"Kontor i flera lager"
"Layers of Office"

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About the Project

Some projects have lower status than others. Designing an entire custom building is an architectural opportunity while interior projects in existing, generic structures, have a tendency to leave architects disappointed. Instead of designing the whole we must contend with the existing, making a seemingly decorative addition. The architectural potential in these projects is often discarded - I believe it shouldn’t be. This thesis investigates possibilities in office transformations. I combine an existing column-beam structure with a colourful interior of spatial modules and use AR to add a virtual layer to a physical office. A flirt between the permanent, transient and virtual. The project aims to create what Sylvia Lavin describes as an architectural kiss in Kissing Architecture from 2008: qualities, tension and surprising moments in the merge between multiple systems of architecture, or other medium of art, that are not perfectly aligned.

The design proposal consist of a 700 m² office locale in a larger office warehouse complex in Ulvsunda Industrial area west of Stockholm. The original structure consist of pre-cast concrete columns and beams.

The office is prone to changes in technology. With the digital technology we have available it is no longer essential to have a physical office: employees can log on to a digital workplace from any device with a connection. This project takes a stand for the physical office and works with the claim that the office is an important organisational hub. However, today it needs to offer more than rows of desks in a white box.

The project is first and foremost a physical office project. I’ve intended to create a characteristic working environment within an existing frame using design inspiration from computer game environments. I admire the way games can generate entire worlds that support the game’s plot, mission, atmosphere and gameplay. Can similar physical design strategies create an equally characteristic and adapted environment for an office? In order to investigate this I started the research period with three case studies of games from different genres and gradually translated the qualities found in these to architecture - permanent, transient and to some extent virtual.

Journey
Thatgamecompany, 2012

Smooth flowing spaces are created by colour gradients and tilted planes. Build objects strategically placed in the environment lead the way forward.

Borderlands 2
GearBox Software, 2012

Multifaceted and stacked spaces create the illusion of depth where there is none. Hierarchy between smaller spaces hidden by several turns and the large central opening.

Portal 2
Valve corporation, 2011

Apertures in orthogonal geometry creates a new experience of a simple space when it is viewed from a surprising angle.

Pipilotti Rist ‘Pour Your Body Out’ 2008, MoMA

Example of architectural kiss according to Sylvia Lavin

Stacked Geometries
Create the illusion of depth and niches higher up the world where there might really be none.

Scale Manipulation
Set elements in a free void
Gradient Colours
The same repeating element changes size as the player proceeds along a predetermined route. The player's perception of the world and one's own size changes.
Gates, checkpoints, and objects of interest create a route and structure in an open landscape.
Gradient colors create slow transitions or preparation for transition in an open landscape.

Multifacetedness
Surfaces at obtuse angles create a multitude of faces and niches for explorers to find.

Apertures
Apertures open through the fabric of physics between different spaces. The player can manipulate gravity and their perception of the room is altered when looking from a different angle.

Qualities from the games
Scaled to fit
Design Strategy - void

From the game studies I proceeded with a strategy of cutouts, similar to portals in orthogonal geometry. By cutting out 3-dimensional shapes in orthogonal boards one creates a complex geometry using a simple framework. I apply this strategy in the structural frame, creating a spherical node that ties the office together and opens up the low ceiling, as well as in the interior level where the voids create seats, tables and conference rooms.
The Design Proposal

The final proposal works with spherical, rectangular and pyramidal voids in orthogonal geometry. These voids exist as permanent structural interventions where walls and floor beams are cut in order to create spacious transitions in a compact structure and as spatial furniture where the void becomes a table or a space for collaboration in the centre and the surrounding cut boards a means to claim one’s own space.

The spatial furniture are modules where the main pieces could be disassembled and moved but they are linked to their current structural setting by specific additions that brush up against the ridges in the exposed structural ceiling.

The office is divided into six departments or levels: the tunnel, the forest, the desert, the library, the square and mountain. Each level has its own way to work, and is characterized by a specific colour gradient, materials: type of rug, plastic and concrete, set of spatial furniture and organization of workplaces.

Transient additions
Spatial modules, colour and perforations.

Permanent additions
Walls, voids and floor material.

Existing column-beam structure with facade

Isometric view
Scaled to fit (1:100)
The Levels

Entrance
A bright light room with boards that have been cut by the outline of the sphere node. The spaces made by the boards create an flexible work/showroom area. The mega-furniture create comfortable seating for waiting clients as well as on the go employees. The level culminates in the spherical node with an enveloping spherical mega-seat that makes up part of the room.

The Forest
The level has 14 set seats for employees that spend the majority of their time in the office. The furniture are set facing each other with contained tables in the back for a bit more privacy and sound insulation, while the window tables are exposed. The seating groups also contain 2 to 4 temporary workstations that are smaller and less comfortable (eg. back towards the room) so that the set employee also is encouraged to meet new people. There is a graded rug going from light yellow to light grey blue and soft yellow walls.

