SAINT-GOBAIN

ARCHITECTURE STUDENT CONTEST

CONTEST TASK

ARCHITECTURE STUDENT CONTEST 2022

Warsaw, Poland

fall in love with warsaw

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ABOUT THE ARCHITECTURE STUDENT CONTEST BY SAINT-GOBAIN

The Architecture Student Contest, formerly Multi Comfort Student Contest is a two steps competition: the National Stage and the international Stage. It was organized for its first time in 2004 by Saint-Gobain Isover in Serbia and became an international event in 2005. The last Paris edition attracted more than 2,800 students in 38 countries.

ACNOWLEDGMENTS

Special thanks to our partners, the city of Warsaw, professors participating in the Teacher's Days and Saint-Gobain Poland for all the support during the development of the contest task.

SPONSORSHIPS

CONTENT

1. BACKGROUND

About 2 million people live in Warsaw, the largest city and capital of Poland. The population of the capital is an ageing society. Only 12.7% of the city residents are young people aged 13-26. The metropolitan nature of the city means that unemployment is low and it is relatively easy for young people to find work here. And since young people are known to be highly mobile, Warsaw would like to attract them by creating excellent conditions for studying, living, working and relaxing in the city. Such an environment is being developed thanks to investments in revitalisation of the capital's central districts. This is happening now, for example, in Warsaw's Praga Południe district, where investments are being made in the renovation of tenement houses, public space, greenery, construction of flats and a rich cultural offer. Like other cities, Warsaw is also facing the challenges of adapting to climate change. In order to meet the 2050 climate targets, the capital intends, among other things, to introduce a system of energy passports containing a plan for bringing buildings to a zero-emission standard along with a system of effective incentives for thermo-modernisation.

The task of the 17th edition of the international student competition organised by Saint-Gobain Group in close cooperation with the City of Warsaw is to develop a vision for the revitalization of the area located next to the Warsaw East (Warszawa Wschodnia) railway station.

Participants in the competition should create a vision for the development of the area, taking into account both the characteristics of the location, Warsaw's plans for achieving the 2050 climate goals, and the expectations of young people wishing to settle and develop in the capital city. The project involves the renovation of an old factory building, which will be used to integrate the local community, as well as the construction of new residential buildings, some of which will be used as private dormitory/apartments for rent by students. The project must be innovative and sustainable and comply with the technical guidelines prepared by Saint-Gobain.

The proposed solution should be:

- Consistent with the vision of a climate-neutral Warsaw 2050 and the vision of the #Warsaw2030 strategy,
- Compatible with the area's surroundings,
- Economically feasible,
- Characterized by solutions to ensure that the site becomes highly attractive to young people and the local community.

2. ABOUT WARSAW POSITION AND CLIMATE

a) WARSAW AND PRAGA-POŁUDNIE DISTRICT

Although the beginnings of Warsaw go as far back as the 12th and 13th centuries, Warsaw was completely rebuilt after the near-total destruction of the city during World War II. The symbol of the capital's rebirth was an unprecedented post-war re-creation of the Old Town, which in 1980 was put on the UNESCO list of World Heritage Sites, as an example of a nearly complete reconstruction of the original settlement using original town plans and architecture.

On the other hand, the Palace of Culture and Science, which overlooks the city, is just the opposite in terms of ensuring historical continuity of the city. This unparalleled building, which is an example of socialist realist architecture, represents an icon of communism and enslavement. Today, it is one of Warsaw's youngest monuments, and like the Old Town, is a tourist attraction.

Throughout history, Warsaw has always been a centre of important events and activities. Its exceptional vitality and capital status have always been the driving forces to strive for and develop new aspirations and where new concepts and ideas are born. Warsaw is a testimony of remarkable heroism, commitment and national pride.
Warsaw has been a major city for several hundreds of years. Once called "the Paris of the North", like the mythical Phoenix, it rose from the ashes after total devastation.

