

CURRICULUM VITAE PROF. LUIGI SCHIBUOLA

Luigi Schibuola obtained the degree in mechanical engineering at the University of Padoa. He was employed in the Department of Applied Physics in the Faculty of Engineering of the University of Padoa first as researcher and then as associate professor. Since 2002 he is full professor in the Faculty of Architecture of the University IUAV of Venice where he teaches Applied Physics in Buildings and Thermotechnical Plants.

In the field of the standardization he participates in the activities of the Italian Thermotechnical Committee (CTI/UNI). He is member of the Sub-Committee 1 “Heat transmission and Fluid dynamics” and 5 “Air Conditioning and Refrigeration” where he is working about the development of the energy standards connected to the Italian laws for the energy certification of buildings. Prof. Schibuola was the responsible of the elaboration of the Italian standards UNI 10963 and UNI 11135 about the assessment of heat pump performances. He is also member of the Working Group 6 of the Technical Committee 89 of the European Standardization Committee (CEN). He was responsible of the policies about building and sustainability in IUAV University from 2003 to 2009.

Prof. Schibuola was the leader of the research team of the the Institute of Applied Physics in Padova about the topic “Energy performances of building-plant system“ since 1987 to 1996 and responsible of research funds MURST 40% and 60%. He participated to national research project COFIN 98 and PRIN 2000 about the simulation of building-plant system. It was responsible for the University of Padoa of a scientific and technical contract with ENEA on the theme “Analysis, by numerical simulation, of building-plant system”. He was responsible of the European research project CRAFT “Advanced Software System for Energy Management of CHP plants” (acronym SOSYEM) about the development of a software for the optimized management of cogeneration plants of small and medium size to be installed in buildings. Prof Schibuola was responsible of the research unit of Venice in the mainframe of national research program PRIN 2003 “Development of procedure to evaluate the seasonal energy performances of the components of a climatization plant on the basis of their interaction with the building” and in the mainframe of PRIN 2006 of the research project “Procedure for the energy certification of the building-plant system: local testing and finishing”.

The research activity of prof Schibuola was in the beginning devoted to the utilization of the alternative energies, especially solar energy, and to the energy saving in buildings. Afterwards it has been extended to the study of the behaviour of the building-plant system referring both to the calculation methods of the building energy requirement and to the performances of the climatization plants especially the innovative or special ones. Besides the modellization, the research activity has been addressed to the energy optimization of building plant-system introducing high efficiency systems for the production of the required energy, heat and cold, and for the internal climatization plants. Finally great attention has been devoted to the management of the plants in terms of the correct choice of the working parameters of the machines and of the internal termohygro-metric conditions to be maintained. Furthermore prof. Schibuola has

studied the realization of supervisory systems for a complete control of the climatization plants.

In the research organization of the University IUAV he is the coordinator of the research unit “Energy and the City” which operates about the previous topics..

A fundamental aspect of the research activity of prof. Schibuola is connected with the conservative restoration of historic buildings in cities like Venice. In this case the monumental protection laws don't permit often to operate effectively in order to reduce the heat losses of the building by the increasing of thermal insulation of the envelope. To obtain good energy performances of the building-plant system is therefore necessary to get particular care to the realization of plants with high energy efficiency. Prof. Schibuola is engaged in the analysis of the possibilities and the problems about the installation of heat pumps, condensing boilers, daily heat storage, cogeneration systems in these types of buildings.

Prof. Schibuola operates as consultant and designer for construction companies and professional firms both in residential and tertiary field. Among all, three significant cases are here reported as examples of intervention on historic buildings in Venice.

The recovery of two ancient warehouses in the harbour of San Basilio with their transformation into modern university buildings in an area subjected to the maximum environmental and monumental protection. The project was influenced by the demand from the users of a high occupancy in the classrooms. At the end each building is designed for 1620 students in the classrooms to whom we must add the teaching and service staff. These demand requirements and the strong constraints have not prevented to realize plants careful to energy saving and cost management. In particular the realization of a variable ventilation system controlled by the real occupancy in each classroom, the alternative use of condensing boilers and heat pumps on the basis of an automatic economic analysis operates by the supervisory system which is also directly accessible to the building manager in order to control and fix the internal conditions in each classroom. The project was awarded under the national competition organized by AICARR (Italian Association for Air Conditioning, Heating and Refrigeration) for the innovation and rationality of the project. The cost of the work was about 8 millions Euro.

Prof. Schibuola has drawn up the preliminary, defined and executive project of the plants in the recovery of the former Convent of Crociferi (ex Barracks Manin). This is a vast complex which includes the creation of a student residence with 177 apartments for students, a residence with 32 municipal social housing accommodation, an area with community services (café, bar, restaurant, gym, computer room, etc..) opened to the city. The plant design foresees a trigeneration plant, a heat pump using the lagoon water as renovable heat source, a daily heat storage realized with water pools to produce and storage heat and cold in the night in order to take advantage from the low electricity price in the night and week-end. At this moment prof. Schibuola is the project manager. The cost of the work is 22 millions Euro.

Prof. Schibuola has drawn up the projects of the new plants in relation to the planned maintenance of the former Convent of Tolentini, South wing. The design regards the restoration of the assembly hall of the university and the transformation of the classroom on the floors C and D for the expansion of the library. The complete rebuilding of the

climatization plant foresees also the installation of a geothermal plant with vertical probes in the garden of the palace. The cost of the work is about 5 millions Euro.