CIVIL AND ENVIRONMENTAL ENGINEERING

DIATI - Nature-based solutions for water management at building scale

Funded By	Dipartimento DIATI
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Context of the research activity	The research aims to evaluate the water-related benefits arising from the development of a network of nature-based solutions that can be installed in buildings or in their close proximity, such as green roofs, green walls and green courts, towards the creation of more sustainable and resilient cities.
Objectives	The research activity will include data collection on laboratory pilot systems and ecohydrological modelling of the underlying processes. It will be deepened how hydraulic and hydrological processes are governed by infiltration, evapotranspiration and drainage; particular attention will be given to the key drivers of retention capacity. Results from field observations will be used to build an ecohydrological model able to represent the ecological and hydrological processes acting within green roofs, walls and courts. The model will be calibrated and validated using field data collected in the case studies. Lastly, long-term simulations will be implemented to test the efficiency of the proposed model, in order to take into account the effect of seasonality. (Progetto finanziato nell'ambito del PNRR M4C2, Investimento 1.1 “Fondo per il Programma Nazionale di Ricerca e Progetti di Rilevante Interesse Nazionale (PRIN)" D.D. n. 104 del 2 febbraio 2022, Bando PRIN 2022, "CLimate-changE-resilient cities Via Extensive and Rational use of nature-based solutions (CLEVER)" CUP E53D23004480006)
Skills and competencies for the development of the activity	Programming skills (e.g. Matlab, Python), basic knowledge of hydraulics and hydrology, and inclination for laboratory activities are required. Experience in issues related to hydrological processes in green infrastructures are desirable but not mandatory, as for 1the previous experience in laboratory. A good knowledge of the English language is mandatory.