



Invitation for Competition Submissions

Multi-Comfort House Student Contest Edition 2017

Urban Regeneration of a community in Madrid
International, two-stage, open competition

Acknowledgments:

Special thanks to Department of Sustainable Urban Development of Madrid Municipality for all support during the drafting of this task

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1. General information

1.1. Context of the competition

As the world is becoming increasingly urban and cities are becoming larger and more densely populated thus increasing our energy consumption as well as the CO2 emission actions are required.

Overall, the building sector is responsible for 40% of the total energy consumption and CO2 emissions in the world demanding a new way of designing each new project and each new renovation.

A substantial share of the stock in Europe is older than 50 years with many buildings in use today that are more than 100 years old. More than 40% of our residential buildings have been constructed before the 1960s when energy building regulations were very limited.

Reacting to this situation, more and more local authorities from all over the world are putting in place programs and actions for the rehabilitation of this construction focusing in improving the comfort of the inhabitants as well as the energy performance of these buildings.

It is also the case of Madrid authorities that have launched a new program: MAD-RE: MADRID RECOVER.

The task for 13th International Edition of Multi-Comfort House Students Contest developed by ISOVER in close collaboration with Department of Architecture of Municipality of Madrid is the Urban Regeneration of a community within the perimeter of Gran San Blas area of Madrid.

The participants will have to create a sustainable architecture integrated into the urban space while responding to MAD-RE and Saint-Gobain Multi-Comfort Criteria and taking into account the climatic conditions and regional context of Madrid.

Beside construction, the social and economic aspects have to be considered and the proposed solution should give a new impulse in the existing urban area. The architecture has to fit in the surrounding of the site. Urban space solutions for the immediate surroundings of the site will be proposed. The overall scope of the task is to have constructive approach to renovation and to get actively involved in giving shape to future renovation of European cities.

1.2. Who can participate?

Participants can be students of architecture, design and construction engineering or other disciplines from universities in countries where the contest is organized (see 1.4). Participation is open for all students from 1st to 6th year of study as an individual or in teams of up to 2 members per team. A student cannot be part of two different teams submitting projects for the same edition of the contest. Only one project may be submitted per team. A team cannot participate in 2 different National Stages or to a National Stage and Online Entry Stage

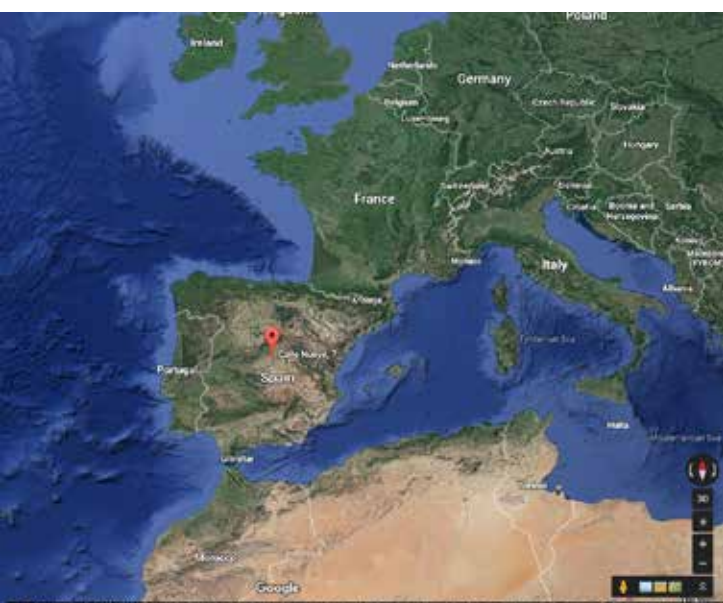


Figure 1 Geographical location Madrid
Source: Google Maps

1.3. Awarding organization

The awarding organizations are Saint-Gobain Insulation with the participation of national Saint-Gobain ISOVER and Izocam organizations were the national stages of the contest are hold.

International Manager for Multi-Comfort House Students Contest:

Mr Gabriel Golumbeanu

Saint-Gobain ISOVER

18, avenue d'Alsace, 92400 Courbevoie / France

Email: gabriel.golumbeanu@saint-gobain.com

Local responsible:

The contact details for the local Saint-Gobain ISOVER and Izocam organization can be found at: www.isover-students.com/content/view/91/133/

1.4. Form and organization of the competition

The Multi-Comfort House Students Contest is a 2 steps competition:

• FISRT STEP

- o National Stages in all countries where the contest is organized.
- o Online Entry Stage for students from countries non organizing local contest.
- o The winning teams of the National Stages as well as the winning team of the Online Entry Stage will be invited to attend the International Stage

• SECOND STEP

- o International Stage organized in June 2017 where all winning teams from National Stages and Online Entry Stage will participate.

FIRST STEP

1.4.1 NATIONAL STAGES IN THE COUNTRIES ORGANIZING LOCAL CONTEST

1.4.2 Takes place in each country were national Saint-Gobain ISOVER and Izocam organizations are organizing the contest.

1.4.3 In 2016-2017 the following countries will organize National Stages organized in the following countries: Belarus, Belgium, Bulgaria, Croatia, Czech Republic, Estonia, Finland, France, Germany, Kazakhstan, Kirghizstan, Latvia, Poland, Romania, Russia, Slovakia, Slovenia, Spain, South Africa, Turkey, UK, Ukraine, Serbia, Colombia. Until 31.10 the list above can be modified.

1.4.4 The winning projects will receive awards. The number and amount of prizes will be decided by each local organization and will be

announced by each country separately.

1.4.5 The winning projects from each country will be invited to participate to the International Stage.

1.4.6 Participation to National Stages

1.4.7 Is open to all students independent of their formation (architectural, engineering or other disciplines)

1.4.8 Students learning in the academic year 2016-2017 at universities from the country organizing the National Stage. Students on scholarship, exchange programs, others forms, can participate at the National Stage organized in the country where they are studying during 2016-2017 academic year.