The turning point in the history of the city is marked by Queen Bona's move from Krakow to Warsaw after being widowed by King Zygmunt Stary in 1596. It was decided to centralise parliament and

move it from Krakow to Warsaw after the amalgamation of Poland and Lithuania in 1569 and to hold coronations there. Finally, when King Zygmunt III Wasa moved his seat to Warsaw the city became the capital of the newly formed commonwealth.

In 1788-1792 Warsaw played host to the extraordinary deliberations of the Great Seym – a parliamentary conclave that resulted in the enactment of the Polish Constitution on 3 May 1791. It was the first in Europe and only the second modern-style basic law in the world, after the American Constitution. However, the main objective of the Great Seym sessions was to protect Poland against the danger lurking from its neighbours: Russia, Prussia and Austria.

But Warsaw enjoyed a real "Golden Age" during the reign of Stanislaw August Poniatowski. It was the period when Łazienki Palace was built at the foot of Ujazdowski Castle together with the National Theatre and Cadet School, which was designed to provide the reformed state with a well-educated military and civilian personnel.

The vigorous growth of the city was disrupted by the outbreak of World War II. On 27 September 1939, nearly one month after the beginning of the German invasion, Warsaw was forced to capitulate and the dreadful time of German oppression began in earnest. German terror was met with determined Polish resistance. The Polish Underground State, with the biggest underground Home Army in Europe, was formed in Warsaw where all crucial political and military decisions were made.

One year after the Ghetto Uprising, on 1 August 1944, another uprising broke out in Warsaw. Its goal was to take over the power from the Germans before the Red Army entered the city. Against a heavily armed 16,000 strong German army and another 30,000 German troops in the immediate vicinity of the city, Warsaw could muster some 50,000 soldiers of whom only 5,000 were armed. Despite huge enemy advantage, the uprising lasted 63 days. Doomed from the start, these were the most tragic days in Warsaw's 700-year history. They were days of enormous faith, remarkable courage and inconceivable sacrifice of the Home Army soldiers and the civilian population.

The surrender by the Polish forces was signed on 2 October 1944. Then the Germans ordered the inhabitants to leave Warsaw and in retaliation for the Polish people's heroism started a methodical destruction of the city. More than 16,000 Polish soldiers and around 180,000 civilians lost their lives in Warsaw. By the end of World War II only one out of ten houses, monuments and churches had survived in the city; not even one bridge over the Vistula River was left standing, and there was no electricity or water.

Russians entered Warsaw on 17 January 1945. The new pro-Soviet Polish authorities followed behind them into the deserted and devastated city. It was the beginning of nearly a half-century of Soviet domination.
Warsaw was rebuilt after the war and again became the capital of Poland. Reconstruction of the Royal Castle was completed in the 1980's.

The citizens of Warsaw always loved their city - for better or for worse. After the war they came back as soon as they could to their ruined houses and backyards, many of which had been turned into cemeteries. A population census conducted in 1945 showed that 145,000 people returned to their homes in a very short time. However, the new Warsaw became a different city. While the Old Town was thoroughly and carefully recreated, the rest of the city was rebuilt in the socialist realism mode, which was totally irrelevant and foreign to the Polish urban tradition. The new icon of Warsaw, the Palace of Culture and Science built in 1956, remains a symbol of foreign domination.

Today Warsaw is a green and refreshing destination with its 346 leafy squares and 96 parks covering one quarter of the city surface. The largest and most impressive of these green areas is the Royal Łazienki Park and Palace complex covering 76 ha of parkland in the middle of the city and containing some beautiful architecture. There is also the incredible green roof of the University Library, one of the largest rooftop gardens in Europe, with a view looking out over the Vistula River and the "PGE Narodowy" Stadium.

