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Multifunctional entertainment hub
based on digital gaming and Japanese pop-culture

Digitaalmängudel ja Jaapani populaarkultuuril põhinev multifunktsionaalne meelelahutus keskus
Tokyos

デジタルゲームと日本のポップカルチャーに基づく多機能エンターテインメントハブ

MASTER THESIS

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SUPERVISOR: ÜLLAR AMBOS

FOREWORD

This master's thesis was prepared as part of the integrated studies in the field of the Academy of Architecture and Urban Studies at the Faculty of Civil Engineering of the Tallinn University of Technology.

Interest in the chosen topic is directly related to my everyday life. Gaming and virtual universes are an important part of me, they have shaped me as a person since childhood. When it came time to think about choosing a topic for my thesis, I realized that I wanted to set myself the challenge of linking my specialization and my personal interests. Thanks to the support of my supervisor, I came to the chosen topic «Multifunctional entertainment hub based on digital gaming and Japanese pop-culture». As an ordinary gamer, I was able to fully understand the needs of users of this industry and apply the acquired architectural knowledge in the design of a multifunctional gaming complex.

I thank the supervisor of my research, Üllar Ambos, for his support and constant assistance in the development of this work.

I am grateful to my family (T.I.M.S.I.) and friends, thanks to whom I went through this difficult path and was able to find myself.

ABSTRACT

The gaming industry is a phenomenon of the present. Now, digital technologies have changed the perception of our familiar world, creating a parallel plane of virtual reality. This contribution to the formation of modern society and the world is enormous. People of all ages are massively immersed in the game space in search of missing elements in real life.

Video games are one of the fastest growing IT markets in the world. Already today the volume of the gaming market exceeds the income of the film industry, gradually catching up with the sports market, and the income of individual companies specializing in the development and sale of video games is in the billions of dollars.

Nowadays, gaming technologies have advanced powerfully in terms of their concept and hardware, but real-life gaming spaces do not keep pace with the development of technology, they need to be updated – this is the problem and the question of research in order to create a flexible space that takes into account all modern needs.

ANNOTATSIOON

Mängutööstus on uus nähtus. Tänapäeval on digitehnoloogiad muutnud ettekujutust meile tuttavast maailmast, luues virtuaalreaalsuse näol uue paralleelmaailma. Selle panus kaasaegse ühiskonna ja maailma kujunemisse on tuntav. Igas vanuses inimesed sukelduvad mängumaailmadesse, et otsida sealt miskit päriselust puuduvat.

Videomängud on üks kiiremini kasvavaid IT-valdkondi maailmas. Juba praegu ületab mänguturu maht filmitööstuse tulusid, jõudes järk-järgult spordisektorile järele ning videomängude arendamisele ja müügile spetsialiseerunud üksikute ettevõtete tulud ulatuvad juba miljarditesse dollaritesse.

Tänapäeval on mängutehnoloogiad oma kontseptsioonilt ja riistvaralt võimsalt edasi arenenud, kuid päriselu mänguruumid ei käi tehnika arenguga ühte sammu, neid tuleb uuendada – see on probleem ja küsimus, mida tuleks uurida, et luua paindlik ruum mängimiseks, mis arvestab kõiki tänapäevaseid vajadusi.

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1 INTRODUCTION

1.1 Problem statement

Organization of the game center is a complex, multifaceted process, which is accompanied by multiple difficulties and trials. The main goal is to satisfy users needs.

The gaming industry is becoming a more and more expressive phenomenon and mainstream, in terms of concept and presentation, gaming technology has made a huge leap, but the existing spaces in which the players are located require attention and updating.

The current situation is rather deplorable, as the gaming industry is developing, but the provision remains at a fixed level. These are mainly closed warehouse-type premises. There are a considerable number of gaming clubs, Internet cafes, virtual spaces and so on. But all this exists only separately. The problem is that there is no single point of contact.

As part of the project being developed, the proposed game center should solve the main tasks:

- Creation of special venues for gaming tournaments and development of a sports and competitive focus.
- Development of a functional layout, considering the constant development of gaming equipment.
- Space layout designed for different types of games and user interfaces. Planning private rooms for small tournaments, LAN parties, slot machines, virtual spaces, interactive events and more.
- Capturing users confidence and creating a target consumer group.
- Creation of an object to attract the attention of a tourist group of people, interested in the gaming industry.
- Development of spatial conditions for different consumer users and gamers, with the possibility of long stays, skill growth, training, and development of start-ups.

The main concept of the project is the design of space, focused on the world of digital games and the pop-culture industry.

During the development and organization of the game center project, the same tasks are cyclically solved:

- An assessment of the situation and own capabilities.
- Goals are being set, priorities are determined, a program and stages of organizing a gaming center with a range of services are outlined.

This program is supported by technology, organization, and financial and economic management.

Due to the specifics of activities, strategic goals and objectives, the project of a game center with a range of services is unique and intended for implementation only in this area.

1.2 Relevance of the topic

The problem of modernity is loneliness, many people suffer from depression and overexertion, to get rid of this, people are immersed in the game world, many find communication and beauty there. To socialize this environment, it is necessary to build an object that will unite all types of playing space and people together, linking them and their interests together. The creation of such a space can also push to the development of new technologies.

Thus, in the modern world, the creation of gaming centers is one of the largest segments of the entertainment industry. The scale of the gaming industry can be compared, for example, to the film or music industry. And in terms of growth rate over the past five years, the gaming center industry has significantly outstripped it. In terms of the degree of influence on consumers and their involvement in the gaming environment offered by the industry, this segment has long been distinguished from other types of entertainment.

The industry of computer games, that is, the development, publishing, and promotion of games, is one of the fastest growing branches of computer technology and at the same time the global entertainment sector. Games become a cultural and global phenomenon and are recognized as a work of art (Voidenko S., 2021).

Popularity of gaming is growing (more than 2.5 billion players in 2021) and becoming a highly paid profession. A powerful structure is being progressed. In addition to game developers and publishers, specialized media, various financial and advertising tools are beginning to develop; physical platforms are developing (modern Internet cafes, spaces for cyber tournaments, etc.).

Studying the statistics of the development of the world market of computer games, the trend of constant growth can be traced. Based on Newzoo estimates, the market has grown at an average of 11% per year over the past five years and is valued at \$152 billion in 2020. The global games market was able to overtake such giants as the film and music industries (total 62 billion dollars).

The main factors for this growth were the wide availability of the Internet and the popularization of digital computing devices.

The largest market is the Asia-Pacific region, which is over \$70 billion in 2021. Considering this region, the leading countries in the market are China and Japan. (Hollington E., 2021).

Thus, the development of gaming centers is becoming more and more obvious, localizing an entertainment complex, which includes an indoor arena for global and local games and tournaments, a concert complex, a hospitable hotel, merch shops, restaurants and, of course, an entertainment center for gamers.

1.3 Description of the purpose of the master's thesis

The aim of the master's thesis is the development and implementation of the project of the game center in Tokyo. How to represent a strictly online community of gamers by the means of architectural infrastructure (building complex-gaming center) which would support their community, culture, and relationships in real life by also providing professional state of the art tools and facilities to practice and compete together? While also being open for the wider audience.

1.4 Methods used in the master's thesis

The steps and methods used to develop a Tokyo play center include:

- Comprehensive analysis of the state of the market in this area, including detailing to individual areas.
- Analyse references and identify common features.
- Reference research. Comparison and inference.
- Development and definition of the basic version of the game center model, considering all possible activities and risks.
- Development of the final document for the practical implementation of the project of the game center in Tokyo.

2 GAMING INDUSTRY OVERVIEW

2.1 Origin

In America and Japan, the gaming industry appeared almost simultaneously. The very idea of games appeared in the USA, as an experiment at the university. In 1947, two inventors, Thomas Goldsmith, Jr. and Estle Ray Mann, filed a patent for a device that was equipped with a CRT tube with buttons that allowed the aiming point to be aimed at sketched aircraft figures. After some time and until 1962 (when Spacewar came out), research was carried out on the basis of various universities in an area that can very conditionally be called gaming (Volkov O., 2015).

But despite the fact that such experiments are unknown in Japan, corporations like Nintendo, owning new technologies and knowing the local market well, received new technologies that quickly became common among children. And Ralph Baer, who co-created Atari's first home console, worked for Sanders Associates in 1966 and worked with Bill Harrison to create the «Brown Box,» the first home console prototype from which Atari's first home console grew.

In 1972 the «Brown Box» was finalized and renamed the Magnavox and then became the Magnavox Odyssey (in 1972). Also in 1972, Atari released its first Pong, designed by Allan Alcorn and Nolan Bushnell - the first success of the company and arcade machines in general. Only in the first year of Odyssey sales, the company sold 100,000 copies (Volkov O., 2015).

Atari in 1974 started releasing a new game every month. And Bushnell had plans to develop his own games that would be similar to Dr. Pong, Pong Doubles, and QuadraPong. Other companies also appreciated the approach and began the process of creating endless copies of sports games such as Handball, Hockey. At the same time, the first text-based games appeared, such as the adaptation of Dungeons & Dragon - Adventure (1976).

The situation with Japan was different. The first automaton game was released in July 1973 and became Atari's Pong. Japanese giants such as Taito and Sega started producing clones of the famous bestseller, which, in a very original way, was called Elepong and Pong TRON. Launched by the company in 1955, the electronics company Nakamura Manufacturing Co., Ltd. in the same 1973, she entered into an agreement on the sale of products with Atari, becoming its official distributor in Japan. The success of Space Invaders in 1978 was such that it caused a shortage of 100 yen coins in the country. Other developers immediately began to release clones of already Space Invades (Fromm E., 2016).

It was in 1977 that Nintendo introduced its most popular product, the Color TV Game. In 1977 the first personal computer Sord M20 was released and Sharp MZ-80K in 1978. Following Nintendo, Konami, Dat East, Irem, SNk, Nichibutsu, Sunsoft, Jaleco, Tecmo, Capcom began to explore the market. Thus, in the homeland of consoles, in Japan, they have long been more popular than in the homeland of arcade machines.

This is explained by the collectivist consciousness of the Japanese of that era. Between 1975 and 1983, 125 consoles were released, and in the late 70s, an overproduction crisis covered the rapidly developing industry. Only Sega, Nintendo, a few smaller companies remained in the game. But even the popularity of arcade machines began to decline in 1982. Donkey Kong - 50,000 arcade machines; and Donkey Kong 3 - 5,000 arcade machines (Zmievsky P.V., 2017).

In America, from the late 1970s to the mid-1980s, the term "Golden Era of Video Games" appeared (it was then that a huge number of ideas and concepts were born that moved the industry for the next ten years), the United States was preparing for the worst.

With the development of the Internet, there is also a trend of new online projects. The browser platform becomes independent in the late 1990s and provides opportunities for entertainment and education.

2.2 Definition

At the beginning of the 2000s, there was an exponential growth of social networks, which became a new way for communication between Internet users. At that moment, game developers cannot ignore the browser platform and it has a separate platform for games and applications for it, which are now called social. At the time, many thought it was a huge breakthrough in the gaming industry. There was a lot of attention paid to social games, growth was over 200 percent since it was something completely new. At the same time, saturation came quickly. Low-quality games produced at breakneck speed in order to occupy the market are being replaced by high-quality games with good graphics and serious gameplay.

But since the end of the first decade of the 2000s, the emergence of smartphones, under which it will be possible to develop powerful projects, has opened up a whole range of opportunities for the mobile gaming industry. At the moment, mobile platforms are implemented through two types of devices - a smartphone and a tablet. According to many players, it is mobile games that are now one of the most promising markets that can generate maximum profits with a low level of entry.

The computer game industry is a sector of the economy associated with the development, promotion and sale of computer games. It includes a large number of specialties in which tens of thousands of people work around the world.

2.3 Components

2.3.1 Platform

If we talk about gaming platforms, then here we can distinguish five market leaders, although in addition to them there are well-known companies, as well as other brands and platforms. Let's describe the main providers that are now leading the market.

1. PC gaming platforms

For a long time, free online games on PC have become one of the main places for hardcore gamers who love to play PC games. For decades, Dell, HP and Sony have competed in the market. The most interesting thing about the PC as a gaming platform is the technical innovations. In order to make games more interesting, companies like Razor and Alienware have come up with ways to make games more fun and provide a more immersive experience (Vasilyeva N.I., 2009). In a world where Sony's PlayStation gaming platform has sold over 100 million units, PC companies like Alienware have to offer something special. Their unique selling point is power. But this is no coincidence, because professional esports games use such gaming computers as, for example, HyperLiquid Ryzen X.

2. Mobile gaming platforms.

The market of top games for phones for iOS or Android has grown several times in recent years. Statista reports that global mobile gaming revenue will exceed \$102 billion by 2023. Market value growth of nearly \$30 billion in 2020 (Genio Invest, 2021). With the help of such gaming platforms, the popularity

popularity of mobile games is increasing primarily due to smartphones and casual gamers. While apps have gotten more advanced over the years, mobile gaming is no match for PC gaming. Based on recent data, it is safe to say that casual gamers are the driving force behind the modern gaming market. According to Nokia Research, about 60% of all games on the market are currently installed on smartphones. There are over 3.8 billion smartphone users in the world today. In 2020, games were downloaded 80 billion times. According to Newzoo, 2.5 billion people play on mobile phones. This indicator shows that new online games have become mass entertainment (Genio Invest, 2021).

3. PlayStation games platforms.

At the heart of such platforms is the first PlayStation console. As part of a collaboration between Nintendo and Sony, the brainchild of Sony CEO Ken Kutaragi is the first PlayStation console. Both firms were founded in 1988, and one of them was developing CD-ROMs for Super Famicom consoles. According to Kutaragi, the idea is to produce a product in-house that uses CDs instead of cartridges. In 2020, Sony introduced a new model of the PlayStation 5, which has two formats: with and without CD-ROM. All in all, the PlayStation 5 is the best gaming console in the world, which is why it is in high demand.

4. Microsoft Xbox platform

Microsoft launched the gaming platform market late, but quickly caught up with its lost place in this market segment. The Xbox may not be as popular as the PlayStation, but it is one of the best manufacturers in the world. And today, Xbox is the ninth generation of the console. In 2020, the Series X and Series S models were released, which cover all market segments. The Xbox Series S is a cheaper version of the Xbox Series X.

5. Games on Nintendo gaming platforms. In this area, Nintendo has always been at the forefront. From its first NES and Super Nintendo gaming platforms, it has revolutionized the game. In fact, it was thanks to these consoles that video games became very popular, which led to the creation of a multi-billion dollar industry. And, of course, the most interesting thing about Nintendo is the changes that have taken place over time. Now the company is one of the most popular among gamers. Beyond active gaming platforms, there are many ways to enjoy video games passively. The video broadcast market has grown over the past ten years. Although there are doubts about the estimated audience of the Twitch platform, it is estimated that this number could be as high as 9.3 million people.

6. YouTube.

In general, YouTube is not a gaming platform or a streaming platform, but it has become the center of streaming. On YouTube, the most popular bloggers collect millions of subscribers. Convenience and variety of games on YouTube. And this despite everything – this place has a more relaxed atmosphere than Twitch, which is a product of the hardcore segment of the industry. But if you think about what has been said, it becomes clear that now the gaming industry is at the peak of popularity and accessibility, and it is also open to everyone. If you wish, you can always find for yourself a suitable platform to your taste, which will meet all the requirements. In this regard, there is no doubt that any gamer who loves to play games will find something interesting for themselves. Such trends in the gaming industry in 2021 will continue for a long time to come.

2.4 Classifications

2.4.1 Genre

Since the mid-90s, the genre of games began to develop rapidly. A series of games served as the basis for creating a classic set of genres. For this reason, they were created as a result of the fact that after the popular «original game» hit the market, both official and third-party creators continued to exploit the features of the first game by making «clones» (Yugai I., 2008).

Table 1. Traditionally distinguished genres according to Kutlaliev

Genre	Description
Action	Requiring good motor skills, eye
Simulator	Imitating certain areas of activity
Strategy	With a focus on resource management
Roleplay	With an advanced character-building system
Adventure	Assuming overcoming various obstacles in the way of the character
Puzzle	Consisting in solving logical problems built on a common set of rules

Educational games and sports games are also distinguished separately. So, in 2014, Kutlaliev dismantled a number of genre groups that divide games within themselves into subgenres.

2.4.2 Mode

The game mode is a variation of the game in a computer game. One of the most popular modes is single player. In this mode, the player is in contact with computer opponents with artificial intelligence. The most common single-player games are quests, JRPGs and economic strategy games, some simulations, or games with a maximally enhanced story component, where the presence of a second player leads to absurdity.

The objectives of the single player game are as follows:

- Confrontation with game artificial intelligence.
- Movement towards the goal of the game.
- Accumulating points or improving skills.

A single player game is organized as an interactive dialogue between the user and the game, in which the content is revealed. The opposite of single player is multiplayer.

Multiplayer – it is a mode of a computer game during which more than one person plays the game, either locally or online via the Internet. In this mode, the player fights against players or the opportunity to play together against artificial intelligence. Thanks to this mode, players get the opportunity to communicate with each other using text or voice chat.

In addition, some games have a free mode for characters to roam freely in the open game world and complete quests. The game world is often a stable system with dynamic change.

To keep players motivated for the long term, many Games as a “Service games” offer players regular new game modes, events, and mode changes. In other games, it is possible to adapt game modes differently, so that they may deviate from more than just the actual principle and rules of the mode.

2.4.3 Motive

There have been some turning points in the history of the gaming industry, when the face of the entire industry has changed dramatically over a short period of time.

Games are becoming more popular and interactive. Developers move in place with new technologies and even instigate their development.

Services such as Google Stadia, PlayStation Now or Playkey release resource-intensive applications that are not tied to hardware. In the future, this will give developers the freedom to create without technical restrictions (David Thomas, Kyle Orland, Scott Steinberg, 2007):

- Expensive equipment will no longer be a problem. Anyone will have the opportunity to realize their fantasies in creating games.
- A new game format will appear, which from the very beginning will be created according to the standards of the cloud resource and will not be technically limited. For virtual spaces, including VR, new horizons and opportunities will open. The scale of cities and even entire planets will be worked out to the smallest detail to immerse players in the most realistic games.
- In the future, a new class of games will combine many genre fragments, the usual genre boundaries will disappear.
- Virtual communities tend to more resemble real ones, thanks to the introduction of features for contact between players. (Kevuru Games, 2021).

2.4.4 Content Rating

The gaming industry today is vastly superior to the music industry. It can only be compared with the film and television industry. However, in view of the changing demand for games, a large number of project analysis technologies are being developed.

Here we are talking about social games, as well as online games that provide a more dynamic income due to the detailed monetization of aspects of the project. But in the case of classic video games, only sales volume can be analysed (David Thomas, Kyle Orland, Scott Steinberg, 2007).

Elements that are analysed:

- DAU and MAU – the number of users per day and month, respectively.
- ratio of one indicator to another: DAU/MAU.
- the degree of involvement – reflects the amount of time that the player spends in the project.
- coefficient K – reflects the average increase in the number of players per game.
- something like a «degree of insanity» on the game world.
- ARPU – the average amount of money a person invests in a game.
- LTV is the value of a particular player, which generally depends on the finances invested in the game project, attracting friends through referral links, participation in the life of the project (promotions, contests, events), as well as activities outside the game to advertise the project.

2.5 Video game development

The development of any game can be divided into several stages. Each of them has its own characteristics and requires an individual approach and knowledge, but they all start with an idea. In the process of developing video games, as a rule, there are many questions that need to be clarified before starting work. When considering all points, it must be borne in mind that they are of equal importance and must be considered together.

1. Setting

At the same time, the setting is the context of the events of the game. What places and times will surround the player in the game world. In the process of an idea, all of these things can be very vague, but should give a rough idea of the idea. Modern culture is replete with many already established settings in which many people are fans. Here are some examples (Mark J. P. Wolf., 2012):

- Fantasy
- Sci-fi
- Alternate history
- Real world
- Setting specific works (for example, «Harry Potter» or «Star Wars»)

The setting doesn't have to be compelling, but it can unlock its potential through the other two elements of the idea.

Key gameplay (core gameplay) is conditionally the genre that was chosen for the game. As a rule, this is an approximate gameplay basis. Let's consider some of them (Mark J. P. Wolf., 2008):

- Shooter
- Strategy
- Races
- Visual novella
- Puzzle, etc.

However, it is worth noting that the genre does not always give an idea of the main mechanics in the future game, and therefore it is possible to supplement the description of the genre with some gameplay features on which the plot is built. The concept of «core gameplay» includes mechanics, without which the game will lose its meaning. If you remove shooting from the game, it will become a completely different game, but if you remove grenades, then nothing will change. In this example, shooting is a mechanic, and grenades are features or regular mechanics.

2. Experience

This is the essence of the idea, what the innovator needs to be shown. Any experience is the central moment in the game. In order to properly illustrate this point, we will give some examples of the idea, made up of all three parts.

- A third-person action-adventure about the hunt for Bigfoot, which lives in the mountains in the western United States in the 1940s-1950s.
- A visual novel invented by the authors, which tells about one of the people who ended up in purgatory, whether he goes to heaven or hell largely depends on his actions.
- In a game where the player will take control of a tribe of mythological creatures - centaurs, for example - he must make the most of their physiology for warfare and economy in the Bronze Age.

And it is not always possible to state it briefly and simply. The simpler the idea of a game, the easier it is to describe it.

Once the idea has been created, it's time to implement it. It goes through several stages: pre-sale preparation (pre-production), after which the actual production takes place, as well as product support. The ability to competently and on time to complete the work is one of the main qualities that any game designer needs to have.

3. Prototype development

After all the main mechanics and ideas are defined, you can start looking for options for their implementation. Prototyping is one of the most important stages in creating a game, which allows you to know in advance how this or that part will look in the game, see some shortcomings, remove or add something. It provides answers to fundamental questions, the answers to which must be documented.

4. Compilation of documentation

After completion of work with the prototype, the documentation should fully describe all the developments at the time of completion of work on the prototype. At the moment, the first version of the document to be created is in development - the Pitch or Concept document. It explains the essence of the game as simply as possible so that any person who has never played it can understand what it is like. But the second type of document is a design document. He already describes the game and all its main parts in detail. And according to this document, the game is created.

5. Production

This is directly the production process of the game. A very important role at this stage is played by a person and his interaction.

6. Team

At least 5 roles are required to develop games: game designers, programmers, artists, managers and marketers. In this role, there are neither major nor minor, in the absence of at least one of them, the game immediately loses its chances of being completed and even successful.

2.6 Industry

2.6.1 History

Let us dwell on the main stages of the development of the video game industry.

1. Mastering – 1950–1970.

The evolutionary development of the computer naturally affects the history of the development of video games. When huge computers appeared in the early 50s of the last century, they solved fairly simple arithmetic problems. These were monster games that had nothing to do with them. The creative minds of US universities were developing simple computer games. But these inventions were not intended for entertainment, but rather to demonstrate how this technology works.

2. Late 70s – Birth of slot machines that were invented at that time.

But since the mid-70s, in connection with the advent of more and more compact computers, it was necessary to develop new programs for their use. Atari was founded in 1972. Over the next decade, the company led the video game industry and also developed Pong, the first game to achieve worldwide success.

3. The first video games appeared in the late 80s.

Some classic games that are still popular today came out in the 1980s: Pac-Man (1980), Ultima (1980), Mario Bros (1979), Tetris (1979), SimCity (1989).

By the beginning of the new century, thousands of new set-top boxes flooded the market, as well as new inexpensive and powerful home computers. The console market crashed in 1983. Many firms went bankrupt, including Atari. But before that, Atari released ET (1982), which to this day is considered the worst video game of all time (Ernest Adams, Andrew Rollings, 2007).

4. The 1990s, and at this time there is a transition from the Soviet period to a new dimension.

As in the first generation, the gaming industry began to grow. The graphics of games have moved out of a new dimension – this was due to the fact that in the middle of the decade the graphics became three-dimensional. Now players could move in three directions instead of two. These game worlds were more realistic and offered more challenging experiences. Consoles and games competed for share in an ever-growing market. A year later, in 1994, Sony released the PlayStation.

5. Games go online – 2000s.

In the early 2000s, the Internet was not yet powerful and developed enough for people to be able to play against each other online. At that time, LAN parties were popular, when gamers gathered together at a designated place and connected their computers to a local network in order to play against each other or together. At such parties, the game Counter-Strike (CS) was especially popular.

And yet, with the development of the Internet and the growth of its use, games have become more accessible online. In the 2000s, such bestsellers appeared as: Grand theft auto: San Andreas (2004), Super Mario Galaxy (2007), Minecraft (2011), The Sims (2000) (Ernest Adams, Andrew Rollings, 2007).

6. 2010s. At the moment, you can play anywhere and anytime.

In the last decade alone, video games have brought their creators a billion dollars, and the profit is higher than that of the film and music industries. At the moment, there are a large number of independent game studios developing different types of games for all existing platforms. This further increases the number of people who regularly play video games. The time has passed when all this was exclusively for children and teenagers. Also, older people can find exciting games and puzzles on their mobile phones. Games like Red Dead Redemption 2 (2019), which, thanks to complex dialogues and emotional storylines, not only provide hours of gaming pleasure, but also take a different course depending on the player's decisions, and therefore it is possible to play them again and again, released for PC, PlayStation, and Xbox.

7. 2020s, virtual world.

From ordinary dots on a light grey screen to colored pixels and realistic 3D landscapes. With the help of technological advances, the history of video games immerses players further into the virtual world. And as for history, it will continue in the same spirit.

