Press Release

Sapienza University of Rome presents its project of house of the future competing in the Solar Decathlon Middle East 2018 in Dubai

At Microsoft House the curtain was raised on the finalist Italian team that will be participating at the university sustainable architecture Olympics. The technological innovation opens new perspectives for not only a smart, but even more green house.

November 13, 2017 – Today Microsoft House hosted the event for the presentation of the house of the future prototype **"ReStart4Smart"** by the **Team from Sapienza University of Rome** competing in the **Solar Decathlon**, the university sustainable architecture Olympics that, in 2018, will be hosted for the first time in the Middle East in Dubai with the participation of 21 Athenaeums from 15 countries from around the world. The main objective of the international competition, that sees the students as protagonists, is to design and build the best full-scale prototype of the house of the future: **green, smart and completely powered by solar energy.** A hard task, for which Team Sapienza found in the new technologies valid allies, thanks to the collaboration with respected IT players, among which Microsoft, that opened the doors of its own location for the finalist Italian project presentation.

Team Sapienza's **Smart Solar House**, entirely made of wood, will be built and tested in Pomezia near Rome starting next December to be then transported to Dubai in the competition site where, in November 14-28, 2018, furnished and fully functioning, will be exhibited to the public along with the other competing houses and evaluated by an international jury on the basis of 10 contests (hence the name Solar Decathlon): architecture, construction system, energy efficiency, renewable sources, internal comfort, devices functionality, electric mobility, environmental sustainability, communication and technological innovation.

Through a revolutionary approach defined as **Architecture 4.0**, the project by Sapienza aims to apply and test the most advanced tools, materials and technologies now available in the construction industry with the purpose of building a sustainable house able to respond to the heavy demand of efficiency, comfort, safety and affordability set by the 21st century Architecture.

Exploiting the huge and not yet explored potentials offered by digital modeling (BIM), mixed reality (virtual reality and augmented reality) and 3D-printing, the project will balance typological, construction and technological aspects focusing on design and innovative materials (XLam, Aerogel, PCM, Cool colors), renewable sources (OPV, LSC, Energy storage), as well as the latest generation systems and Home Automation devices and equipment (heat pump, smart lighting, smart kitchen, virtual assistant).

The overall objective of ReStart4Smart project will be pursued through four different levels, or four pillars, hence the number 4 characterizing the name:

- a typological level **(Smart Shape)**, related to the shape and orientation of the building, the positioning and sizing of the openings and the distribution of interior spaces in order to encourage natural lighting and ventilation, the use of renewable energy and the reduction of energy demands;
- a technical-construction level **(Smart Envelope)** concerning both the characteristics of the structure, in order to maximize resiliency and flexibility and reduce construction costs and time, and the thermo-hygrometric characteristics of the building envelope in order to reduce energy needs and maximize the levels of thermal, acoustic and visual comfort;
- a technological level **(Smart Systems)**, favoring the use of high efficiency system solutions, water recovery and treatment, the integration of renewable energy sources and the use of advanced building automation systems and Internet of Things (IoT), in order to minimize the impact on the environment and to maximize the internal comfort levels;
- a socio-cultural level **(Smart People)** through the training and direct involvement of users who, thanks to the use of home automation systems, will be able to better and consciously manage energy consumption and comfort levels.

The Team from Sapienza is composed of over 50 of the best students and PhDs from the three **Faculties of Architecture, Civil and Industrial Engineering and Political Science, Sociology and Communication**, coordinated and supported by the teachers from the different academic areas involved, and constantly committed in a rigorous training, research, design and experimentation process aiming to enhance the excellence and ingenuity of Italian young talents.

Given the importance and the goals it means to achieve, Team Sapienza's project, patronaged, among others, by **MIUR and MIBACT, is fully supported by over 30 leading companies** that, as partners, actively collaborate to this initiative in order to guarantee the individuation of the most innovative solutions and the diffusion on a wide scale of the results that will be achieved: *Construction system*: Canducci1940, Soltech, X-LAM Dolomiti; *Building envelope*: AMA Composites, Caparol, Tekla; *3D printing*: WASProject; *Interiors*: Catalano, Luxury Living Group, Flessya, Forme d'Acqua, Margaritelli, Verde Profilo; *Home appliances*: Technogym, Whirlpool; *Systems*: Climaveneta, Enel, Philips Lighting, Viega, Redi, Schneider Electric; *Renewable energy*: Eni; *Building Automation*: Atos, Ilevia, Vimar, Softjam; *Cloud computing, IoT and Mixed Reality*: Microsoft; *Building Information Modeling*: BIMon, Graphisoft, TeamSystem, Spea Engineering; *Monitoring*: ENEA; *Logistics*: Cefme-CTP, Kuehne+Nagel; *Communication*: Linfa, DEI Tipografia del Genio Civile, Nastro Azzurro.

In particular, the significant partnership with Microsoft Italia, in addition to hosting the ReStart4Smart project presentation event, has contributed to the team success thanks to its technology, and is currently collaborating with Sapienza within a wider programme for the renovation of the educational offer that the first University of Rome, and in particular the Faculty of Architecture, aims to take forward in the next years. The main purpose is to

empower the informatics tools available to the students and to introduce and experiment innovative digital ways of education provision as a support to the teaching and research activity, benefiting from Microsoft Student Advantage and Azure for Research programmes.

Starting next January up to the first half of July 2018, the Solar House prototype by Sapienza in construction will be visitable and open to the public with the purpose of making it a permanent laboratory for the information and training on the themes of sustainable architecture, conscious use of energy and integration of renewable energy sources in buildings.

Team Sapienza Solar Decathlon Middle East 2018

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