

# REHVA 13<sup>th</sup> HVAC WORLD CONGRESS



## BUILT ENVIRONMENT FACING CLIMATE CHANGE



Source:  
<https://climate.nasa.gov/evidence/>

The planet's average surface temperature has risen about 0.9 degrees Celsius since the late 19<sup>th</sup> century, a change driven largely by increased carbon dioxide and other human-made emissions into the atmosphere. Most of the warming occurred in the past 35 years, with the five warmest years on record taking place since 2010. The number of intense rainfall events, extreme storms, hurricanes and tornadoes has been increasing since 1950. Nowadays, the real scenario is completed by the fast declination of the extent and thickness of Arctic sea ice (over the past decades), the increasing by about 30 percent of the acidity of surface ocean waters (since the beginning of the Industrial Revolution), the risen of the global sea level by about 20 cm (in the last century). Ninety-seven percent of climate scientists agree that the climate-warming tendency over the past century is very likely due to human activities.

The 13<sup>th</sup> REHVA Congress, CLIMA 2019, held from 26<sup>th</sup> till 29<sup>th</sup> of May in Romania, will address, under the heading "*Built environment facing climate change*", four

main topics - all related to the built environment, the biggest energy consumer of a given national or regional economy:

- I.** Modern HVAC&R&S Technology and Indoor Environmental Quality
- II.** High Energy Performance and Sustainable Buildings
- III.** Information and Communication Technologies (ICT) for the Intelligent Building Management
- IV.** Sustainable Urbanization and Energy System Integration

### Modern HVAC&R&S Technology and Indoor Environmental Quality

Over 90% of the typical human life is spent indoors. Many of us have adapted to the indoor realm as our "natural" environment IEQ encompasses indoor air quality (IAQ), which focuses on airborne contaminants, as well as other health, safety, and comfort issues such as aesthetics, potable water surveillance, ergonomics, acoustics, lighting, and electromagnetic frequency levels. All these IEQ parameters could not be optimized without advanced HVAC&R&S technologies. The buildings could not be refurbished without advanced HVAC&R&S technologies.

CLIMA 2019 proposed sub-themes are: *Criteria for thermal environment and ventilation; HVAC in residential buildings and schools; Demand controlled, hybrid and passive HVAC systems, Filtration, air cleaning and air distribution; Solar thermal*

*and PV systems; Heat pumps and refrigeration; Natural and mechanical smoke extraction systems; Water and wastewater systems and components etc.*

### High Energy Performance and Sustainable Buildings

Buildings shall be constructed and renovated with an appreciation of the importance of providing high-quality and sustainable interior environments, with minimum costs for all users.

A building design is deemed to be cost-effective if it results in benefits equal to those of alternative designs and has a lower whole life cost, or total cost of ownership. For example, the HVAC system alternative that satisfies the heating and cooling requirements of a building at the minimum whole life cost, is the cost-effective HVAC system of choice. Components of the whole life cost include the initial design and construction cost, on-going operations and maintenance, parts replacement, disposal cost or salvage value, and of course the useful life of the system or building.

We suppose that CLIMA 2019 sub-topics as: *Low and zero energy building case studies; Predicted and real energy performance of buildings; Energy performance requirements, compliance assessment and cost optimality; Simulation models and predictive tools for the buildings HVAC, IEQ and energy; Building components and double skin facades; Occupant behaviour and energy demands in buildings; Future and Emerging Technologies (FET): Nano-, micro- and biotechnologies for buildings components and HVAC systems; Mandatory and voluntary certification and labelling schemes for new and existing buildings; Renovation of historic buildings* could attract an important number of researchers, industrials and young students.

### Information and Communication Technologies (ICT) for the Intelligent Building Management

Building management system (BMS) is a collection of software and hardware to seamlessly monitor and lead an important and vital part of a building. Task of this collection is constant monitoring of different parts of building and leading in way which performance of different parts of building together is efficient, undesirable usages decrease and pleasant and safe environment is created. Information and communication technology provides this needed infrastructure to immediately exchange information in long distances.

Today, the most part of the current technology in normal buildings is not smart, unfortunately. Innovative ICT is the key to future smart buildings as part of the truly sustainable built environment. Without substantial advances in ICT our buildings will continue to be poorly energy performant and of course, not sustainable at all.

That is why CLIMA 2019 has not neglected topics like: *New ICT-based solutions for systems and building automation; Energy Efficiency through behavioural adaption based on ICT solutions; Indoor Environment control with advanced BMS solutions; Sensors and methods to control and authenticate indoor environment; Advanced fault detection and diagnostics; Integrated BIM solutions for buildings and systems; Digitalization of buildings equipment etc.*

### Sustainable Urbanization and Energy System Integration

In 1900, 15% of a global population of 1.5 billion people lived in cities. At the end of the 20<sup>th</sup> century urban areas in the world have grown considerably. According to the Department of Economic and Social Affairs of the United Nations, in 1990 there were 10 so called "megacities" with more than 10 million inhabitants, representing less than 7% of the global urban population. By 2010, the number of megacities was 27, the population they contained grew to 460 million, and these agglomerations accounted for 6.7% of the world's population. Since 2008 cities host

more than 50% of the inhabitants of the planet with the share expected to increase up to 67% by 2050. Furthermore, cities are located on less than 5% of the Earth's land surface and yet use around 80% of the resources, and are responsible for approximately 80% CO2 global emissions. Sustainable urbanization means reducing energy use in cities by managing the way energy flows into, through and out the city.