In addition, now thanks to virtual reality, gamers have the opportunity to fully immerse themselves in the game. This technology is still under development. This better graphics resolution, tactile sensors and lighter devices will define the future of the gaming industry.

2.6.2 Industry roles

Just like in any segment of the market for the production and release of content, the gaming industry is not much different from ordinary IT, where the final product can be a convenient web service, a banking application, or a social network. There, and there are processes that are divided into the stages of pre-production, production, release, and support of the finished product. And the more people are involved in these processes, the more complex and multifaceted the activity itself becomes.

There are still differences between IT and game development. And they consist of such professions that are not typical for the usual development, but without which it is difficult to create a high-quality video game.

Here are main roles in game development:

1. Game designer

A game designer is not only a game designer, but also an architect of the game world. He develops a general concept and describes in detail the mechanics of game actions: setting (location, time), what target audience it is intended for, what mechanics it will have, what game experience he would like to convey. He creates ideas, sets tasks and accompanies these processes until the development is completed. The team works closely with him, so good communication skills are a definite plus for a game designer.

2. Developer

A developer in game development is engaged in the implementation of what game designers came up with. His tasks are to design the game architecture, implement game features, write clean code for the game, and optimize the game.

3. Artist

Artists and art directors working on the visuals of the game.

4. Concept-art

Specialists draw or model several versions of the same object, character / location at once, in order to choose the best one for further work with the joint efforts of the art department.

5. Animators

These people create bone, procedural and inverse animation for characters and objects that the player will interact with in the finished project.

6. UX/UI design

The interface is an integral part of any product. From this interface, the player receives information on how to interact with the game, and also learns how to perform many repetitive operations (Utochkina E., Akkuratova O., 2017).

7. Tester

Testing is an area where you can start your journey in game development. QA specialists test the game and look for bugs in it on various gaming platforms, write test documentation and accompany the release of the game.

8. Technical designer

In game development, this role appeared relatively recently, but has already managed to win its place in the leading studios in the world. The creative staff of the technical department is at the intersection of game design with technology and the technical part of the game, so their task is not only to develop an idea, but also to implement and prototype it on their own.

9. Level-designer

Specialists design the level on which the player will walk. They collect metrics that will be used to build gameplay on the level, determine the scale of items on the level and work closely with game designers to ensure that the rules of the game are consistent in terms of level design.

10. Project manager

In order for all development participants to communicate more effectively, and for the deadlines for completing tasks to be within the normal range, game development also requires a project manager who monitors the fulfilment of obligations to customers or studio heads.

2.7 Cybersport

2.7.1 Cybersport as a sport

Today, one of the fastest growing areas in the gaming industry is eSports – individual or team competitions held in virtual space using computer technology.

Esports or cybersport is a type of competition in the virtual space, where players fight among themselves in teams on equal terms.

The most popular eSports disciplines include 3D shooters simulating combat between players using modern or fantasy weapons, simulating sports games (FIFA series of games); real-time strategy games (StarCraft).

As a rule, eSports is a competition in video games in a single or team event. But not every game is like that. A multiplayer mode is required. However, the developers are required to observe certain principles of fairness for two or more participants to be on an equal footing at any stage of the match.

This is possible due to strategic depth and the right balance between ability and skill, and not elements of chance (their influence should be minimal). It is thanks to this that each match becomes unique, like a chess game, which attracts both gamers and spectators.

The presence of in-game tools for holding tournaments and the visual accessibility and readability of the elements on the screen also contribute to the growth of the importance of eSports. First of all, this is necessary so that the organizers of the competition can broadcast matches without any problems. As for the second point, this is so that the spectator and the player himself always understand what is happening in the playing hall.

In addition, here it is necessary to consider the quality of the network code, the system for selecting opponents in matches and many other little things – all this distinguishes real competitive players from others.



Source: (Esports)

2.7.2 Role in the Olympics

Esports has long been discussed within the framework of the Olympic Games program. In professional sports, there have already been real precedents for such a collaboration – for the first time, e-sports debuted as a demonstration sport at the Asian Games in 2018. Then, albeit outside the team standings, but within the framework of a major sporting event, competitions called League of Legends, Hearthst and other games were held. But this is only one side of the coin.

Thomas Bach, chairman of the International Olympic Committee and one of the main opponents of esports, has repeatedly stated that esports competitions are not included in the list of competitions, as they promote violence. But even he, in the midst of the coronavirus pandemic and the cancellation of all competitions, called for strengthening the ties of the international federation with eSports (Forbes, 2017).

Now it is too early to talk about the global recognition of eSports, but in some countries of the world it is already recognized as an official sport. Currently, cybersportsmen are athletes in such countries as Malaysia, the Philippines, South Korea and China, Russia, France. Several other countries have expressed their interest in recognizing esports as a sport. First of all, these are Sweden and the UK. For example, if computer sports appear at the Olympic Games and are included in the list of disciplines, then it will seriously expand.

The Olympic Games can be a powerful stimulus for positive change. All kinds of sports went through stages of formation and development. However, some sports already exist in the distant past, while others are just emerging. Today's esports is not yet the biggest step forward, but already now it boasts a multi-million audience.

2.7.3 Leagues and Tournaments

According to preliminary estimates by Newzoo analysts, in 2019 the global eSports market amounted to over \$1 billion. The market size of the gaming industry is directly related to the level of prize money, sponsorship, media rights and advertising revenue. According to longer-term forecasts, the esports market could grow to \$3.2 billion in 2022.

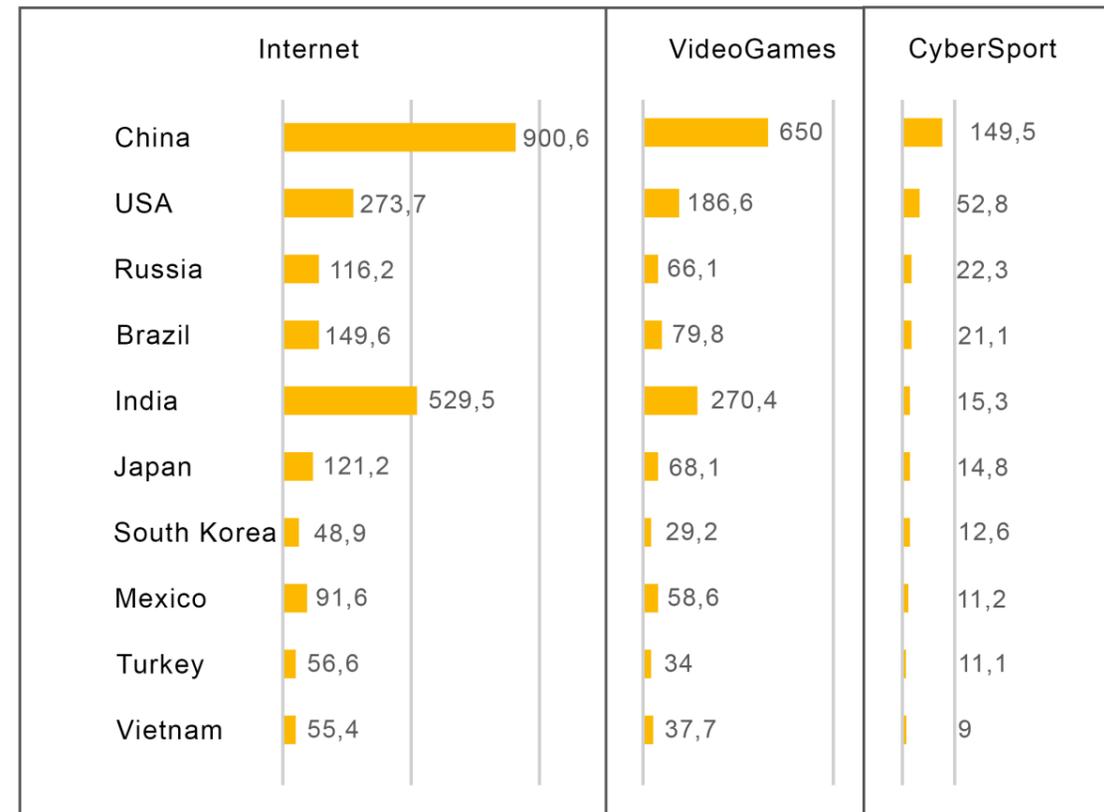
Nowadays, esports competitions are compared with the championships of more traditional sports (in terms of prize payments). According to statistics, more than \$700 million in prize money has been paid out over the entire existence of esports. Also, compared to traditional sports competitions, eSports also gathers huge audiences in real conditions.

Table 2. Esports games with the largest total budget for tournaments from the moment of their creation to 2019, USD (Newzoo, 2022).

Game	Year of issue	Total Prize Pool USD
Dota 2	2013	219 095 635
Counter-Strike: Global Offensive	2012	87 119 453
Fortnite	2017	84 420 164
League of Legends	2009	73 091 646
Starcraft II	2010	32 137 196
PUBG	2017	21 747 809
Overwatch	2016	21 352 202
Hearthstone	2014	19 208 088
Heroes of the Storm	2015	18 141 257
Counter-Strike	1999	13 484 561

Source: based on data from Cybersport.ru and Trashbox.ru

Pic. 1. Leading countries in terms of esports audience size in 2019, million people.



Source: Newzoo, 2022

2.7.4 Economy

The eSports market has become one of the most active in the last two to three years, with the number and size of M&A transactions increasing significantly. The most important development was Amazon's acquisition of Twitch for \$970 million in August 2014, and since then, many buyers have been shopping on this service. In total, over the past two years, the Swedish MTG has acquired about a dozen companies and most of the transactions were over \$50 million: mobile entertainment developer InnoGames (\$90 million) and organizer of cyber competitions ESI (\$87 million), event company Dreamhack (\$28 million).

And here's another deal that was announced in 2016 and took place in 2017 – TimeWarner's purchase of Machinima, a video-based video game studio, for \$100 million. In August, The Walt Disney Company division revived the market for \$1.78 billion dollars by increasing its stake in streaming company BAMTech (Newzoo, 2022). In September, the American video hosting Vimeo opened the streaming business: by opening the Vimeo Live service, the company also simultaneously announced the purchase of technology provider Livestream.

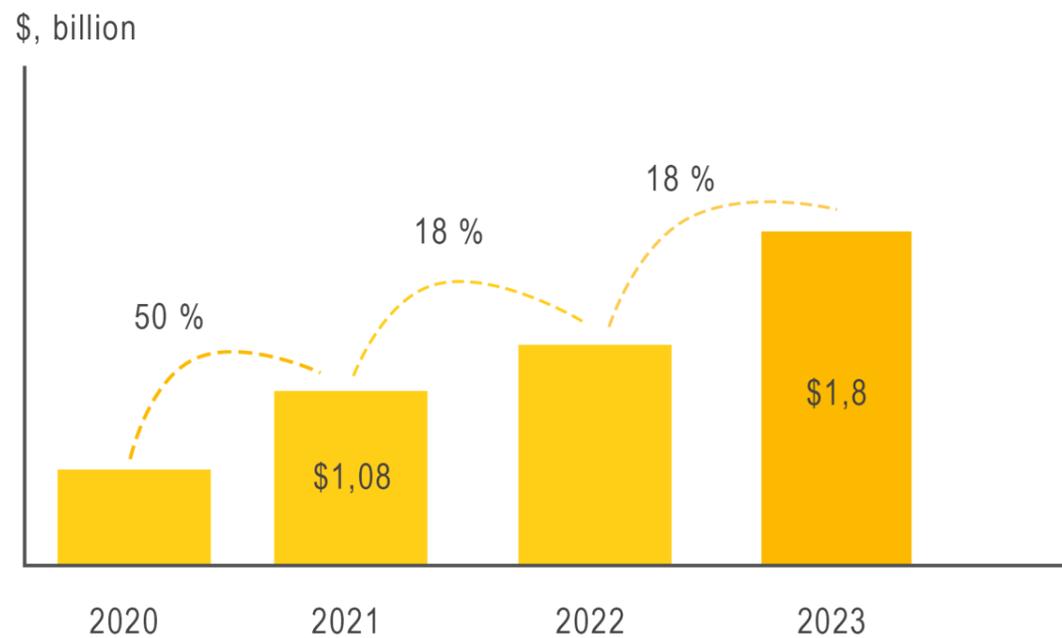
The global eSports market shows growth rates above the IT market. According to Goldman Sachs forecasts, it could reach 350% in five years. Esports revenue increased from \$950M to \$1.1B in a year. In 2020, 2.7B gamers spent \$160B on games. Player salaries can exceed \$20,000. And in CS: GO, top players can be valued at up to half a million dollars. The number of bets on esports disciplines in 2020 amounted to about 15 million US dollars (Newzoo, 2022).

Esports is recognized as an official sport in Ukraine, Russia, China, South Korea, Malaysia, the USA and other countries. League of Legends games outpaced a large proportion of established sports leagues (100 million, or about 3.5 million, compared to MLB's 32 million and NHL's 5 million). It is currently the fastest growing industry in the entertainment industry.

- Global esports market valued at \$150+ billion.
- By 2022, the eSports market will grow by 2.2 times.
- Over 650 million people – the audience of eSports tournaments in 2019.
- In 2021, the global esports games market is valued at \$1.08 billion, up nearly 50% from a year earlier.
- At the same time, the average growth rate of this segment in the period 2021–2023 will be 18%, which will correspond to the total market in 2023 – \$1.8 billion (Newzoo, 2022).

Red Bull, Coca Cola, Comcast, professional sports clubs Golden State Warriors, Houston Rockets, Sacramento Kings, Cleveland Cavaliers are investing heavily in this area. Mike Tyson invested in Fade 2 Karma organization. Actor Ashton Kutcher, basketball players Shaquille O’Neal and Michael Jordan have invested in the parent company of the eSports organization Team Liquid. Alisher Usmanov invested more than \$100 million in esports, and Mail.ru decided to launch its own esports league (Genio Invest, 2021).

Pic.2. Growth of the esports market (Genio Invest, 2021)



2.7.5 The role of the media

In the entertainment industry, there is another component – this is interactive entertainment. This also includes printed publications. Magazines dedicated to gaming events and events to be held as part of the release of the new project are an integral part of this industry.

One of the most famous Russian publishing houses is the Igromania magazine, which was created in September 1997. And they are very colorful covers that draw attention to the content, as well as the way the material is presented – written in simple language, understandable to a wide range of video game lovers. Circulation is 180,000 copies.

Various gaming magazines are devoted not only to games, computer programs, databases and the Internet, but also to other areas of technology and technology. One example of such a magazine is the no less famous «Hacker» – it has been published since 1999, the circulation has exceeded 220,000 copies (Ivanova N., 2016).

Journalists also paid attention to computer sports. The largest sports information portals opened eSports divisions, and their leaders were invited to TV.

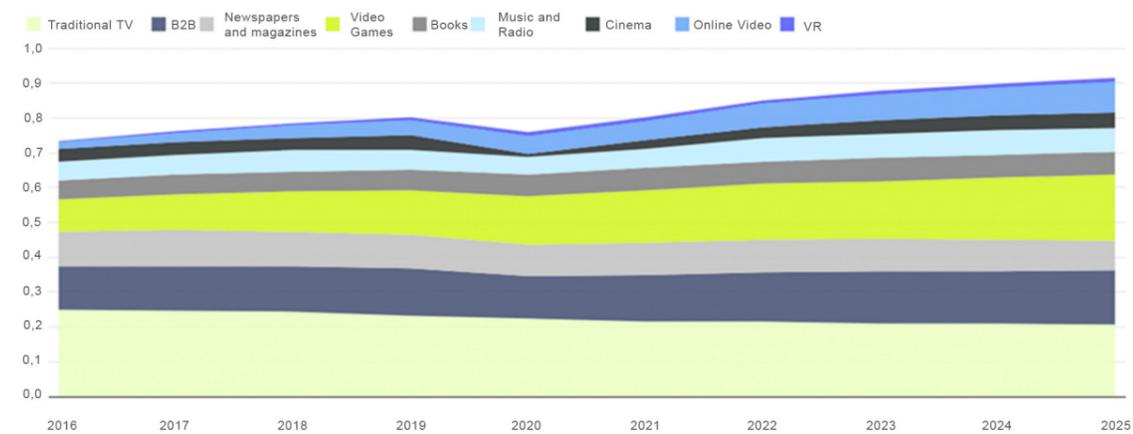
But there is still room for improvement in this area. At the moment, there is no way to say that esports is not popular outside the Internet. On the one hand, the mainstream media doesn't talk much about computer games, but the Olympics could change everything. The professional media will become even more interested in the esports industry, as well as write even more about it.

2.8 Economy

The video game market over the past five years has increased its position in the global entertainment and media industry. In 2020, it reached \$178 billion and accounted for 20% of the global market. For comparison: in 2016, video games occupied only 12% of the media market.

By geography of the video game market, in descending order, Asia, North America, Europe and Russia are leading. The largest countries in these markets are China, USA and Germany.

Pic.3. Revenue by segments, \$ trillion



Source: PwC Created with Datawrapper

The rise in popularity of video games in 2020 is due to the pandemic, during which people were left without access to entertainment outside the home. Computers and consoles have become the most accessible entertainment.

According to the forecast of the industry analytical company Newzoo, in 2021, the effect of the pandemic will cease to affect the market. However, next year the market will continue to grow and by 2024 will be \$218 billion at an average growth rate of 5.2% (PwC, 2022).

And each region has its main players. Most of all, the video game market is concentrated in the mobile segment. The top 25 companies occupy almost half of the segment, their share in the console games market is 40%, in the computer games market - about 20%.

In addition, there are still many non-public companies in the video game market, especially for mobile platforms. According to forecasts, the global video game market will reach \$178 billion by 2021. (Bloomberg, Statista, 2022).

Mobile games for smartphones and tablets are the largest segment of the video game market. They already occupy half of the entire market and have become the fastest growing segment. Back in 2017, their share was about 40%. Analysts expect this growth trend for mobile games to continue in the coming years. The second largest segment – games for consoles – accounts for about a third of the market. The third segment – PC games – occupies about 20% of the market (Bloomberg, Statista, 2022).

NPD reports that U.S. video game sales rose 10% yoy in June to \$4.6 billion (\$33.5 billion in seven months 2020, +14% yoy), despite high last year's base (Bloomberg, Statista, 2022). The industry sees growth for the third month in a row after a slight decline in April. One of the main drivers of this growth was PC, PC games, which jumped in the first 7 months of this year by 50% year-on-year, to \$2.7 billion.

The cloud gaming service has already been introduced by many companies. Nvidia introduced the service GeForce Now, Sony – PlayStation Now, Google – Stadia and Microsoft – Xbox Cloud Gaming. Despite this, this market is still not very large. Today it is about \$669 million. But by 2024, according to Newzoo estimates, the cloud gaming market will grow almost tenfold and amount to about \$6.5 billion (Bloomberg, Statista, 2022).

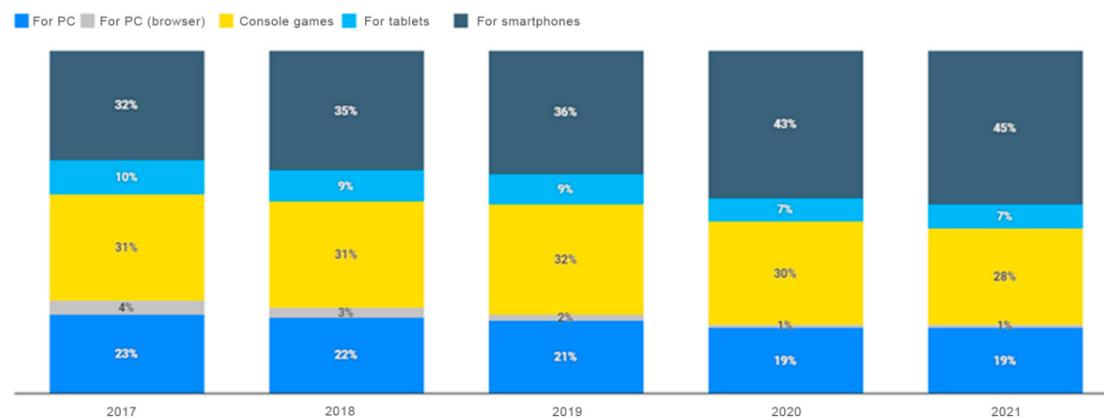
Of course, many market participants will benefit from this. However, many companies that build infrastructure for cloud gaming are not yet public or are subsidiaries of large public diversification companies.

At present, it is difficult to make any forecasts for individual companies that are involved in this market. I can say with confidence that cloud gaming will become one of the main reasons for the rapid growth of the gaming industry.

Game consoles are still the leading gaming platform. Mobile devices and computers can compete with mobile phones and computers in this regard, since many games cannot yet be ported to portable devices without significant compromises, which have limited battery life and a weaker processor. In addition, game consoles offer a more comfortable and simple interface compared to computerized systems.

The main players in the console market are Nintendo (Switcher, Wii), Sony (PlayerStation), Microsoft (Xbox). In terms of the number of consoles sold in the world in the transitional generation, Sony is the leader with the PlayStation 4 (Bloomberg, Statista, 2022). The first place in popularity is occupied by the portable Nintendo Switcher – it was released in 2017 and so far, its sales are growing steadily. The lowest percentage in Microsoft with the Xbox.

Pic.4. Dynamics of the global video game market by segments



Source: Newzoo Created with Datawrapper

With the help of the cloud, you can conduct online games that have high PC requirements, allow you to play modern games with high requirements. Thus, this is achieved by transferring all the calculations from the server to the user's computer and transmitting only the video signal back to it. You don't need a powerful computer to play heavy games, just fast Internet and a mobile device.

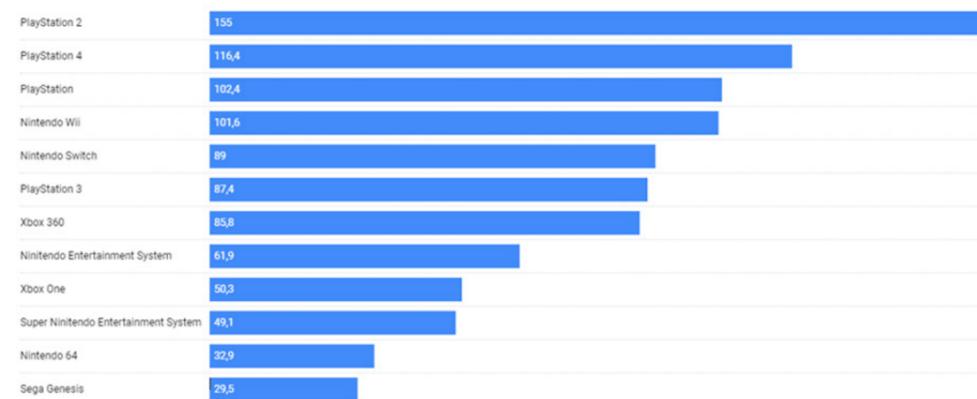
In terms of individual sales models, the Sony PlayStation has been quite stable. But Nintendo's sales plummeted after the release of the Wii and DS in 2007, then skyrocketed again after the release of the Nintendo Switch in 2017 (Bloomberg, Statista, 2022). The decline in sales over the past ten years was the highest in the history of the company. In 2020, the company plans to release the Xbox Series X / S.

Sony PlayStation sales from 2005 to 2009 were at the level of 15-20 million units, but fell to 13.5 million in 2019, due to the expectation of a new model (PlayStation 5). According to the company, it sold 14.8 million PS5s in 2021 (Bloomberg, Statista, 2022). But in general, experts predict that game consoles will maintain their market share in the near future and grow together with the video game market.

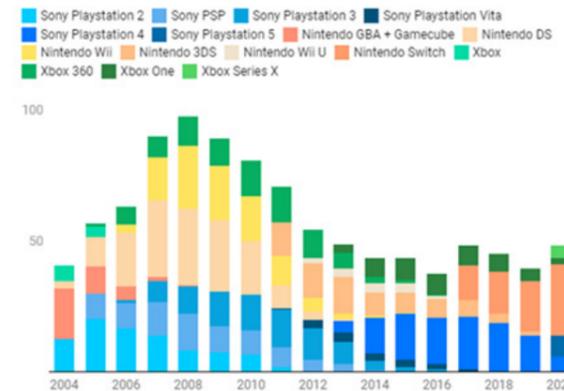
From the point of view of investments in manufacturers of game consoles, Sony and Microsoft seem to be of interest to us. However, you need to understand that these are large diversified companies, most of whose revenue does not come from consoles.

Regarding Nintendo, analysts warn that the peak of demand for the Switch may have already passed, and further growth will slow down and even fall in sales. Bloomberg consensus predicts a drop in Nintendo's revenue in the next few years, which, of course, can put pressure on the company's shares.

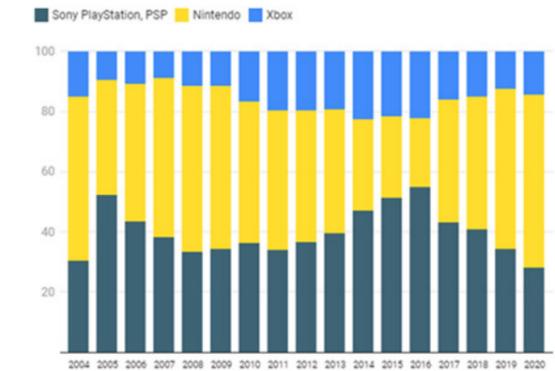
Pic.5. Console sales, million units



Pic. 6. Number of game consoles sold, million



Pic. 7. Shares of game consoles in the total number of consoles sold, %



Source: Bloomberg, Statista Created with Datawrapper

3 IMPACT ON SOCIETY

3.1 Culture

The impact of the video game industry on the culture of society in the 21st century is undeniable. Video games have long been entrenched in the minds of recent generations, influencing not only our mood, but also our character, worldview, interests, and even serious decisions.

