SAINT-GOBAIN

ARCHITECTURE STUDENT CONTEST

CONTEST TASK

ARCHITECTURE STUDENT CONTEST 2026

Belgrade, Serbia

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WORLD GREEN BUILDING COUNCIL

One Click LCA

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ABOUT THE ARCHITECTURE STUDENT CONTEST BY SAINT-GOBAIN

The **Architecture Student Contest**, formerly known as the Multi Comfort Student Contest, is a two-step competition: the **National Stage** and the **International Stage**. The competition is a great chance for architecture students to gain professional experience while discovering the importance of sustainability in modern construction. It was first organized in 2004 by Saint-Gobain Isover in Serbia and became an international event in 2005. The last edition in Helsinki attracted **1,300 students** from **29 countries**.

The goal of the Architecture Student Contest is to provide students with a **unique experience** more **closely related to a "real" client request**. Thus, students can **propose ideas under realistic constraints** while addressing sustainability criteria.

ACNOWLEDGMENTS

Special **thanks to our partners**: the World Green Building Council, OneClick LCA, the City of Belgrade, the Academic Yachting Club Belgrade, Serbia Green Building Council, the Green & Blue Corridors Association, professors participating in the Teachers' Days and Saint-Gobain Serbia team for all the support during the development of this Contest Task.

SPONSORSHIPS

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1. BACKGROUND

SERBIA[1]

Republic of Serbia, landlocked country in Southeast Europe with a population of 6,6 million people, enjoys a central position on the **Balkan Peninsula**. For centuries, this strategic position made Serbia a **key transit point** between Central Europe, the Mediterranean and the Middle East.

History

Prehistory[2]

Only a short distance along the Danube from the capital of Serbia, you can step back several thousand years in time, to the cultural heart of the ancient Europe. **Lepenski vir** (6000 BC) is the oldest permanent settlement in Serbia, with more than 100 planned, urban houses and the first examples of monumental sculpture in Europe. **Vinca** (5300 - 4300 BC), is located close to Belgrade, on the right bank of the Danube. Can you imagine – during the time when some primitive tribes were on a constant search for food, the Vinca people lived in an urban environment with properly arranged streets and buildings. They produced weapons, tools, richly decorated ceramics, created figurines of feminine deities and communicated using a system of written signs with a clear meaning.

Figure 1 Vinca clay figure

Roman Era

The area of today's Serbia was a **significant frontier of the Roman Empire**. But even more interesting that after Italy, the territory of modern Serbia is where the most **Roman emperors were born** – 16 out of a total 52. **Sirmium, Viminacium, Felix Romuliana** and other preserved sites across Serbia still bear witness to the strength and wealth of the former Empire.

Middle Ages, Ottoman and Habsburg rule

From the medieval grandeur of the **Nemanjic dynasty**, to the magnificent monasteries that still echo with the stories of faith and valor, Serbia's Middle Ages laid the foundation of a proud nation. These ancient fortresses and sacred sites tell of a time when Serbia stood as a beacon of culture and power in Balkans.

The **Ottoman Empire's centuries-long rule** and the influence of **Austro-Hungarian Empire** left a significant mark on Serbia's history, blending East and West in the fusion of architecture, traditions and cuisine. The remnants of both Empires are woven into the very fabric of Serbia's landscape.

[1] Google Maps link
[2] https://commons.wikimedia.org/wiki/File:Vinca_clay_figure_02.jpg

Modern history

Serbia's modern history is deeply marked by the **wounds of the Great Wars**. The scars of the World War I and II are etched in its cities, where monumental architecture stands as a testament to the endurance of the former Yugoslavia, which Serbia was part of.

After the Great Wars, the era of **communism** brought new challenges. Yet, all those events in modern history of Serbia brought something unique and unusual – **historical heritage** that shines through its eclectic mix of culture and architecture, where the old meets new, and the past seamlessly blends with the present.

Geography

Serbia's wealth of natural landscapes is characterized by a varied relief - in the north, the **Pannonian Plain** dominates, known for its fertile land suitable for agriculture. Towards the south the relief gradually rises into forested mountains, such as **Tara**, **Stara planina**, **Šar-planina**, **Kopaonik**... These mountains are natural reserves for many plant and animal species, some of which are endemic to the Balkans.

Exceptional geographical diversity and fertile land position Serbia among the world's fruit producers, primarily **raspberries** and **plums**.

Additionally, mighty rivers such as **Danube**, **Sava**, **Tisa** and **Morava** played a crucial role in the development of cities and trade routes.

Climate

Weather in Serbia has a **mild continental**, **four-season climate**. The north of Serbia and the upland regions have a continental climate, with the typical cold winters and hot summers. The summer months of June to August offer a lovely hot climate and little rain. Precipitation is moderate throughout the year and includes snow during winter. The mountains experience heavy snowfall, and the ski season is generally from December to April.

Economy

The economy of Serbia is a **developing service-based upper-middle income economy**. The country is **currently experiencing momentum** in economic development, firmly becoming a creator of change for the region, not simply a follower. These changes are most visible in the capital, Belgrade, which is developing rapidly, as will be discussed in more detail below.

Sports

Serbia's rich sporting heritage is not just about winning, but a reflection of its enduring spirit and passion. It is all about resilience, hard work, and the unbreakable bond between athletes and their people. From legendary **basketball**, **water polo** and **volleyball teams** of the former Yugoslavia that won **Olympic medals** and **World Cups**, to world-wide sport celebrities of the modern world like **Novak Djokovic** and **Nikola Jokic**, Serbia has produced sport icons who have inspired millions around the world.

2. ABOUT BELGRADE[3] AND ITS CLIMATE

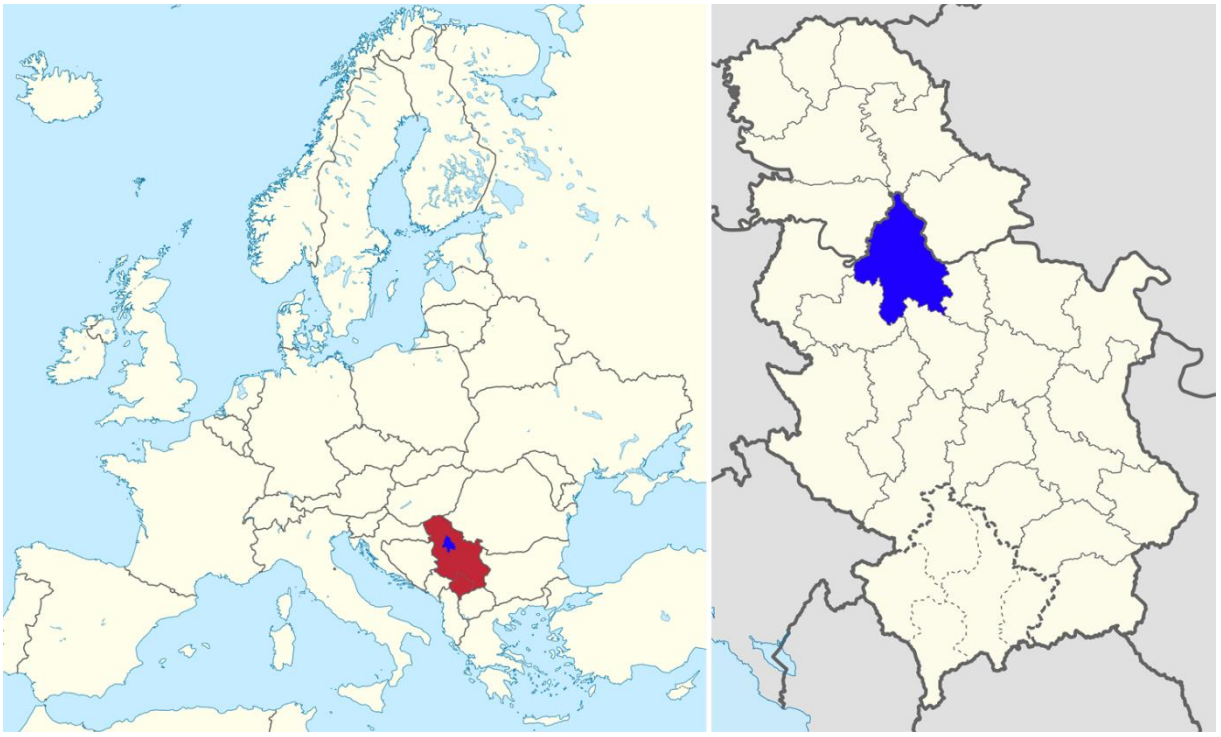


Figure 2 Map of Serbia and Belgrade[4]

Belgrade (Beograd), the capital of Serbia, has a **population of around 1.7 million**. It is nestled **at the confluence of the Sava and Danube rivers**[5], where Its story begins with the Vinca civilization, and has been shaped through centuries of rich and turbulent history, making it a city with a unique spirit and energy.

