cantilevering building, these modules’ envelopes are trusses, supported at each end by concrete columns.

Each volume explored different proportions, so they could appear to be “dancing” in the air, like trapeze artists. The building not only invites performers in, but also becomes a performer among the Newmarket community of buildings.
The “car” above Broadway is elevated even further to avoid difficulties when busses and large trucks drive by.

*How did the sixth façade become the most important of them all in this project?* All façades of the building, especially the sixth, complement the formal performance of the building. After the thorough research on colour, its psychology and physical implications, I decided to drop *Red* as a main colour for the building. By having the first, second, third, fourth and fifth façades red, people would get too familiar with it losing its *unexpected* quality. It also stole attention from the sixth façade, which has always been the most important one. So, instead of having all façades red all the time, I decided to make all but the sixth colourless. Only the sixth façade would display colour to bring attention to it. The clear glass facades would show the structure inside and the students performing. The structure of the building is black to make it “go away” at night.

The sixth façade is, on so many levels, a billboard. Just like the Sistine Chapel its purpose is to disclose a message to the spectator. So, inspiration came from the Sistine Chapel, a few other *sotto in sú* precedents and circus billboards. The contrast in language between the rococo like framing of those billboards and the romanticism it carried was a great and interesting contrast to the cold structure of the building and the viaduct. Therefore, I decided to employ that language on the sixth façade.

The sixth façade will change colours with L.E.D. screens. Also, the motorway will be lit in a different colour, so it can complement the building’s sixth façade colour and maximize its visual effect (Fig 43 to 48). For example, when a circus visits the CSA, the building’s sixth façade would be red, and the viaduct would be lit with blue light, because red has most impact when placed next to blue or green. “The stimulation of red may be far more dramatic and pronounced if followed by a subsequent stimulation of green or blue.”

On the other end of the building, on the negative sections (-4 section of the viaduct), a large heavy looking building is placed. It will house the main auditorium and the indoor circus training facilities. The building does not physically float or use cantilevers, but the façade design suggests that it does. The massive, heavy and deft volume of the auditorium is “elevated” by a clear glass façade underneath it. Structurally this building works more like an ordinary auditorium. Visual tricks, rather than structural maneuvering achieve the psychological goal of this part of the building. This massive building is the second access to the school.

*How does the program complement the sixth façade?* As mentioned before, the trapeze aspect of the program will draw attention to the sixth façade. When people look up to see what the trapeze artists are doing, they will notice the sixth façade.

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19 Birren, *Colour Psychology*, 150.
behind them. Just as the tent of a circus serves as backstage for the trapeze artists, the building’s sixth façade will do the same. In fact, when the circus tent is open, it will become one with the sixth façade.

The building will have two access points instead of three as previously contemplated. This responds to the linear process of experiencing the building. The sensorial process from access point A to point B can be managed better, concentrating intensity points where needed. Having three access points, A, B and C, would have made the sensorial experience fragmented, because if you entered at A, and finished at B, then you could have missed the full experience by not going through C. A two accesses scheme, like a circus train, has a beginning and an end. In the building, you only get to choose where you want to start. You get to choose how you want to start your sensorial “story”, and you just discover the end of it through the unexpected sensations in the psychological pathway of the building. In this way the horizontality of the building challenges the way a traditional building is experienced. In an ordinary building you access it from the bottom, you can go up and down throughout it, but you always finish at the starting point. That is a vertical scheme, clearly determined by gravity. My building, defies the verticality imposed by gravity allowing access to it in two ways horizontally, giving an alternative to the way we experience a building.

The pavement of the main circus square, secondary squares and esplanades underneath the whole building have a radial pattern design shifting the attention to the center of the circus square. Their intention is to bring people underneath the building to appreciate and experience the sixth façade. The sun-like design incorporates narrow L.E.D. light lines, capable of performing according to the occasion. When the circus visits, the L.E.D. lights will move towards it, as if a gravitational field (if visible) was acting upon the pedestrian. These lights could also palpitate, just like a heart, or flash randomly. This performance of the ground can be compared to the way the Eiffel Tower is lit throughout the night. It responds to the city of Paris, and the city responds back to it. These visual effects help buildings and structures become living “organs” within a body. Car parking was brought to a lower level to allow the ground floor to bring pedestrians easier. For more images and diagrams on this design, refer to Appendix 1.
Fig 38. The new volume of the building comes from the area between the columns of each viaduct module. Then, the new modules of the building move away from the columns.
Fig 39. The pavement has a radial design to help bring people’s attention onto the building. After obtaining the footprint of the building, the plan is inverted to work on the design of the sixth façade (right).
Fig 40. Volumetric explorations. These experiments took place at the same time while developing the plans.
Fig 4.1. Placement of the circus square and studies on the appreciation of the building from the narrow fields of view from surrounding streets.

View from Broadway towards the viaduct.