1.4.9 Participation is open for all students from 1st to 6th year of study as an individual or in teams up to 2 members per team. Upon request of local ISOVER organization and depending on the specificity of the countries up to 3 members per team can be accepted.

1.4.10 A student cannot be part of two different teams submitting projects for the same edition of the contest. Only one project may be submitted per team.

1.4.11 A team cannot participate in 2 different National Stages or to National Stage and Online Entry Stage

1.4.12 Registration & Official communications for National Stages

1.4.13 All participants (students or teachers) taking part in the Students Contest have to register online at www.isover-students.com .

1.4.14 Registration will be done individually by each participant. Failing to register or providing incomplete or false information will result in disqualification from competition.

1.4.15 Closing date for registration for National Stages is 31st March 2017. Local organization can change this date to fit better with the local universities schedule. Please check this data with your local organizer.

Electronic submission form
ISOVER Multi-Comfort House Students Contest
Edition 2016

Please fill in the data respective to your quality (students, teacher, etc.)
Please provide full names in latin characters.
All fields are mandatory. *Each participant should register individually.*

SELECT A COUNTRY ▾

Team member

Name:

Email:

Telephone:

University:

Year:

Teacher

Name:

Email:

Telephone:

University:

Figure 2 Registration form MCH Students Contest

1.4.16 The contact details for the National Stages responsible can be found at: www.isover-students.com/content/view/91/133/

1.4.17 All official communications regarding the contest will be sent by email to all participants registered on www.isover-students.com

1.4.18 National Stage proceedings

1.4.19 The exact way in which the projects will be submitted to the national stage as well as the final local stage schedule will be decided by the respective local organizations. The recommendation is to allow a maximum number of 3 posters in 84 x120 cm format.

1.4.20 ONLINE ENTRY STAGE FOR STUDENTS

1.4.21 Is open to all students independent of their formation (architectural, engineering or other disciplines) learning in the academic year 2016-2017 in universities situated in countries that do not organize national stages (see point 1.4.1-1.4.3).

1.4.22 The winning team of the 1st Prize of this stage will be invited to participate to the second step of the contest – International Stage.

1.4.23 Participation to Online Entry Stage

1.4.24 It is open to all students independent of their formation (architectural, engineering or other disciplines)

1.4.25 Participation is open for all students from 1st to 6th year of study as an individual or in teams of up to 2 members per team.

1.4.26 A student cannot be part of two different teams submitting projects for the same edition of the contest. Only one project may be submitted per team.

1.4.27 A team cannot participate in 2 different National Stages or to National Stage and Online Entry Stage.

1.4.28 Registration & Official communications for Online Entry Stage

1.4.29 All participants taking part in the Online Entry Stage of Multi-Comfort House Students Contest have to register online at www.isover-students.com .

1.4.30 Registration will be done individually by each participant. Failing to register or providing incomplete or false information will result in disqualification from competition.

1.4.31 Closing date for registration for Online Entry Stage is 1st March 2017, 17.00 CET.

1.4.32 Responsible Saint-Gobain person for Online Entry Stage is Mr Gabriel Golumbeanu, gabriel.golumbeanu@saint-gobain.com .

1.4.33 All official communications regarding the contest will be sent by email to all participants registered on www.isover-students.com

1.4.34 Online entry stage proceedings

1.4.35 Each team participating to Online Entry Stage will submit to the organizer the following:

1.4.36 A pdf document of maximum 30 pages containing the description of the Design

Concept in English as better seeing fit by the authors, taking into account the requirements from point 2.6.

1.4.37 The pdf export of MCH Designer calculation of their project.

1.4.38 The documents will be uploaded on the dedicated section of www.isover-students.com.

1.4.39 Closing date for submission of the projects is 15th March 2017, 17.00 CET. All project submitted after this date will be ignored.

1.4.40 A jury formed by Saint-Gobain experts will decide the winning teams of the 1st, 2nd and 3rd Prize for Online Entry Stage. The announcement of the winning teams will be done until 14th April 2017 and will be posted on www.isover-students.com.

1.4.41 The winning team of the 1st Prize will be invited to join the International Stage on 31.05.-02.06.2017.

SECOND STEP

1.4.42 INTERNATIONAL STAGE

1.4.43 The International stage of the competition will be organized in Madrid, Spain, between 31.05.-02.06.2017. A maximum number of 60 teams will be invited to the International Stage.

1.4.44 A maximum number of 59 teams from the winning teams of the National Stages.

1.4.45 The maximum number of winning teams from one country National Stage that can participate to the International Stage is 3.

1.4.46 The maximum number of students per team that can participate to the International Stage is 2 students (Upon request of local ISOVER organization and depending on the specificity of the countries up to 3 members per team can be accepted).

1.4.47 The local ISOVER or Izocam organization can decide to reduce the number of students per team or the number of teams invited to the International Stage according to their own strategy.

1.4.48 The winning team of the 1st Prize of the Online Entry Stage will be invited to attend the International Stage.

1.4.49 During International Stage the participating projects will be displayed at the exhibition for analysis and discussion. Furthermore, the authors of the project will have the possibility to explain the concept of the project in front of jury and to all the participants during a five-minute presentation. All presentations will be webcasted live on <http://www.isover-students.com>.

1.4.50 The presentations will be followed by the jury's deliberations and the award ceremony for the winners.

1.4.51 An international jury will nominate the winners of the three prizes for the International Stage. In addition, the jury can award some special prizes for extraordinary ideas provided by the participants.

1.5. Prize money

Each of the two stages of the competition can assign up to three monetary prizes for the first, second and third place. Additionally, other prizes might be awarded by the local organization.