At the moment, video games are firmly entrenched in our minds. Movies, series, music and even books – a lot of it is either dedicated to video game universes or touches on them. I believe that this is due to the fact that games are the best way to convey a story to a person, to immerse him in an unreal world. After all, only games have technologies to support immersiveness – an effect in which a person feels like a part of the virtual world. Most often, this aspect manifests itself in RPG games, but representatives of other genres successfully use immersiveness (The Games Industry Disrupted: 10 Key Moments Towards 2017). But it also has a negative effect – it has already been proven that a person can easily become addicted to games as a way of entertaining himself. In this case, they work like drugs or alcohol, but at least they do not harm the body of the player by themselves. Therefore, it is important to remember not only about the virtual world, but also about our, albeit cruel, reality.

Another reason for the strengthening of video games in world culture is the World Wide Web. With the development of the Internet, more and more people can afford, if not to play, then at least watch the passage of games from other people. Also, don't forget about the MMO sub-genre that World of Warcraft belongs to – one of the most popular games since its release in 2006. MMO (Massively Multiplayer Online Game, in translation – Massively multiplayer online game) – a type of game that is based on the constant interaction of players using an Internet connection. (Medical Xpress, Deakin University, 2012).

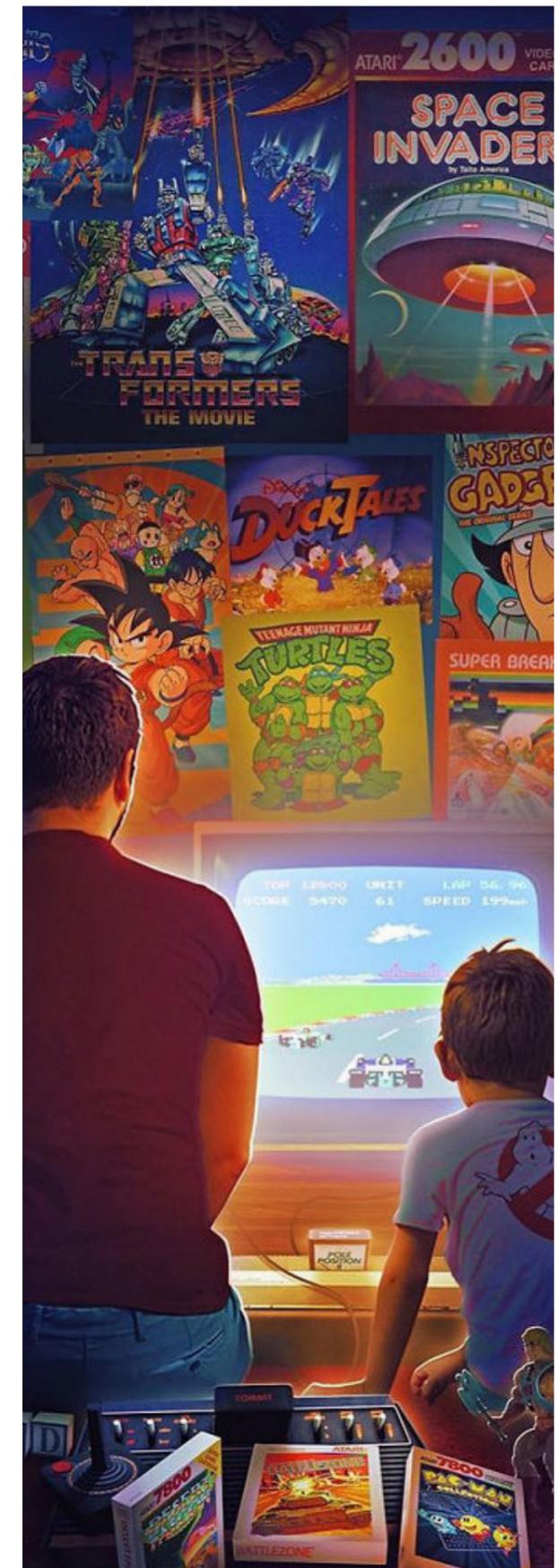
When World of Warcraft, mentioned above, came into being, many people began to spend hours in it. Therefore, the company Blizzard, which published this game, is one of the most influential at the moment. Movies and books are even made in this game universe, and the fan base of this video game has millions of people.

They also make films based on single games – an example of such can be a series of films based on the video game universes of Tomb Raider and Mortal Kombat.

Many games have gained great fame in our world – Super Mario, World of Warcraft, The Legend of Zelda, Sonic The Hedgehog and many other games that have become classics, along with Tolkien books or Mozart's music.

Another trace of the influence of video games on our world is the story of the burned down Cathedral of Our Lady in Paris. The essence of the story is that the Cathedral from the game Assassin's Creed: Unity, developed by the French corporation Ubisoft, is very similar to the Cathedral before the fire – the authors of the game copied the exterior and interior of Notre Dame, achieving the highest results. Therefore, the designers of Assassin's Creed help the restorers in the restoration of the Cathedral.

Source: ([Boredpanda](#))



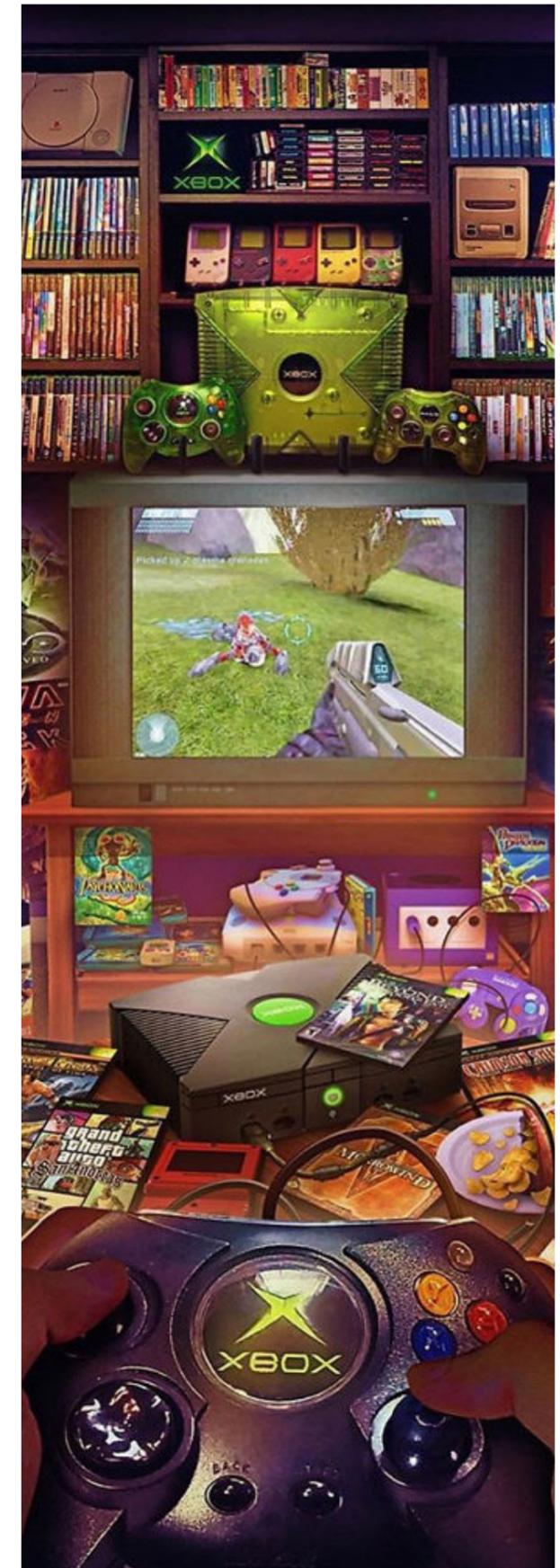
3.2 Advantages

The benefits of computer games:

- help develop finger motor skills, reaction, and also develop attention to detail
- logic games can help develop memory and make you think
- games have a good influence on the development of the imagination, games help to learn how to approach solving different problems creatively and unconventionally
- games help relieve tension, cope with stress
- through the game you can learn how to work in different useful programs
- you can make many new friends and spend your free time alone, with friends, with parents.

The problem of modernity is loneliness, overstrain. The world is cruel and constantly forces people to play by their own rules, this factor has a negative impact. People are constantly on the lookout for ways to relieve stress. Video games are one of them. It is worth mentioning separately that gaming (contrary to the existing opinion that games spoil the psyche) is an excellent helper for maintaining or even achieving mental balance. For a huge number of people who experience difficulties in communicating with society in "real life", games are a way to maintain contact with society, socialization. A person, for example, can calm down by playing active, or even aggressive (for example, shooters) games, and on the other hand, relax by spending time in a gaming environment with a calm, peaceful atmosphere. There are also various games that provide an opportunity to show your creativity by creating entire buildings, cities or even worlds, which also helps a person to express himself and show his view of art and the very process of creating something. In this way, a person can find friends from all over the world, create friendly ties and travel the world with friends of interest, or simply visiting them. In the same way, very strong couples are often created, because where else can you find your soul mate, like playing your favorite game together. Computers are already integrated into our lives, now they help us in everything and make our life easier. Games are built on the same idea, they are able to teach us something, when learning takes place in the form of a game, without noticing it, you develop some skills.

Videogames are unique blend of reality simulation, Narrative Art, Games and Aesthetic Objects. They appeal to our emotions on multiple levels at once, perhaps more than any other art form, simply because they are inherently immersive. Therefore, for example, video games are great for teaching empathy to children, and why they teach adults how to deal with their feelings, evoking both positive and negative feedback from them.



Source: ([Boredpanda](#))

4 VIDEOGAMES IN JAPAN

4.1 Background

In Japan in the 1970s the origin of the gaming industry is associated with the development of computer games carried out in the United States in the 1960s on the basis of research institutes. The first commercial project was the Odyssey game console, released in 1972 by the American company Mangavox, and sold in 1975 by the Japanese company Nintendo.

Since the second half of the 1970s, the positions of Taito and Sega have been strengthening in the Japanese gaming market. Their commercial success is due to the gaming boom caused by the release of the game Pong by the American company Atari, and the rapid growth in the popularity of slot machines with tokens in Japan. With the release of the arcade game Space Invaders in 1978, Taito caught the attention of American consumers and development companies (Florida R., 2002).

The breakthrough of Japanese video games in the US market has challenged the leading companies in the Japanese gaming industry to expand the target audience for their products, primarily by moving away from the trends set by American competitors. The accelerated development of the gameplay was guaranteed by the already traditional Japanese cooperation between companies involved in the development of gaming hardware and large enterprises from the field of electrical engineering and consumer electronics.

Unlike overseas competitors, the Japanese gaming industry has received a powerful creative boost due to the rapid growth in the popularity of comics and animation films in Japan as a form of entertainment for children and adults and, as a result, the integration of the human resources of the entire entertainment industry (artists, screenwriters, etc.) (Howkins J., 2001).

Another characteristic feature of the development of the Japanese gaming industry in the second half of the 1980s was the trend towards expanding the target audience of video games, primarily due to the economically active population, which, as a rule, does not have free time to play at home (on PC or consoles).

Nintendo's leadership concluded that if the consumer does not have time to play at home, then he should be able to experience the gaming experience (however short-term) at any time and in any place. This idea formed the basis for the development of the first prototypes of portable mini-games and consoles, and the new marketing strategy largely determined the further development of the Japanese hardware market.

4.2 Pop-culture in Japan

Japanese popular culture is unique and distinctive, but at the same time rich and multifaceted. Japanese popular culture forms include anime (cartoons), manga (comics), dramas (TV movies and TV series), literary short stories, popular music, fashion, and contemporary art. At the same time, it should be noted that youth culture dominates in the Japanese media. Moreover, such phenomena as Japanese films about giant monsters, Pokemon and Hello Kitty are already known around the world.

For Japan with its isolationism, both for geographical reasons and for other reasons, this is especially important, because this “closedness” gives rise to a complex, high-context culture, saturated with specific cultural codes that are understandable only to “their own”, not perceived by a person “from the outside”. Cultural codes are passed down from generation to generation through upbringing (Yashina, A., 2015).

Japanese anime animation and manga comics are extremely unusual for the Western audience both in form and content, but even now their huge popularity around the world is attracting the close attention of researchers.

Modern Japanese pop culture reflects such features of Japanese religious culture as belief in Shinto gods, belief in the power of ritual, the existence of elements of archaic shamanism; motifs associated with Japanese esoteric Buddhism of the Shingon and Tendai schools, as well as with the shugendo movement.

The modern pop culture of Japan reflects the importance of maintaining «harmony» in the team, as well as the hierarchy laid down at the language level, which can be interpreted as a stable presence in the minds of modern Japanese of some elements of Confucian ideas.



Source: ([Pinterest](#))

4.3 Different years

The gaming industry in Japan in its modern form originates in the distant 1970s with arcade machines. However, speaking of Japan, it is worth saying that the main manufacturing companies have been in the gaming business for many years, and Nintendo was founded at all back in 1889. And was engaged in the production of hand-colored playing cards «Hanafuda».

Founded by the Americans, Sega in 1940 was moved to Japan from Hawaii in 1951, and Service Games of Japan was founded in 1952. Rosen Enterprises was engaged in the export and import of entertainment products. When the company began supplying coin-operated instant photography booths, the business quickly took off: these systems proved to be very popular in Japan. Rosen Enterprises soon began importing coin-operated electromechanical games. Rosen Enterprises and Service Games of Japan merged in 1965 to form Sega Enterprises. Within a year, the new company created the Periscope submarine simulator, which became a hit all over the world (Yashina, A., 2015).

The first automaton game came out in Japan in July 1973 and was Atari's legendary Pong. Japanese giants such as Taito and Sega released Pong clones, which, in a very original way, were called Elepong and Pong Tron. Although it would seem that there you can copy. And Pong itself from Atari, developed by Alan Alcorn, was released in the USA a year earlier, in 1972. But already in 1974, the completely original Speed Race and Gun Fight came out in 1975 from Taito authored by Tomohiro Nishikado.

Other successful companies in the Japanese arcade market were Konami, Data East, Irem, SNK, Nichibutsu, Sunsoft, Jaleco, Tecmo and Capcom.

Between 1975 and 1983, before the release of Nintendo's Family Computer (Famicom), at least 125 home consoles were released in Japan. 90% of this was produced by such giants as Toshiba, Sharp, Matsushita/Panasonic. Nintendo's most successful consoles were Color TV Game 6 and Color TV Game 15. The reason for the crisis in Japan and the United States lies precisely in this very number «125» the market simply choked from the influx of the same type of devices. Only the richest and those who caught the trends of the industry in time survived. That company was Nintendo (Yashina, A., 2017).

4.4 References

4.4.1 Joypolis

The first Joypolis was created in 1996. The game center occupies the 3rd to 5th floors of the Decks shopping and entertainment complex in Odaiba.

Joypolis Tokyo – the largest amusement park in Japan. This park is a great example of how reality can become virtual, visitors can fully enjoy the rich fantasy of Japanese interactive game creators. Joypolis boasts that it provides all the latest interactive and virtual games, when the world is far from everywhere you can find the opportunity to play them. The park is very popular with tourists and locals as it provides a wide range of interactive entertainment.



Joypolis, Tokyo. Source: ([GoTokyo](#))

4.4.2 SEGA world

Sega is one of the largest companies in the production of games and arcade machines. The activity of this company has played a big role in the economy and branding of Japan as a whole.

Sega started opening its arcades back in the late 60s, also including Joypolis amusement parks (mentioned above) and developing its Club Sega arcade machines. At the end of the 90s, Sega had approximately 1000 gaming halls in Japan.

The company was able to become a giant known throughout the world thanks to its arcade games such as: OutRun, Virtua Fighter, Daytona USA and so on.



SEGA World, London. Source: ([Eurographics](#))

4.4.3 Warehouse Kawasaki

The Kawasaki Warehouse is a five-story entertainment facility in the suburbs of Tokyo (Kawasaki). The facility is owned by the Geo Corporation Anata no Warehouse brand, which develops theme parks and various entertainment facilities.

The warehouse is interesting in that its appearance frightens with its dystopian nature and resembles the former Kowloon Walled City in Hong Kong. The concept is shocking in its «horror», meaning a building from a dystopian future, such an object cannot be missed. This entertainment center offers a wide range of entertainment, in addition to modern games, following its original concept, long-forgotten retro games and console installations are presented here that will make you feel nostalgic. The building is remembered for its concept and mood, attracting the attention of not only tourists and locals, but public figures in order to produce content (amateur and professional photo and video shooting).

The Kawasaki warehouse closed in November 2019. The sources say that the cause was a dispute over rent. There are currently no plans to open the center elsewhere.



Kawasaki Warehouse, Kawasaki. Source: ([TheTravelPockets](#))



4.5 Video games and esports in Japan today

Japan is the third largest video game market in the world, with an estimated net worth of \$19 billion. In first place in Japan is Animal Crossing. More than 22 million copies have already been sold, and it has already become a socially significant phenomenon. Game released on Nintendo Switch (KADOKAWA Game Linkage, 2022).

The game is about surviving on your island, and there is no ultimate goal in the game, so each player decides for himself how to play, at what pace, which scenario to choose. Also, a distinctive feature of the game is the absence of any competition, stress, and negative points. That is, roughly speaking, a game about peaceful living on your island, where nothing dangerous happens around.

Of course, esports is constantly in competition with other forms of gaming available in Japan, such as the new slots and table games available on sites like CasinoWings. But that doesn't seem to have stopped the growth of esports in the country.

In 2018, changes were made to the rules of gambling, which made it possible to organize esports events with prize funds. Year Zero also introduced the Japan Esports Union (JeSU), which regulates and licenses the country's esports scene.

Animal Crossing, NPC Icons. Source: ([Sriters](#))

The esports audience has grown along with revenue, with a 26% increase in video and tournament viewership in 2019 compared to 2018. It can be noted that both figures will grow at the same rate over a five-year period, with fan numbers expected to grow by 250% over a four-year period. The data showed that approximately 10% of the Japanese will represent esports fans in 2023, compared to the forecast for the entire population of the country (KADOKAWA Game Linkage, 2022).

The biggest growth will be seen in mobile esports. One of the main reasons for this is the combination of the low level of participation in computer games and the large number of mobile devices in the country. There's also the fact that many popular console and PC games are queuing up to get mobile processing.

The pride of all Japan is the Tougeki Super Battle Opera tournament. Getting to Tougeki Super Battle Opera is a real dream for everyone who is good with an arcade stick and cannot imagine their life without Tekken, Soulcalibur, Super Street Fighter or Mortal Kombat. The last game, by the way, is very popular in the USA, Western Europe, but far from being in the first roles in Japan. It is noteworthy that Arcadia magazine even releases a special DVD entirely dedicated to their championship.

The third reason is the emergence of 5G networks. 5G has been cited as a major factor in the perceived audience growth as it opens the door to more streaming opportunities.

The esports market in Japan may have started much later than other countries, with slow growth due to social barriers and regulations. However, the effect of growing popularity can be observed not only in the growth of audience and revenues, but also in the number of stores dedicated to eSports in popular e-marketplaces.

5 COMMUNITY

5.1 Why do people join groups?

People are looking for like-minded people, people with whom they can share common interests. Gaming communities publish information about gaming platforms, the most interesting and exciting games, news about their achievements, promotions, and major updates.

Representatives of different gaming genres create groups in which new videos are actively discussed and video games are reviewed. So, YouTube channels of the let's play genre have millions of subscribers around the world.

Such communities of players, professionals and gamers, form a multicultural platform that allows them to share their experience and up-to-date information about the world of the gaming industry among representatives, developers and users of games.

5.2 How gaming communities are formed?

Working with communities in the gaming industry is an established practice that, like gamedev itself, came from the West. Almost all gaming companies employ community managers who are responsible for creating, managing, developing, and communicating with community members.

“There is one important feature that distinguishes gaming communities from other client communities” (Shur P., 2017). All gamers have one thing in common - they spend part of their free time playing computer, console or mobile games. In other words, millions of players around the world have a common interest and values that make all gamers one big potential community. Therefore, it is much easier to unite players than fans of brands from non-gaming industries.

5.3 How do players interact?

Each game is a separate product. The rules may vary depending on the type of games, platform, and the influence of the developers themselves on communication within the community. Such associations can be multi-layered. Often, users themselves create groups or closed threads on forums where entry is limited to members of the same clan.

General groups in social networks, as a rule, are open to everyone - both for players and for people who are just starting to get acquainted with the game world.

The rules in gaming communities are often very similar. This is due to almost the same license agreements that all players agree to when creating an account. And it, in turn, seeks to protect the player from potential problems and fraud.

When forming a community, the community manager pays attention to how comfortable it is for the participants to communicate, because it is for them that a platform for communication is created. And if the majority of participants do not like something, an appropriate rule is introduced (Fromm E., 2016).

This applies to any rules for maintaining a positive atmosphere in the community.

5.4 How are more cohesive communities or teams formed?

It is important to remember that communities are, first of all, connections between people. And in order to form these connections, people need to communicate. Strong ties are formed where there are common interests.

The gaming industry has millions of projects and continues to grow. Projects have a different target audience of various ages and social groups.

Classically, community management specialists divide communities into external ones – client ones; and internal – corporate. In game development, we deal with external communities, since their members are clients of the same project (Vazhenina N., 2018). There are also players who love the games of a certain company and are clients of several of its projects.

In the online game passing format, participants can form groups and compete with other groups of players, forming their communities, sharing experiences, developing strategies for passing the game and maintaining active communication both during and after participation in the game.

Depending on the scale and involvement of players, such communities can develop to the level of popular gamer competitions and take part in eSports games.

And on the basis of simple human factors, in any human interaction, various kinds of relationships begin, based on common interests or aspirations and goals.

5.5 How are players located geographically?

The study of the geography of the gaming industry at different territorial levels of individual countries, their groups, regions, the world as a whole is very relevant. The main indicators of the global gaming industry market are presented in the annual Global Games Market Reports. This statistic includes local Android stores in China as well as products preinstalled on mobile devices. The latter is especially typical for the Japanese gaming market (Volkov O., 2015).

A significant part of the growth will be provided primarily by the countries of Asia, Eastern Europe, Latin America, the Middle East and Africa due to population growth and increased access to technology. In the markets of developed countries – the USA and Western Europe – volume growth is primarily due to the growth in the number of smartphone and tablet users, which ensures an increase in the duration of the game.

The gaming industry market is represented in all regions of the world, however, the intensity of its development has significant spatial differences. There are three leading regions in terms of the scale of its development – Asian, North American and Western European. In all three parameters (population, number of Internet users, gross sales), the Asian region leads, primarily due to East Asia (China, Japan, South Korea, Taiwan).

The Asia region accounts for 59.94% of the world's population, 47.6% of Internet users and 45.5% of gross sales (PwC, 2022). Given the pace of economic growth and the dynamics of innovative development of the countries of the region, territorial shifts in the geo-economic space, the demographic features of the region and a number of other factors, it can be argued that the Asian region will not only retain its leadership, but will also significantly strengthen its position in the global gaming industry market.

North America and Western Europe lag far behind the leading region, accounting for 26% and 17% of the global market in terms of sales, respectively, and 10.47% and 11.09% in terms of the number of Internet users (PwC, 2022).

Thus, the leading positions in the world market of the gaming industry are occupied by three states – the USA, China and Japan, which are an order of magnitude ahead of the rest of the top ten countries.

5.6 Based on the previous points, how can communities be reflected or presented in a real-life context?

The gaming community as a subculture unites millions of people around the world and erases territorial boundaries. Casual, indie, hardcore, role-playing and others. Some elevate to the rank of a cult product of a particular company. In addition, thematic groups are formed, forcing a certain topic.

In the gaming industry, an incredibly developed fandom is the gaming universe. Players take the world created by game designers very seriously and begin to literally live in it. This is what gives rise to a huge number of all kinds of fan activities: drawings, stories, amateur toys, cosplay parties, festivals and much more. Special attention can be paid to festivals, some of them (for example, ComicCon) have reached the global level of popularity and fame, people from all over the world are ready to come to one point to look at this grandiose spectacle or become a participant in it. All this becomes an indicator of how close the player takes something to heart, which means that he is completely immersed in the game.

Games help people to unite, and this can be clearly seen, people connect through the Internet and spend a huge amount of time communicating during the game, they get to know each other and become friends, even being in two different parts of the world. Even personal experience shows that virtual space allows you to find friends and soul mates, even on the other side of the earth and in a natural way, people have a desire to realize live meetings, by flying to each other, by organizing annual team meetings, annual festivals, the scale of how «internet friends» get together is very broad. And now the problem arises of how to provide all the amenities for this type of meeting. The future gaming complex should also take into account this important factor, provide people with the opportunity to unite in real life and receive live communication. After all, this approach makes a great contribution to the gaming industry, giving people the opportunity to communicate in real life, this will give impetus to strengthen human ties, thanks to meetings of people of interest, this will help the development of new startups and the creation of new projects. Thus, it becomes an important task for architects how to use architectural tools to help the Internet community move into real life.