The Desert
A comfortable blue rug and pyramidal shapes creates a relaxing desert landscape where employees can go for a break or to work in a relaxed semi-social settings. The break room is separated in a volume in the back for privacy but it is perfectly alright to lay back and eat in the lounge as well. The showroom connects to the lounge which allows for a flexible event space where the showroom can expand into the lounge and vice versa. There is a quick connection between the kitchen and showroom to allow smooth service at events. The textile clad pyramids create a desert landscape that climbs up the existing structure.

Server hall
Industrial area that holds client data and the virtual layers for the office.

Creative area
A design library in a container sits on grey plastic floor that connects to a furry rugs in the creative zone. The creative zone consist of a long table framed by larger boards. These boards create semi-group rooms around the table.

The City
An open area with various furnitures that can be moved around according to need. A social informal work-setting like the coffee.

Mountain Sanctuary
A focus area that is accessed through a pyramidal tunnel in order to prepare for the quiet zone. There are pyramidal units for leaning against or working towards as well as work groups that are directed away from each other to increase the sense of focus and privacy.

Full immersive VR :
An open space that allow testing with full immersive VR rigs. The floor consist of solid concrete that can be taped or painted on to help control the virtual experience. Nearby there are restrooms with a shower for sweaty activities.
Seating Arrangements

Social Seating

Container facing forward
Four employees have their own back space made up by the boards that enclose the seating arrangement, but face each other and connect through the use of a common table.

Long creative table
This is a larger scale version of the container where the boards create sections in various sizes, large enough for groups and small enough for individuals working alone. The work is laid out on the common table, allowing for spontaneous interaction and sharing of ideas.

Privacy seating

Facing the slope
Tables facing a spatial unit instead of colleagues.

Offset group of three
Individual offices are grouped together, such as planning and control, ensuring there is an enclosed space for each employee.

Back to back
This setup is opposite the common table where employees face one another, creating a direct line of sight.

Office Layout

The layered office is an activity-based office, meaning that employees have no set workplace but pick a seat according to what they work with and how they prepare to work. The seats in the levels are arranged according to social and private work. I’ve looked at the layout of Herman Hertzberger Centraal Beheer Apeldoorn 1968-1972 to create a seating chart. In layers of the office, private seats face away from each other or towards each other at an angle while the back is with an advantage faced away from a wall of something protective to avoid supervision. The social seats focal point is towards other seats with collaboration centered at a shared table - if possible each employee has a wall or a small spatial protection to enclose the seat.

Plan
Scaled to fit (1:50)
The virtual dimension of the project is an experiment aimed at investigating how virtual and physical architecture could co-exist. The overall design aims at low self-similarity to make it easier for Augmented Reality tracking to overlay the physical environment with virtual elements. To decrease self-similarity further I've added perforation patterns derived from the rectangles and pyramids of the physical architecture to some of the modules. The virtual elements are text-based or simply the positive shapes of the perforations existing in tension with their physical cutouts. The Virtual layer could carry data information: schedules, meetings or suggestions, act as a means of apparent privacy by enclosing space virtually or simply as a virtual, hidden ornament in symbiosis with the physical environment.

Suggestions for virtual uses

Strategy for perforations to increase self-similarity
Site and existing building
Site: Ulvsunda Industrial Area

Ulvsunda Industrial area lies west of Stockholm, near Bromma Airport. The area was founded in the 1910’s but had it’s peak during the 1940-60’s when a range from heavy industries to wholesalers established in the area along with the airplane industry and research. Today there are only remnants of the airplane industry and the streets range with auto repairs, showrooms, offices and lighter industries. Many of the buildings have vacant space. Part of Ulvsunda industrial area will be redeveloped but the west parts lie too close to the airport and will be kept industrial zones while the airport is active.

Båglampan 35 is a warehouse/office complex along Ranhammarsvägen in Ulvsunda industrial area. It was built in 1959 and has seen many tenants come and go. It was originally a warehouse with some office space but has gradually been converted more and more to office space. Today, most of the facility is vacant.
Process
Game Analysis:

**Borderlands 2**

*Gearbox Software in Unreal Engine 3*  
*First Person Shooter, Role Playing Game, Single Play and Multiplay.*

Borderlands 2 is set in a fictional universe where megalithic corporations govern entire planets. The game events take place on the Planet Pandora, a colonized fringe world with hidden alien structures and a valuable mineral called eridium. Pandora is under the authority of Hyperion, a mining corporation that aims to bring "peace" (read oppression) to the region while mining its resources. The protagonists fight to defend the free Pandora and its many fortune seekers against the growing corporate tyranny. The setting is a science fiction wild west: a mixture of robots, bandit gangs and dangerous wildlife over several locations, each with their own set of dangers.