It is the city where centuries-old traditions intertwine with modern innovations.

Kalemegdan Fortress[6]

The historical core of Belgrade, Kalemegdan, lies on the right banks of both rivers. It was built on a white ridge, which was the reason why it is called „**The White City** " („Beograd" derives from the Slavic words "bel" (i.e. "white") and "grad" (i.e. "town"-"city" or "castle"-"fort"). It was the starting place around which current Belgrade was born and developed. The significance of the location where it was built is indicated by the fact that Belgrade is the city for which **the greatest number of battles were fought** – as many as 115!

[3] Google Maps link
[4] https://commons.wikimedia.org/wiki/File:Belgrade_in_Serbia_and_Europe.png
[5] Google Maps link
[6] Google Maps link

Figure 3 Belgrade Fortress Kalemegdan[7]

With its Upper and Lower Towns, it covers an area of **57 hectares**. Kalemegdan Fortress is an example of architectural evolution, reflecting the region's complex history. Built upon earlier fortifications, its design spans multiple eras, showcasing a blend of military building styles. The fortress includes elements of **Roman**, **Byzantine**, **Ottoman** and **Austro-Hungarian architecture**, making it unique testament to the city's shifting powers and cultural influences.

Skadarlija[8]

Skadarlija seems to be Belgrade's Montmartre – **bohemian quarter** that captures the essence of city's **artistic and cultural heritage**. Known for cobblestone path, traditional Serbian restaurants known as „kafana", and lively atmosphere, Skadarlija is the place for those who are seeking for the perfect blend of old-world charm and positive energy.

Temple of St. Sava[9]

Figure 4 Temple of St. Sava - exterior[10]

Figure 5 Temple of St. Sava – interior[11]

The construction of the **Temple of St. Sava** in Belgrade began in 1935, following the vision to honor St. Sava, the founder of the Serbian Orthodox Church. Over decades of construction, it was grown into **one of the largest Orthodox churches in the world**, with

[7] Google Maps link
[8] Google Maps link
[9] Google Maps link
[10] https://commons.wikimedia.org/wiki/File:Church_of_Saint_Sava_3.jpg
[11] https://commons.wikimedia.org/wiki/File:Interior_look_Church_Saint_Sava_from_western_gally_leg_P.Cikovac.jpg

impressive interior, adorned with beautiful mosaics and marble, representing both spiritual and cultural heritage of Serbia.

Zemun[12]

Another historical part of the current Belgrade. **Once the frontier of the Austro-Hungarian Empire** and now an integral part of the city of Belgrade, famous for its unique spirit, numerous bars, floating "splavs" and restaurants along the river promenade. One of its most iconic landmarks is the **Gardoš Tower**[13], built in 1896 to commemorate as a part of the „Millennium project", the 1.000th anniversary of the Hungarian conquest of the region

Ada Ciganlija[14]

Ada Ciganlija, often referred as „**Belgrade's Sea**", is a river island that has artificially been turned into a peninsula. The same name refers to the adjoining **artificial lake** and its beach. It was turned into an immensely popular **recreational zone**, most notable for its lush greenery, sandy beaches and sports facilities, which, during summer seasons, can have over 100,000 visitors daily and up to 300,000 visitors over the weekend. Ada Ciganlija stands as an **urban oasis**, offering a refreshing escape from the bustle of Belgrade.

New Beograd[15]

New Belgrade (Novi Beograd) is a symbol of city's **post-war development**. It was built during the 1940s and 1950s under the vision of former Yugoslav leadership, and designed as a hub for industry, commerce, and modern urban living. Today, it is a **financial and business center of Serbia**. Yet, it looks like Belgrade Waterfront will take this title from it, which will be further explained in the next chapter.

Belgrade Waterfront[16]: A Catalyst for Change

Today, the expansion of the "White City" is reflected in ambitious urban projects, modernization efforts, and growing investment opportunities. The realization of the ambitious Urbanist plan is underway, with waterfront of Danube and Sava as a focal point.

[12] Google Maps link
[13] Google Maps link
[14] Google Maps link
[15] Google Maps link
[16] Google Maps link

Figure 6 Belgrade Waterfront[17]

The symbol of this ambitious plan is project called Belgrade Waterfront. The project collects **the most attractive plots within the city**, contains a balanced mix of uses, including a world-class residential community, hotels, cultural venues, educational institutions, retail, and a wide range of leisure attractions in order to create a diverse and self-contained urban area, in addition to many public areas – including **1.8 km long waterfront**, 27,000 sqm large public park and community pocket parks within the residential community. The project forms a **functional multi-use area** of the city that can function independently.

As a new symbol of the city, 168 meters high, the **Belgrade Tower** („**Kula**") is **the tallest building in the region** and one of the main attractions in the Serbian capital. This grandiose and elegant building occupies about 50,000 square meters and is supported by 270 concrete pillars, 35 meters long.

Together with upcoming EXPO 2027 **in Belgrade** and **planned subway**, this project belongs to **the biggest master plan development of the Belgrade in the recent history**.

[17] https://commons.wikimedia.org/wiki/File:Belgrade_Waterfront_aerial_image.jpg

Vision for the Future: Key Elements for the City

The Belgrade's Master Plan materializes a territorial development strategy, guided by several major objectives:

- Host more inhabitants, due to accelerated development of the city.
- Attract more companies and jobs.
- Boost urban rehabilitation.
- Qualify the public space.
- Return the riverfront to the people.
- Promote sustainable mobility.
- Encourage environmental efficiency

To minimize the negative effects of urbanization and climate change, city of Belgrade must embrace the **imperatives of sustainable urban development**. Increase of green areas and permeable landscape solutions, improvement of options for sustainable urban mobility, decrease of dependance of citizens on private vehicles, enhancing energy efficient building design and incorporating on site renewable energy options are just some of the aspects that need to be addressed within future plans.

In terms of building design, a holistic and integrative approach must be adopted, the one that considers whole life cycle of the building and not just focusing on lowering operational energy. By choosing locally available materials, optimizing building layout and creating multifunctional and flexible functional schemes, together with incorporating passive design strategies that minimize use of robust technical systems, energy and carbon building footprint can be significantly lowered.

Architecture of Belgrade: Brutalist to Modern Architecture

Architecture of Belgrade depicts its **vibrant history** and a **plethora of stylistic and conceptual influences** that shaped its image and atmosphere. From the remaining testimonials of roman settlements, Belgrade fortress and Ottoman era houses and palaces, through a multitude of stylistic facades, historical buildings and modernist houses, the city center is a patchwork of different architectural languages and urban ambients.

New Belgrade (Novi Beograd) represents a completely different urban layout, based on the modernist paradigm of **ville radieusse**, with **open block structure** and mostly housing complexes with **brutalist image** and **human scale landscape**, still representing one of the most valuable neighborhoods of Belgrade, and a vibrant office and business center.

Its central zone with distinctive housing blocks (21-30) is protected as a spatial cultural-historical landmark, and housing high rise buildings in block 23 are **listed in the MOMA permanent display**[18]. Numerous buildings in New Belgrade are **listed in the international database for modern movement documentation and preservation**[19].

[18] https://beogradskonasledje.rs/aktuelnosti/centralna-zona-novog-beograda-3
[19] http://www.docomomo-serbia.org/en/fiche/

These could be the highlights of Belgrade's core architecture, variety of styles and multitude of historical layers:

Figure 7 Belgrade Fortress Kalemegdan (20)

Figure 8 Konak of princess Ljubica (21)

Figure 9 Technical faculty building (1931) (22)

Figure 10 Home of the Vracar Beautification Society (1902) (23)

Figure 11 Iguman's Palace (1938) (24)

Symbols of **New Belgrade** architecture:

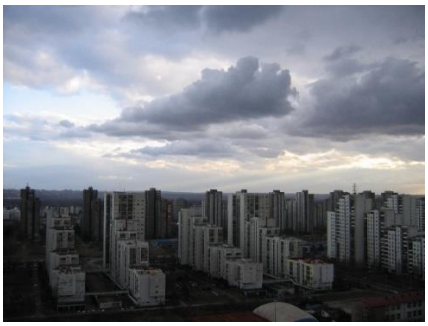


Figure 12 Blocks 61-64 stepped housing buildings (built during the 1970s) (25)

Figure 13 Block 23 high rise housing buildings (26)

Figure 14 West city tower (Genex tower, built in 1980) (27)

Figure 15 Former SIV palace building (1959), now Palace of Serbia (28)

During the past decades, **New Belgrade again represents one of the most vibrant construction sites**, where numerous office and combined office and housing buildings are being built. Nearby the Contest Task area is a complex built for the University sports games (Universiade, 2009), which is now a vibrant mix use area (Belville estate).