- **National Stages:**
 - o Information about the amount and number of prizes for the National Stages will be provided by the local ISOVER and Izocam organizations.
- **Online entry Stage**
 - o 1st prize € 1,500
 - o 2nd prize € 1,000
 - o 3rd prize € 750
- **International Stage:**
 - o 1st prize € 1,500
 - o 2nd prize € 1,000
 - o 3rd prize € 750
 - o Special prizes € 500
 - o Students prize € 500

In case of the National Stages and International Stage the organizer, Saint-Gobain Insulation and national Saint-Gobain ISOVER and Izocam organizations can decide to award more or less prizes than specified according to the jury evaluation of the projects.

1.6. Time schedule

Distribution of invitations for competition submissions as part of an information event:

- October 2016

Registration for National Stages

- All registrations have to be completed online at www.isover-students.com. Any participating team that fails to do so or provides incomplete or false information will be disqualified from competition.
- **Closing date for registration to National Stages is 31st March 2017. Local organization can change this date to fit better with the local universities schedule.**
- Please check this data with your local organizer.
- All official communications regarding the contest will be sent by email to all participants registered on www.isoverstudents.com.

Registration for Online Entry Stage

- All registrations have to be completed online at www.isover-students.com. Any participating team that fails to do so or provides incomplete or false information will be disqualified from competition.
- **Closing date for registration for Online Entry Stage is 1st March 2017, 17.00 CET.**

Completion of National stages

- **All National Stages should be completed by 1st May 2017** (including the local prizes awarding). The exact date of each National

Stage will be communicated by the Local organization. Please check this data with your local responsible person

- Sufficient time should be taken into account by those organizations that would require visa for the participation to the final stage.

Completion of Online Entry Stage

- **Closing date for submission of the projects is 15th March 2017, 17.00 CET.** All project submitted after this date will be ignored.
- The jury formed by Saint-Gobain experts will decide the winning teams of the Online Entry Stage.
- **The announcement of the winning teams will be done until 14th April 2017** and will be posted on www.isover-students.com.
- The winning teams will be contacted by International Manager for Multi-Comfort House Students Contest by email and phone in order to arrange all details for the participation to the International Stage, between 31.05.-02.06.2017.

Submission of the material for the international stage

- **Submission of the material for the international stage should be done by latest 9th of May 2017.**
- Each participating team will provide all the documents as requested at point 3. Formalities for submission.

International stage and award ceremony:

- **The International Stage of the competition will be organized in Madrid, Spain, between 31.05.-02.06.2017.**

Further information will also be provided at the lectures held at the participating universities by the national Saint-Gobain ISOVER or Izocam companies. For more information, please contact your local Saint-Gobain ISOVER or Izocam organization who will provide you with further details.

1.7. Trainings

Several online trainings will be organized by Saint-Gobain ISOVER, starting October 2016 until March 2017. The exact dates will be communicated through the official newsletter of the contest to all participants that have registered on www.isover-students.com.

1.8. Jury

The following evaluation criteria will be used for judging the projects for all **National Stages, Online Entry Stage, and International Stage.**

A. Participation criteria

- **Minimum requirements:** Projects that do not present the minimum required pieces as described in Point 2.6.1 will be disqualified.

B. Judging criteria

- **Architecture: 50%**

- o Design excellence, functional concept and regional aspects, layout, as well as the sustainability approach related to economic, ecologic and social aspects.
- **Technical criteria: 20%**
 - o Constructions comply with the Saint-Gobain Multi-Comfort criteria (thermal, acoustic and daylight targets) as well as fire safety strategy.
- **Construction details: 20%**
 - o Quality and consistency of the proposed construction details with regards to building physics (thermal and acoustic bridges, airtightness and moisture management).
- **Products usage: 10%**
 - o Correct usage and mentioning of Saint-Gobain ISOVER, Izocam, Saint-Gobain Glass, Ecophon and other Saint-Gobain products and solutions in the project.

National Stage Jury

- The selection of the national winners will be carried out by a national jury. The composition of each national jury will be decided by the local implementing organization.

Online Entry Stage Jury

- A jury formed by Saint-Gobain specialists (architects and engineers) will select the winning team.

International Stage Jury

- The international jury will consist of: extern architects, Saint-Gobain and Madrid Municipality representatives, and former winners of the Student Contest.
- The jury composition will be:
 - o External architects : 2 persons
 - o Saint-Gobain representatives: 2 persons
 - o Madrid Municipality representatives: 2 persons
 - o Former winner of the Student Contest : 1 person
- Depending on the availability of the persons, the organizer can modify the number or the composition of the jury without any other prior advice. The precise structure of the International jury will be communicated prior to the International Stage.
- None of the jury members that take part in the International Stage will participate in any of the National Stage Jury of the 13th Edition of the Contest.

Students Prize

- The Students Prize (value of € 500) will be awarded (by organizer) based on the votes received from all participating teams at the International Stage.
- Each team will receive 1 (one) vote to be awarded to the team with the best project in their opinion (but not from the same country as the awarding team), taking in

to account the judging criteria described above.

- Votes will be handed by participants to organizer latest by 22.00 hours on 1st of June 2017.
- The team with the highest number of votes will be awarded with Students Prize.
- In case of several teams with the same number of votes the value of the prize will be splitted between these teams.

1.9. Transport and travel expenses

• National Stage:

- o The costs of the submission of entries to the National Stages shall be taken over by the participants.

• Online Entry Stage Jury

- o The costs of the submission of entries to the National Stages shall be taken over by the participants.