Source: ([hp](#))

6.1 What are the space requirements for current and future games and equipment? What is the possible future of gaming?

Shedding its association with dark basements and clunky consoles, gaming has become a global phenomenon that generates more revenue than the film and music industries combined. In response, designers are transforming play spaces into lifestyle hubs that blur the line between digital and physical.

With that in mind, how will professional gaming spaces be transformed to seamlessly meet the physical and mental needs of gamers? How can brands hungry for a slice of the gaming pie establish a presence in these areas? And how spatial design will transform to reflect the increasingly influential role of gamers in mainstream culture—and vice versa?

In Moscow, arch(e)type architecture firm offers a glimpse into the stylish and functional future of professional play spaces with InvasionUniverse, a 500 m² play living room comprised of three distinct zones. There is a game room for players, a room where VIP guests can watch, and a lounge area where players and their friends can spend their free time. Three areas have rather unique names: stage, auditorium and foyer, terminology that comes from the theater world. (Frame Magazine, 2021).

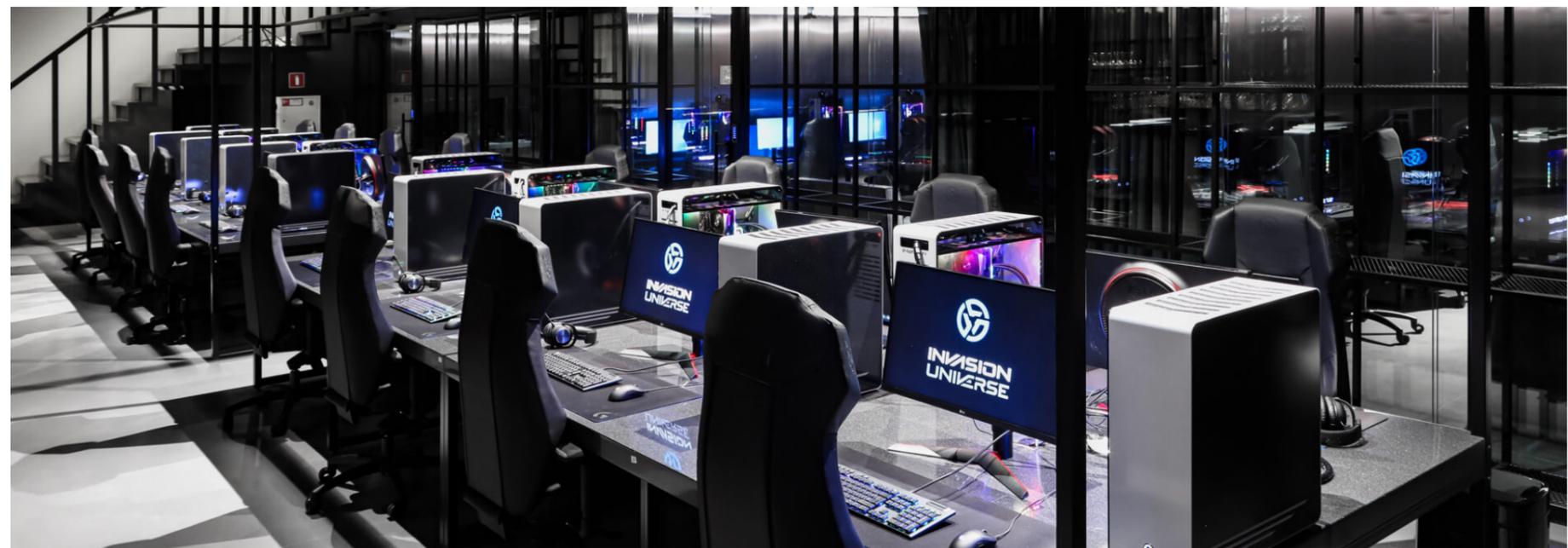
In the future, play spaces will reflect the complex breadth of what we value as people: beauty, community, adventure, and flexibility. It's not just a game anymore, it's a way of life.

Virtual reality and augmented reality technologies are in trend today. VR is a new way of consuming content, with the help of which you become the main character with maximum immersion in what is happening (Seif El-Nasr, M., 2005).

VR parks are organized on the principle of a collective attraction, limited in time, in which you can take part individually or collectively, choose a game according to your taste, genre and theme. Technically, a VR park or VR club is a space with a certain set of equipment installed. There are one or two administrators on the site who launch game content.

VR clubs have replaced quest rooms that were very popular in the past, where participants are asked to complete a task in a limited time: for example, find a way out of the room.

6 TYPES OF SPACES DEPEND ON THE TYPE OF GAMING PLATFORM AND COMMUNITIES



InvasionUniverse, Moscow. Source: ([Invasion](#))

Esports was born from the culture of Internet cafes. In the late 1990s, gamers congregated in small shops that provided them with darkrooms, an endless stream of coffee, and super-fast internet connections to satisfy their streaming needs. But now that esports has moved away from professional «players», the spaces should move in the same direction.

Players need amenities that allow them to perform at their best: maintain their stamina, connect with fans, and train in places that nurture their skills and razor-sharp focus.

Here are some examples of stadiums and cyber arenas hosting the largest eSports championships:

Swedish esports club Inferno Online. Four years ago, the Swedish club was renovated, expanding it to an impressive 2,000 square meters. At the same time, the number of stationary computers was increased to four hundred. Inferno Online hosts Swedish LAN qualifiers for various Counter-Strike tournaments and its own competitions. One of these championships was the Inferno Online league, which later developed into the Swedish championship.

Moscow Cyber Stadium was planned based on the experience of foreign sites, including Inferno Online, Alienware Arena. The area is 2,500 sq.m., the stadium includes two stages, one of which is designed for LAN tournaments, a separate hall for consoles, gaming zones with computers. At the moment, the Stadium hosts the regular MCS Open tournament, as well as various qualifiers for major tournaments, including Russian FIFA qualifiers for ESWC and DreamHack Moscow Dota 2 qualifiers (Seif El-Nasr, M., 2005).

The LG Arena is considered the largest in the US. MLG.tv Arena is a former shopping center building with an area of 1,300 sq.m.

Thus, today in any metropolis of the world you can find an esports arena that meets the highest standards of broadcasting and spectator comfort.

T.um Museum, Seoul. Source: (IE)



6.2 Can the center provide something to the local community?

Thinking about how long gaming culture has been integrated into Japanese pop culture and society, it's safe to say that society will happily accept the planning of another entertainment complex that will include all the most popular gaming platforms in the world, such as: halls, consoles, arcade halls (favorite by Japanese of all ages), mobile gaming, and an esports hall. Analyzing the high popularity of games in Japan, there are no questions that the gaming complex will not be in demand among locals.

In terms of financial benefits, we can safely say that the planned building will be in demand among tourists and attract their attention. After all, gaming in Japan is part of a huge culture that every visitor longs to get acquainted with.

Also, an important fact is that eSports contributes to the development of the gaming industry very actively, tournaments and other events attract many investors and advertisers.

6.3 The contribution of gaming centers and clubs to the development of the economy

Esports can bring money. Of course, there are advanced regions where virtual battles break all records in terms of views. There are countries where computer sports are new and it will take more than one year to bring it «to the masses». The general statistics show that you can earn money on competitive computer games.

According to Newzoo, a consulting company, the industry has grown steadily over the past six years: in 2014, the market volume reached about \$84 billion, and in 2020 it is already \$179.4 billion. By 2023, according to analysts, volumes should exceed \$215 billion (Newzoo, 2022).

Table 3. Video game market indicators (Newzoo, 2022).

Years	Video game market volume, (B, \$)	Number of gamers in the world, billion
2018	138,8	2,48
2019	146,2	2,55
2020	174,9	2,69
2021	189,4	2,81
2022	203,3	2,95
2023	217,9	3,07

In 2020, the mobile and console segments saw big growth, with the former growing from \$77.2 billion in 2019 to \$86.3 billion by the end of 2020, and the latter from \$45.2 billion to \$51.2 billion. Computer and browser games showed not the strongest growth: the volume of the segment grew from only 36.9 billion to 37.4 billion dollars (Newzoo, 2022).

The main drivers of growth in 2020 were mobile games, the pandemic, and the new generation of consoles: PS 5 and Xbox Series X/S. The pandemic did not turn the industry upside down, but only dispersed it. People around the world have seen video games as an opportunity to escape the covid reality, spend time with friends online and immerse themselves in the world of story games.

In 2021 and 2022, not only mobile games will remain one of the key drivers of the industry. The pandemic has led to certain difficulties in the production of game consoles and the development of video games: the shortage of necessary components hit the production. In addition, game studios were forced to slow down the development of new games and transfer employees to remote work. Gradual resolution of these problems will increase console sales and accelerate the development of video games, which in turn will accelerate the growth of game companies, analysts from Bloomberg and Newzoo are sure.

The cloud gaming market is expected to reach \$1 billion by the end of 2021, according to Newzoo. The growth of the market is due to the spread of 5G, the increase in computing power and the xCloud service for cloud gaming from Microsoft. By the way, starting September 15, 2021, thanks to xCloud, Android users will be able to play games included in the Xbox Game Pass subscription in the cloud. There are competitors to this service: GeForce Now, Google Stadia, PlayStation Now and others.

Investors want cloud gaming to be built on ecosystems that bring together different game publishers. Thus, ecosystems will be able to offer subscriptions in the future that give access to a wide range of games.

Creating a franchise and continuing the development of popular games. The most popular strategy at the moment. The developer creates sequels to past successful games: Assassin's Creed, Call of Duty, Far Cry. The average gamer is more likely to pay attention to a game with an already known and popular title than to a completely new product.

Now an ecosystem of players, game dev studios, esports teams is being formed in the world – and any startup that is trying to enter the market must clearly understand where the industry is moving and who will need it there. Here are a few areas that are now most in demand in the industry – and that investors are ready to look at:

- Mobile gaming. With the development of mobile esports, mobile gaming tournaments immediately began to appear. This trend was taken advantage of by the Russian startup Arenum, an automated platform for holding mobile gaming tournaments. Now there are already more than a million users from Russia, the USA and Europe, and more than a hundred tournaments are held a day.
- Streaming and monetization in streaming. Startup StreamSale. It allows you to automatically place ads on broadcasts from microstreamers. This is beneficial both for the streamers themselves, who start earning with a very small audience, and for companies that receive a new advertising tool.

- eSports education. These can be streaming schools or other courses created according to the Skillbox model.
- Gaming platforms such as Epic Games (an American video game company founded by Tim Sweeney in 1991).

Epic Games came up with and developed the Unreal Engine game engine, which in 2014 got into the Guinness Book of Records as the most used and popular among developers. It is an amazing and unique game engine that helps the user to create games. Epic Games also contributed to the architectural work and provided an architectural tool based on the Unreal Engine to visualize projects. Twinmotion is created for architects and landscapers. The program allows you to create realistic, highly detailed 3D visualizations of buildings, streets, and the environment. This is also accompanied by the possibility of changing weather conditions and moving objects in real time.

- Analytical Data Collection Startups.
- Development teams and gamedev studios themselves.



Twinmotion visualization, image by Anh Pham. Source: ([Twinmotion](#))

6.4 Given the nature of the gaming subculture, the complex is functionally structured based on the behavioral characteristics of its users and their collective preferences.

Planning a gaming space requires a broad analysis that will include all aspects of pastime and users requests. Now more and more attention is paid to the quality of service, the constant improvement of its level. Modern computer clubs are no exception, and they also try to offer something that will help them stand out from the competition.

Good service, comfortable layout, suitable for all types of players and their requests – this is the main task for the new planned complexes. Individual approach to client groups is very important. Someone will want to have a noisy time with friends, and someone will visit the gaming complex to prepare themselves for competitions or just spend time in an atmospheric room.

Visitors types can be divided into several categories:

- amateur players
- professional players
- tourists
- people who are just getting to know this culture

Based on different categories of customers, the question immediately arises of how and how much time a person will spend in the gaming complex. For example, an amateur player may visit a game club once a week or more often to spend their free time after work or spend time with friends on the weekends. A tourist will visit an institution once during his stay in the country and spend several hours or a whole day there. But for professional players, everything is different, since gaming is their job and such people are able and obliged to spend most of their time training, and additional functionality is created for them, which will ensure a comfortable long-term pastime in the game center.

In addition to filling the game club with special equipment and proper spatial layout for fans of different types of games, it is also very important to note how people can relax and spend their «non-gaming» time in an institution of this type. Also, entertainment can drag on until the night marathon, and for such events there are always halls where you can have a bite to eat. Often there are separate lounge areas where you can just take a break from everything or discuss strategy with friends before the next round.

For professionals, additional functionality for relaxation is used, for example, it can be personal rest rooms, showers or spa services, a hostel for an extended stay, cardio gyms, and so on.

7 INTERIOR AND EXTERIOR

7.1 Futurism and cyber style combined with Japanese modernism

Futurism appeared more than a hundred years ago as an aggressive, revolutionary movement, affecting not only the creative areas of human activity, but also some others, for example, social and political ones. During its existence, it has smoothly transformed into a positive and optimistic direction, which is characterized by the desire to keep up with the times and keep up with the development of society.

Despite the fact that the futuristic style at an early stage is fundamentally different from the futuristic style of our time, it is impossible not to notice that some features of this direction remain unchanged over time, namely: an increased interest and desire for the future, and the elevation of technology to the rank of art.

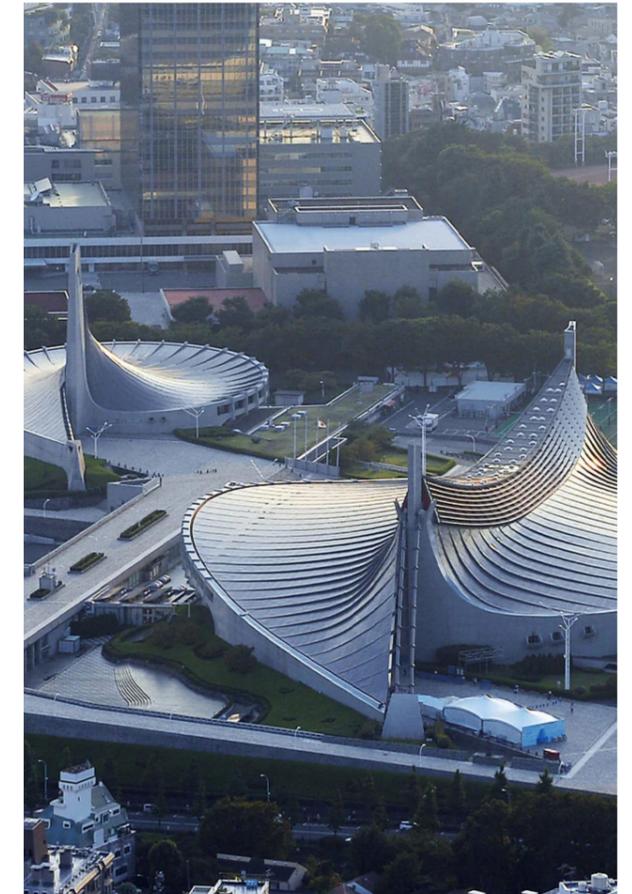
In recent years, fashion shows have become like science fiction films. With one difference – it's reality.

Cyber design is associated with the concepts of «cyberspace» and «transhumanism». The concept of cyberspace is a metaphorical abstraction, virtual reality, which leads us to a new kind of design activity – the creation of virtual reality – a utopian free space in which it will not be possible to establish territorial boundaries. However, at the same time, design in such a space should also be carried out in many respects, relying on design methods and ergonomics.

In the minds of the Japanese, two realities exist in parallel without conflicts and contradictions, because being modern does not mean abandoning one's own history. The same can be said about Japanese modern architecture. It harmoniously combined the innovative ideas of leading architects, while maintaining fidelity to the Japanese aesthetics and identity that distinguishes it in the context of the process of continuous world globalization and cosmopolitanism.

As an example, built in 1964 specifically for the Summer Olympic Games in Tokyo, Yoyogi National Stadium has become a real architectural idol due to its distinctive design. Designed by one of Japan's most famous modernists, Kenzo Tange, the stadium is the clearest example of a successful combination of Western modernist aesthetics and traditional Japanese architecture (Yashina, A.S., 2015). (As an exemplary architecture, Yoyogi National Stadium was specifically chosen as a building adjacent to the planned grounds for the Tokyo Game Complex. The shape, architectural approach and building materials are inspiring and have a direct impact on the planned Gaming Hub).

Tange, thanks to his innovative building style, the smooth curves of the roof that resembles a curtain, and the rough materials, created the most famous Japanese building in the world. By locating the stadium in the largest park in central Tokyo, Tange uses the design concept as a way to integrate the building into the landscape. Subtle curved beam structures, curved roof planes and arcuate concrete base unite into a cohesive structure and organically complement the surrounding landscape.



Yoyogi National Stadium, Kenzo Tange. Source: ([Olympics](#))

7.2 Japanese style and tribute to nature

Japanese style is characterized by minimalism in its purest form, which means that nothing overloads the attention, the space is planned clearly and calmly. The Japanese trend in minimalism is one of the most popular ethnic varieties of minimalism. (Bognar, B. Kengo Kuma, 2005).

Japan is very small and densely populated, because of this, the Japanese value space, the interior layout in terms of furniture and other attributes of the house has become minimal, leaving only the most necessary to increase the lack of space.

One of the main features of Japanese culture is a close connection with nature, there is a direct connection with the philosophical worldview of the Japanese – Shinto and Buddhism. Japanese architecture is very close to nature, the Japanese strive for harmony with it, their tradition of rapprochement with the natural environment is relevant for modern man, who more and more wants to find harmony with nature.

Japanese architects concentrate on how nature will fit in with the building. The interaction of shadow and light, three-dimensional forms expressed in concrete walls, underlies the philosophy of nature and architecture – this is the creation of the geometry of nature by the geometry of walls.

When identifying the character of a site, architects consider multiple factors such as geographic orientation, direction of wind, light, rain, water runoff, nearby walls, the age of neighboring buildings, and the movement of people. The technique of site development in three dimensions is inherent in many architects in Japan. Architects create a three-dimensional sculpture from ordinary air, always endowing empty space with dimension. The construction site and structure are combined, the landscape is integrated into the building. There is an interweaving of internal and external space, roads, courtyards, sky, city lighting become elements of an intimate interior space, a single zone is created, assembled with jewelry precision. The central theme is the architectural interpretation of the urban and natural context. “You can’t just put something new in a certain place. You need to analyze what you see around you, what exists on earth, and then use this knowledge along with modern views to express something of your own” (T. Ando, 2008).

Okurayama Apartments, Yokohama. Kazuyo Sejima & Associates.

Source: ([Arquitecturaviva](#))



7.3 Materials that convey the atmosphere of Japanese culture and futurism

Initially, Japanese houses were placed on wooden piles, and the floors were made of wood and covered with mats. Sliding wooden gratings covered with translucent paper were installed in the spans between the columns. The main characteristics of the traditional Japanese dwelling are simplicity and asymmetry, a smooth flow of internal and external spaces. The desire for simplicity and even «primitivization» of forms still distinguishes Japanese architecture today.

Let us turn to the second, equally original direction in the modern architecture of Japan, created by architects of the fourth generation. The greatest contribution to the development of this direction was made by the architect Tadao Ando. (Bognar, B. Kengo Kuma, 2005).

At the heart of the work of the architect Tadao Ando is no longer organic-tech, but the aesthetics of minimalism. A unique feature in the work of Tadao Ando is his commitment to natural stone and reinforced concrete - «dead» (ancient Chinese gradation), but durable building materials that were traditionally used only in the bases and foundations of buildings, in fortification architecture.

The architect saw true beauty in the laconicism of the geometric solutions of his objects, similar to mountain cliffs, in the elegance of the natural texture of stone and concrete, as well as in the methods of natural and artificial lighting of both the buildings themselves and their interiors. The use of reinforced concrete guaranteed a number of advantages. Houses made of this material have greater anti-seismic resistance; they have more perfect, in comparison with wooden buildings, noise protection and thermal insulation. Thanks to this, in modern housing construction in Japan, reinforced concrete enjoys well-deserved popularity and demand. His buildings are based on pure geometric shapes that intertwine to create complex three-dimensional shapes.

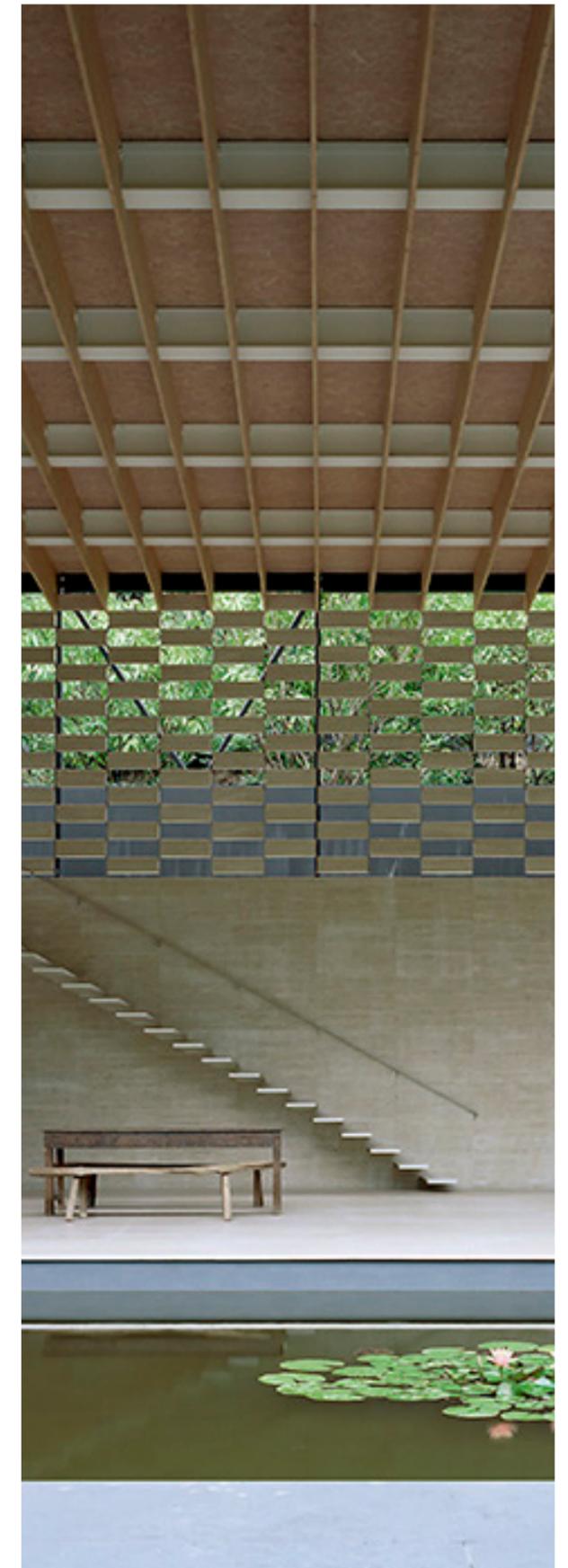
Wabi in architecture are unpretentious floorboards with elegant cracks and knots, these are traces of wooden formwork on the brutal surface of concrete. Such is the architecture, traditional and modern, in which wood is wood, stone is stone, and concrete is concrete. (Bognar, B. Kengo Kuma, 2005).

It should be noted that the minimalist principle of «erasing» spatial boundaries has received practical implementation not only in the modern architecture of Japan, but also in the Japanese interior. The interior space here is characterized by a wide variety of optical effects and illusions, an abundance of glass, reflective surfaces, and so on. All these measures are designed to introduce a person to the contemplation of «hidden beauty, the beauty of a hint and subtext.

Now in Japanese design, «transparent» minimalism, proclaiming the idea of dissolving architecture in the natural environment, or extremely poor minimalism - «emptiness» instead of architecture, has become widespread. A common material used in interior decoration, and today is wood.

Thus, the specific, distinctive features of Japanese architecture are (Yashina, A.S., 2017):

1. «Dissolution» of architecture in the environment; its «appearance» is characterized by «anti-object» or «emptiness» (Water / Glass House).
2. Priority in the use of natural materials; heavy materials (stone, concrete) are used minimally to give them lightness and preserve the «transparency» of the object (Lotus House).
3. The close connection of architecture with traditional Japanese aesthetics: the use of traditional materials and structures - wood, etc. (Wooden Bridge Museum).



Lotus House, Japan. Kengo Kuma. Source: ([Arquitecturaviva](#))

7.4 Lighting

7.4.1 The role of natural light

The role of natural lighting in planning a gaming space or lack thereof is important. Since almost all game consoles and installations have monitors, the presence of natural light becomes a problem that is most often solved by using blinds or curtains (in office spaces).

Reflections on tables or monitors can cause eye strain and natural discomfort. There should be enough light to cover the keyboard and surrounding space – but not so much that glare appears.

Based on the foregoing, one can understand why play spaces are most often closed basements or warehouse-type rooms where sunlight does not reach and there is automatically no reason to deal with this problem.

Lighting is needed not only so that the player can see the scene (although this is very important). Light affects emotions. Many lighting techniques in theater, cinema and architecture are used to enhance the emotional component.

Insolation is the exposure of a surface to sunlight. This radiation is very important for a person. (Seif El-Nasr, M., Miron, K. and Zupko, J., 2005).

Lighting in the interior has always played a key role in creating comfort, expanding space, especially when it comes to natural light. A rationally thought-out combination of solar and artificial light creates conditions for harmony for a comfortable healthy living in space.

It is essential, it sets our natural rhythm. Light controls the processes of our body and affects the biological clock. (Petr Dyachikhin, 2017).