Figure 16 Belville complex built for University sports games (2009) (29)

Figure 17 Non-residential /office building GTC X (2022) (30)

Although **New Belgrade** represents the **immediate surrounding of the contest task location**, its vibrant energy and dynamics is opposed to the tranquility of the river Sava and its green riverside. This is best experienced on the riverbank alongside residential blocks 45 and 70, where the view of **Ada Medjica**[20] Isle and its picturesque water cabins represents a striking contrast to the busy and noisy

Figure 18 Ada Medjica

[20] Google Maps link

The **Saint-Gobain Architecture Student Contest** can play a crucial role in this transformation of the city, following the major objectives of the Belgrade's Master Plan. By encouraging students to design **innovative and sustainable solutions** for projects such as Contest Task, it can spark creative thinking about how the Belgrade can adapt to the changing landscape and capitalize on new opportunities.

This contest has the potential to be a catalyst for positive change, shaping a future where of Belgrade retains its unique character, while embracing its potential as a dynamic and connected region.

Environmental Goals

Although its name bears the meaning of *white city*, the overall impression is that Belgrade is rich in green areas which significantly contribute to mitigation of key environmental problems the city is facing, like air pollution and heat island effect. However, only **12% of Belgrade area is covered in greenery**, and the ambitious plan[21] for development of green areas foreseen its **expansion to 22%**. It also defines all key elements of green infrastructure, like parks and forests, but also green corridors alongside traffic lanes, including bike lanes, riverbanks covered in vegetation, private gardens, vegetative facades and roof gardens, wetlands, urban green pockets etc. All these elements, and especially vegetation in direct contact with the soil, provide protection against climate change risks to which Belgrade is becoming more and more exposed, like heat waves, floods and extensive drought periods.

Having all this in mind, the potentials of the **contest task location development** can significantly contribute to the restoration and preservation of the green corridor alongside the riverbank, **connecting the existing paths for pedestrians and cyclists and creating new lanes**. Increase in bicycle traffic in the New Belgrade area could significantly contribute to lowering the air pollution. Link to the foreseen pedestrian and bicycle lanes across the refurbished old railway bridge could provide better connection to the other bank, and recreational zones of Ada Ciganlija Lake and Belgrade Waterfront.

[22]**Riverbank development must be in line with the fragile natural ecosystems contributing to biodiversity protection.** The task area is also specific by an unusual seasonal inhabitant, a **protected bird species - Pygmy cormorant** (Mali vranac in Serbian). The river basin and coastal area lie in the protected zone Wintering home of Pigmy cormorant for about 10% of this bird species entire population, that spend the winter on the coasts of Belgrade. It is prohibited to disrupt the narrow coastline area, and it is recommended to create a quiet ''buffer'' zone towards the coast in the form of protective green areas which would enrich the habitat of this protected species.

Figure 19 Pygmy cormorant

[21] Strategy for development of green infrastructure for the period of 2025-2032
[22] https://commons.wikimedia.org/wiki/File:Pygmy_Cormorant_%2819511279462%29.jpg#

Weather and Climate

Belgrade is located at the crossroads of Western and Eastern European culture at **116.75 meters above sea level**, at coordinates 44°49′14″ North and 20°27′44″ East. Climate of Belgrade is **influenced by its position on the confluence of Sava and Danube rivers**, on the very edge of the cape of Šumadija greda, transforming into the Pannonian flatlands towards the north. The city lies at the contact of the bottom and rim of the Pannonian Basin, the border of the Balkan Peninsula and Central Europe, in the zone of the South Pannonian dislocation. New Belgrade and Zemun are in the Pannonian Plain, while the Peripannonian part of Belgrade is hilly. New Belgrade was built in the once marshy plain of the Sava, at the foot of the Bežaniska loess kosa. Certain parts of the city are threatened by landslides. The part of Belgrade south of the Sava and Danube is built on 7 hills.

The climate of Belgrade is **moderately continental, with four seasons**. As per the Köppen-Geiger classification, the prevailing weather conditions in this region are categorized under **Cfa climate type**. Autumn is longer than spring, with longer sunny and warm periods, so called **Miholjsko leto**. Winter is not so harsh, with an average of 21 days with temperatures below zero. January is the coldest with an average temperature of 0.1°C. Spring is short and rainy. Summer is fast approaching. The average annual air temperature is 11.7°C. The warmest month is July (22.1°C). The number of days with temperatures higher than 30°C, the so-called tropical days, is rising, the average being 31. Number of summer days with temperatures higher than 25°C is 95 in a year.

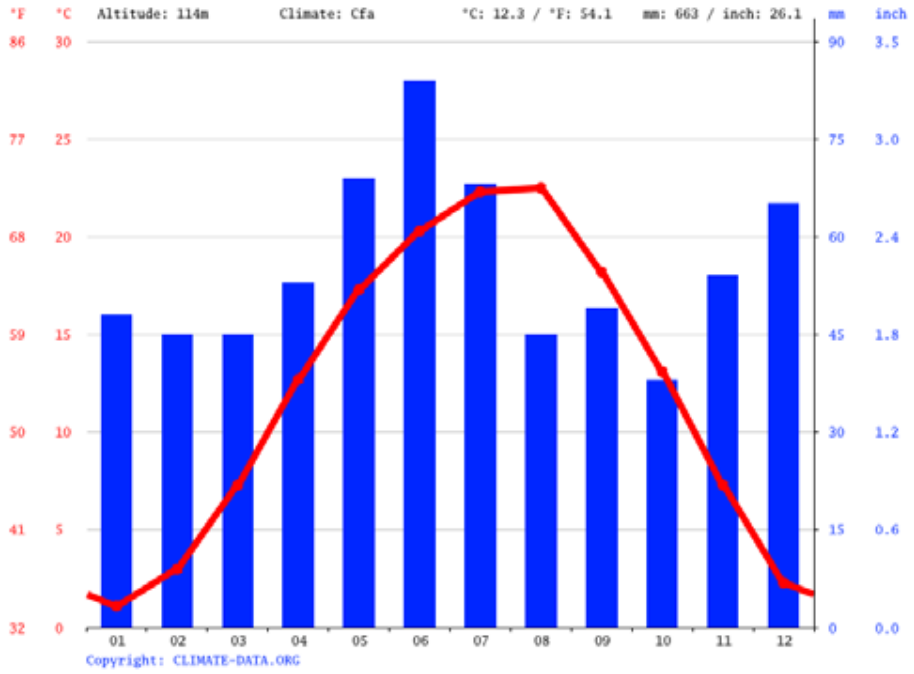


Figure 20 Climate graph

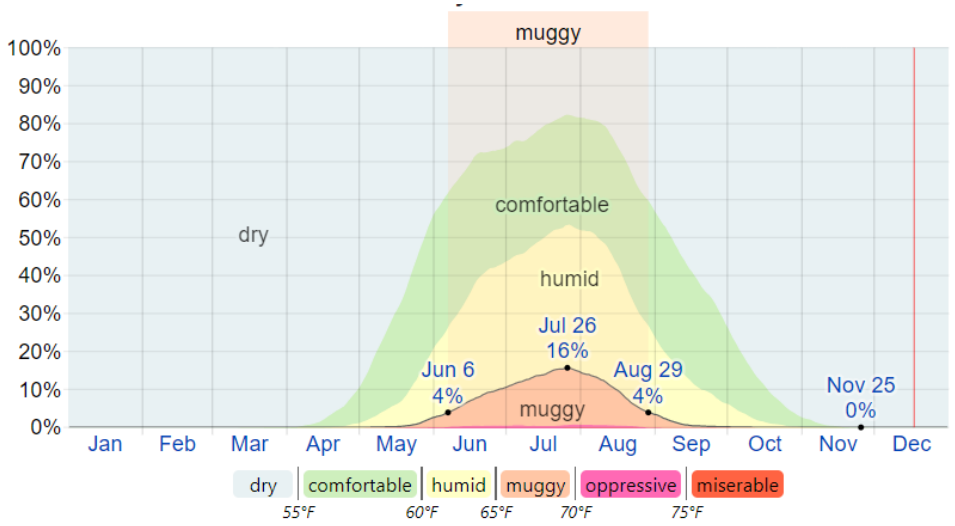


Figure 21 Humidity Comfort Levels

A distinct characteristic of Belgrade climate is the **košava**, the south-east wind, which brings clear and dry weather. It blows most often in autumn and winter, at intervals of 2 to 3 days. The average speed is 25-43 km/h, but sometimes it can reach a speed of up to 130 km/h. **Košava is the biggest air purifier of Belgrade.**