Warsaw's river banks are considered to be the summer centre of the city, with much to offer on both sides. Here you can relax on one of eight municipal beaches, rent sports equipment, go on a bicycle tour along the river or take a cruise on traditional wooden boats. There is also a free river ferry during the summer months. The Vistula River in Warsaw is particularly unique due to its natural values. The right bank of the river is entirely wild and home to beavers, terns and even moose, which you might

catch a glimpse of if you're lucky. The area is protected by the Natura 2000 programme.

The left bank has also undergone extensive renovation to make it into a vibrant and interesting place to spend time. Close by, near to the Royal Castle, there is the Multimedia Fountain Park. This is also a venue for many cultural events, primarily - Wianki (the summer solstice celebration) in June, and the Feast of the Vistula in September.

District Praga-Południe (a part of it, Kamionek, is the location for the contest task)

The history of this part of Warsaw, on the right bank of the Vistula, commonly known as Praga, goes back several centuries. The first settlements and villages in today's Praga-Południe began to emerge in the 11th-14th centuries. These included Kamion (today's Kamionek), Grochów, Gocław, and Kawęczyn. In 1656 the area was the site of a lost and very bloody battle with the Swedes and later two free elections of Polish kings took place in Kamionek.

Praga-Południe is divided into several different neighbourhoods, dominated by the former village of Grochów (a city from 1422). Industry began to develop here after 1945.

In addition, the once heavily industrialized historic settlement of Kamionek, known as the pre-war Silicon Valley, lies within the borders of the borough. There used to be numerous military, technical (the first Polish cars came from Kamionek), electro-technical, and food processing plants here, as well as a printing house.

The most important historical event that took place here was the first free election held at the turn of April and May 1573.

Kamionek is home to the largest (over 80 ha) green area in Praga Południe - Park Skaryszewski and Kamionkowskie Błonia Elekcyjne. The E. Wedel chocolate factory and Powszechny Theater are located on the shores of Jeziorko Kamionkowskie. The University of Social Sciences and Humanities was founded in this area and the seat of the Sinfonia Varsovia Orchestra is located here, in former buildings of the Veterinary Institute. The largest development completed in recent years in Kamionek is the PGE Narodowy National Stadium opened in 2012.

The district also includes an artistic enclave of greenery - Saska Kępa - with its villas typical of the 1920s and 1930s. Many embassies are located here. The residential buildings in Praga were not significantly damaged during World War II.

Praga-Południe is characterized by rich greenery. Park Skaryszewski, along with the lake known as Jeziorko Kamionkowskie, is sometimes designated as the most beautiful park in Poland.

b) WARSAW GEOGRAPHIC POSITION AND CLIMATE

Warsaw experiences an oceanic climate, denoted by Köppen's original classification. But the city being in the midst of Siberian air mass and far from the coast has clear continental influences. By the Köppen-Geiger climate classification measure, Warsaw is defined as having a humid continental climate, with long cold winters and short warm summers, though the urban heat island effect does make Warsaw's winters slightly less severe than in the surrounding rural areas.

The city has cold, sometimes snowy, cloudy winters and warm, sunny, stormy summers. Spring and autumn can be unpredictable, highly prone to sudden weather changes; however, temperatures are usually mild and with low humidity, especially around May and September.

The average temperature ranges between −1.8 °C (29 °F) in January and 19.2 °C (66.6 °F) in July. The mean year temperature is 8.5 °C (47.3 °F). Temperatures may often reach 30 °C (86 °F) in the summer, although the effects of hot weather are usually offset by relatively low dew points and large diurnal temperature differences.

Warsaw is Europe's sixth driest major city (third in Eastern Europe), with yearly rainfall averaging 529 millimeters (20.8 in), the wettest month being July (source: Wikipedia).

