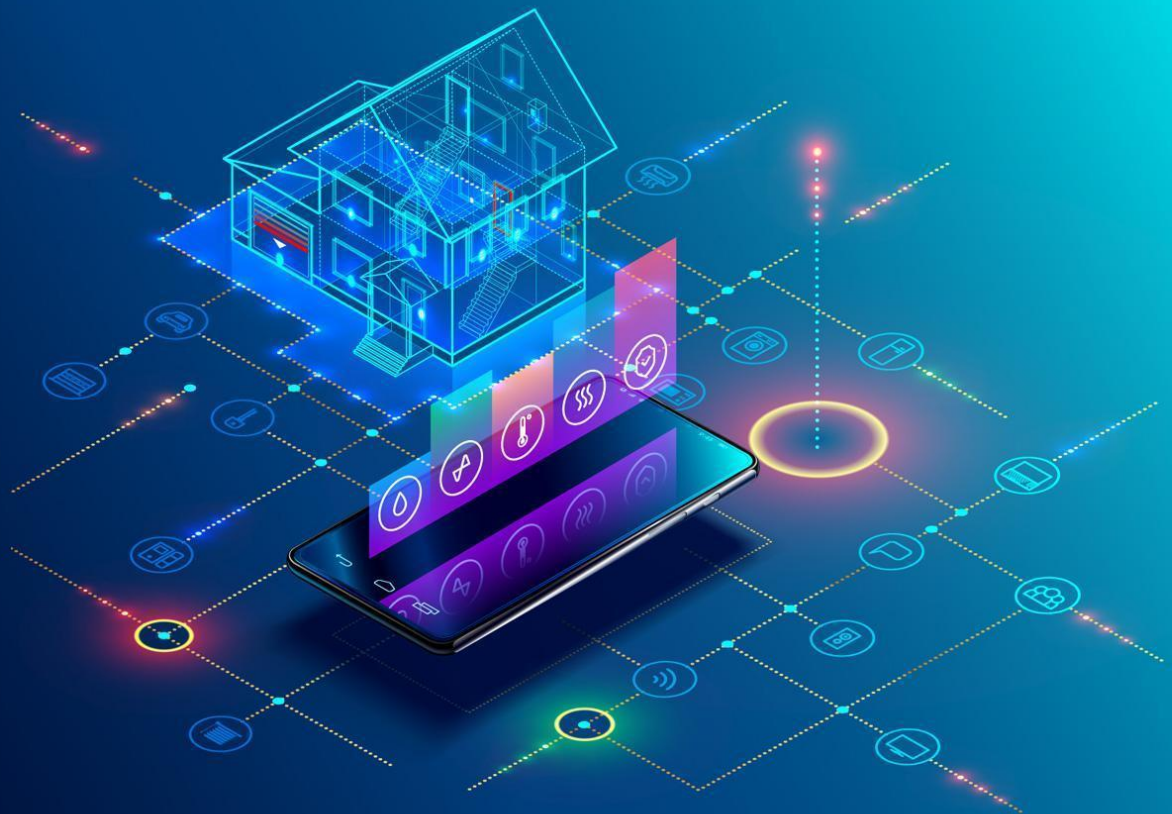


# D8.3 Synthesis multimedia presentation of the EU BIM for Renovation Competition

Deliverable Report D8.3



Deliverable Report: D8.3, issue date on November 2

**BIM-SPEED**  
Harmonised Building Information Speedway for Energy-Efficient Renovation

This research project has received funding from the European Union's Programme H2020-NMBP-EEB-2018 under Grant Agreement no 820553.

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# EU BIM for Renovation Competition

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## Publishable Executive Summary

The EU BIM for Building Renovation Competition – the BIM-SPEED Competition in short – aimed to collect entries of best practice examples using the developed BIM methodology and tools in their overall building renovation process. The objective was to setup a competition structure that allowed participants to use the BIM-SPEED platform & tools in a meaningful and guided way on how to apply these useful BIM tools and last but not least also provide feedback to the consortium as external users. The competition had two categories: building professionals and students who preferably formed multi-disciplinary teams combining the forces of engineers, architects & other specialisations – to make use of the BIM-SPEED platform and tools on a project of their own choosing or making use of a project that the consortium provided to them. The challenge was to develop a renovation project using BIM in a way that allows energy savings for the occupants, improves their comfort while reducing the time and the cost of the overall process.

The preparatory phase of the competition started in December 2019 with the core-organisation team – existing out of Brussels-based EU umbrella organisations [ACE](#), [FIEC](#), [EBC](#) & [REHVA](#) – starting to develop the competition concept. During this time the structure of the competition was set up on the BIM-SPEED platform along with administrative and guidance documents. The evaluation criteria were defined in collaboration with a selected jury that consisted of 5 BIM experts with background in civil & mechanical engineering and architecture, who provided supported and advice on the technical implementation. With the support of the BIM-SPEED platform administrator, CSTB, the platform was also made ready for the competition and tested by the organisation team before the launch of the competition.

The competition itself was launched on 21 June 2021 and the deadline was extended twice, finally until 25 April 2022.

Participants could register through the BIM-SPEED platform and create their own digital workspace where they could use the tools to create the required deliverables:

- A filled report template (downloadable via the BIM-SPEED platform)
- A final federated BIM model with the design proposal (file type: IFC 2x3)
- One infographic representing the proposed design concept regarding the required brief
- Other visual material, with at least 1 image in JPEG format
- Declaration of Authorship & Acceptance of the Terms and Conditions (via an online form)
- The activities .csv file of the collaborative space

Nine teams registered for the competition from different parts of the world: Europe, Africa and South America. In the end two high quality, submissions were awarded recognition through the project's communication channels & through the partners' professional networks, as well as certificates and a presentation during the project's final event at Sustainable Places on 7 September 2022. This number of submissions is lower than the initial objective, but the participants did provide positive feedback on the platform and tools on how it allows colleagues to work together remotely in a digital environment.

The competition strongly contributed to the BIM-SPEED eco-system by generating a lot of promotional content and engaging stakeholders within the consortium's network.



## List of acronyms and abbreviations

BIM: Building Information Modelling

DoA: Description of Action

EUSEW: EU Sustainable Energy Week

SP: Sustainable Places

T: Task

WP: Work Package

## List of used partner abbreviations

ACE: Architect Council of Europe

CARTIF: CARTIF Technology Center

CSTB: Centre Scientifique et Technique du Bâtiment

CYPE: Software for Architecture, Engineering and Construction

DEMO: DEMO Consultants

EBC: European Builders Confederation

ERA: Erasmus University Rotterdam

FAS: PRZEDSIĘBIORSTWO ROBÓT ELEWACYJNYCH FASADA SP. Z O.O.