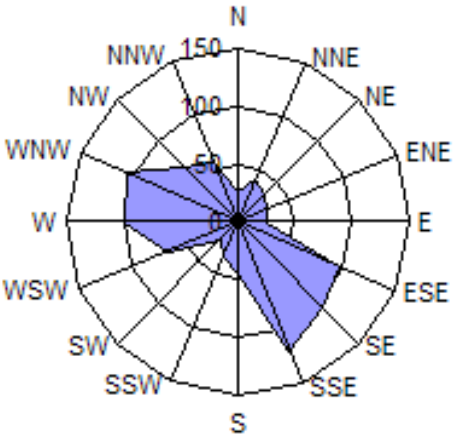


Figure 22 Wind rose for Belgrade

For the energy simulation, the teams can use the weather file provided by Saint-Gobain.[23]

[23] File provided as a part of Contest task documentation

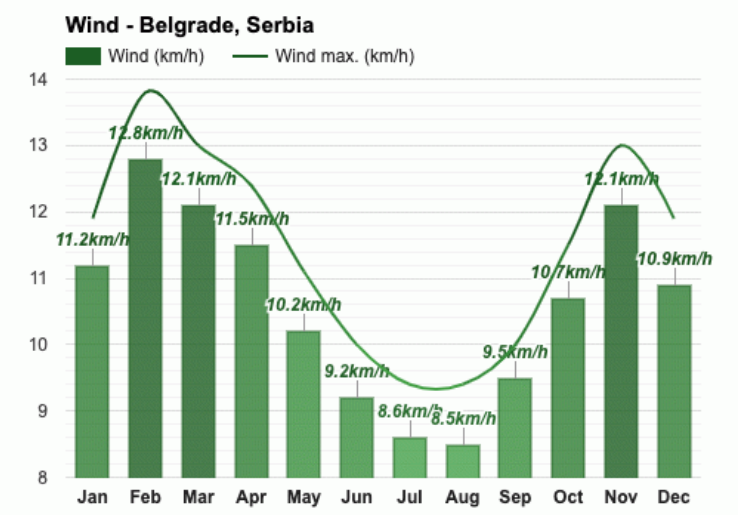


Figure 23 Average wind speed in Belgrade

Belgrade and its surroundings receive **an average of 669.5 mm of precipitation annually**. The highest amount of precipitation occurs in May and June. The **average duration of sunshine is 2,096 hours**. The highest insolation, about 10 hours per day, is in July and August, while the highest cloudiness is in December and January, when the sun shines on average for 2 to 2.3 hours per day. The **average number of days with snowfall is 27**, the length of time the snow cover remains is 30 to 44 days, and the thickness is 14 to 25 cm. The average atmospheric pressure in Belgrade is 1001 mb, and the **average relative humidity is 69.5%**.

As previously mentioned, **the number of tropical days and nights is rising in Belgrade**, while the winters are becoming milder, with less snow. These are the most prominent effects of climate change, which are affecting Serbia twice as fast as the world average. Among other are alternating periods of drought and floods, where heavy rainfalls are causing issues for communal infrastructure throughout the city, especially in its lower parts (like New Belgrade) and alongside the riverbanks. The action plan for adaptation to climate change defines that priority measures for City of Belgrade are **protection from flooding** and **green infrastructure**. Next in order are high priority measures in different areas like urban planning for flood protection, construction of retention basins, drainage, saving and reuse of water, establishment and rehabilitation of green areas and streets.

3. SPECIFIC INFORMATION ABOUT THE TASK

The 2026 edition of the international student competition, organized by the Saint-Gobain Group in close cooperation with the City of Belgrade, Academic Yachting Club Belgrade, Green & Blue Corridors Association and the Serbia Green Building Council, presents a **unique opportunity to transform a significant section of Belgrade's Sava riverfront**. The challenge is to develop a visionary "**Sports and Recreation Hub**" that revitalizes the former cement factory site and integrates the existing **Academic Yachting Club Belgrade** into a dynamic and sustainable public space.

Located strategically near the confluence of the Sava and Danube rivers, adjacent to the Belgrade Waterfront and within sight of the historic Kalemegdan fortress, this project aims to develop new area following the main objectives of the city's Master Plan. This **prime location**, currently occupied by an industrial cement factory, offers an **unprecedented chance to reimagine the waterfront as a vibrant hub for sports, recreation, and community engagement**.

The City of Belgrade, seeking innovative and forward-thinking proposals, envisions this area as a **catalyst for urban regeneration**. The competition challenges students to propose ideas that seamlessly integrates **new construction** with the **renovation** of the existing **Academic Yachting Club Belgrade**. Such Sports and Recreation Hub invites to the integration of various **public and commercial facilities** focused on sports, ecology, and hospitality.

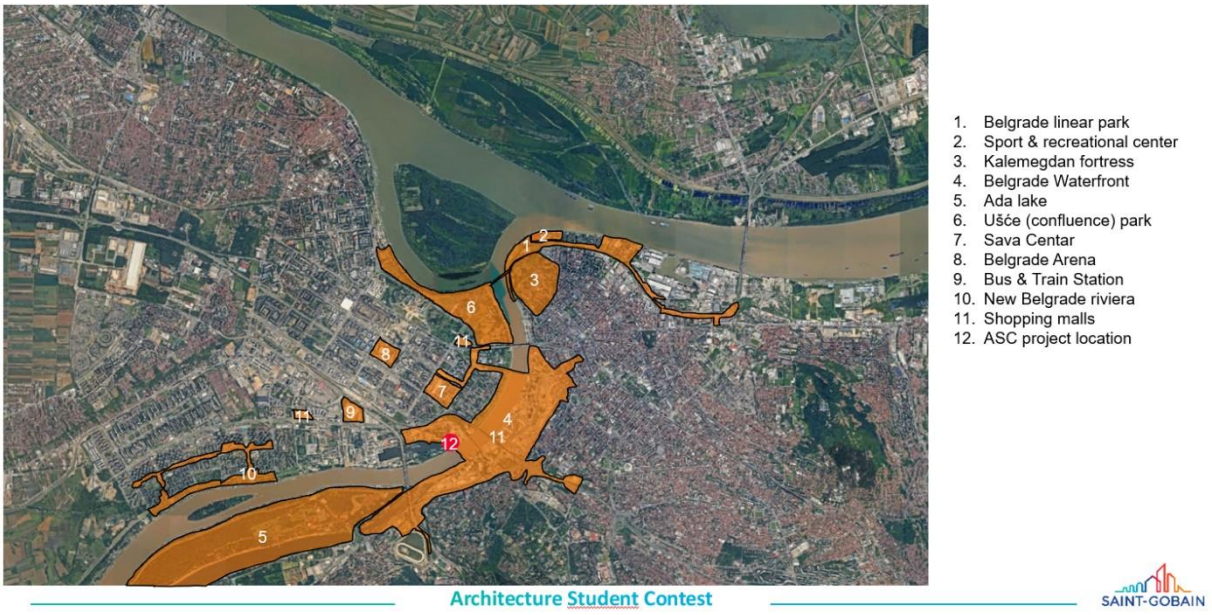


Figure 24: Location of the site for the Contest Task.
(please check document "ASC2026 Serbia context explanation" for general information about other plots)

General Context of the Project[24]

New Construction (Former Cement Factory Site) – Athlete accommodation

The site will be transformed into a **mixed-use development** that prioritizes a residential space for athletes and recreational activities with public access. The **Athlete accommodation** with supporting services, including a cafeteria, changing rooms, and training facilities, will provide a comprehensive experience for visitors. (*students will be evaluated on this function for the contest*).

Renovation (Academic Yachting Club Belgrade)

The existing **Academic Yachting Club Belgrade** (Akademski Jedriličarski Klub AJK) will be mostly **renovated to enhance its functionality and accessibility**. The design should preserve the Club's historical character while integrating modern amenities. Consider how to strengthen the Club's connection to the river and create welcoming public spaces around it. Student can propose conceptual solutions related to the connection between the renovation and new construction projects.

The rest of the site

(*student should only provide conceptual volumes and open spaces for the rest of the site*).