Climate data for Warsaw													[hide]
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Mean daily daylight hours	8.0	10.0	12.0	14.0	16.0	17.0	16.0	15.0	13.0	11.0	9.0	8.0	12.4

Climate data for Warsaw (WAW), 1981–2010 normals[a], extremes 1951–present													[hide]
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	13.0 (55.4)	17.2 (63.0)	22.9 (73.2)	30.4 (86.7)	32.8 (91.0)	35.1 (95.2)	35.9 (96.6)	37.0 (98.6)	31.1 (88.0)	25.9 (78.6)	18.9 (66.0)	15.4 (59.7)	37.0 (98.6)
Average high °C (°F)	0.6 (33.1)	1.9 (35.4)	6.6 (43.9)	13.6 (56.5)	19.5 (67.1)	21.9 (71.4)	24.4 (75.9)	23.9 (75.0)	18.4 (65.1)	12.7 (54.9)	5.9 (42.6)	1.6 (34.9)	12.6 (54.7)
Daily mean °C (°F)	−1.8 (28.8)	−0.6 (30.9)	2.8 (37.0)	8.7 (47.7)	14.2 (57.6)	17.0 (62.6)	19.2 (66.6)	18.3 (64.9)	13.5 (56.3)	8.5 (47.3)	3.3 (37.9)	−0.7 (30.7)	8.5 (47.3)
Average low °C (°F)	−4.2 (24.4)	−3.6 (25.5)	−0.6 (30.9)	3.9 (39.0)	8.9 (48.0)	11.8 (53.2)	13.9 (57.0)	13.1 (55.6)	9.1 (48.4)	4.8 (40.6)	0.6 (33.1)	−3.0 (26.6)	4.6 (40.3)
Record low °C (°F)	−31.0 (−23.8)	−27.6 (−17.7)	−22.6 (−8.7)	−7.2 (19.0)	−3.1 (26.4)	1.6 (34.9)	4.6 (40.3)	3.0 (37.4)	−2.0 (28.4)	−9.6 (14.7)	−17.0 (1.4)	−24.8 (−12.6)	−31.0 (−23.8)
Average precipitation mm (inches)	27 (1.1)	26 (1.0)	31 (1.2)	34 (1.3)	56 (2.2)	69 (2.7)	73 (2.9)	64 (2.5)	46 (1.8)	32 (1.3)	37 (1.5)	34 (1.3)	529 (20.8)
Average rainy days	12	11	12	13	14	15	14	13	15	15	15	14	163
Average snowy days	14	14	9	2	0.1	0	0	0	0	1	7	14	61
Average relative humidity (%)	87	85	78	71	70	72	73	74	81	84	89	89	79
Mean monthly sunshine hours	42	67	108	155	218	230	235	219	143	102	41	29	1,589
Average ultraviolet index	1	1	2	4	5	6	6	5	4	2	1	0	3
Source: Pogodaiklimat.ru[82], NOAA[83][84] and Weather Atlas[85]													

Maintaining the so called "green wedges" is crucial to the living comfort in the city. District Praga-Południe, (the place for the contest's task), is luckily located directly on the river, which is a natural air corridor. The green wedges of the borough are also formed by its many parks and green areas. The main one is the line formed by Park Skaryszewski - the Waszyngtona-Kinowa allotment gardens - the Trasa Tysiąclecia (newly planned main route). It leads straight to the Vistula River (see illustration).

Overview of the plot location:

3. GENERAL INFORMATION ABOUT THE TASK

The task of the 17th International Saint-Gobain Student Contest is to design the revitalisation of an area located next to the Warszawa Wschodnia (Warsaw East) railway station, through a combination of social activation and residential functions.