• International Stage:

- o The organizer shall bear the transport expenses, as well as the costs of accommodation and lodgings for the participants at the International Stage.
- o Transport for the winners of the National Stages to International Stage will be organized from and back to the capital (or another city - according to the local teams decision) of the country in which the University from which the participants have registered is situated.
- o Participants are responsible for obtaining passports and/or visa for the travel. The organizer will provide necessary support in terms of invitation, accommodation certification, etc.
- o Transport for the wining team of Online Entry Stage to International Stage will be organized from and back to the capital of the country in which the University from which the participants have registered is situated.
- o Participants are responsible for obtaining passports and/or visa for the travel. The organizer will provide necessary support in terms of invitation, accommodation certification, etc.

1.10. Legal

Participants of the Multi-Comfort House Students Contest (the 'Competition') hereby undertake that any information/data contained in their projects does not interfere with the intellectual property rights of any third party, and that they either own or have full authorization to use and disclose such information/data.
The participants to the national stage or international stage competitions, regardless of

their position (students, teachers, Saint-Gobain ISOVER employees, IZOCAM employees or other attendees), hereby grant full and unrestricted authorization to Saint-Gobain Isover and Izocam (the “Organizer”), free of charge, to use and publish their projects, project presentations and all material submitted by or representing the participants, including, but not limited to, photos or videos taken of the participants at the contest and/or material provided by the participants to the Organizer for the contest, for an unlimited period of time and for all media publication used by the Organizer.

Competition participants acknowledge that the decision of the jury is final. All participants hereby accept the incontestable and definitive nature of the jury’s decisions.

By participating in the competition, the participants acknowledge and accept the conditions presented here.

1.11. Possible collaboration between participants and Madrid Municipality

The participants are informed that the representatives Madrid Municipality will attend the International Stage.

2. Details of the task

2.1. General information

Madrid

Madrid is the capital of Spain, and the largest municipality of the Community of Madrid. The population of the city is almost 3.2 million with a metropolitan area population of approximately 6.5 million. It is the third-largest city in the European Union, after London and Berlin, and its metropolitan area is the third-largest in the European Union after London and Paris.

Located in south-western Europe, the city spans a total of 604.3 km². Madrid is the European city with the highest number of trees and green surface per inhabitant. Madrid's citizens have access to a green area within a 15-minute walk. Since 1997, green areas have increased by 16%.

Spain is the European country with the higher percentage of people living in flats/apartments. Almost 65% of the Spanish population is living in Multi Family houses.

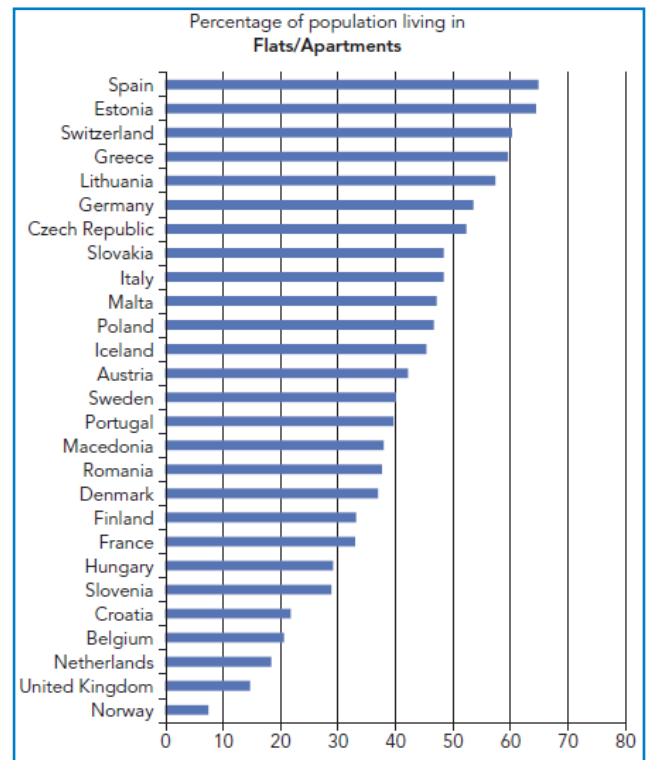


Figure 3: Split of population by location type
Source: COST Action TU0901

2.2. Madrid geographic position and climate

The Madrid region experiences a cold semi-arid climate with cool winters due to its altitude of 667m above sea level and distance to the sea, including sporadic snowfalls and minimum temperatures sometimes below freezing. Summers are hot, in the warmest month -

July - average temperatures during the day ranging from 32 to 33 °C depending on location. Summer temperatures occasionally climb over 35 °C during the city's heat waves. Due to Madrid's altitude and dry climate, diurnal ranges are often significant during the summer.