This type of lighting in game centers is necessary only when placing light accents in recreation areas.

If there are several rooms in the building, at least 60% of them should be well lit. Depending on the level of natural light, it is necessary to consider the purpose of the premises.

7.4.2 The value of artificial lighting in the interior

If natural light becomes a problem in planning play spaces and you have to figure out how to avoid it, then artificial lighting becomes twice as important, since it will have to be used throughout the time the player is in the gaming real space.

Artificial lighting is light from electric incandescent lamps or gas discharge lamps. It prolongs the time of active human activity. Such lighting allows you to create constant levels of illumination in any room.

The role of lighting cannot be underestimated. There are several parameters that will allow you to control and analyze the lighting. Gaming room RGB LED lighting can come in several different shapes depending on where you want to place it (Sophie-Louise Millington, 2016):

- In computer components – built into the power supply, case, processor cooling fan or RAM.
- In computer peripherals – built into a mouse, keyboard, or speakers.
- In the gaming table – built into the table frame.
- On the wall or shelves – smart LED strips or table lamps can be placed in various places.

The brightness and type of lighting we find ourselves in during the working day has a big impact on health, mood and productivity.

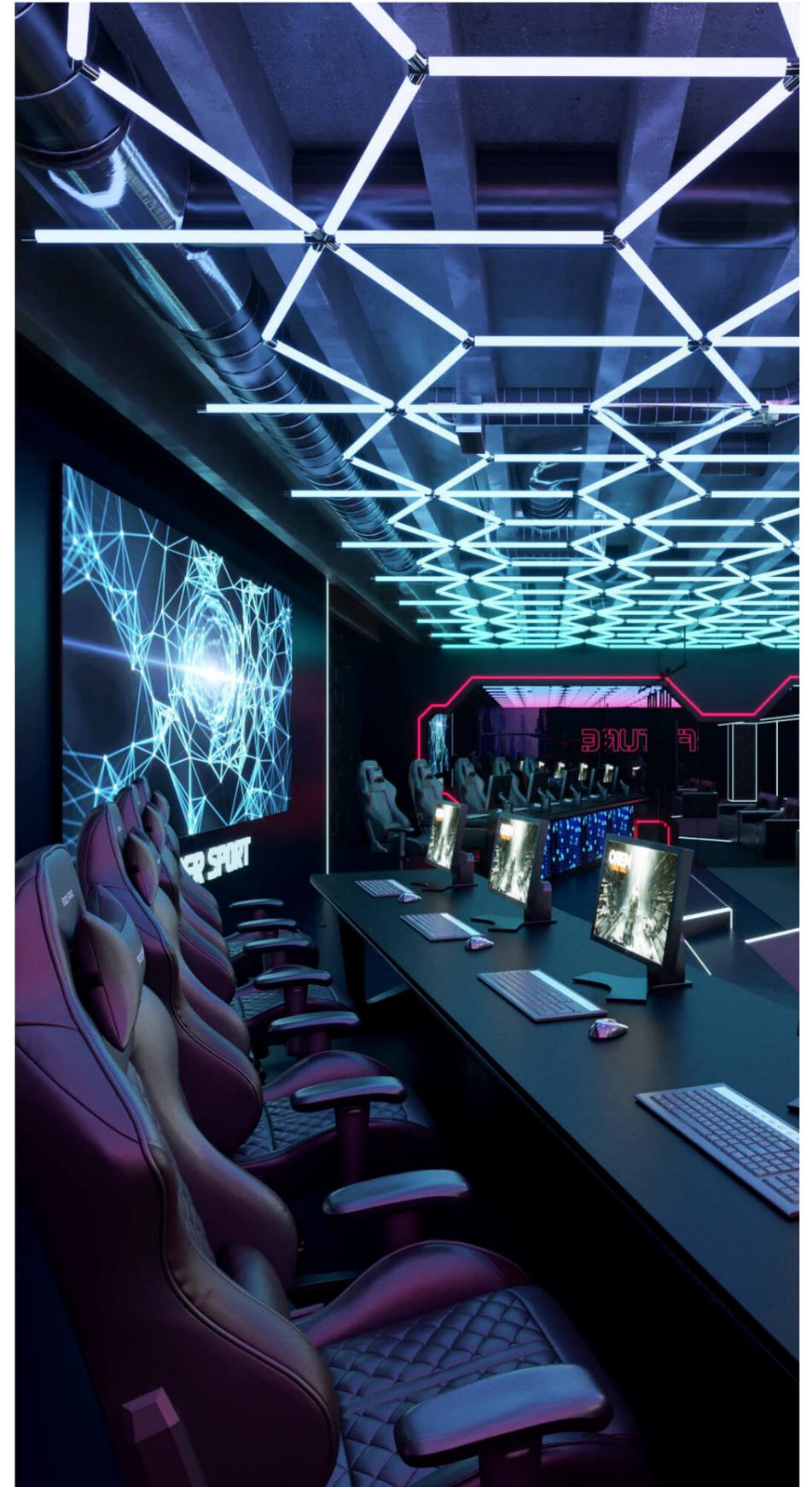
When planning the lighting of a gaming space, it is worth paying special attention to the color of the light, this is an important factor that can affect not only the atmosphere around, but also productivity and fatigue. Therefore, it is worth highlighting the influence of blue. The brain reacts to different colors of light in different ways. Our eyes contain a special set of cells that can recognize short-wavelength shades of blue. Depending on the information received, these cells send a signal to the body and brain that the sun has risen, and our body begins to suppress the sleep hormone melatonin. Precisely because the blue color wards off sleep, you'd better put your phone away if you're going to bed (the phone's screen, in fact, emits blue light). But this property of blue lighting can be used with benefit, namely, to increase brain activity during the day (Darien I., 2016). Working in blue light improves concentration and attention. Blue lighting can be used in places where increased attention and quick reaction are required, as in the case of this study, an important factor for gamers.

What are the functions of artificial lighting in gaming clubs?

- Creating comfortable conditions for training and competition.
- Providing a supportive and gaming-like atmosphere for players and spectators.

Lighting must meet the following requirements:

- Sufficient level of illumination. If it is too low, it will cause excessive eye strain, fatigue and poor performance.
- No shaded areas and multiple shadows.
- Sufficient brightness (not excessive and not too low).
- Ensuring visual comfort. Additional light (not from the monitor) – the light should not fall directly into people's eyes, otherwise reflexes may be dulled and distractions may worsen their well-being.
- No stroboscopic effect.
- No strong pulsation



Source: ([EineandHome](#))

Conclusion

The gaming industry is a phenomenon that has become mainstream and continues to attract a huge number of people of all ages. The number of gamers is constantly growing, and the process itself can develop into a highly paid profession. Thus, a huge and powerful ecosystem is being formed, around which various areas of figures are developing: game developers, publishers, consumers, specialized media, financial and advertising tools, a fan base are being created, and all this is spreading at a tremendous speed. As a result of all this, specialized physical platforms appear.

Game clubs have existed for a long time, but their development is not comparable with the growth rate of the gaming environment, users and lovers of virtual universes require more attention to the solution of real physical spaces.

Planning a gaming center is a multifaceted process that must satisfy the wishes of each user. It is very important to think ahead about the development of technologies and implement flexible spatial solutions that can last for a long time and provide maximum versatility.

As the planet has mass and gravity, so in the case of planning an entertainment complex of this type, it is necessary to establish a core that will attract all user groups with its uniqueness.

Considering all the analyzed factors, such as market analysis, different groups of users and players in need of a proper spatial solution and technical support, a final architectural solution is formed with a logical choice of terrain that will maintain the level of popularity in this environment, presenting itself as the very core that can attract the masses.

The architectural solution includes all factors related to the analysis, the planning of a flexible, multifunctional, and long-term space, and the exterior solution is typical of Japanese minimalism, considering the peculiarities of Japanese culture.

Kokkuvõte

Mängutööstus on nähtus, mis on muutunud peavooluks ja meelitab jätkuvalt ligi tohutul hulgal igas vanuses inimesi. Mängijate arv kasvab pidevalt ja protsess ise võib areneda kõrgelt tasustatud elukutseks. Nii on tekkinud laiaulatuslik ökosüsteem, kus kasvab vajadus erinevate rollide järgi: mänguarendajad, levitajad, tarbijad, spetsialiseeritud meedia, finantstöötajad ja reklaamiagendid, fännibaas ja see kõik levib tohutul kiirusel. Kõige selle tulemusena on tekkinud spetsiaalsed füüsilised platvormid.

Mänguklubid on eksisteerinud pikka aega, kuid nende areng ei ole võrreldav mängumaailma kasvutempoga, virtuaaluniversumite kasutajad nõuavad suuremat tähelepanu ka reaalsete füüsiliste ruumide puhul.

Mängukeskuse planeerimine on mitmetahuline protsess, mis peab rahuldama iga kasutaja soove. Väga oluline on mõelda ette tehnoloogiate arengutele ja rakendada paindlikke ruumilahendusi, mis võivad kesta kaua ja pakkuda maksimaalset mitmekülgust.

Nii nagu planeedil on mass ja gravitatsioon, siis on seda ka tüüpi meelelahutuskompleksi kavandamisel vaja luua kindel tuum, mis jääks tõmbama oma unikaalsusega ligi kõiki kasutajarühmi.

Võttes arvesse kõiki analüüsitud tegureid, nagu turuanalüüs, erinevad kasutajarühmad ja mängijad, kes vajavad korralikku ruumilahendust ja tehnilist infrastruktuuri, kujuneb selle kõige loogilise tulemusena lõplik arhitektuurne lahendus, mis peab säilitama oma populaarsuse selles uues ja muutavas keskkonnas, ka tulevikus ning mis oma loodud keskmega, tõmbab ligi masse.

Arhitektuurne lahendus hõlmab olulisi tegureid, nagu paindlikku, multifunktsionaalset ja pikaajalist ruumiplaneerimist ning välislahendust, mis on omane Jaapani minimalismile, arvestades seejuures Jaapani kultuurile iseloomulikke eripärasid.



PROJECT PART

LOCATION SELECTION

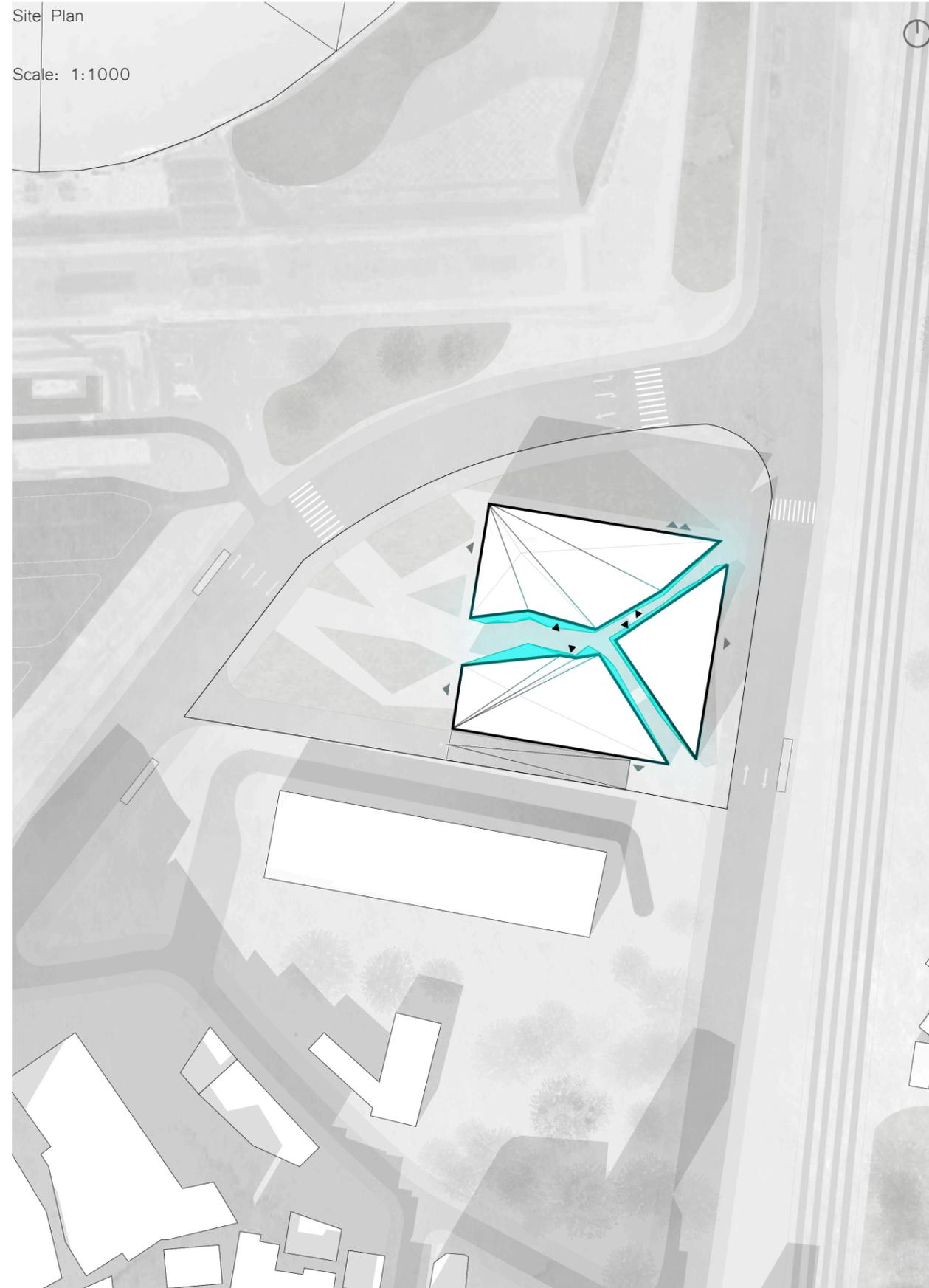


The initial stage for planning a multifunctional gaming complex is the right choice of location, based on statistics and the demand for this trend. Having studied the world market of the gaming industry, it can be determined that the leading countries are located in the Pacific Asian region: China, South Korea and Japan.

The choice settled on Japan due to its exoticism and originality. The Japanese video game market is very voluminous, the country boasts not only the production and development of games, but also a high user share. Games are a part of the life of almost every Japanese person. Young people play PC and console games, and old people spend their free time filling arcade halls.

Japan boasts a high level of service. Japan is an island nation where a partially isolated society has been created where service is paramount. For example, there are 7,000 «convenient stores» in Tokyo alone that are open 24/7. Japanese railways, on which trains follow second by second, without delay. Also in Japanese taxis, the rear doors are usually automatic for the convenience of passengers. In Japan, everything is created for people, society is used to a high level of service, so users want to see the same in the entertainment field.





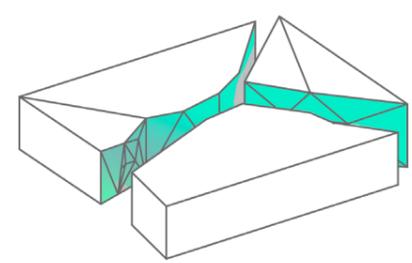
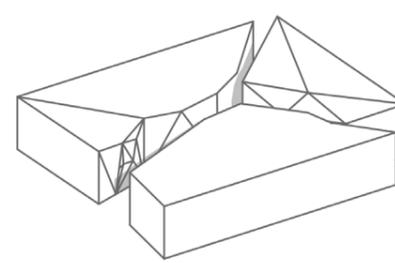
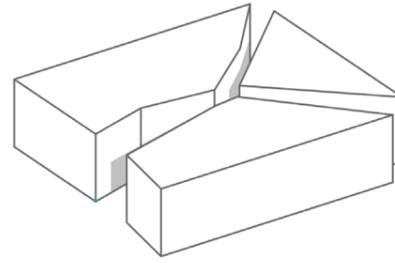
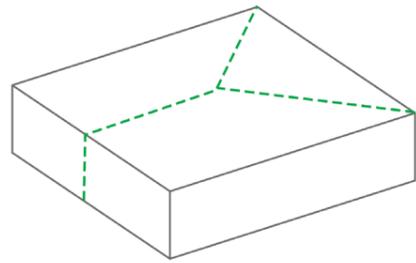
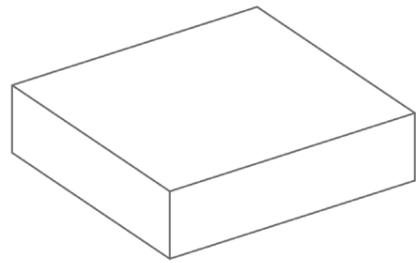
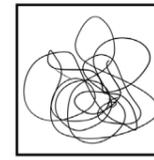
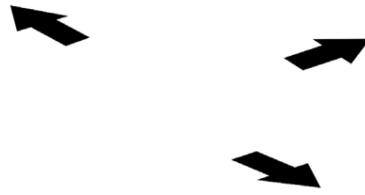
LOCATION DISCRPTION

The site is located at navigation 1-chome-1 Jinnan, Shibuya City, Tokyo 150-0041, Japan. The site is surrounded by massive landmarks. At the top is the huge Yoyogi Park, which houses the Meiji Shinto Shrine. The park is above the selected site, and there are more business centers and hotspots below the site. This is how a vertical is created, people move from the park to the urban jungle and back to balance the missing needs.

The nearest building is Yoyogi National Gymnasium, architect Kenzo Tange (is an indoor arena located at Yoyogi Park), which is famous for its suspension roof design. This building becomes inspiring and directly affects the concept of the developed gaming complex. With powerful landmarks and more trending spots, the location is easily accessible, there are several bus stops around the construction site, and it is only 1.2 km (15 min by walk) from Shibuya Station.

The site for planning a gaming complex is located in the capital of Japan, the city of Tokyo, Shibuya district. The Shibuya area can be called the trendiest area in Tokyo. This is a vibrant central area of the capital, which can be called the ageless heart and soul of Tokyo. It is impossible to miss it, especially if you love nightlife and trendy youth culture. There are many world-famous attractions here, including the world-famous Shibuya Crossing.

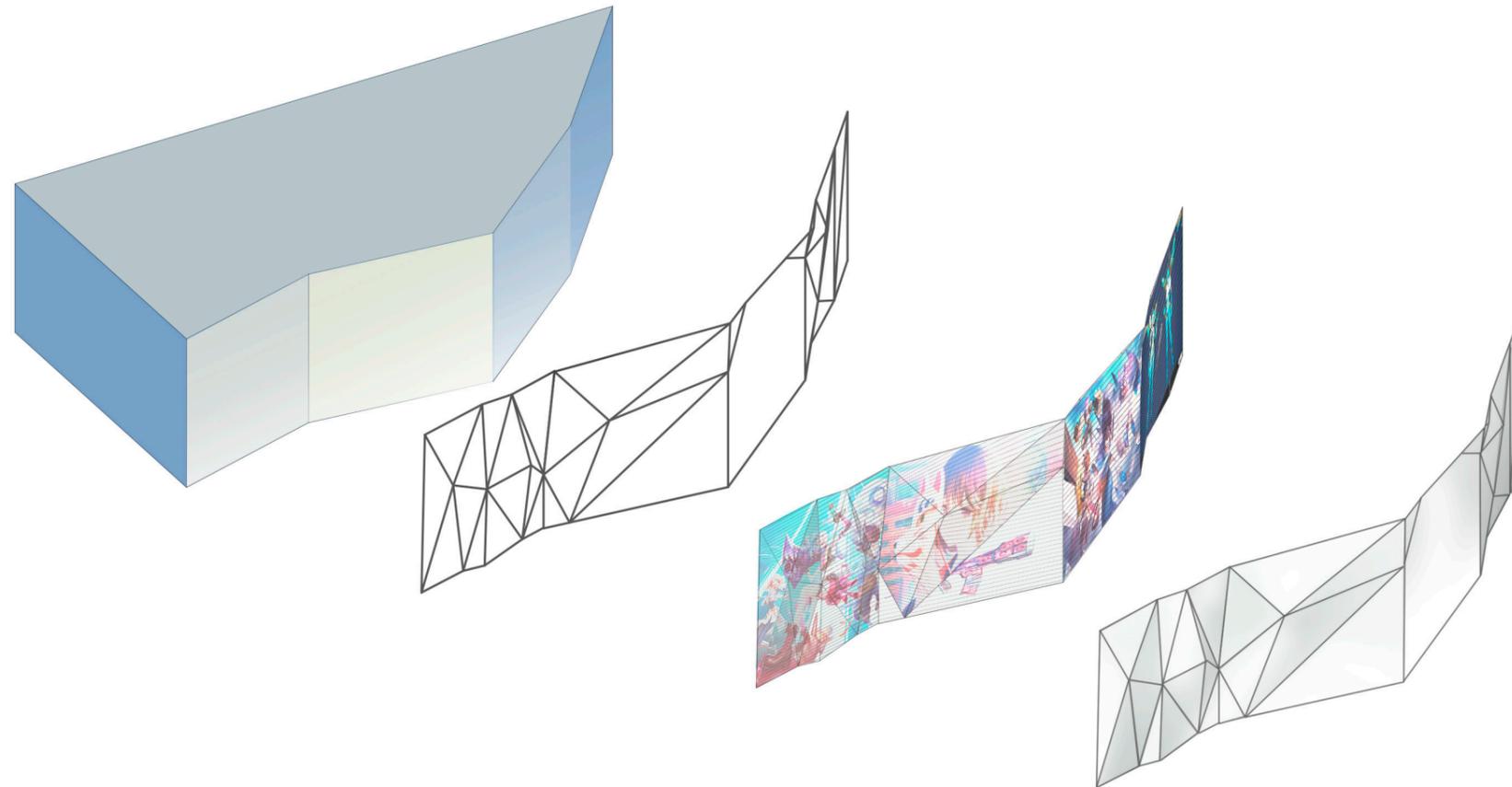
The Shibuya area is located around the station of the same name. The JR Saikyo, Yamanote, Tokyu Den-en-Toshi, Keio Inokashira and Toyoko railway lines, the Ginza and Hanzomon metro lines converge on it. Unlike neighboring areas - Aoyama, Harajuku, Omotesando and Ebisu - Shibuya is not distinguished by cultural integrity. Each street here is unique in its own way.



ARCHITECTURAL CONCEPT

The development of the concept was influenced by a large number of external factors. The work began with the concept of a simple geometric shape to follow the trend of Japanese minimalism and work with natural materials to create a volume that will «grow» from the ground and fit into the mood of the fashionable district of the Japanese capital. The challenge is to combine gaming futurism and Japanese minimalism.

Existing roads and pedestrian crossings helped to find directional vectors and divide the volume into three main and visible parts, at this stage the idea arose that there are many narrow streets in Japan filled with various bright posters, signs and advertisements, this is a kind of branding. This line of thought helped to implement this idea in architecture and create a visual physical passage through the game world, which is only inside. Outside, the building is a deaf and monumental stone, characterizing a certain symbolism of a precious stone in the wild, which, in its section, opens up to the world as something beautiful and peculiar. In the case of the gaming direction, this is a bright and virtual world, beloved by modern gamers.



TRANSPARENT LED VIDEO WALL

Internal «broken» walls are represented in the project as screen walls. These are transparent LED panels through which the image is broadcast. These walls create the main concept of the project, as a complete immersion in the virtual universe. The panels broadcast various titles, advertisements, animations that convey the atmosphere of Japanese pop culture.

Transparent LED walls start from the ground and all the way to the roof, giving the impression of a natural break. The walls stretch to the last floors and completely fill the passable internal space through the «game world». The facade is divided into many triangular panels. Each triangle supports several faces, alternately oriented in different directions. These large triangular modules are made of glass and regularly spaced LED modules, forming a large animated grid. These panels can function independently, each displaying a different image, or the panels can work together to display the same image on all LEDs.

The transparent LED video wall is a versatile system that is becoming more and more popular these days. The transparent LED video wall is used to create very impressive and memorable displays on the world stage.

Features:

- Visibility. Transparent LED walls with up to 5500nits of brightness are visible around the clock, even in bright daylight.
- The design is light and thin. Thickness 35 mm and 10 kg per sq.m. The brightness is over 5500 nits/m². With efficiency and functionality in mind, LED walls are made of lightweight aluminum + innovative LED technology, they are very easy and safe to assemble.
- Service. The panels can be serviced from the inside, which makes the process safer and more convenient. LED panels have a long service life and, if necessary, can be quickly and easily replaced without the need to replace the entire module block.
- High transparency. High transparency ~80% for front and back. Transparent LED walls let in natural daylight, allowing people to look inside.
- Energy efficiency. The LED glass display helps illuminate the glass wall, which makes the glass wall more attractive.