FIEC: European Construction Industry Federation

REHVA: Federation of European HVAC Associations

TUB: Technische Universität Berlin

UNStudio: United Network Studio



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# 1. Introduction

## 1.1 Objectives

The EU BIM for Building Renovation Competition – the BIM-SPEED Competition in short – aimed to collect the best practices of the application of BIM methodology and tools in the overall building renovation process. It did this by inviting teams of building professionals & students – preferably multi-disciplinary teams combining the forces of engineers, architects & other specialisations – to make use of the BIM-SPEED platform and tools on a project of their own choosing or making use of a project that the consortium provided to them. Their challenge was to develop a renovation project using BIM in a way that allows energy saving for the occupants, and improves their comfort while reducing the time and the cost of the overall process. The aim of this was for them to be able to:

- 1) Make use of the platform to see how it provides an ecosystem where professionals from different specialties and locations can work together on a renovation project. By working on a project, they could get used to the digital workspace provided by the platform and formulate feedback for the consortium.
- 2) Similarly, it provided incentives to have a look at the tools developed within BIM-SPEED to give feedback on how it can work together with other tools, further improving the exploitation of the tools.
- 3) As an activity, the Competition would give the consortium many additional opportunities to increase the communication & dissemination of the project as a whole and also specifically on the platform and the tools. This included many digital communication activities, presentations, and the organisation of events.

The objective stated in the Grant Agreement was 200 entries to the competition but as we highlight in Chapter 3, this number was significantly lower with only 9 registered teams and 2 valid submissions (+ 1 invalid submission). For this reason, we've added Chapter 4 where, besides feedback from the participants on the platform, we've also tried to gather feedback from teams who didn't submit anything. Sub-chapter 4.3 then describes some reflective thoughts from the organisation team on lessons learned from the experience. In Chapter 5 we highlight a positive side of the competition, which was the increased visibility through communication & dissemination efforts that the competition brought to the project overall.

For the consortium, it was important to see how well the participants managed to save time & costs, increase the comfort level and apply sustainable design strategies by making use of the platform and tools. Initially, the competition was split up into two categories: students and building professionals, where the professionals had to use their own renovation project while the students could use the data from the 'Massy – France' demonstration case from the BIM-SPEED consortium. It has to be noted that due to the low amount of submissions and a late submission, both categories were merged into one competition, which is explained further in section 3.2.1.

## 1.2 Connections with other deliverables and Work Packages

This task can be linked with all WPs from 1 to 9 as the competition aimed to increase the use of the platform and the tools. For technical aspects WPs 4 to 6 were of particular importance as the tools were developed by them and brought together on the cloud-based platform through which the competition was organised. As the cloud platform formed the core of the competition, the work in WP6 had a direct impact on the implementation of the competition.



There were also close connections with WP9. With T9.1 for the communication efforts of the competition through both the projects' communication channels as well as those of the partners (in particular the EU umbrella organisation ACE, FIEC, EBC & REHVA). In addition, there are strong links with the training materials developed in T9.2 as this provided guidance to the participants on how they could use the tools within the competition.

### 1.3 Role of partners

A large part of the consortium was either directly or indirectly – by providing support with technical guidance on the platform & tools – involved in the organisation of the competition. This illustrates how the competition from its outset was a common activity of the consortium where the results of the whole BIM-SPEED ecosystem came together.

The core-organisation team was the EU umbrella organisations within the consortium:

- [Federation of European HVAC Associations \(REHVA\)](#): Coordinated the preparation phase, competition launch, and follow-up with the winners & finalists, relying on the experience that REHVA has with the organisation of the 3-yearly CLIMA Student Competition.
- [Architect Council of Europe \(ACE\)](#): Worked on the design & concept of the competition, making use of their extensive experience with design competitions. In addition, as T9.2 task leader, ACE ensured that the participants had access to guidance on how to use the BIM-SPEED tools. ACE was also in charge of the competition page on the BIM-SPEED website.
- [European Construction Industry Federation \(FIEC\)](#): Was in charge of the administrative tasks, maintained direct contact with the participants and created guidelines on how participants could register for the competition through the platform and submit their deliverables.
- [European Builders Confederation \(EBC\)](#): Supported continuously with the implementation of different tasks throughout the competition and with the promotion.

This was supported by the coordination team of the consortium for links with the rest of the project:

- FASADA: As the WP8 leader FASADA regularly took part in the organisation meetings and reviewed documents throughout the process.
- TU Berlin: Provided coordination supported with the concept and objective of the competition, how the competition linked into other WPs, and provided technical guidance support for participants on how to use different tools.
- DEMO: Provided coordination support, as well as support with technical guidance on several tools.

For communication & dissemination through the BIM-SPEED channels, the following partners were crucial:

- Erasmus University (ERA): As a communication leader, ERA provided continuous support with the creation of promotional materials such as event flyers, promotional videos, banners, etc. In addition, ERA promoted the competition continuously on social media and other digital communication channels of the project.

For the technical implementation and guidance regarding both the platform and the tools the competition relied on the following partners:



- CSTB: As the BIM-SPEED platform administrator, CSTB was crucial for the implementation of the competition concept as they created the necessary functions within the platform for a competition space. In addition, CSTB provided support with the technical guidance on the tools.
- CYPE, STRESS, CARTIF, HTV, Planen Bauen 4.0, Spy Architects, Hotchtief: Provided support with technical guidance on multiple tools that could be used within the competition.
- UNStudio: Filippo Lodi was part of the jury of the competition and helped with the setup of the evaluation criteria, while UNStudio also supported the implementation of the awards and provided support with technical guidance.

## 1.4 Timeline

Preparation for the setup of the competition started in December 2019 with discussions between the organisation team (ACE, FIEC, EBC & REHVA). In February 2020, the four umbrella organisations continued the preparation process based on notes from other competitions (section 2.1 for more information on the preparation phase). The concept was finalised in the second half of 2020, while during the first half of 2021 the organisation team tested the BIM-SPEED platform to ensure it aligned well with the technical requirements of the competition

The BIM-SPEED competition was launched on 21 June 2021, initially, it was intended to run until 21 October 2021 but the deadline was extended twice, first to 21 February 2022 and then to 25 April 2022. The main reasons were additional promotion campaigns to reach a wider audience to get more participants and allow more time for their submissions