Climate data for Madrid (Buen Retiro Park, altitude: 667 m.a.s.l., 1971–2000, location [d])													[hide]
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average high °C (°F)	9.7 (49.5)	12.0 (53.6)	15.7 (60.3)	17.5 (63.5)	21.4 (70.5)	26.9 (80.4)	31.2 (88.2)	30.7 (87.3)	26.0 (78.8)	19.0 (66.2)	13.4 (56.1)	10.1 (50.2)	19.4 (66.9)
Daily mean °C (°F)	6.1 (43)	7.9 (46.2)	10.7 (51.3)	12.3 (54.1)	16.1 (61)	21.0 (69.8)	24.8 (76.6)	24.4 (75.9)	20.5 (68.9)	14.6 (58.3)	9.7 (49.5)	7.0 (44.6)	14.6 (58.3)
Average low °C (°F)	2.6 (36.7)	3.7 (38.7)	5.6 (42.1)	7.2 (45)	10.7 (51.3)	15.1 (59.2)	18.4 (65.1)	18.2 (64.8)	15.0 (59)	10.2 (50.4)	6.0 (42.8)	3.8 (38.8)	9.7 (49.5)
Average precipitation mm (inches)	37 (1.46)	35 (1.38)	26 (1.02)	47 (1.85)	52 (2.05)	25 (0.98)	15 (0.59)	10 (0.39)	28 (1.1)	49 (1.93)	56 (2.2)	56 (2.2)	436 (17.17)
Average precipitation days (≥ 1 mm)	6	6	5	7	8	4	2	2	3	6	6	7	63
Mean monthly sunshine hours	148	157	214	231	272	310	359	335	261	198	157	124	2,769
Source: Agencia Estatal de Meteorología ^[d]													
Climate data for Madrid (Buen Retiro Park, altitude: 667 m.a.s.l., 2001–2010, location [d])													[hide]
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average high °C (°F)	9.77 (49.59)	11.78 (53.2)	15.76 (60.37)	19.05 (66.29)	22.73 (72.91)	29.30 (84.74)	32.35 (90.23)	31.60 (88.88)	26.54 (79.77)	19.54 (67.17)	13.17 (55.71)	9.79 (49.62)	20.12 (68.22)
Daily mean °C (°F)	6.45 (43.61)	7.72 (45.9)	11.0 (51.8)	13.65 (56.57)	17.22 (63)	23.15 (73.67)	25.78 (78.4)	25.31 (77.56)	21.03 (69.85)	15.38 (59.68)	9.50 (49.1)	6.47 (43.65)	15.22 (59.4)
Average low °C (°F)	3.12 (37.62)	3.66 (38.59)	6.24 (43.23)	8.24 (46.83)	11.71 (53.08)	17.00 (62.6)	19.20 (66.56)	19.02 (66.24)	15.52 (59.94)	11.22 (52.2)	5.82 (42.48)	3.14 (37.65)	10.32 (50.58)
Average precipitation mm (inches)	34.5 (1.358)	45.2 (1.78)	36.0 (1.417)	43.3 (1.705)	49.2 (1.937)	21.9 (0.862)	4.1 (0.161)	8.0 (0.315)	19.8 (0.78)	82.9 (3.264)	47.6 (1.874)	45.9 (1.807)	438.5 (17.264)
Average precipitation days (≥ 1 mm)	5.8	5.8	5.1	6.1	6.6	3.8	0.9	1.3	3.1	8.1	5.4	6.0	58
Mean monthly sunshine hours	140.7	155.3	197.0	238.2	273.1	331.5	359.2	329.4	264.8	164.9	139.4	136.6	2,730.1
Source: Agencia Estatal de Meteorología ^[d]													
Climate data for Madrid-Barajas Airport, 9 km (5.59 mi) from the city's financial district													[show]
Climate data for Madrid-Cuatro Vientos Airport, 8 km (4.97 mi) from the city centre (altitude: 690m, satellite view [d])													[show]

Figure 4: Climate data Madrid
Source: https://en.wikipedia.org/wiki/Climate_of_Madrid

The highest recorded temperature was on 24 July 1995 with 42.2 °C), and the lowest recorded temperature was on 16 January 1945 with -10.1°C, although these records were registered at the airport, not at the city. Precipitation is concentrated in the autumn and spring, and, together with Athens which has similar annual precipitation, is the driest capital in Europe. It is particularly sparse during the summer, taking the form of about two showers and/or thunderstorms a month.

Its average annual temperature is 19.4 °C during the day and 9.7°C at night. In the coldest month - January, typically the temperature ranges from 5 to 15°C during the day and -2 to 6°C at night. In the warmest month - August, the typical temperature is around 31°C during the day and about 19°C at night.

Winters in Madrid are cold compared to other parts of Spain with average temperatures of about 6-8°C and the coldest month is January 6°C. The temperature during the day is around 10-15 °C and the temperatures during the night often gets below 0°C although snow is fairly rare.

Summers in Madrid can get very hot. During July and August, the hottest months, the daytime temperature will rarely get below 30°C. It is not uncommon to have temperatures above 40°C.

Sunshine duration is 2,769 hours per year, from 124 - average about 4 hours of sunshine at day in December to 359 - average above 11.6 hours of sunshine at day in July. This is one of the largest numbers of sunshine duration hours in Europe. This is 70% larger value than in northern half of Europe, where sunshine duration is around 1500 hours per year. In winter Madrid has about three times more sun duration than in the northern half of Europe. Madrid has on average only 63 precipitation days a year, ranging from 2 days in July and August to 8 days in May. The average annual precipitation is less than 436 mm, ranging from 10 mm in August to 56 mm in November and December. Average relative humidity is 57%, ranging from 39% in July to 74% in December. Snowfalls are rare, sporadic, too few days per year. In January 1941 reported record of 8 snow days in the month. Madrid enjoys one of the highest numbers of hours of daylight in Europe. The average hours of daylight in December, January and February is 10 hours (for comparison: Moscow has about 8 hours).

More information on Madrid climate you can find on:

- www.meteoblue.com (section archive / climate)
- www.weatherspark.com (section history)

2.3. General information about the location of the site

Gran San Blas Area

Located in the East area of Madrid the zone was built in the 50's and 60's. About 25% of the total population is represented by elder persons while about 30% of the population has no studies. The value of buildings is in average 40% lower than average of Madrid buildings. Constructions had no requirements in terms of insulation and the quality is poor. Most buildings follow the same construction, shape being eligible for a replicable renovation approach.