View from Coventry Lane (front of Farmers) towards the viaduct.

View from Broadway towards the viaduct.

View from Broadway corner with Cloovernook Road towards the viaduct.

View from Mahuru Road towards Broadway.

Fig 4.1. Placement of the circus square and studies on the appreciation of the building from the narrow fields of view from surrounding streets.
Fig 42. Design process of the sixth façade of all building modules. The frame of the module is inspired in the circus caravan wagon. The L.E.D. screen has to be fragmented into smaller ones due to technical and maintenance purposes, therefore, the design of those L.E.D. screens was inspired by the circus arlequin.
Fig 43. The sixth façade and its elements. (1) Steel structure to hold the L.E.D. screens. (2) Hi-Def. L.E.D. screens. (3) L.E.D. lit translucent frame. (4) All elements together.
Fig 44. Sixth façade detail.

HI-DEFINITION L.E.D. SCREEN

OPAQUE STEEL FRAMING FOR SUPPORT; PAINTED WHITE FOR CONTRAST

TRANSLUCENT L.E.D. FRAME THAT CHANGES COLOR
Fig 45. Sixth façade detail.

CAR 2 SIXTH FACADE DETAIL

OPAQUE STEEL FRAMING FOR SUPPORT; PAINTED WHITE FOR CONTRAST

CAR 3 SIXTH FACADE DETAIL

TRANSLUCENT L.E.D. FRAME THAT CHANGES COLOR

CAR 4 SIXTH FACADE DETAIL

HI-DEFINITION L.E.D. SCREEN
Fig 46. Circus tent seen from underneath.
Fig 47. Viaduct lit with L.E.D. lights. Seen from underneath.
Fig 48. View of the whole sixth façade. The modules or caravan cars, the tent and the viaduct all seen from underneath.
Perspective of the final design. View from Clovernook Rd. towards Broadway and the viaduct.
Perspective of the final design. View from Broadway corner with Mahuru St.
Perspective of the final design. View from the circus square towards Broadway.
Perspective of the final design. The visiting circus from inside. The tent starts at the edge of the building, hung from the telescopic poles outside.
Conclusion.

Summary of the project.

This project proved the existence of the sixth façade and its often forgotten capability to inspire us through gravitational experimentation. The sixth façade has been with us for a long time, but for one reason or another, the architectural world has relegated it to the point where it is almost non-existent. Gravity has always been with us, however, its permanent status makes us forget about it. From the day we are born we live affected by it. Only a handful of astronauts know what it is to live without it. We get some remote idea of the absence of gravity when we dive into water and pretend to fly.

Architecture, just like any other thing on this planet is affected by gravity. It is in fact fundamental to architecture, having in mind the principle of firmitas. “Two plausible reasons can be given for according logical primacy in the Vitruvian triad to firmitas. The first is the notion that architecture is essentially the “art of building.” The second is that, since the uses or functions of a building tend to change, the structures serving such functions may be considered as taking logical precedence over them. This idea was expressed with characteristic lapidary vigour by the 20th-century French architect Auguste Perret when he asserted that architecture is the art of organizing space; but it is by construction that it expresses itself. . . . Functions, customs, and building regulations and fashions impose conditions which are only transitory.”

The defiance of gravity gave this project an edge, a good opportunity to explore the unexpected intensity of an almost forgotten element of architecture. Gravity affects a building in every aspect, making projects surrender to the tyranny of gravity, eliminating the sixth façade and giving up special moments only achieved by the defiance of gravity.

Sensorial experiences, generated by elements in nature and architecture that appear to defy gravity, generate a perceptual intensity that suggests a deeper exploration and experimentation. The experimental methodology followed obtained results that were later incorporated in a building that had similar idiosyncratic sensorial qualities to those sensorial precedents.

Maturity in this project was achieved through a loop-like feedback scheme, where experiments gave back solutions on how this building was going to achieve its maximum potential. The essential four aspects of architecture, Form, Function, Structure and Sustainability were addressed, but the Form was of particular importance because of the nature and intention of the project. Function and Structure had to follow the form and, by doing so, they were taken to Unexpected levels. The

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research in this project was at time For design, sometimes By
design, and on occasion Into design. The recognition of certain
mind structures and cognitive processes played an important
role in the design process and research methodology.
The chosen program, a Circus School, was of particular
relevance to the intended subject. The performative aspect of
the trapeze world of a circus was directly related to the defiance
of gravity and making people look up. The purpose of a circus
like I intended to do with this building, is always to bring out
Unexpected emotions and sensations to entertain an audience.
Architecturally speaking, my building entertains the inhabitant
and spectator through the defiance of gravity with structural and
formal elements and strategies.

Through the development of the program and building,
permanency became a subject to explore. Psychologically
something permanent looses the capability to excite our senses.
So, the temporal aspect of the program proved to be appropriate
for the subject of the thesis.