Students are **invited to propose volumetric designs** for adjacent and complementary functions, such as: a state-of-the-art water sports facilities for conditioning, training and preparation, catering to both amateur and professional athletes. Outdoor sports fields for popular sports, such as basketball, volleyball, and tennis, should be integrated into the landscape. Spaces that serve the public, like cafes or sports related retail, or other events like a sports museum celebrating Serbia's rich sporting heritage.

Connectivity

The project should **enhance pedestrian and bicycle connectivity along the riverfront**. The project also plans to **maximize green spaces** and **afforestation**, promoting an eco-friendly environment. In addition to sports amenities, the project emphasizes **sustainability** and **green spaces**. The old railway bridge[25] will be transformed into a pedestrian zone[26], enhancing the area's appeal. Students can propose a movable bridge to ensure the marina's functionality and connect the Academic Yachting Club Belgrade to the rest of the site.
As the project is near the river, **consider the tide of the river in your design**, in case these are relevant.

This competition provides a unique platform for students to demonstrate their creativity and design skills while contributing to the transformation of Belgrade's waterfront. We encourage participants to develop innovative and sustainable solutions that enhance the city's quality of life and create a lasting legacy for future generations.

Challenges and opportunities that might impact the design proposal:

- **Balancing** modern development with the historical context of the site.
- Addressing **environmental concerns** related to the former industrial site.
- Creating **accessible and inclusive public spaces** for all members of the community.

[24] Google Maps link
[25] Google Maps link
[26] https://seenews.com/news/serbia-to-start-revamp-of-belgrades-old-railway-bridge-in-next-two-months-1267427

- **Integrating** the project with the existing urban fabric and transportation networks.
- Creating a space that is **active year-round**.

New Building: Athlete Accommodation [27]

General information

Currently there is a cement plant with respective areas for transport and storage, with a few green areas. It's surrounded by a road (Brodarska) with two bus stations, and a railway that crosses the river. The plot size is approx. 120.000 m^2 in total.

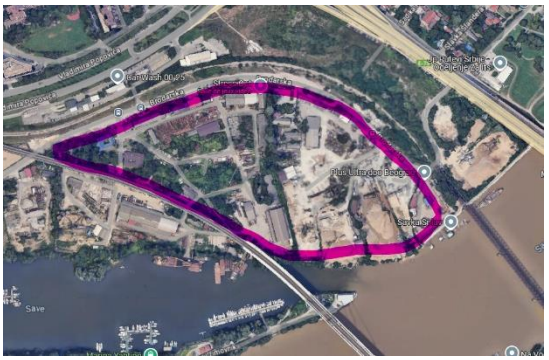


Figure 25 The plot for New Building

Opportunities

The presence of mixed-use zones allows for the integration of residential, commercial, and recreational activities, creating a dynamic and self-sustaining community. The emphasis on green areas, shoreline land, and sports facilities creates opportunities for designing vibrant and accessible public spaces. The existing infrastructure and planned connections enhance the site's accessibility and integration with the city. The planned green spaces and shoreline development offer opportunities for **ecological restoration and enhancement**.

Challenges

Balancing the different land uses (sports, residential, commercial) will require careful planning and design. Managing the river's edge and ensuring public access will be crucial. The project revert the environmental concerns related to the former cement factory and the riverfront.

Students' task

In this area students are to propose an **Athlete Accommodation** with supporting services, including a cafeteria, changing rooms, and training facilities. (students will be evaluated on this function for the contest), **and a concept and volumetric design for the rest of the plot**.

Available documentation (as provided by the city)

- Surface plan, aerial view, and topography plan.
- Existing drawings for the existing building.
- Weather file for the city of Belgrade for the energy simulation. (epw file for energy plus).

[27] Google Maps link

Academic Yachting Club Belgrade[28]

General information

Figure 26 Academic Sailing Club Belgrade

For more than nine decades, thousands of wind and water lovers have passed through the Club, including dozens of National Team Members. The Club has existed **since 1934,** and it is officially **the oldest Sailing Club in Belgrade**. Until September 2008, the Club was located on the lower tip of Ada Ciganlija. Due to the construction of the bridge over the Ada Ciganlija Lake, the Club moved to the lower point of the **small Ada** in the water area of the Bezanija winter park (the current position). **On one side of the club is the backwater**, where pioneers and juniors are trained, and **on the other side is the Sava River**, where seniors sail and train. Until now, competitors have won the title of state champion in several categories every year. The Club is proud of its Optimist team (sailors from 7 to 15 years old), which has been the current National Champion for many years and has participated with great success in international competitions and European championships. About 100 members of the club have 36 competitive and a dozen recreational sailboats at their disposal. The Club organizes a sailing school for all ages and classes of sailboats.

The Academic Yachting Club Belgrade is **situated on a unique, elongated island-like peninsula**, directly adjacent to the Sava River and near a major bridge. The renovation is part of a larger redevelopment project aimed at transforming the surrounding industrial area into a vibrant sports and recreation hub.

Opportunities

The direct waterfront access presents opportunities for enhancing the **Club's connection to the river**, including improved launching facilities, training areas, and public viewing platforms. The project offers a chance to showcase sustainable design principles and technologies, contributing to a more environmentally responsible and resilient building. The renovation can create welcoming public spaces around the academy, integrating it with the surrounding park and recreational areas, and fostering community engagement.

Challenges

The renovation must work within the **limitations of the existing building**, including its structural elements and potential constraints on modifications. Balancing the preservation of the Club's historical importance with the need for modern functionality and accessibility requires careful consideration and sensitive design solutions. The academy's location on a narrow peninsula presents spatial constraints that require creative design solutions to maximize functionality and accessibility. Closeness with the ecological corridor and its natural habitat.

[28] Google map link

Students' Task

In this area students are to propose the renovation of the Academic Yachting Club Belgrade considering the existing program, and a concept of it can integrate to the overall site. At the request of the Chairman, students should exclude the 2nd floor from the Contest Task (as this area is not owned by the Club). So, the students will have the opportunity to renovate the ground floor + 1st floor for the purposes of the Club.

Available documentation:

- Floor plans (only available plans), for façade make estimations based on existing images.
- Program of existing use areas of the building (see page 25).

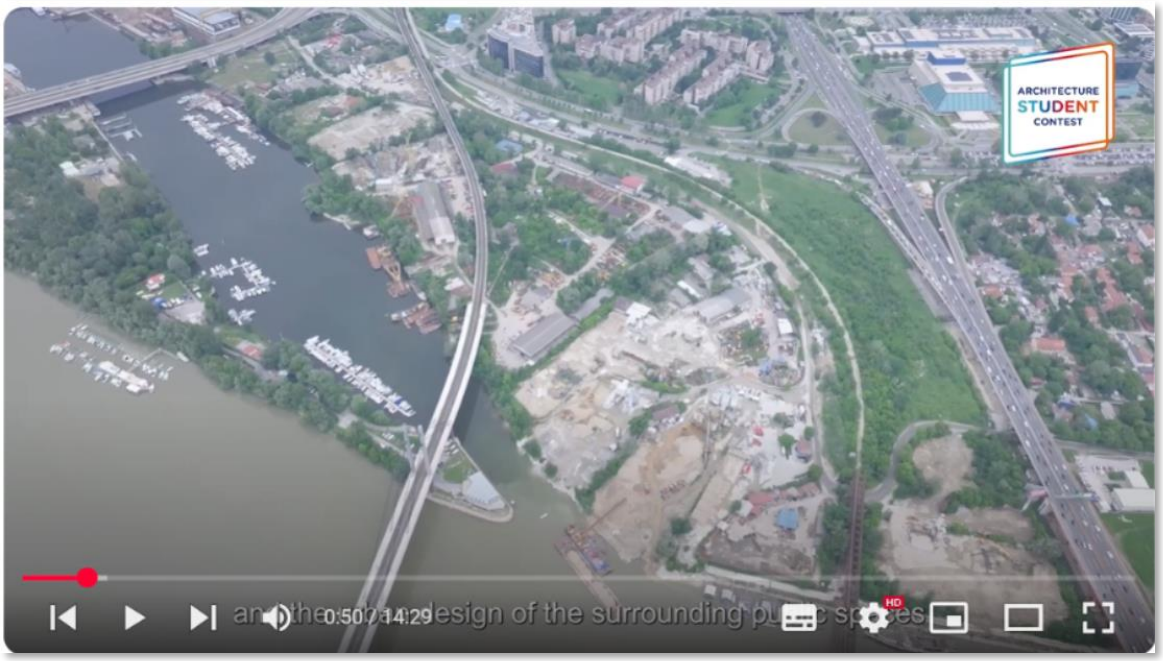
The goal of the Architecture Student Contest is to provide students with a unique experience closely related to a "real" client request. Thus, students can propose ideas under realistic constraints while addressing sustainability criteria. The challenges of this edition are:

- Zone A: to design a **new athlete accommodation** and propose a volumetry of uses and green spaces for the rest of the site.