The narrative in Borderlands is linear with enacted story telling. The storyline is connected to main missions that progress as the player explores a specific location and completes given tasks. The world map is open and players can travel to any location they have discovered at any time. The linear narrative is supported by independent missions that they can engage at any time.

The game world is a garden with maze structures at larger locations like cities and landscapes with multiple settlement, and labyrinths in smaller locations. The larger locations offer a variety of missions and the maze structure supports this open play by allowing a longer and more complex exploration where the players can easily miss hidden paths and rooms if they do not pay attention. The maze can be approached using new paths every time. Smaller locations often have one main mission that follows a linear story that gradually unfolds as the player explores each room for the first time. The events are set to follow one by one and it is not as likely that the player will return after finishing the mission.

The player move between landscapes and built structures, guided by an interface with a map that show discovered location. Unexplored territory is covered by fog of war, meaning that the player lacks information about the geography and possible enemies. The architecture varies between bandit and corporate settlements but is generally patchy, with several structure piled on top of each other. There are often complex routes leading up these structures with secret niches for those who look close.

Many of the corporate units are developed from the container, covered in metal with company colours and logos. The bandit structures are simpler, narrow wood structure with hanging fabrics and messy writing on the walls. The structures contain several doors and non-transparent windows, not all leading anywhere. This gives the illusion of a greater, more complex space, especially in combination with the fog of war - the player can never be certain that there isn't a space behind.
Sanctuary: The last independent city

Drawing displays the limitation of actual movement and interaction, the buildings, and the borders of the city.

Sanctuary is a (relatively) safe place in Pandora. The player won't encounter any enemies, corporate or bandit, while here and can visit several shops and NCPSs for items, upgrades, and missions.

The architecture in Sanctuary is reminiscent of the corporate container architecture but has softer edges and lacks the strong colorscheme connected with the corporations. The city consists of stacked with different shapes and colors bundled together with graphical messages. There are no flat facades, even though many of these buildings can't be interacted with. They give a vivid impression by relief and volumetric organizations. They provide a false phenomenal transparency: what is essentially set pieces suggest that there is a multitude of spaces behind. This is partly made possible by the lack of literal transparency: there are very few apertures where the player can look from the inside out and vice versa.

The interactable space is multifaceted with several niches, corners, and recesses. These spaces enhance the false transparency in the facades and create alleys with scrap and shady characters that support the wild west, rough atmosphere that defines Sanctuary.

The city is connected to the outside by heavily guarded gates but early on in the game the city comes under attack and is lifted away from its geographical position. Sanctuary becomes a disconnected piece of land hanging in the sky, the borders being the ragged edges where the city was once pulled up. It is possible to jump of Sanctuary but it will result in complete loss of health and an imminent respawn.
Stacks and Volumetric layers

Stacks of angular and rounded corners.
Multifaceted corners
Round, angular, stacked and flowing faceting.
Game Analysis:

Journey
Thatgamecompany in PhyreEngine
2012
Adventure, Art-game, Third person.
Single Play and Multiplay.

Journey has a simple storyline: we follow a red hooded character that travels across the desolate ruins of an ancient civilisation in order to get to a mysterious mountain in the far horizon. The game is a labyrinth with an enacted linear story divided in 8 levels of chapters. Each level starts in a set architectural location with a seemingly vast desert space unfolding in front. This space is limited by mountains, or sand dunes in the far. There is no text, dialogue or player interface in the game. We are completely reliant on visual cues to find the way forward. Built structures, pieces of wavering fabric, light and wind serve as visual wayfinding queues and are easy to notice in the otherwise empty landscape. Larger structures far away are often shrouded in mist to create the illusion of a continuous landscape. The cut scenes display a 2D stylised map of the ancient, advanced civilisation at its prime and serve as an ambiguous clue to the setting.

Graphics

The game play is characterised by flowing, fluid movement. The character slides along sand slopes, and has a limited ability to fly by collecting magical pieces of fabric in its scarf. The built structures are dependent on this ability with partially complete bridges and great height differences to overcome. The game is focused on sensory experiences where light and colour are important atmospheric elements. The sand dunes behave similar to water with glitter, glimmer and sparkling up close in combination with mist and fog in the far. The textures are soft without outlines, with matte, large colour fields that are contrasted by the shimmering and glimmering. Particles occasionally create environments where it is hard to distinguish if the player flies in air or swims in water.

Each of the eight levels has its own colour theme ranging from warm yellows, to cooler pinks and greens, to dark blues and finally a clear blue sky when the player arrives at its goal at the top of the mountain. The mountain itself is an important visual queue that reminds the player of the goal and directs attention in the right direction. The architectural content is inspired by Islamic and Indian architecture with asymmetries and some technological features to suggest its advanced and unearthly status. The architecture changes somewhat over the levels but keeps the same form language and style throughout whereas the colour scheme changes more drastically.
The Slide towards Descent Scene
Architectural interpretations

The elements around the slide grow in size as the protagonist descends. Another system in smaller scale begins to emerge to have something relating to the scale of the character as the original elements grow out of scale. Dashed dotted lines represent the viewport available to the player.