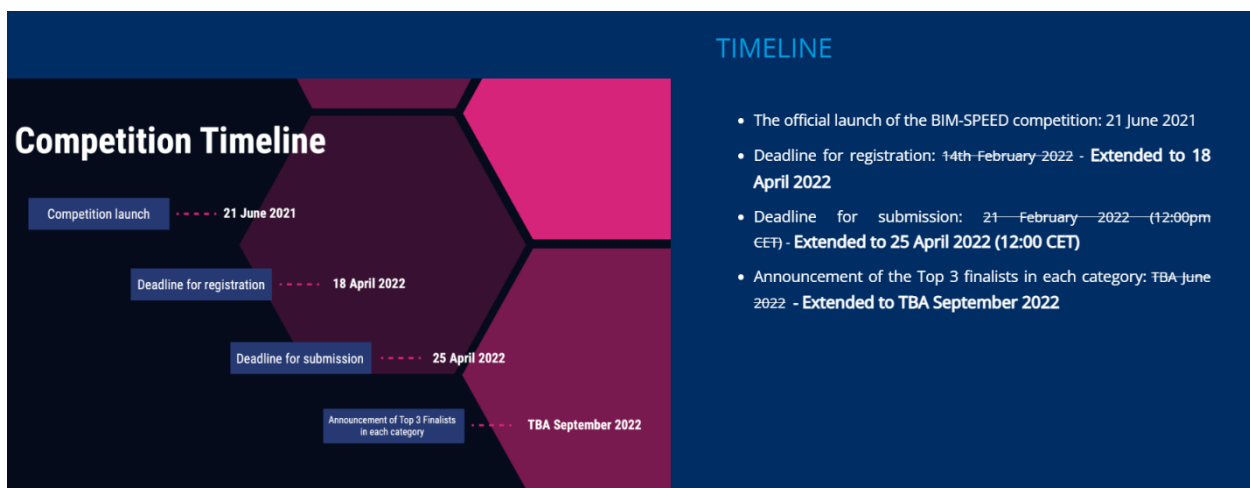


Figure 1: Timeline of the competition (with last extension)

The evaluation period of the jury took place from June to August 2022. Originally the evaluation was planned for just June 2022, but this was extended to August due to a late submission which was still allowed. The awards ceremony took place on [07 September 2022 at Sustainable Places during the BIM-SPEED Final Event](#). During this event the winners of the competition presented their project. In October 2022 the winners & finalists were presented on the BIM-SPEED communication channels and those of the umbrella organisations.



## 2. Competition Structure

### 2.1 General Concept

The teams were expected to present a residential building renovation project that applies at least one of the BIM tools and methods developed by the BIM-SPEED partners, on their own or in conjunction with other tools available on the market. The teams had to use a common workspace on the BIM-SPEED platform. The challenge was to develop a renovation project using BIM in a way that results in energy savings for the occupants and improves their comfort while at the same time reducing the duration and cost of the overall renovation process. The competition was split up into two categories: building professionals & students (see section 2.3 for more information).

The presented building project had to be in the design phase, professionals had to use their own residential project while student teams could make use of data from the Massy (France) demonstration case from BIM-SPEED.

### 2.2 Preparation Phase & Expected Outcomes

From December 2019 to January 2021 the organisation team (ACE, FIEC, EBC, REHVA) prepared the competition concept and structure. A part of this was based on notes taken from the competitions organized by the *International Union of Architects* (UIA) (see Appendix 2) and the REHVA CLIMA Students Competition (see Appendix 3). Based on discussions within the competition team, the experience from other competitions, and the requirements described for implementing the BIM-SPEED competition in the Grant Agreement, the team determined the following aspects that needed to be further defined in the first half of 2020:

- Entry requirements & competition categories;
- Deliverables to be submitted;
- Objectives & evaluation criteria of submissions;
- Jury formation;
- Type of competition: one-stage submission with two categories (students & professionals);
- Draft timeline;
- Eligible participants;
- Competition process: How the platform can be used and which tools to use.

These aspects were discussed with the full consortium in the 4<sup>th</sup> (online) General Assembly in May 2020, with the focus mainly on the technical aspects of how the competition can be implemented. It was discussed how the participants would be able to use the platform to work together within their teams and create the deliverables, as well as how the training materials (developed in T9.2) could act as a guidance for the participants on how to use the platform & tools.

In the following months, the aspects above were further defined by the competition team, including a first realistic timeline for the competition (from June 2021 until January 2022), more details on the deliverables, eligibility rules, and the profiles needed for the Jury.

This was discussed again with the full consortium in the 5<sup>th</sup> General Assembly in November 2020 with further discussions on how the platform can be used by the participants for the competition and which BIM-SPEED tools would be at their



disposal. It was also agreed that [terms of conditions](#) should be written where the rules for participation & submission are clearly defined for the participants.

Following the GA in November 2020, the priorities for the first half of 2021 were three-fold:

- Testing the BIM-SPEED platform for the practical implementation of the competition, which the organisation team did with the support of CSTB.
- Formation of the Jury (see section 2.9).
- Writing of the [terms of conditions](#) under the coordination of REHVA with support from ACE, EBC & FIEC. With both internal feedback within the consortium from FAS and CSTB, and from the Jury members who were selected by March 2021.

## 2.3 Entry Requirements

As mentioned, the competition was split into two categories: building professionals and students. The organisation team assessed that this was the best combination as it gave the opportunity to have the BIM-SPEED tools tested in external renovation projects, while it also provided a platform for students to get to know the project and engage with BIM tools. At the same time, limiting the competition to two categories kept the concept simple.

The entry requirements for the competition were initially listed as the following:

- At least two members from different professional/educational backgrounds (e.g. civil engineering, architecture, structural engineering, ...).
- No limitation on the number of members in each team, as well as on the number of different disciplines represented in each team.
- Each team should use at least one of the BIM-SPEED tools that can be found in the BIM-SPEED platform.

After seeing that the registration numbers were quite low in January 2022 the organisation team decided to extend the deadline from 21 February to 25 April 2022 and make the first requirement less strict and change it to:

- Participation is open to people from different disciplines (e.g. civil engineer, architect, HVAC engineer, contractor, etc.), while multi-disciplinary teams are encouraged, it is not mandatory to participate.

## 2.4 Registration Process

The registration to the competition went through the [KROQI platform](#). The registration process was summarised [on the website](#):

1. *Create your account in the KROQI platform to access the BIM-SPEED platform*
2. *Create your project space in the BIM-SPEED platform*
3. *Pick your category (Professional or Student)*
4. *Fill in the registration form*
5. *Invite your team members to participate*

Alternatively, interested participants could watch a [step by step guide on YouTube](#) for the registration process, and they could follow the [guidelines that covered every step of the registration and the submission process](#). Finally, the registration process was also described within the [terms of conditions](#).



After registration and before submission the participants were required to fill in a form of “[Declaration of Authorship & Acceptance of Terms of Conditions](#)”.