With justified interest in this area CLIMA 2019 will contribute by offering opportunity to researchers and experts in this field to present their work on subtopics like: *Grid interaction of nZE, green and passive buildings; Architectural design integration; Health, demographic change and wellbeing; Energy management and distributed energy systems (heat and power generation, district heating and cooling); Innovative heating and cooling solutions using geothermal energy; Large scale and seasonal thermal storage; Smartness indicators; Demonstrating innovative nature-based solutions in cities etc.*

The venue of CLIMA 2019 will be its capital Bucharest which is the 6<sup>th</sup> European town in population terms and the largest city of Romania. It is a beautiful and very alive Romanian cultural, industrial and financial center, offering historical or modern conference venues, very cozy hotels, appealing restaurants, robust infrastructure and a lot of quite unique places like traditional museums, recreational green areas and genuine "shopping arcades". Bucharest is known as the most prosperous city in Romania (the living level is over the EU average) and it is one of the main transportation hubs of Eastern Europe. So there will be no concern about your arrival at the congress location. We are convinced that all CLIMA participants will be charmed by Bucharest urban diversity and kindness of its inhabitants.

The proposed main topics for the 13<sup>th</sup> CLIMA Congress will put into discussion the capacity of the new or existing refurbished

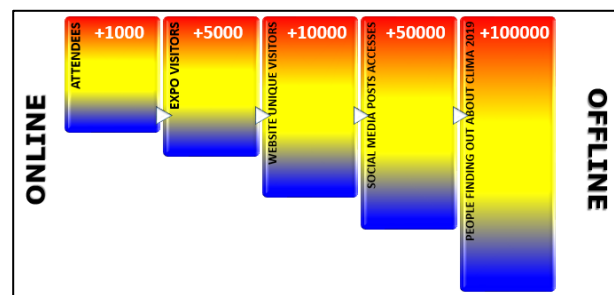
buildings together with their technical systems, especially HVAC&S&R, to counteract in an energy efficient manner the climate changes in order to keep inside an optimum comfort, simultaneously with the security of occupants.

Some expected figures of CLIMA 2019 congress are the following:

- more than 100 CLIMA 2019 ambassadors and 50 partners promoting this event worldwide;
  - more than 1000 attendees (researchers, engineers, architects, students asf);
  - more than 750 papers (with a special care for the selection of those to be published in like Scopus or Web of Science indexed journals).
- more than 20 technical and scientific workshops.

You can find more details on our website [www.clima2019.org](http://www.clima2019.org) or ask for more information at our e-desk found on [info@clima2019.org](mailto:info@clima2019.org).

Partnerships have always been a key element of marketing strategies for successful brands. For us partnership with your institution is a highly effective way to get our cooperation seen, heard and talked about by your target audience as well as a broader audience.



Here are only few reasons for getting a cooperation agreement with CLIMA 2019 organisers:

- **The congress provide a targeted audience** (event provides you access to an invested, enthusiastic audience of more

than 1000 attendees and probably more than 10000 visitors of the exhibitions of posters and products which will have free access).

- **Potential for data capture is immense** if you are present at CLIMA 2019 where your target audience is present; you will create an immense potential for data/lead capture. A creatively designed engagement tactic, possibly integrated with social media, mobile apps, or experiential technologies like RFID and geofencing could mean access to target data and analytics help you shape or promote your publication.
- **You will leverage the media coverage** as CLIMA 2019 will receive the most vast promotion on social media, digital media, press circles and traditional media, reaching the most broader audience since its appearance in 1975.
- **Build credibility and get brand recognition** by choosing CLIMA 2019, which allows you to associate your brand with other reputed brands in the market;

you can elevate your brand perception and image enormously, taking advantage of a great way to emerge or acknowledge as a credible business in our target audience's minds; your logo will be seen on the event site and on selected promotionals.

- **Get a chance to know other media providers or future clients** because networking is probably one of the best aspects of our congress; as one of the CLIMA 2019 partners, you'll get to meet decision makers or fellow editors and companies that you can do business with in the future.
- **Give back to the scientific community** getting to establish goodwill and showing the community that you're a reliable promoter that's able and willing to support all things local; think of partnership as a way of giving back to the technical and scientific community and thanking them for their support.



**REHVA 13<sup>th</sup> HVAC World Congress**  
26 - 29 May, Bucharest, Romania