- Zone B: to **renovate the ground floor and 1st floor of the Academic Yachting Club Belgrade building.**

To complete information shared in this document, you can have a look at the **three following videos**, available on the Architecture Student Contest YouTube channel.

a) A general presentation of the Contest Task with drone views of the sites: here.



b) 360° view of the plot for an immersive experience "on the field". Click on the screen and move to see the 360 views: here

ZONE A: New Building for Athlete Accommodation

Imagine a vibrant hub where the remnants of Belgrade's industrial past give way to a dynamic waterfront destination. Rising from the former cement factory site, a new complex emerges, seamlessly blending sports facilities, public spaces, and sustainable design. This new construction will be a testament to Belgrade's commitment to urban regeneration, offering state-of-the-art amenities for water sports enthusiasts, athletes, and the local community. The design should prioritize accessibility, environmental responsibility, and a harmonious integration with the surrounding urban fabric and the historical context of the city.

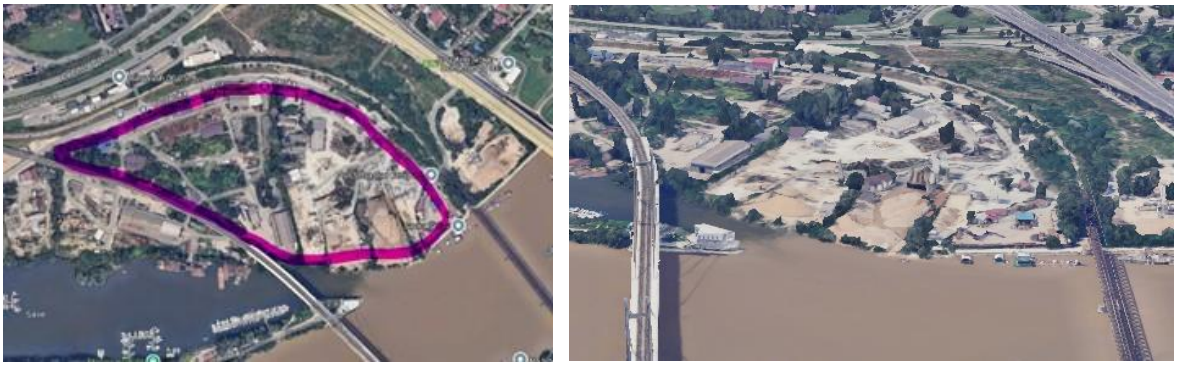


Figure 27: Google map view of the area for the new construction. The zone in red indicates the site to intervene, which is currently a site for cement production

The accommodation for athletes be designed for **around 100 - 200 athletes** with **flexibility for future expansion**. The facilities could be used for visiting athletes for national competitions, for training concentrations, by amateur teams or other use related to sports activities.

Provide a variety of room types to cater for different needs and preferences:

- Single Rooms: Around 60-70% of the total capacity, ideal for individual athletes or those seeking privacy.
- Double Rooms: 30-40% of the capacity, suitable for teams or athletes traveling together.
- Accessible Rooms: Ensure a certain percentage of rooms are designed to accommodate athletes with disabilities.

Services to consider within the building (students are free to select and/or expand in their proposals):

- Essential Spaces:
    - **Cafeteria/Dining Hall**: A communal space for meals and socializing. Consider flexible seating arrangements and options for dietary restrictions.
    - **Kitchenette/Pantry**: Small kitchens or pantries on each floor or within room clusters can provide athletes with the option to prepare their own snacks or meals.
    - **Lounge Areas**: Comfortable spaces for relaxation and socializing outside of bedrooms.

    - **Changing Rooms and Showers**[29]: Adequate and well-ventilated facilities for athletes to change and freshen up after training.
    - **Laundry Facilities**: Convenient access to laundry facilities is essential for athletes.

- Training and Recovery Spaces:
    - **Gym/Fitness Center**[30]: A well-equipped gym with a variety of equipment for strength training, cardio, and flexibility.
    - **Recovery Room**: A dedicated space for athletes to recover after training, potentially including massage tables, ice baths, and other recovery equipment.
    - **Multi-purpose Room**: A flexible space that can be used for yoga, Pilates, team meetings, or other activities.

- Additional Considerations:
    - **Medical Room**: A small medical room for basic first aid and consultations.
    - **Storage**: Secure storage for sports equipment and personal belongings.
    - **Outdoor Spaces**: Access to outdoor spaces, such as balconies, terraces, or a courtyard, can provide athletes with fresh air and relaxation areas.
    - **Social Spaces**: Consider incorporating social spaces like game rooms or common areas with TVs to encourage interaction and team building.
    - **Study/Work Areas**[31]: Provide quiet spaces for athletes to study or work.

The accommodation facilities can be arranged within a **single building or in the form of multiple accommodation units** in a campus layout. If the accommodation is planned in a campus layout it should include a central building with services. Height of the buildings should be of **up to 4 stories.**

For the rest of the site, not related to the athlete accommodation, students should propose only volumetric designs for adjacent and complementary functions, such as: a state-of-the-art water sports facilities for conditioning, training and preparation, catering to both amateur and professional athletes. Outdoor sports fields for popular sports, such as track and field, basketball, volleyball, and tennis or other depending on the space available. Spaces that serve the public, like cafes or sports related retail, or other events like a sports museum celebrating Serbia's rich sporting heritage.

The project should enhance **pedestrian and bicycle connectivity along the riverfront**. Visualize a future connection with the Park of Japanese cherry trees. The project should consider green spaces and afforestation, promoting an eco-friendly environment. The old bridge will be transformed into a pedestrian zone, enhancing the area's appeal. Student can propose a movable bridge to ensure the marina's functionality and connect the Academic Yachting Club Belgrade to the rest of the site. Students can take inspiration from similar spaces from around the world, for example: regional sports academies and training centers, and specialized sports camps and retreats; taking into the account the difference in scale. For the design students can refer to the current urban zoning. (*students are free to propose alternatives*)

[29] Recommended to check the document **Innovative Saint-Gobain products, system and solution** for solutions for wet areas
[30] Recommended to check the document Innovative Saint-Gobain products, system and solution for solutions with high-impact resistance
[31] Recommended to check the document Innovative Saint-Gobain products, system and solution for solutions with acoustic performance

Figure 28: Existing urban zoning for the site

ZONE B: Renovation of the Academic Yachting Club Belgrade

Perched on the edge of the Sava River, the Club stands as a **testament to Belgrade's rich maritime heritage**. This renovation project seeks to breathe new life into the academy, preserving its historical importance, while adapting it to the needs of modern sailing and water sports. The design should enhance the academy's connection to the river, creating welcoming public spaces and improving accessibility for all. By embracing sustainable practices and integrating seamlessly with the new development on the adjacent site, the renovated academy will become a vibrant hub for the sailing community and a cherished landmark for the city.

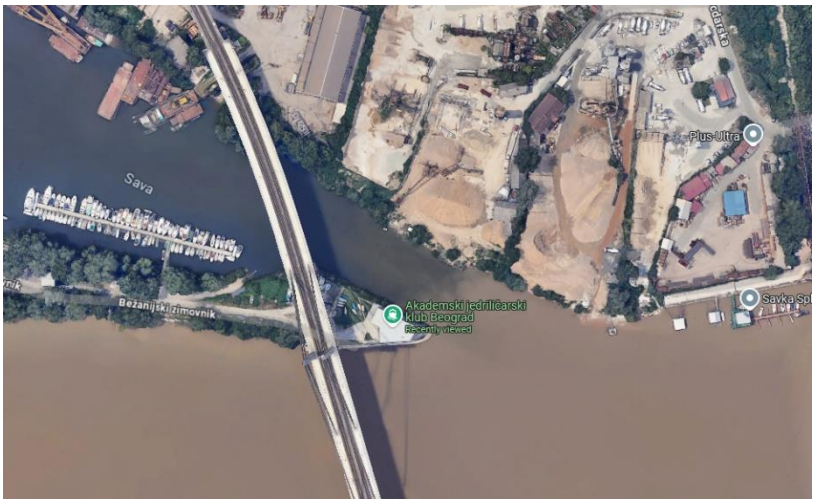


Figure 29: Google map view of the Sailing Club.