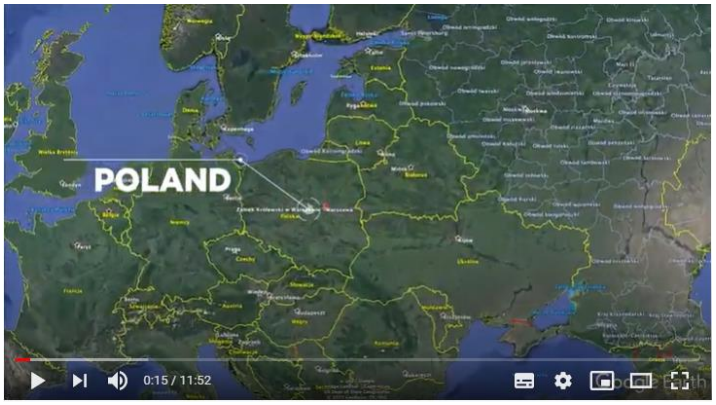
The challenge of the 17th edition is twofold:

a. to create a meeting and entertainment centre on a 14,500 m2 plot of land in an old factory building, taking into account the guidelines of the conservation officer;

b. to design student flats in the new residential part.

To complete information shared in this document, you can have a look at two videos

a. The task in itself: drone views of Warsaw and the plot



b. 360° view of the plot: immersive experience “on the field”

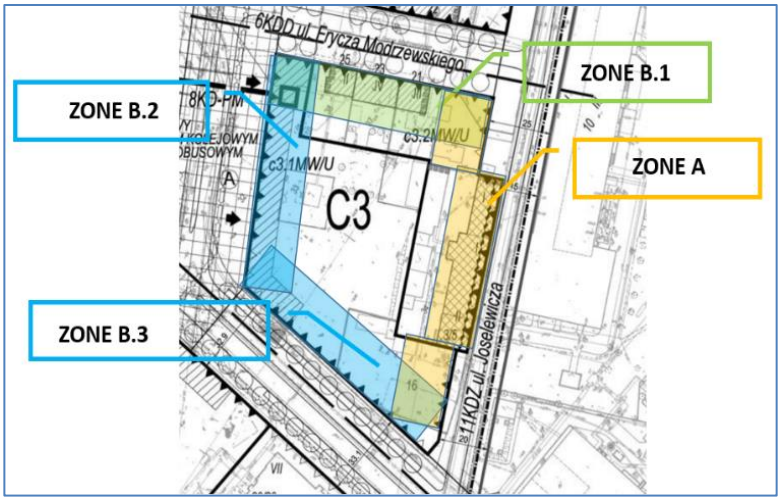
A. The master plan

The current zoning plan includes two zones, A and B:

In zone A there is a factory building, which was built around 1904. At first it housed Josef Rosenthal's factory where white tinplate was manufactured. In 1919 the business profile was completely changed and a tannery was opened there. One building survived the war and was converted into a car workshop and warehouse in 1947. The production building consists of two sections. The first one-storey building with thirteen axes is currently plastered and partly extended upwards. The windows with muntin bars, typical of industrial architecture, are closed with segmental arches, while the last three axes have gated entrances. The building is subject to the protection of the conservation officer.

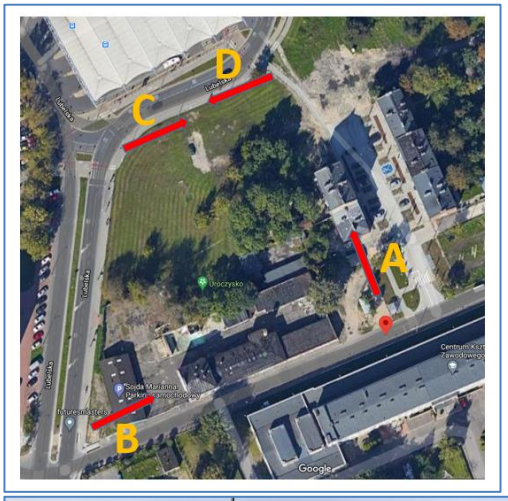
This old factory building is expected to be transformed into some kind of "community house" for the residents, with spaces for meetings, cultural events, leisure activities (as a supplement to the offer of local centres). The suggested functions include workshops, exhibitions, creative spaces and a place to house associations, counselling services or foundations.