Relevant links:

- https://es.wikipedia.org/wiki/San_Blas-Canillejas
- <http://www.paisajetransversal.org/2013/11/gran-san-blas-analisis-sociourbanistico.html>

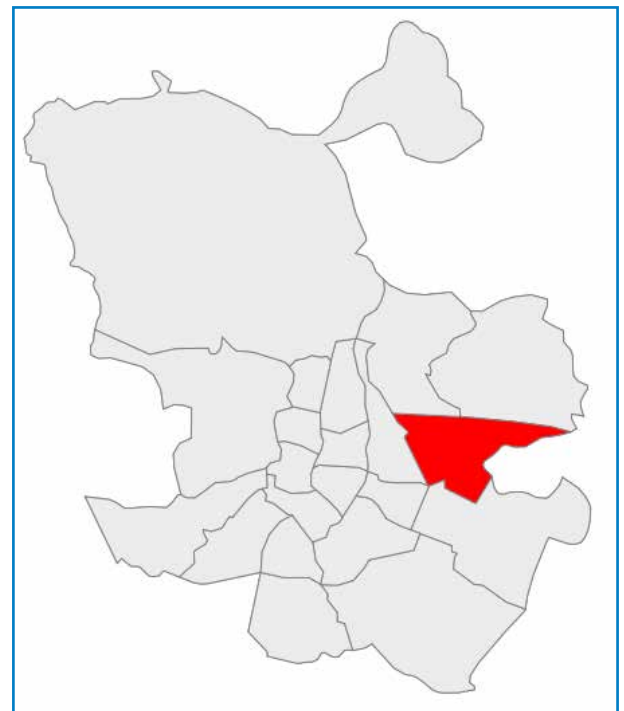


Figure 5: Gran San Blas Area

Source: https://es.wikipedia.org/wiki/San_Blas-Canillejas

The selected buildings are located in the west side of the Rejas neighborhood of Gran San Blas Area of Madrid - Calle Nueve, numbers: 6,8,10 and 3,5,7.

The selected buildings have a height level of G+3 with 3 sections each. The space proposed for analyses lies between Calle Nueve and Calle Diez and it contains beside the 2 proposed buildings the inner building space and park situated towards Calle Diez.



Figure 6: Site location
Source: Google Maps



Figure 7: Site location
Source: Google Maps

On the perimeter of the buildings as well as in the inner space between the 2 buildings there are several spaces for storage, property of the persons inhabiting the buildings.



Figure 8: Site location
Source: Google Maps



Figure :9 Location Images
Source: www.isover-students.com



Figure 10: Location Images
Source: www.isover-students.com



Figure 11: Location Images
Source: www.isover-students.com

More images and informations are available on www.isover-students.com at Documents Contest Task 2017.

2.4 General information about the task

The participants are required to develop a vision for the Urban Regeneration of the community inhabiting the 2 indicated building (Building 1 and Building 2) by working and proposing solution for the constructions as well as for the surrounding areas/constructions situated in 1,2,3,4 zones.

The main scope of the project will be to increase the wellbeing of the inhabitants while making the area more desirable and attractive for new, young families, considering also the overall sustainable approach to the rehabilitation process.



Figure 12: Site location
Source: Google Maps

Building 1 and Building 2

The participants are required to develop their visions by considering the improvement of the comfort conditions for:

- 1. Accessibility:** elevators, stairs for people with disabilities or limited mobility, ramps
- 2. Thermal comfort:** by improving the comfort during both cold and warm season, with a special attention on the percentage of the overheating (days with more than 25C inside the apartments), while reducing the energy demand for heating and cooling (minimum by 2 energy efficiency classes).

Class superior limit	Demand kWh/m ² year	
	cal	ref
A	11.7	5.5
B	27	8.9
C	48.7	13.9
D	81.6	21.3
E	144.1	26.3
F	157.1	32.4

Figure 13: Energy efficiency classes for apartments situated in Multi Family Buildings in Madrid

- 3. Air quality:** by providing constantly a good level of fresh air.
- 4. Visual comfort** by increasing the number of hours with natural light inside the apartments in those places where activities are taking place during the day (eg: kitchen).
- 5. Acoustic comfort** by reducing the level of noise inside the apartments coming from exterior sources, the overall noise coming from interior technical sources, such as the installation of elevators or HVAC systems.

For all comfort requirements from points 2 to 5 the participants will consider as target the levels of the Saint-Gobain Multi-Comfort Criteria. Taking into account the realities of the site as well as the fact that this is a renovation project, participants can make compromises according to their own vision for some of the above mentioned comfort dimensions, while providing the explanations for their choices. The participants can propose various solutions for:

- Insulation of the façade, roof or slab against ground.
- Modification of the windows by enlarging them or by changing them with better performing ones
- Fix or mobile sun shades
- Ventilation with heat recuperation
- Terraces/balconies/winter gardens and other functional exterior elements on the façade

In order to increase the attractiveness of the buildings for young families, the participants can propose development of new residential spaces over the last floor. The construction methodology, planning and architecture of these spaces are entirely up to the participants. The participants can propose free building solutions - winter gardens, balconies or something else with maximal size of 3m. These spaces will be designed with full comply of the Saint-Gobain Multi Comfort Criteria.

Area 1, Area 2, Area 3: Area 1 is currently accessed from the staircase of each 3 section of the both buildings. It is also houses a number of construction for storage purposes. Areas 2 and 3 are currently occupied by a number of storage spaces used by the inhabitants of the building.

According to their own vision the participants can select to keep all, a part or none of these buildings. The space can be integrated into the access scheme while proposing new storage facilities, can be transformed in to a public space dedicated to the inhabitants of the buildings or any other function as seen fit by the participants.

Participants can propose any solutions they think fit for the areas 1, 2 and 3: Pavilion and public functions, underground parking, semi-closed glazed public spaces, others.

Community development – common spaces, where the community can share public, social, sport, business, religious, agriculture and other activities can also be taken into consideration.

Area 4: is currently occupied by a park. The function of this space will remain unchanged. However the participants can propose a new

layout of the park as well as different new accessories to make it more attractive for the inhabitants of the Building 1 and Building 2, and for the inhabitants of the surrounding buildings.

During the construction phases the inhabitants will continue to live in the buildings. The participants are expected to propose possibilities of optimization of the construction process.

Furthermore the participants are expected to take under consideration the economic feasibility of the project. No explicit analyses of the cost will be formally requested for the project, it is expected that based on their own vision the participants will propose realizable design from a cost point of view.