1. *Top figure left*
   - Literal interpretation of scene to architectural drawing.

2. *Middle figure left*
   - Focus on the change in scale with blacked out shapes.

3. *Top figure right*
   - Layering of architectural elements in different resolution create an illusion of a world behind the interactable elements.
Transitions

A set route flows into a seemingly free world that again narrows into the next transition
Game Analysis:
SILENT HILLS P.T.

Silent Hills Playable Teaser
7780 Studio in Fox Engine
2014
Survival Horror
Single Play

Silent Hills P.T is a game teaser for the latest installation of the Silent Hill series Silent Hills, a game that was later cancelled. The Silent Hills series focuses around the events in the rural town Silent Hill - a mysterious town shrouded in mist where player where a dark alternate reality is weaved together with the fabric of reality.

P.T takes place in an American family home. The player walks through an L-shaped corridors finding visual and auditory clues to a series of family murders taking place in the area. At the end of the corridors is a closed wooden door, when exiting the player reenters the corridors and continue to walk through the loop throughout the game. Every time a new loop is started the corridors have been slightly altered using light, some change in objects present, apparitions and text on the walls.
THE NORMAL LOOP

PSYCHADELIC LOOPS NEAR GAME RESOLUTION.
By using a portal gun the player opens up apertures from one end of an orthogonal room to the other. While passing through or looking through these portals the player experiences a brand new view of the same space, a simple geometry becomes complex and for creative spatial thinking.
The Bullpen Office (apr. 1900 - 1930)

Employees arranged in rows with supervisors in surrounding private offices. The Bullpen was influenced by Fredrick W. Taylor's 1911 book "Principles of the Scientific Management," which sought to increase work efficiency through supervision. Today, this typology is often referred to as a Taylorist factory.

The Double Corridor (apr. 1930 - )

By the 1930s, the open-plan layout was subject to much criticism. Tengbom introduced the idea of the double corridor office with individual cell offices arranged along the facade and service and common functions in the center. The cell office provided employees with comfort and privacy but was spatially inefficient and increased the distance between employees.

Combi-office (apr. 1970 - )

An attempt at combining the advantages of cell offices with open landscapes. Cell offices are placed along the facade with an open flexible area in the center: a "living room." The offices have glass panels facing the living room to increase visual connectivity.

The Office Cubicle (1967 - )

The office cubicle was designed by Robert Propst for Herman Miller in 1967. Low walls or screens create an office stall where employees enjoy some privacy while maintaining the openness of an office landscape. Today, the cubicle is often viewed quite negatively as a symbol of modern corporate office work.

The Open Office (apr. 1965 - )

Employees are arranged in groups (mostly) along the facade. Bookcases and screens are used to increase privacy between workplaces. Common facilities and service areas are kept in the center of the layout. This is a common layout when renovating double corridor offices to a more space-efficient layout.

Flex-office (apr. 1983 - )

Employees have no set workspace and select a workstation each day based on preferences and the task at hand. The office is divided into zones that support, for example, creative work, teamwork, or quiet focus. There's an assumption that all employees won't be at the office at the same time and hence the number of workstations are often reduced to 60-70% of full staff.

The Open Office: "Modular Seating Groups" (apr. 1965 - )

The return of the open office in a new constellation. Modular desks are placed in clusters to support team work while creating some privacy using screens and offset placements of desks to avoid that employees must look at each other.

Working from home

Employees can work in a private and quiet setting, and they can use technology for remote work. Technologies such as video conferencing allow them to work from anywhere.

Coffee shop office (apr. 2000)

Employees work remotely in another social setting that the office. The coffee shop provides technology and a comfortable place to work and meet.
Video Projection

Video-projection by wall mounted projector. Virtual images are displayed on surfaces. This medium does not require devices to experience.

Virtual Reality (VR) is a fully immersive computer technology that allows the user to experience and interact with virtual space by wearing a head-mounted display and input trackers.

Virtual Reality with hand held devices and head-mounted display.

Augmented Reality (AR) is a computer technology that brings virtual elements into the user’s physical environment. Whereas VR replaces the surrounding world with a virtual one, AR enhances the physical world with virtual elements. AR can be experienced through head-mounted see-through displays, e.g., the upcoming Microsoft hololens, or through a screen.

Augmented reality through tablets and smart-phones.
Augmented Reality in Unreal Engine 4:
1. NTF marker, 2. Pattern Marker, 3. Pattern Marker Training
Drawing augmented by Augment application.