## 2.5 List of Awards

As described on the website, the list of awards for the winners & finalists was the following:

For the professionals' category:

- EU-wide exposure through BIM-SPEED dissemination channels and networks of the umbrella organisations covering the widest professional coverage
- Possibility to present the winning project to the Architects' Council of Europe and its Member Organisations
- Presentation of their project during EUSEW2022 and/or Sustainable Places 2022
- Participation and contribution to REHVA's BIM task force of the Technology and Research Committee
- Featuring an article/interview on mainstream academic media (e.g. BIM today, BuildUP, etc.)
- Free licenses to use BIM-SPEED platform and BIM tools

For the students' category:

- EU-wide exposure through BIM-SPEED dissemination channels and networks of the umbrella organisations covering the widest professional coverage
- Presentation of their project during EUSEW2022 and/or Sustainable Places (Sept/Oct 2022).
- Mentorship on student's thesis with UNStudio BIM experts (suitable for architects)
- Presentation of their project at UNStudio
- Presentation of their project at REHVA Brussels Summit 2022

The implementation of the awards took place in September – October 2022 and will continue after the project's ending. On 07 September the winners presented their project at the [BIM-SPEED Final Event at Sustainable Places](#). The winners & finalists have also been applauded through the BIM-SPEED communication channels and those of the partners and they have been [interviewed for the REHVA Journal that was published in October 2022](#). As a follow-up, UNStudio is also providing support to a member of the winning team with her thesis for her architecture degree.

## 2.6 Preparation Guidance for the Participants

This part will focus on how the consortium guided the participants so that they could familiarise themselves with the platform and available tools, and get to know how they could register and submit the deliverables described in chapters 2.5 & 2.7.

As mentioned above, the participants could make use of [the training materials](#) prepared under T9.2 for guidance on how to use the tools in their own projects (see [Appendix 1](#) for a full list of the training videos). This provided participants with an in-depth view of what and how to use the different tools. As described [in D9.3](#), the competition was also presented during the French and Greek national training workshops who could also use this training of the tools to participate in the competition. Within the training materials, the participants could also find guidance on how to use the platform itself.

The organisation team (ACE, FIEC, EBC, REHVA) organised a dedicated online info session about how to use the platform and the tools within the context of the competition with support from the technical partners who developed



the platform and the tools: TUB, FAS, CYPE, CSTB, DEMO, CARTIF & STRESS.

The [info session was organised on 22 March 2022](#).

The objective of this session was to have all the information in a 1h30min format to encourage interested parties to participate. It guided the participants step by step on how they could participate in the competition by covering the registration & submission processes, as well as how the platform works within the context of

the competition and how they could apply the tools for their project. Not all tools were covered during the session to not overwhelm the participants too much and the tools were selected based on those most suitable to use within the competition format. This was a live session which had 16 participants in the audience and 151 views on YouTube (on 11 October 2022).

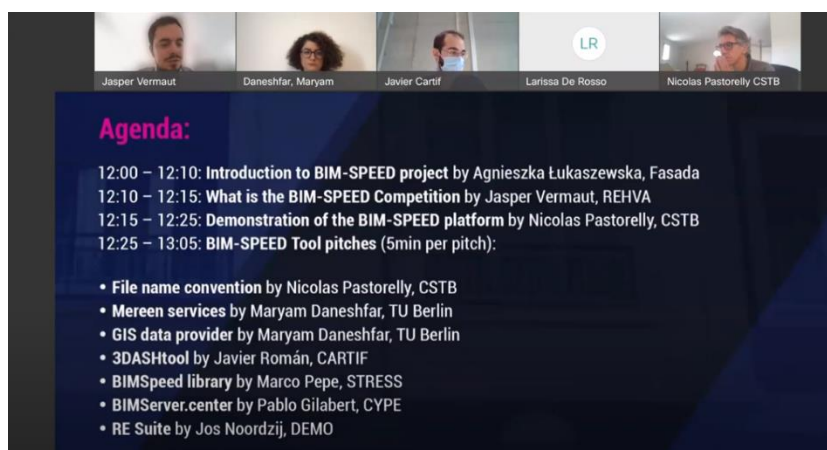


Figure 2 - Screenshot of Info Session BIM-SPEED Competition on 22 March 022 (showing the agenda on the slide)

## 2.7 Submission Process & Deliverables

The following deliverables were required for submission:

- A filled report template (it can be downloaded via the BIM-SPEED platform)
- A final federated BIM model with the design proposal (file type: IFC 2x3)
- One infographic representing the proposed design concept regarding the required brief
- Other visual material, with at least 1 image in JPEG format
- Declaration of Authorship & Acceptance of the Terms and Conditions (via an online form)
- The activities .csv file of your collaborative space

Filled in report template available through the platform



IFC File – BIM Model with the design proposal



Visual material - infographic

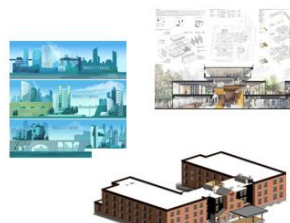


Figure 3 - Deliverables that participants had to submit for the competition

The deliverables had to be uploaded onto the platform and once finished, access to the organisers had to be granted to the workspace on the platform by the participants (to Jasper Vermaut from REHVA and Roberta Stankeviciute from FIEC). In turn, the organisers uploaded the deliverables onto an anonymised Google Drive folder for the Jury's evaluation.



## 2.8 Evaluation Criteria & Template

The determined evaluation criteria, as described on the website and terms of conditions, were:

- Time and cost savings resulting from using the BIM-SPEED platform and tools.
- Application of sustainable strategies in the renovation project.
- The use of participants' own BIM tools and software in conjunction with the BIM-SPEED tools and BIM-SPEED platform
- Addressing issues and strategies related to user comfort and health.
- Level of collaboration of the team within the BIM-SPEED platform.

First, the organisation team discussed it internally and presented them to the full consortium as well during the General Assembly in November 2020. After the formation of the Jury, a [survey](#) was sent to all the jury members in December 2020 who helped determine the submission process and the evaluation criteria on which to judge the submissions. A meeting between the jury and the organisation took place on 20 January 2021 to present the competition concept, and timeline and finalise the evaluation criteria together ([see presentation](#)). As a result, a draft evaluation template was created by REHVA and after an additional feedback round with both the organisation team and the jury members, a [final evaluation template](#) was created.

## 2.9 Jury Formation

The main role of the Jury was to evaluate the submissions through the [evaluation template](#) based on the [deliverables](#) that the participants had to submit. Besides this, the jury members also supported the definition of the evaluation criteria and the promotion of the competition.