2.5. Type of construction, technical parameters

The high-performance thermal, acoustic, fire protection and daylight requirements have to be considered in order to achieve the Saint-Gobain Multi-Comfort criteria. A presentation of the Multi-Comfort concept is available for download at www.isover-students.com.

In the course of the competition, lectures on this subject will be held at the faculties as well as online trainings.

The Multi-Comfort criteria for the residential function are presented below.

			HOUSING	
			Cold & Moderate	Hot
HEATING ENERGY DEMAND (kWh/m ² a)			New < 15 ; Renovation < 25 (1)	
			or future next local regulation level	
COOLING ENERGY DEMAND (kWh/m ² a)			New < 15 ; Renovation < 25	
			or future next local regulation level	
AIR-TIGHTNESS n50 (V/h)			0.6	1.0
DAYLIGHTING (Daylight autonomy %)			60% (3)	
			Min.	Targeted
SUMMER COMFORT (overheating % of season)			10% (2)	5% (2)
ACOUSTICS	Between dwellings	Airborne - D _{nT,w} +C(dB)	≥ 58dB	≥ 63dB
		Impact - L' _{nT,w} +CI(dB)	≤ 45dB	≤ 40dB
	Between rooms of one dwelling	Airborne - D _{nT,w} +C(dB)	≥ 45dB (4)	≥ 48dB (4)
		Impact - L' _{nT,w} +CI(dB)	≤ 50dB	≤ 45dB
From exterior noise	Rural & Urban – L _{den}	25 dB	20 dB	
SUSTAINABILITY			EPD for all SG products	

1 Achieving heating and cooling energy demand or use of components with adequate U value ([based on Isover MCH Activity expertise](#))

2 The excess temperature frequency describes the proportion of hours in the year on which the average room temperature exceeds 25°C

3 For an luminance level of 300 lux, in living rooms of the building: kitchen, living room, children bedrooms.

4 Not taken in to account door effect

Figure 14: Saint-Gobain Multi Comfort Criteria

Participants are expected to present in their design the main strategies they have used in order to target / achieve Saint-Gobain Multi-Comfort Criteria.

2.5.1. Construction

The renovation method as well as the construction method in case of a new residential space over the last floor of the buildings can be chosen freely by the participants, but the integration of ISOVER and/or Izocam products as well as other products of Saint-Gobain as parts of the construction build-up is mandatory. ISOVER shall provide free planning assistance in the form of:

- Construction CAD details online data base: www.isover-construction.com
 - o First data base in the world containing more than 150 joint construction details, thermal bridge free for 4 different construction systems.
 - o All these details have been certified by the Passive House Institute and using it assures thermal bridge free construction.
 - o The access is free and the application provides: CAD drawings with different download options, components and products, key figures, isotherms, model and materials, air tightness concept.
- Air tightness website: www.isover-aintightness.com
 - o All relevant information about the achieving air tightness: methods, products and solutions, concept importance.
- ISOVER Designer Calculation Tool and Brochures containing literature about Multi-Comfort concept for new construction and renovation can be found at www.isover-construction.com

Further Information about the local ISOVER, CertainTeed and Izocam organization can be found on the official contest website www.isover-students.com/content/view/137/161

2.5.2. Thermal comfort

2.5.2.1 Technical parameters for energy efficiency

The following thermal criteria will be targeted:
New construction

- An annual heat demand <15kWh/m².
- An annual cooling demand <15kWh/m².

Renovation

- An annual heat demand <25kWh/m².
- An annual cooling demand <15kWh/m².

The participants have to run the MCH Designer or any of the other programs designated in the task for their projects to have a clear image of the results.

2.5.2.2 Technical parameters for protection against overheating

In order to provide a good environment the proposed target for the summer comfort is that the overheating (temperatures above 25°C) measured as % from the total period is below 10%.

In order to achieve these values students can

design both passive measures (ex: sun louvers, usage of light colour for the exterior surfaces) and active measures (ventilation system with heat recovery bypass for the summer, active cooling measures).

2.5.3. Acoustic comfort - Technical parameters

Noise is extremely damaging to human health. Providing a good environment from acoustic point of view is crucial for the human wellbeing. Sleep deprivation, as a result of high levels of noise, has adverse effects on human. The sound sources that bother annoy or disturb the most in residential functions are: road traffic and neighbours.

The participants are advised to analyse 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).

2.5.4. Indoor Air Quality

In order to provide the best conditions for the inhabitant's low levels of CO₂ concentrations (maximum 1000ppm) inside the apartments should be achieved. To reach this concentration of CO₂ the participants should provide a level of the ventilation rate of 30mc per hour per person.

2.5.5. Fire safety

All bearing internal and external walls have to achieve at least REI 60 according to EN standards,

The roof and ceilings have to achieve at least REI 60 according to EN standards,

All non-bearing internal walls between different functions (depending on the function) have to achieve at least EI 60 according to EN standards.

2.5.6 Natural daylight

A good level of natural light is mandatory for a good quality of life. There for in the rooms where different activities are taking place during the day (ex: kitchen) a natural daylight autonomy of 60% should be achieved. A daylight simulation for the existing situation will be made by SG and provided to the participants in order to evaluate their project.

2.6. Competition requirements

2.6.1. Minimum requirements (mandatory)

The following minimum requirements: Points A,B,C,D for descriptions and plans must be considered. 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 Building 1 and Building 2 as well as for the Zone 1,2,3,4. The scope of this scheme is to provide overall idea of the allocation of the main functions and their distribution. The participants can present this in the best way they see fit.