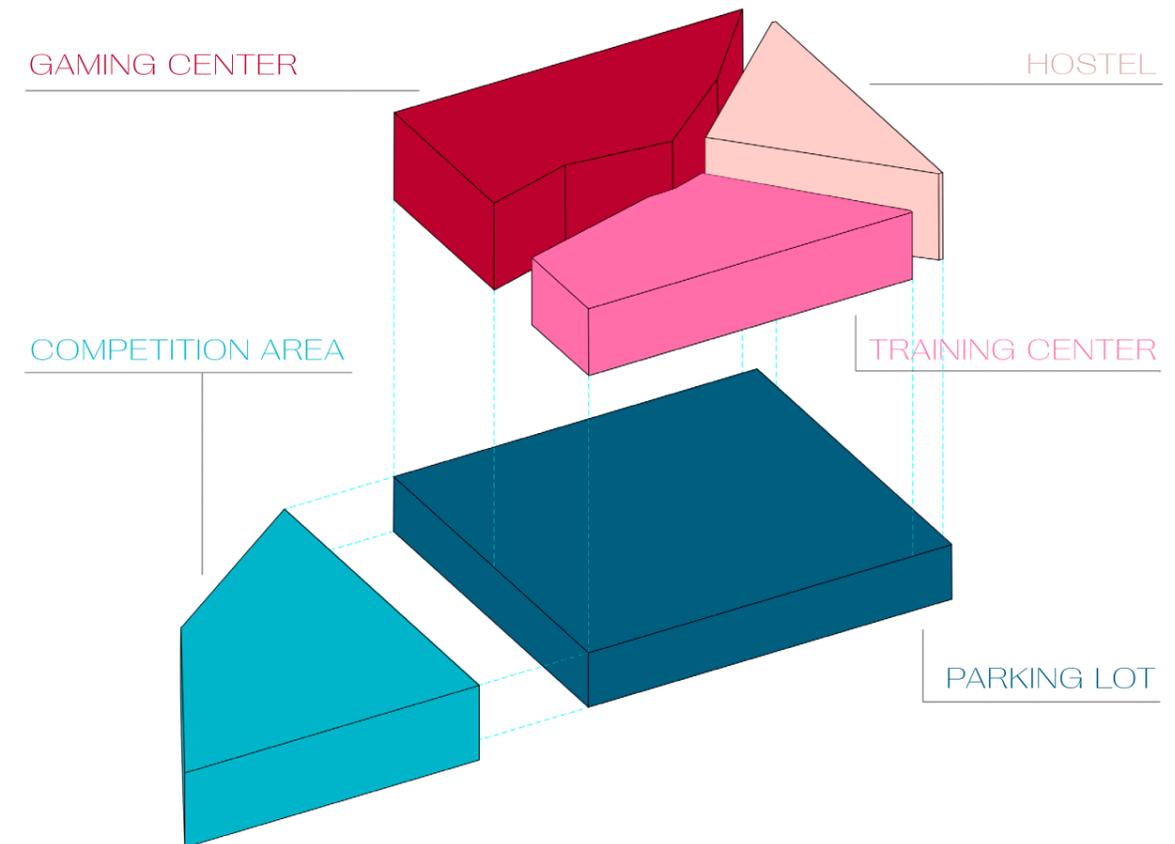




FUNCTIONALITY

The multifunctional gaming complex consists of 5 main parts divided by functionality: a gaming center, a training center, a hostel, a competitive area, and an underground parking. These five functions occupy the ground and underground parts. Thanks to the conceptual division on the ground part, one volume was divided into three parts, thus three separate buildings appeared, and the proper functionality took their place.

On the ground there is a gaming, training center, as well as a hostel, as they partially need natural light and should be in such a way that natural light enters the right rooms. Since the concept of gaming clubs and centers supports the fact that these spaces do not need sunlight due to the negative impact on gaming activities, the building is planned in such a way that natural lighting does not become a problem for players and visitors. The interior spaces are equipped with proper artificial light to avoid unnecessary glare and reflections during gaming activities.



The gaming center operates for any group of visitors: amateur players, professionals, a group of people interested in the gaming industry, tourists and so on, the center has free admission for everyone. The gaming center is provided with the most popular gaming platforms and flexible space so that the visitor can get the best gaming experience.

The training center is designed for regular visitors and professional players for whom gaming is a part of life or a profession. The center is equipped with training computer rooms, educational rooms, workspaces, a cardio gym and several shower rooms. The concept of this part of the complex implies a co-working system for the development of new start-ups, joint work on projects, and so on.

The third ground building is a hostel, which is directly connected to the training center and together they form a co-living co-working system. In order to give people the opportunity to visit the gaming complex in teams for the purpose of long training marathons, developing new projects or traveling together with friends (players) in one complex that combines all the functions, a hostel was planned to provide visitors with the opportunity for a long stay.

The competition arena and underground parking are located underground. The competition zone is located on the left side of the parking lot and is designed on the principle of a cinema hall for 650 seats, the hall goes three floors underground. Underground parking is located directly under the three above ground buildings and covers their total area, the parking has two underground levels. Parking is provided with 90 car parking places and separate areas for motorcycle parking.

Most of the project decisions were made in accordance with Estonian standards due to the language barrier and the difficulty in finding Japanese standards.

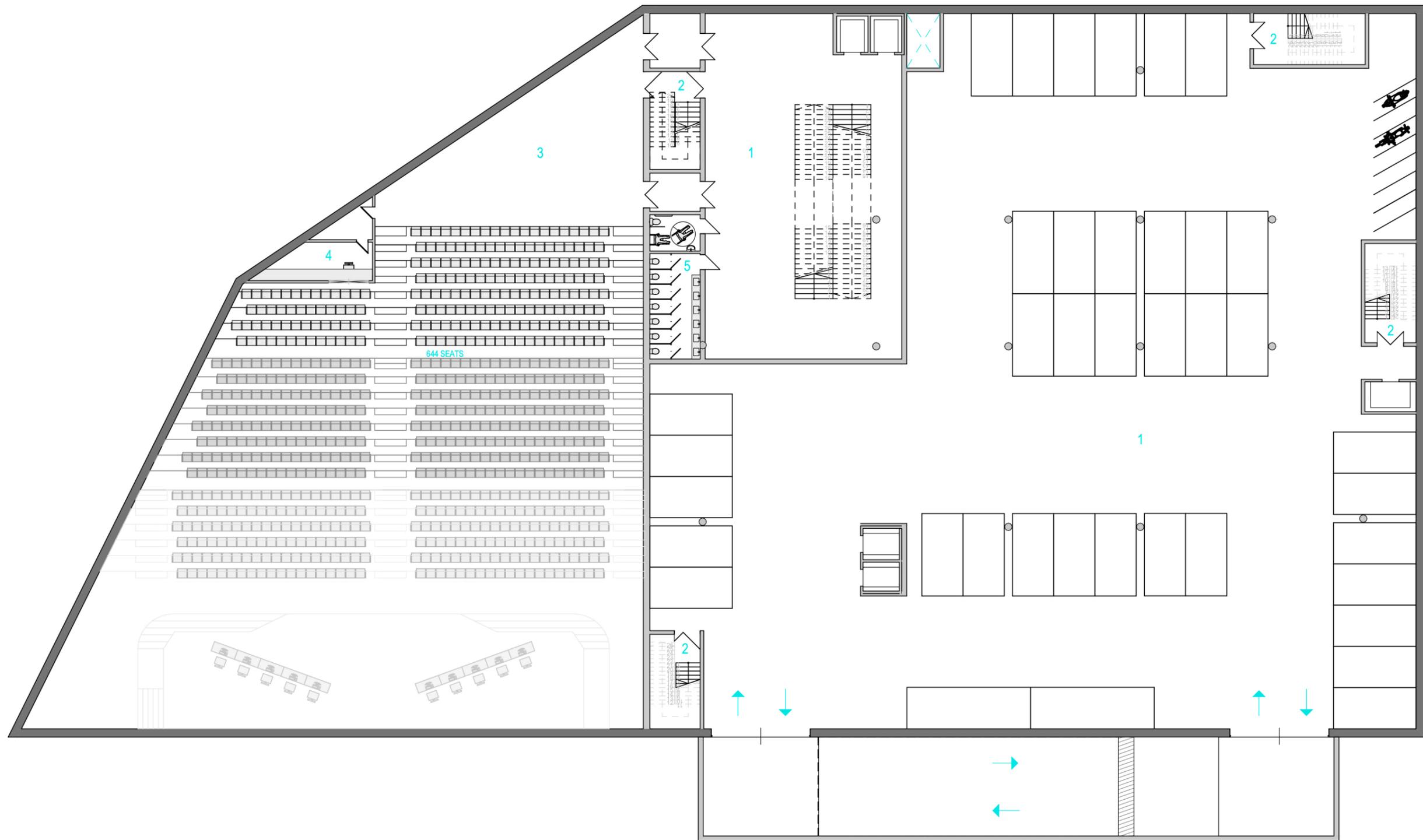
Ground Floor			
Gaming Center	1	OPEN GALLERY HALL + RECEPTION	392.9
	2	CAFETERIA	88.5
	3	KITCHEN + STORAGE	25.5
	4	MERCH STORAGE	35.2
	5	WC	43.3
	6	EMERGENCY EXIT	11.5
	7	LIFT	13.3
Hostel	1	OPEN HALL + RECEPTION	189.8
	2	DINING ROOM	96.1
	3	WC	35.7
	4	EMERGENCY EXIT	6.3
	5	LIFT	5.6
Trainig Center	1	HALL + RECEPTION	92.0
	2	DINING ROOM	120.8
	3	KITCHEN + STORAGE + CATERING	78.2
	4	MEETING ROOMS	41.9
	5	WC	23.7
	6	SHOWER	45.1
	7	CARDIO GYM	81.5
	8	EMERGENCY EXIT	10.0
	9	LIFT	8.7
	10	AUXILIARY ROOM	9.4
			1,455.0 m²
Gaming Center	GROSS AREA		662.7
Hostel	GROSS AREA		368.0
Trainig Center	GROSS AREA		569.8
			1,600.5 m²

PLANS

Ground Floor

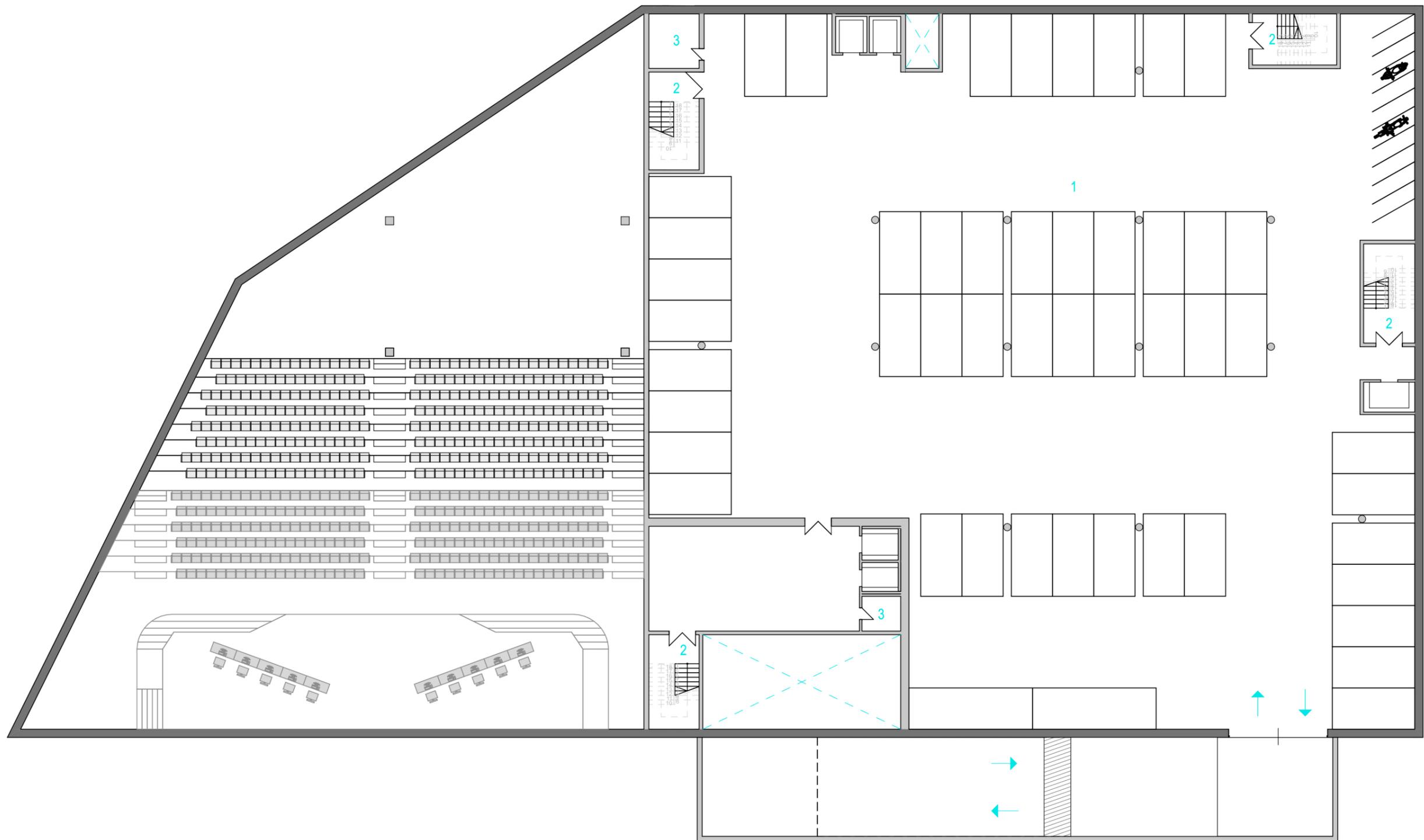
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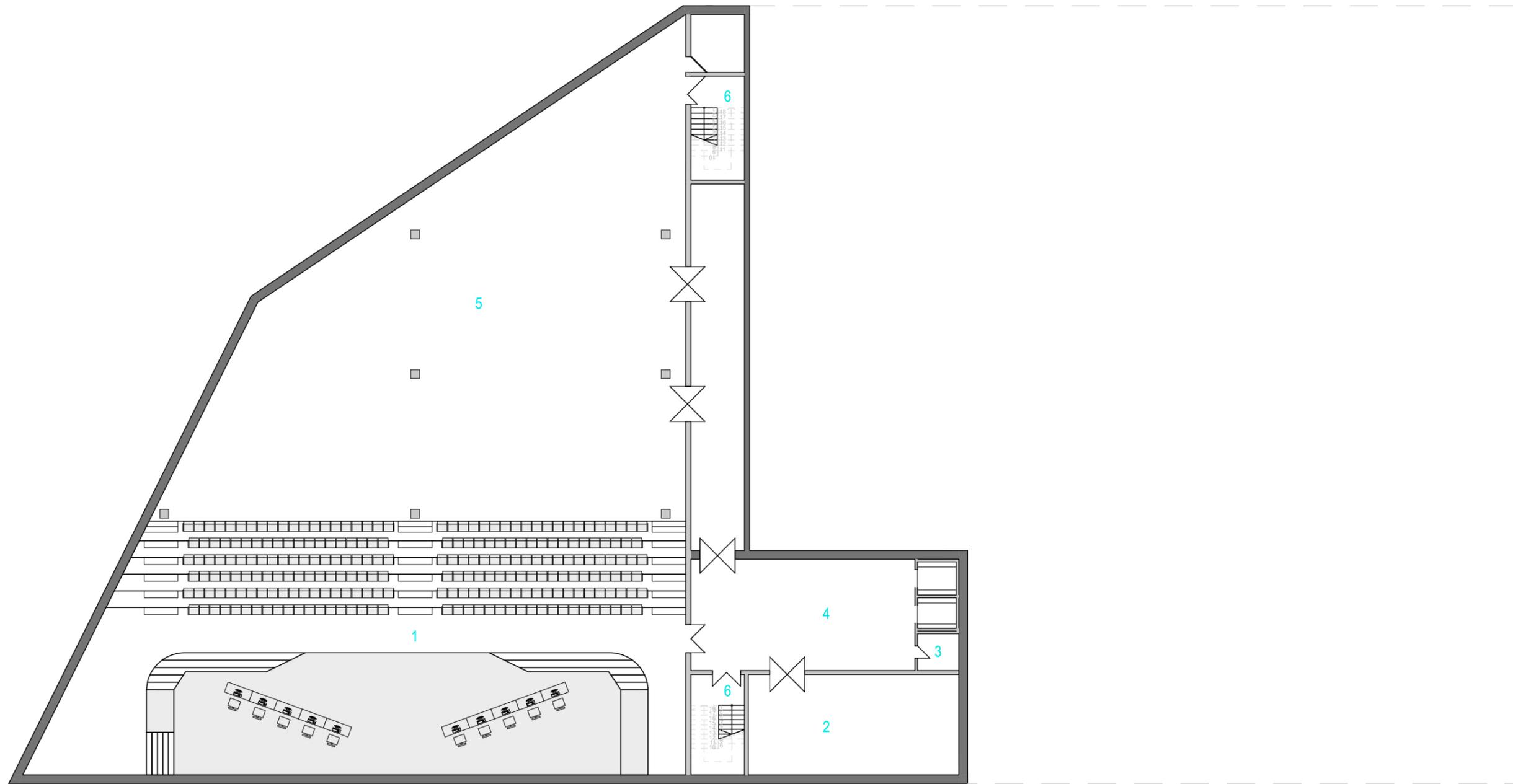
Underground 2

Scale: 1:250



Underground 3

Scale: 1:250



Underground 1

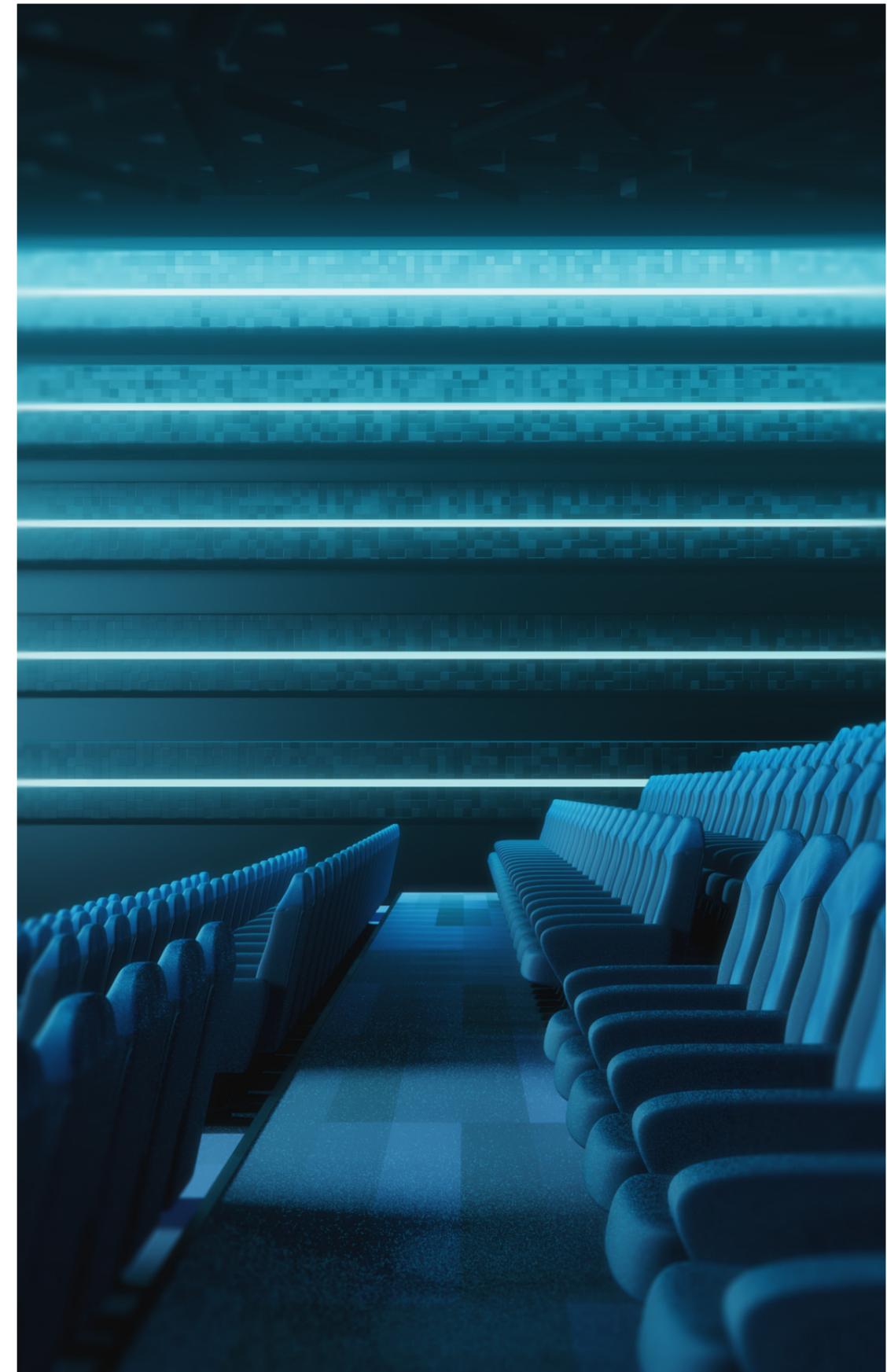
ARENA	1	HALL	258.4
	2	EMERGENCY EXIT	5.6
	3	ARENA	496.4
	4	CONTROL ROOM + STORAGE	19.2
	5	WC	26.7
PARKING	1	PARKING LOT	1,592.7
	2	EMERGENCY EXIT	16.3
			2,415.3 m²
PARKING + ARENA		GROSS AREA	2,581.3
			2,581.3 m²

Underground 2

PARKING	1	PARKING LOT	1,715.1
	2	EMERGENCY EXIT	45.3
	3	AUXILIARY ROOM	15.0
			1,775.4 m²
PARKING		GROSS AREA	2,066.3
			2,066.3 m²

Underground 3

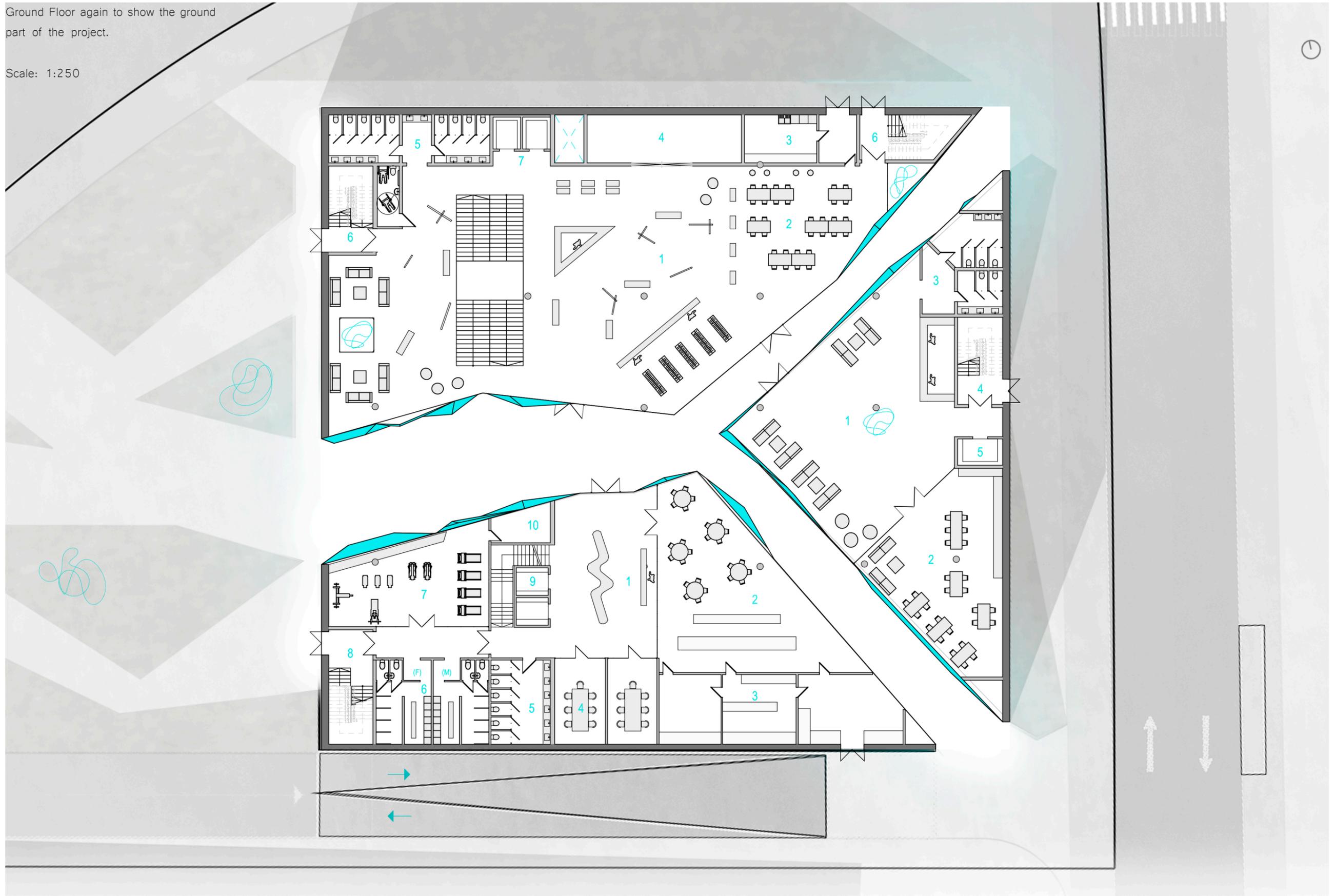
ARENA	1	ARENA	495.3
	2	EQUIPMENT	68.8
	3	AUXILIARY ROOM	4.9
	4	LOUNGE	81.2
	5	HVAC	624.8
	6	EMERGENCY EXIT	35.6
			1,310.6 m²
ARENA		GROSS AREA	1,415.8
			1,415.8 m²

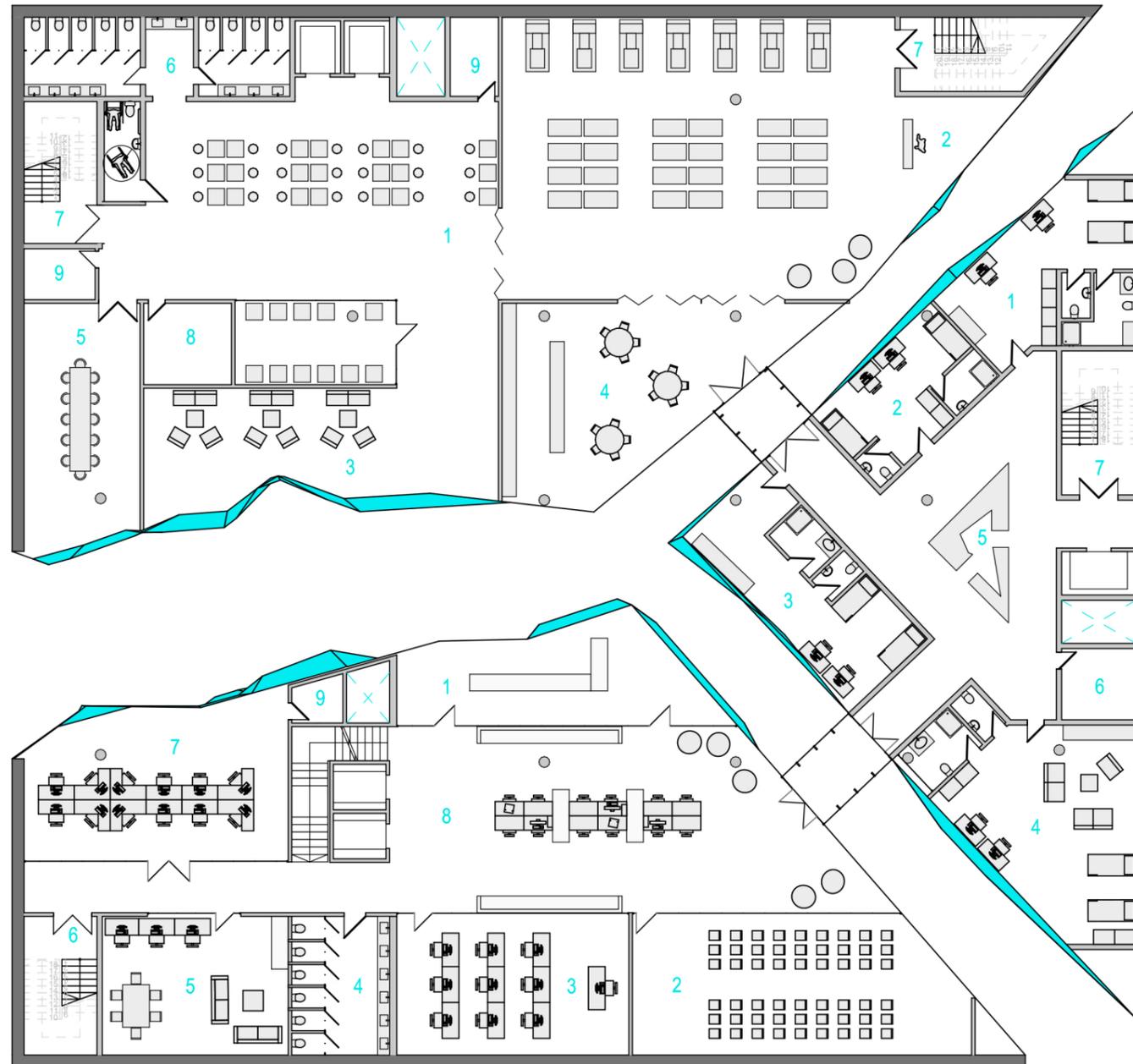




Ground Floor again to show the ground part of the project.