- In Zone A, the maximum height of development is 18 m and the maximum density allowed is 70%.
- In Zone B, the current zoning plan allows for the construction of multi-family housing and the following functions: retail, offices, administration, services, financial services, crafts with the exception of car repair shops, culture, entertainment, tourism, sports, recreation, health, catering, post office and telecommunications and science.



- In Zone B.1, the maximum buildings height is 16 m and the maximum allowed density is 70%.
- In Zones B.2 and B.3, the maximum buildings height is 25 m; the density can go up to 100%.
- In the middle of the area: a green park, not public, with socialization area.
- Underground parking might be possible: maximum 2 levels.


For demolition
Old factory


A
B
C
D


A


B
SERWIS CZYNNY
IWAG TRADE
30

B. The student dormitory / rooms for rent

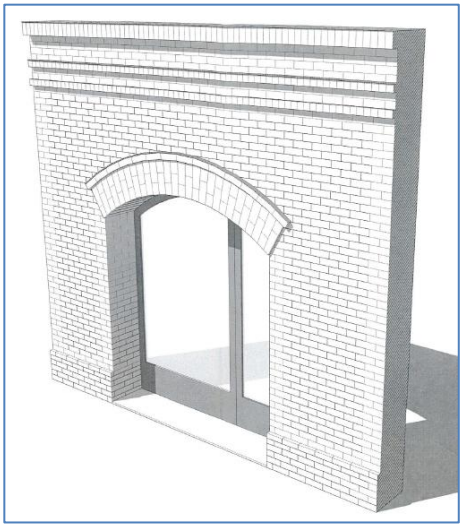
According to the master plan, residential space for students can be provided in Zones B.2 and B.3. The following assumptions should be made for designing purposes:

1. Number of dwelling units - 250, of which:
    A. 220 single rooms with bathroom and kitchenette - area of approx. 12 m^2
    B. 30 double rooms with bathroom and kitchenette - area of approx. 23 m^2
2. Shared spaces, which should include:
    A. Reception desk with a small refreshment area;
    B. Work & chill area where students can meet;
    C. Laundry room;
    D. Bike room...

C. The meeting center in the old factory building

The revitalisation of the old factory building must take into account the following conservation officer's guidelines:

The architectural form of the building should remain unchanged. It is allowed to introduce a new function to the building with necessary changes in the arrangement of rooms, while maintaining the original layout to the maximum extent and restoring the original appearance of the facade. No superstructure or extension of the building will be allowed. Priority will be given to the renovation and exposure of the building's façade (some examples below), after carrying out comprehensive restoration works or, in case of masonry deterioration, to its recreation. It is in the public interest to protect the building of historic value and not to allow for destruction of its historic architectural features and authentic, historic substance. Residential development is proposed to be located on adjacent plots, which are not subject to conservation protection. **Nevertheless, it would be advisable, in accordance with the provisions of the local land use plan, to design the development in such a way as to make it an elegant, modern background for the historic building of the former factory.**

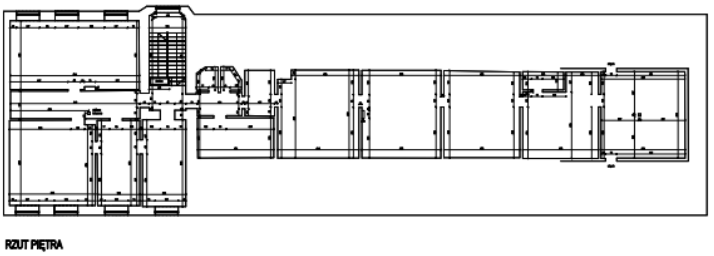


The building should include areas dedicated to:

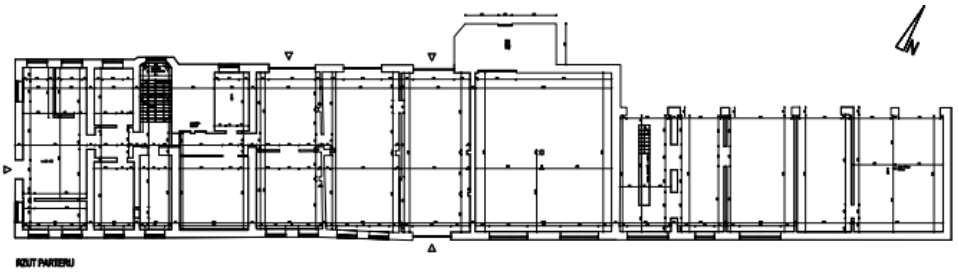
- organising cultural events and leisure time activities
- organising workshops
- holding exhibitions
- housing headquarters of various associations, counselling services or foundations.

Pictures of the old factory building in zone A:

First floor plan:



Ground floor plan:



4. TYPE OF CONSTRUCTION, TECHNICAL PARAMETERS

A. Thermal comfort

Overheating – in order to provide a good environment, the proposed target for the summer comfort is that the overheating (temperature above 25^0C) measured as % from the total period is below 10%. In order to achieve these values students will integrate both passive measures (e.g. sun shading, light colors for exterior surfaces, green roofs and facades…) and active measures (e.g. ventilation) but *without air conditioning*.

B. 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, as a result 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 Polish standard on acoustic classes for dwellings. AQ-2 level is recommended.

Partition	Factor	AQ-0 class (mandatory)	AQ-1 (better choice)	AQ-2 (the best choice)
Wall between units (airborne noise)	$R'_{A,1}$ (ie. including flanking	≥ 50 dB	≥ 53 dB	≥ 56 dB

	transmission)			
Ceiling between floors (airborne noise)	$R'_{A,1}$ (ie. including flanking transmission)	≥ 51 dB	≥ 53 dB	≥ 56 dB
Ceiling between floors (impact noise)	$L'_{n,w}$ (ie. including flanking transmission)	≤ 55 dB	≤ 51 dB	≤ 47 dB

Because of the nearby railway station it is recommended to consider relevant acoustic quality of windows.

The participants are advised to analyze also the level of noise generated by the technical equipment (such as HVAC) and if necessary to propose solutions to reduce it (sound insulated HVAC ducts, sound absorbers installed on the ducts).

C. Indoor air quality

In order to provide the best indoor conditions for the inhabitants, low levels of CO_2 concentrations (maximum 1000 ppm) inside the apartments should be achieved. To reach this low CO_2 concentration, the design should guarantee a minimum ventilation rate of 30 mc per hour per person.

D. Fire safety

All products in the façades and the roof should be made of non-combustible materials.

E. Natural daylight

A minimum level of natural light is necessary to achieve a good quality of life. Therefore, in the rooms, a natural daylight autonomy of 60% should be achieved. The windows/floor surface ratio should not be lower than 1/8.

F. Carbon emissions & Energy consumption

The building shall be designed to be highly energy efficient. At least, the following minimum levels of performance shall be achieved:

- Annual energy demand for heating < 15 kWh/m^2
- U value for roof < 0,15 W/m^{2}K
- U value for external wall < 0,20 W/m^{2}K
- U value for floors on the ground < 0,30 W/m^{2}K
- U value for windows < 0,90 W/m^{2}K
- Air tightness n_{50} < 1,5 1/h

The building shouldn't use air conditioning equipment.

A particular attention shall be paid to the embodied carbon[1]. 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.

G. Resources & circularity

[1] *Carbon emissions associated with materials and construction processes throughout the whole lifecycle of a building or infrastructure. Embodied carbon therefore includes: material extraction (module A1), transport to manufacturer (A2), manufacturing (A3), transport to site (A4), construction (A5), use phase (B1, but excluding operational carbon), maintenance (B2), repair (B3), replacement (B4), refurbishment (B5), deconstruction (C1), transport to end of life facilities (C2), processing (C3), disposal (C4).*

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 taken into account:

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;
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. All jobsite and deconstruction waste shall be valorized. 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.
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; a building material passport (logbook) shall be attached to the building (from the design stage until the building's end of life);
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).