- The Club is currently used **by 100 people from 7+ ages**. It's most used during the period of April till September, with few non-aquatic activities the rest of the year, like gatherings, meetings and parties.
- The renovation will **maintain the same program**, and students should aim to modernize the facilities, i.e. how to optimize the use of the existing spaces (training, storage, and administrative functions), improve circulation for athletes, staff and visitors.
- For the renovation, teams can propose adaptations not only to the exterior façade, but also to the internal distribution. Moreover, teams need to consider aspects to make this building **more sustainable** regarding energy consumption (insulation, glazing, solar panels, and efficient systems)[32], material selection, and well-being and comfort of users.
- Students can consider the connection to the river by, possibly, **expanding waterfront access** (decks, platforms) for launching boats or public viewing.
- Although the building is relatively new, the Club carries a great historical legacy. Teams can include a design that is welcoming and accessible to the public around the Club.
- At the request of the Club's Chairman, the students should exclude the 2nd floor from the analysis.

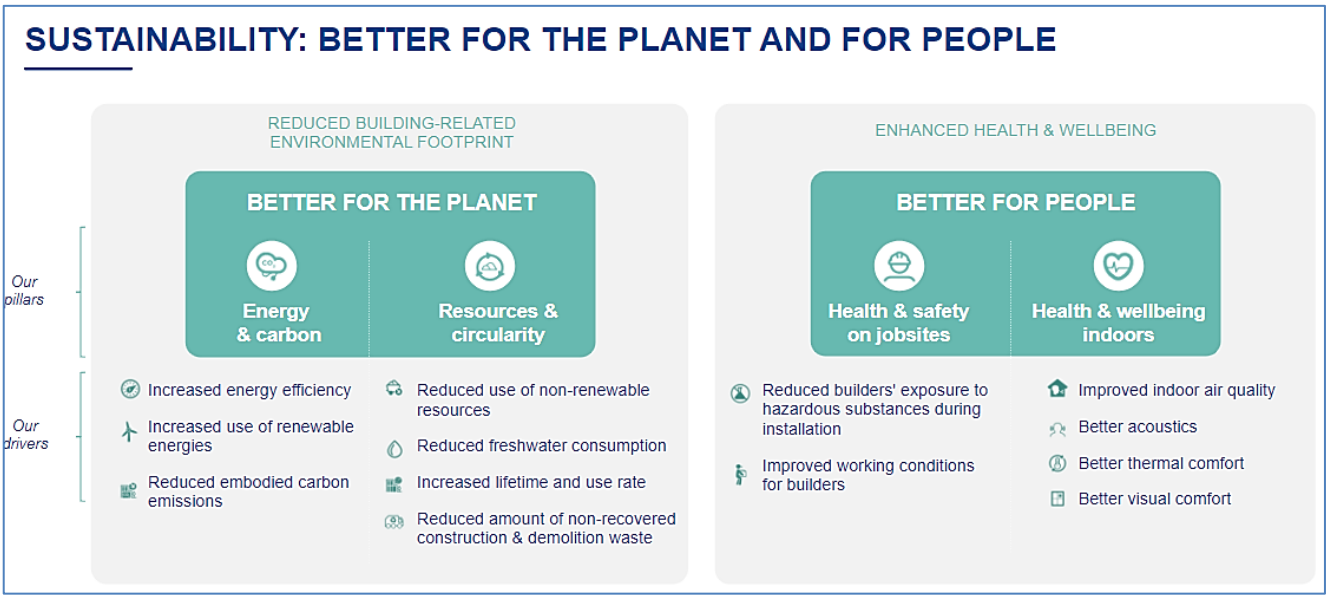
[32] Recommended to check the document Innovative Saint-Gobain products, system and solution for solutions green roofs, photovoltaic panels, technical insulation

The current program use of the Club is a temporary solution, where the existing program is as follows

- The biggest area in gorund floor as a hangar for yashts.
- The mezzanine floor has one meeting room and two changing rooms.
- On the 1nd floor, the use is still not defined, the Charman of the Club mentioned that it would be great to have gym in one area and meeting area in another, but students are free to make other proposals.
- As mentioned before, the last floor is excluded from the task

4. TECHNICAL PARAMETERS

The technical parameters for sustainability are based on **Saint-Gobain's Sustainable Construction Guidelines**, which address contributions that are Better for the Planet (energy & carbon, and resources & circularity), and Better for the People (health and well-being of installer and occupants).



Thermal Comfort

The project should maintain a good internal environment, the proposed project sure ensure comfort around the year. A sound bioclimatic approach with passive strategies can server as a good foundation to optimize thermal comfort. In order to achieve this, students will integrate both passive measures (e.g., sun shading, light colors for exterior surfaces, green roofs and facades[33]…) and active measures (e.g., ventilation[34]).

To supply the energy needed teams can propose renewable energy and heating systems that fit the city strategy. Also, project can mention how they propose the building and energy consumption/production of the building could be monitored.

Indoor Air Quality

To provide the best indoor conditions for the inhabitants, low levels of CO_2 concentrations (maximum 1000 ppm) inside the rooms should be achieved. To reach this low CO_2 concentration, the design should guarantee a minimum ventilation rate of $30m^3$ per hour per person. Also, propose a strategy to achieve an excellent indoor air quality, e.g., air renewal

[33] Recommended to check the document Innovative Saint-Gobain products, system and solution for green roofs and facades
[34] Recommended to check the document Innovative Saint-Gobain products, system and solution for technical insulation solutions

with mechanical or natural ventilation (e.g., night cooling), selection of low emissive products, active products to capture VOCs and formaldehyde, moisture management[35].

Acoustic Comfort

Noise is extremely damaging to human health. Providing a good indoor environment from the acoustic point of view is crucial for human wellbeing. Sleep deprivation, because of high levels of noise, has adverse effects on humans' health. The sound sources that bother, annoy, or disturb the most in residential functions are road traffic and neighbors. Technical parameters – selected partitions (as examples) should be designed in line with requirement of Serbia's Acoustic Regulation.

Partition	Factor	Class A2 (mandatory)
Wall between units (airborne noise)	$D_{nT,w}$ ($R'_{A,1}$, ie. including flanking transmission)	≥ 53 dB
Ceiling between floors (airborne noise)	$D_{nT,w}$ ($R'_{A,1}$ ie. including flanking transmission)	≥ 53 dB
Ceiling between floors (impact noise)	$L'_{nT,w}$+ $C_{I,50-2500}$ (ie. including flanking transmission)	$L'_{nT,w} \leq$ 58 dB

Fire Safety

All products in the façades and the roof should be made of non-combustible materials. Consider, for example, evacuation paths, fire barriers, material selection (reaction to fire), system selection (fire resistance), etc. Fire sections between stories and apartments shall fulfill **EI 90 requirements**[36].

Natural Daylight

A minimum level of natural light is necessary to achieve a good quality of life. Therefore, a natural daylight autonomy of 60% should be achieved. The windows/floor surface ratio should **not be lower than 1/7**. Consider size and orientation of windows, high performance glazing products (solar factor). Calculations should support the assumptions taken.[37]

Carbon Emissions & Energy Consumption

The building shall be designed to be highly energy efficient. At least, the following levels of performance shall be achieved (passive house standard[38]):

- Annual energy demand for heating < 15 kWh/m^2 (passive house standard)

[35] Recommended to check the document Innovative Saint-Gobain products, system and solution for solutions wet areas and technical insulation
[36] Usually coordinated with the project
[37] Recommended to check the document Innovative Saint-Gobain products, system and solution glass solutions
[38] https://passiv.de/en/02_informations/02_passive-house-requirements/02_passive-house-requirements.htm

- Average U-value for all opaque constructions (roof, external wall, floors on the ground) < 0,15 W/(m^2K) (passive house standard)
- U value for windows < 0,8 W/(m^2K), with g-value around 50%
- Air tightness: q4 < 0,6 m^3/ (h m^2)

A particular attention shall be paid to energy simulation[39] and the embodied carbon[40].