The selection procedure went as the following:

- Each member of the organisation team (ACE, FIEC, EBC & REHVA) put forward 3 names based on their expertise with BIM. As the four umbrella organisations represent different segments of the building sector, this brought forward a mixed pool of candidates.
- Invitations to potential candidates were sent in November 2020 after which 9 candidates confirmed their interest to be on the BIM-SPEED jury.
- The organisation team asked interested candidates to fill in a [survey about the evaluation criteria](#).
- Based on the answers to the survey, the organisation team discussed which jury profiles matched best to assess the criteria after which 5 candidates were chosen:
  1. Andras Ronai: Mechanical Engineer M.Sc.; HVAC+R and BIM – Óbuda Group – MMK.
  2. Chiara Dipasquale: Expert in Innovation and Sustainability – Volksbank.
  3. Filippo Lodi: Head of Innovation & Knowledge Management, UNStudio (The Netherlands).
  4. Olga Venetsianou: Architect PhD, MA in Digital Arts ASFA - Representative from the Technical Chamber of Greece to the Architects' Council of Europe BIM Working Group.
  5. Tomi Henttinen: Delegate from the Finnish Association of Architects SAFA to the Architects' Council of Europe BIM Working Group

On 20 January 2021, a 90-minute preparation session was organised with the jury members together with the organisation team to finalise the terms of conditions, the competition timeline, and how the BIM-SPEED platform works ([see presentation](#)). On 18 February 2021, another shorter session was organised with the jury to discuss the draft evaluation criteria and address





any questions they might've had. Following this the jury members were continuously involved in decisions about the implementation of the competition, such as the multiple extensions of the deadlines and the promotion efforts.

Due to a late submission, the evaluation period from the Jury took place from July to August 2022, who received the submissions anonymized.



Figure 4 - The competition Jury Members



## 3. Competition Results

### 3.1 Registered Teams

In total 8 teams registered to participate in the competition: 3 for the category of building professionals and 5 for the student's category. The number of registered teams was well below the target (200 targeted entries according to the Grant Agreement) despite 4 waves of promotion efforts (see [Chapter 5](#)) but the interest did reach a global level as registrants came from different continents. The large majority came from Europe, but we also had two registered teams from Africa and one from South America.

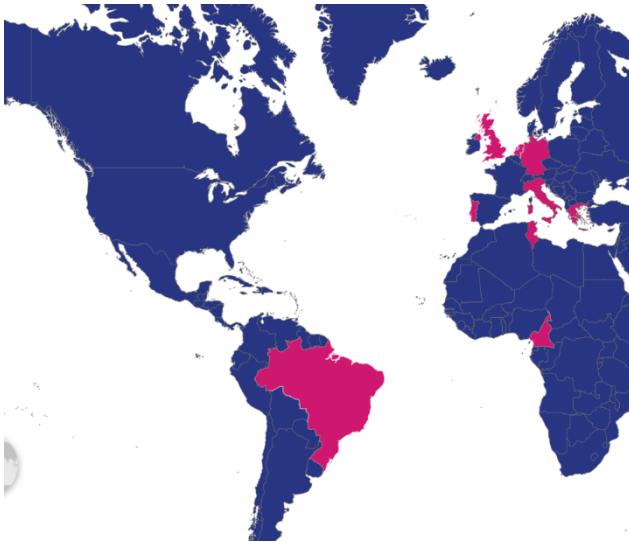


Figure 5 - Highlighted map of country of origin from the registered teams

As can be seen in Figure 5, the registered teams were from the UK, Netherlands, Germany, Italy, Greece, Tunisia, Cameroon, and Brazil (& Portugal)<sup>1</sup>.

### 3.2 Submissions

In total three teams informed the organisation that they submitted the deliverables, all three teams were part of the student's category. The organisation team inquired multiple times with the other teams and provided them the opportunity to still submit the deliverables after the deadline of 25 April 2022. Unfortunately, we received no response to these inquiries.

One of the teams, the EPI International Multidisciplinary School in Tunisia, informed us that they submitted deliverables but did not provide the organisation team access to their workspace on the BIM-SPEED platform or share the deliverables through a Google Drive folder, which was required for the organisation team to have access to the deliverables and share them (anonymized) with the jury.

Another team, from the Federal University of Sao Carlos in Brazil, only found out about the competition in May 2022, after the deadline passed. Considering the low number of submissions, the organisation team allowed them to still submit their deliverables, which they did in June 2022.

<sup>1</sup> One team was mainly based in Brazil and had their project situated there but a team member worked from Portugal.



After a validation check of all three submissions, two of the three submissions were shared with the jury on 6 July 2022, as the team from Tunisia had not provided us access to the deliverables in the end. The submissions were shared through by granting access to Google Drive folders where the submissions were uploaded:

[https://drive.google.com/drive/folders/106fryBzK\\_rZ8GoNA7LbV-qT24Nlp6fVh?usp=sharing](https://drive.google.com/drive/folders/106fryBzK_rZ8GoNA7LbV-qT24Nlp6fVh?usp=sharing)

The two teams that completed their submission were:

- Team ENSTP from the National Advanced School of Public Works (Yaounde, Cameroon). Their team had a mix of a graduate in civil engineering with Idriss Tchaheu Tchaheu and an architect student with Charlene Sobgoum as their main team members. They used data from the demonstration case provided by the BIM-SPEED consortium from Massy (France).
- Team UFSCar from the Federal University of Sao Carlos (Sao Paulo, Brazil). The team leader was Clelia de Moraes who has a Ph.D in mechanical engineering. She formed a team with two students in civil engineering, Everson de Castro Rodrigues and Anderson Andre Lima de Souza. They used their own data gathered from a sustainability project of an elderly home in the region of Araraquara (near Sao Paulo).

The team from UFSCar only submitted their deliverables in July 2022 which caused a delay in the evaluations. As Team ENSTP were the only team to fully do everything within the expected timeline and correctly, this gave them an advantage in the final evaluation stage.

### 3.2.1 Merging categories

As both teams registered as student teams linked to universities while there were no submissions for the category of building professionals, it was decided to merge both categories. A winner was selected (see next section) to keep the spirit of the competition but both teams were granted access to the awards.

## 3.3 Finalists & Winners

As mentioned in the previous section, the finalists were the two teams that granted access to their deliverables. The winners after the evaluation of the jury between these two teams was Team ENSTP from Yaounde (Cameroon). Besides scoring well on the other criteria, they could demonstrate better how they used the BIM-SPEED tools "[File Naming Convention Tool](#)" and the "[Mereen Weather Service Tool](#)". The [final evaluation form](#) can be downloaded here.

## 3.4 Certificates & Awards Follow-Up

All participants and the jury members who provided their evaluation were given a digital and paper certification. Three different types of certificates were created: for the [winners](#), [finalists](#), and the [jury members](#). A trophy was sent to the winners as well to honour their accomplishment, which can be seen in figure 6.





Figure 6 - Picture of the BIM-SPEED Competition Trophy

The winners also presented themselves and their project at the [BIM-SPEED Final Event at Sustainable Places](#) on 7 September 2022. Both the winners & finalists were honoured through a [press release of the BIM-SPEED consortium](#) which was shared through the professional channels of the partners. Both teams also did an [interview with the REHVA Journal](#) – each edition has an outreach of over 5,000 people, mainly towards building services engineers - which was published in October 2022. UNStudio are also in the process of following up with the winners to mentor one of their team members with her thesis for her architecture degree.