In this contest, it is expected that students will pay particular attention to the above first 2 points (design for longevity and resource efficient solutions).

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.

A. **Master plan**

- Basic (draft) schematic presentation of the general organization scheme for the analysed plot for both zones A and B. The scope of this scheme is to provide overall idea of the allocation of the main functions and their distribution between residential area and historical buildings. The participants can present this in the best way they see fit.
- Visualization of the experience of living in the analysed areas -Views, perspectives and/or photographs of physical models as seen fit by the participants to better explain their project

B. **Residential function**

Following information must be presented **at least for one residential building in zone B**

- Floor plans
- Elevations
- Sections
- Longitudinal section

- Cross section
- Construction details
- Roof, external wall, partition walls, windows, ground and intermediary floors details
- Attention should be accorded to thermal/acoustic bridges as well as to airtightness and moisture protection
- Suggested scale: 1/200 for plan/elevations/sections and 1/20 for details (or otherwise convenient to transmit enough information)
- A life cycle analysis might be calculated at building level, thanks to One Click LCA.

C. Calculations

- For energy efficiency, calculations can be done using PHPP or any other tools.
- A whole life carbon calculation will be made using the OneClick'LCA tool : tool and trainings will be provided for free.

D. Description of the design concept

Beside the minimum requirements, participants are expected to provide sufficient information to allow the jury members to analyse:

- Design concept and functional solution
- Low carbon energy supply: solutions such as locally produced renewable energies (geothermal, photovoltaic) or heat pump might be appreciated.
- Strategy to achieve low embodied carbon construction; e.g. lightweight constructions, wood construction, product reuse…
- Strategy to optimize resource efficiency and minimize construction waste; e.g. lightweight constructions, prefabricated elements, modular construction, recycled or biosourced content, etc.
- Strategy to achieve thermal comfort; e.g.: performance of the building envelop (insulation and airtightness), HVAC system, sun shading measures, ventilation, etc.
- Strategy to achieve acoustic comfort; e.g.: Constructions Rw, main measures for sound protection from technical and traffic noise, etc.
- Strategy to achieve an excellent indoor air quality; e.g. air renewal with mechanical or natural ventilation, selection of low emissive products, active products to capture VOCs and formaldehyde, moisture management…
- Fire safety strategy; e.g. evacuation paths, fire barriers, material selection (reaction to fire), system selection (fire resistance), etc.
- Natural daylight strategy; e.g. size and orientation of windows, high performance glazing products…
- Strategy for social comfort, privacy in terms of space and rooms layout, given the pandemic context (need to follow digital courses for students in qualitative space)

In order to explain the requirements mentioned above the participants can present: Exterior/Interior 3Ds, text, diagrams, calculations, drawings or information as they seem fit.

6. JUDGING CRITERIA

Sustainability with its economic, ecologic and social aspects is a key part of all the criteria mentioned below and will be taken into account at all levels of evaluation.

- ARCHITECTURE: 40%

  Design excellence, functional concept and regional aspects, layout.

- TECHNICAL CRITERIA: 30%

  Constructions comply with the Saint-Gobain criteria (carbon & energy, resources & circularity, health & wellbeing) as well as with the fire safety requirements.

- CONSTRUCTION DETAILS: 20%

  Quality and consistency of the proposed construction details with regards to building physics (thermal and acoustic bridges, airtightness and moisture management).

- PRODUCTS USAGE: 10%

  Correct usage and mentioning of Saint-Gobain products and solutions in the project.

ARCHITECTURE STUDENT CONTEST

SAINT-GOBAIN