1) Strategy to achieve thermal comfort, e.g.: performance of the building envelope (insulation and airtightness), sun shading measures, ventilation, etc.
2) A calculation of the energy demand should be done for one year (Jan-Dec). Students will explain how they were able to reduce and optimize the energy performance of their project design. Student can research and propose low carbon energy supply (e.g., solutions such as locally produced renewable energies (geothermal, photovoltaic) or heat pump might be appreciated).
3) A calculation of the carbon emissions over the whole building life cycle shall be carried out with the tool provided for free during the competition by OneClick LCA. Students will explain how they have been able to reduce/optimize the embodied carbon while progressing in their project design, e.g., lightweight constructions, wood construction, product reuse. Student must consider the French regulation (RE2020) thresholds for carbon of 490 $kgCO_{2eq}/m^2$/year.[41]

Resources & Circularity

Over its whole life cycle, a circular building minimizes the use of primary non-renewable raw materials and the generation of non-valorized waste. To achieve those two overarching goals on primary raw materials and valorized waste, the following five points shall be considered:

1) A circular building shall be **designed for longevity**: it shall be flexible in use and easily adaptable over time, possibly allowing for usage reorientation; and it shall be made of durable and resource efficient materials, products, and systems, easy to repair, maintain or replace and to reuse or recycle at their end of life; thus, prefabrication could be an option depending on the context.
2) Resource efficient materials, products, systems are made with a minimum use of non-renewable primary raw materials; they shall incorporate a maximum share of recycled or renewable raw materials; their installation shall generate a minimum amount of waste; regarding the valorization at their end of life, reuse shall be the preferred option followed by recycling; to be easy to reuse or recycle, systems shall be easy to dismantle and components easy to sort out; and products and materials shouldn't reduce exposure to hazardous substances to avoid their further dissemination in the built environment[42].

[39] For the energy simulation students can use any software (EnergyPlus, Design Builder, PHPP, etc). Saint Gobain makes available a specific plug in for OpenStudio SketchUp,
SAVE International. More information on obtaining the plugin will be available in the contest website.
[40] Carbon emissions associated with materials and construction processes throughout the whole lifecycle of a building or infrastructure. Calculations should include all phases as available within the OneClick LCA tool.
[41] https://www.ecologie.gouv.fr/sites/default/files/documents/2021.02.18_DP_RE2020_EcoConstruire_0.pdf
[42] Off-site prefabricated building elements, modular construction and lightweight systems (in particular for facades and internal partitions) belong to the solutions that allow to meet these criteria. Students can further propose products with high recycled content.

3) Renovation and extension of existing buildings shall be preferred over demolition/deconstruction and new built.

4) Selective deconstruction shall always be preferred over demolition at buildings' end of life; to facilitate the deconstruction and the valorization of the waste, a detailed inventory shall be kept over time of all materials, products and systems used to build, maintain, and renovate the building, and of their composition.

5) To support the choice of alternative options, decisions shall be based according to their actual environmental impacts at building level; those impacts shall be calculated over the entire life cycle of the building (LCA at building level).

5. COMPETITION REQUIREMENTS

Participants are advised to choose appropriate scales for all drawings, design ideas and directions to allow appropriate detail and clarity to be reviewed by the judges. Also, teams should include in their submittal (project presentation in PDF) a complete description of their project following the respective guidelines.

Master Plan

- Clear representation of the zones, at scale 1:500, providing the understanding of general organization of the Project proposal.
- Relevant details of specific areas should be provided.
- Visualization of the experience of living in the analyzed areas - Views, 3D perspectives and/or photographs of physical models as seen fit by the participants to better explain their proposal.
- Relation and link to nearby areas.

Building A - Renovation

- Development of architectural proposal, at the level of draft, for the proposed design program for the intended use.
- Floor plans, elevations, relevant sections that can allow to understand the proposal, at scale 1:200.
- Short description of project options and renovation solutions to be implemented, with focus on the specific technical solutions for the specific services.
- Few 3D views to help the understanding of design proposal.

Building B – New Construction for Residential Function in Campus Location

- Floor plans, elevations, relevant sections that can allow to understand the proposal, at scale 1:200.
- Technical details at scale 1:20 or otherwise convenient for adequate understanding.
- 3D views to help the understanding of design proposal, and the surrounding volumetry of other campus buildings.
- A life cycle analysis should be done at building level, using available tool (One Click LCA).
- Calculations for energy efficiency, that can be done with any energy simulation tool. (If student use SketchUp students can use the Saint-Gobain developed plug-in SAVE-I)[43].

Roll-Up

For the International Stage of the Saint-Gobain Architecture Student Contest, teams should synthetize their project presentation into a poster format, called Roll-Up. This format should be clear in the following aspects:

- A brief description of their concept proposal
- A 3D view of the master plan
- Provide between 2-4 3D views of both buildings (renovation and new construction)

[43] For energy efficiency, students can use any energy modelling software. Teams can use Saint-Gobain's Plug-In SG SAVE International that includes a Saint-Gobain material database. The weather data to use for calculations should be the one for Belgrade. A whole life carbon calculation will be made using the OneClick LCA tool : tool and trainings will be provided for free. Recommendations to use the LCA according to international standards.

- Provide elements of how they addressed sustainability criteria.
- Brief synthesis of main assumptions and final results from the energy and LCA calculations.

All the material required for the International Stage of the Architecture Student Contest (types of media and documents, format, size, weight of the files, etc.) are detailed in the "Rules, Organization and Legal Terms" document, which is available on the Architecture Student Contest website. It is mandatory for every participant to read this document carefully and to observe the rules and requirements as explained in it.

6. JUDGING CRITERIA

General Judging Criteria

There are various aspects which are key and unique to the Architecture Student Contest.

- The first aspect is that the Contest Task addresses two building proposals: a new building and the renovation of an existing building within a plot provided by the local partners.
- The second aspect is the sustainability considerations.
- Lastly, the respect of minimum requirements, correct usage of Saint-Gobain products and solutions in the project, and the quality and consistency of the proposed construction details with regards to building physics.

Tackling these aspects are important and will be considered by the jury during the National stage and to pass to the international stage, under the criteria below:

NEW CONSTRUCTION 60%	RENOVATION 40%	CRITERIA OF EVALUATION
ARCHITECTURE (30%)	ARCHITECTURE (20%)	• Desing excellence that considers local identify and cultural context. • Efficient functional concept that responds to program needs, providing clear building information. • Provides a master plan with connection of buildings to the exterior public spaces, and nearby buildings.
SUSTAINABLE CONSTRUCTION (30%)	SUSTAINABLE CONSTRUCTION (20%)	• Design clearly addresses sustainability criteria: passive design, carbon & energy, resources & circularity, and health & wellbeing. • Shows quality in several construction details with regards to building physics (thermal and acoustic bridges, airtightness, and moisture management). • Correct usage and mentioning of Saint-Gobain products and solutions in the project.

Important: Indications on the judging criteria to be assessed during the National and the International Stages is available in the "Rules, Organization and Legal Terms" document[44].

[44] The document includes roles and responsibilities at the National Stage (e.g., projects must comply with minimum requirements), judging roles and responsibilities for the International Stage, jury methodology for pre-selection prior to the international stage, methodology for finalist selection, communication of projects at international stage, and type of prizes.

7. SAINT-GOBAIN PRESENCE IN SERBIA

Saint-Gobain in Serbia[45]

Saint-Gobain recorded its first business activities in Serbia **in 1996**, opening a local representative office of **Saint-Gobain Rigips Austria**.

In 2002, the legal entity **Isover Jugoslavija d.o.o.** was founded, which made the entry of Isover mineral wool into the market of the region official. **This team founded a student competition in 2004. called Isover Mult-Comfort House Student Competition**, that was the precursor to today's Saint-Gobain Architecture Student Contest.

Weber entered the Serbian market in 2007 with the acquisition of the former "Elba" factory in Apatin. Based on the acquisition of the "Karbon" factory in Topola in 2012, Weber further strengthens its market share in Serbia and the region.

Through the Group's strategy called "Transform & Grow", the business activities of the brands Isover, Rigips and Weber have been united over time, so that at the end of 2022 the company in Serbia officially launched the joint market presence of all three brands, in the desire to contribute to the development of modern and sustainable construction in the region through a synergistic effect between the brands.

List of available and recommended Saint-Gobain's products in Serbia

As a part of the Architecture Student Contest 2026 documentation, students are recommended to read **Innovative Saint-Gobain products, system and solution**. This document provides all necessary information about solutions that are:

- **Innovative** and fully in line with **light and sustainable construction** objectives of the Saint-Gobain Group
- **Available in the market** where the Contest Task is located
- Suitable for **solving specific Contest Task needs** (solutions for wet areas, green roofs, acoustic performance, impact resistance etc.)
-

The solutions in this catalogue serve to give students a base of existing products that are locally commercialized in Serbia. We remind students that the rules of the Contest Task state that correct usage and mentioning of Saint-Gobain products and solutions in the project can bring them additional points.[46] Additionally, solutions presented in this document are just part of a broad Saint-Gobain portfolio. Therefore, students are allowed to use other Saint-Gobain solutions, if their usage in Contest Task is adequate.

[45] https://www.saint-gobain.rs/
[46] Please read chapter 3. Judging Criteria

ARCHITECTURE STUDENT CONTEST

SAINT-GOBAIN