## 4. Feedback on the BIM-SPEED Platform & Competition

### Format

#### 4.1 From the participants

Jasper Vermaut from REHVA had meetings with both teams after the evaluation was known and gathered the feedback from both teams:

- Team ENSTP:

*“The platform allowed us to collaborate smoothly and efficiently throughout our project by deploying a common data environment and workspace, allowing us to work in a hierarchical manner. In addition, the naming convention defined for the files allowed us to discern with precision the discipline, phase and version of the software used for the model. All the data was stored in an hierarchical and easily accessible way inside the BIM-SPEED platform that is available through Kroqi.*

*The Mereen Weather Service that is available through the platform allowed us to collect free of charge historical climate data from 1999 to 2021 in EPW format. This collected climate data was used in Graitec Archiwizard software to simulate the daylighting analysis as well as the energy analysis through which we managed to get the cost savings.*

*Another available tool in the platform allowed us to increase time efficiency, which is the File Naming Convention Service that uses an automated workflow which consists of creating; managing and applying a naming standard across project files to ensure standardisation.”*

- Team UFSCar:

Clélia: *“Our project was a residential building for a family in a sustainable urban neighbourhood in Araraquara, São Paulo state. The aim of the project was to lower energy consumption and costs while improving the IAQ and comfort levels of the building. The BIM-SPEED platform made it a lot easier for us to work with each other on this project in the same digital workspace, even if we live in different regions (Clélia lives in São Paulo while Everson and Anderson live on the other side of Brazil in Belém).”*

Everson: *“We used different tools that were made available through the platform. First there’s the File Name Convention tool which allowed us to more efficiently have control over the different documents that we used within the project. We also used the Mereen Weather Service on the platform, which allowed us to assess the climate and meteorological data in the region by inputting the latitude and longitude. From there we used BIM to better analyse the surroundings of the building and the amount of solar exposure.”*

Anderson: *“To a certain extent we’ve also used the BIMSpeed Library, or at least the concept of it, as the data on the platform was adapted to different European regions. We’ve used the software and adapted it with data from our own region. Through this we could examine different parameters in our model for the sustainable use of materials for different elements in the buildings, for example the roof.”*

Clélia: *“As last we’ve also made use of the GIS Data Provider to do a study of the terrain while using active and passive technologies to make the building an active generator which contributes to the local grid.”*



## 4.2 From registered teams who did not submit deliverables

REHVA sent a short survey to the 6 teams who registered for the competition but did not submit any deliverables in the end, on 29 September 2022 for the first time with reminders on 6 October and 13 October: <https://forms.gle/KUb4diuM84ryJNMXA>

The objective of the survey was to have a minimum of feedback from teams who took the time to look at the competition and register but did not submit in the end, to get to know more about what could have been done better in terms of the concept and information-sharing. Unfortunately, we did not get a response to the requests despite the reminders.

## 4.3 Lessons learned by the organisation on the format

Since the competition did not reach the objective of 200 entries and the final submissions were significantly lower, as described in Chapter 3, the organisation team did some self-reflection on why the submissions were so low and what could've been improved on the format:

1. The effort that was required from participants to submit quality deliverables was high since the objective of the competition was to engage external users in a meaningful manner with the BIM-SPEED platform & tools.
2. Connected to the previous point, the required effort most likely outbalanced the awards that were offered to potential participants, which was a part where the consortium had multiple meetings about but in the end, was quite limited in what could be offered.
3. The registration process through the platform for the competition was quite lengthy and involved many steps, which was not user-friendly and a high barrier from the start for anyone wanting to participate. Unfortunately, it was hard to simplify this from a technical point of view. The organisation team gave detailed instructions on the website for how to register to try and support this barrier.
4. The initial hopes were to get many building professionals to test the platform but that was maybe a bit too idealistic since they're less motivated to take the time and effort to learn – especially to the extent that was required to participate in the competition - how to use a platform which was still in a testing phase. Not many professionals are willing to risk to use a platform in a testing phase for a real project.
5. Connected to the previous point, the competition had a students category but more participants could've focused efforts even more on trying to get more students. This was done in terms of communication efforts (see invitation list [in Chapter 5.3](#)) but the timeline could've been more aligned with the academic curriculum so educational partners could easier involve their students more.
6. The initial requirement of having multi-disciplinary teams (a combination of engineers & architects) was too ambitious in hindsight. This is why the organisation team decided to drop this requirement in January 2022 when the last extension (until 25 April 2022) was decided.
7. The multiple extensions of the deadlines also created more confusion, as some of the initial candidates didn't understand why they got more time.



8. The last reason could be the large variety of available tools that made it more complex for participants to figure out which ones they could apply to the competition concept, this was a part that the organisation team was not certain of yet either until quite late in the process either as it wasn't clear which tools would be fully integrated into the platform by June 2021 and which tools were suitable to be used with external data. It is for this reason that a [dedicated info session](#) was organised on 22 March 2022 which explained which tools precisely could be used in the competition.



## 5. Communication Activities Related to the Competition

Communication activities to promote the Competition can be divided into four ‘waves’. The first was an intense promotion campaign in the months prior to June 2021 when the competition was launched. This phase mainly aimed to present the competition at internal meetings with the networks of the umbrella organisations, as can be seen in the [section on presentations](#). The second wave can be situated during the launch of the competition in June 2021 with intensive social media promotion by all partners and a [press release](#) which was shared by the umbrella organisations. After the decision to extend the submission deadline a first time, to 21 February 2022, another wave followed between November 2021 and January 2022 with the creation of two promotional videos for [building professionals](#) and [students](#) and an informative article in the [REHVA Journal in December 2021](#). When it was decided to extend the deadline a final time, to 25 April 2022, the last and final wave followed between February and April 2022 with the last social media campaign accompanied by another [press release](#) in February 2022 and an [info session on 22 March 2022](#) that aimed to provide all needed information to participate in a 90-min session.

The communication activities concerning the competition could be divided into three types: digital media promotion (social media, newsletters, website), presentations at events, and direct invitations that were mostly done by email but sometimes also in-person.