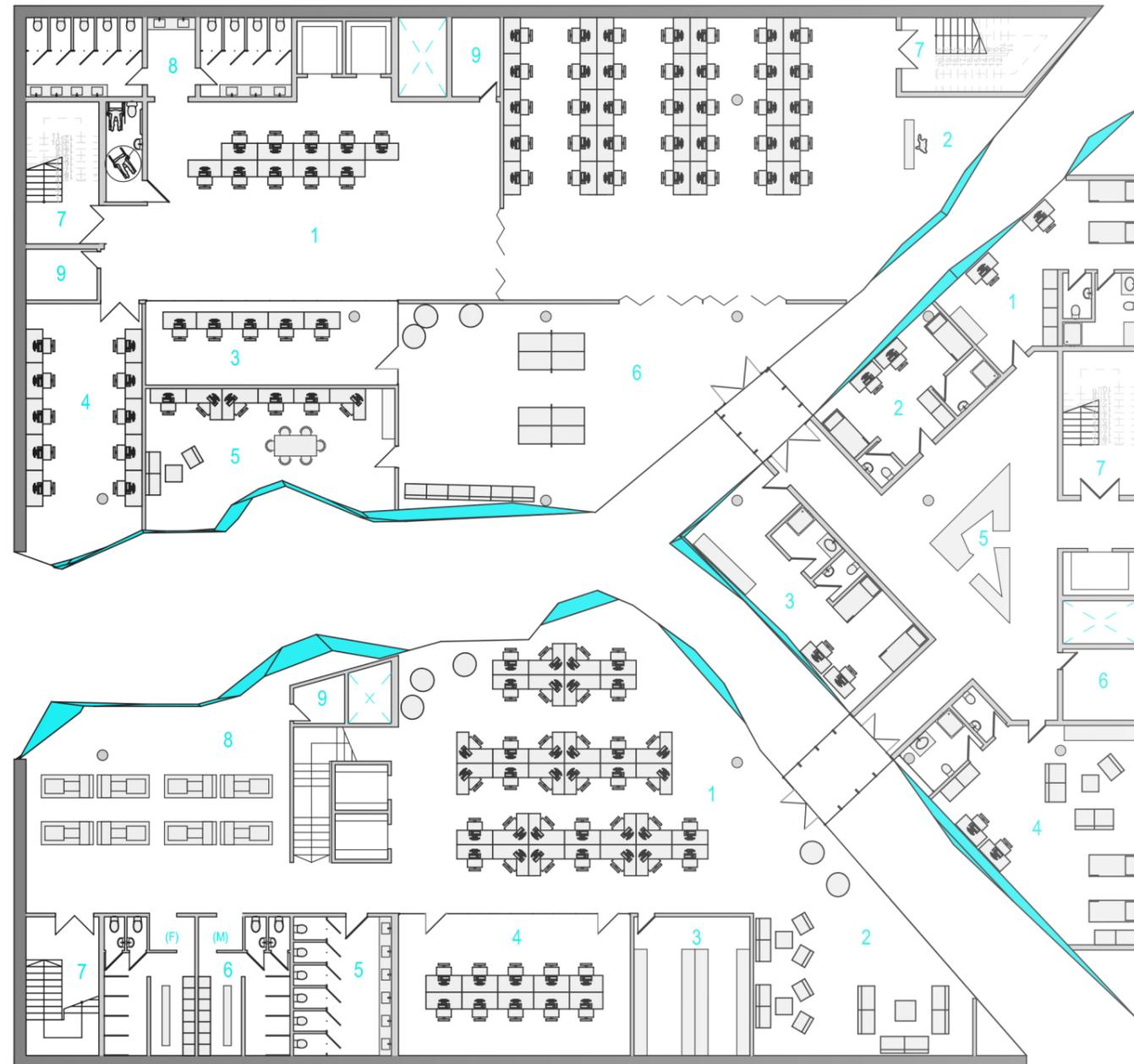
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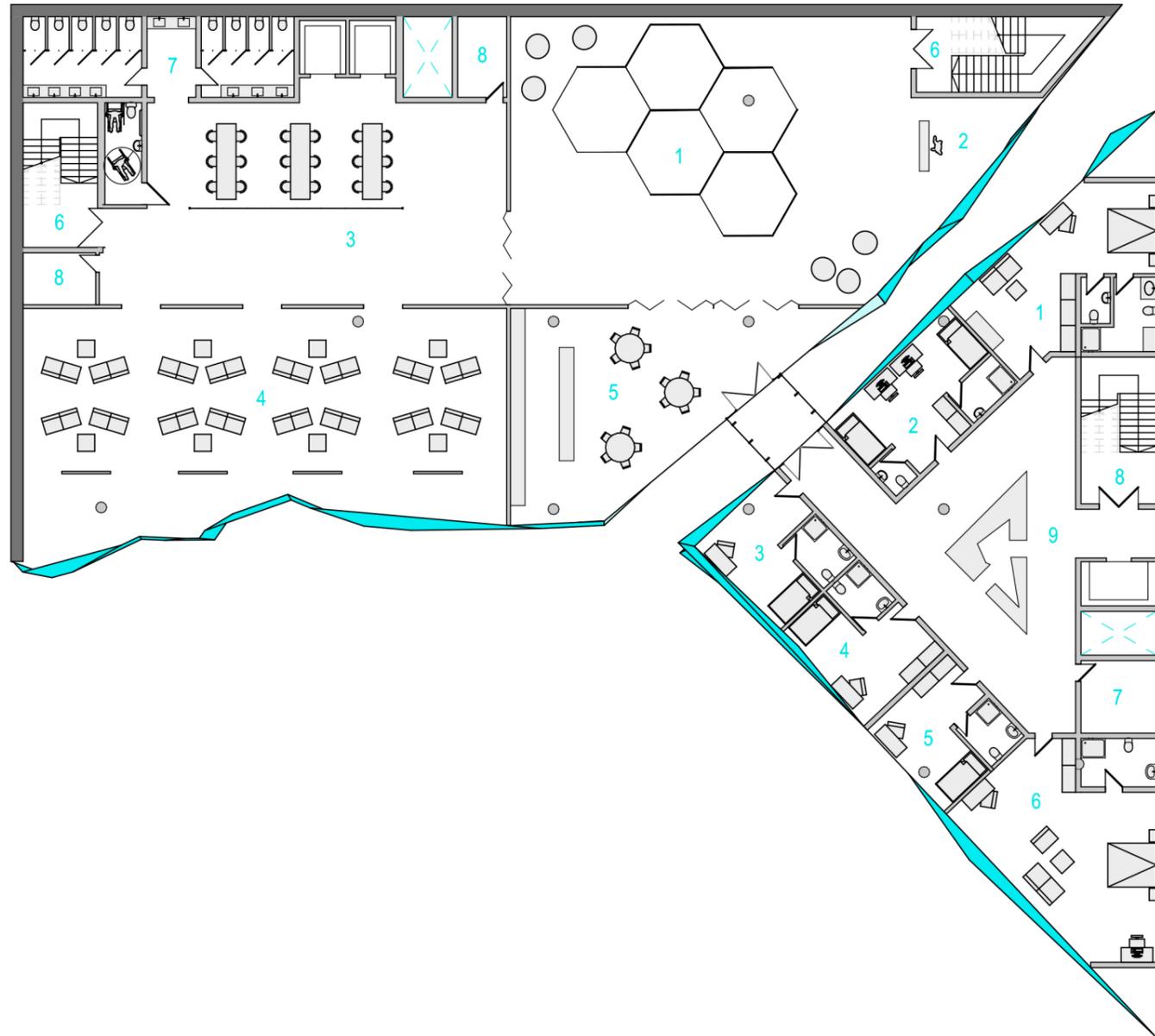
Floor 3

Scale: 1:250



Floor 4

Scale: 1:250



2 Floor

Gaming Center	1	ARCADE	350.5
	2	INFO	17.4
	3	LOUNGE	84.3
	4	BAR LOUNGE	78.5
	5	WORKSPACE	47.8
	6	WC	43.3
	7	EMERGENCY STAIR	9.9
	8	SERVER ROOM	12.5
	9	AUXILIARY ROOM	13.0
Hostel	1	ROOM 1	44.9
	2	ROOM 2	28.5
	3	ROOM 3	45.7
	4	ROOM 4	66.8
	5	HALL	109.9
	6	AUXILIARY ROOM	9.2
	7	EMERGENCY STAIR	6.6
Trainig Center	1	WORKSHOP	49.6
	2	CONFERENCE	79.4
	3	GAMING CLASSROOM	57.7
	4	WC	23.7
	5	CONTENT STUDIO	45.1
	6	EMERGENCY STAIR	5.5
	7	WORKSPACE	93.5
	8	HOT DESKING	148.6
	9	AUXILIARY ROOM	3.8

1,475.7 m²

Gaming Center	GROSS AREA	727.1
Hostel	GROSS AREA	371.5
Trainig Center	GROSS AREA	564.4

1,663.0 m²

3 Floor

Gaming Center	1	OPEN PC GAMING	326.5
	2	INFO	18.2
	3	5 PC ROOM	37.6
	4	5+5 PC	49.9
	5	PODCAST ROOM	52.1
	6	LOUNGE \ PING PONG	115.8
	7	EMERGENCY STAIR	9.9
	8	WC	43.3
	9	AUXILIARY ROOM	13.0
Hostel	1	ROOM 1	44.9
	2	ROOM 2	28.5
	3	ROOM 3	45.7
	4	ROOM 4	66.8
	5	HALL	109.9
	6	AUXILIARY ROOM	9.2
	7	EMERGENCY STAIR	6.6
Trainig Center	1	OPEN TRAINING AREA	202.1
	2	LOUNGE	49.5
	3	SERVER ROOM	28.1
	4	5+5 TRAINING ROOM	57.7
	5	WC	23.7
	6	SHOWER	44.2
	7	EMERGENCY STAIR	5.5
	8	RACING SIMULATOR PRACTICE	95.8
	9	AUXILIARY ROOM	3.8

1,488.3 m²

Gaming Center	GROSS AREA	734.5
Hostel	GROSS AREA	371.5
Trainig Center	GROSS AREA	565.4

1,671.4 m²

4 Floor

Gaming Center	1	VR AR	191.8
	2	INFO	17.1
	3	MOBILE GAMING	133.9
	4	CONSOLE GAMING	177.3
	5	BAR LOUNGE	79.6
	6	EMERGENCY STAIR	9.9
	7	WC	43.3
	8	AUXILIARY ROOM	13.0
Hostel	1	ROOM 1	44.9
	2	ROOM 2	28.5
	3	ROOM 3	21.5
	4	ROOM 4	22.3
	5	ROOM 5	20.7
	6	ROOM 6	56.6
	7	AUXILIARY ROOM	9.2
	8	EMERGENCY STAIR	6.6
	9	HALL	99.2

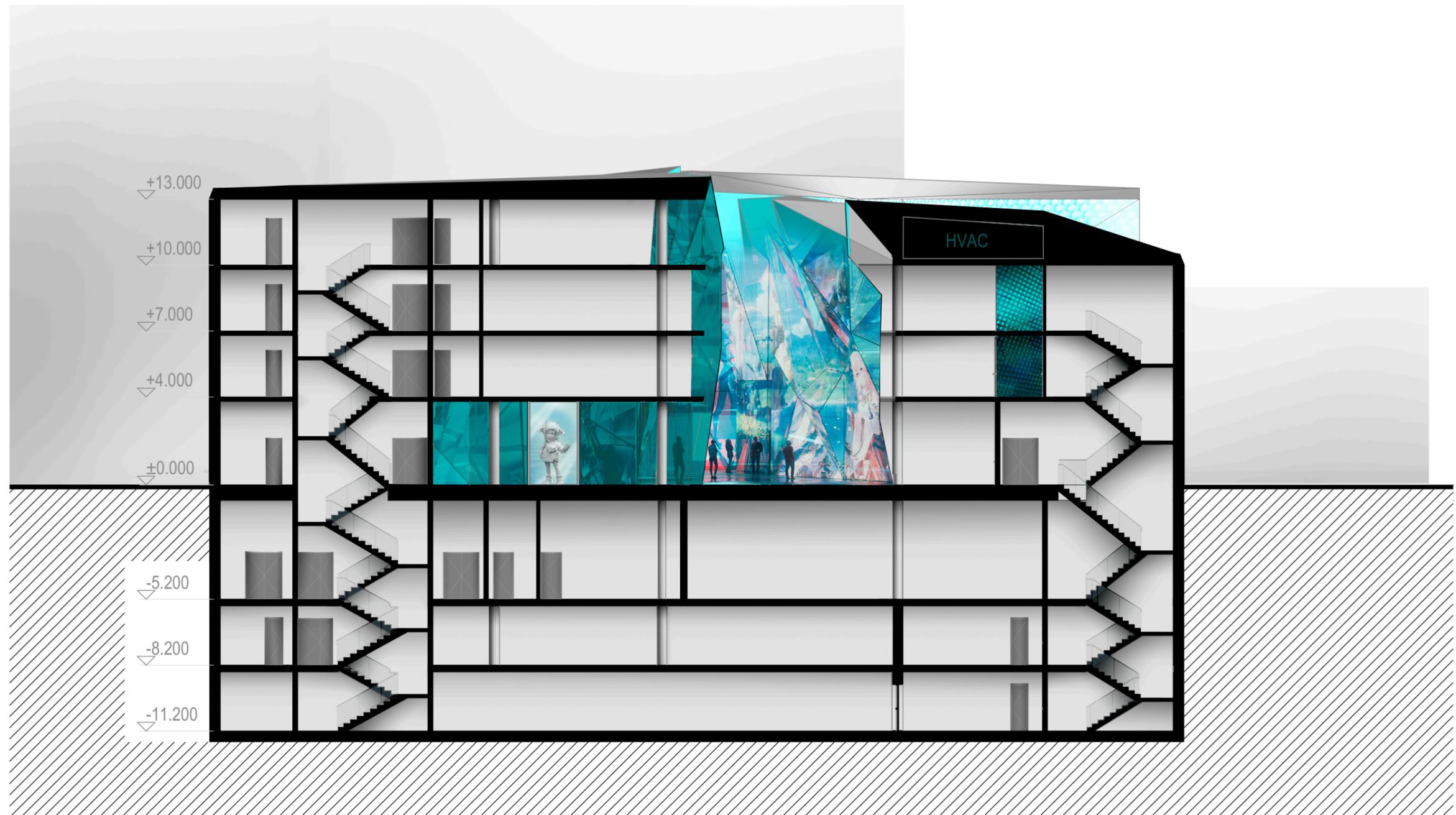
975.4 m²

Gaming Center	GROSS AREA	735.4
Hostel	GROSS AREA	371.5

1,106.9 m²

Section - 1

Scale: 1:200



SECTION - 1

S-1 shows the height of underground and ground floors and buildings. The structure of the building is mostly reinforced concrete walls and columns with concrete slab-floor system or occasional one-way-joist-concrete slab-floor.

The section shows the course of the evacuation stairs intended for the arena, parking lot, game center and training center. All of them are interconnected and provide access to the street from the west side. Section S-1 indicates the location of HVAC (heating, ventilation, and air conditioning). The training center and the hostel have a HVAC system under the roof on the technical attic floor.

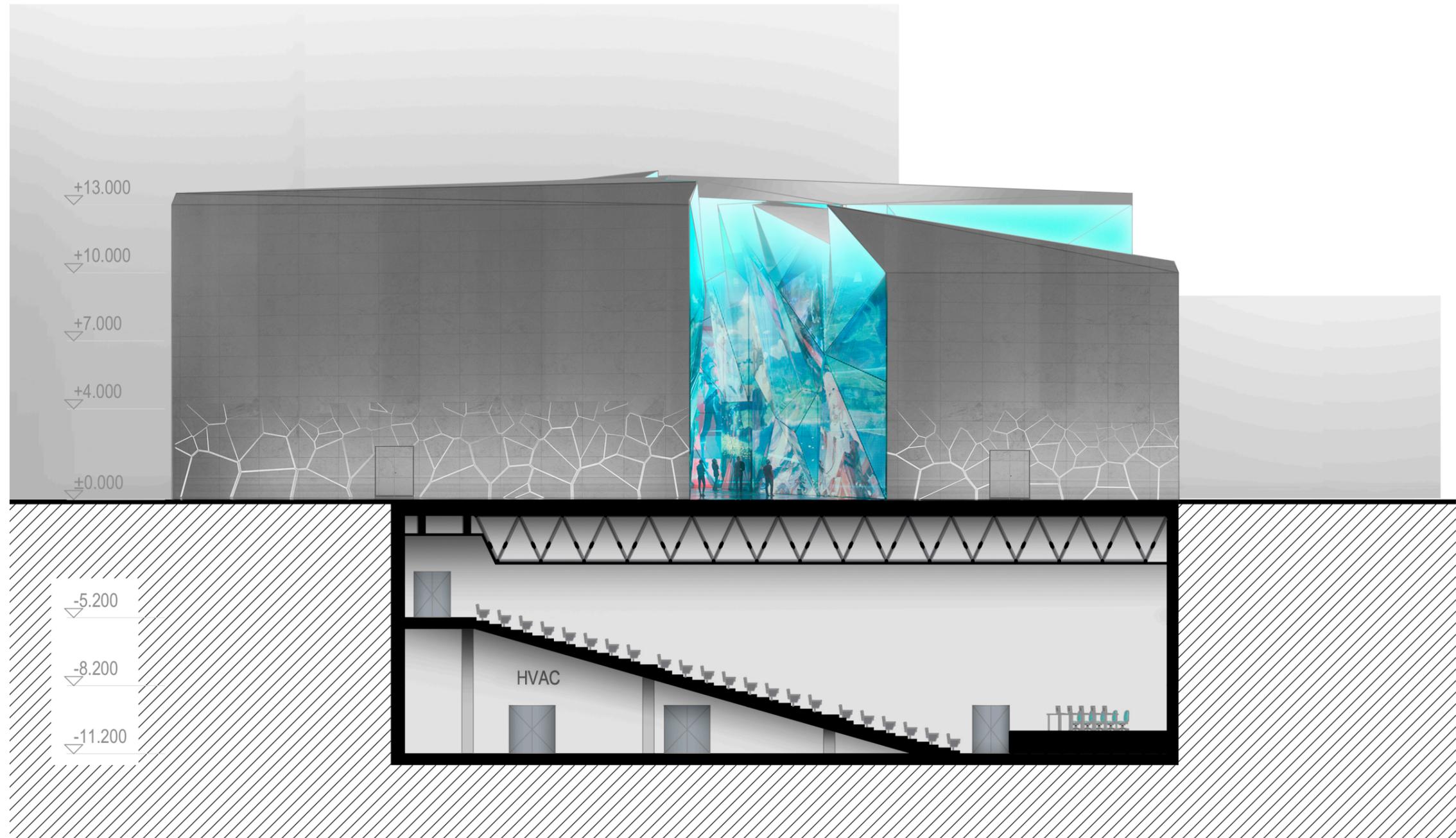
The internal space remains open and flexible to change any functionality, taking into account the constant technological development.

FAIR PROTECTION

Fire protection and evacuation is very important in designing at this big scale. All the floors, shafts and staircases are in separate fire section and open staircases will be surrounded by automatic curtains in case of a fire. In every part of building, there are sufficient evacuation guaranteed from all rooms and floors. Also, in case of emergency hostel is connected to other buildings with horizontal gallery paths, so in case of emergency they can be used to reach evacuation routes.

Section - 2

Scale: 1:200



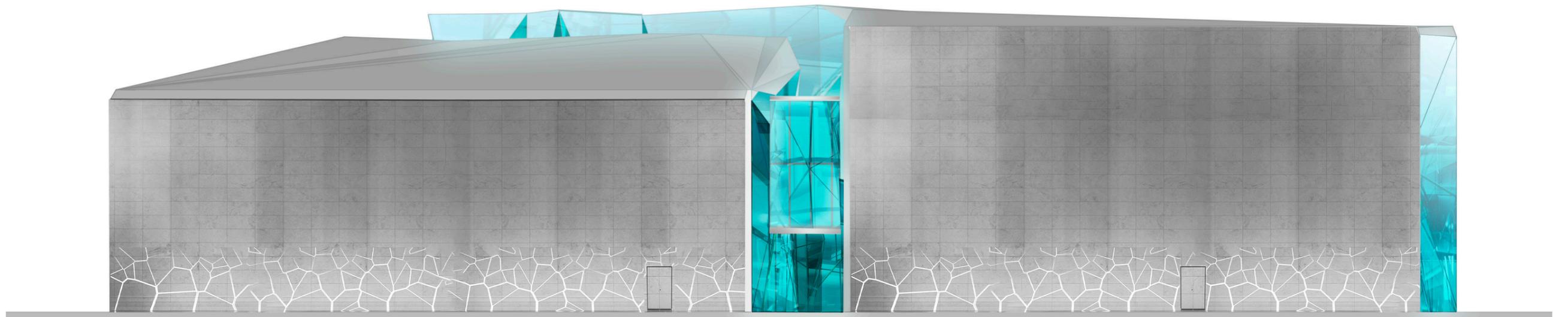
SECTION -2

S-2 shows a section through the arena, seating arrangement, arena height, location of additional solutions. Arena roof system, with steel space-frame structure, which from the west side is supported (most wider part of the arena) by a perpendicular 2 meter high reinforced concrete beam. The HVAC system for the arena is located in a room under the seats and works both for the arena itself, the parking lot, and for the gaming center.

The curtain wall system with transparent LED-s is supported by the roof, wall and floor-slab connections.

Northeast view

Scale: 1:200



EXTERIOR AND INTERIOR



CONCRETE



SCREENS



LAWN

The exterior finish is made of raw, bare concrete panels reminiscent of brutalism due to the heaviness of the volume. Hinged transparent LED walls turn the building into futurism and remind of the main concept of the project development.

External lighting on the facade is contour lighting – additional panels with LEDs between them and the main wall. They are made in the same style and «split» concept. Such lighting helps to distinguish the building from the background of other structures in order to attract the attention of visitors and get rid of the excessive heaviness of the external volume.