The site also has a clear relationship with the subject
of this project. How is that a massive concrete body is barely
noticed by pedestrians and people passing through? The
viaduct of Newmarket has the perfect physical qualities that
relate to gravity and its awareness; it “floats” above Broadway.
The proportions of the viaduct are quite interesting. A very few
narrow columns lift a heavy platform 15.00m above ground. It
is, in a way, like a second sky, or an immense ceiling. However,
it is static, does not move, and does not change in any way, and
eventually turns it into an object whose fate is similar that of
gravity; it is taken for granted, and ignored by everyone.

The viaduct also has the right environment for a different
program like this. Its urban context, along with the eclectic retail
environment allowed a program like the Circus School to co-
exist harmoniously with its neighbours.

The four designs prior to the final one have a clear
breakthrough line. The feedback obtained from each design
nurtured the following; successful elements were kept and those
that did not give the project a clear plus were internalized into
the next intent as experience of what to avoid. The connecting
element in all previous designs is the sixth façade through the
defiance of gravity, the way it was experienced from underneath,
and its relationship to the site. Research in the functions of
facilities, colour usage and structures were incorporated at
different times throughout the design process.

All four designs, after carefully analyzing similar
programs, created spaces according to the needs of the Circus
School of Auckland. The final design incorporated an indoor
circus gym, auditorium, classrooms and lecture theatres, offices,
toilets and bathroom facilities; it was designed to accommodate
handicapped people, and to have underground parking.

The program also gave the façades a performative
quality, especially the sixth. The sixth façade changes colour depending on the event happening at a particular time of the day. All remaining five facades allow circus students to be seen, which in a way, makes these five façades perform as well. The final design is intended to become the much-needed cultural beacon of Newmarket.

The project addresses sustainable matters by re-using the area underneath the viaduct for something other than the usual green area or park. This project will open up endless possibilities for recycling spaces with similar qualities. In the modern reality that we live in, urban sprawl is a problem, and recycling underused spaces will prove to be not only interesting, but also necessary.

**Evaluation of the Project.**

So, How do we make people aware of the value of the sixth façade through gravity?

This project accomplishes its goal by taking precedents from nature and architecture that are recognizable and having sensorial elements that lead to the discovery of the sixth façade. These elements were later translated into particular architectural elements and incorporated into a building on a particular site. Both the building and the site together create an atmosphere that, according to a program, helps them achieve their highest sensorial potential, making people aware of the existence of the sixth façade.

Part of the success of this project is the use of valuable idiosyncratic images in our psyche. The curiosity that comes from the unexpected plays an important role in the rediscovery of the sixth façade.

**Significance of the Project.**

This project is relevant to everyone because it proposes a new level of sensorial consciousness applicable in many aspects of architecture and everyday urban life. If we are fully aware of our physical surroundings we are conscious of our existence in this world and the impact we have on it. By neglecting elements of our surroundings we deny ourselves the opportunity of fully enjoying the experiences our senses give us everyday.

This project also proves to be a good initial approach to philosophical questions on perception and phenomenology and the impact they have on different aspects of our lives. It opens the possibility of further evaluating the impact of architectural perception in fields like sociology, psychology, entertainment and even environmental sustainability.

**Future Research.**

Future research in particular aspects of this project would be of great value.

Deeper research on the colour in buildings could help
us understand better the way our psyche works under the influence of colours. Also, a deeper research in new structural technologies would be of particular value, especially when experimenting with cantilevering and “floating” buildings; new materials from the aerospace industry could be incorporated into innovative structural schemes to get *new spectacular results*. Further studies on psychology and the usage of space, and the impact it has on society will also help develop and organize new spaces that would help us, as a society, be better. Deeper research on the use and re-use of urban infrastructure for different uses than those originally intended will certainly be addressed in the future due to the increasing urban reality of the planet. The shift from rural to urban is an unstoppable trend and the densification of our cities is a subject that will prove to be essential in large urban rehabilitation of cities.
Bibliography.


Appendixes.

1. Plans and sections of final design.
Appendix 1

- Plans.
  - Ground Level.
    - Module or car 1.
    - Auditorium.
  - Level One.
    - All modules or cars.
    - Modules or car 1.
    - Module or car 2.
    - Module or car 3.
    - Module or car 4.
    - Auditorium.
  - Level One with tent (all modules or cars).
- Sections.
  - Section A: Module or car 1.
  - Section B: Module or car 2 with circus square.
  - Section D: Auditorium.
  - Section E1: Module or car 1.
  - Section E2: Module or car 2.
  - Section E3: Module or car 3.
  - Section E4: Module or car 4.
  - Section E5: Auditorium.
LEVEL ONE: CAR 3
CIRCUS SCHOOL OF AUCKLAND

STUDIO
(CIRCULAR PERFORMANCES)

0m 5m 10m 20m

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