### 5.1 Digital media (e.g. website, social media, newsletters)

The BIM-SPEED project and the partners, especially the umbrella organisations, continuously shared many updates through the available digital media communication channels such as website & social media updates as well as sharing information through (sometimes dedicated solely to the competition) newsletters. Between January 2020 and October 2022, the EU umbrella organisations reported 89 digital communication activities (not including activities by the rest of the consortium or through the BIM-SPEED channels) that promoted the BIM-SPEED competition which reached a total of 48,884 people. 36 were social media posts, 13 website updates, and 16 shares in newsletters. [The list of activities can be seen in the overview Excel table that can be downloaded here.](#)

### 5.2 Presentations

In total 11 presentations were given to promote the BIM-SPEED competition at various occasions, both at public events as well as at internal meetings that the EU umbrella organisations had with their members:

Date	Event Name & Description	Partner(s)
09/12/2020	Competition Presentation during BIM-SPEED Industry Day 2020 <a href="#">(download presentation &amp; see recording)</a>	REHVA
20/01/2021	Competition Brief to jury members <a href="#">(see presentation)</a>	ACE, FIEC, EBC, REHVA, Jury





18/03/2021	REHVA BIM Task Force: Presentation of competition concept to REHVA BIM experts ( <a href="#">see presentation</a> )	REHVA
13/04/2021	REHVA Supporters Committee: Promotion of competition to REHVA supporters during Annual Meeting 2021 ( <a href="#">see presentation</a> )	REHVA
15/04/2021	REHVA Technology & Research Committee: Promotion of competition to REHVA TRC experts during Annual Meeting 2021 ( <a href="#">see presentation</a> )	REHVA
19/05/2021	Internal webinar of FIEC members on BIM-SPEED Competition	FIEC
20/10/2021	National Training workshop in French speaking countries BIM-SPEED (see presentation)	EBC, FIEC, ACE, CSTB, FASADA, DEMO, HOCHTIEF, Planen Bauen 4.0, CYPE, REHVA
20/10/2021	National Training workshop in Greece – BIM-SPEED (see presentation)	EBC, FIEC, ACE, CSTB, FASADA, DEMO, HOCHTIEF, Planen Bauen 4.0, CYPE, REHVA
09/12/2021	Competition Presentation during BIM-SPEED Industry Day 2021 ( <a href="#">see recording</a> )	EBC
22/03/2022	BIM-SPEED Competition Info Session ( <a href="#">see recording</a> )	REHVA, FASADA, CSTB, TUB, STRESS, DEMO, CYPE
07/09/2022	BIM-SPEED Competition Awards Ceremony during Final Event at Sustainable Places 2022 ( <a href="#">see recording</a> & <a href="#">see competition presentation</a> )	REHVA

### 5.3 Direct invitations

In total 154 people were directly invited by email or in-person to either participate in the competition themselves or to invite their network/students, mostly the networks of the university partners and umbrella organisation within the BIM-SPEED consortium. Many of the invitees work for universities at the department of architecture and/or civil engineering so that they could invite their students to participate in the student category. Company representatives were invited as well, either to directly participate or share it with their wider network. The [list of institutions that have been directly invited can be downloaded here](#). For privacy reasons we didn't include the names and email addresses of the contacts that the consortium emailed but this can be provided if requested.



## 6. Conclusion

The preparatory phase began in December 2019 and the follow-up of the competition went on until October 2022 (and will even go on until after with the implementation of some of the awards). During the whole process the consortium, and in particular the umbrella organisations, was engaged in creating and implementing a competition structure that allowed participants to use the BIM-SPEED platform & in a meaningful way, have a guided way on how to work with useful BIM tools and provide feedback on it as external users.

As can be seen in [Chapter 2](#), especially during the preparatory phase intensive work by many partners went into creating the right administrative and guidance documents & materials, while during the implementation phase the competition was intensively promoted through various channels as can be seen in the information provided in [Chapter 5](#).

Despite the intensive efforts throughout this whole period, we have to conclude that in the end competition did not even come near to reaching the objective of 200 entries, as the competition had 9 registered teams with 2 valid submissions (and 1 invalid submission) in the end, as can be read in [Chapter 3](#). In [Chapter 4.3](#) the organisation team reflected on the difficulties with the format and the lessons learned from this. In the end, it was a combination of required effort versus awards that were too limited with an underestimation of the difficulty to reach external building professionals through the competition.

The competition did have a strong positive impact on the creation of an eco-system around the BIM tools that the project provided through the outreach of both internal and external communication activities. Internally the umbrella organisations continuously involved their network in the organisation of the competition and by doing so also with the other results of the competition. For example, REHVA engaged their Task Force on BIM with the competition concept, rules, and results (the Task Force Chair, Andras Ronai, was also part of the competition jury). The same for ACE, who promoted the competition repeatedly to its BIM working group. The competition managed to meaningfully engage the umbrella organisations in promoting the activities to their wider network.

As can be seen in the information provided in [Chapter 5](#), there were multiple extensive promotion campaigns to spread the word about the competition to external target audiences as well. Which greatly increased the outreach of the project and by doing so had a positive impact on the communication & dissemination of all the results of the project.



# 1. APPENDIX 1 – Training Videos available for participants of the competition

Image	Title	Video Duration (hour, minutes, seconds)	Link
	BIM-SPEED Competition Info Session	1h29m06s	<a href="https://www.youtube.com/watch?v=fhy-hKh9CGo">https://www.youtube.com/watch?v=fhy-hKh9CGo</a>
	BIM-Speed website: Training Materials	N/A	<a href="https://www.bim-speed.eu/en/training-materials">https://www.bim-speed.eu/en/training-materials</a>
	BIM-SPEED Multi Criteria Decision Support Tool	16m29s	<a href="https://youtu.be/jzJmGAufdlg">https://youtu.be/jzJmGAufdlg</a>
	BIM-Speed Platform	6m01s	<a href="https://youtu.be/lx_ZLlxZo0k">https://youtu.be/lx_ZLlxZo0k</a>
	BIM-Speed File Name Convention Tool	5m53s	<a href="https://youtu.be/OjrYYuoA0lg">https://youtu.be/OjrYYuoA0lg</a>
	BIM Maturity Tool	6m02s	<a href="https://youtu.be/g7tgYFPfX9Y">https://youtu.be/g7tgYFPfX9Y</a>
	Tools for collecting environmental, climate and surrounding data	13m42s	<a href="https://youtu.be/ZXcTZzaTKZo">https://youtu.be/ZXcTZzaTKZo</a>
	BIM-Speed methodology toolkit	12m31s	<a href="https://youtu.be/m2N_y00Q5Xc">https://youtu.be/m2N_y00Q5Xc</a>
	Open BIM construction System	5m28s	<a href="https://youtu.be/157YbnVslI0">https://youtu.be/157YbnVslI0</a>
	Methods for surveying and diagnostic of HVAC systems in existing buildings	7m24s	<a href="https://youtu.be/o_asFfFkDEw">https://youtu.be/o_asFfFkDEw</a>