- Visualisation 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

- Will be provided only for one building with residential function (Building 1 or building 2 up to the decision of the participants)
- Floor plans (suggested scale 1:100)
- Sections
 - Longitudinal section (suggested scale 1:100-1:200)
 - Cross section (suggested scale 1:50)
- Construction details:
 - Roof, external wall, partition walls, windows, ground and intermediary floors details (suggested scale 1:10 / 1:20)
 - Attention should be accorded to thermal/acoustic bridges as well as to airtightness and moisture protection
 - Other details as see fit by the participants. In case of a new level on top of the existing the participants should provide details from both parts of the construction (renovation and new construction)

C. Calculations

- Will be performed only for one building the same building for which the details have been presented
 - Annual heat demand
 - Annual cooling demand
 - Overheating
- Calculation will be done using MCH Designer or PHPP (other tools will be specified) including the overheating graph
- Participants will insert a calculation overview in the project

Falling to provide the requested information above will lead to the disqualification of the project from the competition.

D. Description of the Design Concept

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

- Design concept and functional solution
- Strategy to achieve thermal comfort
 - Example: construction U values, airtightness concept, HVAC system, passive/active shading measures, cooling, etc.
- Strategy to achieve acoustic comfort
 - Example: Constructions R_w , main

The screenshot shows the 'Overview palette' in MCH Designer. It contains several sections with checkboxes and expand/collapse icons:

- F. Shading (Standard + Summer Shading)** [checked] [expand]
- G. HVAC** [checked] [expand]
- H. Summer Ventilation Strategy** [checked] [expand]
- I. Heat Demand Calculations** [checked] [expand]

Transmission Heat Losses:	17 647.13
Ventilation Heat Losses:	2 006.11
Total Heat Losses:	19 653.23
Internal Heat Gains:	4 297.60
Available Solar Heat Gains:	13 949.97
Total Heat Gains:	15 741.46
Annual Heat Demand:	3 911.77
Specific Annual Heat Demand:	9.40 [warning]
- J. Overheating Calculations** [checked] [expand]

Exterior Thermal Transmittan...	197.91
Ground Thermal Transmittance:	31.52
Ventilation Transmission Ambi...	22.88
Ventilation Transmission Gro...	0.00
Solar Aperture:	16.76
Frequency of Overheating:	0.00

Figure 15: MCH Designer overview

measures for sound protection from technical noise, etc.

- Strategy to achieve indoor air quality
 - Example: Proposed type of ventilation (mechanical and/or manual), ventilation blueprint, proposed solutions, etc.
- Fire safety strategy
 - Example: Evacuation path, separation, material fire reaction, etc.
- Natural daylight strategy
- Energy supply and overall sustainable concept

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

3. Formalities for submission

The following formalities have to be fulfilled for the participation in the national stage and international stage of the Multi-Comfort House Students Contest 2017.

3.1. Formalities for submission - National Stages

The participants can register online at: www.isover-students.com. The registration form will be opened starting 15 October 2016.

All participants registered will receive the official communications via the official online newsletter. Any participating team that fails to register or provides incomplete or false information will be disqualified from competition.

The exact way in which the projects will be submitted to the national stage as well as the final local stage schedule will be decided by the local organizations. The recommendation is to allow a maximum number of 3 posters in 84 x120 cm format.

The contact details for the local ISOVER and Izocam organization can be found at www.isover-students.com/content/view/91/133/.

3.2. Formalities for submission - Online Entry Stage

The participants can register online at: www.isover-students.com, latest by 1st March 2017, 17.00 CET. The registration form will be opened starting 15 October 2016.

All participants registered will receive the official communications via the official online newsletter. Any participating team that fails to register or provides incomplete or false information will be disqualified from competition.

Each team participating to Online Entry Stage will submit to the organizer the following:

- A pdf document of maximum 30 pages containing the description of the Design Concept in English as better seeing fit by the authors, taking in to account the requirements from point 2.6.

- The pdf export of MCH Designer calculation of their project.

The documents will be uploaded on the dedicated section of www.isover-students.com. Closing date for submission of the projects is 15th March 2017, 17.00 CET. All project submitted after this date will be ignored.

3.3. Formalities for submission - International Stage

The formalities for the international stage shall be finalized by latest 9th of May 2017. Each of the participant teams shall submit to ISOVER contact person in their country the following information:

1. Project in electronic format with the following characteristics:

- PDF file version 9 or lower
- Resolution 300 dpi
- Dimensions of the poster 180cm x 80cm (height 180cm, width 80 cm).

Maximum number of posters that can be submitted for each team is 1 (one). The poster of each project will contain in the upper right corner the following data:

- Team country (e.g. Austria)
- University (e.g. University of Ljubljana)
- Name of the drafter (or all names in the case of a team submission)
- Presentation order (e.g. 23)
 - o This number represents the entry order for the presentation of the projects on 1st of June 2017.
 - o A draw will be organized and the results will be communicated to the participants at the International Stage by 3rd of May 2017.

This data will be used by the local ISOVER organization to print and prepare a roll-up display for each team for projects exhibition during the International Stage.

2. An electronic presentation of the project. The file will have the following characteristics:

- A single file - Power Point Presentation
 - o Extension PPT or (PPTX). Other file types will not be accepted.
- The file name should be: Country X_Y Prize, Name1_Name2_Name 3.
 - o Example: Serbia, 2nd Prize, Ilian Dragutinovici_Igor Pancic
- Maximum dimension of the file, not

archived, has to be less than 50 MB.

- o All presentations bigger will be cut to required dimension.

This file will be used during the International Stage for the official presentation of the project in front of the jury.

3. Individual pictures of each member of the team in tiff format, scheme CMYK, resolution 300 dpi.

4. Three tiff files containing pictures or details of the project in 300 dpi resolution:

- First picture: buildings preview (usually 3D model)
- Second picture: architectural plans (graphics, sections, drawings, models others.)
- Third picture: insulations (ideas, drawings etc.)

This data will be used for the edition of the book "Multi-Comfort House Students Competition - Best of the Projects 2017".