Outside, at the main entrance, on the left side of the building, there are even green lawns that can become a place to relax, and also represent an exhibition area where figures and presentable statues are located in a chaotic manner in the context of Japanese pop-culture and greet visitors and passers-by from side of the main entrance.

The interior is mainly decorated with concrete walls covered with decorative panels, depending on the type of room and its needs for a design solution.

Decorative panels should not have a glossy finish in order to avoid excessive glare as a negative impact on gaming processes. Also, special acoustic decorative panels are integrated into the right rooms to avoid echoes and other acoustic problems.

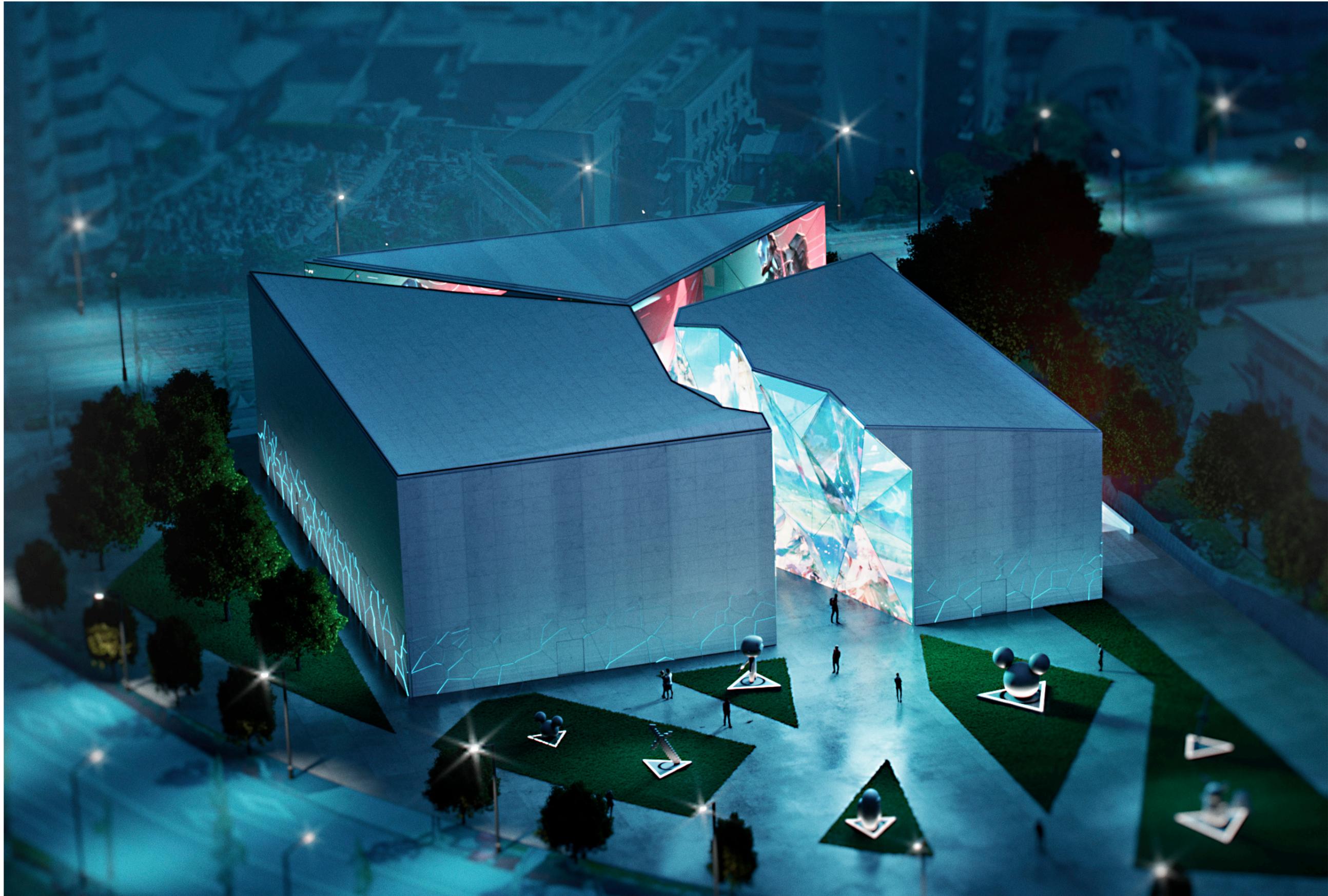
Playrooms are mostly located near «blind» walls, which limits the availability of natural light. Game rooms are equipped with artificial lighting and are made in a futuristic gaming design to maintain the proper atmosphere. The ability to physically control the lighting itself ensures that the right light is given to the players in the situations they need.

In addition, many of the walls are glass panels that help the rooms feel more spacious and flexible to accommodate future spatial changes.

ENERGY EFFICIENCY/SUSTAINABILITY

Currently, one very important requirement is imposed on all designed buildings – they must be as «green» as possible. To do this, people must remember two main criteria: energy efficiency and sustainability. There are many methods that can help a building become greener. The following methods can be applied to the project being developed:

- The use of green concrete as a building material. Concrete can be considered sustainable due to its durability, and the use of «green concrete» and products made from it are designed with environmental requirements in mind. The use of such material saves non-renewable resources and reduces the problem of CO2 emissions.
- An open interior layout allows the building to be multifunctional and used for some other function, or to change the layout and functionality of the space with simple methods, but given the lack of windows, the building is designed only for gaming space, the spaciousness can only change due to the development of technology, and therefore introduction of new gaming platforms and technical support.
- The transparent LED walls used in the project help illuminate the building both outside and inside, the light is directed in all possible directions, therefore, the spaces near the LED walls will also be well lit. Other advantages are low energy consumption, weather resistance, insulation effect against heat and cold, and full recyclability.
- Excess heat from equipment can be reused during winter via ventilation equipped with heat-exchanger.
- An extremely compact building with limited window area, which is also partially shaded by transparent LED strips and mostly protected from the sun by a narrow inner street.
- The use of automatic light sources that work based on sensors in rooms that are not used on a permanent basis.
- Heating control with thermostats.



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POSTERS

MULTIFUNCTIONAL ENTERTAINMENT HUB BASED ON DIGITAL GAMING AND JAPANESE POP-CULTURE

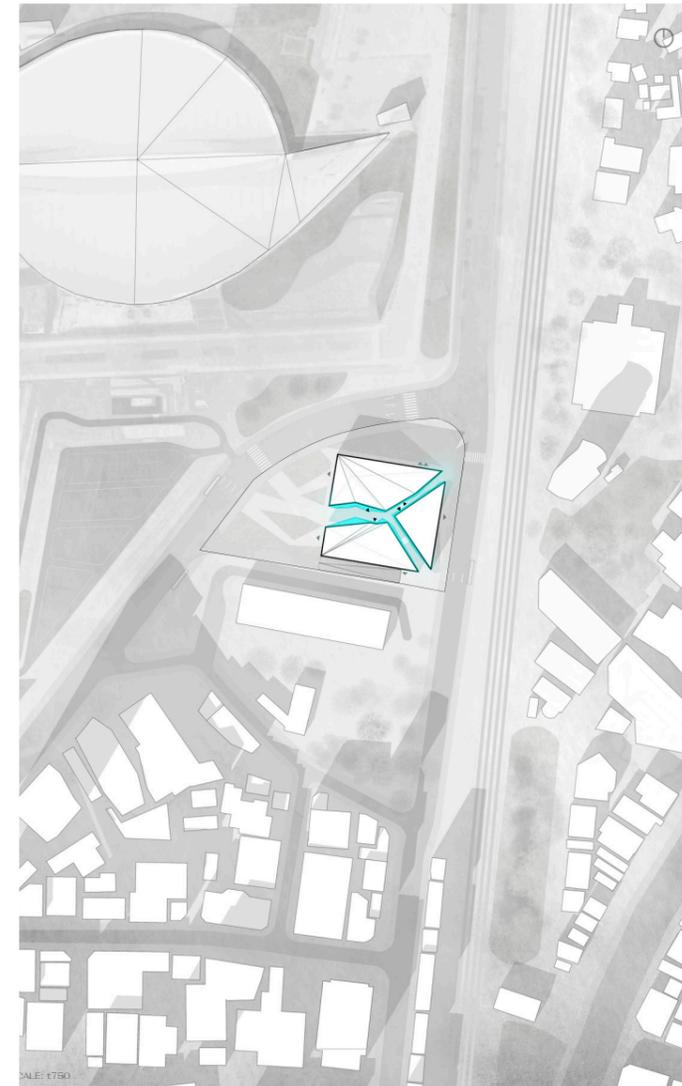
デジタルゲームと日本のポップカルチャーに基づく多機能エンターテインメントハブ

MASTER STUDENT: MARTA VOLCZEK
SUPERVISOR: ÜLLAR AMBOS

TALTECH 2022



FUNCTIONAL ENTERTAINMENT HUB BASED ON DIGITAL GAMING AND JAPANESE POP-CULTURE



SCALE: 1:750



The planned site was chosen in Japan because of its excitement and originality. The Japanese video game market is very voluminous, the country boasts not only the production and development of games, but also a high proportion of users. Games are part of the life of almost every Japanese. Young people play computer and console games, while old people spend their free time filling the gaming halls.

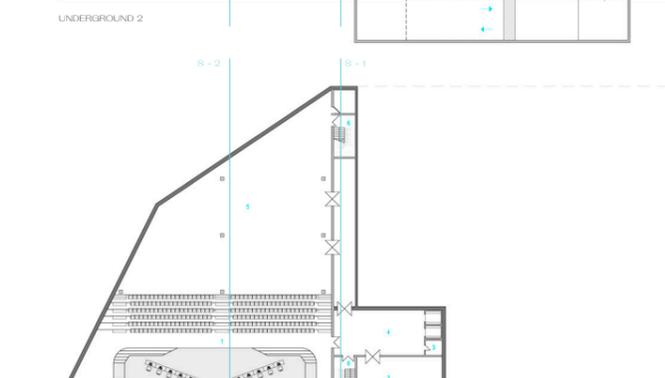
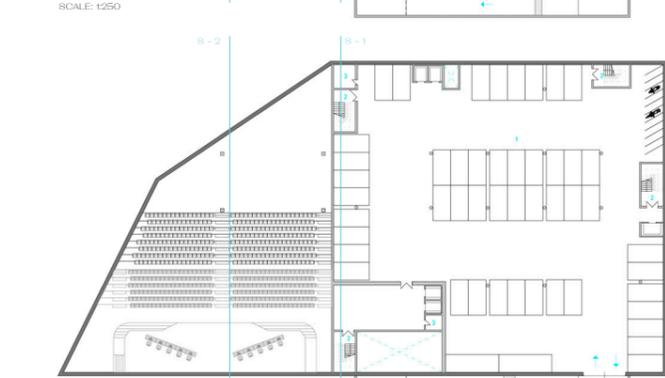
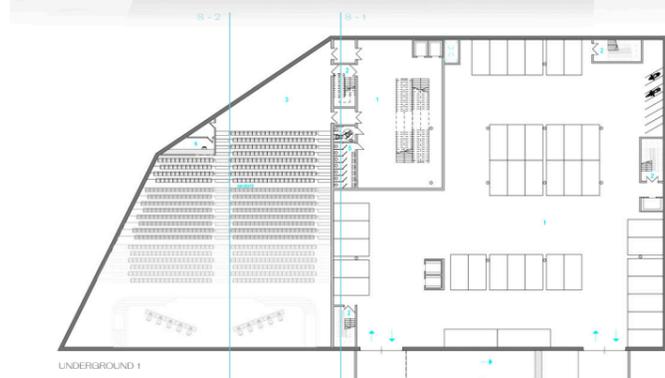
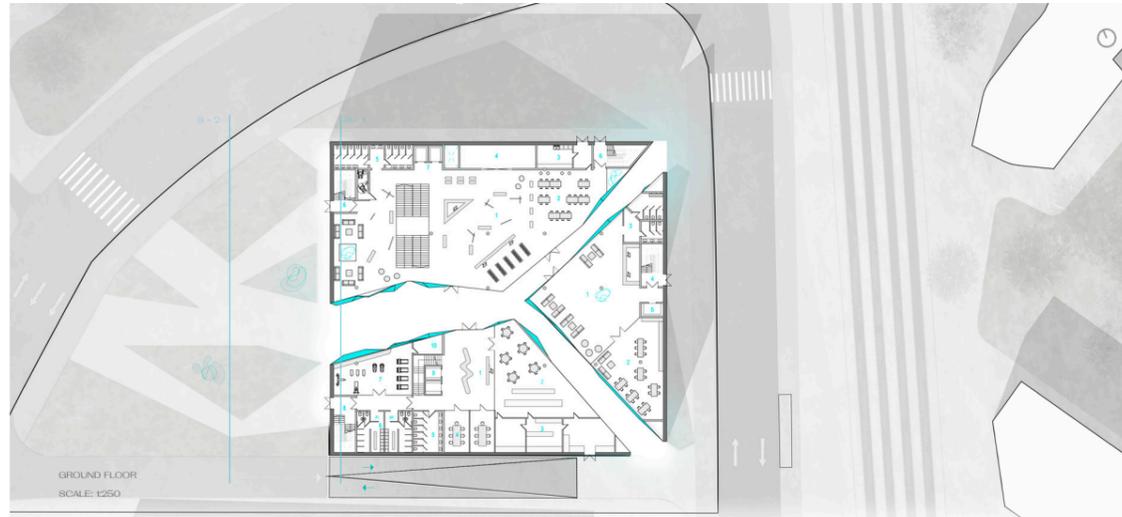
The site for planning a gaming complex is located in the capital of Japan, the city of Tokyo, Shibuya district. The Shibuya area can be called the trendiest area in Tokyo. This is a vibrant central area of the capital, which can be called the agitated heart and soul of Tokyo. It is impossible to miss it, especially if you love nightlife and trendy youth culture. There are many world-famous attractions here, including the world-famous Shibuya Crossing.



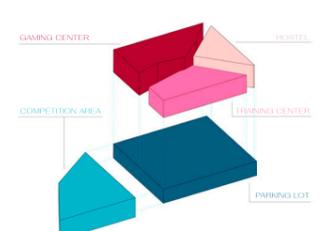
The Shibuya area is located around the station of the same name. The JR Sakyo, Yamanote, Tokyu Den-en-Toshi, Keio Inokashira and Tokyoko railway lines, the Gora and Harajomon metro lines converge on it. Unlike neighboring areas - Aoyama, Harajuku, Omotesando and Ebisu - Shibuya is not distinguished by cultural integrity. Each street here is unique in its own way.

The nearest building is Yoyogi National Gymnasium, architect Kenzo Tange (is an indoor arena located at Yoyogi Park), which is famous for its suspension roof design. This building becomes a landmark and directly affects the concept of the developed gaming complex. With powerful landmarks and more trending spots, the location is easily accessible, there are several bus stops around the construction site, and it is only 12 km (6 min by walk) from Shibuya Station.

The site is located at navigation 1-chome-1-1, Shibuya City, Tokyo 150-0041, Japan. The site is surrounded by massive landmarks. At the top is the huge Yoyogi Park, which houses the Meiji Shinto Shrine, the park is above the selected site, and there are more business centers and hotspots below the site. This is how a vertical is created, people move from the park to the urban jungle and back to balance the missing needs.



Ground Floor			Underground 3		
Room	Area	Room	Area	Room	Area
1	28.3	1	AREA	1	AREA
2	86.3	2	EQUIPMENT	2	AUXILIARY ROOM
3	28.3	3	AUXILIARY ROOM	3	AUXILIARY ROOM
4	39.2	4	LOBBY	4	LOBBY
5	43.2	5	HALL	5	HALL
6	11.3	6	EMERGENCY EXIT	6	EMERGENCY EXIT
7	15.3	7	EMERGENCY EXIT	7	EMERGENCY EXIT
8	15.3	8	EMERGENCY EXIT	8	EMERGENCY EXIT
9	15.3	9	EMERGENCY EXIT	9	EMERGENCY EXIT
10	15.3	10	EMERGENCY EXIT	10	EMERGENCY EXIT
11	15.3	11	EMERGENCY EXIT	11	EMERGENCY EXIT
12	15.3	12	EMERGENCY EXIT	12	EMERGENCY EXIT
13	15.3	13	EMERGENCY EXIT	13	EMERGENCY EXIT
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72	15.3	72	EMERGENCY EXIT	72	EMERGENCY EXIT
73	15.3	73	EMERGENCY EXIT	73	EMERGENCY EXIT
74	15.3	74	EMERGENCY EXIT	74	EMERGENCY EXIT
75	15.3	75	EMERGENCY EXIT	75	EMERGENCY EXIT
76	15.3	76	EMERGENCY EXIT	76	EMERGENCY EXIT
77	15.3	77	EMERGENCY EXIT	77	EMERGENCY EXIT
78	15.3	78	EMERGENCY EXIT	78	EMERGENCY EXIT
79	15.3	79	EMERGENCY EXIT	79	EMERGENCY EXIT
80	15.3	80	EMERGENCY EXIT	80	EMERGENCY EXIT
81	15.3	81	EMERGENCY EXIT	81	EMERGENCY EXIT
82	15.3	82	EMERGENCY EXIT	82	EMERGENCY EXIT
83	15.3	83	EMERGENCY EXIT	83	EMERGENCY EXIT
84	15.3	84	EMERGENCY EXIT	84	EMERGENCY EXIT
85	15.3	85	EMERGENCY EXIT	85	EMERGENCY EXIT
86	15.3	86	EMERGENCY EXIT	86	EMERGENCY EXIT
87	15.3	87	EMERGENCY EXIT	87	EMERGENCY EXIT
88	15.3	88	EMERGENCY EXIT	88	EMERGENCY EXIT
89	15.3	89	EMERGENCY EXIT	89	EMERGENCY EXIT
90	15.3	90	EMERGENCY EXIT	90	EMERGENCY EXIT
91	15.3	91	EMERGENCY EXIT	91	EMERGENCY EXIT
92	15.3	92	EMERGENCY EXIT	92	EMERGENCY EXIT
93	15.3	93	EMERGENCY EXIT	93	EMERGENCY EXIT
94	15.3	94	EMERGENCY EXIT	94	EMERGENCY EXIT
95	15.3	95	EMERGENCY EXIT	95	EMERGENCY EXIT
96	15.3	96	EMERGENCY EXIT	96	EMERGENCY EXIT
97	15.3	97	EMERGENCY EXIT	97	EMERGENCY EXIT
98	15.3	98	EMERGENCY EXIT	98	EMERGENCY EXIT
99	15.3	99	EMERGENCY EXIT	99	EMERGENCY EXIT
100	15.3	100	EMERGENCY EXIT	100	EMERGENCY EXIT



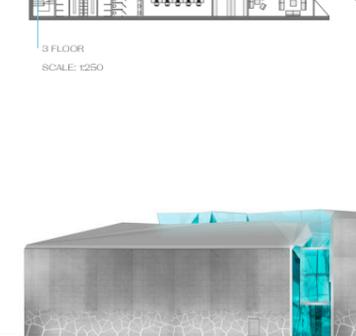
The multifunctional gaming complex consists of 5 main parts divided by functionality: a gaming center, a training center, a hostel, a competitive area, and an underground parking. These five functions occupy the ground and underground parts. Thanks to the conceptual division on the ground part, one volume was divided into three parts, thus three separate buildings appeared, and the proper functionality took their place.

The gaming center operates for any group of visitors: amateur players, professionals, a group of people interested in the gaming industry, tourists and so on; the center has free admission for everyone. The gaming center is provided with the most popular gaming platforms and flexible space so that the visitor can get the best gaming experience.

The training center is designed only for regular visitors and professional players for whom gaming is a part of life or a profession. The center is equipped with training, computer rooms, educational rooms, workplaces, a cardio gym and several shower rooms. The concept of this part of the complex implies a co-working system for the development of new start-ups, joint work on projects, and so on.

The third ground building is a hostel, which is directly connected to the training center and together they form a co-living co-working system in order to give people the opportunity to visit the gaming complex in teams for the purpose of long training, marathons, developing new projects or traveling together with friends (players) in one complex that combines all the functions; a hostel was planned to provide visitors with the opportunity for long stay.

The competition arena and underground parking are located underground. The competition zone is located on the left side of the parking lot and is designed on the principle of a cinema hall for 650 seats; the hall goes three floors underground. Underground parking is located directly under the three ground buildings and covers their total area; the parking has two underground levels. Parking is provided with 90 car parking places and separate areas for motorcycle parking.



2 Floor			
Room	Area	Room	Area
1	10.1	1	AREA
2	12.4	2	AREA
3	16.1	3	AREA
4	16.1	4	AREA
5	16.1	5	AREA
6	16.1	6	AREA
7	16.1	7	AREA
8	16.1	8	AREA
9	16.1	9	AREA
10	16.1	10	AREA
11	16.1	11	AREA
12	16.1	12	AREA
13	16.1	13	AREA
14	16.1	14	AREA
15	16.1	15	AREA
16	16.1	16	AREA
17	16.1	17	AREA
18	16.1	18	AREA
19	16.1	19	AREA
20	16.1	20	AREA
21	16.1	21	AREA
22	16.1	22	AREA
23	16.1	23	AREA
24	16.1	24	AREA
25	16.1	25	AREA
26	16.1	26	AREA
27	16.1	27	AREA
28	16.1	28	AREA
29	16.1	29	AREA
30	16.1	30	AREA
31	16.1	31	AREA
32	16.1	32	AREA
33	16.1	33	AREA
34	16.1	34	AREA
35	16.1	35	AREA
36	16.1	36	AREA
37	16.1	37	AREA
38	16.1	38	AREA
39	16.1	39	AREA
40	16.1	40	AREA
41	16.1	41	AREA
42	16.1	42	AREA
43	16.1	43	AREA
44	16.1	44	AREA
45	16.1	45	AREA
46	16.1	46	AREA
47	16.1	47	AREA
48	16.1	48	AREA
49	16.1	49	AREA
50	16.1	50	AREA
51	16.1	51	AREA
52	16.1	52	AREA
53	16.1	53	AREA
54	16.1	54	AREA
55	16.1	55	AREA
56	16.1	56	AREA
57	16.1	57	AREA
58	16.1	58	AREA
59	16.1	59	AREA
60	16.1	60	AREA
61	16.1	61	AREA
62	16.1	62	AREA
63	16.1	63	AREA
64	16.1	64	AREA
65	16.1	65	AREA
66	16.1	66	AREA
67	16.1	67	AREA
68	16.1	68	AREA
69	16.1	69	AREA
70	16.1	70	AREA
71	16.1	71	AREA
72	16.1	72	AREA
73	16.1	73	AREA
74	16.1	74	AREA
75	16.1	75	AREA
76	16.1	76	AREA
77	16.1	77	AREA
78	16.1	78	AREA
79	16.1	79	AREA
80	16.1	80	AREA
81	16.1	81	AREA
82	16.1	82	AREA
83	16.1	83	AREA
84	16.1	84	AREA
85	16.1	85	AREA
86	16.1	86	AREA
87	16.1	87	AREA
88	16.1	88	AREA
89	16.1	89	AREA
90	16.1	90	AREA
91	16.1	91	AREA
92	16.1	92	AREA
93	16.1	93	AREA
94	16.1	94	AREA
95	16.1	95	AREA
96	16.1	96	AREA
97	16.1	97	AREA
98	16.1	98	AREA
99	16.1	99	AREA
100	16.1	100	AREA

3 Floor			
Room	Area	Room	Area
1	10.1	1	AREA
2	12.4	2	AREA
3	16.1	3	AREA
4	16.1	4	AREA
5	16.1	5	AREA
6	16.1	6	AREA
7	16.1	7	AREA
8	16.1	8	AREA
9	16.1	9	AREA
10	16.1	10	AREA
11	16.1	11	AREA
12	16.1	12	AREA
13	16.1	13	AREA
14	16.1	14	AREA
15	16.1	15	AREA
16	16.1	16	AREA
17	16.1	17	AREA



4 Floor			
Gaming Center	1	VR AR	953
Gaming Center	2	VR AR	171
Gaming Center	3	VR AR	1020
Gaming Center	4	CONSOLE GAMING	1713
Gaming Center	5	BAR/LOUNGE	765
Gaming Center	6	EMERGENCY STAIR	81
Gaming Center	7	WC	432
Gaming Center	8	AUXILIARY ROOM	252
Room	1	ROOM1	449
Room	2	ROOM2	263
Room	3	ROOM3	215
Room	4	ROOM4	263
Room	5	ROOM5	217
Room	6	ROOM6	363
Room	7	AUXILIARY ROOM	81
Room	8	EMERGENCY STAIR	81
Room	9	WC	432

S-1 shows the height of underground and ground floors and buildings. The section shows the course of the evacuation stairs intended for the arena, parking lot, game center and training center. All of them are interconnected and provide access to the street from the west side. Section S-1 indicates the location of HVAC (heating, ventilation, and air conditioning), the training center and the hostel have a HVAC system on the roof.

S-2 shows a section through the arena, seating arrangement, arena height, location of additional solutions. Arena roof system, with steel space-frame structure, which from the west side is supported (most wider part of the arena) by a perpendicular 2 meter high reinforced concrete beam. The HVAC system for the arena is located in a room under the seats and works both for the arena itself, the parking lot, and for the gaming center.

The second section S-2 also shows the material used on the outer "blind" facade, concrete panels with additional lighting at the bottom of the building provide the concept for the entire outer facade.



WHAT CREATES THE ATMOSPHERE