	Open BIM Analytical Model	7m21s	<a href="https://youtu.be/91MzX4GC5d8">https://youtu.be/91MzX4GC5d8</a>
	Improvements Plus	6m49s	<a href="https://youtu.be/yac5T1nmKus">https://youtu.be/yac5T1nmKus</a>
	Cypetherm EPlus	11m35s	<a href="https://youtu.be/wZy1YSgyhEo">https://youtu.be/wZy1YSgyhEo</a>
	BIM-Speed Inhabitants Crowd-Sourcing App	21m38s	<a href="https://youtu.be/_eJnRpQWUZM">https://youtu.be/_eJnRpQWUZM</a>
	3DASH Tool	10m55s	<a href="https://youtu.be/pJB1pGj1I34">https://youtu.be/pJB1pGj1I34</a>
	BACN2BIM	9m10s	<a href="https://youtu.be/2k9kvkPzNU4">https://youtu.be/2k9kvkPzNU4</a>
	Volumetrization Techniques Tutorial: Creation of a thermal 3D model from 2D thermal scans	10m00s	<a href="https://youtu.be/Ka8rxaAAr8">https://youtu.be/Ka8rxaAAr8</a>
	VT set, thermal photogrammetry training video	2m42s	<a href="https://youtu.be/D5FkViPBIFY">https://youtu.be/D5FkViPBIFY</a>
	XTR set, augmented reality - microsoft hololens 2	9m32s	<a href="https://youtu.be/09S8zgj9Fec">https://youtu.be/09S8zgj9Fec</a>



## 2. APPENDIX 2 – Recommendations from Design Contests -

### ACE (as basis for competition design)

The “9 rules”

Rule 1. Equality of opportunity for all participants,

The same level of information must be provided to all participants at the same time.

There must be no individual exchange of information between participants and jury members; questions about the brief are answered to all participants simultaneously.

Persons excluded from participation: the representatives, partners or employees of the promoter or of any jury member, or any person who has been involved in the preparation of the competition, will not be eligible to compete or to assist competitors.

Rule 2. Transparency of the procedure

The summary of the jury’s discussion and the decision-making process has to be drawn up in a report.

A jury report shall be published or distributed to the participants and the public.

There shall be an exhibition of all entries and/or digital publication.

Rule 3. Independence of the jury

The jury shall be autonomous in its decisions or opinions. The jury designates a winner and awards the prizes. Where a particular professional qualification is required from participants, according to the Directive at least one third of the members of the jury shall hold the same standard of qualification as the participants and must be independent from the client. The jury shall examine the proposals submitted by the candidates anonymously and solely on the basis of the criteria indicated in the Design Contest notice. It shall record its ranking in a report, signed by its members. This report shall contain the merits of the projects and a clear recommendation on how to proceed with the result of the competition.

Rule 4. The brief

The Design Contest brief must be clear and unambiguous. Design Contest requirements must be clearly specified. There must be a clear distinction between mandatory requirements and non-binding guidelines. Mandatory requirements shall be restricted to the minimum necessary. Only proposals meeting these requirements are taken into consideration (cf. Vienna Declaration).

The jury must be named. The evaluation criteria must be stated in the brief. There must be a declaration from the client concerning the intention to commission the winning design. The brief has to be accepted by the jury before launching the competition. The material requested from entrants shall be limited to the minimum required for a qualified decision of the jury. Any extra material shall be deleted or covered.

Rule 5. Anonymity

Anonymity must be observed until the jury has reached its opinion or decision.



#### Rule 6. Prize money and remuneration

The prizes, the prize money or remuneration has to be fixed and announced in the competition brief. For the calculation of the prize money or the remuneration, there must be an adequate relationship between the required performance of the participants and the honoraria normally calculated for that task. In the second stage of a competition, a remuneration, which is a part of the total prize money, is paid to each participant in that stage.

#### Rule 7. Copyright

The copyright of the competition entry remains the property of the author. The promoter is entitled to make use of the winning entries under the conditions that are laid down in the brief or as agreed between the parties. (see also item 2).

#### Rule 8. Dispute resolution

It is recommended that any disputes concerning competition procedures are examined by the relevant national professional organisation before any recourse to legal procedures.

#### Rule 9. Participation of citizens

The public may be involved in the preparation of Design Contests, especially in the field of town planning and urban development (giving input regarding the needs, discussing alternatives, collaborating in the (general) definition of the programme). The public opinion may be considered by the jury during its decision-making process. However, the final decision remains with the jury.



### 3. APPENDIX 3 – Rules of the REHVA Student Competition 2018 (as basis for competition rules)

1. REHVA awards every year student work(s) from its member's countries.
2. The competing student's work should be based upon a bachelor or master's thesis or be of equivalent level. PhD theses will not be accepted.
3. The subject of each competing student's work is totally open, but it should be in, or linked, to the REHVA activities areas, i.e. indoor environmental quality, energy balance, heating/cooling/ventilation systems, building services, etc. (In case of any doubts, do not hesitate to contact REHVA at [info@rehva.eu](mailto:info@rehva.eu)). The methods used can be experimental, analytical, numerical, design, etc.
4. The work will either have been done by individual students or a team of no more than two students.
5. REHVA Member Associations may submit a maximum of one entry per country to the competition, having the care of checking carefully the compliance of the submitted work with the competition rules. It should be sent electronically directly to the chairman of the Education and Training Committee, prof. Manuel Gameiro da Silva at xxxxx with a copy to [info@rehva.eu](mailto:info@rehva.eu). The deadline for the reception of entries is Friday 16 March 2018, 20:00 CET. The submission should be done in the format of a scientific paper, with a maximum of 6 pages, following the attached template and including:
6. Title of the work, the name(s) of the student(s), as first author(s), and the name(s) of the supervisor(s), as second author(s), the affiliations of the authors, i.e. institute(s) with full institution address and e-mail contact(s), and year when the work has been accepted at the home university
7. All the documents and presentations must be in English and will be inserted in a publication disseminated by REHVA and delivered to the Jury members before the competition.
8. The applicants will present their work during the REHVA Annual Meeting that will be held in Brussels, Belgium, from 21 to 23 April 2018. Competing student(s) will present their work on Sunday 22 April 2018 in the afternoon and Monday 23 April 2018 in the morning and shall prepare for the competition:
9. 15 minutes' oral presentation of their work (15 slides maximum)
10. 3 paper copies of the 6 pages' paper
11. A1 size technical poster (vertical oriented) to be displayed at the competition room
12. The jury will meet after the presentations are completed and make its decisions. The jury may select up to a maximum of 3 entries for awards.
13. The winner(s) will be announced to all competition participants after the jury's meeting.
14. The winner(s) will be announced and receive their award in the closing session of the REHVA/ATIC conference on Monday 23 April 2018. The overall winner will present (maximum 15 minutes) the work at that time.
15. All participants and their institutions will receive a certificate for their participation.
16. The travel and accommodation cost for the participants will be covered by the participants, their Member Association, or sponsors.
17. The REHVA Student Competition Jury (RSCJ) has minimum 3 members. RSCJ chair is appointed every year by the REHVA Board. Other members of the RSCJ might be members of the REHVA Education and Training



Committee or other specialists suggested by Member Associations and nominated by the REHVA Board. There is maximum one RSCJ member from each country, in case of more nominations from one country, RSCJ chair decid





